

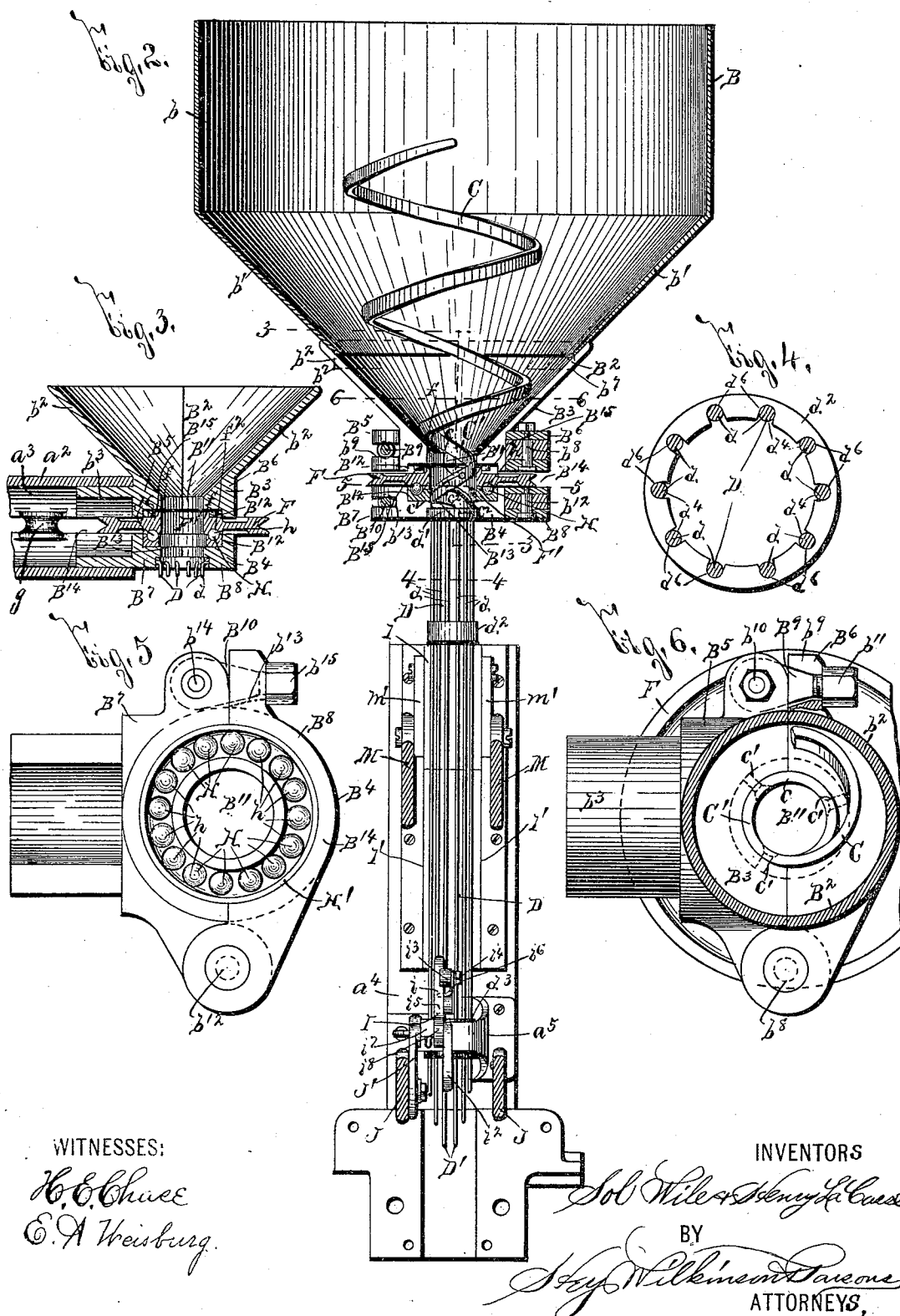
(No Model.)

2 Sheets—Sheet 2.

S. WILE & H. LA CASSE.
CORK FEEDER.

No. 520,550.

