

(No Model.)

3 Sheets—Sheet 1.

W. D. WINFIELD.
CORN POPPER.

No. 495,864.

Patented Apr. 18, 1893.

FIG. 1.

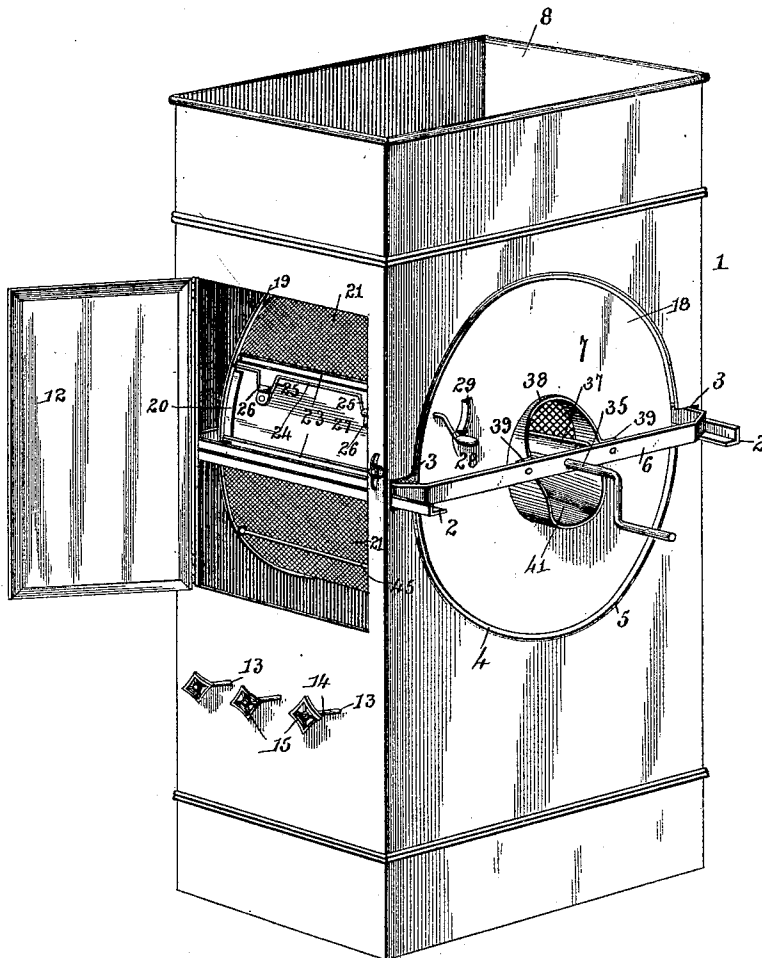


FIG. 5.

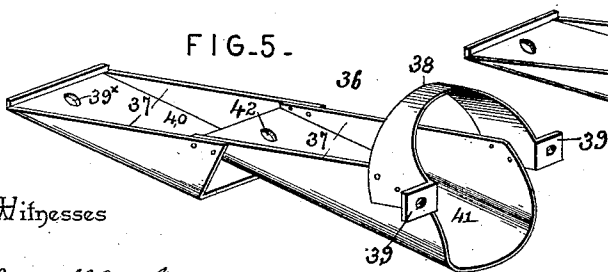
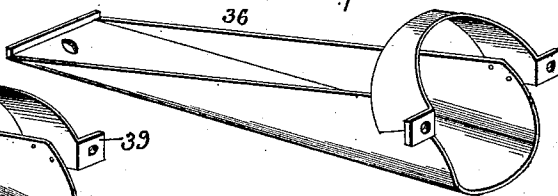


FIG. 7.



Witnesses

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Chas. S. Hyer

By his Attorneys,

William D. Winfield
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(No Model.)

