Z. P. CANDEE.

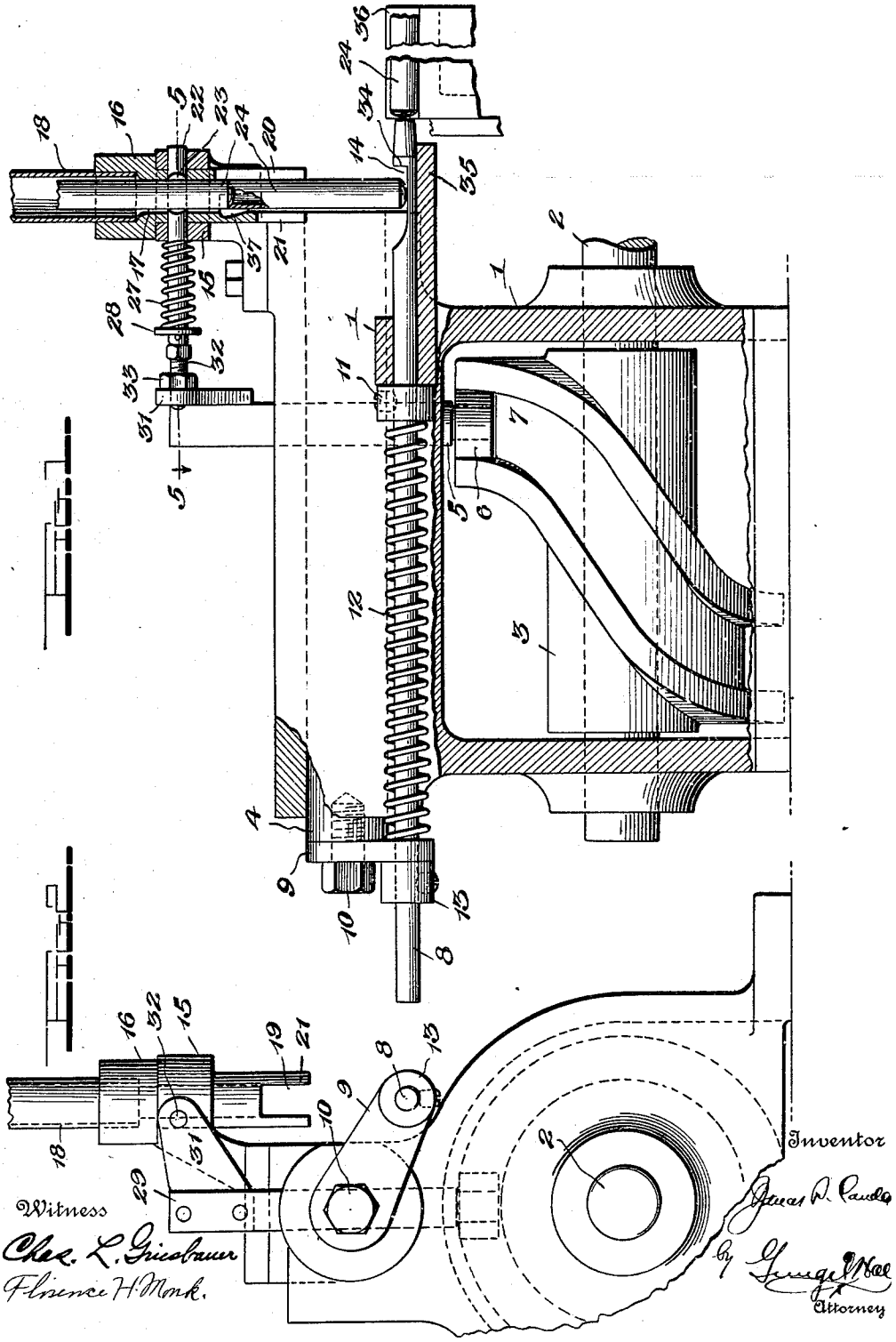
FEED MECHANISM.

APPLICATION FILED JUNE 1, 1916.

**1,253,348.**

Patented Jan. 15, 1918.

