

(No Model.)

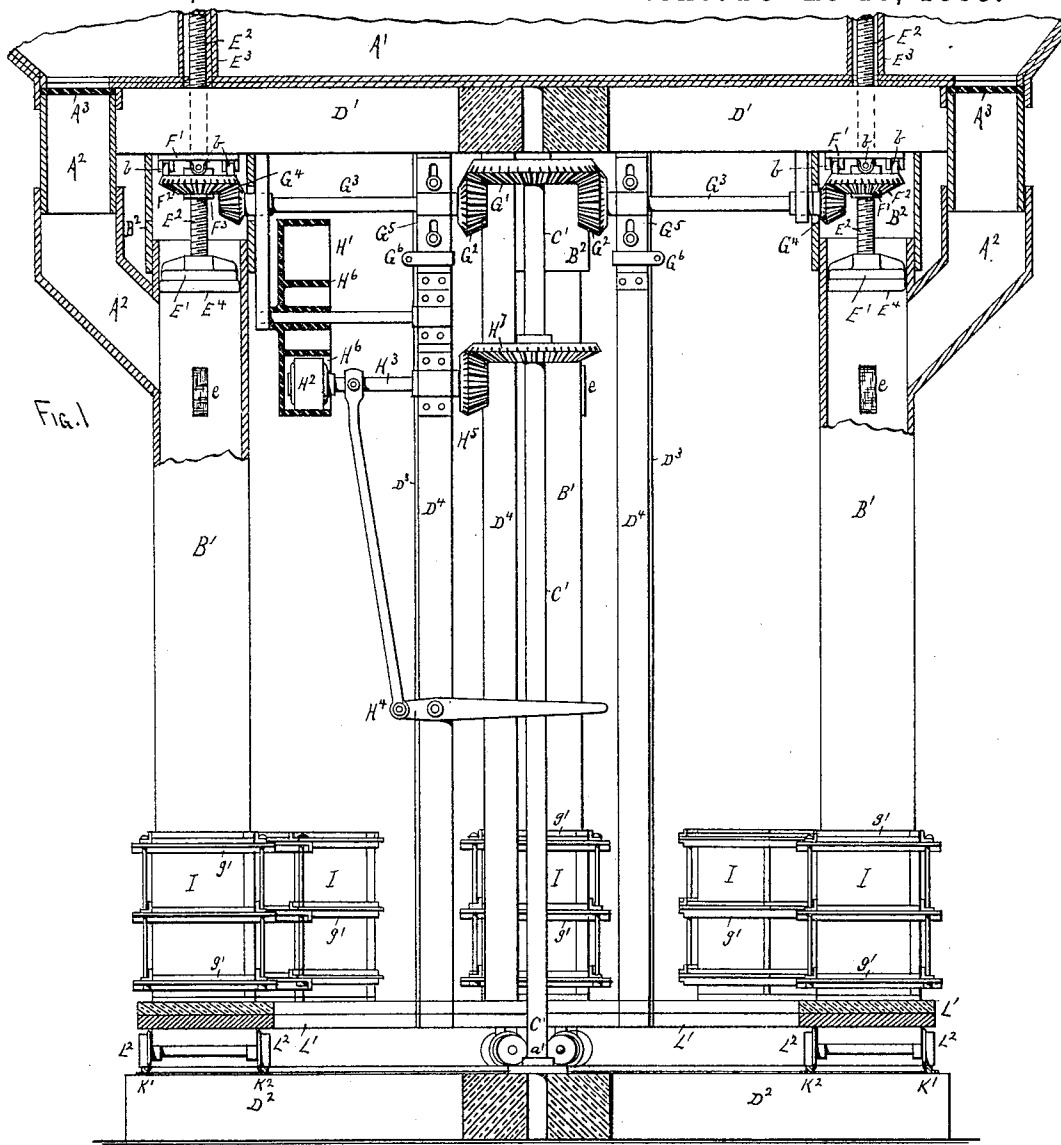
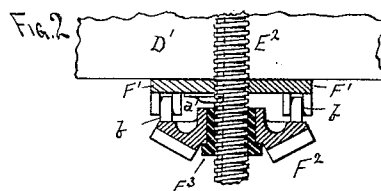
3 Sheets—Sheet 1.

