No. 4,628. PATENTED JULY 14, 1846.

D. PEASE, Jr.

MACHINE FOR CLEANING BUCKWHEAT.

Fig. 1.

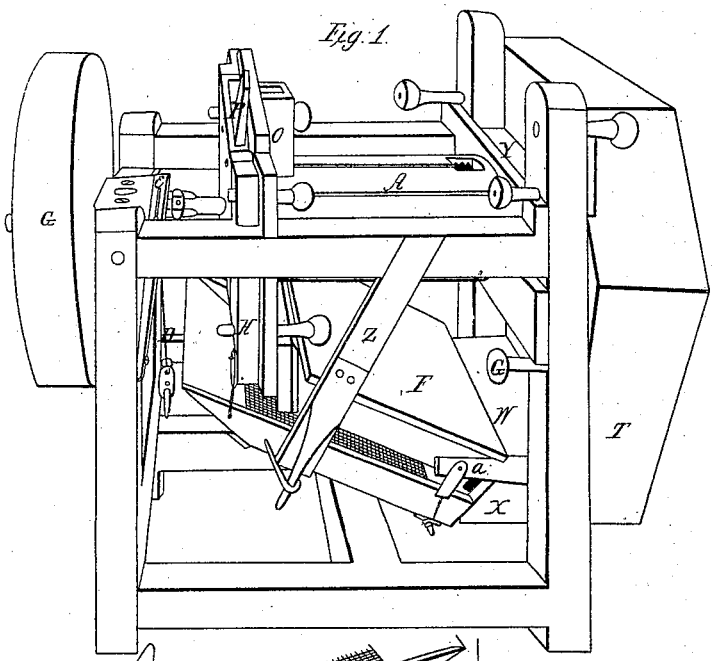


Fig. 4.

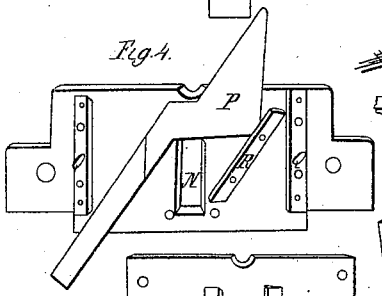


Fig. 3.

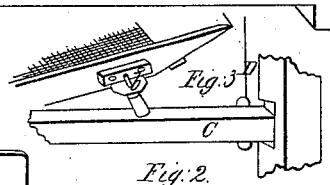


Fig. 6.

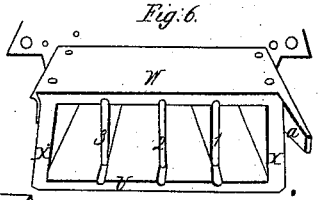


Fig. 2.

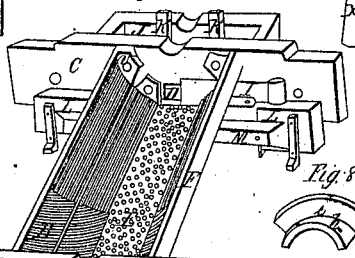


Fig. 5.

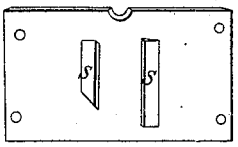
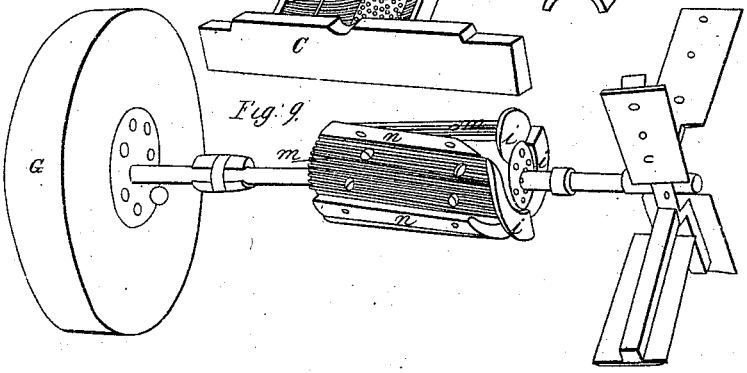


Fig. 7.