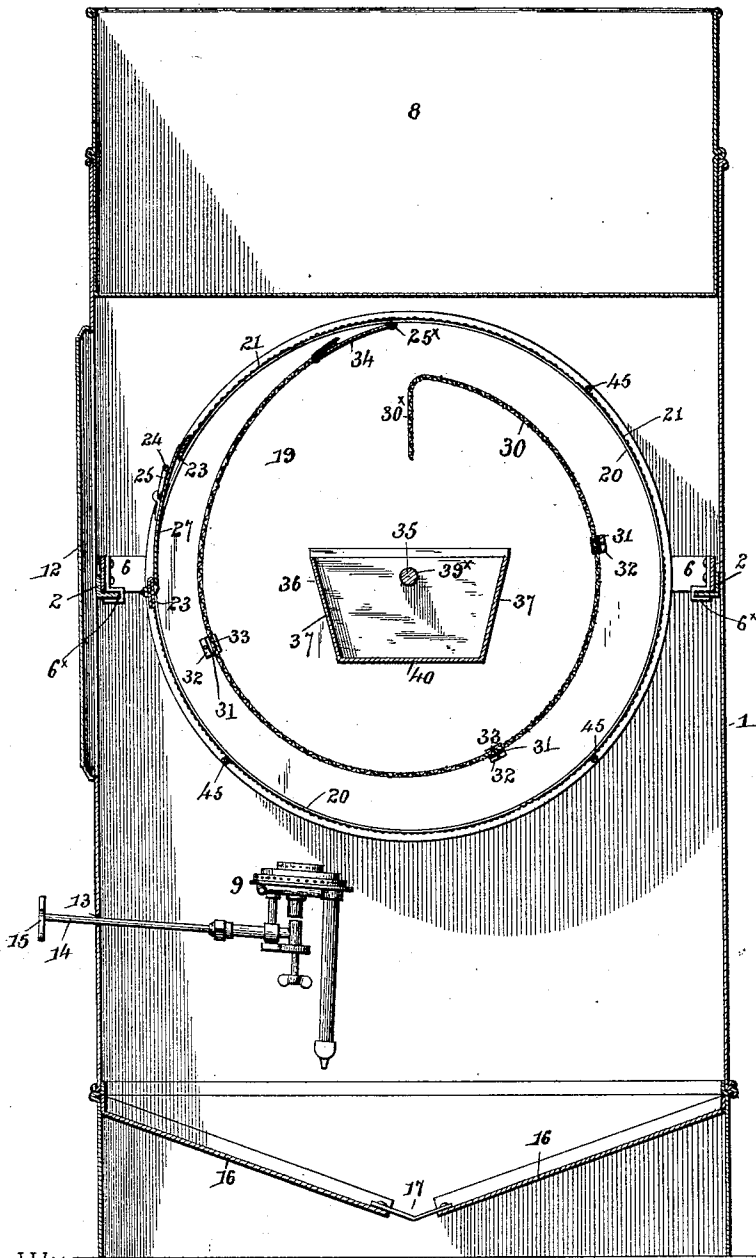
3 Sheets—Sheet 2.

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FIG. 2.



Witnesses

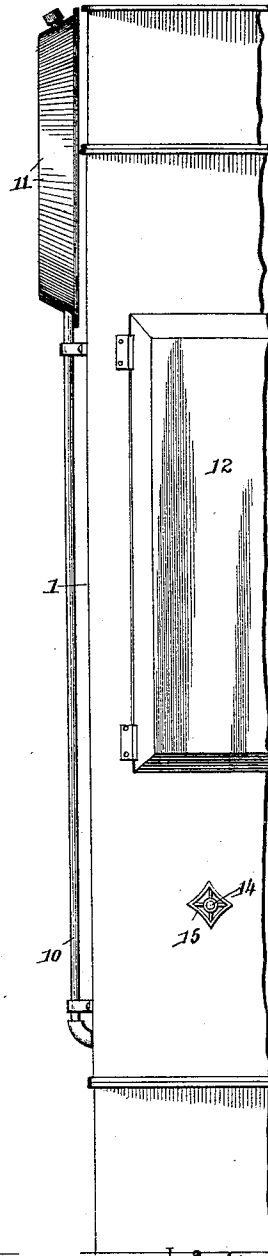
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FIG. 6.



Inventor

(No Model.)

3 Sheets—Sheet 3.

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FIG. 3.