Patented May 29, 1894.



UNITED STATES PATENT OFFICE.

SOL WILE AND HENRY LA CASSE, OF ROCHESTER, NEW YORK.

CORK-FEEDER.

SPECIFICATION forming part of Letters Patent No. 520,550, dated May 29, 1894.

Application filed June 20, 1892. Serial No. 437,247. (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
5 new and useful Improvements in Cork-Feeders, 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 of the class set forth in our previous Patent No. 443,062, of December 16, 1890, and is particularly adapted for bottling machines, and especially the class of such machines shown in our Patent No. 477,617, dated
15 June 21, 1892; and has for its object the production of a practical, simple and efficient device for continuously feeding corks or similar articles automatically and rapidly; and to this end it consists, essentially, in an inclosing casing or shell into which the articles to be fed are placed, formed with an exit opening, a revoluble feeder within the casing formed with an interior passage for feeding the articles through said opening, an actuating wheel secured to the end of said feeder and formed with an opening at its center aligned with said exit opening and with the passage in the feeder for permitting the passage of said articles or corks.
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The invention also consists in a movable wall for the casing, a feeding tube formed of a series of separate bars, and in the detail construction and arrangement of the parts, all as hereinafter more particularly described
35 and pointed out in the claims.

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

Figure 1 is a side elevation, partly in section, of our improved feeding device shown as connected to a portion of a bottling machine. Fig. 2 is a vertical sectional view, taken on line 2—2, Fig. 1, illustrating the parts at the right hand of the section line. Fig. 3 is a vertical sectional view, taken on line 3—3, Fig. 2. Fig. 4 is a horizontal sectional view, of the feeding tube, taken on line
50 4—4, Fig. 2. Fig. 5 is a horizontal sectional view, taken on line 5—5 Fig. 2, representing

particularly the construction and operation of the movable wall or division of the inclosing casing or shell of our invention; and Fig. 6 is a horizontal sectional view, taken on line 6—6, Fig. 2.

In the practical operation of our previous invention, in the aforesaid Patent No. 443,062 we have ascertained that it is desirable to use a feeder driven at its lower extremity, as
55 the feeder can then be much shorter and can be driven with great ease and rapidity without the slightest liability of any binding or cramping of its lower or discharge end. We have also discovered that when a plain tube
65 is used for a feeding tube to conduct the corks or other articles from the feeder, they are very liable to become clogged in said tube and that it is then desirable to have ready access to said clogged articles and tubes.
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Our present invention comprises a feeding device provided with a feeder driven positively at its lower extremity, a feeding tube consisting of a series of bars and an outer casing or shell for receiving the corks provided with a removable wall or section, and its operation is thereby very practical and efficient.
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The frame of our invention may be of any desirable form, size and construction and is
80 here shown as an upright standard —A— having a lower laterally extending arm —a—, an upright arm —a'—, and an upper laterally extending arm —a²—.

—B— represents the outer casing or shell
85 frequently called a hopper, into which the articles to be fed are placed. The upper portion of this hopper may be of any desirable form, size and construction, but is here shown as formed with a cylindrical upper end —b—
90 and a conical lower end —b'—. The lower portion —B²— of the casing or shell is formed with the conical upper extremity —b²— suitably secured by clamps —b⁴— to the lower end —b'— of the upper portion —B'— of
95 said frame or shell —B— and is formed at its lower end with a rearwardly extending arm —b³— which enters, and is rigidly secured within the upper extremity of a chamber —a³— formed within the upper lateral arm
100 —a²— of the frame —A—. The clamps —b⁴— may be of any desirable form, size and con-

struction, and are here illustrated as swinging bolts having their upper extremities secured to lugs — b^5 — on the conical end — b' — of the upper portion — B' — of the frame or shell — B —, and their lower ends as provided with adjustable shoulders — b^6 — adapted to engage arms or lugs — b^7 — at the upper edge of the lower portion — B^2 — of said frame or shell — B —.