Fig. 8.

Fig. 9.



UNITED STATES PATENT OFFICE.

DAN PEASE, JR., OF FLOYD, NEW YORK.

MACHINE FOR CLEANING BUCKWHEAT.

Specification of Letters Patent No. 4,628, dated July 14, 1846.

To all whom it may concern:

Be it known that I, DAN PEASE, Jr., of Floyd, Oneida county, and State of New York, have invented a new and useful Machine for Cleaning Buckwheat; and to enable others skilled in similar business to make and use the machine I here give a full description of one, which, I believe, among the great variety of experiments I have tried, to be the best, as it respects cost, convenience of setting up, and convenience of using, and for brevity's sake shall describe an operative machine, giving the size and dimensions of each part without saying this may be longer or shorter or that may be larger or smaller, &c., (it will be seen that such alterations can be made without changing the nature of the machine,) reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view of the machine with the cover over the screen a little raised to show it more clearly. Fig. 2 is a view of the lower half of the outside cylinder with all the fixtures to the head piece. Fig. 3 is a view of the screen attached to the roller the opposite side from which is shown in Fig. 1; Fig. 4 a view of the head piece to the upper half of the cylinder with the ½ inch board taken off which forms the opening between it and the head piece for the grain to fall down through; Fig. 5 a view of the ½ inch board showing the side that belongs next the opening; Fig. 6 a view of the mouth of the fan; Fig. 7 and Fig. 8 different views of the section screw; Fig. 9 view of the shaft and attached to it the whirl shakers wings and revolving cylinder with the formal wedges and section screws attached to it.

References to the drawings.

Fig. 1, letter A is the cylinder in which the friction is applied to the grain. O is the tube in which the grain rises to get out of the cylinder. G is the whirl. Y is a little piece of board filling the space between the fan case and head piece to the cylinder; P the handle to the sheet iron slide; E the noddle which is put in motion by the shakers on the shaft which it lies on; D the connecting wire from the roller to the noddle. H is pieces fastened to the frame, which wooden pins are put into to support the head pieces to one end of the cylinder. Z is a piece nailed to the frame which the spring is fastened to. G is one of the wooden pins that hold the cylinder into the frame, F is the cover over the screen, W is the top to mouth of the fan, T is the fan case, X is the side of the mouth of the fan. *a* is a little piece nailed to the side of the mouth of the fan to hold up the screen and the cover over it.

Fig. 2, letter C is the head pieces, B is the part of the stave where the screw is formed by the fluting, V is the projection on the stave by which it is fastened to the head piece, E is the sheet iron stave at the bottom of the cylinder, D is the hole at the end of the cylinder by which it is emptied; I the sheet iron slide that shuts the hole D. J is the opening between the ½ inch board and the head piece for the grain to fall through, K is pieces nailed to the half inch board to stop a part of the grain as it bounds from the shaft. L is a block at each end of the opening M is a strip of board nailed to the blocks which has a strip of sheet iron nailed to the lower edge that the grain falls from onto the screen.

Fig. 3, the letter C is the roller *b* is the piece of sheet iron fastened to the screen that slips onto the wire projecting upward from the roller D is the connecting wire.

Fig. 4, the letter N is the hole in the head piece where the grain leaves the cylinder, P is the sheet iron slide shoved down nearly to the lower end of the hole; Q the inch square pieces nailed to the head pieces that the ½ inch board is nailed to which forms the opening for the grain to fall through; R the guide nailed to the head piece that keeps the slide in its place.

Fig. 5, the letter S pieces that come against the sheet iron slide to keep it snug against the headpiece one is slanted off to come under the guide.

Fig. 6, the letter U the mouth of the fan; X the sides to it; W the top board to the mouth of the fan; 1, 2 and 3 the stops made of thin board which extend inside the case the wings revolve in but below them and stop the air by piece means each stopping apart and give it a direction lengthwise the screen.