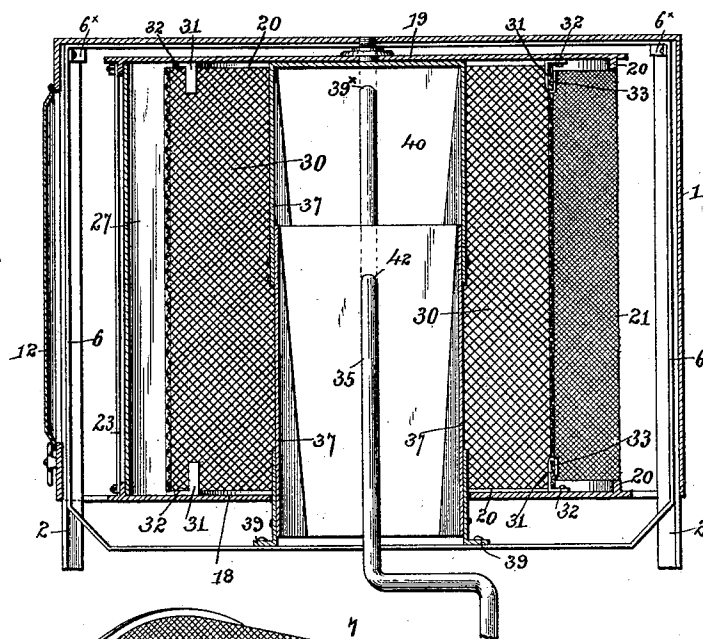
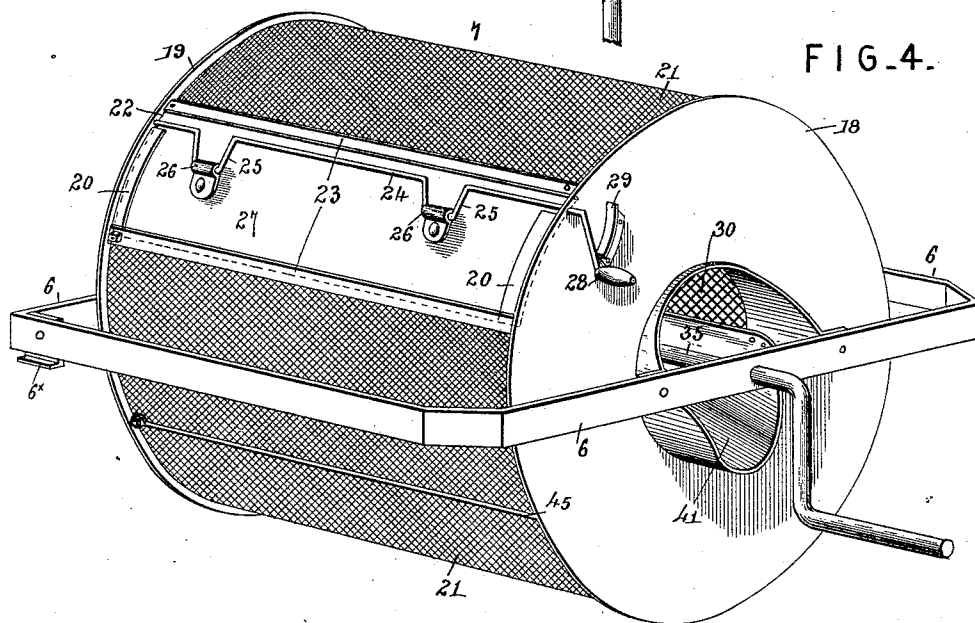


FIG. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM D. WINFIELD, OF WINFIELD, KANSAS.

CORN-POPPER.

SPECIFICATION forming part of Letters Patent No. 495,864, dated April 18, 1893.

Application filed May 12, 1892. Serial No. 432,786. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM D. WINFIELD, a citizen of the United States, residing at Winfield, in the county of Cowley and State of Kansas, have invented a new and useful Corn-Popper, of which the following is a specification.

This invention relates to certain new and useful improvements in rotary cylinder corn poppers of that class designed to be set up in a cabinet or otherwise supported by a suitable frame, so as to be adapted to rotate above the flame wherein corn placed within the cylinder will be subjected to the heat of the flame, and from the influence thereof caused to pop, and consists essentially in the construction and arrangement of a transverse inclined spout or chute, located within the cylinder to receive the popped corn as it is delivered from the interior screen of the cylinder, and conducted from the said cylinder.