As clearly shown in the drawings, the lower portion — B^2 — of the casing or shell — B — consists of the upper and lower sections — B^3 — B^4 — composed of the separable divisions — B^5 — B^6 —, — B^7 — B^8 —. The division — B^6 — of the upper section — B^3 — is hinged at — b^8 — at one extremity to the corresponding extremity of the division — B^5 — and is formed at its opposite extremity with a slot — b^9 — for receiving the outer end of an eye-bolt — B^9 — hinged at — b^{10} — to the corresponding end of the opposite division — B^5 —. An adjustable shoulder — b^{11} — on said bolt securely clamps said divisions together. The divisions — B^7 — and — B^8 — are formed with pivots — b^{12} — b^{14} —, slots — b^{13} —, clamps — B^{10} — and movable clamp shoulder — b^{15} — corresponding to, the like parts — b^9 — b^{10} —, — B^9 — and — b^{11} — of the corresponding divisions — B^5 — B^6 — of the upper casing section — B^3 — previously described. It will thus be apparent that by swinging outward the clamps — B^9 — B^{10} —, either of the divisions — B^6 — B^8 — of the casing or shell sections — B^3 — B^4 — may be swung outward for permitting access to the interior of said casing or shell and that they may be readily returned to position and then firmly clamped to the opposite divisions of said sections.

— B^{11} — represents the exit opening of the casing or shell — B — which extends vertically through the adjacent faces of the divisions — B^5 — B^7 —, and — B^6 — B^8 — previously described. This opening is preferably cylindrical and is formed with the annular groove — B^{12} — extending partly into the lower faces of the divisions — B^5 — B^6 — and partly into the upper faces of the divisions — B^7 — B^8 —. Beneath the lower face of this groove is an annular groove — B^{13} — of less diameter than said groove.

— C — represents the feeder of our invention which is somewhat similar in construction and arrangement to the feeder shown in our aforesaid Patent No. 443,062. This feeder preferably consists of a spirally bent bar forming an outer frame of greater width at its top than its bottom inclosing a spiral central opening.

The interstices between the coils of the feeder — C — form openings in the wall of the feeder leading to the central opening, for facilitating the passage thereto of the articles or corks within the casing or shell — B — which are constantly agitated upward by the revolution of said feeder in the direction indicated by the arrow.

The lower end — C' — of the feeder — C — is

substantially cylindrical, although formed of a spiral bar, and is inserted within the exit opening — B^{11} — of the casing or shell — B —. 70

— D — is the feeding tube for conducting the corks or other articles from the exit opening — B^{11} — downwardly to a suitable compressor — E — or other suitable device or locality. This tube — D — is preferably composed of a series of separated bars or wires — d — arranged lengthwise and held apart by suitable collars — d' — d^2 — d^3 — or other desired supports. The inner faces — d^4 — of these bars are rounding in cross section and as they are considerably separated, the inner bearing face of the tube — D — is greatly reduced so as to retard but slightly the downward passage of the corks or other articles and to permit of room for their expansion when considerably moistened. The upper ends of these bars — d — may be riveted or otherwise secured to the collar — d' — and said collar is then registered with the groove — B^{13} — in the exit opening — B^{11} — and forms a support for preventing the downward movement of the feeding tube. The central collar — d^2 — consists, preferably, of a ring formed with corrugations or grooves — d^6 — for receiving the bars — d — and the lower collar — d^3 — is formed with a foot — d^5 — suitably secured to a standard — a^4 — rising from the arm — a —. 75 80 85 90 95

— F — is an actuating wheel here illustrated as a grooved pulley for driving or rotating the feeder — C —. This wheel — F — is formed with a hub — f — journaled in the annular groove — B^{12} —, previously described, and opening from said groove is a slot — B^{14} — for receiving the web of the actuating wheel. 100 105