F. DORSEY.

MACHINE FOR PACKING BRAN, &c.

No. 320,052.

Patented June 16, 1885.



WITNESSES.

Wm. H. Webster
H. S. Webster.

Frederick Dorsey,
INVENTOR, BY
Charles N. Woodward,
att'y.

(No Model.)

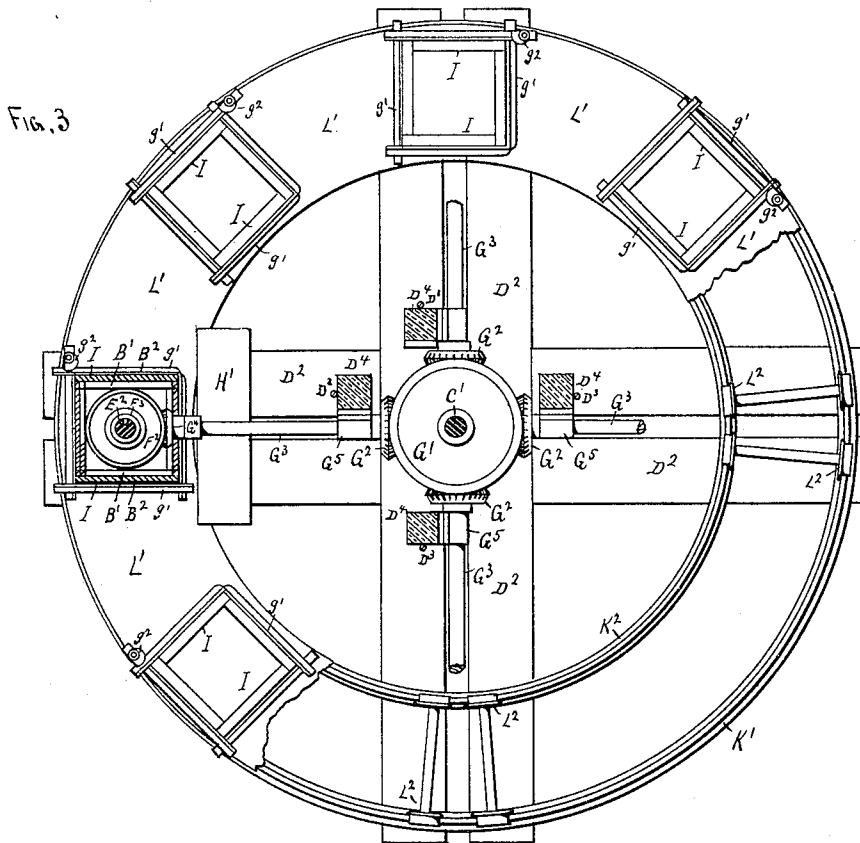
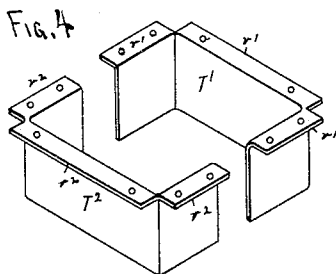
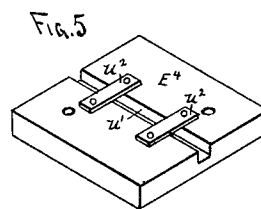
3 Sheets—Sheet 2.

F. DORSEY.

MACHINE FOR PACKING BRAN, &c.

No. 320,052.

Patented June 16, 1885.



WITNESSES.

Wm. Mahan
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Frederick Dorsey,

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(No Model.)