The invention further consists of various details of construction and arrangement of the several parts as will appear from time to time and will be more fully hereinafter described and claimed.

The object of this invention is to provide convenient and simple means for popping corn, which will facilitate said operation by an arrangement whereby all the corn is popped within a cylinder and delivered from said cylinder at one end thereof, the several parts being strong and durable, easily and readily handled and understood, and comparatively inexpensive in manufacture.

In the drawings—Figure 1 is a perspective view of the improved popper, showing the door open and exposing the interior of the same. Fig. 2 is a longitudinal vertical section of the same. Fig. 3 is a transverse central section of the same. Fig. 4 is a detail perspective view of the cylinder removed. Fig. 5 is a detail perspective view of the inclined transverse spout or chute removed. Fig. 6 is a front elevation of a part of the front of the cabinet or frame. Fig. 7 is a detail perspective view of a modified form of the spout or chute.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

Referring to the drawings, the numeral 1

designates a cabinet or frame made of a form and size adapted to contain the rotary popping cylinder, and is provided at a suitable height from the base in the front and rear with a transverse angle-bar 2, fixed in position, and each of which has its end projecting from the side of the cabinet or frame to form a support, and extends through openings 3 diametrically located on opposite sides of an enlarged opening 4, provided with a rim or bead 5, and through which the cylinder may be withdrawn and inserted as desired. Upon the angle-bars 2 the frame 6 of the cylinder 7 is arranged to slide. The rear portion of each of the sides of the frame 6 is provided with a combined guide and stop 6^x that takes over the adjacent angle-bar 2 and holds the cylinder in adjusted position and prevents tendency toward tilting of the same. Above the cylinder chamber, as set forth, is an open-top receptacle 8, the floor of which is kept warm when in service from the influence of the heat utilized in popping the corn. Below the cylinder chamber is arranged a suitable gas or vapor burner 9, connected through the agency of a pipe 10 with an outer supply-tank 11, and at the front of the cylinder is a door 12, arranged to open and gain access to the said cylinder. Through the front wall of the cabinet or frame, opposite each burner 9, is a hole 13, through which extends a rod 14, whose inner end is connected to the burner and provided with a hand-wheel 85 or button 15, on the outer end of the same for regulating the burner. These burners are arranged in series and each is provided with a rod as set forth, as many of the burners being employed as found necessary and proportionate to the dimension of the entire device and the extent of the rotary cylinder. In the bottom of the cabinet or frame are mounted inclined slides or chutes 16, which extend to a central opening 17, and are adapted to receive the unpopped corn when delivered from the cylinder and permit it to pass out through the said opening 17, as will be readily seen.

The popping cylinder 7 consists of the oppositely arranged heads 18 and 19, which are provided with flanges 20, to which is secured the exterior screen 21, of a mesh sufficiently fine as to prevent unpopped corn from passing therethrough. One side of the cylinder

is formed with a transverse opening 22, and extending across and forming the boundaries of the two sides thereof are metallic strips 23 which are secured to the flanges 20 of the heads 18 and 19, and to the said strips are secured the ends of the exterior screen. Extending through the heads 18 and 19, in a plane exterior to the outer screen, is a rod 24, having loops 25 bent inward therefrom and secured to clips or ears 26, attached to a door 27, having one portion thereof extending through the flanges 20 of the two heads and the other portion bearing against the under side of one of the metallic strips 23, while the opposite side of the said door normally bears on the exterior surface of the opposite strip 23. The loops 25 of the rod 24 form cranks for depressing the door inward when the rod is operated by a cranked end 28, which is provided with a handle and is adapted to engage a flanged clasp or catch 29, secured to the head 18. By this means access to the interior of the cylinder may be readily obtained for the purpose of inserting the corn to be popped or relieving the cylinder of that portion of the corn which cannot be popped. Within the cylinder a second screen 30, of coarser mesh is spirally arranged and is supported in connection with the heads 18 and 19 by connecting-strips 31, having angularly bent ends 32, secured to the said heads and hooks 33 on the opposite ends of the same which take into the wire of the mesh of the said screen and thereby hold the latter in proper position by being bent down against the said screen as fully set forth. The inner end of the said screen 30 is arranged adjacent to the central portion of the cylinder and is bent as at 30^x into such shape as to provide a deflector or dump for directing the popped corn into the spout or chute. The said deflector or dump is at about a right angle to the said screen 30 and stands away from the chute. The outer end of said screen is connected to a metallic strip 34, which in turn is secured to the exterior screen 21, preferably by suitable small wire clips 25^x. The said second or interior screen 30 is arranged within the outer or exterior screen 31 in such manner as to provide a passageway between the same, and in order to leave a space between the beginning and terminal portions of said exterior screen across one side of the cylinder and the said interior screen. A crank-shaft 35 extends centrally through the cylinder and has bearing in the cross-strips of the frame 6, which normally rests on the angle-bars 2, of the cabinet or frame, and is provided with a suitable handle whereby the cylinder may be properly rotated in the several ways required. The interior terminating end of the screen 30 is adjacent to the said shaft 35, and on said shaft is mounted an inclined transverse spout or chute 36, which, as shown, may be made in either single or double form. In all the figures except Fig. 7, the said chute or spout is formed with side-flanges 37, with a front yoke