2 SHEETS—SHEET 1.



Witness

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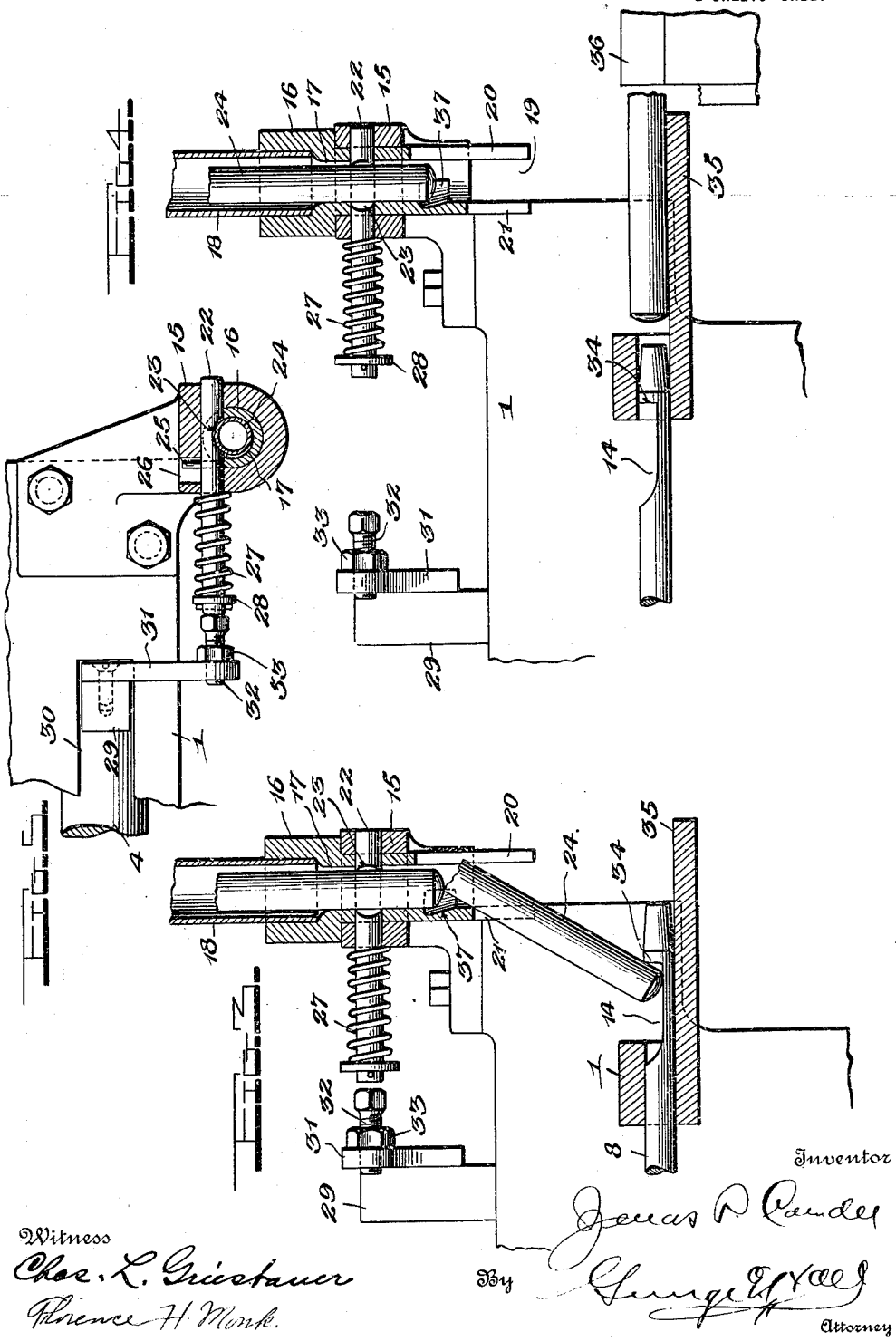
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# UNITED STATES PATENT OFFICE.

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## FEED MECHANISM.

1,253,348. Specification of Letters Patent. **Patented Jan. 15, 1918.**

Application filed June 1, 1916. Serial No. 101,200.

*To all whom it may concern:*

Be it known that I, ZENAS P. CANDEE, a citizen of the United States, residing at Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Feed Mechanism, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improved feed mechanism of the type designed to automatically take blanks or articles from a source of supply and deliver them to an operating point.

It is the object of the invention, among other things, to provide means that will successively take blanks or articles from a receptacle at its discharge point and convey them in a path at an angle to that at which they were received at said discharge point; and to so design the mechanism that it may be used for operating upon blanks or articles that have a more or less intermeshing engagement with each other.

