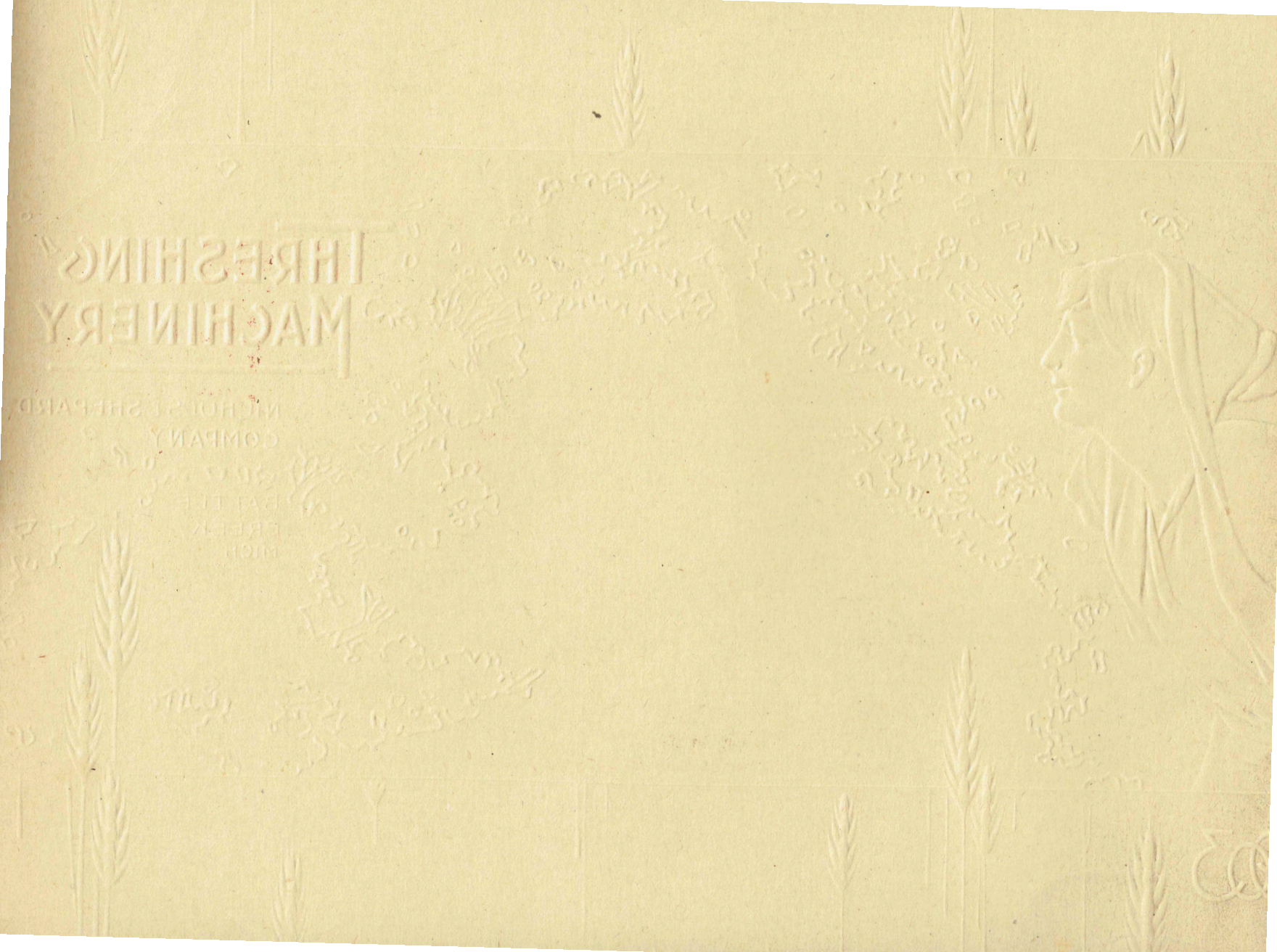
THRESHING MACHINERY

NICHOLS & SHEPARD COMPANY

BATTLE CREEK, MICH.

1903



Fifty-five Years of Continuous and Successful Business without Change of Name, Location or Management.

Threshing Machinery

ANNUAL CATALOGUE

ILLUSTRATING AND DESCRIBING THE THRESHERS, ENGINES, HORSE POWERS, STACKERS, FEEDERS, WEIGHERS, MEASURERS, ETC., BUILT BY

NICHOLS & SHEPARD COMPANY

Battle Creek, Michigan, U. S. A.

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MILWAUKEE, WIS.;
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BATTLE CREEK, MICH.
PRINTERS, ENGRAVERS,
ELECTROTYPERS.

To Threshermen.

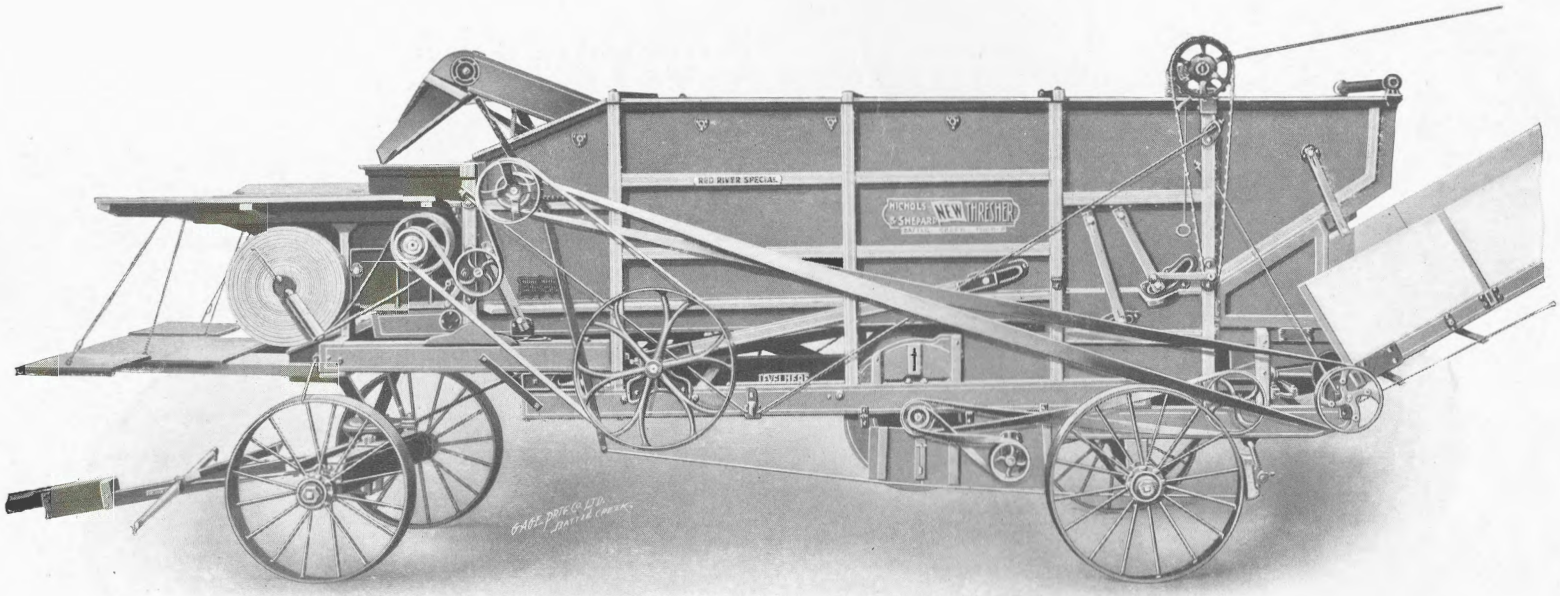
Age is the criterion of success—the fittest survive. This rule, to the operation of which is ascribed created things, applies with equal force to the creations of man. Age is the criterion of success from a mechanical standpoint, but it must be an age every year of which has been spent in earnest and intelligent effort in the line of advancement; an age in which every success has been a stepping-stone towards other and more pronounced successes.

The Nichols-Shepard **Red River Special Separator** is an admirable illustration of these truisms. It is the creation of genius, not as embodied in one great creative mind, but the genius developed by the critical study and practical experience of a full half-century spent in constructing threshing machinery. The Nichols & Shepard Company has passed the period of experiment; its inventors and designers are pursuing a post-graduate course in the great school of mechanical construction; have produced the best machine possible under the present state of scientific knowledge and the highest attainable modes of development and construction.

The following pages are addressed to the ultimate judges who must pass upon our machinery, in common with that of our competitors, to *practical threshermen* who know a threshing machine as they do their fingers, and can fully appreciate the points of decided superiority therein demonstrated over any and all of our competitors and imitators. We appeal to the reason, calm judgment and practical experience of the great jury of threshermen, and confidently expect a verdict.

In the construction of threshing machinery that will thresh, thresh rapidly, economically, and without wasting grain, we are distinctly in the lead, and will not stop to permit others to overtake us, much less pass us.

NICHOLS & SHEPARD COMPANY.



NICHOLS-SHEPARD RED RIVER SPECIAL SEPARATOR

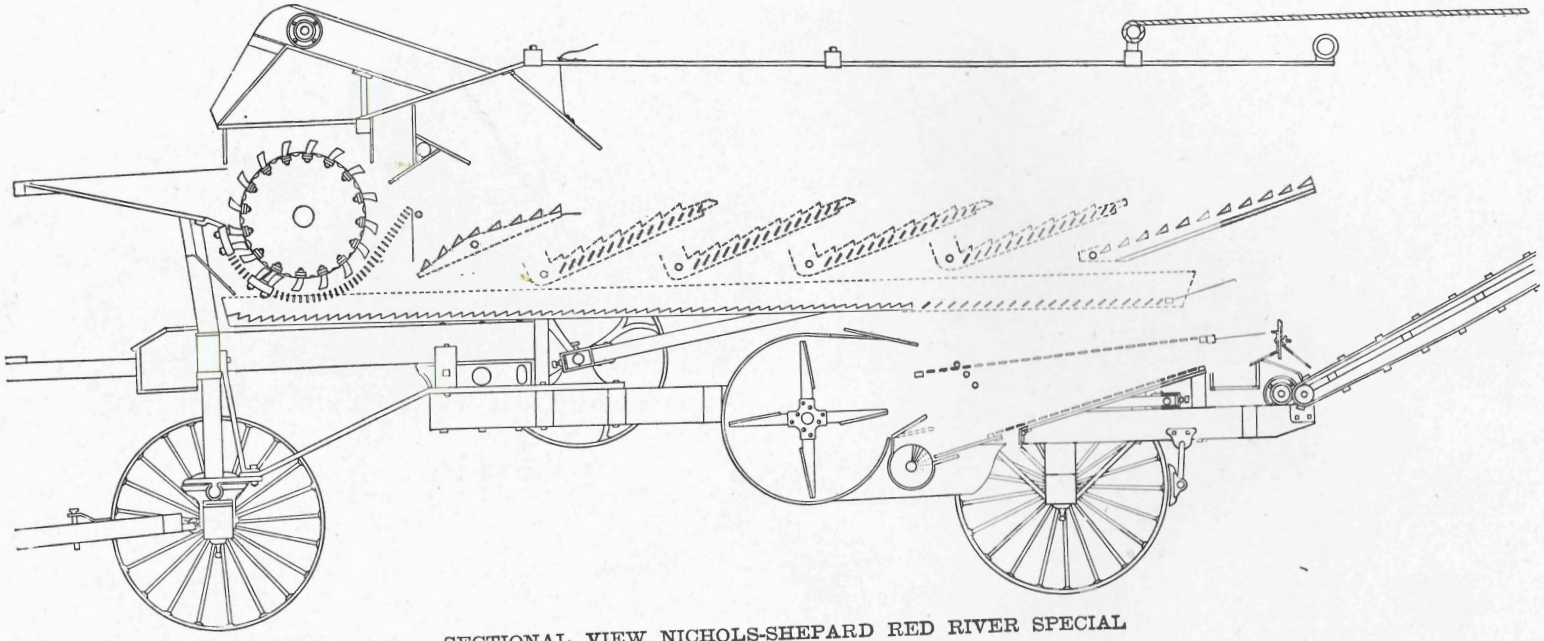
Nichols=Shepard Red River Special Separator.

From start to finish—from where the feeder stands to the place where the stackers receive and dispose of the straw and chaff, the Nichols-Shepard RED RIVER SPECIAL SEPARATOR is perfect in detail, with every detail so combined and harmonized with every other as to constitute one complete, practical machine reflecting intelligence in its every motion; instead of a combination of machines, more or less loosely effected, and consequently liable to derangement and annoying stoppages and delays, as is the case with many separators now offered to the thresherman.

Of all these details, the result of more than half a century of study, invention, experiment and practical demonstration, the large cylinder, now used in all Nichols-Shepard Threshers, is the far most important, being in itself amply sufficient to place them in distinct lead of all the threshers now made. To write the history of this cylinder, which is revolutionizing the construction of threshing machinery, is to write the history of the greatest improvement ever made in this most important branch of human invention.

Up to the time, several years ago, when Nichols & Shepard Company, always on the alert for improvements, conceived the idea of greatly increasing the capacity of threshing machines by employing a large cylinder, those in universal use were about sixteen inches in diameter, with from nine to twelve bars and less than one hundred teeth, and weighed, according to the width of the machine, from five to six hundred pounds. So long had this "regulation" cylinder been used that it had become the basis upon which all machines were built. From this "regulation" cylinder Nichols & Shepard Company made a sharp departure, and, as a result of long and practical experiment, produced a sixteen-bar cylinder nearly thirty inches in diameter from the outer ends of the teeth, weighing over 900 pounds and armed with one-half more teeth.

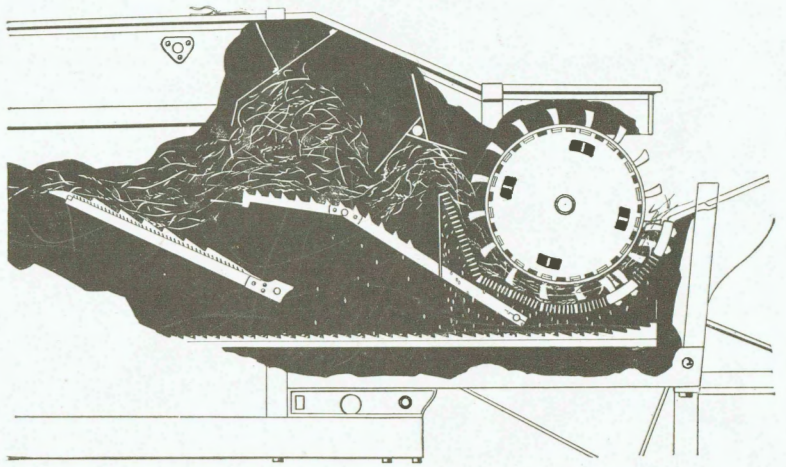
The enormous advantages of this construction are self-evident to a thresherman. The greater weight and larger size of this cylinder decidedly increases momentum, imparting a steadiness of motion and greatly diminishing the bad results of slugging incident to bad feeding or wet grain, while the greater diameter of the cylinder permits the use of nearly three times as much grate surface as the old-style small cylinder, thus increasing the separation at the cylinder and permitting the employment of a large number of concave teeth, of decided importance in threshing grain that has ripened too early, as some grains do throughout the western states. The increased diameter permitting the employment of drive pulleys from ten to fourteen inches in diameter in lieu of those from five to seven inches in the old-style construction. This is a great saving of power, since it dispenses with belt slippage and insures that steadiness of motion so essential to constant good work.



SECTIONAL VIEW NICHOLS-SHEPARD RED RIVER SPECIAL

These advantages were early gained, but a difficulty presented itself. Enlarging the cylinder necessarily developed centrifugal force, causing the grain to fly away from the cylinder back into the machine and into the straw and chaff, from which it must be again separated. Mechanical forces cannot be changed, but the company's inventors and expert mechanics solved the problem by devising a SEPARATING GRATE and CHECK PLATE, built in conjunction with the cylinder concaves and an arrangement of the beater in connection therewith, which catches the flying grain and compels it to drop into the grain-pan beneath. This splendid combination overcame every objection and difficulty incident to a large cylinder, and produced a machine with a capacity for fast and clean threshing never before attained by any thresher construction, and this only practical means for accomplishing the results is protected by "ground-floor" patents, both in the United States and Canada.

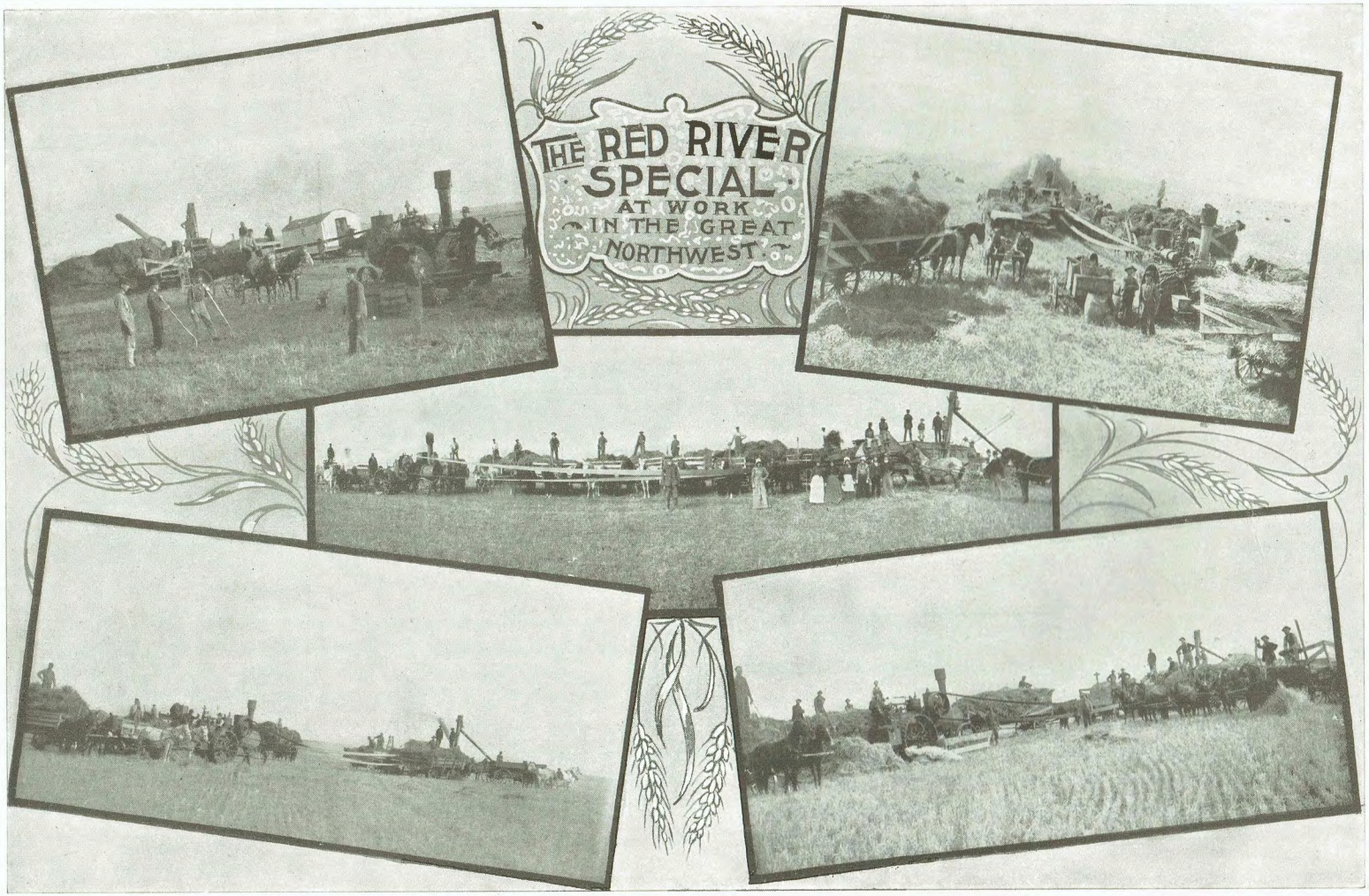
The next season a few of these new machines were put on the market, and met with such decided favor, proved themselves so immensely superior to all others, in use, that the entire separator product of the company for 1902 was constructed on the new lines. A machine of immense capacity and capable of doing absolutely clean work, while well adapted for the general uses of the entire country, seemed peculiarly made for the immense grain-growing sections of the northwest, and this suggested the name "RED RIVER SPECIAL."



Cylinder Separation by the Nichols-Shepard Red River Special

We knew the great power and other remarkable qualities of the new machine, and while gratified by the record it has made, the favor it has won and the brilliant prospects it has in store, were in no manner surprised thereby. We assured the thresher public that we had left all competitors behind, had constructed THE THRESHERMAN'S THRESHER, yet thousands of delighted purchasers and users during the season of 1902 testify to the merits of the RED RIVER SPECIAL in stronger terms than its builders ever cared or dared to employ. The wet weather of 1902 furnished one of the worst threshing seasons ever known in this country, yet those who employed the RED RIVER SPECIAL experienced no failures or disappointments, as would have been the fact with an old-style threshing outfit. What wonder that they praise a machine that brought them profit, where, without it, they might well have been subject to loss!

Success attracts! Leaders always have trailers. What wonder that the distinct and signal triumph of the RED RIVER SPECIAL has induced competitors to put imitations on the market in the form of large cylinder threshers! They can thereby increase the capacity of their threshers, but only have attained the point which we achieved years ago.


THE RED RIVER
SPECIAL
AT WORK
IN THE GREAT
NORTHWEST

Without our devices for maintaining cylinder separation, they lose in grain more than they gain in capacity. Thus the law of compensation deprives them of any substantial advantages over their antiquated methods, since practical threshermen are the ultimate judges and insist on a machine that will SAVE grain as well as THRESH it; that will stop the grain at the cylinder without stopping the straw.

Fast work, long work and good work are the threefold excellences of all threshers, and the last of these no purchaser can afford to ignore.

Possessed of a large and splendid equipment, we are able to produce, not only a large volume of machinery, but a quality of machinery that cannot be made by following old-fashioned, inadequate and slip-shod methods. Thanks to the latest and most improved machinery, we are not only able to build threshers that will thresh, but threshers that will continue to thresh long beyond the life of any other thresher made. Ours is not only the best but the most enduring.

To the peculiar and manifold excellences of the RED RIVER SPECIAL, as set forth in the following pages of detailed and accurately illustrated descriptions, and to the facilities we have for building along the most substantial lines, we invite the critical attention of threshermen, entirely confident that they will see in it many and decided points of advantage over any other thresher made.

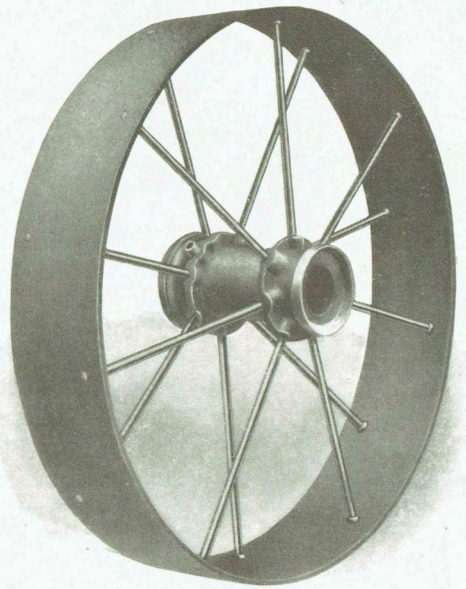
TRUCKS AND FRAME

A machine possessing the enormous capacity of the Nichols-Shepard RED RIVER SPECIAL separator, must needs have a solid foundation, and the trucks and frame of this machine are built with a special view to securing this, and that in the fullest attainable measure.