38, having ears 39, which are secured to the front cross-strip of the frame 6, which supports the cylinder 7. The said spout or chute is further constructed with an opening 39^x about midway of the same, and to which extends an inclined bottom 40, projecting rearward and forming the back of the spout or chute entire. A front bottom 41 is in like manner arranged in connection with the spout or chute and extends in a plane parallel with the said rear bottom 40, and projects slightly over the middle opening hereinbefore set forth. The said bottoms 40 and 41 are formed with openings 42, through which the crank-shaft 35 extends, and through the frame 6 into suitable bearings in the sides of the cabinet or frame which may be varied or changed, as found desirable and embody any construction well known in the art, whereby the movements of said shaft may be facilitated and frictional wear reduced.

By means of the double form of chute the popped corn is more rapidly conveyed from the cylinder, for as the popped corn falls into the said double form of chute, that part thereof which is caught by the inner rear portion of the chute passes through the middle opening and is again deposited in the cylinder adjacent to the delivery end thereof. By this means an increased quantity of the popped corn is thrown toward the delivery end of the cylinder and is deposited in the front part of the double chute adjacent to the discharge-opening through the end of the cylinder to thereby produce a greater exit feed. This form of construction is especially advantageous in very large machines having cylinders of great length, and wherein a proportionate form or size of chute would not be sufficient to convey all of the popped corn quickly enough out of the said cylinder, because the said chute would be overfilled if it were in single form, and this operation would continue with great disadvantage, but as previously set forth the double chute obviates this overfilling of the chute.

As shown in Fig. 7, the inclined spout or chute is of single form and extends from back to front in a manner similar to the spout hereinbefore set forth, but the bottom portion thereof is more gradually inclined from front to rear, as will be readily understood. The central portion of the head 18 is cut away, to admit of insertion and withdrawal of the spout or chute if found necessary, and also to form means to permit the end of said chute or spout to project from the said cylinder in order to conveniently deliver the popped corn. A hood 38 is secured to the front portion of the spout and projects over the same in the form of an arch and prevents the popped corn from dropping down directly at the mouth of the chute and forces the same backward some distance in the chute, it being seen also that a portion of this hood is arranged exterior and a portion thereof interior of the open end of the cylinder, and also serving to prevent the com-

pletely popped corn from again falling over into the said cylinder during the time that it is being fed out of the said chute, and which might result, in view of the popped corn filling up the front portion of the spout or delivery end of the latter.

In order to thoroughly brace the cylinder 7 against strain or warping by heat, tie-rods or stays 45 are provided and have flattened ends with eyes therein which are connected to the flanges 20 of the heads 18 and 19, to thereby rigidly support the same in their proper and relative positions.

It will be understood that the spout or chute remains stationary while the cylinder is revolved, and that the back portion of the same is supported by the crank-shaft which moves therein, and also that the front projecting part of the said spout or chute is formed with a hood or guide by the construction hereinbefore set forth. In mounting the crank-shaft in position in the cylinder, it is passed through the said spout or chute, as has been set forth, and through the inner end or head 19 into the back side of the frame or cabinet, and is also formed with a screw-threaded portion which engages a part of the device as shown.