The wheel — F — is formed with an upright opening — F' — at its central portion for receiving the lower end — c — of the feeder — C — which is preferably secured thereto by suitable fastening means — c' —. Consequently, as the wheel — F — is revolved, the feeder is also revolved and as the lower end of the feeder is within the central opening in the wheel — F —, the corks or other articles feed readily from said feeder through the wheel — F — and into the tube — D —. To facilitate the feeding of these articles, the extreme lower end — c^2 — of the feeder extends slightly within the stationary collar — d' — at the upper end of the feeding tube. The wheel — F — is driven in any desired manner, as by a belt — G — passing around a grooved face over suitable idlers — g — g' — supported, respectively, on the arm — a^2 — and the upper end of the standard — a —, and passing over a grooved wheel — G' —. The wheel — G' — is mounted upon the main shaft — G^2 — of our invention which may be rotated by any desired form of power transmitting mechanism and we have thought it unnecessary to here illustrate or describe any particular form thereof. 110 115 120 125 130

To reduce to a minimum the friction required in rotating the wheel — F — and the feeder — C —, we support said wheel upon the

roller bearing —H— consisting of a series of anti-friction rollers —h— mounted between a groove —f²— in the lower face of the hub of said roller and between the top face of a collar —H'— supported in the base of the annular groove —B¹²—. Upon the upper wall of this annular groove —B¹²— we provide pins —B¹⁵— which bear against an annular shoulder upon the top of the hub of the wheel —F—. It will thus be understood that the feeder —C— is rapidly and constantly rotated, is securely fastened at its lower or feeding end to a driving wheel formed with a central opening through which the corks or other articles pass, and that the driving wheel and feeder are supported upon a roller bearing which adds greatly to the facility with which said parts revolve.

—I— represents a cut off movable into the lower end of the feeding tube —D— for effecting the consecutive discharge of the corks or other articles therefrom. This cut off preferably consists of a lever —i— pivoted at —i'— to an arm —a⁵— extending laterally from the standard —a⁴— above the arm —a'— and is provided with a pair of arms —i²—i³—. The arm —i²— is preferably rigid upon the lever —i—, extends downwardly beneath the pivot —i'— and is adapted to enter the opening between two of the bars —d— of the tube. The arm —i³— is pivoted at —i⁴— to the upper end of an upright arm —i⁵— of the lever —i— and the free extremity of this arm —i³— extend downwardly and is forced to its normal position by a spring —i⁶—.

—i⁷— is a stud on the rearwardly extending arm —i³— on the lever —i— adapted to enter a slot or bearing —j— in an arm —J'— upon a lever —J—. The lever —J— is pivoted at —j'— to the standard —a'— and its opposite end is provided with a stud —J²—. A suitable cam —J³— is formed with a camway —J⁴— for engaging the stud —J²— and raising and lowering the rear end of the lever —J— for raising and lowering its forward extremity and alternately forcing the arms —i²—i³— of the cut off —I— into and out of the lower end of the feeding tube —D—. As the arm —i³— is withdrawn from the feeding tube and the arm —i²— simultaneously enters the same, the lower cork feeds upon the downwardly bent arm —i²—, and as said arm is withdrawn and the upper arm —i³— impinges on the cork or other article next above the same, this lower cork passes from the lower end of the feeding tube. Consequently, with each revolution of the cam —J³—, a cork is fed from the lower extremity of the feeding tube. The cam —J³— is formed with gear teeth engaged by a pinion —G⁵— upon the main shaft —G²—. Consequently, as the main shaft revolves to continuously feed the corks into the feeding tube, it serves also to positively feed the corks or other articles from the exit of the feeding tube.

—K— represents a compressor of the construction and operation shown in our pend-

ing application for improvements in compressors, Serial No. 376,428, filed December 31, 1890, and consequently we do not deem it advisable to herein describe the construction and operation of said compressor, it being understood that the same is directly beneath the lower end of the feeding tube —D— and that the lower end of said feeding tube extends into the upper end —k— of said compressor.

—L— is a movable plunger carried by a cross head —l— movable in guides —l'— in the rear face of the upright —a⁴—. The lower end of this plunger extends within the upper extremity of the compressor to a point beneath the lower edge of the adjacent portion of the feeding tube. The rear portion of said feeding tube is formed with an arm —D'— consisting of downwardly extending ends upon the bars oppositely arranged to said plunger. This arm —D'— forms a rear support for the cork or other article when being discharged from the feeding tube —D—.