To these, and other ends, my invention consists in the feed mechanism having certain details of construction and combinations of parts, as will be hereinafter described and more particularly pointed out in the claims.

Referring to the drawings, in which like numerals of reference designate like parts in the several figures;

Figure 1 is a fragmentary side elevation of my improved mechanism;

Fig. 2 is a fragmentary end view thereof;

Fig. 3 is a fragmentary elevation, showing the parts in the relative position occupied by them as the lowest blank or article is about to be disengaged from the blank or article just above it;

Fig. 4 is a similar view showing the parts in their relative positions at a later part of the operation; and

Fig. 5 is a fragmentary plan thereof, the portions in section being taken upon line 5—5 of Fig. 1.

This invention is particularly designed to operate with blanks or articles that are hollow and with one open end and the other a solid projecting end, the latter entering the open end of the next blank or article when the same are arranged in a column.

Shells, cups, thimbles or like shapes are comprised in the class of blanks or articles just referred to, and in the drawings I have shown my invention as applied to shells or cups, the solid end being rounded.

Having particular reference now to the drawings, the numeral 1 designates a bracket within which a shaft 2 is rotatably mounted, having a barrel cam 3 fixed thereon.

Mounted within said bracket is a slide 4 that derives a reciprocatory movement from the barrel cam 3 through a stud 5 fixed in said slide and a cam roll 6 thereon that lies within the groove 7 in said cam. Also slidably mounted in said bracket is the push rod 8 that is supported near its outer end by the plate 9 fixed by the bolt 10 to the end of the slide 4, and surrounding said rod between said bolt and the adjustable collar 11 is a spring 12. A collar 13, also adjustably secured upon said push rod, limits the movement of said rod in one direction. In one side of said push rod, near its inner end, is a recess 14, for a purpose to be hereafter described.

Secured to the bracket 1 is a tube bracket 15, within which is mounted the bushing 16 having an opening 17 therethrough and into one end of which projects the feed tube 18, which may be a flexible or solid tube as seems most desirable.

The lower end of the bushing 16 is slotted at 19 and its walls are also provided with slots at right angles to said slot 19, the opening formed by the slot 20 upon one side of said bushing being deeper than the slot 21 upon the opposite side.

Slidably mounted within the tube bracket 15 and the bushing 16 is the stop rod 22, in one edge of which is a recess 23 of substantially the same shape as the exterior of the said blanks or articles, which are herein designated by the numerals 24, these being circular in cross section.

The pin 25 fixed in said stop rod 22 and projecting into a recess 26 in one side of the tube bracket prevents the said stop rod from rotating about its axis.

A spring 27 surrounds said stop rod and lies between the tube bracket 15 and the washer 28 on said rod, thereby providing means for moving said stop rod in one direction. Limited endwise movement is imparted to the stop rod 22 against the tension of the spring 27 by the slide 4 through the

stud 29 fixed in said slide, and projecting up through a recess 30 in the bracket 1, a plate 31 fixed to said stud, a stop screw 32 threaded in the outer end thereof which abuts against the end of the stop rod 22 in one of its positions, and the check nut 33.

In operation the blanks or articles 24 are conveyed through the feed tube 18 from a hopper or other source of supply and drop through the opening 17 with the solid end of the lowest blank or article resting upon the bottom of the recess 14 in the push rod 8, substantially as shown in Fig. 1, and the rounded lower end of the next article above it projecting into the upper open end thereof.

At this time the head of the screw 32 is in contact with the stop rod 22 so that the recess 23 in said stop rod is concentric with the axis of the opening 17. The slide 4 now begins to move toward the left in Fig. 1, the head of the screw 32 is disengaged from the stop rod 22, and the spring 27 moves said stop rod so that the recess 23 is eccentric to the opening 17 and bears with sufficient pressure against one side of the second article in the column to prevent its movement. After this friction has been applied the end wall 34 of the recess 14 engages the side of the article therein and moves the bottom thereof to the left, at which time said article passes through the recess 21 in the bushing 16 and is drawn away from that article in the column held by the stop rod 22. The then position of the lowest blank or article is substantially shown in Fig. 3.