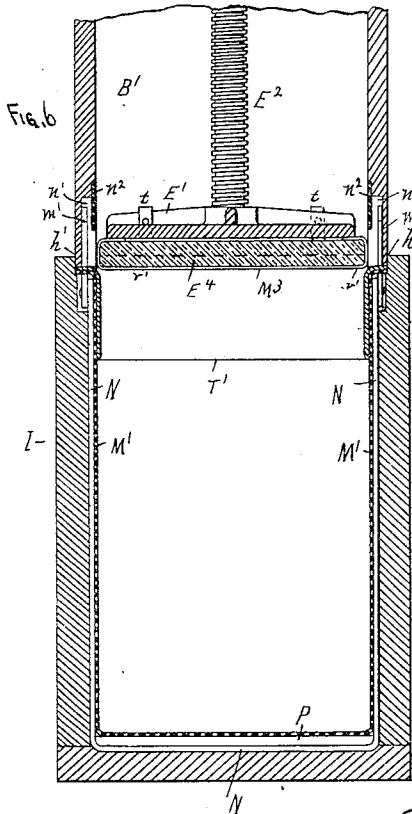
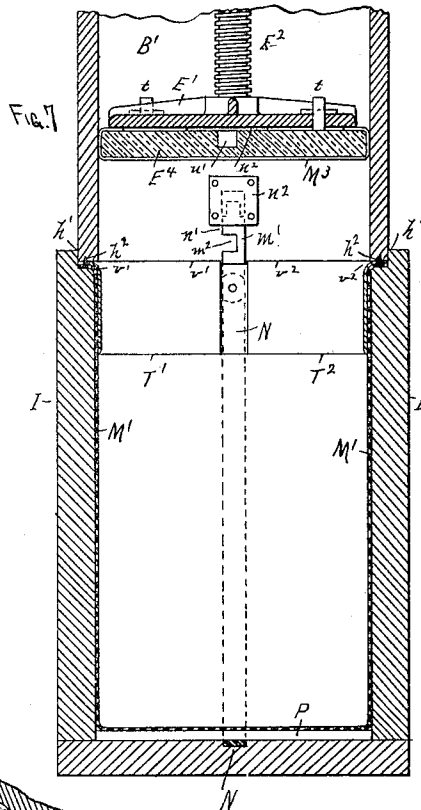
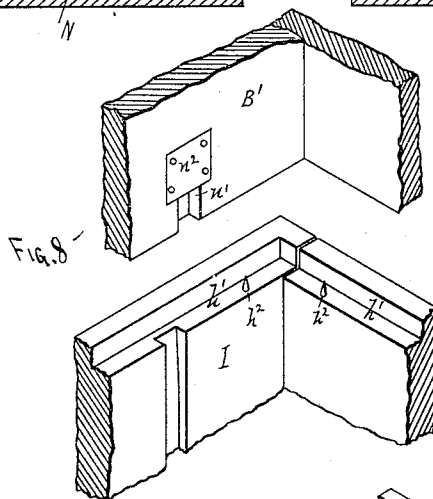
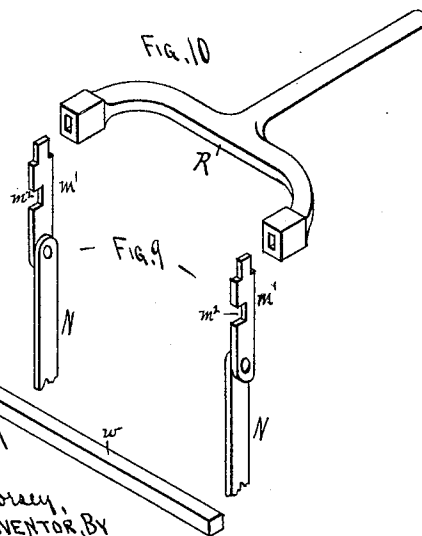
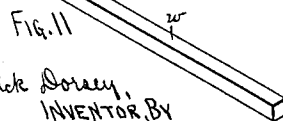
3 Sheets—Sheet 3.