The plunger —L— serves to discharge the corks or other articles from the compressor —K—, and is brought into action by a lever —M— pivoted at —m— to the upright —a'—. The front end of the lever —M— is connected by a link —m²— to a disk or eccentric —G⁶—. This disk is mounted on a shaft —G³— arranged directly above the main shaft and connected thereto by gearing G⁴.

The operation of our invention will be readily perceived from the foregoing description and upon reference to the drawings, and it will be particularly noted that the lower end of the feeder is firmly supported and positively driven; that said feeder and its actuating wheel may be readily removed, and that both are subject to immediate access when desired; that the bearing face of the feeding tube is reduced to a minimum for preventing clogging of the corks within the same; that should a cork become clogged it may be readily forced downward by a thin bar inserted between two of the component bars of the feeding tube, and that the entire device is particularly simple, practical, and effective. It is apparent, however, that considerable change may be made in the detail construction and arrangement of the parts of our feeding device without departing from the spirit of our invention, and hence we do not herein limit ourselves to such exact construction and arrangement.

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 or shell within which the articles to be fed are placed, and consisting of a lower fixed section and a detachable upper section a feeding tube formed with a series of lengthwisely extending slots for reducing the internal bearing face thereof, and a revoluble feeder within said casing for feeding the articles, 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
5 articles 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 casing or shell within which the
10 articles to be fed are placed, and consisting of a lower conical section and an upper section having a conical lower extremity detachably secured to the lower section and provided with an exit opening, a movable feeder
15 for feeding the articles through the exit, and a feeding tube opening from said exit and formed with a series of upwardly extending slots for reducing the internal bearing face thereof, and facilitating the passage of arti-
20 cles fed through the exit of the casing, substantially as and for the purpose specified.

3. In a feeding device, the combination of an inclosing casing or shell within which the articles to be fed are placed, and consisting
25 of a lower conical section provided with an exit opening, and an upper section having a conical lower extremity, clamps for securing said sections together and a movable feeder for feeding the articles through the exit, a
30 feeding tube opening from said exit and formed with a series of separated inwardly projecting bearing faces of rounding cross section for reducing the internal bearing surface thereof and facilitating the passage of
35 articles fed through the exit of the casing, substantially as and for the purposes specified.

4. In a feeding device, the combination of an inclosing casing or shell within which the articles to be fed are placed, and consisting
40 of separable upper and lower sections, one of which is provided with an exit opening, clamps for removably securing the sections together and a movable feeder for feeding the articles through the exit, a feeding tube open-
45 ing from said exit composed of a series of upright bars, and suitable supports for holding said upright bars in position, substantially as and for the purpose set forth.

5. In a feeding device, the combination of
50 an inclosing casing or shell within which the articles to be fed are placed, and consisting of a conical lower section and provided with an exit opening, and an upper section having a lower conical extremity detachably secured
55 to the lower section a movable feeder for feeding the articles through the exit, and a feeding tube leading from said exit and formed with a downwardly extending arm at one side of its discharge extremity, substan-
60 tially as and for the purpose set forth.

6. In a feeding device, the combination of an inclosing casing or shell within which the articles to be fed are placed, provided with
an exit opening, a movable feeder for feed-
65 ing the articles through the exit opening, a feeding tube opening from said exit composed of a series of upright bars and provided

with an arm at one extremity of its discharge end formed by projecting ends on the bars at said side of the discharge end, and a support
70 or collar having grooves in its inner periphery for receiving and holding said upright bars in position, substantially as and for the purpose specified.

7. In a feeding device, the combination of
75 an inclosing casing or shell, within which the articles to be fed are placed, consisting of lower and upper sections detachably secured at their adjacent extremities, one of the sections being provided with an exit opening, a
80 feeder for feeding the articles through the exit of the casing, a feeding tube leading from said exit and formed with a downwardly extending arm at one side of its discharge
85 extremity, and a movable plunger arranged opposite to said arm, substantially as and for the purpose set forth.