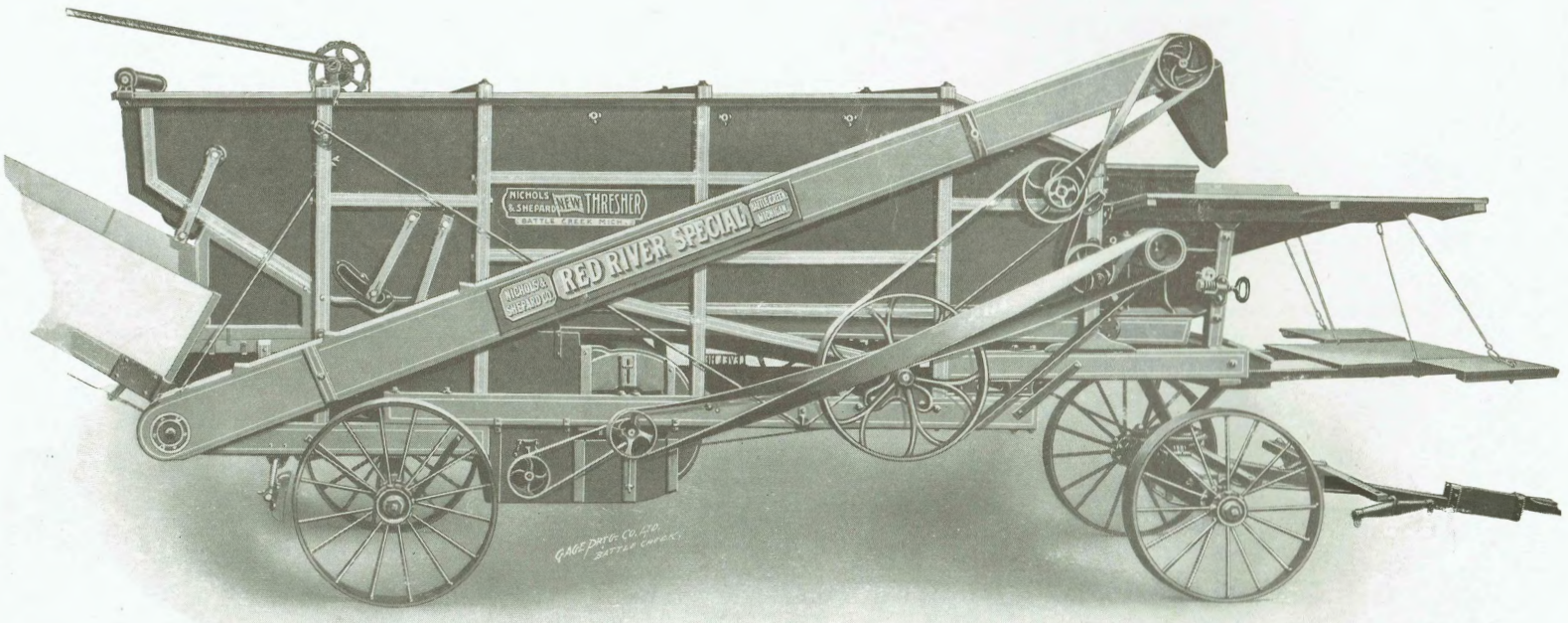
The axles are made of carefully selected, thoroughly seasoned timber, reinforced by an iron truss-rod running the entire length.

The same care is used in selecting the best thoroughly seasoned timber obtainable for the very important separator sills and frame. The joints—a weak point in slighted construction—are mortised and tenoned and made absolutely secure by joint bolts. To guarantee perfect protection from the weather, all parts are thoroughly painted before they are put together.

Absolute rigidity, under all conditions and strains, is imparted to the frame by strong iron rods extending the full length of the separator frame,



Truck Wheel



NICHOLS-SHEPARD RED RIVER SPECIAL SEPARATOR

Elevator Side

and cross-rods from sill to sill, also a strong iron truss-rod, which extends from the cylinder frame to the separator sill and thence to the rear separator post.

The front coupling and bolster support is the strongest that has ever been devised or constructed. It is a ball-and-socket joint like that of a traction engine, and steel bolster supporting the frame solidly above the front wheels. The front trucks are held securely in place by a strong iron reach-rod, while the ball-and-socket joint permits of their free movement. The front truck wheels are large in diameter, the same size as the rear wheels, which materially lightens the draft of the machine over bad ground. The machine can make very short turns, for the reason that the front truck wheels readily and safely turn under the sills and separator frame.

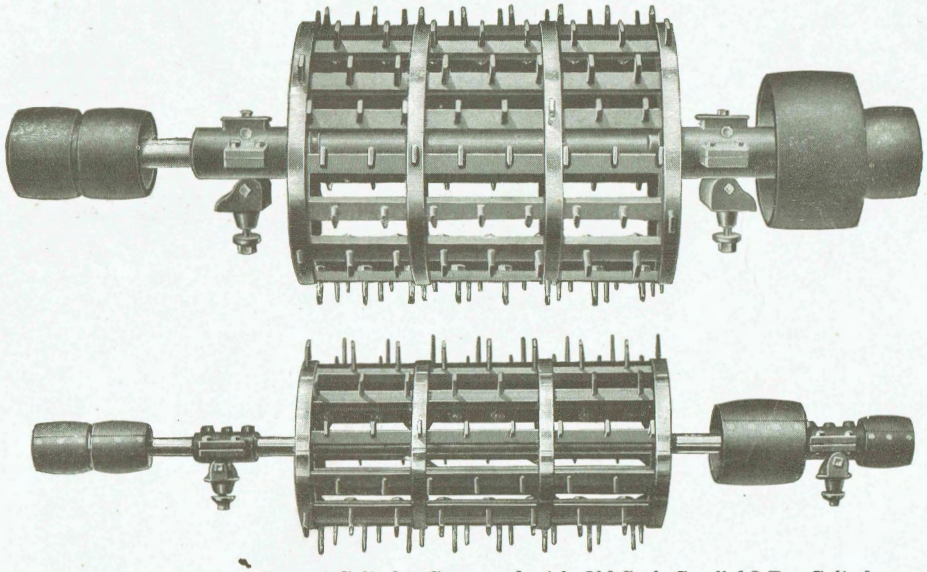
To make the outfit complete, an extra strong and heavy separator tongue is provided, jointed or solid, as desired; also substantial whiffletrees and neck-yoke.

THE CYLINDER

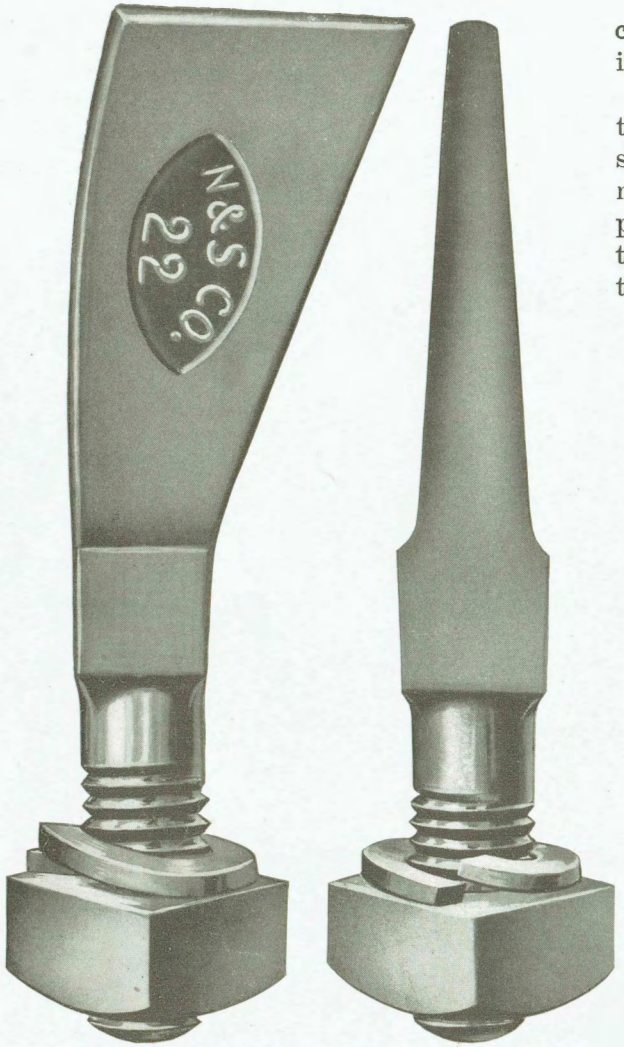
The cylinder employed in ordinary threshing machines, except where other manufacturers have attempted to imitate our new and marvelously successful construction, is of the stereotyped order, varying little from that made a generation ago. With them there is nothing to talk or write about except, perhaps, the point that they are of the most "fatherly antiquity."

With the cylinder of the Nichols-Shepard RED RIVER SPECIAL the case is entirely different, it being, among many original, exclusive and valuable features, the one of greatest importance, for which reason a full and exact description will be decidedly interesting to those threshermen who have never seen it in actual operation.

Those familiar with the old-fashioned, though generally used, sixteen-inch, twelve-bar cylinder, may learn with surprise that we employ one larger by one-half, being thirty inches in diameter, measuring the rotating



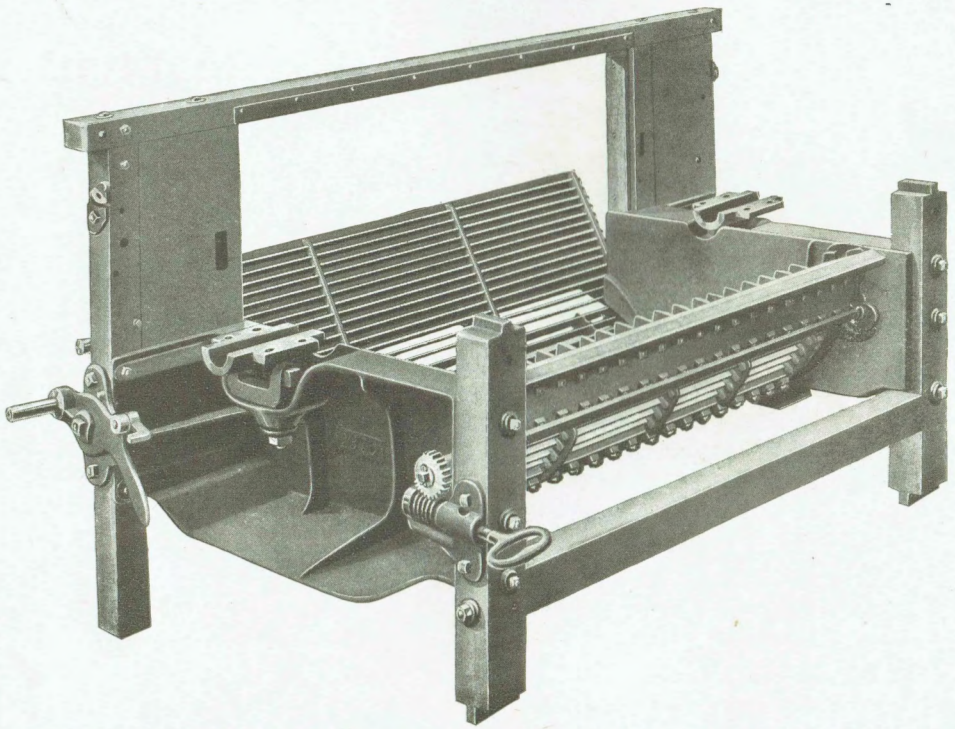
Large 16-Bar Red River Special Cylinder Compared with Old-Style Small 12-Bar Cylinder.



Nichols-Shepard Red River Special Separator Tooth
(ACTUAL SIZE)

circle formed by the teeth, which are one-half more numerous than those in the ordinary cylinder, and are set in sixteen double bars.

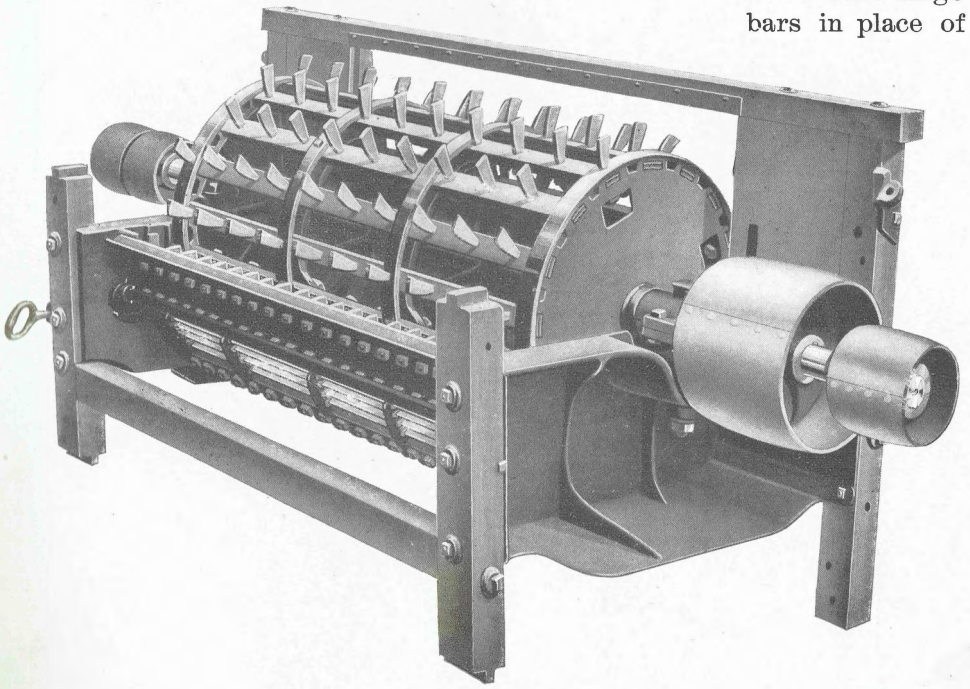
Describing a larger circle and with the greater weight behind them, these teeth move with greater force and momentum than the old-time small cylinder imparts under like conditions. To this is due the enormous threshing capacity of this cylinder. Between nine and ten hundred pounds, as against from four to five hundred pounds—this is the relation that the cylinder of the RED RIVER SPECIAL sustains to the cylinder of the ordinary thresher. The combined increase of diameter and weight



Red River Special Cylinder Frame with Concaves, Grate and Separating Grate in Place

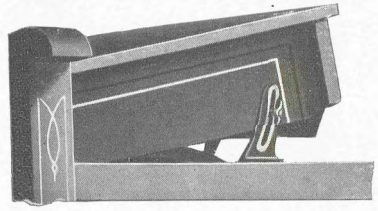
imparts great steadiness of motion, overcoming difficulties experienced in the past by over-feeding. Actuated by large pulleys, this great weight operates as a veritable balance-wheel, the steadying effects of which are felt to the remotest parts of the machine, imparting at all times a strong and steady motion to the separating shakers, an even movement to the mill and shoe, thus securing the best and most constant results attainable.

The cylinder shaft is large and of an extra quality of refined steel, and is supported by self-adjusting "pivot and swivel" boxes of exceeding length, giving the very best bearing for the cylinder journals possible and avoiding the difficulty of over-heating. The pulley for the main drive-belt from the engine hangs outside the cylinder box, so that there is nothing whatever in the way of putting on or taking off the drive-belt, avoiding the difficulty always heretofore experienced with the machines that have a yoke around the main drive-pulley, or, where the cylinder box or bearing is outside the pulley.



Red River Special Cylinder and Frame

This large and powerful cylinder, provided with sixteen bars in place of the twelve used in the old-style cylinder, is armed with our extra large cylinder teeth, the largest, strongest and most durable ever manufactured. The sixteen bars carry from 128 to 156 of these teeth as against ninety-six attendant to the old, stereotyped, twelve-bar, thirty-six-inch cylinder. Four equi-distant bars being arranged so that in bad conditions and tough grain the operator can insert extra teeth sufficient in quantity to thresh any grain from the head at any time and under any condition. Considered in connection with their greater sweep and the



Cylinder Cap

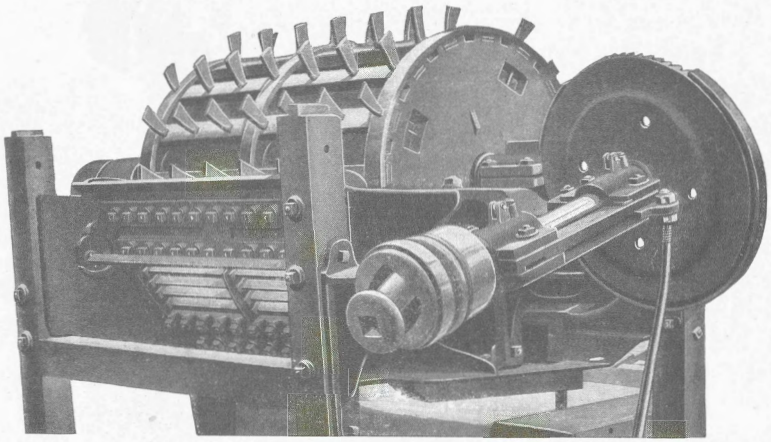
strong movement imparted by the increased weight of the entire cylinder, the causes of the immense volume of threshing accomplished by this machine become apparent.

The large pulleys which this cylinder makes possible to use, are of immeasurable profit to the thresherman. The saving of power by putting a stop to the old-time small cylinder belt slippage and irregular motion is cash money put right into the pockets of the thresherman.

The strong and heavy cast-iron sides of the cylinder frame are solidly attached to the cylinder posts by heavy flanges. This overcomes the tendency of the frame to get "out of square" and maintains the cylinder and concaves in their exact relative positions, a very important consideration. A reference to the accompanying cuts will show the solidity of the entire construction.

IMPROVED CYLINDER CAP

Our improved cylinder cap is used on the RED RIVER SPECIAL, being attached to the top of the frame by wrought-iron hinges which permit of its being thrown entirely back, thus giving instant and ready access to the cylinder and concaves, and that without interfering with the elevator spout.



Red River Special Cylinder for Horse-Power Machine

CONCAVES AND GRATE

Great cylinder separation is one of the strong, distinctive features of the RED RIVER SPECIAL. The immense size of the cylinder permits the employment of extra large and open concaves and grate, furnishing over three times the grate surface, and hence permitting and insuring over three times the separation at the cylinder of small cylinder machines.

Both concaves and concave holders are extra thick and strong. Our improved wrought-iron grates are used in connection with the concaves. Provided with ample openings, they permit the greatest possible amount of

cylinder separation. This is one of the strongest points of the Nichols–Shepard RED RIVER SPECIAL separator, and one that has made it justly famous.

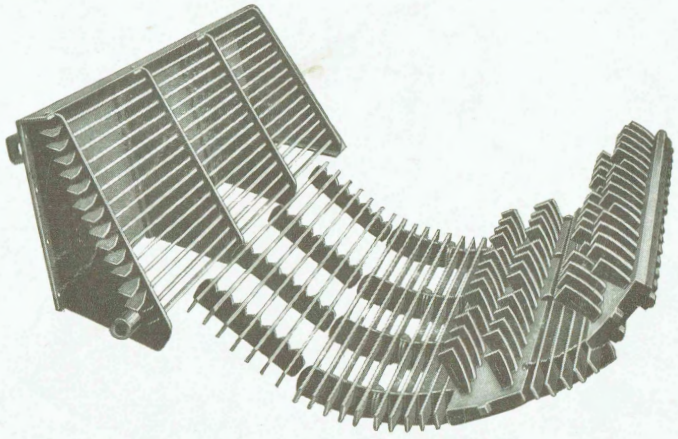
The accurate and speedy adjustment of the concaves is an important thing in a thresher. In the RED RIVER SPECIAL they are raised and lowered by an exclusive device of our own, which is actuated by a worm and gear. This is done without using a wrench or turning a bolt, by simply moving the handle to the right or left. This gives the operator instant and complete control, since, without stopping the machine, he can instantly open and close the throat and adjust the "thresh." Both ends are uniformly raised or lowered.

SEPARATING GRATE AND CHECK PLATE

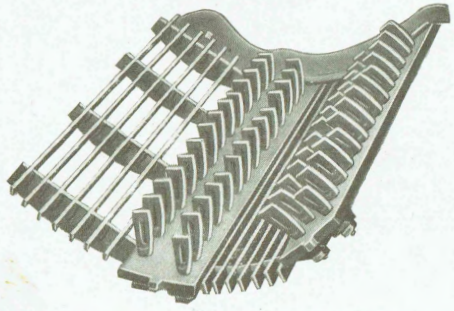
The stopping of flying grain at the cylinder, without impeding the course of the straw through the machine, has always been a puzzling problem in thresher construction, and this is greatly intensified when large cylinders are employed. This problem we, and we alone, among thresher builders, have *definitely, effectively and absolutely solved.*

Without this separating grate and check plate we could not employ the large and heavy cylinder with its sixteen solid bars and immensely strong and effective teeth; could not secure that peculiarly strong and steady motion that is important to every moving portion of the machine; could not make use of the immense grate surface, because, like all other machines on the market, the loss in grain sustained through throwing it back into the straw and chaff at the rear of the machine where it could not be again separated, would more than offset the gain of the increased threshing capacity.

This extremely simple, yet wonderfully effective device, which is entirely protected by American and Canadian patents, and is used in no other machine, consists of a wrought-iron grating, in effect a continuation of the concaves and grates. This



Red River Special Concaves, Grates and Separating Grate



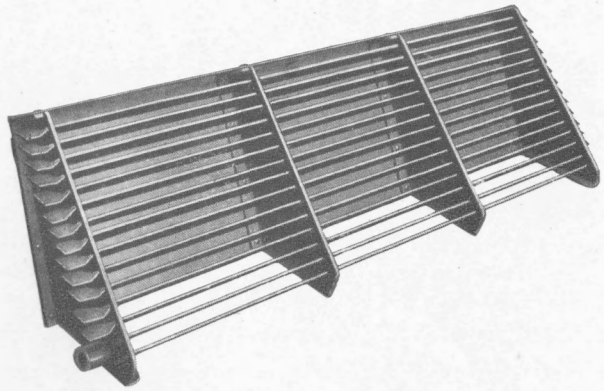
Old-Style Concaves and Small Grates

grating permits the grain to pass freely through, but stops the straw, which is carried over upon the shakers. Back of the grate is the solid iron check plate which stops all flying grain, which is given considerable velocity by the large cylinder, forcing it to fall into the grain pan beneath instead of being thrown among the straw from which it has just been separated.

By this advice, we successfully accomplish a result that all manufacturers of threshers have heretofore been unsuccessfully striving to attain. We stop the grain without stopping the straw, which passes freely out without collecting in bunches, from which the enclosed grain cannot be separated on its way to the stack, or winding about the cylinder and beater, thus stopping or impeding the motion of the machine.

Through the operation of the separating grate and check plate, nearly all of the grain is separated at the cylinder, caught by the check plate and delivered into the grain pan beneath, while the straw, entirely free from knots and bundles that waste grain in other machines, rapidly leaves the cylinder in a thin, even and continuous sheet, and passes over the shakers, which are so violently, yet systematically shaken that all the grain that has escaped the check plate is easily separated and secured.

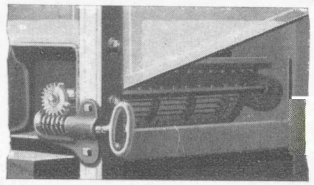
The chaff and grain separated from the straw fall from the concaves, grates and shakers upon the grain pan beneath, which rapidly passes it to the adjustable chaffer, the grain falling through to the mill below, and the coarse chaff and straw passing on over the extension into the stacker.



Separating Grate and Check Plate
Flagg's Patent Feb. 12, 1901, Reissue Feb. 4, 1902.

