(No Model.)

S. WILE & H. LACASSE.

CORK FEEDING MACHINE.

No. 443,062. Patented Dec. 16, 1890.

Fig. 1.

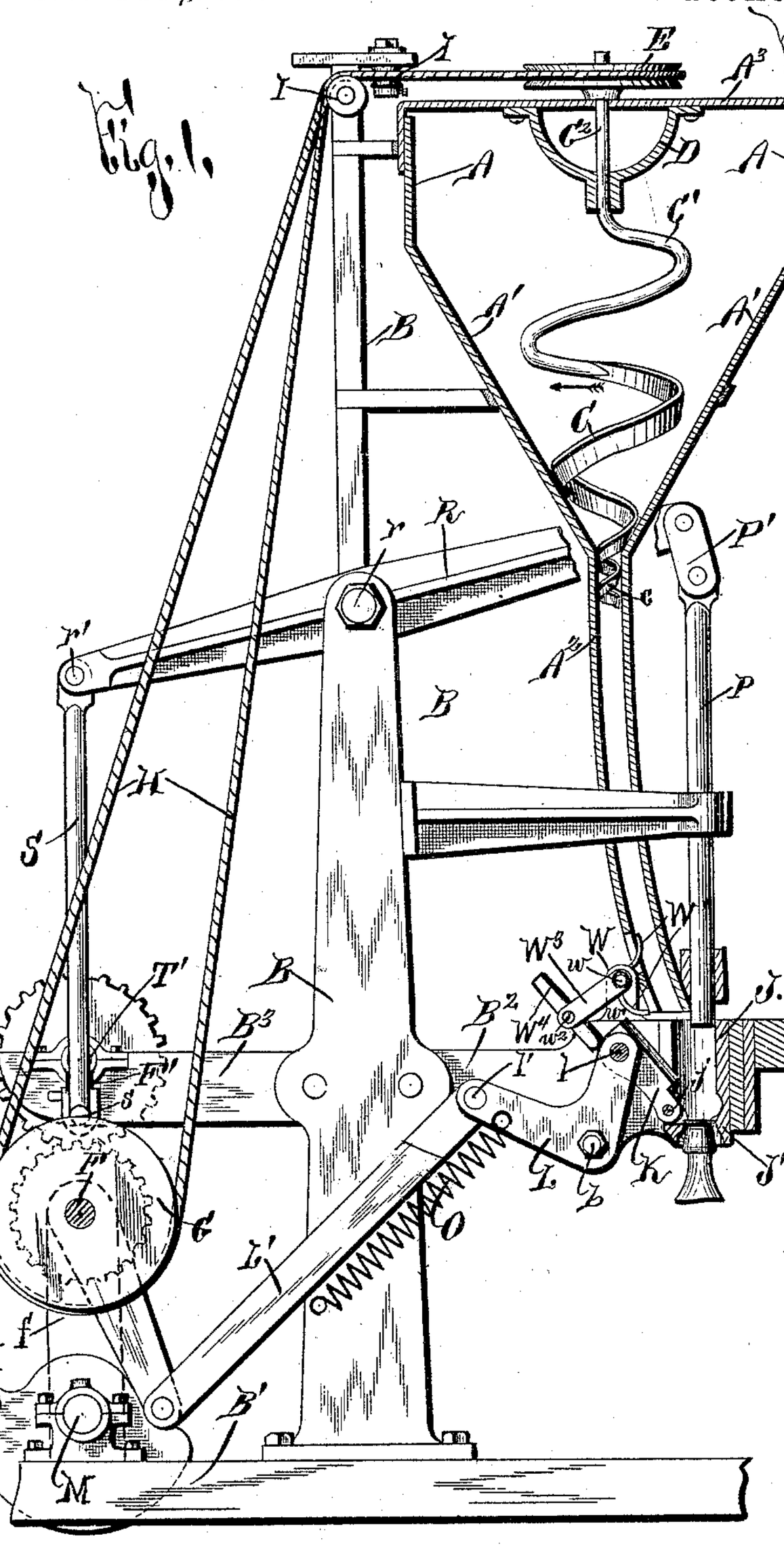


Fig. 2.