F. DORSEY.

MACHINE FOR PACKING BRAN, &c.

No. 320,052.

Patented June 16, 1885.



WITNESSES.
Wm. Graham
H. S. Webster.

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Att'y.

UNITED STATES PATENT OFFICE.

FREDERICK DORSEY, OF HAGERSTOWN, MARYLAND.

MACHINE FOR PACKING BRAN, &c.

SPECIFICATION forming part of Letters Patent No. 320,052, dated June 16, 1885.

Application filed May 6, 1885. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK DORSEY, a citizen of the United States, and a resident of Hagerstown, in the county of Washington and State of Maryland, have invented certain new and useful Improvements in Machines for Packing Bran, &c., of which the following is a specification.

This invention relates to machines for packing or compressing bran and similar material into sacks for transportation, and may also be applied to the packing of wool, cotton, hops, &c.; and it consists in the construction, combination, and arrangement of parts, as hereinafter shown and described.

For the purpose of illustration I have shown one form of mechanism by which my invention may be applied, in which—

Figure 1 is a semi-sectional elevation of the machine complete. Fig. 2 is a detail in section of the screw-operating mechanism. Fig. 3 is a plan view, partially in section, of the turn-table and the mechanism for operating it. Figs. 4 are perspective views, enlarged, of the sheet-metal receptacle-guards. Fig. 5 is an enlarged perspective view of the auxiliary follower-plate. Figs. 6 and 7 are enlarged sectional views of the packing cases and receptacles, illustrating more fully their construction. Fig. 8 represents enlarged sections of portions of the lower edges of the reservoirs and the upper edge of one of the packing-cases, illustrating the manner of arranging the locking-bar, &c. Fig. 9 represents enlarged perspective views of the upper ends of one of the locking-straps. Fig. 10 represents an enlarged perspective view of one of the wrench-bars; and Fig. 11 is an enlarged detached perspective view of the lock-bar.

The apparatus consists in a large bin or receptacle, A', for the bran or other material to be compressed, from the bottom of which a series of spouts, A², lead to a corresponding series of receivers or reservoirs, B', the latter arranged in regular order at equal distances apart around a common central shaft, C'.

D' is a frame beneath the bin A', to the center of which the upper end of the central shaft, C', is stepped, and D² is a similar frame immediately beneath the frame D' and supported upon a suitable foundation or on the floor of

the building upon which the apparatus is erected, and in the center of this frame the lower end of the upright shaft C' is stepped at d'.

Any desired number of the reservoirs B' may be used; but for the purpose of illustration I have shown in the drawings four reservoirs, with their corresponding feed-spouts, A².

The two frames D' D² will be connected together by tie-rods D³ and struts D⁴, so that they will retain fixed relations with each other.

The upper ends of the reservoirs B' are arranged to slide in sleeves or spouts B², attached to the lower side of the frame D', so that the reservoirs are free to be raised and lowered to a limited extent. The feed-spouts A² are also arranged in two parts, one sliding over the other, so that communication between the feed-spouts and the reservoirs will not be broken by the adjustment of the reservoirs.

Within each of the reservoirs is arranged a follower-plate, E', and fixed in the top of each of the follower-plates is a large screw, E², the screws passing up through the frame D' and into the bin A', and protected from the bran in the bin by housings E³.

Surrounding each of the screws E², and attached to the under side of the frame D', is a plate, F', having anti-friction rollers b journaled on its under side in a circle around the screws, against which rollers the upper surfaces of beveled gears F² are adapted to run, each screw having its own gear. By this means the upward thrust of the screws is borne by the rollers b and the friction greatly lessened.

Secured in the hub of each of these gears F² is a brass nut, F³, having an internal screw-thread in which the threads of the screws E² run.

Each of the screws E² has a channel cut in it lengthwise, in which fixed stops d rest, so that the screws will be held from turning as the gears F² revolve around them, while at the same time the revolution of the gears and their attached nuts F³ will cause the screws to run upward and downward, according to the direction in which the gears are revolved.