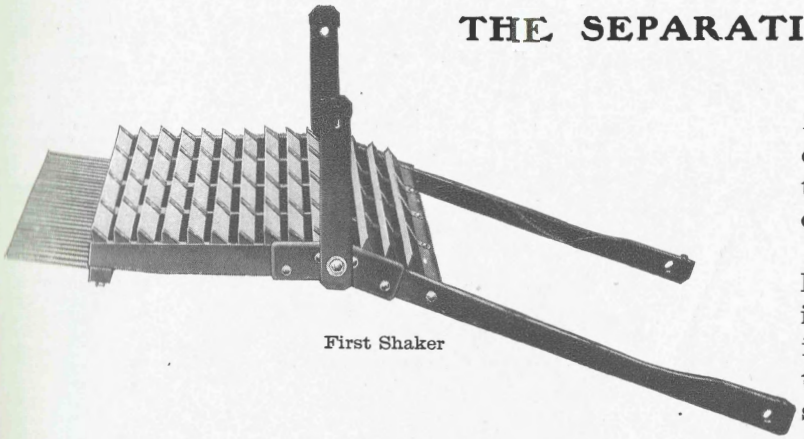
THE BEATER

The great, almost inestimable advantages received from the separating grate and check plate, used exclusively in the RED RIVER SPECIAL, are decidedly emphasized by the beater, which, operating in combination with it, accomplishes far more satisfactory results than the beater in any other machine. It consists of three steel wings, held firmly by solid cast iron heads to a steel shaft. By a peculiarity of construction and adjustment, the wings "cast off" the straw, neither winding nor clogging. It drives the grain, naturally tending to fly away from the large cylinder, down through the grate, which intercepts the straw, against the check plate and into the grain pan beneath. At the same time it rapidly and evenly carries the straw away from the cylinder. This beater, acting in connection with the separating grate and check plate, solves a long-studied problem of thresher construction. Practically complete separation at the cylinder.



Concave Adjuster

THE SEPARATING SHAKERS

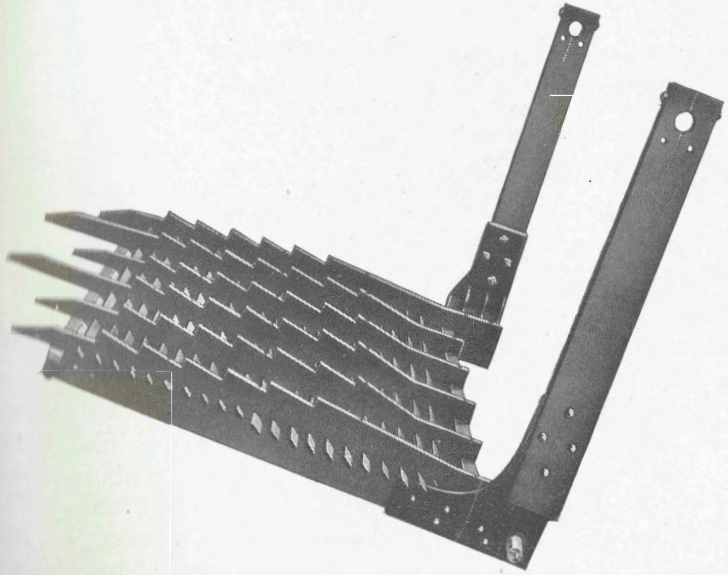


First Shaker

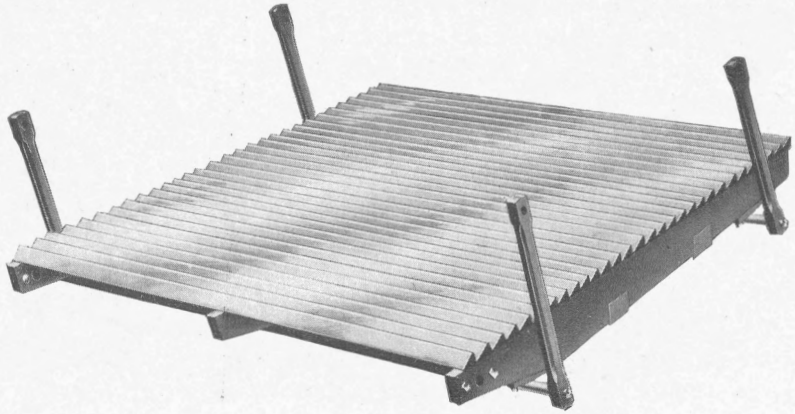
The separating shakers in the Nichols-Shepard RED RIVER SPECIAL are perfect in construction and entirely effective in their operation, and that despite the fact that they are less needed than in old-style machines effecting comparatively small cylinder separation.

These vibrating shakers have a peculiar forward, uplifting motion which carries the straw out of the machine in a thin, even stream produced by the loosening and pulling apart of all knots or bunches. This is accomplished by the violent agitation of the different shakers, which at the same time removes from the straw the small amount of grain that has escaped the separating grate and check plate, thus making the separation absolutely complete, saving all the grain.

The shakers are all suspended at the receiving end, while the forward, uplifting motion completely shakes out



Intermediate Shaker



Last Shaker

the grain which is carried to the sieves by the grain pan beneath, to effect which the last shaker is provided with a tight bottom. These shakers are supported by an extra heavy and strong frame, and are thoroughly bolted together by staunch iron rods and corner irons.

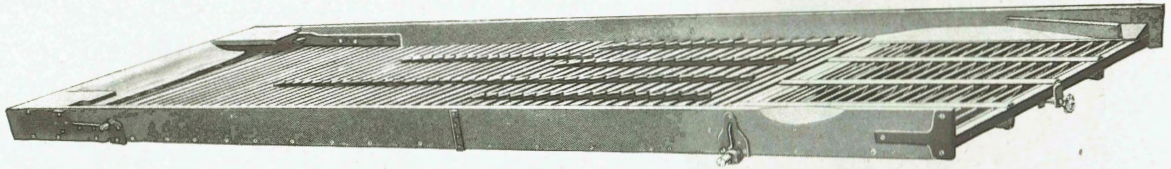
It will be noticed that there are no pickers, raddles, forks, kickers, or other complications to be continually tinkered with, or to bunch up the straw and thus prevent thorough separation.

Like the beater and check plate, these shakers require no adjustment, and this important circumstance enables the beginner, even, to obtain entirely satisfactory results from the Nichols-Shepard RED RIVER SPECIAL SEPARATOR.

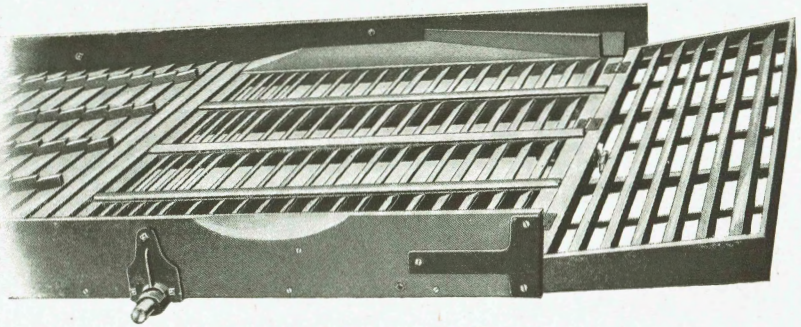
GRAIN PAN

The grain pan swings under the separating shakers, extending well under the concaves and cylinder, thus catching the large amount of grain separated at that point. It admirably performs the double duty of separating the coarse chaff from the grain and conveying the latter to the sieves.

Corrugations on the bottom of the grain pan carry the fine chaff and grain rapidly to the sieves.



Red River Special Grain Pan



Adjustable Steel Chaffer, with Extension

ADJUSTABLE STEEL CHAFFER

This valuable adjunct to the sieve consists of an adjustable metal slat extension firmly placed at the rear end of the grain pan. It is so constructed that the openings can be increased or diminished in size and while the machine is in motion. This enables the operator to regulate the amount of chaff and straw going down onto the sieve, and permits a large portion of the short straws and coarse chaff to be blown over the end of the grain pan and chaffer, as the inter-

mingled chaff and grain pass along, while the grain falls through to the sieve beneath. An extension projects out from the rear of the adjustable chaffer, relieving the sieves of all coarse straw, weeds, etc. This relieves the sieve of much of the work formerly put upon it, the grain reaching the sieve in a comparatively clean condition.

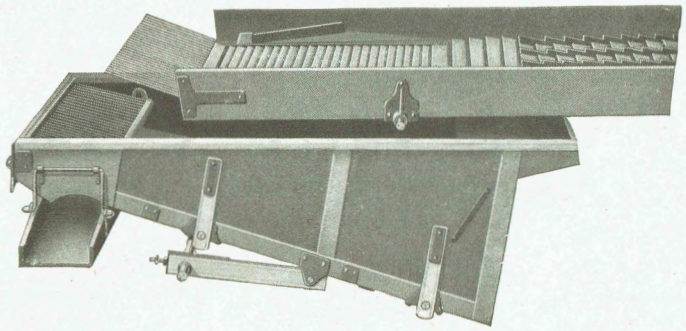
THE FAN

The fan is an over-blast, but so constructed that the blast can be directed both above and below the sieves, and is adjustable by use of the wind board, so that more or less over-blast or under-blast can be given upon the sieve, as conditions may require.

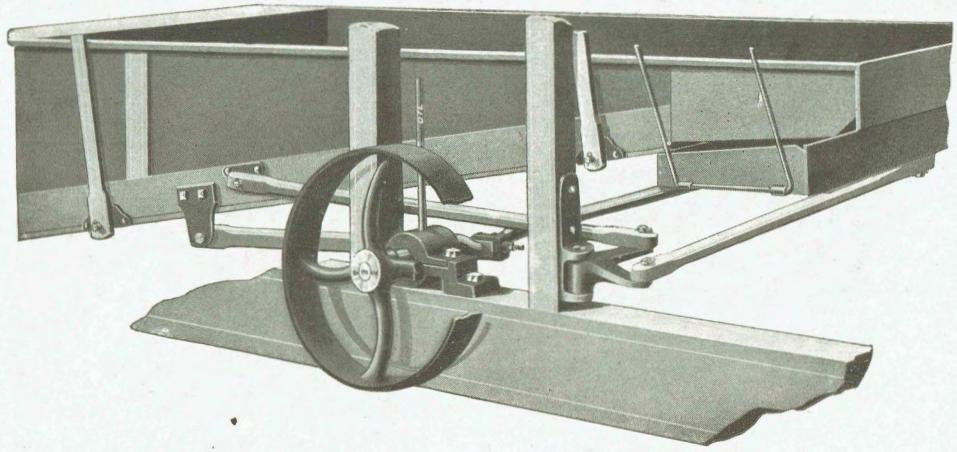
The fan is constructed so that the blast is even the full width of the shoe, and has a large steel shaft with adjustable babbitted boxes. The fan housing is of sheet steel. Wind blinds are placed both above and below the separator sill.

THE WIND BOARD

The threshing and cleaning of many different grains in one machine necessarily raises different conditions, and the wind board which enables the thresherman to instantly deflect the blast to the front or rear of the sieves, as may become necessary, greatly aids in overcoming the resulting difficulties.



Shoe



Shoe Driving Device

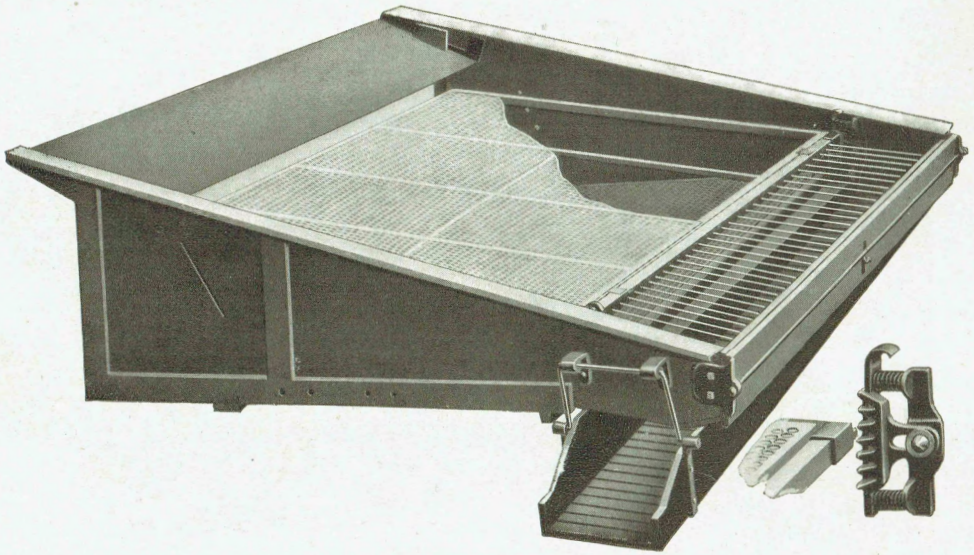
THE SHOE

The shoe, an end shake of our own special design, performs the important function of agitating the sieves. It receives its power from a special crank shaft, through the medium of pitmans, and is thus given an independent and exactly proper motion, without depending on that of the grain-pan or any other portion of the separator. This is a very important point, since the short, sharp action which the shoe imparts to the sieves spreads the grain evenly over them and secures absolutely perfect cleaning.

SIEVE HOLDER

"Rolfe's Patent"

The construction and mode of using this novel, convenient and exceedingly practical device, are shown by the accompanying cuts. To insert the sieve it is simply pressed down in place, where it is firmly and securely held. It is as readily removed.



Shoe and Sieve Holder

SIEVES

Each separator is provided with a complement of sieves amply sufficient to handle, and that under all possible conditions, every variety of grain and seeds threshed. They are specially strong and durable, being all made with corner irons, which hold them firmly and permanently together.

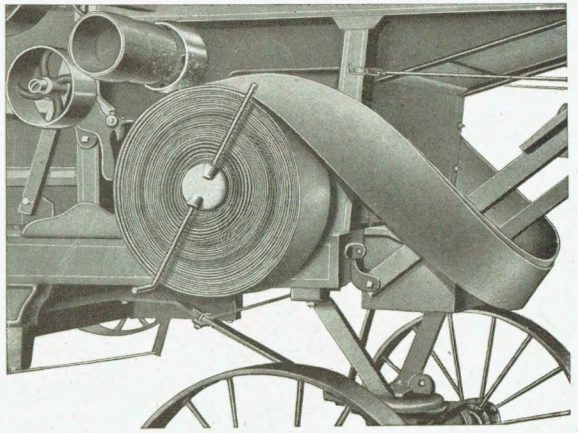
BELT GUIDE AND REEL

The accompanying cuts show our new Belt Guide and Belt Reel. They are both simple and highly practical. They perform their respective duties without

hindrance and without conflicting with any other part of the thresner. Like all other features of the Red River Special, they are made to wear.

BELT TIGHTENER

This automatically operating device serves to constantly maintain the proper tension of the shaker or crank-shaft belt, thus saving work and dispensing with trouble and delays.



Belt Reel

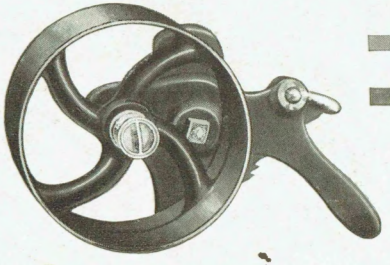
STACKER WINDLASS

This device, upon which the common stacker ropes are wound, is rigidly supported, and does not interfere with a weigher or measurer being attached to the separator. While standing on the ground, one man can raise the eighteen-foot common stacker with one hand. Its advantages will be obvious to all threshermen.

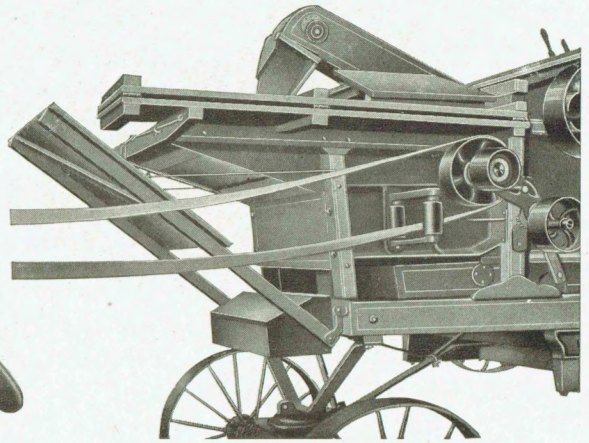
STRAW STACKER

A good straw stacker is an indispensable adjunct of a separator, and our improved eighteen-foot "folding" straw stacker is certainly the standard in that line. It carries the straw, and all the straw, direct to the stack, and that without regard to "head" or "side" winds, being protected from all adverse winds by its high canvas sides. By removing the raddle, it can be instantly closed for transportation.

Although of light weight, the stacker is very stiff and strong, two important requisites. It is finely painted and finished. The raddle is made with three belts and is driven by three pulleys on the lower stacker shaft.

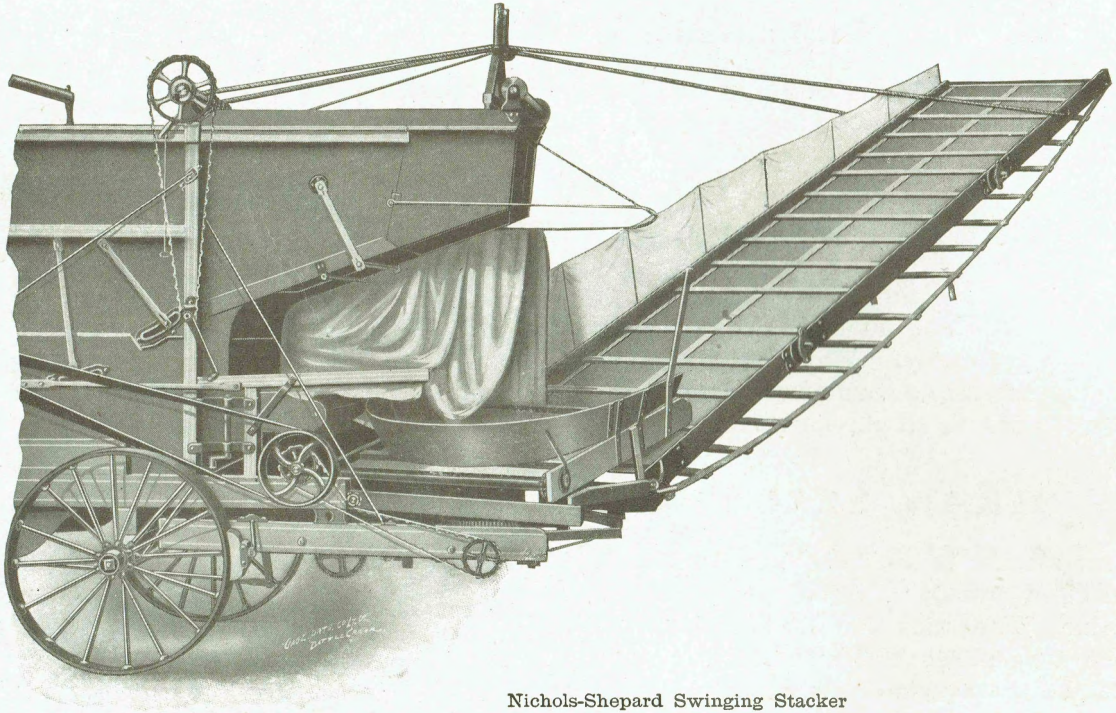


Belt Tightener



Belt Guide

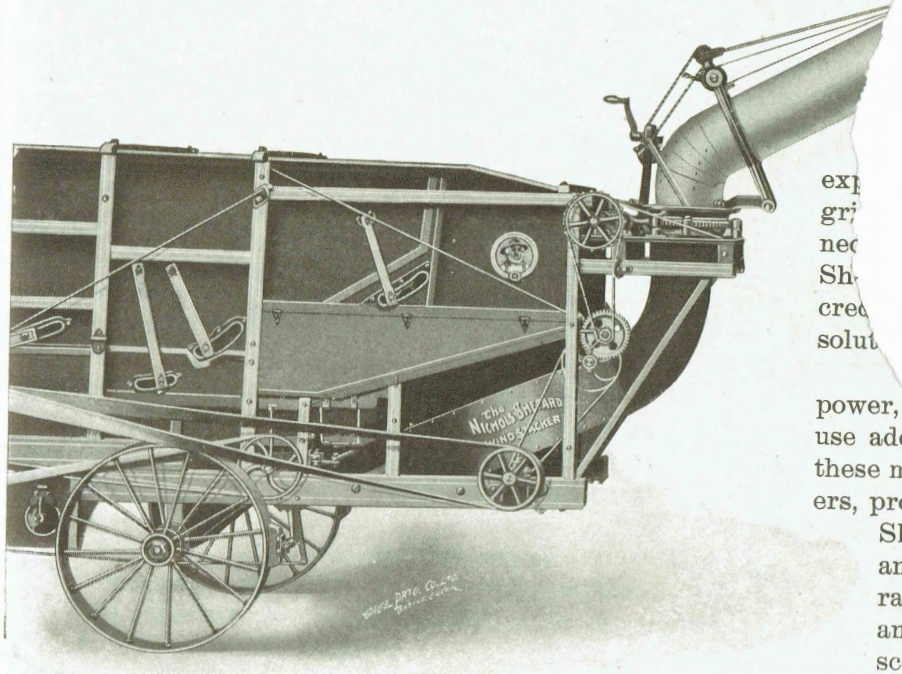
Nichols=Shepard Swinging Stacker



Nichols-Shepard Swinging Stacker

This is a convenient and entirely practical substitute for an independent stacker, the thresherman by its employment avoiding the labor and expense of moving and setting up an independent stacker. It is attached to the separator frame, is always with it and ready for use. It takes the place of the common straw stacker, and, like the independent stacker, oscillates automatically. As it will operate when swung at right angles to the separator, it is very convenient for storing straw in barns. By throwing the oscillating mechanism out of gear, it can be moved around by hand to the desired position, either from the stack or the ground. The stacker is twenty-four feet long. It folds on the top of the separator, and can, consequently, be easily handled and transported.

Nichols-Shepard Wind Stra
Stacker



Nichols-Shepard Wind Stacker Ready for Use

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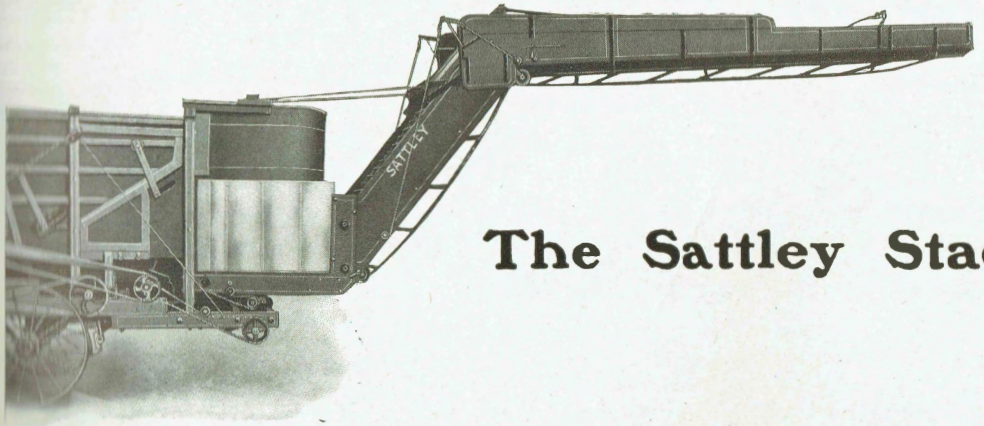
Stacker Separator

swinging the chute around. It swings in a complete circle, and is loaded for moving by swinging it around and lowering the chute into supports on the separator deck. The fan is driven by a miter gearing from a cross shaft, the mechanism being well designed and arranged so as to give the best results with the least expenditure of power.