After the push rod has been withdrawn to the position substantially shown in Fig. 4, the said blank or article drops by gravity onto the shelf 35 on said bracket 1 directly in front of the end of said push rod. The movement of this push rod is now reversed and the end thereof engages the blank or article resting on said shelf 35 and pushes it onto the carrier 36, from which it is conveyed to other mechanism, the nature of which is not material to this invention.

Just before the push rod 8 has completed its movement in the direction last above described, the head of the screw 32 again engages the stop rod 22 and actuates it so that it releases its hold upon the article, then the lowest in the column. This article drops by gravity until the lower end thereof rests upon the bottom of the recess 14 and the next article above it is brought within the influence of the stop rod 22 and is gripped by it and the operations are continued as above described.

In one side of the opening 17 adjacent to the slot 21 is a pocket or depression 37 formed at a point opposite to the juncture point between the lowest and the article next above it in the column of articles. This pocket prevents the stop rod 22 from pulling the lower article in the column against the wall of the opening 17 with sufficient friction to prevent it from being released by the action of the push rod 8.

It will be noted that by this invention a column of articles that are cylindrical in form and having one solid projecting end and an open opposite end, are automatically fed from a hopper or other source of supply and the lowest article in the column is first disengaged from the article next above it, which is frictionally held with sufficient pressure to prevent its movement, and is then actuated so as to drop to a position wherein it lies at substantially a right angle to its position in said column and is afterward caused to travel to a delivering point in its new position.

There are minor changes and alterations that may be made within my invention, and I would therefore have it understood that I do not limit myself to the exact construction herein shown and described, except as defined by the appended claims.

Having described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. Mechanism for feeding blanks or articles from a group wherein each blank has an intermeshing engagement with a blank next adjoining, comprising means for holding one blank in its group position against movement and means for drawing the next blank away from it while it is so held, and at the same time changing its position until it lies at an angle to the position it last occupied in the group.

2. Mechanism for feeding blanks or articles from a group wherein each blank has an intermeshing engagement with the next blank, comprising means for holding one blank in its group position against movement and means for drawing the next blank away from it while so held, and at the same time changing the position of the last mentioned blank until the blank lies at an angle to the position last occupied in the group, and for moving the latter blank in a path at an angle to the former blank.

3. In a feed mechanism, the combination with a movable member having a recess or pocket therein; of a blank holding member provided with slots therein; and means for holding one of the blanks in said blank holding member against movement, all of said elements being so arranged that when a blank has first entered the recess or pocket in said movable member the said blank holding member will be in engagement with and held against movement by the blank next adjoining the one in said recess or pocket, and the movement of said movable member will then cause the blank therein to rock in relation to the blank next adjoining and be brought into engagement with one edge of

one of said slots, which will act as a fulcrum and facilitate the separation of said blank from the secured blank next adjoining, which blank will then assume a position at an angle to the one it last occupied in the blank holder.

4. In a mechanism of the character described; a member capable of holding a group of blanks; and means for moving the lowermost blank in said holding member so as to engage a part of said holding member and thereby separate it from the blank next adjoining and cause it to occupy a position at an angle thereto.

5. In a mechanism of the character described; a member capable of holding a group of blanks having an intermeshing relation with each other, said member having recesses of various depths therein, the relation of said recesses being such that sidewise movement of the blank is prevented thereby but movement in the opposite direction is permitted when the blank is brought into engagement with one of the edges of said recesses.

6. In a mechanism of the character described; a member capable of holding a group of blanks having an intermeshing relation with each other, said member having recesses of various depths therein, the relation of said recesses being such that sidewise movement of the blank is prevented thereby but movement in the opposite direction is permitted when the blank is brought into engagement with one of the edges of said recesses; and means for moving said blank in relation to the next adjoining blank against the edge of one of said recesses, whereby said blanks are disengaged and the lower blank caused to move into a position at an angle to the other blanks.

7. In mechanism for feeding blanks arranged in a group and having intermeshing relation with each other, a traveling member, and the provision of means which in conjunction with the intermeshing relation of the blanks establishes a fulcrum, whereby under force, applied at an angle to the lowermost blank in the column, by means of said traveling member, said blank is positively moved initially from a substantially vertical position toward a substantially horizontal position; and a feed controlling device engaging the blank next in line in the group, which device is actuated by said traveling member to release the blank engaged thereby at a predetermined time.

In testimony whereof I have hereunto affixed my signature.

ZENAS P. CANDEE.

**Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."**