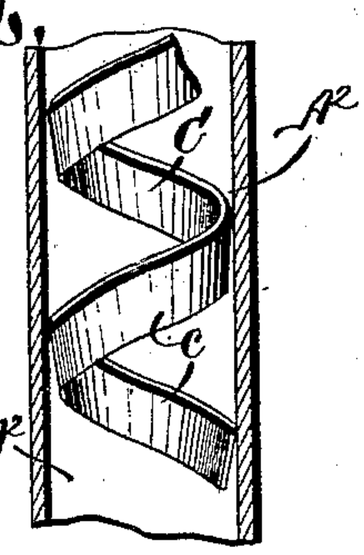


Fig. 4.

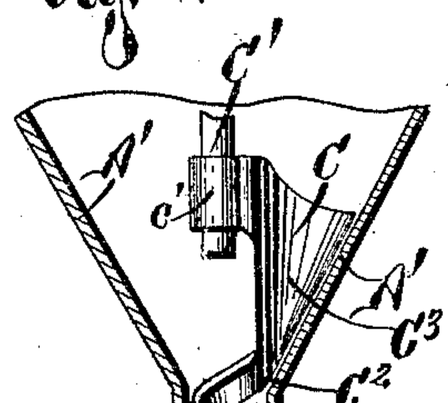
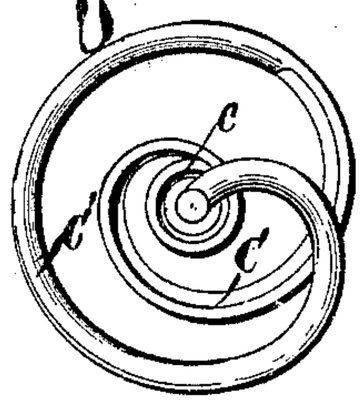


Fig. 3.



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SOL. WILE AND HENRY LA CASSE, OF ROCHESTER, NEW YORK, ASSIGNORS TO THE BOTTLERS' SPECIALTY COMPANY, OF SAME PLACE.

CORK-FEEDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 443,062, dated December 16, 1890.

Application filed July 5, 1889. Serial No. 316,524. (No model.)

To all whom it may concern:

Be it known that we, SOL. WILE and HENRY LA CASSE, of Rochester, in the county of Monroe, in the State of New York, have invented new and useful Improvements in Cork-Feeding Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

Our invention relates to an improved feeding device, which is especially adapted for machines for corking bottles and wiring the corks thereto, and has for its object the production of a simple and effective device which shall feed corks or other like articles continuously, automatically, and with great rapidity; and to this end it consists, essentially, in a hopper preferably of conical shape, having a discharge or feed tube leading therefrom, a feeder or conveyer in the lower part of the hopper, connected mechanism for revolving said feeder or conveyer, and a downward extension provided thereupon and preferably extending into the feeding-tube.

It also consists in a cut-off for discharging the fed corks one by one from the feed-tube; and it furthermore consists in a compressor for receiving the discharged cork and compressing the same to the desired size.

Our invention consists, still furthermore, in the detail construction and arrangement of the parts, all as hereinafter more particularly described, and pointed out in the claims.

In describing our invention reference is had to the accompanying drawings, forming a part of this specification, in which like letters indicate corresponding parts in all the views.

Figure 1 is an elevation, partly in section, of our improved feeding device. Fig. 2 is an enlarged detail of the feeder of our feeding device. Fig. 3 is a plan view of the detached feeder or conveyer of our feeding device, and Fig. 4 is a detached view of the lower portion of our feeding device with a modified construction of the feeder or conveyer.

The frame A of our feeding device is of desirable size, form, and construction, and is supported by a suitable bracket B, mounted upon any desirable form of table or other support B'.