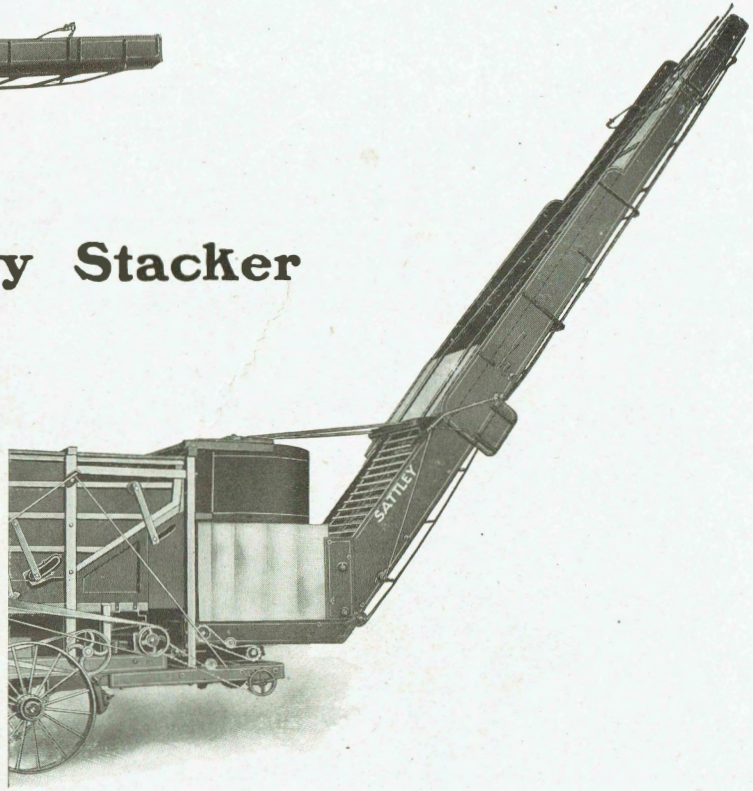
This style of wind stacker possesses many advantages; it is convenient in stacking, since the chute starts from the top of the separator; one man can load and unload it; it has no short belts; no belts are run around a right-angle corner; the stacker is higher from the ground than other styles, while the stacker frame does not materially lengthen the separator trucks.

An important feature of the Nichols-Shepard wind stacker, and one that arouses the admiration and compels the commendation of threshermen, is the ease and convenience for changing sieves. This is due to the ample openings provided in the side and in the rear of the shoe.

Seeming trifles soon mount into large aggregates, and these devices, each a time-saver, when combined, contribute much towards the "big day's work" for which the Nichols-Shepard machines are so widely and justly famous. The acme of simplicity, they are still the result of long and patient thought and experiment, and their great value is amply attested by the praise of practical and appreciative threshermen.



The Sattley Stacker

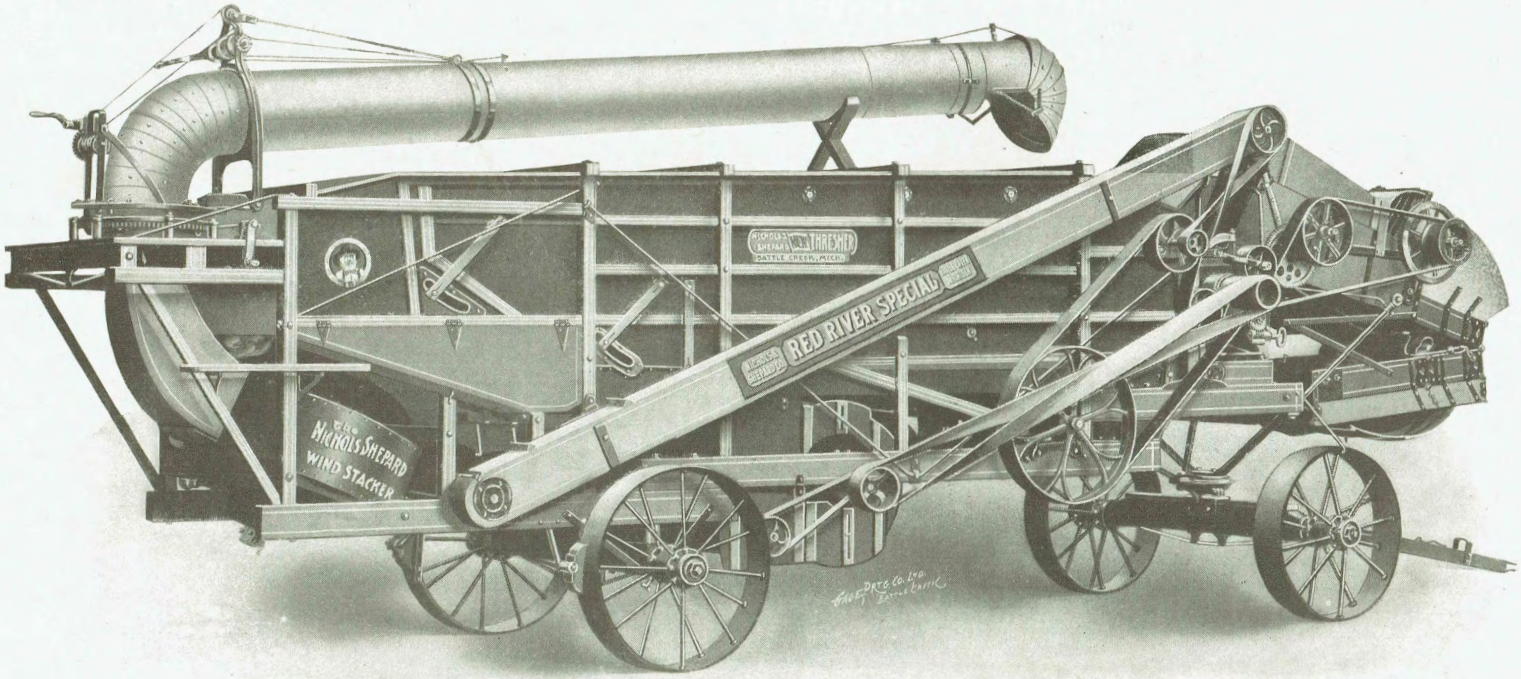


We have made arrangements with the owners of the patents of the Sattley Stacker to manufacture this machine, and we will be prepared to furnish them for the year of 1903.

It delivers all of the straw and chaff on to the stack and leaves everything clean around the separator.

This machine is so constructed that the discharge end of the stacker remains approximately over the center of the stack, thus avoiding the laborious work of pitching back in order to build a good stack. The lower section of the stacker is stationary as far as any vertical movement is concerned, and it has two raddles in it, and by reason of these two raddles it is not necessary to use such a wide chute. The straw goes up between these raddles and is delivered to the outer chute in such shape that it is well taken care of and is delivered to the stack in good condition for handling. The rear of the stacker is housed in by a sheet-steel housing with apertures closed by curtains on each side.

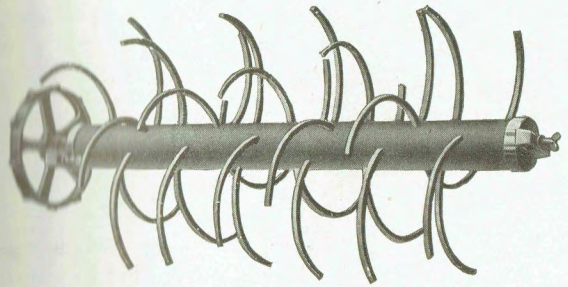
A very valuable feature of this machine is the straw pressers, which are composed of two long strips of wood extending from the lower chute to the outer end of the upper chute. These straw pressers are so arranged that they keep the straw from rolling back when the upper chute is elevated to its highest point, and prevents it from being blown off the chute during a heavy side or tail wind. The weight of this stacker is so distributed that it does not injure nor rack the separator. The stacker oscillates automatically.



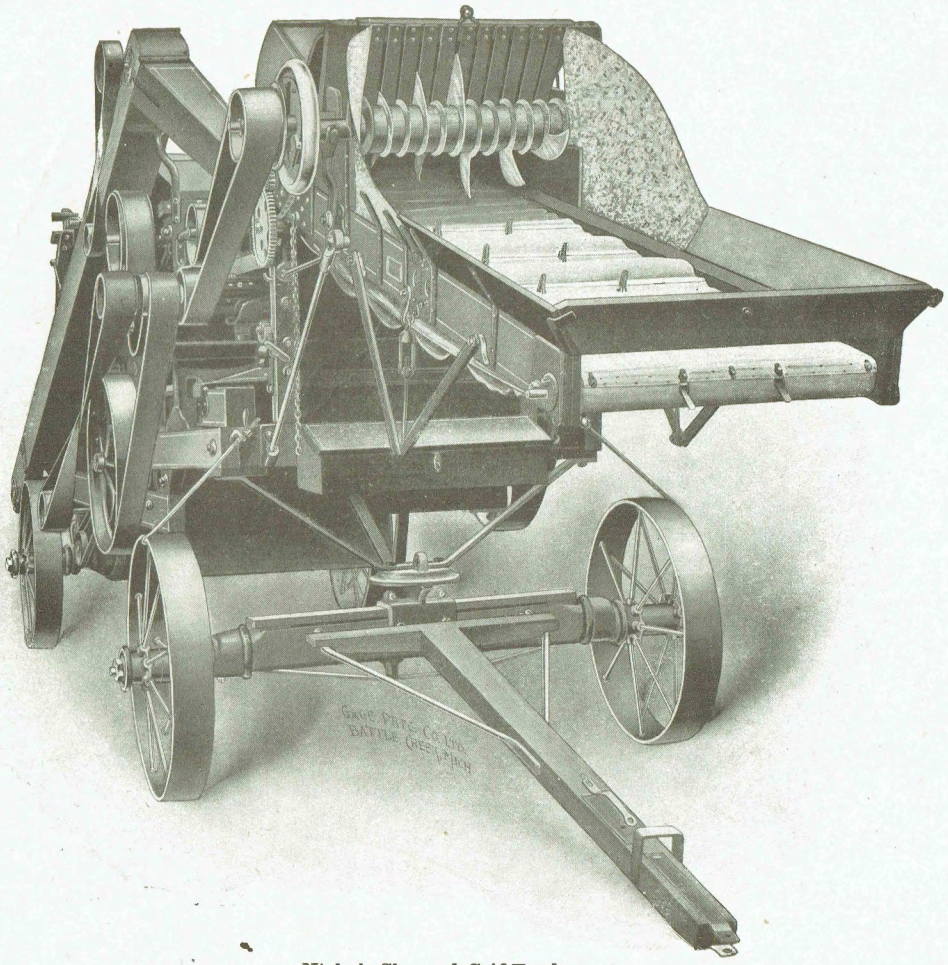
NICHOLS-SHEPARD WIND STACKER LOADED FOR TRAVEL

Nichols=Shepard Self=Feeder

Hand feeding is practically a thing of the past, and the Nichols-Shepard Self-Feeder has had more to do with the accomplishment of this result than any other machine on the market. It succeeds where others fail, and that in all territories and all conditions, and is, beyond all question, the best band-cutting and feeding device manufactured. It possesses universal utility, working equally well in either bound or unbound grain, and handling flax, timothy, alfalfa, and all other seeds, equally as well as grain. It is without a model and without a rival, and possesses an almost unlimited capacity to do good work. It greatly simplifies the act of threshing, converting into a convenient and comfortable process what once universally was, and with many machines still is, a positive drudgery.

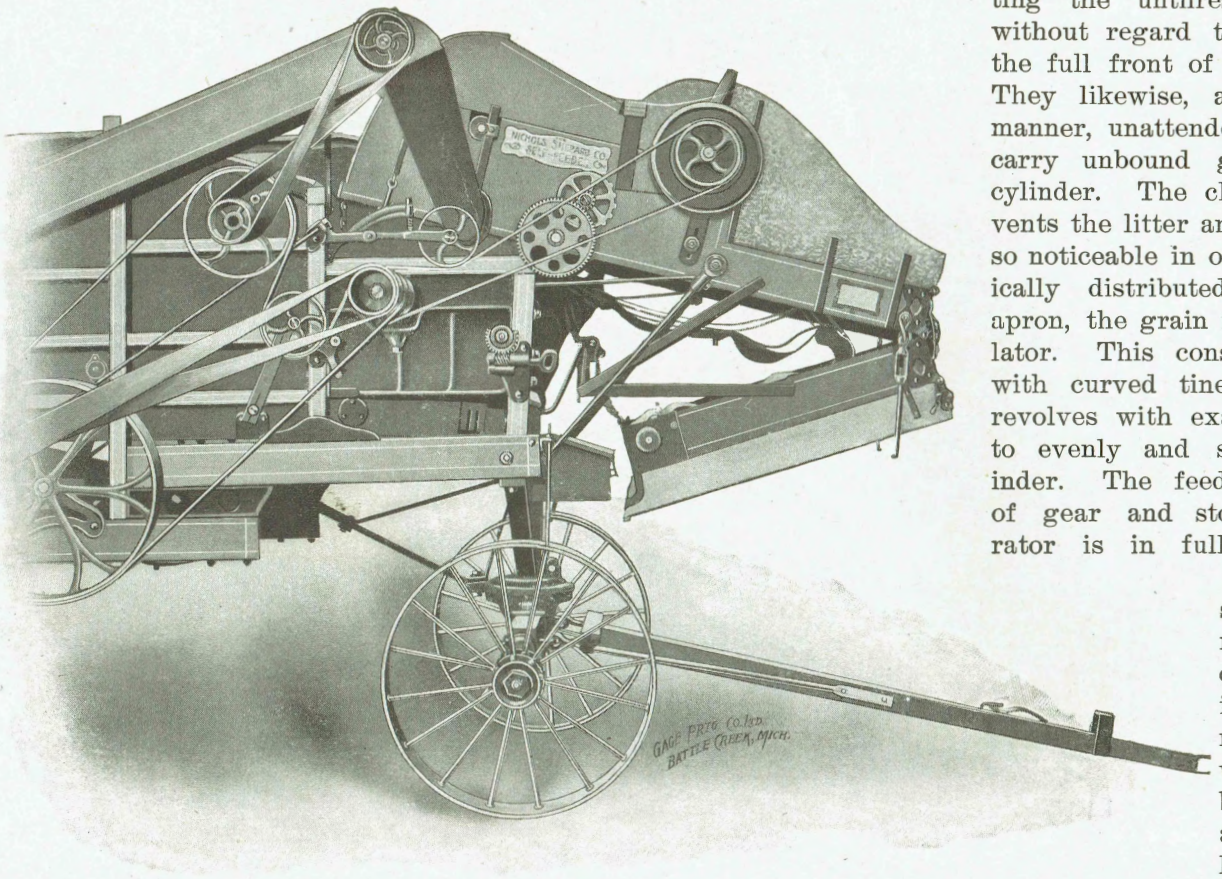


Feeder Regulator



Nichols-Shepard Self-Feeder

The style and construction of the Nichols-Shepard Self-Feeder are shown in the accompanying cuts. A canvas-covered raddle on the feeder, armed with lugs or teeth, forces the bundles to the band-cutter and separator cylinder, where the lugs automatically drop below the canvas. The raddle teeth and the band-cutter cylinder combine to tear the bundles apart, distributing the unthreshed straw, and that without regard to its condition, across the full front of the separator cylinder. They likewise, and that in successful manner, unattended by ordinary devices, carry unbound grain to the thresher cylinder. The closely fitting apron prevents the litter and waste at the cylinder, so noticeable in other feeders. Automatically distributed across the feeding apron, the grain is carried to the regulator. This consists of a shaft armed with curved tines, set spirally, which revolves with exactly the proper speed to evenly and steadily feed the cylinder. The feeder can be thrown out of gear and stopped while the separator is in full motion.

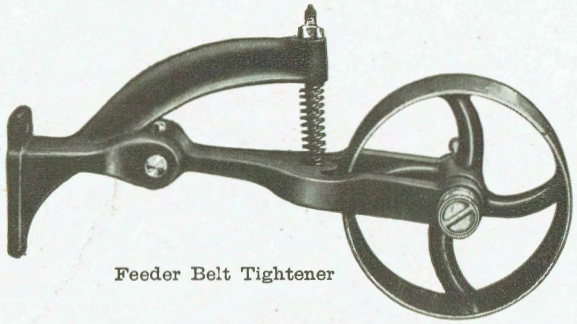


The Nichols-Shepard Self-Feeder, Loaded for Travel

To be successful, such a process must needs possess the power of self-regulation. This is provided by an automatic clutch governor, which is attached to the band-cutter shaft and automatically and absolutely controls its motion.

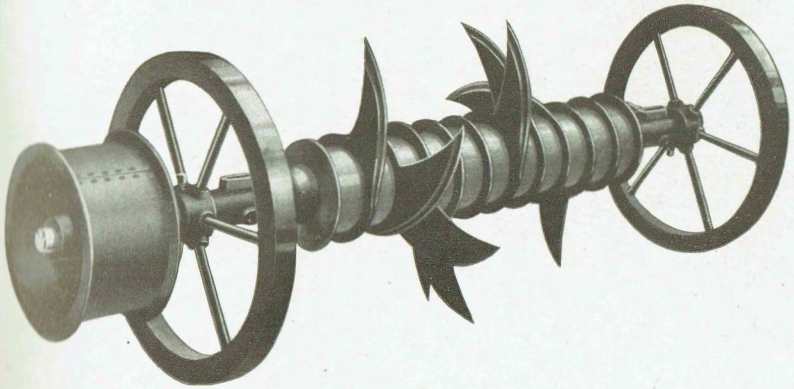
The feeder will begin to feed when the separator cylinder has attained sufficient speed, and the bundles can then be pitched into it as fast as desired. It feeds more evenly, more rapidly and more reliably than can be done by hand. Not only is more work done, but at a smaller cost, since a considerable saving of labor is accomplished. To feed unbound grain it is only necessary to remove the center board in front of the band cutter and pitch on to the canvas apron.

One feature of the Nichols-Shepard Self-Feeder especially commends itself to practical threshermen who always have an eye to convenience as one of the greatest of utilities. The feeding apron runs particularly low, thus making it easy to reach when pitching heavy bundles from a stack bottom or from the ground. A belt tightener, automatic in its action, is provided for the main drive belt of the feeder, which insures a steady motion to all parts.

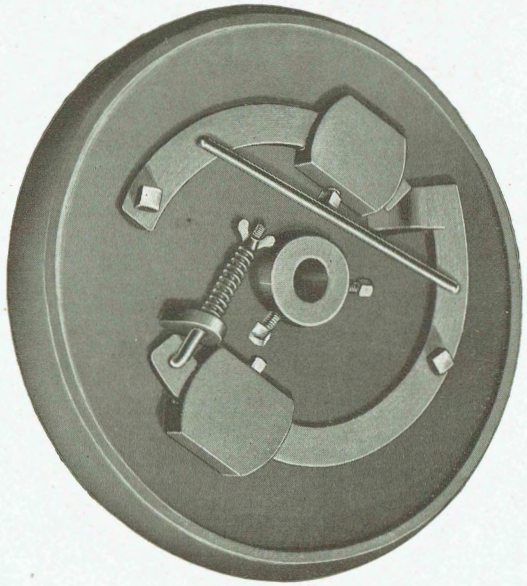


Feeder Belt Tightener

Supports attached to the frame of the separator give rigidity to the feeder. The outer, or feed-table section, is rigidly supported by our own special device, thus dispensing with legs. This renders it amply strong enough to resist the shock and strain of heavy bundles pitched from above. The truss supporting the feeding-table section and the supports to the separator frame keep the feeder always level with the separator; hence uneven ground causes no trouble, as where



Band Cutting Cylinder



Nichols-Shepard Feeder Governor

legs are employed. By lowering the outer end of the feed table the end next the separator is raised, the cylinder is thus readily reached. Owing to the evenness of the feed, the cylinder teeth at the ends wear the same as those in the center.

Whatever kind of grain, bound, unbound, or headed, is fed, there is an absence of the litter and waste so common to other feeders. The simplicity, yet perfection, of its construction, coupled with the rapid, clean and practical work it does, commends it to every thresherman.

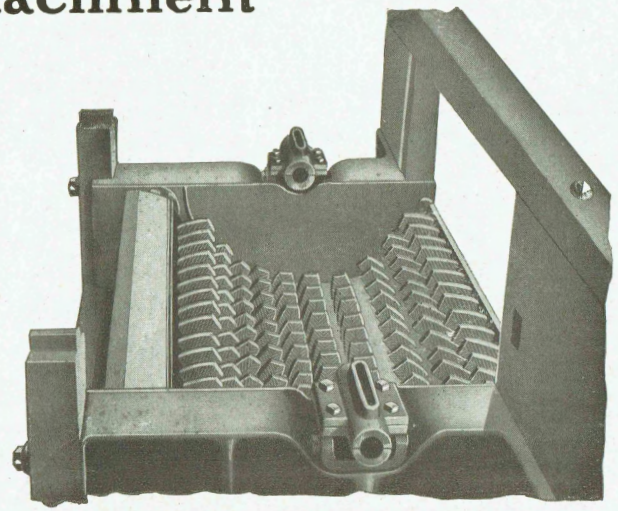
FEEDER EXTENSION.

In localities where grain is headed, we furnish our feeder extension, which, in effect, lengthens the feeding apron. We thus supply the additional room necessary for properly handling headed grain, our feeder extension meeting every requirement.

Nichols-Shepard Feeder Extension

Clover Huller Attachment

The Nichols-Shepard Clover Huller attachment has proved its entire superiority in every kind and condition of clover seed, surprising every one with its rapid and perfect work. By the aid of this attachment, our separator is enabled to thresh, hull and clean clover seed as thoroughly as and faster than the regular clover huller. By putting our clover attachment into our regular separator, the operator is enabled to convert his grain thresher into a perfect clover machine that will do much faster work than the most costly clover huller, and save and clean the seed in the most perfect manner. Bear in mind that this attachment is extra, and not a part of our regular thresher outfit, but is entirely distinct, and only furnished when specially ordered, and only for Nichols-Shepard Separators. If it is properly operated, it will astonish and delight threshermen and farmers by its wonderful work.



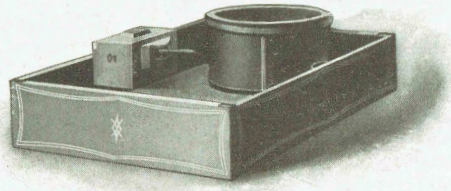
Nichols-Shepard Clover Huller Concave

FLAX, TIMOTHY, AND OTHER SMALL SEEDS

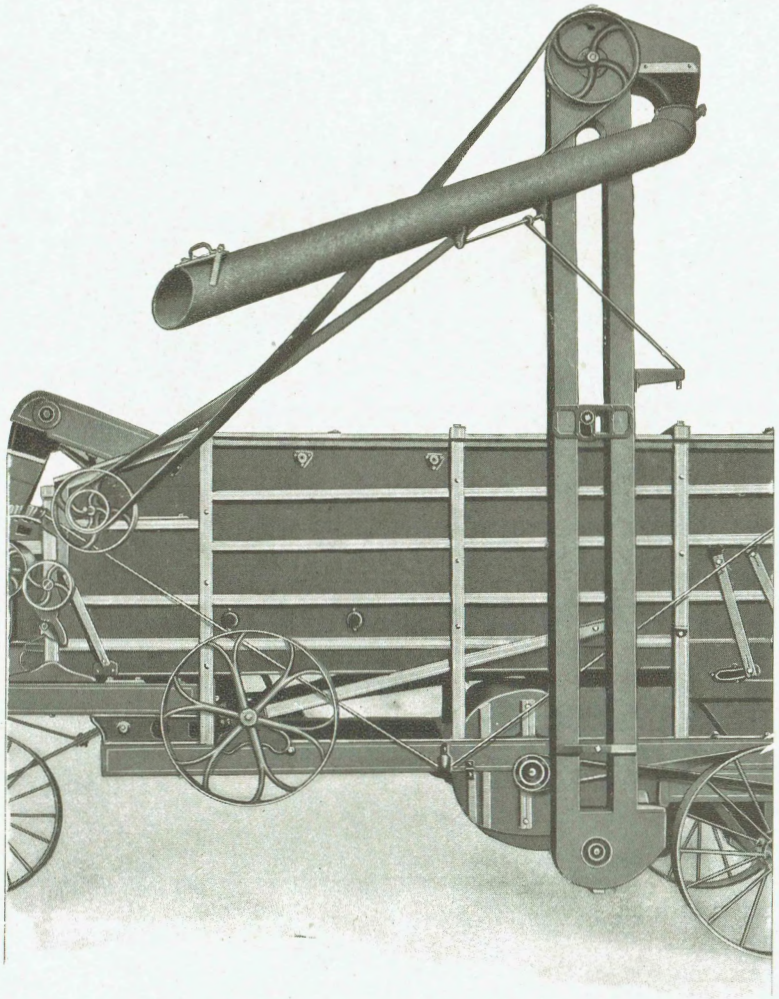
The RED RIVER SPECIAL may well be termed the universal separator, since it is perfectly adapted to rice, flax, timothy, millet, Hungarian grass, English blue grass, clover, alfalfa, etc. By its use, these difficult seeds are threshed, separated, saved, and cleaned as easily and perfectly as grain. For these uses the RED RIVER SPECIAL easily and absolutely excels. Unlike other machines, no additions, attachments or changes are required (except for clover seed) to perfectly adapt it for any kind of grain or seed, and it is widely noted as the best flax thresher ever produced.