Fig. 7, and Fig. 8 the letter *h* the curved part that sets on the cylinder where it is fastened with screws; letter *i* the projecting part that stands out from it in a screw form when it is fastened on the cylinder.

Fig. 9, letter G the whirl; *m* the fluted staves that form the wedges *n* little strips of wood fastened to the cylinder at the back edge of the wedges *i* the section screw.

The description is as follows prepare a frame of suitable timber say 3 inches square make it 18 inches wide inside and 24 inches long inside the distance between the top and bottom pieces on each side is 21 inches, the posts at one end extend 12 inches above the top side pieces to support the top part of the fan case and the head piece to the cylinder the end pieces which the shaft lies upon are framed into the posts immediately under the top side pieces the bottom pieces at each end are one framed into the short posts the other into the bottom side pieces 7 inches from the long posts.

The cylinder A in which the friction is applied to the grain is $15\frac{1}{4}$ inches in length and $7\frac{5}{8}$ inches diameter inside, it is made of cast iron staves about $2\frac{5}{8}$ inches wide or so that 8 of them form a cylinder leaving $\frac{1}{16}$ of an inch opening between them for the dust to escape, they must be the most open outside to prevent getting clogged $\frac{1}{4}$ of an inch from each end of the staves is a projection V $\frac{1}{4}$ of an inch thick the whole width of the stave extending $1\frac{1}{2}$ inches toward the center of the cylinder it lies flat on the head piece and is held by a screw, the end of the stave that extends beyond the projection sets in a circular groove which holds them in their places. The cylinder is fluted inside, $5\frac{1}{2}$ inches at the end B where the grain enters is fluted $\frac{3}{16}$ of an inch deep crosswise the stave angling 1 inch from a right angle in the width of the stave the fluting is $\frac{1}{2}$ an inch from point to point and from a screw inside $5\frac{1}{2}$ inches in length of the cylinder. The remainder of the length is fluted lengthwise the staves $\frac{1}{4}$ of an inch deep the fluting should be a little the flattest on the side where the grain leaves it so that the circular motion of the grain will have a tendency to drive everything out of the creases if the creases are too steep at the forward side they catch the dirt when damp and fill up and make a smooth surface the back side should be rather steep so as to get in more streaks, 7 streaks or flutes in the width of the stave is sufficient. The heads of the cylinder are formed with strips of board one inch thick and long enough to reach across the frame forming the heads of the cylinder also the stays to hold it in its place in the frame these I call the head pieces C. The cylinder is made in two halves lower and upper, the lower half has but 3 cast iron staves in it one being left out at the bottom (where the grain begins to rise when put in motion by the revolving cylinder) and a sheet iron stave E is fixed in its place, it laps a little onto the cast iron stave each side where there is strips of wood F fastened outside the staves by screws and lap onto the sheet iron and hold it fast, the sheet iron stave is punched full of holes to let the dirt and dust fall through, these holes must be punched upward making a little raise around them to prevent their being clogged with small seeds, if the dust is not allowed to escape through the cylinder it gets ground to such an adhesive dust that a current of air will not rid the kernel of it, the dust does not raise and come out so readily as the grain but inclines to the bottom.

The lower half of the cylinder is placed with the head pieces snug up under the top side pieces where there is little blocks nailed and the head pieces notched to agree with them which prevents their slipping endwise. The end of the cylinder that receives the grain sets against the long posts and is held up by wooden pins G in them, the other end of the cylinder is held up by pins in pieces H fastened to the frame for that purpose. The upper half of the cylinder the head pieces are notched to let it down between the top side pieces of the frame to meet the lower half and is held by pins in the same manner. On the head pieces of the lower half of the cylinder at the end where the grain leaves it is a sheet iron slide I that slips between it and the end of the sheet iron stave that opens a hole D at the bottom of the end of the cylinder to empty it when another kind of grain is to be cleaned (as the same machine cleans barley).