8. In a feeding device, the combination of an inclosing casing or shell, within which the articles to be fed are placed, provided with
90 an exit opening, a feeder revolving within said casing for feeding the articles having an opening at one extremity through which the articles pass and an actuating wheel provided with a hollow hub secured to the lower ex-
95 tremity of the feeder, and registered with said opening in the extremity of the feeder, whereby the articles feed from said opening through the hollow hub of the actuating wheel, sub-
100 stantially as and for the purpose specified.

9. In a feeding device, the combination of an inclosing casing or shell within which the articles to be fed are placed, a feeder revol-
105 ving within said casing for feeding the articles, 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 passage, whereby, when the
110 feeder is operated, the articles feed through the latter opening or openings into the central opening, and an actuating wheel having a hollow hub secured to the lower end of the feeder, whereby the articles pass from the
115 feeder through said wheel, substantially as and for the purpose set forth.

10. In a feeding device, the combination of an inclosing casing or shell within which the articles to be fed are placed, a feeder revol-
120 ving within said casing for feeding the articles, 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
125 feeder is operated, the articles feed through the latter opening or openings into the central opening, an actuating wheel having a hollow hub secured to the lower end of the feeder whereby the articles pass from the feeder
130 through said wheel, and a feeding tube projecting outwardly from said hollow hub, substantially as and for the purpose specified.

11. In a feeding device, the combination of an inclosing casing or shell within which the articles to be fed are placed, a feeder revol-

ing within said casing for feeding the articles, 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 articles feed through the latter opening or openings into the central opening, an actuating wheel having a hollow hub secured to the lower end of the feeder whereby the articles pass from the feeder through said wheel, a feeding tube projecting outwardly from said hollow hub, and a depending extremity on the feeder extending beneath the hollow hub of the actuating wheel and within the upper extremity of the feeding tube, substantially as and for the purpose set forth.

12. 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 at its bottom, and with a substantially cylindrical opening at its lower extremity for allowing the registration of the articles with said opening and for feeding them in the desired direction, and an actuating wheel secured to the lower extremity of the feeder and formed with an opening at its central portion aligned with the opening in the feeder, substantially as and for the purpose specified.

13. In a feeder, the combination of a suitable inclosing casing or shell, a feeder consisting of a frame surrounding a conical shaped opening, openings provided in said feeder through which the articles feed interiorly into said central opening by the rotation of the feeder frame, and an actuating wheel secured to the lower extremity of said frame and formed with a central opening registered with the lower extremity of the conical shaped central opening, whereby the articles feed from said central opening of the feeder through said actuating wheel, substantially as and for the purpose described.

14. In a feeder, the combination of a suitable inclosing casing or shell, a feeder consisting of a frame surrounding a conical shaped opening, openings provided in said feeder through which the articles feed interiorly into said central opening by the rotation of the feeder frame, an actuating wheel secured to the lower extremity of said frame and formed with a central opening registered with the lower extremity of the conical shaped opening, whereby the articles feed from said central opening of the feeder through said actuating wheel, and a feeding tube extending outwardly from the central opening of the actuating wheel for conducting the articles therefrom, substantially as and for the purpose set forth.

15. In a feeder, the combination of a suitable inclosing casing or shell, a feeder consisting of a frame surrounding a conical shaped opening, openings provided in said

feeder through which the articles feed interiorly into said central opening by the rotation of the feeder frame, an actuating wheel secured to the lower extremity of said frame and formed with a central opening registered with the lower extremity of the conical shaped opening, whereby the articles feed from said central opening of the feeder through said actuating wheel, a feeding tube extending outwardly from the central opening of the actuating wheel for conducting the articles therefrom, and a cut off for discharging one by one the articles fed into said tube, substantially as and for the purpose specified.

16. In a feeding device, the combination of an inclosing casing or shell, a feeder consisting of a frame surrounding a conical shaped opening, openings provided in said feeder through which the articles feed interiorly into said central opening by the rotation of the feeder frame, an actuating wheel secured to the lower extremity of said feeder and formed with a central opening registered with the lower extremity of the conical shaped central opening, whereby the articles feed from said central opening of the feeder through said actuating wheel, and a series of anti-friction rollers engaging the under face of said wheel for supporting the same, substantially as and for the purpose set forth.