THE SMITH GRAIN REGISTER

The accompanying illustration shows the Smith Grain Register, which is placed under the grain spout when in use, and is used with half-bushel measures. We do not furnish this with our machines unless specially ordered, and we do not furnish the half-bushel measures employed with it.



Smith Grain Register



Nichols-Shepard Improved Wagon Loader

SLIDE MEASURE

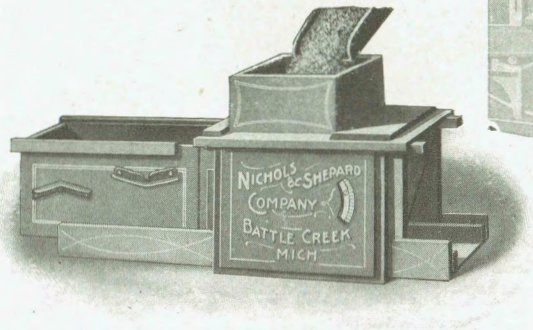
We illustrate herewith our slide grain measure, which is placed under the grain spout, as shown in the cut, and which measures and keeps "tally." We furnish this when specially ordered, with either bushel or half-bushel boxes.

THE TALLY SPOUT

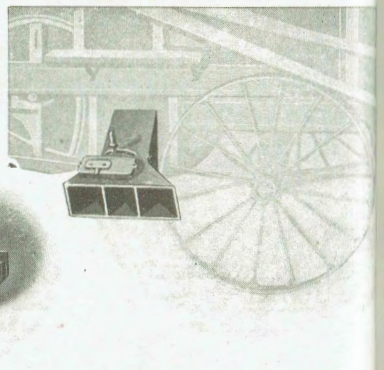
A cut of which is shown herewith, directs the grain into half-bushel or bushel baskets, and keeps "tally." We do not furnish the measures which are used with this spout.

WAGON LOADER

Herewith we give you a view of our improved wagon loader. The elevator is suspended in the center to an axle which is fastened to the deck of the machine. When the job is finished, the elevator is turned upon this axle to a horizontal position and carried on the machine. The elevator is driven by a belt from the beater shaft. The grain is delivered into the wagon by the spout. This spout is attached to the cast-



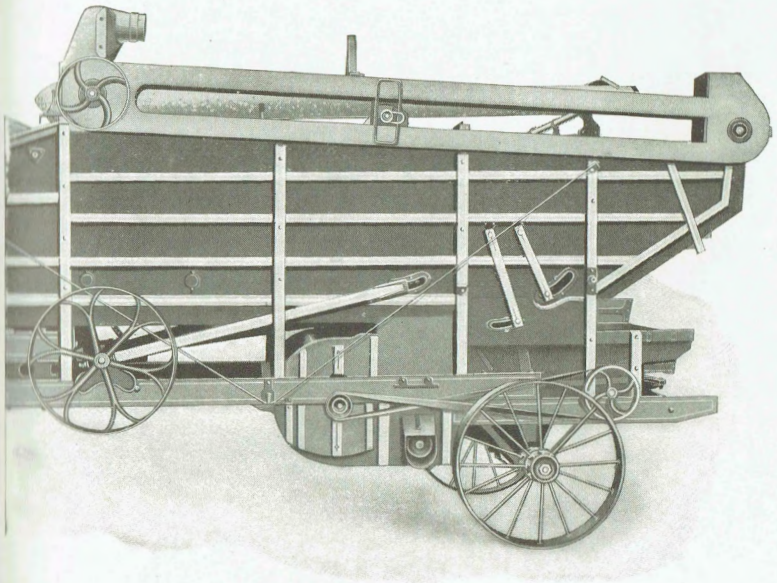
Slide Measurers



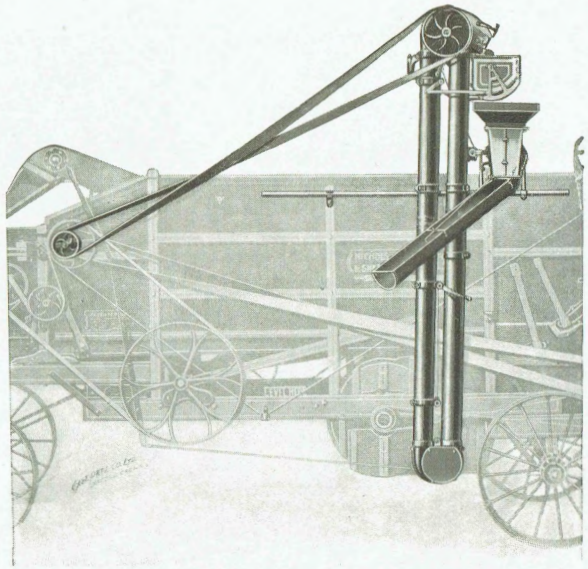
Nichols-Shepard Tally Spout

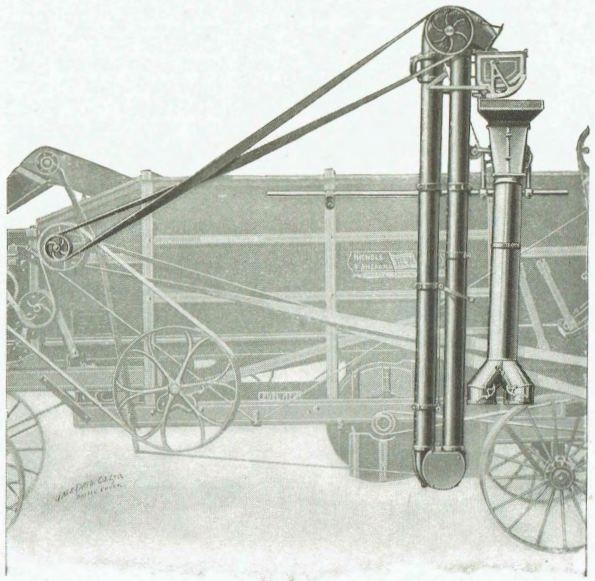
iron discharge pipe at the top of the elevator by a swivel which allows the spout to be turned in any direction, except directly toward the cylinder. Thus the grain can be discharged at the most convenient place on either side of the separator. This loader does not measure nor tally.

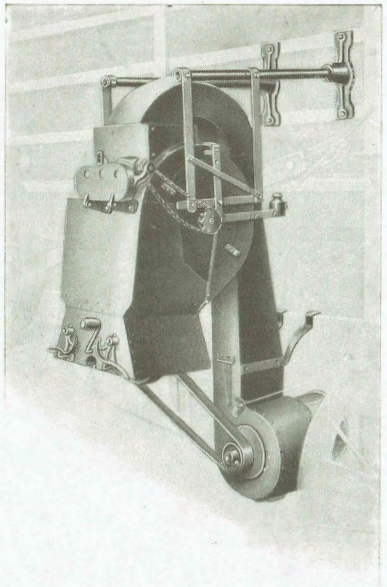
The spout is supported from the elevator so that no legs are required, permitting its free use over and change from one wagon to another, and is provided with a cover to stop the flow of grain when changing from one wagon to another.



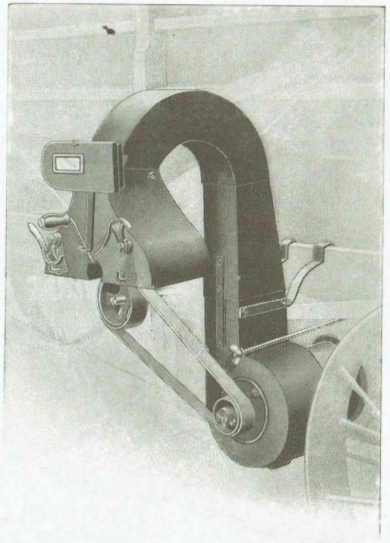
Nichols-Shepard Improved Wagon Loader, Loaded for Moving







Nichols-Shepard "Success" Weighing Bagger



Nichols-Shepard "Success" Bagger

Nichols-Shepard Straw-Burning Engine and Red River Special at Work in the Great Northwest

WEIGHERS AND BAGGERS

THE NICHOLS-SHEPARD WEIGHER works automatically, weighing the grain and spouting it into sacks or wagons. This weigher has an all-steel elevator and cross conveyor, and requires no counter-shaft, and is the simplest and most compact of any in the market. It does not project far above the deck of the separator, to occasion trouble with bridges, barns, etc.

On machines with wind and swinging stackers, the elevator stands inside of the stacker belt. Every feature on the weigher has been in use for years, and without hesitation we state that it does not have an equal.

THE NICHOLS-SHEPARD WEIGHING BAGGER is the most practical short-weighing bagger made. The grain is received at the bottom upon a rapidly revolving reel which by centrifugal force alone drives the grain into the weighing hopper. When in use it is out of the way of the stacker belts and other parts of the separator, and when moving remains close against the side of the machine where it can be safely carried. It can be furnished without the weighing device, and thus arranged it tallies the bags. It can be used on either side of the machine. It is very strong and durable.

Sizes and Dimensions of Nichols-Shepard Separators

We make the following sizes of separators to suit the varying wants of threshermen and the requirements of different sections of the country. Each of them contains the matchless principles and peculiar features for grain, time and money saving herein described, the main difference between the sizes being in capacity only, while the superior principles and qualities of their construction enable even our smallest size to exceed, in grain saving and separating capacity, many of the largest sizes of other makes and kinds:

The "28 x 40 Red River Special" has large cylinder 28 inches long; separating conveyors 40 inches wide; shoe 56 inches long by 35 inches wide.

The "30 x 46 Red River Special" has large cylinder 30 inches long; separating conveyors 46 inches wide; shoe 56 inches long by 41 inches wide.

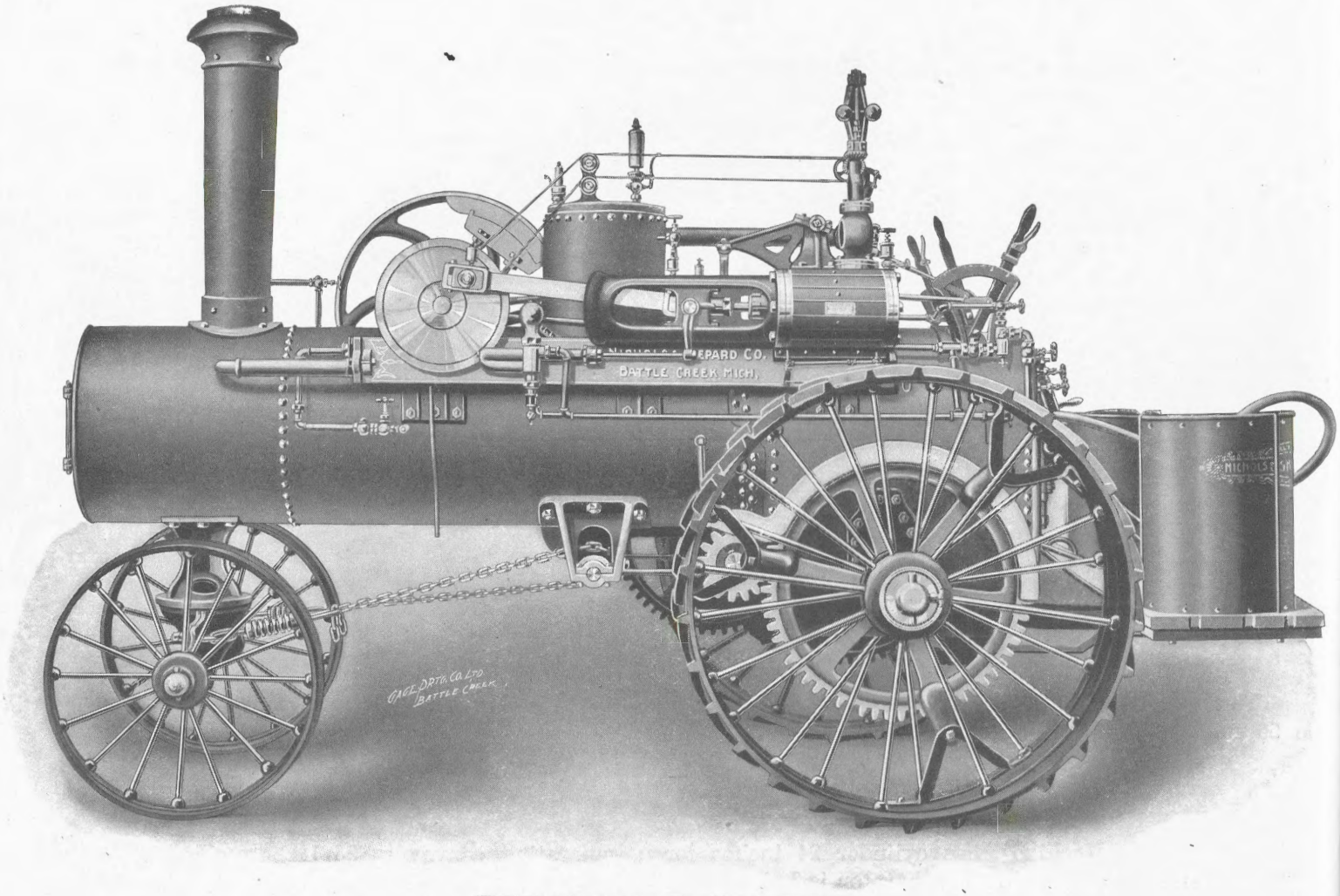
The "32 x 52 Red River Special" has cylinder 32 inches long; separating conveyors 52 inches wide; shoe 56 inches long by 47 inches wide; has an extra wide elevator and tailing spout, and all other parts proportionately large, strong and capacious. This separator is pre-eminently the separator for extensive business with steam power, using 10-, 13-, or 16-horse steam engines.

The "36 x 56 Red River Special" has large cylinder 36 inches long; separating conveyors 56 inches wide; shoe 56 inches long by 51 inches wide.

The "40 x 60 Red River Special" has large cylinder 40 inches long; separating conveyors 60 inches wide; shoe 56 inches long by 55 inches wide.

The "44 x 64 Red River Special" has large cylinder 44 inches long; separating conveyors 64 inches wide; shoe 56 inches long by 59 inches wide.

The "24 x 36 Machine" has cylinder 24 inches long; separating conveyors 36 inches wide; shoe 56 inches long by 31 inches wide. (This separator is built "low down" for use in hilly countries; has small cylinder, and is not a Red River Special Separator.)



NICHOLS-SHEPARD TRACTION ENGINE

Coal and Wood Burner

The Nichols=Shepard Traction Engines

The Nichols-Shepard Traction Engine has for years, unrivaled and unchallenged, maintained the exclusive reputation of a high-grade machine—logically, therefore, it attains high-grade results.

If you don't buy your engine of Nichols & Shepard Company, you don't buy your engine right—this has become a recognized truism among expert threshermen, who have established this Traction Engine as the standard of comparison in every county of every State in the Union.

It is a worker—a stayer and a laster! These are the points of excellence which form the basis from which the judicious purchaser computes all future benefits and profits. These points, practically and irrefutably demonstrated, cause this engine to stand at the head of the list, alone and unapproachable, in the estimation of the great farming community, as the most efficient known to the trade—known and never found lacking—in fact, N. S.=No Superior.

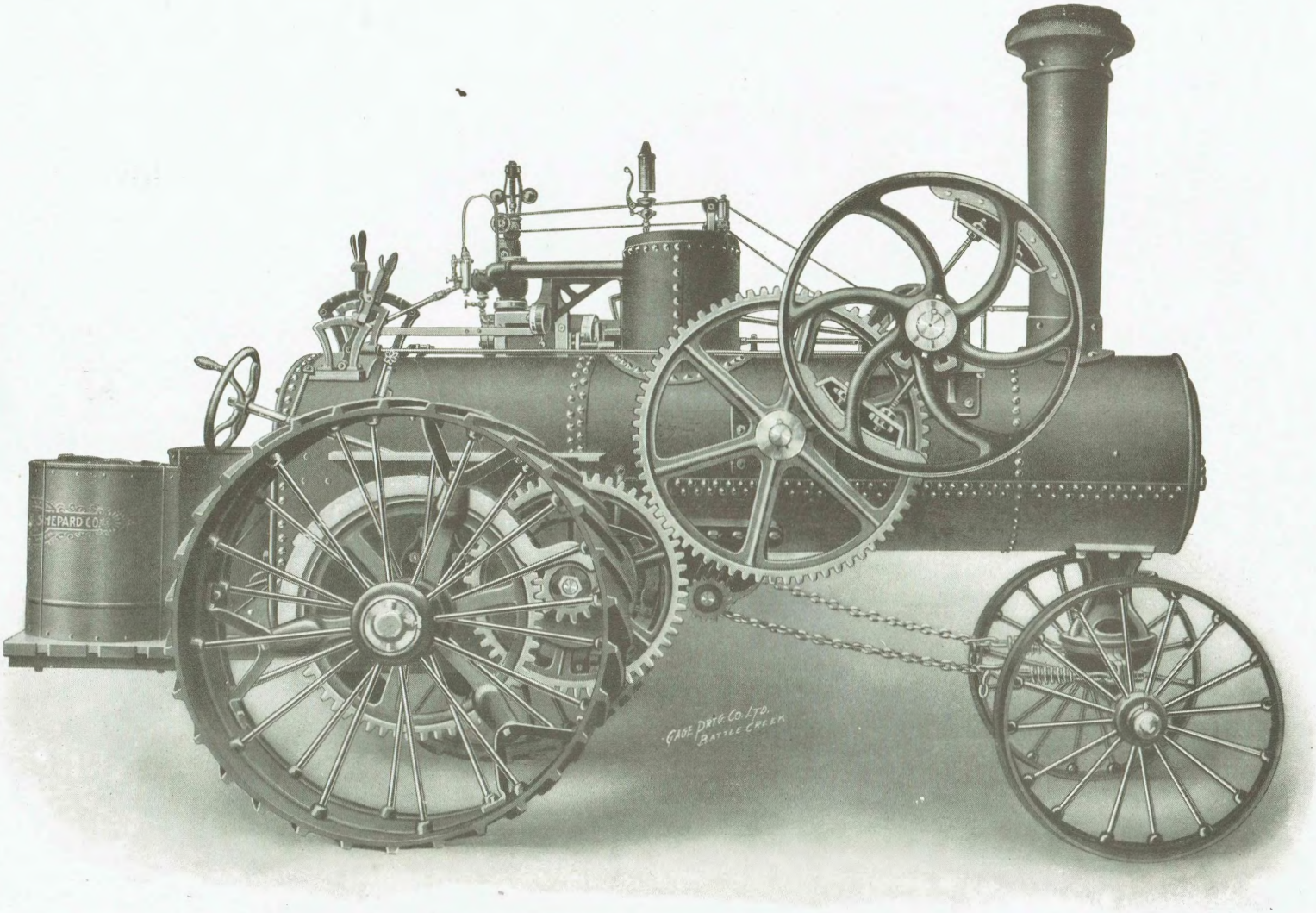
We build our engines on honor, for we know our reputation is at stake—a reputation flawless and progressive for over half a century. Primarily we select the very best model that will meet the requirements. And the requirements are many and complex.

Power, the keynote of stability in every crank, pin and wheel this establishment has ever turned out, is the main actuating principle with the construction of our Traction Engine. Our efforts have resulted in buyers and users being able to challenge the world to produce an equal, because confident of the development of those forces of energy especially needed in emergencies.

Every thresherman knows that his engine is called on very often to exert a power far beyond that at which it is rated. Difficulties arise that call for prompt and reliable extraordinary power—bad conditions become an element, and test full capacity and full worthiness. To surmount the one and reduce the latter to a minimum, the Nichols-Shepard can be relied on to proceed in its usual strong, steady way, and "get there" without delay, without risk, without "straining a muscle."

The emergency requisites have been looked to in the original construction of this engine, from the first rivet to the last bolt. It, therefore, as to perfection and popularity, "carries everybody with it" and everything before it. Its traction power is strong, dependable and smooth. With the same confidence and reliability with which it propels itself, it hauls separator, tank, etc., over roads and fields without one hindering or dislocating jolt or jar.

Its field capacity is of that staunch kind which a thresherman can always bank on, and never be disappointed; abundance of power to give to the belt the motive energy that drives the separator just right, that is equally right for the husker, the sawmill, for any one and all of the manifold purposes where it is called upon to demonstrate its superiority.



NICHOLS-SHEPARD TRACTION ENGINE

Gear Side

It is a type of the truest perfection: in elegance, in utility and results. There is a cogent reason for this: care in the selection of the original material of which its parts are formed, good judgment in employing only skilled and proficient mechanics, and these always under the supervision of practical manufacturers who have made a life-study of this specialty, and nicety of adjustment in assembling the parts.

Nothing is lacking that ingenuity or money can supply, nothing failing when the test comes, for we have a justly earned, uniform record to sustain: the record of a genuine and unrivaled record-breaker in utility, durability and actual and absolute economy of the buyer's time, the buyer's patience and the buyer's money.

Figure it out from the experience of others, and you will see where the saving of dollars comes in.

You will find this engine does the work always and well; hence unbounded satisfaction. You will find that its mechanism is perfectly adjusted and strengthened at every possible point, therefore no danger from sudden strains, a total absence of all those exasperating bills for repairs that often make a thresherman's life burdensome.

You will find it easy of control; treat it intelligently, and it will not run away from you, nor will it run you into debt.

You will find that it is durable, works longer, lasts longer than any other engine sold for the threshing field—not a waste nor a useless piece of metal in its make-up, but complete in every feature. Just the right mechanical principles, rightly applied.

It is strong; it is reliable; it encompasses every attainment ever thought of in an engine, on the road and in the field.