The head pieces at the end the grain leaves the cylinder the lower one is 7 inches wide the upper one is $9\frac{1}{4}$ inches wide. There are pieces one inch square nailed to the lower head piece on the outside $6\frac{1}{4}$ inches from the center each way, onto these pieces is nailed a half inch board thus forming an inch opening J $12\frac{1}{2}$ inches long between the $\frac{1}{2}$ inch board and the head piece for the grain to fall through when it leaves the cylinder. On the $\frac{1}{2}$ inch board is nailed 2 strips of wood K $\frac{5}{8}$ of an inch square and 4 inches long nailed 4 inches apart each 2 inches from the center the ends project one inch above the edge of the $\frac{1}{2}$ inch board to stop a part of the grain when it bounds from the shaft and make it spread more even. There is an opening formed on the upper head piece in the same way which makes one opening when put together. The lower end of the 1 inch square pieces on the lower head piece are cut off slanting. The slant also continues across the edge of the head piece. There is a piece of sheet iron nailed onto this slanting part to guide the grain the

other side of the head piece the lower edge of which is cut out to make a continuance of the before mentioned opening (down the outside of the head piece) under the lower edge of it to the inside where there is a block L nailed at each end of the opening 1¼ inches thick and 4 inches square the edge of the blocks comes even with the opening and they project 2 inches below the edge of the head piece, onto these blocks is nailed a strip of board M 3 inches wide the upper edge of which comes nearly up to the cylinder. To the lower edge of this board is nailed a strip of sheet iron that projects ¾ of an inch from it between the blocks the before mentioned piece of iron comes ½ inch in between the blocks so as to leave ¾ of an inch between it and the board M and it is 1 inch from the edge of this iron to the other strip of iron below it which is horizontal and nailed to the lower edge of the board M from this last mentioned iron the grain falls onto the shaking screen. On the opposite side of the blocks is nailed a thin strip of board and furred out on the blocks so as to make a space of one inch between it and the edge of the last mentioned iron, the lower edge of this last mentioned strip of board comes even with the strip of iron nailed to the lower edge of the board M and is to keep the grain from hopping over the end of the screen. There is also pieces of sheet iron nailed to the edges of the blocks next to the opening that project 2 inches down and 2 inches forward toward the end of the screen to keep the grain from flying over the sides of it.

In the upper half of the cylinder the end next to the long posts is a hole formed between the two top staves taking half out of each making a hole 1½ inches lengthwise the stave and 1¾ inches widthwise for the grain to enter. At the other end in the same staves is a hole the same size but here the end is also cut out and through the head piece the hole in the head piece is 1¾ inches wide and 5 inches long the lower end of the hole is 3¼ inches from the lower edge of the head piece. There is a box or tube O fastened to the head piece corresponding with the hole in the cylinder and extending to the top edge of the head piece the grain rises in this tube on leaving the cylinder. On the outside of the head piece is a sheet iron slide P to regulate the machine for different qualities of grain this slide is drawn quartering across the hole the lower edge is a straight line with the upper edge of the handle and rests on the shaft which serves as a guide to it, the under edge of the handle rests on one of the 1 inch square pieces Q (which the half inch board is nailed to, to form the opening which is the same on the lower head piece) which also serves as a guide, the top edge of the slide comes level across the hole N and keeps its level position although the slide draws quartering the corner of the slide is cut off parallel with the handle and comes against the guide R nailed to the head piece in the direction the slide is drawn, on the half inch board that forms the opening is nailed a couple of strips of wood S that bear against the slide and keep it snug against the head piece these pieces come half an inch each side of the hole in the head piece one of the pieces is cut off slanting to come under the guide R the slide is shoved down for damp grain and drawn up for dry in proportion to the quality, when the slide is drawn up it causes more pressure in the cylinder to raise the grain over it.