Attached to the upright shaft C', beneath the frame D', is a large beveled gear, G', adapted to engage with beveled pinions G² on horizontal shafts G³, radiating outward toward the gears F². On the outer ends of each of these shafts G³ is a beveled pinion, G⁴, adapted to engage with one of the gears F². The horizontal shafts G³ will be secured by suitable bearings on the struts D⁴, or by separate hangers from the frame D', and the bearings on one end of each shaft will be in the form of a slip-box, G⁵, supported by a key, G⁶, so that by removing any one of the keys any one of the boxes G⁵ and shafts G³ will drop down and disengage the pinion G² thereon from the gear G', to enable any one of the screws E² to be thrown out of gear when required.

The central shaft, C', may be revolved in any suitable manner, it being desirable, however, that some means shall be employed whereby its motion may be quickly and easily reversed, so that the screws E² may be run upward or downward at pleasure. It is also desirable that the mechanism for revolving the shaft shall be so arranged that the screws may be run downward slowly and upward at an increased speed.

In running downward the screws are utilized to force the bran into the sacks, while in running upward they are merely required to lift the follower-plates above the discharge ends of the feed-spouts A²; hence in running downward, where great resistance occurs, their speed must be much less than in running upward, where they meet with no resistance. I have shown in the drawings an approved method of accomplishing this desired result, consisting in a large band-wheel or drum, H', adapted to be revolved by a belt, and having an internal friction-surface, against which a friction-wheel, H², on a shaft, H³, is adapted to be pressed by a lever, H⁴, or other means.

A beveled pinion, H⁵, is mounted upon the other end of said shaft H³, and adapted to engage with a beveled gear, H¹, on the upright central shaft, C'.

The drum H' also has a smaller internal drum or band-wheel, H⁶, with an external friction-surface, against which the same friction pulley or wheel H² is adapted to be forced by the same lever H⁴. It will thus be readily seen that if the drum H' be constantly revolving and the friction pulley H² brought in contact with the inner surface of the outer rim of the drum, the friction-pulley will be revolved in one direction, and, by its connection with the central shaft, C', and the latter with the screws E² through the gears and pinions, the screws will be revolved in the corresponding direction, while, on the other hand, if the friction-pulley H² be brought in contact with the outer surface of the internal drum, H⁶, the friction-pulley will be revolved in the opposite direction. Consequently the motion of the shaft C' may be reversed, and the screws run up or down at pleasure by merely moving

the friction-pulley H² upward or downward. The motion of the double drum H' H⁶ will be in a direction so that the inner drum, H⁶, will act upon the friction-roller to run the screws downward and the outer drum to run them upward. The inner drum, being smaller in diameter than the outer drum, will act with less speed upon the friction-pulley than the outer drum; hence the screws will be run downward at a less speed than they are run upward.

A³ A³ represent the valves controlling the flow of material into the feed-spouts A² from the bin A', and are placed on a line even with the floor of the bin.

The reservoirs B' are each supplied with a glass-covered observation port or openings, e, near their tops or on a line even with the feed-spouts A², so that the location of the bran in the reservoirs may be observed. In practice each of the valves A³ will be provided with a lever, by which it may be opened or closed from the floor below, and the operator, by observing the glass-covered openings e, will be able to shut off the supply of material as soon as a sufficient quantity has run into the reservoirs to fill the sacks below them.