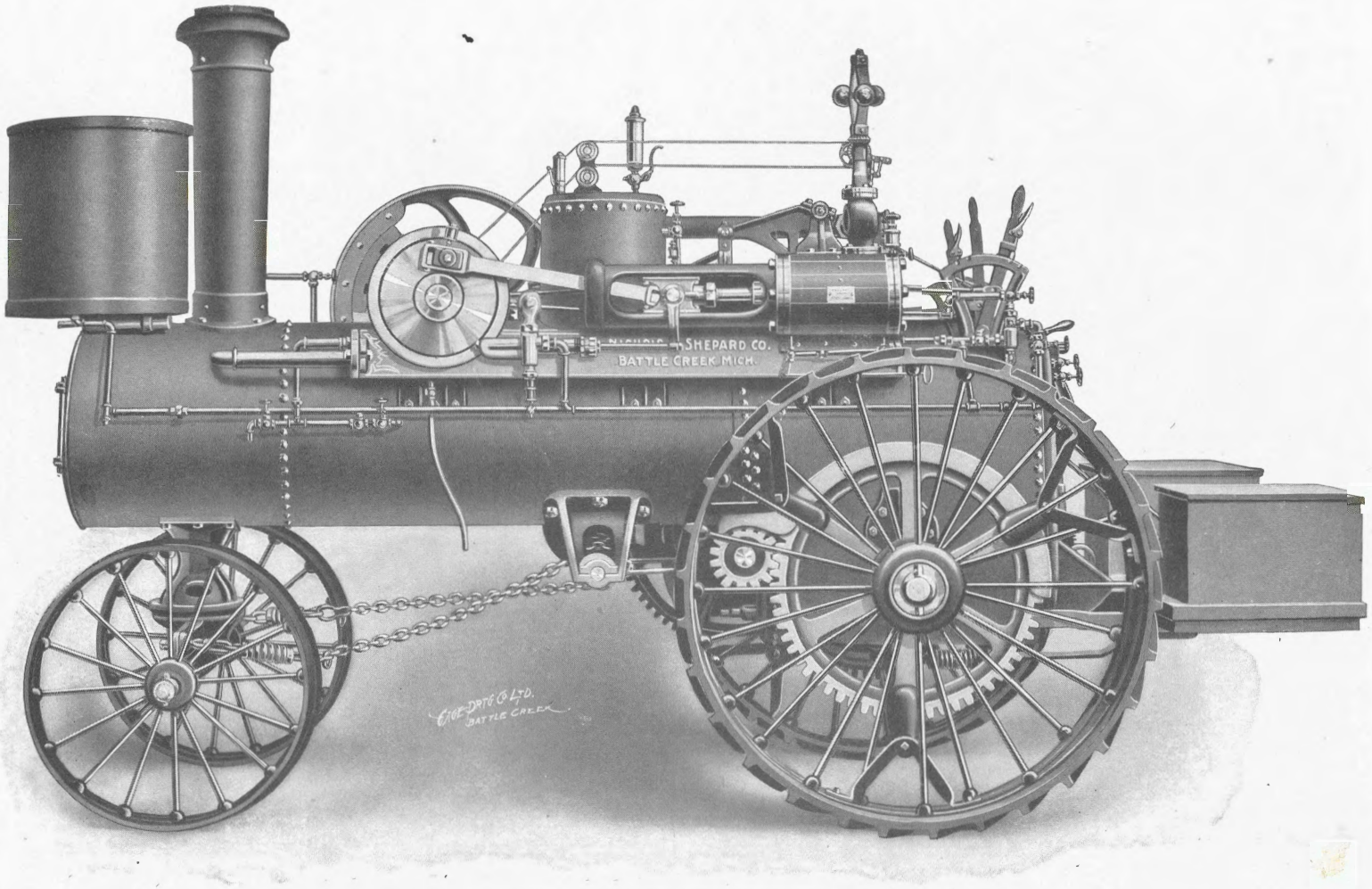
We present, therefore, a traction engine that is perfect from start to finish, from the ground up and from the top of the smoke-stack to the steel tire supporting and driving it along the road. We are proud of it, for it represents the very best qualifications attainable, and leads the van in actual money-making, money-saving results.

Our patrons are still prouder of it, for it has the reputation of looking better, working better and lasting better than any other traction engine built.

BOILER

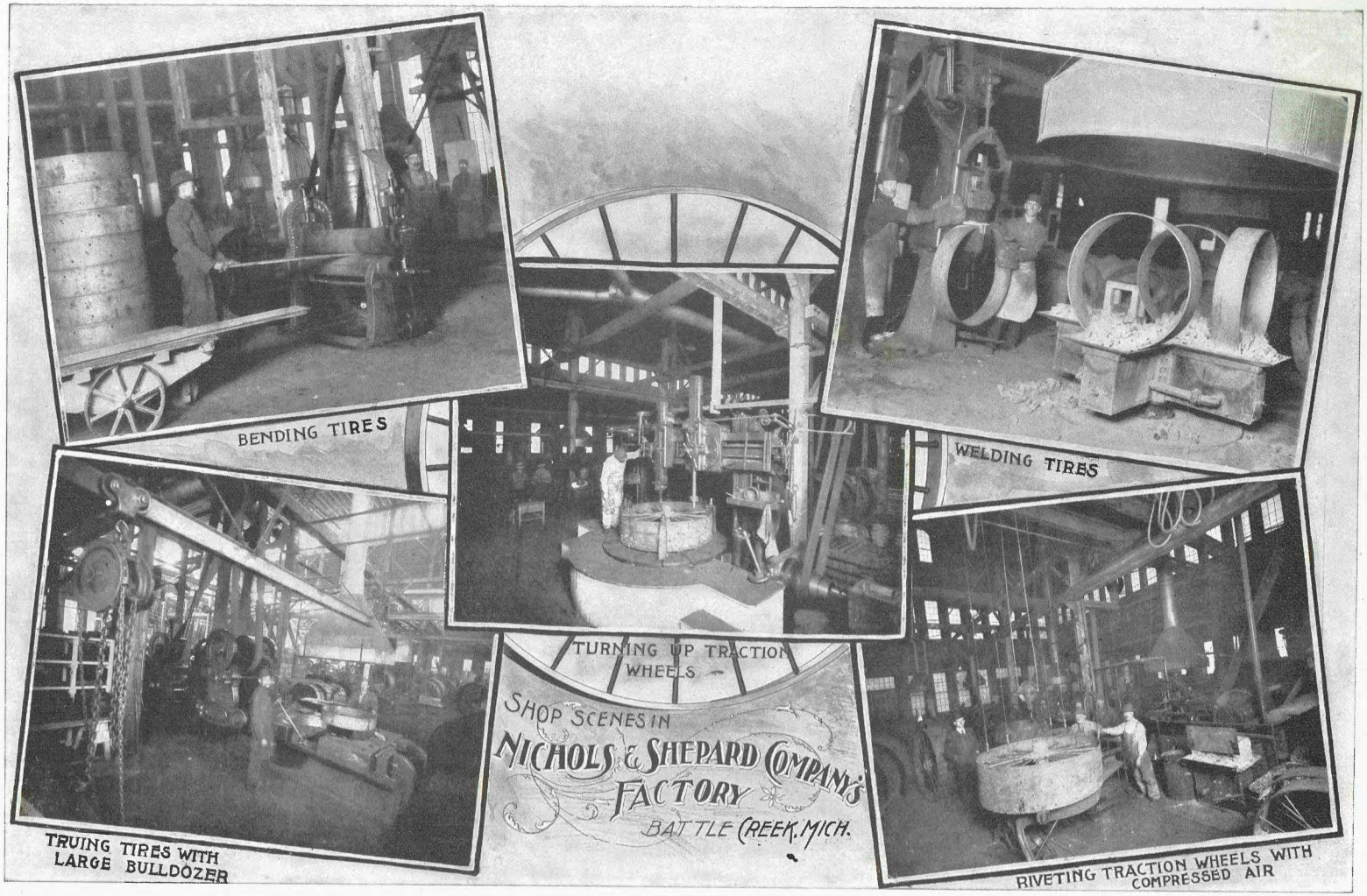
Strength, safety and solidity are the ever-present characteristics of the boiler of the Nichols-Shepard Traction Engine. It is a boiler that will always "hold together," and if a scientific analyst should chance to take it apart out of curiosity, it would be to give you item by item all the adjuncts of a perfect mechanism.

It is built at the start, all the way through, and at the finish, of one uniform quality of steel—the very best, each sheet inspected carefully before it is accepted, stamped with the maker's name and with the tensile strength. There is no hit-or-miss adjustment anywhere, but it is put together by the best workmen that can be employed, under the constant personal supervision of the most experienced boiler-makers in the United States.



NICHOLS-SHEPARD TRACTION ENGINE

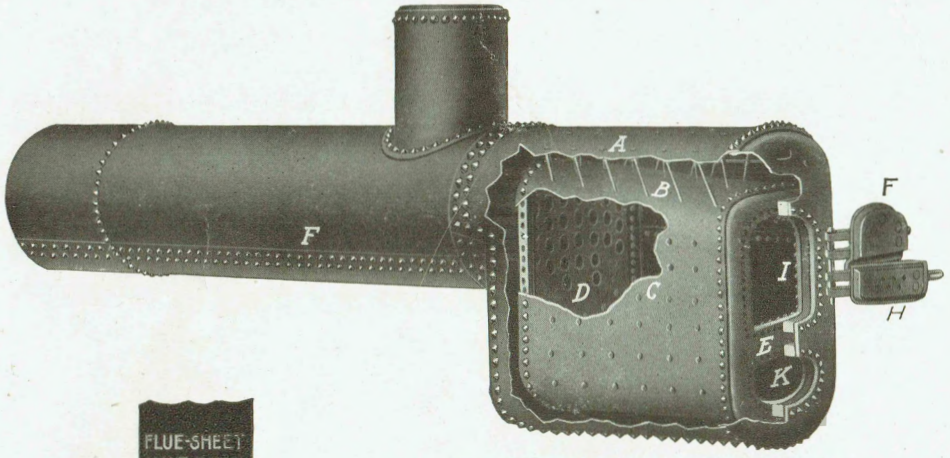
Coal and Wood Burner Tank in Front Tool Boxes on Platform


BENDING TIRES
WELDING TIRES
TURNING UP TRACTION WHEELS
SHOP SCENES IN
NICHOLS & SHEPARD COMPANY'S
FACTORY
BATTLE CREEK, MICH.
TRUING TIRES WITH LARGE BULLDOZER
RIVETING TRACTION WHEELS WITH COMPRESSED AIR

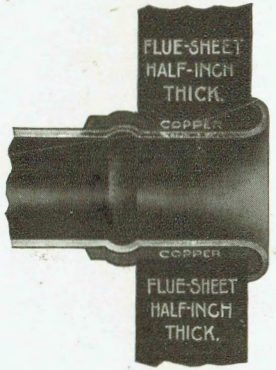
Our model of accuracy and attainment is the high-class boiler of the best modern locomotive, and upon the same perfect principle the Nichols-Shepard is built, double riveted in every instance where the severest strain may come. In a word, they represent strength that is effective, dependable and lasting.

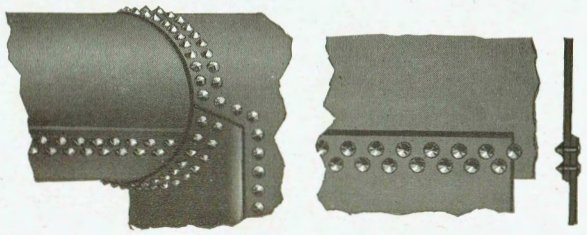
The fire-box is made of steel and is surrounded on all sides by water, thus presenting a complete water front, and is thoroughly braced and stayed in every part.

In the flue sheet of the fire-box we depart from the usual method of construction, to gain a decisive advantage. These sheets are formed of half-inch steel, but holes for the flues instead of being punched, as is commonly the case, are drilled, a feature adding immensely to the substantial value of the mechanism. We show a section of our extra thick flue sheets in the accompanying cut.



Nichols-Shepard Traction Engine Double-Riveted Boiler for Coal or Wood



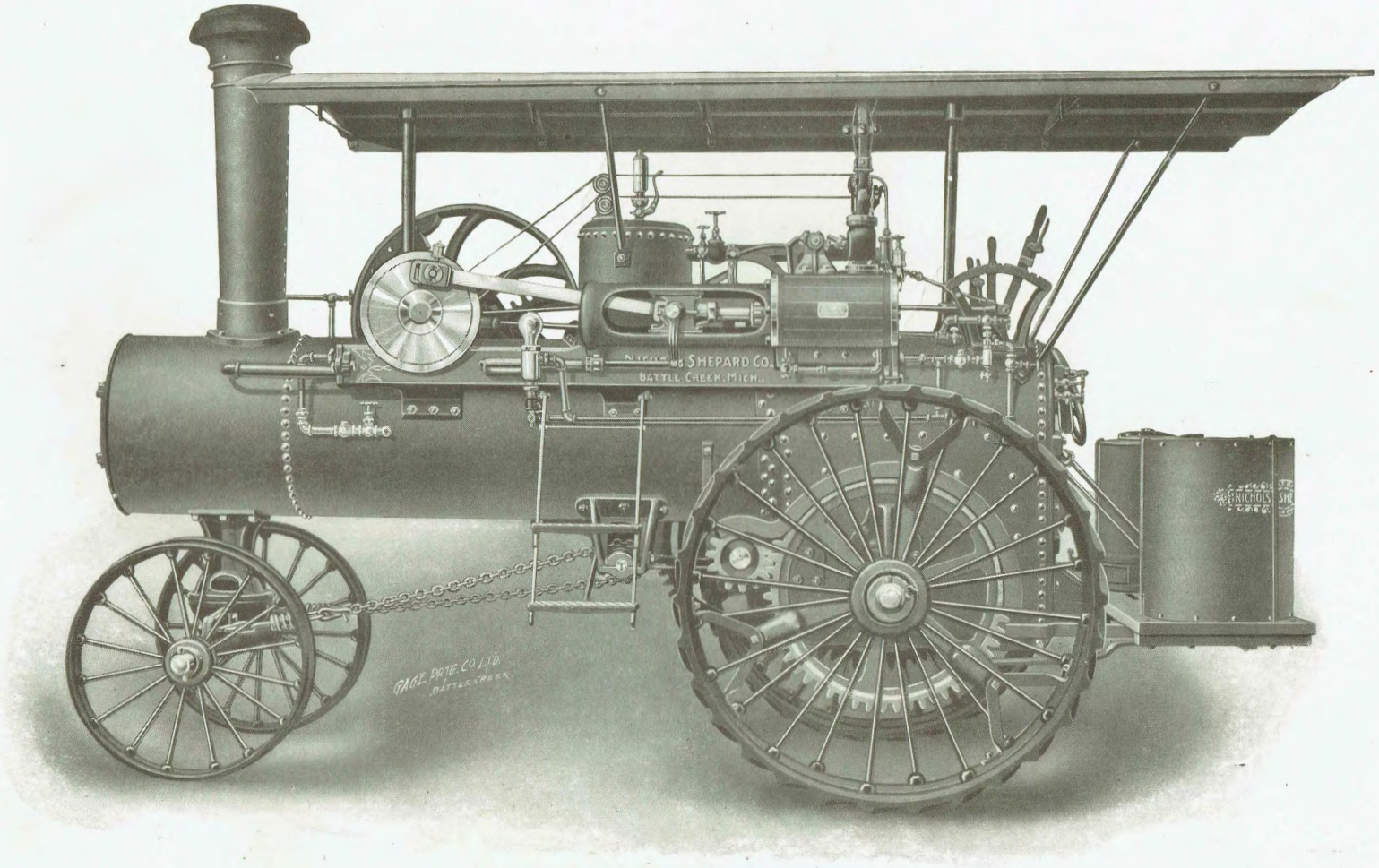


Double-Riveted Seams

We also illustrate another qualification, that of the improved form of the fire-box, which has a sloping crown sheet, the top being inclined from the flue sheet to the fire door.

The decisive advantage of this is that when the engine is descending hills, the water will remain over the sloping crown sheet, thus largely tending to obviate injury from overheating of the metal. This crown sheet is strengthened by heavy stay bolts, and is provided with a fusible safety plug. The grates are of improved form, the fire space is extra deep, proportion and distribution being such as to scientifically coincide with that combination which guarantees the best results.

A thresherman on his way to work in charge of a Nichols-Shepard boiler can dispense with the fears and lack of confidence that attend experiments with illy contrived and loosely built engines and boilers; he will not incur risk, nor run up a big repair bill, nor miss the chance of making every inch of metal surface perform its part in helping the profits roll in.



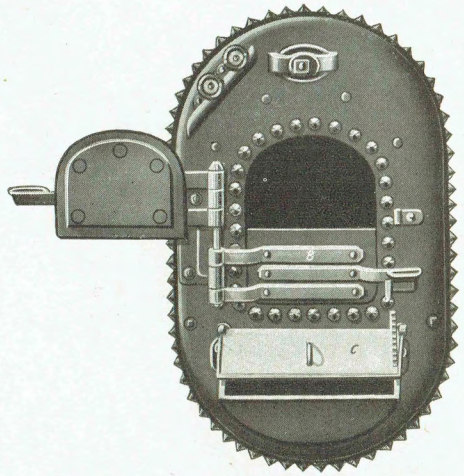
NICHOLS-SHEPARD TRACTION ENGINE

With Full-Length Cab

Another attractive point in our engines is the feature of easy firing. The ash pan and draft damper are of very convenient construction, as the cut will demonstrate, a fact valued by every engineer who seeks and appreciates handiness and saving of time. The draft can be accurately and momentarily regulated, or entirely shut off, as desired. The steel door is in two sections, further augmenting ease in firing, and is made of double thickness, with air spaces between. Both the door frame and the draft hole are made of solid wrought iron two inches square, and the heavy rivets which hold the fire-box to the boiler front pass through these wrought-iron frames.

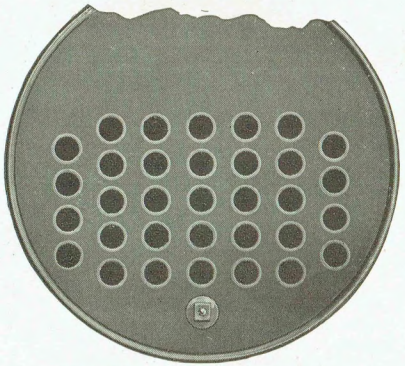
An important detail of our boiler construction is the care given and the improvements involved as to the water spaces.

These should be so capacious that no reasonable amount of sediment will choke them up. They are exposed to the most intense heat, and should, therefore, contain an ample volume of water. Herewith we show the convex head of our boiler. It is made of the very best selected flange steel, with the flange turned very large and full, thus retaining the massed strength of the metal, and always giving increasing capacity to the boiler, while doing away with those troublesome angles prevalent in ordinary boilers that retain sediment.



Boiler Front, Showing Fire Doors and Draft Damper

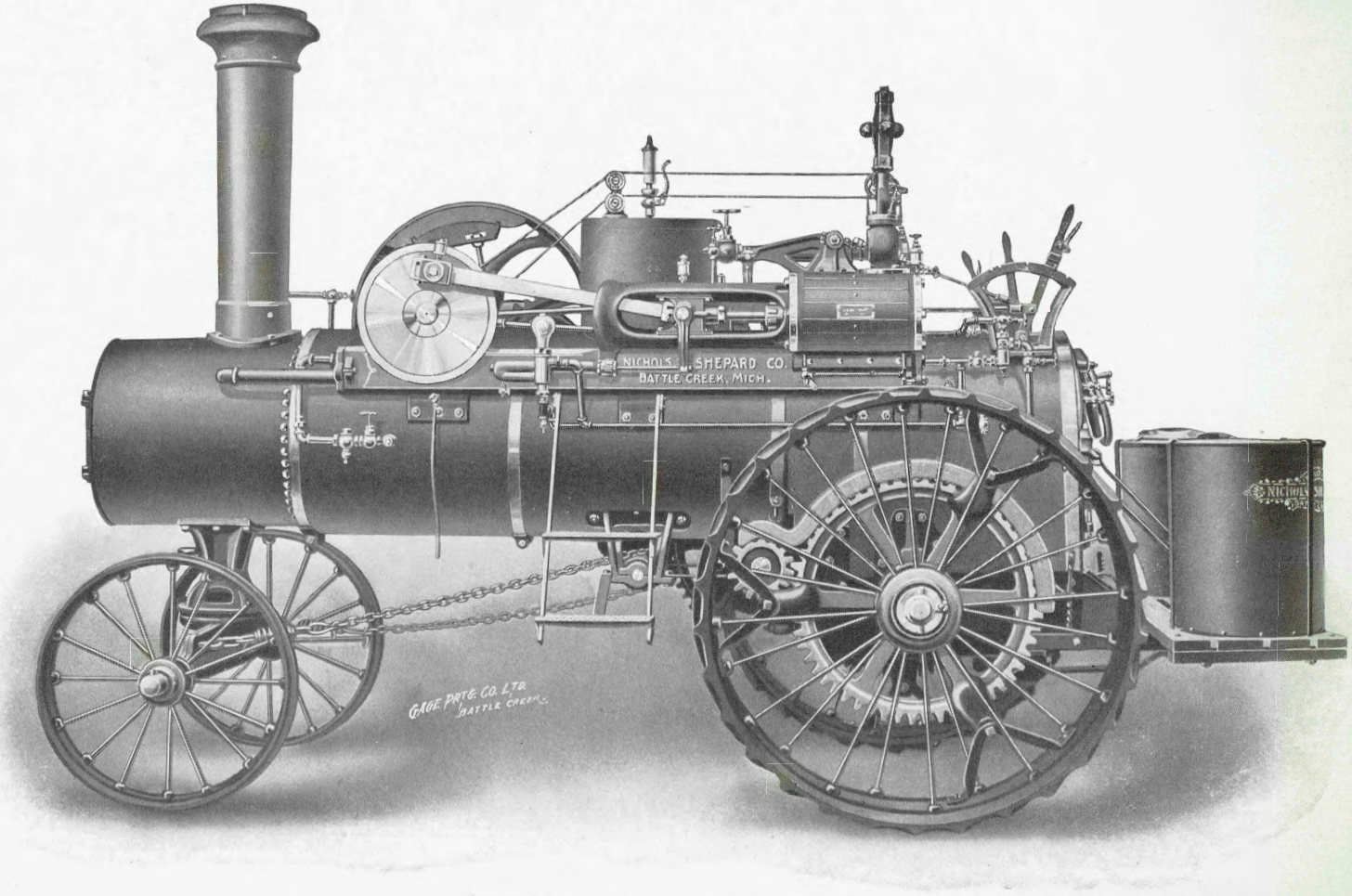
Door Frames



Flue Sheet in Smoke-Box End.

Flues.—We call especial attention to our flues, which are of the quality and strength of those used only in the best modern locomotives. We use only the highest grade of flues, each one provided at the fire-box end with a copper thimble, as shown in our illustration. It will likewise be observed that the flues are placed in perpendicular rows, with ample water space between, which permits the uninterrupted descent of sediment to the bottom of the boiler, from whence it is easily washed out.

Engineer's Platform.—We have looked to the comfort, convenience and safety of the "man at the helm" in constructing our engineer's platform. No other device in this line even parallels it, and it is an adjunct of our TRACTION ENGINE where the operator



NICHOLS-SHEPARD TRACTION ENGINE

Coal and Wood Burner, with Jacketed Boiler

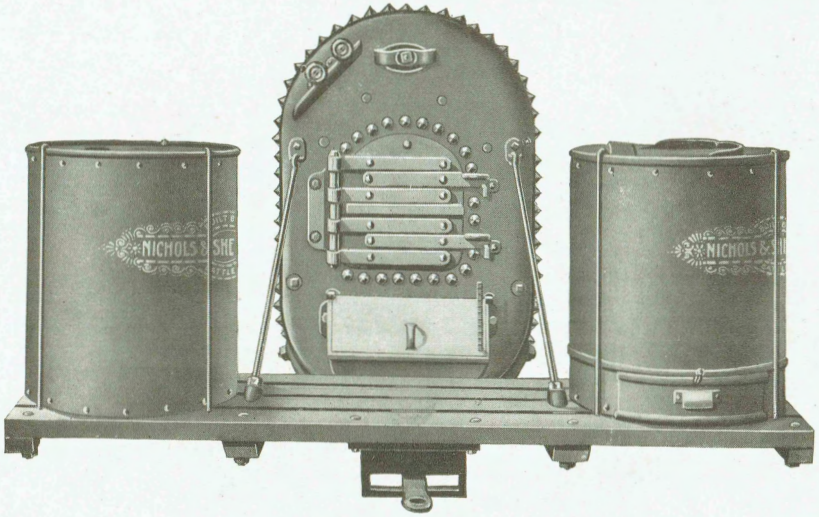
feels completely at home, with everything in easy reach and control. So substantial is the platform attached to the sides of the boiler by wrought-iron supports and braces that even in case of the drive wheels breaking through a bridge the platform has sufficient resistance to support the entire weight of the engine, if necessary. The tanks at either side are tasteful in appearance, being round, and made wholly of metal, and so securely fastened to the platform that neither use nor accident can materially damage them.

Draw Bar.— In our illustration the end of our draw bar shows projecting from directly under the platform, entirely out of the way, where it can be reached most easily.