In operation the corn to be popped is placed in the cylinder through the door 27, and is brought close to the flame of the burners under the cylinder by rotating the latter in a direction to cause the corn to assume a rolling or tumbling motion in its endeavor to gain a lower plane within the cylinder until it is brought about and comes upon the one side of the coarser screen 30, which screen permits unpopped corn to fall through its margin or termination and again comes upon the said exterior screen, while the popped corn is carried about and finally comes into the spout or chute from whence it may be conducted from the cylinder as before set forth. All the popped corn that falls in the rear spout or chute is conveyed to the front of the cylinder directly under the front portion of the said spout or chute, in order to bring the popped corn again over the flame and thoroughly pop that portion thereof which may still remain in a semipopped state, and the successive revolutions of the cylinder throws the corn out of the said front chute. By this means it will be seen that the corn is thoroughly popped before it is delivered from the chute.

The manner of attaching the outer portion of the interior screen to the exterior screen by using a strip of metal as set forth, provides means to prevent the corn from falling through the fine wire and lodging between the two wires where they come in close connection. If the corn is allowed to fall through, it pops between the two wires and becomes fast and burns. The metallic strip carries it over to where the two wires are farther apart and prevents the said form of clogging.

The device entire is formed of metal and is thereby made strong and durable, and the

several parts are braced and held against shrinkage or warping.

Having thus described the invention, what is claimed as new is—

1. In a corn popper, the combination of a popping cylinder having an outer fine wire gauze covering, a coarser wire gauze spirally arranged within the said outer covering and having the free end bent downward over the axial center of the cylinder, a spout or chute mounted under the said bent end of the spirally-arranged gauze and having a bottom inclining toward one side of the said cylinder, a closed frame or cabinet having a suitable burner therein and in which the said cylinder is rotatably and removably mounted, and a shaft extending centrally through the cylinder and attached thereto to revolve the same and movably through the said spout or chute, substantially as described.

2. In a corn popper, the combination of a closed frame or cabinet, a rotary cylinder removably mounted in said frame or cabinet and having an exterior screen and an interior spirally-arranged screen of coarser mesh than the said exterior screen formed with a bent free end that extends toward the central axis of the cylinder and acts as a discharge or dump, a spout or chute mounted in said cylinder in line with the central axis thereof and formed with an inclined bottom deflecting toward one side of the said cylinder, a crank-shaft extending through said spout or chute by means of which the said cylinder is rotated, and a rectangular frame 6 surrounding the cylinder in which the said shaft has bearing, and angle bars 2 secured to the sides of the frame or cabinet on which the said frame 6 is adapted to have sliding movement, substantially as described.

3. In a corn popping machine of the character set forth, the combination of a rotary cylinder, a spout or chute mounted centrally therein and having one end thereof projecting beyond the end of said cylinder, and a hood mounted over and secured to the front end of said spout or chute substantially as described.

4. In a corn popping machine of the character described, the combination of a rotary cylinder, a crank-shaft extending through said cylinder for rotating the same, and a spout or chute stationarily mounted within the central portion of the said cylinder, and having a double inclination in the bottom thereof with an intervening opening or throat substantially as described.

5. In a corn-popping machine of the character set forth, the combination of a rotary cylinder with an opening in the outer portion thereof extending longitudinally of the same, a door having clips thereon, a rod having loops therein engaging said clips and forming cranks and having a cranked end by which said rod is operated to depress the door inward, and a catch for engaging the end-crank of said rod, substantially as described.

6. In a corn popping machine of the character set forth, the combination of a rotary popping cylinder having interior and exterior screens arranged as set forth, and a metallic strip connecting the end of the interior screen with the outer screen, substantially as described.

7. In a corn popping machine of the character set forth, the combination of a popping cylinder having heads, an outer screen secured to said heads, and an interior spirally-arranged screen connected to said heads by metallic strips having hooked ends bent over the wire of said interior screen, substantially as described.

8. In a corn popping machine of the character set forth, the combination of a frame or cabinet, a rotary cylinder mounted therein, and a double spout or chute mounted in said cylinder and having a portion thereof projecting from one end of said cylinder, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM D. WINFIELD.

Witnesses:

O. A. HOTT,

H. HARBAUGH.