Attached to the upper-side of the lower frame, D², are two circular tracks, K' K², upon which a circular turn-table, L', is mounted by flanged wheels L², the center of this turn-table L' and the tracks K' K² being the center of the shaft C'. The turn-table is in the form of an annular ring, and so arranged below the reservoirs that as it is revolved it will pass directly beneath all the screws and the reservoirs. Mounted upon this turn-table are the frames or casings in which the sacks or receptacles for the compressed materials will be supported. These casings will be fixed to the turn-table in such positions that they will come exactly beneath each of the reservoirs in turn as the turn-table revolves. As many of these casings may be used as desired, according to the size of the turn-table; but, generally, just double the number of the casings will be used as there are reservoirs and screws, so that while one set of the casings is being filled the compressed packages may be removed from the next set. I have shown in the drawings arrangements for eight sack-supporting cases and four reservoirs and their screws. The casings will be constructed in substantially the same manner as in the patent granted to J. E. Belt on June 19, 1883, and numbered 279,854, except that instead of being mounted upon wheels or trucks to run upon tracks they are secured to the turn-table L'. The casings will be provided with supporting-straps and hinged at their corners, and adapted to be opened to remove the compressed packages. In the drawings, I represent the sides, g' the straps, and g² the clamping eccentrics or cams by which the sides are held together, as in the Patent No. 279,854, above referred to.

The lower edges of the reservoirs B' are

adapted to rest in grooves or in a channel, h' , in the top of each of the casings I. As before stated, the reservoirs B' are adapted to be raised and lowered around the stationary portions B^2 at their upper ends, and they will be provided with springs by which they will be held down on top of the casings with some degree of force, but at the same time be free to permit them to be raised when desired; or they may be arranged to be locked down to the tops of the casings.

Projecting upward from the tops of the channels h' , in which the lower ends of the reservoirs B' rest, are a series of pins, h^2 , over which the sacks M' for holding the bran will be caught, and thereby suspended in the casings, as shown in Figs. 6, 7, and 8.

Within each of the casings I is set a strap, N, passing across the bottom and up each side, the straps setting in grooves in the casings with the inner surfaces of the straps flush with the inner surfaces of the casings, so that no part of the straps projects beyond the general surface of the casings.

In the bottoms of the casings, between the bottoms of the sacks M' and that part of the strap N which lies across the bottom of the casing, is an auxiliary plate, P, to form a support to the bottom of the sack when it is removed from the casing.

The upper ends of the straps are provided with hinged latches or dogs m' , these latches projecting upward above the upper edge of the casings and into cavities n' formed for them in the lower part of the reservoirs B' . These cavities n' will be covered on the inside of the reservoirs with sheet-metal plates n^2 , so that the bran will not enter the cavities or be forced therein by the follower-plate in its descent. In one end of each of these latches a notch, m^2 , is formed.

The follower-plate attached to the bottom of the screw consists of a metal plate or head, E' , to the lower side of which an auxiliary follower-plate, E^1 , is adapted to be attached by pins t , or other means that will enable the auxiliary plate to be quickly and easily connected to and disconnected from the metal head E' . The cover M^3 to the sack M' is wrapped around this auxiliary plate E^1 before it is attached to the head E' , and when the two plates are connected together by the pins t the cover M^3 will be held by its edges between them, as shown in Figs. 6 and 7. Through this auxiliary plate E^1 a channel, u' , is formed, which will come opposite to the notches m^2 in the latches m' when the follower-plate E' and auxiliary plate E^1 are forced down as far as it is intended they shall go, as shown in Fig. 6, so that a holding-bar, w , may be passed through the notch m^2 in one latch m' , then through the channel u' in the plate E^1 , and then through the notch m^2 in the other latch, m' , to form a lock to connect the latches m' and the straps N, to which they are connected, and the auxiliary plate E^1 together. After this is done

the follower-plate E' may be disconnected from the auxiliary plate, and the compressed package removed from the casing, the auxiliary plate forming a support to the cover M^3 of the receptacle M' , and the strap N and the latches m' m' , being held fast thereto by the lock-bar w , will firmly hold the package until the cover M^3 is sewed fast to the body of the receptacle. A wrench-bar, R, (shown in Fig. 10,) is then placed over the ends of the latches m' m' , and the latter pulled off from the holding-bar w , which will release the auxiliary plate from the sack M' .