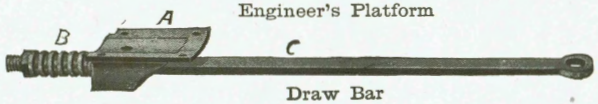
Note the spring attached to the inside end of the bar. This cushions the strain, and prevents any trouble likely to arise from sudden shocks upon the bar or the brackets.

The Glass Water-Gauge is placed close to the boiler, and is well guarded, so as to render it less liable to be broken.

The Improved "Pop" Safety Valve is constructed of brass (except the steel springs), and is entirely reliable under all pressures. It is set to "pop" or blow off at the proper pressure, and the cover is then locked to prevent any one tampering with it.



Engineer's Platform



Draw Bar

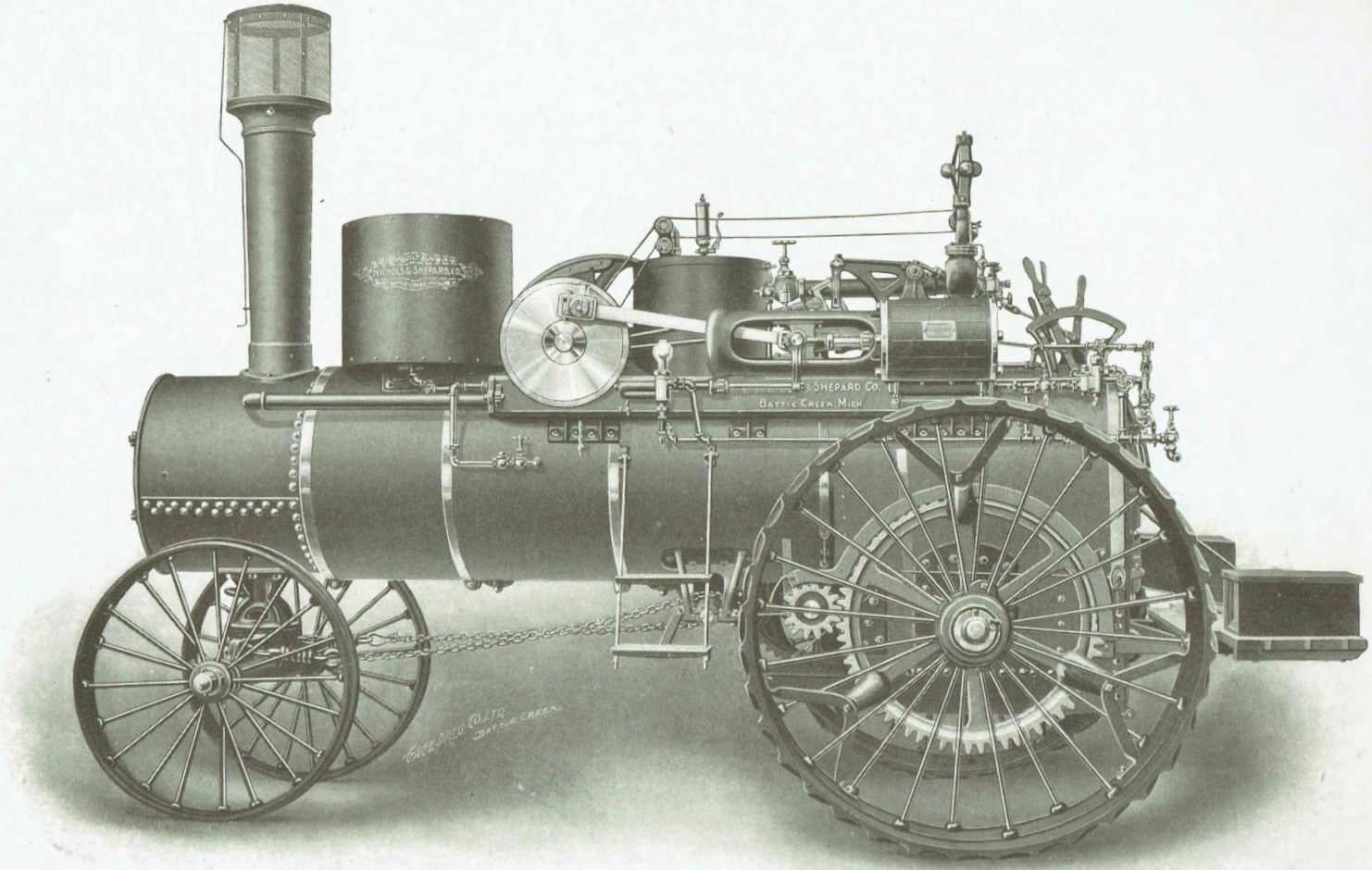
The Steam Gauge is of improved design. It is provided with the patent bulb syphon, which is found to be indispensable to the perfect working of a steam gauge.

The Check Valve is extra heavy brass, large and strong, and is provided with a drip cock for drawing off the water in cold weather.

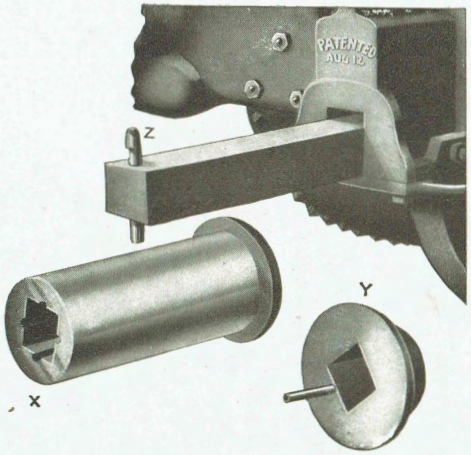
A Stop Cock is provided between check valve and boiler.

A Brass Plug is placed in the elbow of feed water pipe, near the boiler. This plug can be taken out and the lime deposit removed from the feed pipe where it enters the boiler. Plugs are also placed in smoke-box and side of fire-box, for washing out boiler.

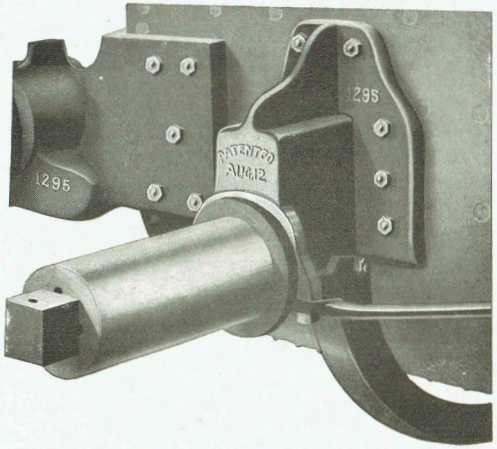
The Cross-Head Pump is simplicity and effectiveness combined, and therefore is the most economical and practical boiler feed for traction engines. Our new device for heating the feed water with exhaust steam, yet using the direct exhaust, relieves the engine from unnecessary back pressure. The feed water is



NICHOLS-SHEPARD STRAW, WOOD AND COAL BURNER



Engine Axle, Sleeve and Nut



Engine Axle and Sleeve

heated to twice the extent capable with other styles of pumps, which means a great saving in fuel.

The Injector is reliable and entirely automatic, and will work while running over rough roads. It is easily taken apart and cleaned while the engine is running.

Suction Hose.—The very best make of "Patent Suction Hose" is furnished, with brass wire-covered strainer.

Discharge Hose.—An ample discharge or wetting-down hose, with nozzle, is furnished with each engine.

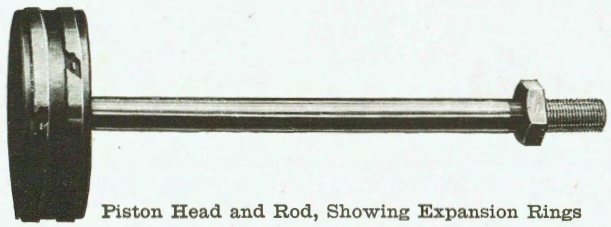
Our Brass Fittings are of extra quality of government standard, and are made especially for our engine, from our own extra heavy patterns.

The Trucks are constructed entirely of iron. The rear axle is very heavy and substantial, and, on coal- or wood-burning engines, passes entirely under the boiler. It is cushioned by springs in brackets, which are bolted to the boiler. This arrangement is very advantageous, as any sudden strain, produced by the wheels when passing over obstructions, is borne equally by the whole boiler, and thus damage to any one portion is obviated.

The Axle Spindles are square, on which is placed a large thimble or sleeve for the drive wheels to revolve upon, which increases the life of the spindle and wheel, and obviates trouble from the axle springing and gear getting out of line.

The Engine is a Corliss pattern of the only true and correct type, and has proved by many years of severe test to be the most practical and best adapted for traction engines.

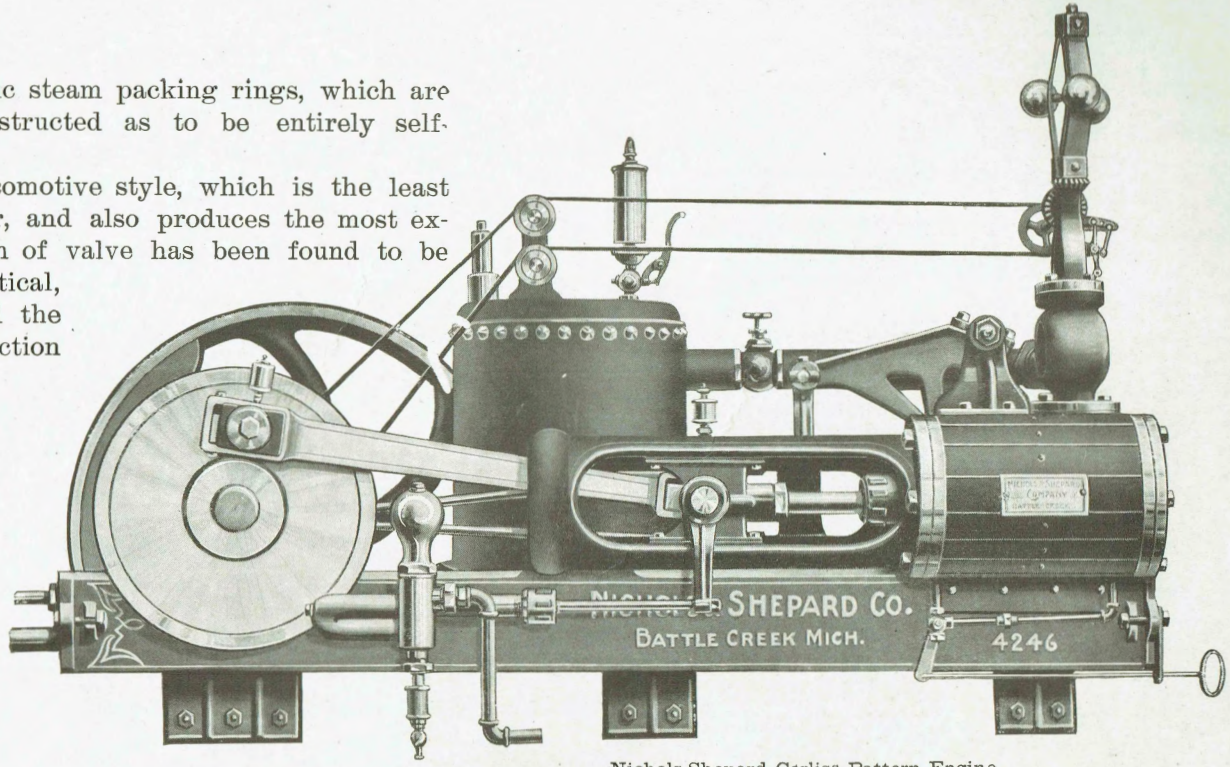
The Cylinder is jacketed, and is provided with a reliable sight-feed oiler, and lever cylinder cocks. The piston rod, valve rods, and main shaft are of cold-rolled steel, and all fittings are of the best quality of brass. Particular attention is paid to making the cylinder and piston perfectly accurate. The piston is fitted



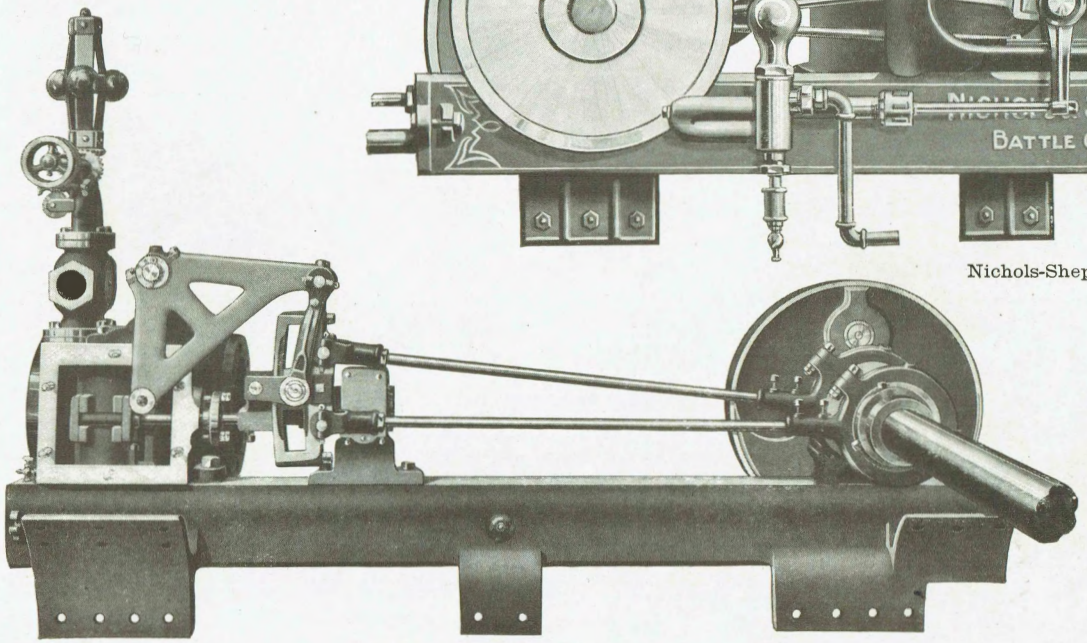
Piston Head and Rod, Showing Expansion Rings

with our improved metallic steam packing rings, which are so proportioned and constructed as to be entirely self-adjusting.

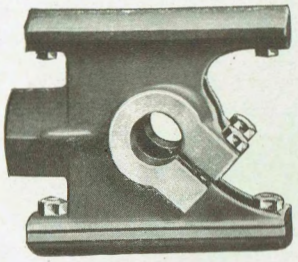
The Valve is the locomotive style, which is the least liable to get out of order, and also produces the most excellent results. This form of valve has been found to be the most thoroughly practical, and the only one to stand the test of actual use on a traction engine.



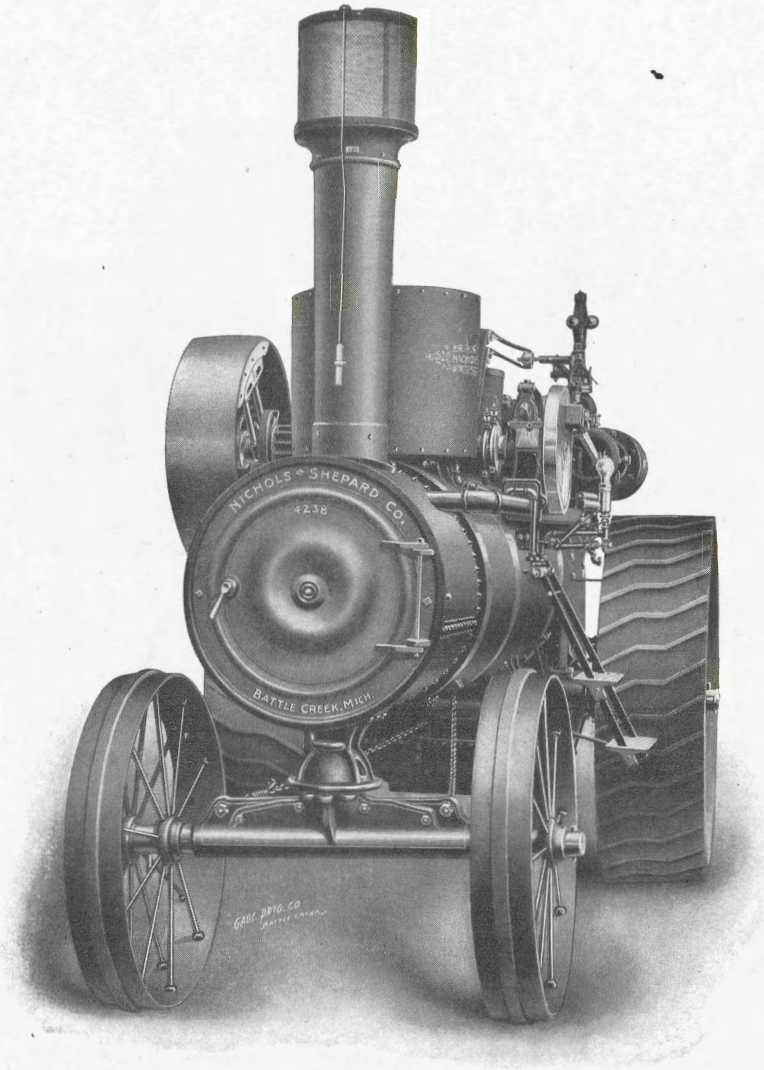
Nichols-Shepard Corliss Pattern Engine.



Valve and Link Reverse.



Cross Head.



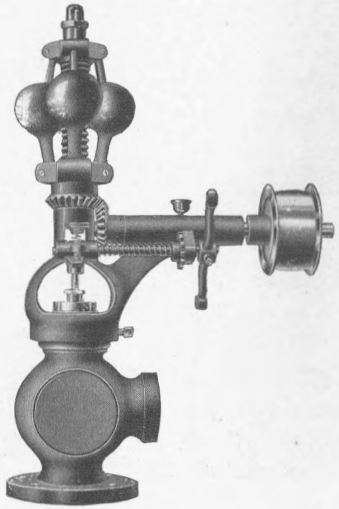
Nichols-Shepard Straw Burner, Front View

The Guides are rigid and are fitted perfectly true and accurate.

The Cross Head is constructed so as to admit accurate and easy adjustment and has a large wearing surface, insuring long wear.

The Main Shaft is of cold-rolled steel, and, as it is of extra size, it is of course much superior in every respect to the ordinary make.

The Pillow Blocks or Main Shaft Boxes are constructed strong and are provided with ample bearing surface for the main shaft so as to permit of long usage, and are so chambered for lubrication that the main shaft constantly runs in oil, leaving no tendency to heat or wear.



Nichols-Shepard Governor

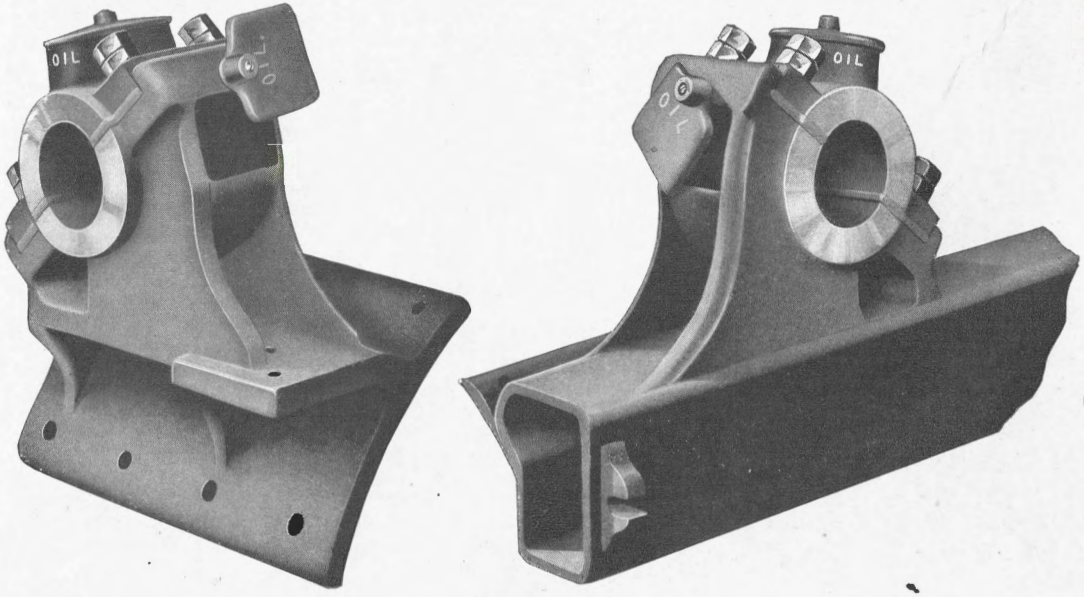
The Crank is a balanced disk, perfectly finished on the edge and both faces, and forced upon the main shaft by enormous screw pressure.

The Wrist Pin is of extra size, made of cold-rolled steel.

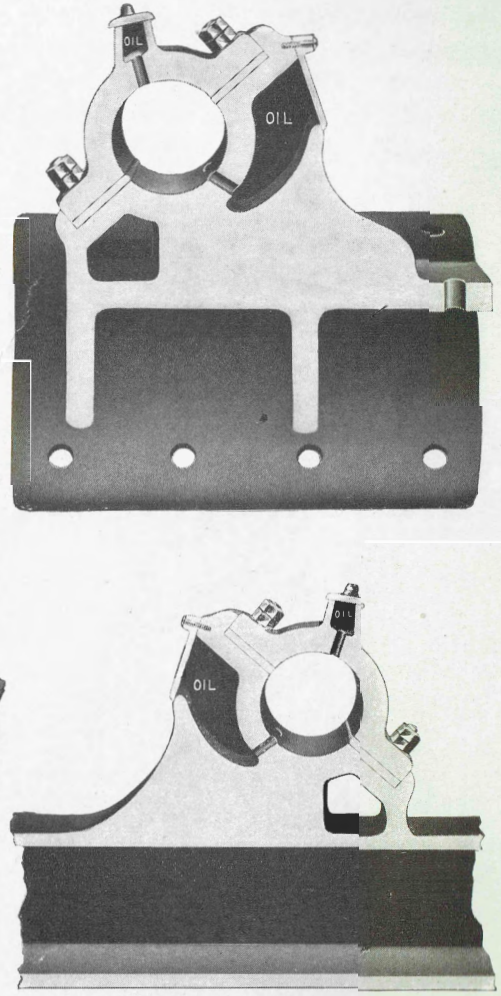
The Connecting Rod is made in the locomotive style, of forged steel, and as perfect in proportion as the utmost care and the best workmanship can make it.

The Brass Boxes at the end of the connecting rod are of extra size, with large wearing surface, thus preventing heating and cutting, when proper care is exercised.

The Governor is of the latest and most improved form, and is constructed in the most skilful and substantial manner. By the use of an improved valve, it proves a reliable regulator, under whatever conditions



Main Shaft Boxes



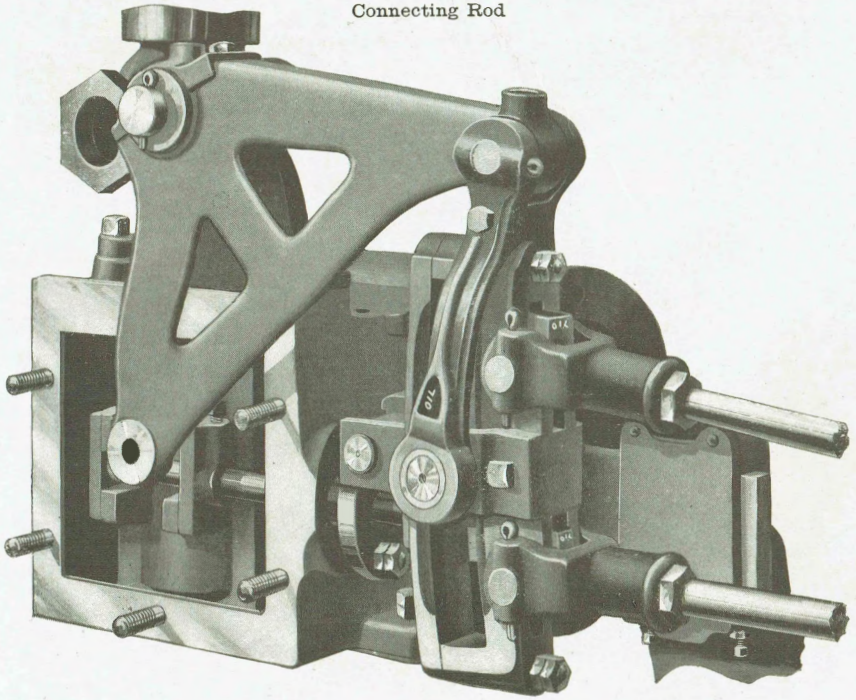
Main Shaft Boxes, Sectional View Showing Large Oil Chambers

the engine is working, and is a great steam saver. It is provided with a perfect speed adjuster, by which the speed of the engine can be instantly changed.