The lower part A' of the frame or case A is preferably of conical shape, tapering downward. At the extremity of the conical-shaped portion A' we provide the feeding or discharge tube A^2, which may be formed integral therewith, or, if desired, may be formed of a separate piece secured to the portion A' and opening thereinto. Extending vertically through the conical portion or hopper A' is the feeder or conveyer C. At the upper part of the feeder or conveyer C is provided a cylindrical-shaped rod or shaft C', journaled in a suitable bracket D, supported, preferably, by the top A^3 of the frame A. Secured to the extremity C^2 of said shaft C' is a wheel or pulley E, which may, as illustrated, be provided with a grooved periphery. Arranged in suitable proximity to the frame A is a shaft F, of suitable size, mounted in a bracket *f*, which may be mounted upon the table B'. Secured to this shaft F is the wheel or pulley G, which is also illustrated as formed with a grooved periphery.

By reference to the drawings it will be seen that the plane in which the pulley G revolves is at right angles to the plane in which revolves the pulley E, and also that the pulley G is considerably below the plane of the said pulley E. A cord H transmits motion from the pulley G to the pulley E, and is deflected or turned in the desired manner by means of idlers I, which, if desired, may be supported upon the bracket B for the frame A of the feeder.

The feeder or conveyer C is preferably formed integral with the shaft C', the lower part of said shaft being preferably flattened into a band and then bent downward in a spiral curve. This band forming the feeder C is inclined inward from the upper outside edge, and preferably in substantially the same angle as the lower part A' of the frame A. The lower extremity *c* of the feeder or conveyer C is of substantially cylindrical shape, and is extended for a short distance within the feeding or discharge tube A^2, and is also preferably slightly inclined inward from its upper edge.

The feeder or conveyer C is revolved in the direction indicated by the arrow, and it will be observed that as corks or other like articles are filled into the hopper A', the same

will be agitated upward by the said rotation of the feeder or conveyer. This upward agitation of the corks will prevent clogging of the same at the entrance of the discharge or feed tube A^2, and will also tend to tip upward any cork which may be lying crosswise of the hopper or lower part A′ of the frame.

By reference to the drawings it will be seen that the spiral C is of greater diameter at its upper part than at its lower part, thus allowing of the ready entrance of the corks thereinto, and also causing the same to be arranged vertically on the interior of the spiral feeder or conveyer. As the corks are agitated by the spiral-shaped feeder or conveyer C, it will be observed that they will be constantly thrown toward the center thereof, and should they lie crosswise of this feeder, as described, they will be tipped into a vertical position.

When the corks are vertically arranged centrally in the spiral C, they will readily fall or feed therethrough. As the extremity *c* of said feeder or conveyer C extends within the feed-tube A^2, it will be evident that when once a cork is in the center of the said spiral-shaped feeder it will be impossible for the same to be dislodged therefrom, and it will be fed directly within the upper extremity of the feeding-tube A^2, and will then feed down the feeding-tube.

In order to discharge the corks one by one from the feed-tube, we provide a cut-off W. The preferable form of this cut-off consists, as illustrated, of peculiarly-shaped arms W′, which are arranged one above the other and enter slots *a* in the feeding-tube A^2. When the lower arm is within the tube, the upper arm is withdrawn, allowing a cork to feed down to the lower arm. When the upper arm is within the tube, shutting off the feed of the corks to the lower arm, the said lower arm is then withdrawn from the tube and allows the downward feeding of the cork previously supported thereupon. While there may be various ways of operating this cut-off, we prefer to operate the same by means of a cork-compressor J. This compressor J, which preferably consists of a fixed jaw J′ and a movable jaw K, hinged at *j* to the fixed jaw, is supported by an arm B^2 of the bracket B, and just beneath the lower or discharging extremity of the feed-tube A^2.