17. In a feeding device, the combination of an inclosing casing or shell, within which the articles to be fed are placed, provided with a slot at one extremity, and with an exit opening, an actuating wheel mounted in said slot and journaled in the casing, and a movable feeder connected to said actuating wheel for feeding the articles through the exit opening of the casing, substantially as and for the purpose specified.

18. In a feeding device, the combination of an inclosing casing or shell within which the articles to be fed are placed, provided with an exit opening, and a slot opening from said exit opening and provided with a shoulder; of an actuating wheel having a hub journaled in said slot and bearing against said shoulder and provided with a central opening aligned with the exit opening of the casing, and a movable feeder having one extremity movable within the casing and the other secured to said wheel, substantially as and for the purpose set forth.

19. In a feeding device, the combination of an inclosing casing or shell within which the articles to be fed are placed, provided with an exit opening and a slot opening from said exit opening and provided with a shoulder; of an actuating wheel having a hub journaled in said slot and bearing against said shoulder and provided with a central opening aligned with the exit opening of the casing, a movable feeder having one extremity movable within the casing and the other secured to said wheel, and a feeding tube having its upper extremity supported within the lower ex-

tr emity of the exit opening of the casing, substantially as and for the purpose specified.

20. In a feeding device, the combination of an inclosing casing or shell within which the articles to be fed are placed, a movable wall for said casing for permitting access to its interior, and a movable feeder within the casing for feeding the articles, substantially as and for the purpose set forth.

21. In a feeding device, the combination of a hopper provided with an exit opening and consisting of a stationary portion, and a portion having one end hinged to the stationary portion and the other end removably secured thereto, and a clamp for securing said portions together; of a feeder revolving within said casing for feeding the articles therefrom, substantially as and for the purpose specified.

22. In a feeding device, the combination of a hopper provided with an exit opening and consisting of a stationary portion, and a portion having one end hinged to the stationary portion and the other end removably secured thereto, and a clamp for securing said portions together; of a feeder revoluble within said casing for feeding the articles from said exit opening, and an actuating wheel secured to said feeder, journaled within said casing and formed with an opening at its central portion aligned with the exit opening of the casing, substantially as and for the purpose set forth.

23. In a feeding device, the combination of an inclosing casing or shell within which the articles to be fed are placed, consisting of a stationary portion and a movable portion hinged to said stationary portion and a feeder within said shell and a feeding tube extending outwardly from said shell and formed with a slot at its lower extremity; of a support in proximity to said extremity of the feeding tube, and a movable lever hinged to said support and provided with a movable arm adapt-

ed to enter said slot, substantially as specified.

24. In a feeding device, the combination of an inclosing casing or shell within which the articles to be fed are placed, a feeder within said shell and a feeding tube extending outwardly from said shell and formed with a slot at its lower extremity; of a support in proximity to said extremity of the feeding tube, a movable lever hinged to said support and provided with an upright arm and with a movable arm adapted to enter said slot, a second movable arm hinged to the upright arm and adapted to enter said aperture, and a spring for forcing said arm to its normal position, substantially as and for the purpose set forth.

25. In a feeding device, the combination of an inclosing casing or shell within which the articles to be fed are placed, a feeder within said shell, and a tube extending outwardly from said shell and formed with a slot at its lower extremity; of a support in proximity to said extremity of the feeding tube, a movable lever hinged to said support and provided with a movable arm having its extremity adapted to enter said slot, a second movable arm formed with a downwardly extending end adapted to enter said aperture, a spring for forcing said arm to its normal position, a stud on said lever, and an actuating lever formed with a slot for engaging said stud, substantially as and for the purpose specified.

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 17th day of May, 1892.

SOL WILE.
HENRY LA CASSE.

Witnesses:

F. W. WHIPPLE,
FRANK M. GOFF.