An Automatic Sight-Feed Lubricator, of the latest and best design, supplies the valve and cylinder constantly with oil.

The Counter Shaft Boxes are solid in the counter shaft brackets, and provided with a strong gibb or cap, held firmly in place, with adjustable set screws. Any wear can be easily taken up. No packing or bolts are used, and no parts that are easily broken.

Connecting Rod



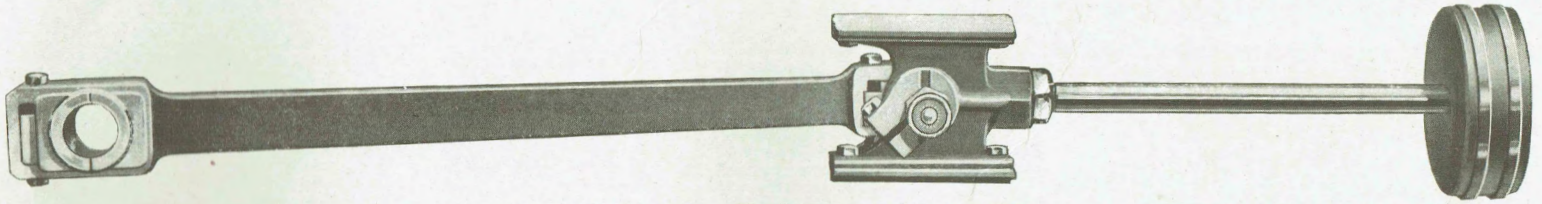
Locomotive Link and Valve Connection

The Locomotive Link is adjustable, so lost motion can be taken up, and so that repairs can be made without the necessity of taking the link to a machine shop. It has double hangers, and is evenly balanced, obviating all tendency to twist or wear unevenly. The link blocks and all pins are of the best steel and case hardened to insure long and uniform wear. Every bearing in our link is provided with removable bushings, that in case of wear can be substituted with new ones at a nominal cost. The wearing parts of the link are amply provided for lubrication, and its general construction is such that should any part give out it can be replaced without much expense. It is the only perfect valve movement.

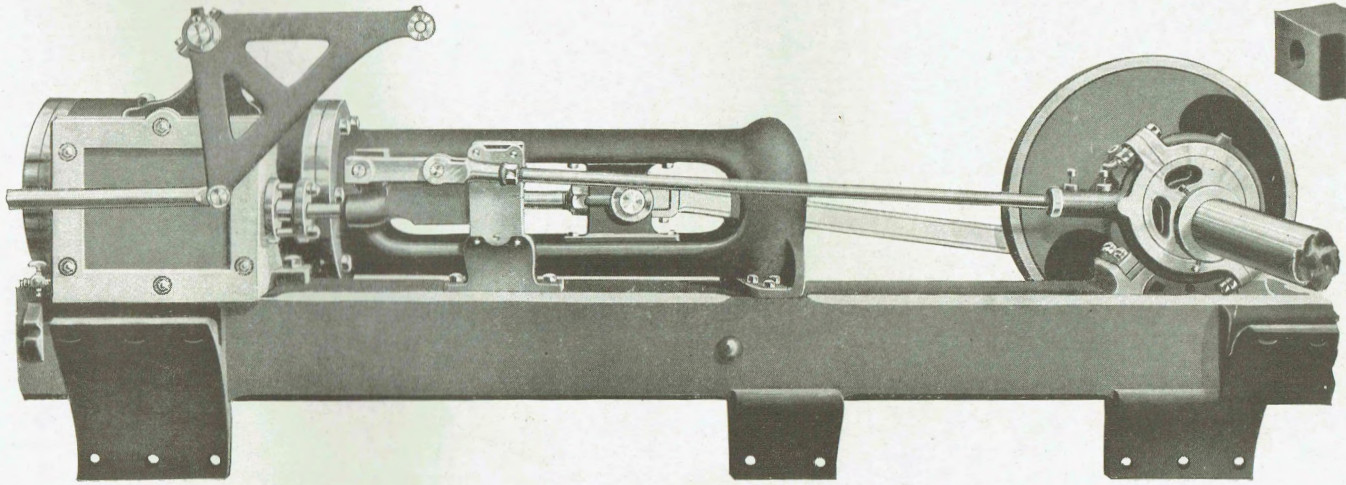
Drew's Connecting Valve Block.—By use of this device the valve stem can be directly connected with either eccentric rod, and the link entirely removed and the engine run for a long time in one direction, which is desirable when used with a saw or feed mill. Continued use of one eccentric will cause wear upon one end of the link, making it necessary to have it refitted. The change can be made in ten minutes' time. This block can be furnished with each traction engine, without charge.

Friction Clutch.—A practical device for connecting the engine with the traction gear. It is moved with a lever, which permits of very delicate and quick handling. It has a lock-pin device, so that it can be locked, making the gear solid, and the friction need not then be used.

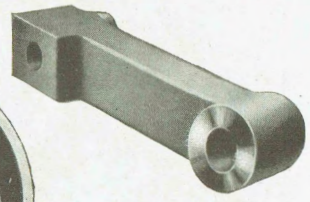
Driving Wheel.—This wheel is simple, strong and durable. It has wrought-iron spokes cast solid into the hub and steel rim. The spokes are securely riveted to the rim. It drives from the rim. The lugs are malleable iron, extra heavy, to stand wear, and are specially formed to prevent sticky soils from filling them up, where they would be ineffective.



Connecting Rod, Cross Head, Piston and Piston Rod



Drew's Connecting Valve Block in Use



Drew's Connecting Valve Block

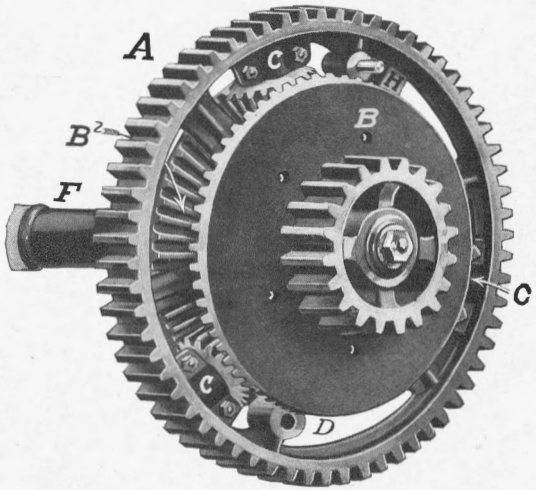

16-HORSE ENGINE DOING
39-HORSE POWER WORK
UNDER FRICTION BRAKE
HANDLING ENGINES WITH
PNEUMATIC CRANE
HEAVY
FORGING SHOP
DRILLING BOILER WITH
COMPRESSED AIR.
PLANING MILL
ENGINE ERECTION SHOP.
SHOP SCENES IN
NICHOLS & SHEPARD COMPANY'S
FACTORY,
BATTLE CREEK, MICH.

Wrought-Iron Rear Axle.—The axle rests upon springs, and is free to move up and down in the slots in the brackets. It passes entirely beneath the boiler, and is made square its entire length. Over this square spindle is used a large sleeve, which gives greater wearing surface to the hub of the driving wheel. The sleeve and driving wheel are held in place by a large nut and a linchpin. The great advantages of this arrangement are obvious: The axle will not spring as easily as the old-style spindle, and the wearing surface is increased to such proportions that the driving wheel must always remain in line with the traction gear. It will be noticed that the wearing life of the sleeve can be doubled by simply turning it half-way round on the axle. The great difficulty common to engines with small spindles is thus avoided.

The Traction Gearing we have made extra heavy and strong. Steel pinions are used on the main shaft, counter shaft, and in the compensating gearing.

The Compensating Gearing, for enabling the engine to turn, is made from tested material, extra strong and durable, the counter shaft is extra large, the bevel wheels have long hubs with ample bearings. The spur wheel runs on the hub of the bevel wheel, and both are provided with oil tubes, making it convenient to oil them in the right place. The gearing throughout is exceedingly strong, and so well designed that every part performs its appropriate function easily and noiselessly. All the gearing which might be injured by sand or mud is protected by suitable guards of iron.

Convenience.—Our Traction Engine is a



Compensating Gear


Drive Wheel with Lug-Gear Attached

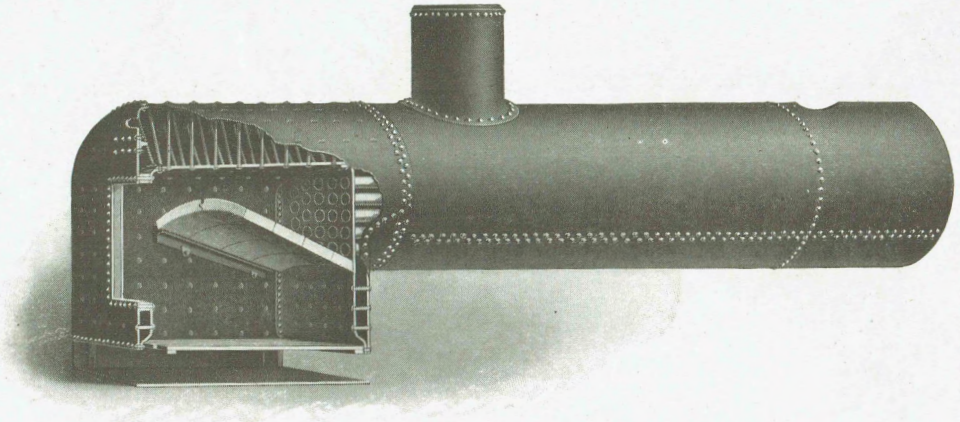
model in this respect. Off or on the road its operator has confidence in the integrity of construction, and knows from brief experience the many helps given by accessories exclusive to the Nichols-Shepard make. On the platform, the engineer is a master complete of the utilities. The reversing lever, throttle valve, try cocks, whistle, cylinder cocks, pump injector and guiding wheel are all within easy reach from his position on the platform. Intelligently managed, this engine never makes a mistake.

COMPOUND ENGINES

Although we do not list compound engines, we are in position to furnish them, when required, in the following sizes: 13-, 16- and 20-horse wood- and coal-burning compound engines, and 25-horse straw-burning compounds.

NICHOLS-SHEPARD STRAW-BURNER ENGINES

The celebrated Nichols-Shepard Coal- and Wood-Burner Engines are the standard of the threshing field universally. In the design of the Nichols-Shepard Straw-Burner Engine it has naturally been our aim to follow closely upon the same lines of construction, and the same accessories of excellence, where possible. The result has been that we have produced a direct-flue straw-burning engine that has taken precedence in every test made, that stands ideal with the progressive thresherman as concentrating those energies and merits which count most where power and reliability are absolute. It has easily taken the lead wherever straw burners are used, and has an exclusive reputation for practical efficiency, for durability and for facile management. It is easy to fire, equally well adapted for wood or coal, and on this account has been purchased and used in districts where straw is never burned for fuel.



Nichols-Shepard Straw-Burning Boiler, Showing Arch of Fire-Brick Protecting Flue-Sheet

The boiler is jacketed with wood and iron, and the fire-box is constructed on the only practical and correct principle of utilizing much heat where it is generated. Its easy-steaming qualities are not found in any other boiler. It has a shelf of fire-brick between fire and the flue and the crown-sheet, for use with straw as fuel, amply protecting both. The draft is taken from the end of the fire-box opposite the fire-door. The fire burns under the fire-brick towards the fire-door to the combustion-chamber above the fire-bricks, onto

the crown-sheet and thence through the flues. The intense heat from the fire-bricks makes a complete combustion-chamber in the top of the fire-box. It has the traction attachment complete, including our improved friction-clutch and link-reverse. A capacious water-tank is placed on the front end of the boiler.

There is no thresher device or appurtenance put out by Nichols-Shepard Co. that does not represent superiority in being the latest and the best available. This applies with emphasis to our Straw-Burning Engine, which naturally possesses all the good points of other makes, but the special standard features of advantage of our own design. In the great grain fields of the Northwest, where it has been put to most severe tests, it has promptly demonstrated its superiority and efficiency under all adverse conditions, and has more than met our anticipations, and filled all requirements of the enterprising thresherman of that region.

Our Straw-Burning Engine, combined with our extra-large Red River Special Separator, comprises an equipment with which the thresherman may successfully and profitably cope with the large crops of any section. This outfit represents a capacity that makes threshing a source of profit never heretofore realized.

N. & S. TRACTION ENGINES

Dimensions in Inches

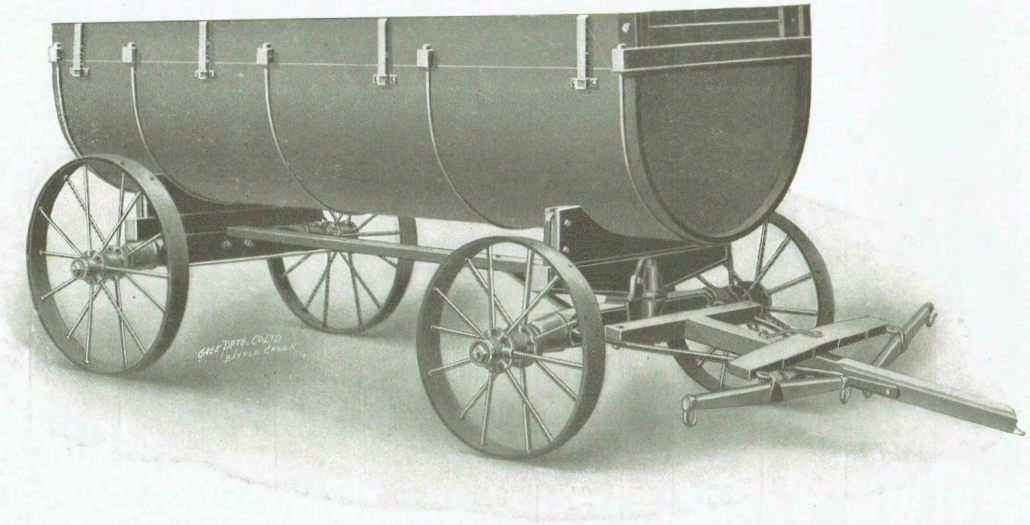
SIZE	CYLINDER		BOILER		FIRE-BOX			FLUES			SMOKE BOX	BAND WHEEL		SPEED	TRACTION WHEEL	
Wood and Coal Burners	Diam.	Length	Diam.	Length	Width	Length	Height	No.	Diam.	Length	Length	Diam.	Face		Diam.	Face
10-H. simple....	7¼	10	26½	129	22	33½	32	38	1¾	69	24	36	9½	240	60	14
13-H. "	7¾	10	28	143	24	34	33	38	2	77	30	36	9½	240	60	16
16-H. "	8	12	29	146	25	36	36	42	2	77	30	40	10⅜	225	60	18
18-H. "	8¼	12	32	149	28	40	39	47	2	77	30	40	12	225	66	20
20-H. "	8½	12	33	149	29	40	40	54	2	77	30	40	12	225	66	20
Straw, Wood and Coal Burners																
20-H. simple....	8½	12	32	163	27	40½	31	32	2½	90	30	40	12	225	66	20
25-H. "	9¼	12	36	169	31	42½	36	45	2½	94	30	40	12	225	72	24
30-H. "	9¾	12	39	169	34½	42½	39	54	2½	94	30	40	12	225	72	24

LOW-DOWN TANK PUMP

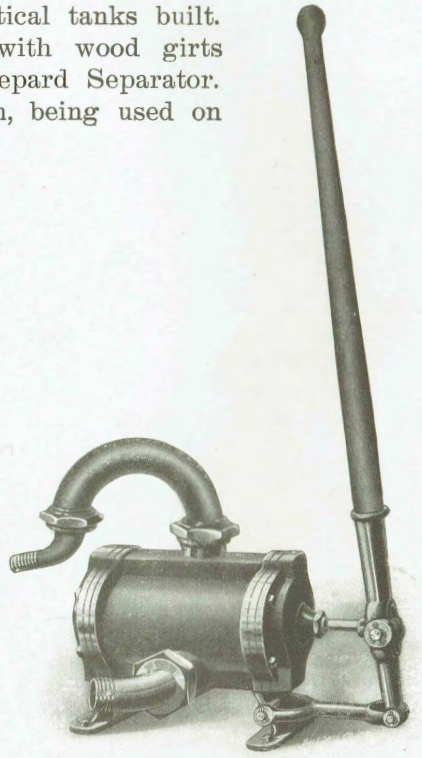
This is one of the most practical pumps made for filling threshing tanks, washing out boilers, and for general use about the farm. It is simple, durable, and has an easy capacity of two barrels per minute. The pump complete includes 20 feet of 2-inch wire-lined suction-hose, 12½ feet of 1-inch discharge-hose, with nozzle and strainer.

WAGON TANK

The Nichols-Shepard Wagon Tank is one of the most popular and practical tanks built. It is thoroughly constructed of well-seasoned lumber, and is strongly stayed with wood girts and iron rods. The trucks are substantially built like those of the Nichols-Shepard Separator. The tank can be furnished without the trucks to fit any ordinary lumber wagon, being used on the bolsters like the usual wagon box. Holds about fifteen barrels.

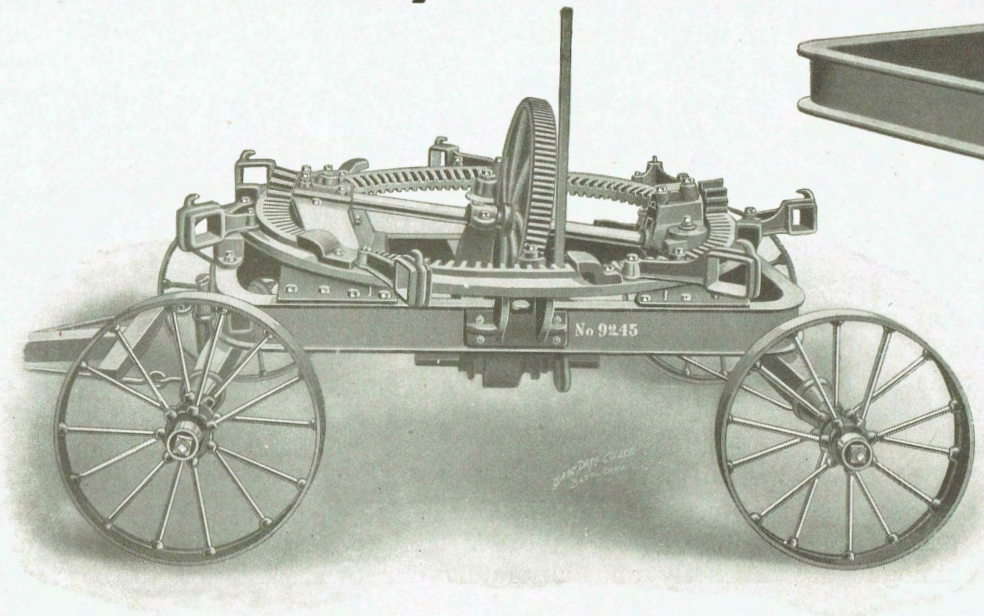


Mounted Water Tank

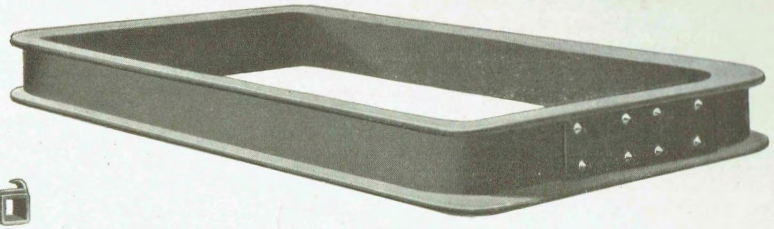


Low-Down Tank Pump

Nichols-Shepard All-Steel Frame Horse-Power



Nichols-Shepard All-Steel Frame Horse-Power



Horse-Power Frame, All-Steel

When the Nichols-Shepard All-Steel Frame Power came into the field, it practically revolutionized defective precedent and established a standard, for it overcomes difficulties once deemed unsurmountable.

It is beyond doubt and dispute universally conceded the strongest and easiest-running horse-power ever made. The accompanying illustration shows the aggregate construction. Especial notice should be taken of the horse-powers usually found upon the market which are in most instances built with wooden frames and put together with joint bolts, and which necessarily shrink and swell when exposed to the changes of the weather, making it impossible to keep their mechanism in proper line and mesh.

The Nichols-Shepard All-Steel Frame Power is in just as good a condition at the end of the season as it was at the beginning, because all such weaknesses are avoided, and staunch, perfect construction exercised in behalf of the very best material combined with masterly handiwork. It is built with extra-large shafts, extra-heavy gear, journals and boxes, and made impervious to damage or dislocation through the most critical tests. The master wheel is made extra heavy, with large cogs, and reversible, so that if the teeth become worn on one side, it can be reversed and bring the wear upon the other side. Its capacity is unlimited, as is the power practically indestructible. It is often used with eighteen horses, and is mounted on iron trucks in a thorough, workmanlike manner. Our driving pinions are made of cast steel, and the shafts of a superlative quality of

cold-rolled steel. The line shaft is so arranged that the tumbling-rod can be attached at either end. Owing to the great strength and rigidity of the frame of this power, the gearing is kept constantly in position, making this power the easiest-running one ever devised. It is all that goes to make a desirable power, and stands without a rival in its strength, durability, ease of draft, cheapness of repairs and convenience.

The Best Is the Cheapest

"Cheapness" is a relative term, depending, for the most part, on the adaptability of the thing purchased for the end to be accomplished, and its performance, or ability to continue to discharge its functions. In determining whether or not machinery is CHEAP, these points become important factors in the problem.

The difference in price, if any, between our machinery, which is made to effect, and that in the best, speediest and most economical manner, certain desired results, and to continue to do so for a long period of years, and the made-to-sell variety, becomes, when thus regarded, the veriest nothing, which the shortened profits of a week's threshing, or a single "break-down," will more than sweep away. The last-named machinery seems cheap enough when you purchase it, and never fails to keep up its reputation for "cheapness" when put to work; while our products demonstrate their cheapness in splendid, long-sustained results.

Prices are important, but should be considered in connection with other matters, and the valuable special features described and illustrated in this catalogue are distinctly and absolutely our own, and not to be found in other machinery.

"More and better work than any other machine made" is the Broad and Ample Guaranty printed in the body of the blank on which we take orders for machines. It clearly stipulates as to the superior capacity and quality of the machine in all kinds of work, and provides for the free delivery of duplicates of any parts that may fail by reason of unavoidable defects incident to the nature of material.

Full particulars of sizes, styles, prices, terms of payment, etc., for our Complete Establishments, as well as Separators "alone," Horse-Powers "alone," and Engines, will be furnished free on application in person or by letter to Nichols-Shepard Company, Battle Creek, Mich., or to any of our Branch houses or General agencies.

BRANCH HOUSES

KANSAS CITY - MO.
DES MOINES - IOWA.
INDIANAPOLIS - IND.
MINNEAPOLIS - MINN.
PEORIA - ILLS.
MILWAUKEE - WIS.
NASHVILLE - TENN.
COLUMBUS - OHIO.
WINNIPEG - MANITOBA.
LINCOLN - NEB.
FARGO - N. D.