Pivoted at *b* to the bracket B^2 is a lever L. One arm of said lever is pivoted at *l* to the movable jaw K, and the other arm is pivoted at *l′* to a connecting rod or link L′. When, as presently described, the lever L is rocked, its forward arm will swing the rearward jaw upon its pivot *j′* and will throw forward the pin *l*, which movement is allowed by the loose connection of said jaw and forward arm by said pin *l*. Coincident with the approximation of the jaws J and K of the compressor, the lever L, being swung on its pivot, forces said compressor downward toward the bottle.

Mounted upon a shaft M, and preferably supported by the bracket *f*, is a cam N. The shaft M is preferably rotated continually and operates to intermittently force the movable jaw toward the fixed jaw. A spring O, connected to the lever L, serves to retract said jaw and insure the constant contact of the link L′ with the cam N.

The arms W′ of the cut-off W are preferably hinged at *w* to a suitable support *w′*, which may, if desired, rise from the arm B^2 of the bracket B. Secured to the said arms is the rearward projection W^3, and guided through said projection is the bar or rod W^4, which is retained at the desired position in said projection by means of a screw w^2, or other suitable device. The lower extremity of this bar W^4 bears upon the movable jaw K of the compressor. When the movable jaw is approximated toward the fixed jaw, the bar W^4 falls downward by gravity and forces the upper arm W′ out of the lower arm into the feed-tube. When the movable jaw is retracted, the said bar W^4 is forced upward, and thereupon the lower arm W′ of the cut-off is withdrawn from the feeding-tube and the upper arm is forced thereinto. It will thus be seen that when the compressor is opened a cork is automatically fed into the same.

Guided through the compressor is a plunger P, connected by a link P′ to a lever R, pivoted at *r* to the bracket B. Pivoted to said lever at *r′* is a connecting-rod S, which is pivoted at *s* to a crank F′, mounted upon a shaft T′, journaled in an arm B^3 of the bracket B. The shaft F is suitably connected by gearing to the shaft T′, and at the right time the plunger is forced through the compressor, forcing the cork into the bottle.

While we prefer to use our feeder in connection with the described cut-off and compressor, it will be understood that we do not limit ourselves to its use therewith.

At Fig. 4 we have shown a modified construction of our improved feeding device, in which the conveyer C is not formed integral with the shaft C′, but is secured thereto, preferably, by a hub *c′*. In this modification the upper part of the conveyer is not formed by a spiral band, but of a peculiar-shaped agitator, the working face of which tapers from the top downward to the point C^2, and is formed with a concaved face C^3. The point C^2 extends, preferably, to the entrance of the discharge or feed tube, and extending downwardly from said point is the lower extremity *c*, which is here also preferably of substantially cylindrical shape. This construction, while not as desirable as our preferable form, makes a very good feeder, but is not as efficient in preventing the corks from clogging at the opening into the discharge or feed passage A^2.

The operation of our invention will be readily perceived from the foregoing, and it will be understood that considerable change may be made in the detail construction and arrangement of the parts without departing from the

spirit of our invention. Hence we do not limit ourselves to its precise form and construction.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a feeding device, the combination of an inclosing-casing within which the corks are placed, a feeder revolving within said casing for feeding the corks, said feeder consisting of an outer spirally-bent body having a central feeding-passage, and an opening from the outside of said body to the central opening, whereby when the feeder is operated the corks feed through the latter opening or openings into the central opening, substantially as and for the purpose set forth.

2. In a feeding device, the combination of an inclosing frame or shell, a feeder of greater area at its top than bottom revolving in said frame or shell and provided with a central opening of greater area at its top than bottom for allowing the ready registration of the corks with said opening and for feeding them in the desired direction, substantially as and for the purpose specified.

3. In a feeding device, the combination of a suitable inclosing-frame, a feeder within said frame formed of less diameter at its lower than its upper part, and a central opening or passage provided in said feeder and formed of less diameter at its base than at its top, substantially as set forth.

4. In a feeding device, the combination of a suitable inclosing-frame, a feeder within said frame formed of less diameter at its lower part than at its upper and provided with a central opening or passage through which the articles feed, and a depending cylindrical portion provided upon said feeder for guiding the fed articles, substantially as and for the purpose set forth.