The fan that gives a current of air over the screen and through the grain when falling onto it revolves in a case which is fastened to the outside of the long posts and made in two parts the top of the bottom part T comes even with the center of the shaft the wings revolve on. This is made of inch board 6 inches wide for the ends and ½ inch board for the sides there is a 24 inch circle marked on the sides and nailed to the ends which come outside of the circle close to it and taper nearer together toward the bottom where they are but 14½ inches apart making a kind of box 17¼ inches deep (extending 5¼ inches below the 24 inch circle the wings revolve in) 6 inches wide and 14½ inches long at the bottom and lengthening toward the top to clear the 24 inch circle; this is fastened to the posts with screws, the side next to the posts is left open from the bottom upward a space of 4½ inches for the air to escape, the bottom board projects 7 inches inward toward the screen and forms the bottom of the mouth U from which the air passes, the mouth is formed by nailing a board X each end of the bottom that is 7 inches long at the bottom edge and 5½ inches long at the top edge, they slant back to agree with the end of the screen the top W, to the mouth is 5½ inches wide and extends the whole distance between the posts to keep the dirt from the grain as it falls from the screen. Inside the fan case is a board fitted in and nailed so that the upper edge comes to the lower edge of the 24 inch circle and the bottom edge stands out 4 inches toward the mouth to turn the air that way. There is three stops made of thin boards fixed into the mouth dividing it into four equal parts the first 1 the air strikes in its circular motion extends inside the fan case ¾ of an inch the 2 extends 1¼ inches inside the case the 3 extends 1¾ inches inside. Then there is a stop fixed inside of the fan case that catches what air passes the 3 stop, this fills the whole space inside of the fan case from the side of the mouth up to the 24 inch circle

and ranges a little below the shaft to glance the air downward. The upper part of the fan case needs no particular description it is made in the same manner as the lower part but just to inclose the 24 inch circle the rings revolve in, outside of the fan case is a hole cut out in the center 12 inches diameter to let the air in. In the other side of the top part is a place cut out 4 inches high and 6 inches long to put the hand through to supply the gudgeon with grease, at the top edge of this hole is a strip of board Y reaching from post to post and slipping into grooves in them this board is 3 inches wide filling the whole space between the fan case and the head piece of the cylinder to keep the dirt from the gudgeon.

Under the cylinder is a shaking screen the bottom of which is wire cloth 9 meshes to an inch to let the dirt fall through that is too heavy for the air to take out, the sides of this screen is ½ an inch thick 2 inches wide and 20 inches long the screen is 15 inches wide inside, one end of the screen comes close to the mouth of the fan, the other is elevated 3 inches to 4 inches in length, at the lower end is a strip 1½ inches wide and ¾ of an inch thick nailed to the under edge of the side pieces ⅜ of an inch from the end leaving a space between it and the bottom of the mouth U of the fan for the grain to fall through 4½ inches of the upper end of the side pieces is chaffered to half an inch at the end making them more elevated in that place, on this part is nailed a strip of thin sheet iron 5 inches wide which projects one inch beyond the end of the side pieces and laps 4 inches onto the chaffered part on this place is a strip of wood an inch wide nailed one edge lapping ½ an inch onto the iron which is nailed to it, the wire cloth is also nailed to it, on the side of the screen is fastened a wire bow or staple that projects 3½ inches from it coming around a spring that is fastened to a piece Z nailed to the upper side piece of the frame slanting forming a right angle with the screen. This side of the screen is held up with string the one at the lower end fastens by a little bit of leather to a piece *a* nailed to the side of the mouth of the fan this piece also holds up the cover over the screen, the other end hangs to the piece H that holds the headpiece to the cylinder. On the other side of the screen is a piece of thick sheet iron fastened 2 inches wide and projecting 2 inches, in this piece of iron *b* 1½ inches from the screen is a hole that slips onto a large wire that stands up from the roller just under which hangs to the posts of the frame by small gudgeons, the roller is 1½ inches square reaching lengthwise the frame from one post to the other, the wire stands slanting in the roller forming a right angle with the screen, onto this wire is slipped a piece of wood that reaches up from the roller 1½ inches forming a shoulder for the iron *b* to rest upon, the iron *b* and the wire staple the other side of the screen are opposite each other and so that the screen will balance, if one side end is heavier than the other it will not shake true.