Across the upper sides of the channel u' small strap w^2 will be secured to hold the bar w in the channel, so that the reaction of the bran when the strain is removed by the releasing of the latches by the wrench-bar R will not throw the holding-bar w upward out of the channel, as it otherwise would.

The material used for the reception of the bran in this machine is of a coarse quality of fabric and presents too rough a surface to enable the bran to be pressed down into it readily; and to insure the bran running down freely into the receptacles, I suspend from the upper edge, h' , of each casing I two sheet-metal plates, T' T^2 , with turned-over edges v' v^2 , one plate fitting on each side of the strap N, and with their edges v' v^2 on the edges of the receptacle in the grooves h' . I thus accomplish two important results—first, the plates T' T^2 , by their bent-over edges v' v^2 , press down upon the edges of the sack all around the casing and form an additional holding force, which prevents the downward pressure of the bran from tearing the sacks loose from the pins h^2 ; and, second, the plates T' T^2 present a smooth surface to the bran when being pressed into the sacks. These plates T' T^2 need only project down into the sack for a short distance, as shown in Figs. 6, 7, and 8, as the downward pressure of the bran upon the sides of the lower parts of the sack is nominal, and the resistance of the sack is not sufficient to materially interfere with the compression.

After the follower-plate is attached to the sack by the lock-bar w and the compressed receptacle removed from the casing, the plates T' T^2 may be withdrawn before the cover M^3 is secured to the body M' of the sack.

Having thus described my invention, what I claim as new is—

1. In a bran-packer, a casing adapted to support the bran-receptacle, a strap, N, encompassing said receptacle on its sides and bottom and provided on its upper end with latches m' , having open notches m^2 , follower-plate E^1 , having the cover M^3 of said receptacle attached to its lower side, and a holding-bar, w , adapted to be placed across the top of said follower-plate and with its ends resting in said open notches, substantially as set forth.

2. The combination, with the casing holding the bran-receptacle M' , of the strap N, having the notched latches m' m' on its upper

ends and encompassing said receptacle, supporting-plate P, follower-plate E¹, having the channel *u*¹ and straps *u*², and holding-bar *w*, substantially as set forth.

- 5 3. The combination, with the casing holding the bran-receptacle M¹, of the strap N, encompassing said receptacle on its sides and bottom, and the plates T¹ T², having turned-over edges *v*¹ *v*², resting upon the upper edges of
10 said receptacle, each of said plates adapted to fit down into said receptacle on each side of said strap, substantially as set forth.

4. In a bran-packer, a central shaft, a turn-
table adapted to be revolved about said shaft
15 as a center and supporting a number of bran-receptacles, a bin above said turn-table and shaft, a series of reservoirs above said bran-receptacles and connected by suitable feed-spouts with said bin, and a screw having a fol-
20 lower-plate in each of said reservoirs and adapted to be so connected to said central shaft that all of said screws may be run upward and downward within said reservoirs at the same time to force the bran within said
25 reservoirs into said receptacles, substantially as set forth.

5. The combination of the bin A¹, frame D¹,

reservoirs B¹, feed-spouts A², connecting said reservoirs and bin, screws E², having follower-plates E¹, gears F², having nuts F³ fitting said
30 screws, and plates F¹, having friction-rollers *b*, against which said gear revolves, substantially as set forth.

6. The combination of the bin A¹, frames D¹ D², connected by struts and rods D³ D⁴, central shaft, C¹, reservoirs B¹, suspended from
35 said frame D¹ and connected to said bin by feed-spouts A², screws E², having follower-plates E¹, and gears F², means for connecting said gears with said central shaft, constantly-
40 revolving double drum H¹ H², friction-pulley H³, connected by shaft H⁴ and gears H⁵ H⁶ to said central shaft, turn-table L¹, mounted upon tracks K¹ K² on said frame D², and bran-receptacle-supporting casing I upon said turn-
45 table beneath said reservoirs, substantially as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

FREDERICK DORSEY.

Witnesses:

C. N. WOODWARD,
JEROME B. TABOUR.