5. In a feeder, the combination of a suitable inclosing-case, a feeder consisting of a frame surrounding a conical-shaped central opening, openings provided in said feeder, through which the articles feed interiorly to said central opening by the rotation of the feeder-frame, substantially as and for the purpose specified.

6. In a feeding device, the combination of a suitable inclosing-frame and a discharge-tube connected to said frame, of a feeder within said inclosing-frame, a central opening provided in said feeder, to which the arcles feed, and a cylindrical extremity upon said feeder, whereby the articles are guided within said tube, substantially as described.

7. In a feeding device, the combination of a suitable inclosing-frame formed with a discharge or feed tube opening thereinto, with a spiral-shaped feeder or conveyer within the frame and formed of a band or rod inclined inward from its upper outer edge, and a substantially cylindrical-shaped extremity provided upon said spiral, and also formed of a band or rod inclined inward from its upper outer edge, substantially as and for the purpose described.

8. In a feeding device, the combination of a suitable inclosing-frame, a discharge-tube connected to said frame, a feeder or conveyer revolving to force in one direction the article to be fed and having a central passage through which said article feeds in the opposite direction into said discharge-tube, and openings from the outside of said conveyer or feeder to the said central passage for allowing the said article to feed inwardly to said central opening, substantially as and for the purpose set forth.

9. In a feeding device, the combination of the inclosing-frame A, the shaft C′, having a portion thereof bent into a spiral-shaped feeder or conveyer, and a central passage within said feeder, through which passage the articles feed, substantially as and for the purpose set forth.

10. In a feeding device, the combination of the inclosing-frame A, the shaft C′, formed with an integral feeder or conveyer, one extremity of said conveyer being a spiral band or rod of substantially conical shape, and the opposite extremity being a band or rod of substantially cylindrical shape, substantially as and for the purpose specified.

11. In a feeding device, the combination of the inclosing-frame A with the shaft C′, formed with an integral feeder or conveyer, one extremity of said conveyer being a spiral band or rod of substantially conical shape, and the opposite extremity of said conveyer being a band or rod of substantially cylindrical shape, inclined inward from the top edge thereof, substantially as described.

12. The combination of a suitable inclosing frame or case, a feeder or conveyer within the frame, said feeder tapering from the top downward, a feeding-passage leading from the feeder, and a cut-off for discharging the fed corks one by one, substantially as described.

13. In a feeding device, the combination of a suitable inclosing-frame, a discharge-tube connected to said frame, a feeder or conveyer revolving to force in one direction the article to be fed and having a central passage through which said article feeds in the opposite direction into said discharge-tube, openings from the outside of said feeder or conveyer to the said central passage for allowing the said article to feed inwardly to said central opening, a cut-off connected to said discharge-tube for discharging the corks therefrom one by one, and a compressor in the discharge of the cut-off for receiving the corks, substantially as and for the purpose specified.

14. In a feeding device, the combination of a suitable inclosing-frame, a discharge-tube connected to said frame, a feeder or conveyer revolving to force in one direction the article to be fed and having a central passage through which said article feeds in the oppo-

site direction into said discharge-tube, openings from the outside of said feeder or conveyer to the said central passage for allowing the said article to feed inwardly to said central opening, a cut-off connected to said discharge-tube for discharging the corks therefrom one by one, a compressor in the discharge of the corks for receiving the same, a movable jaw upon said compressor, and a connection between said movable jaw and the cut-off, whereby the operation of the movable jaw of the compressor operates the cut-off, substantially as and for the purpose set forth.

In testimony whereof we have hereunto signed our names, in the presence of two attesting witnesses, at Rochester, in the county of Monroe, in the State of New York, this 24th day of May, 1889.

SOL. WILE.
HENRY LA CASSE.

Witnesses:
A. E. PARSONS,
FRANK M. GOFF.