The end of the roller C is let into the short post ½ an inch and 1 inch from this end of the roller is a large wire put through which projects 2¾ inches from the roller inward and standing downward so as to form a right angle with the connecting wire D which is attached to it by a little piece of leather on this large wire is slipped a little piece of wood 1½ inches long the leather is slipped onto the wire against the pice of wood and tied back to the roller with a small string to keep from slipping off, shortening or lengthening the distance from the roller to the leather gives more or less motion to the screen. The connecting wire D is bent in form of a hook at both ends the lower end hooks into the just mentioned piece of leather, the upper end hooks into a piece of leather that hangs on a hook that passes up through a piece an inch square which I call the noddle E which lies one end on the shaft and the other is fastened by a screw to the short post opposite the roller 4½ inches below the top side piece, this last mentioned hook which passes up through the noddle forms a staple upper side, it being bent so that the end passes down through forming a staple that slips up and down ¾ of an inch a tapering key is slipped into the staple to regulate the length of the connecting wire.

There are two pieces made of cast iron which I call the shakers fixed onto the shaft one each side opposite that revolve under the noddle these pieces are made hollowing to fit onto the shaft, one of them will reach ⅓ of the way around the shaft, they are 2½ inches long, one inch of the length is ½ an inch thick in the middle tapering gradually each way to an edge where it meets the shaft, this part comes under the noddle the remainder of the length of these irons are thinner and a little tapering and a band drove over them to hold them in their place. The connecting wire attaches to the noddle 2½ inches from the shaft between that and where it hangs by a screw to the post. When the noddle is raised by the shakers it draws the screen toward the roller the spring the opposite side draws it back and thus it is put in motion. There is a cover F over the screen that projects over it each side 2 inches that is held up by the pieces A nailed to the sides of the mouth of the fan the other end is held up by small hooks nailed to the blocks L underside the cover is nailed two strips of inch board the edges come directly over the sides of the screen

and close to them to guide the air over the screen.

The shaft is made of 1¼ inch round iron it extends beyond the frame at both ends at one end to put on a whurr and at the other to put on wings. The gudgeon next to the whurr is turned as large as the iron will make, at the other end there is a collar on the shaft ¼ of an inch thick the gudgeon is turned square down from the collar to 1⅛ inch diameter making a small shoulder to come outside of the frame to keep the shaft steady in its place, the collar comes inside to keep the shaft from shoving endwise toward the fan which it inclines to do when in operation, the whurr is 22 inches diameter and 4 inches thick, it has a collar made of iron on both sides of it which is wedged onto the shaft, the collar on the side next to the frame is sunk in so that the whurr can come even with the gudgeon. The fan at the other end of the shaft is made by nailing 4 pieces together that are one inch thick and 1¾ inches wide so that the ends pass by each other leaving a hole to slip onto the shaft, on each side is nailed an iron collar which is wedged onto the shaft, the wings are nailed to the arms which revolve in the fan case. The cylinder on the shaft that revolves in the one A before described is 5 inches diameter and 13½ inches long including the iron collar at each end which is wedged onto the shaft, the collar at each end of the cylinder may be made of wrought or cast iron, the most convenient way is to make them of cast iron, the out edge of them the size of the cylinder, at the end they are put on with a rim to them ½ an inch wide like a snuff box cover the rim is driven onto the end of the cylinder it being turned to fit. The end of the cylinder toward the fan is turned 4½ inches diameter 2¼ inches in length to put on the irons I call section screw. These irons three in number each reaching one third of the way around the cylinder and are fastened to it with screws two in each piece they being ¼ of an inch thick make the cylinder of equal size at each end. The curved part *h* of these irons which sets on the cylinder one end is 1½ inches wide measuring from the shoulder they set against toward the end of the cylinder the other end is 2¼ inches wide the widest end goes forward when the cylinder revolves. On the slanting edge is a projection *i* outward 1⅛ inches wide the edge of this projection runs clear from the outside cylinder $\frac{3}{16}$ of an inch, these projections are in form of a screw but all revolve in the same track they lap ½ an inch by each other and leave a space between them to take in the grain the forward end of them are chaffered a little thinner which makes more space between them and makes them more capable of taking in the grain, the forward end runs one inch clear from the end of the cylinder leaving that space for the grain to fall into it.

There are three staves *m* fixed onto the cylinder or they might be called wedges in the manner they are placed. These staves are 13½ inches long the longest edge which is the forward edge. The curve of the staves is a 6¼ inch circle. They are 3¾ inches wide measuring straight across from edge to edge. They are winding so that when placed on the cylinder they wind one inch, one end sets snug against the section screw, the back edge comes even with the back end of the section screw. This end is one inch forward of the other. The forward edge of the stave sets snug on the cylinder. The back edge is set out from the cylinder by putting a little strip of wood under them so that they come ¼ of an inch from the outside cylinder forming a wedge which crowds the grain as it revolves against the outside cylinder. The staves are fluted ¼ of an inch deep. The back edge of the streaks or flutes is a little the flattest being less liable to fill up with dirt while cleaning damp grain. The staves are ¼ of an inch thick before being fluted. The edge that sets on the cylinder is thinner and not fluted for an inch wire. There are strips of wood *n* on the cylinder ¾ of an inch thick placed at the back edge of the staves and wide enough to reach to the forward edge of the next. These pieces are cut off slanting from the corner next to the section screw back 2 inches to let the grain in freely. The use of these pieces is to prevent there being so much grain in the machine at the same time cleans a little more even and gives every man a greater portion of his own grain the machine being always left full. The grain must go through a screen to take out the stones, sticks, &c., before it comes into the machine. The grain is conducted from the screen by means of hopper or otherwise into the cast iron cylinder where the section screws revolving 250 times per minute carry it between the revolving cylinder and outside one and the wedges (formed with the staves) crowd it hard against the outside cylinder and forcing it around the screw at that end crowds it hard toward the other end, the wedges crowding it hard against the outside cylinder passing over part and carrying with them part give great friction to the grain until it arrives at the other end where it is forced up the tube O over the sheet iron slide where it fall onto the shaft scattering it so that it falls in a thin sheet through a current of air onto the shaking screen and leaves it at the lower end fit for grinding. The sheet iron stave at the bottom of the cylinder sometimes gets clogged by small seeds getting into the holes which is got out by rubbing the fingers over it

shoving them back while the machine is in operation.

Having now fully described a machine I believe to be the best among the many experiments I have tried, I will now briefly mention some changes which will be understood by one having a god knowledge of the before described without a particular description in this place.

The staves that form the wedges on the revolving cylinder 4 inches of the length nevt to the section screw may be very winding so as to wind 3 inches on the cylinder in place of having the screw in the outside cylinder the fluting then to go straight from end to end. The machine is not so easy made in this way.

Again the machine can be set up endwise, in which case the staves on the revolving cylinder which forms the wedges want no wind to them neither does it want any sheet iron stave. The dirt inclines to the lower end very readily and is shoved out with the grain. The tube the grain discharges from may be level or elevated which requires a short one and the pressure regulated with a slide to shorten or lengthen the tube. Where the staves are described as being fluted, short teeth or sinks like counter sinks for screws, in the staves (excepting where the screw is formed in the outside cylinder) answers the same purpose. The object is to make a surface the grain will not slide on.

That which I claim as my invention and desire to secure by Letters Patent is—

1. The section screw to drive the grain lengthwise the cylinder in combination with the wedge like rubbers.

2. The manner of setting the wedges on the revolving cylinder to give friction to the grain.

3. The screw formed in the outside cylinder to force the grain lengthwise of it in combination with the wedgelike rubbers.

4. The arrangement of a slide to regulate the pressure of the grain in the cylinder.

DAN PEASE, JR.

Witnesses:
J. W. THAYER,
WM. A. BISHOP.