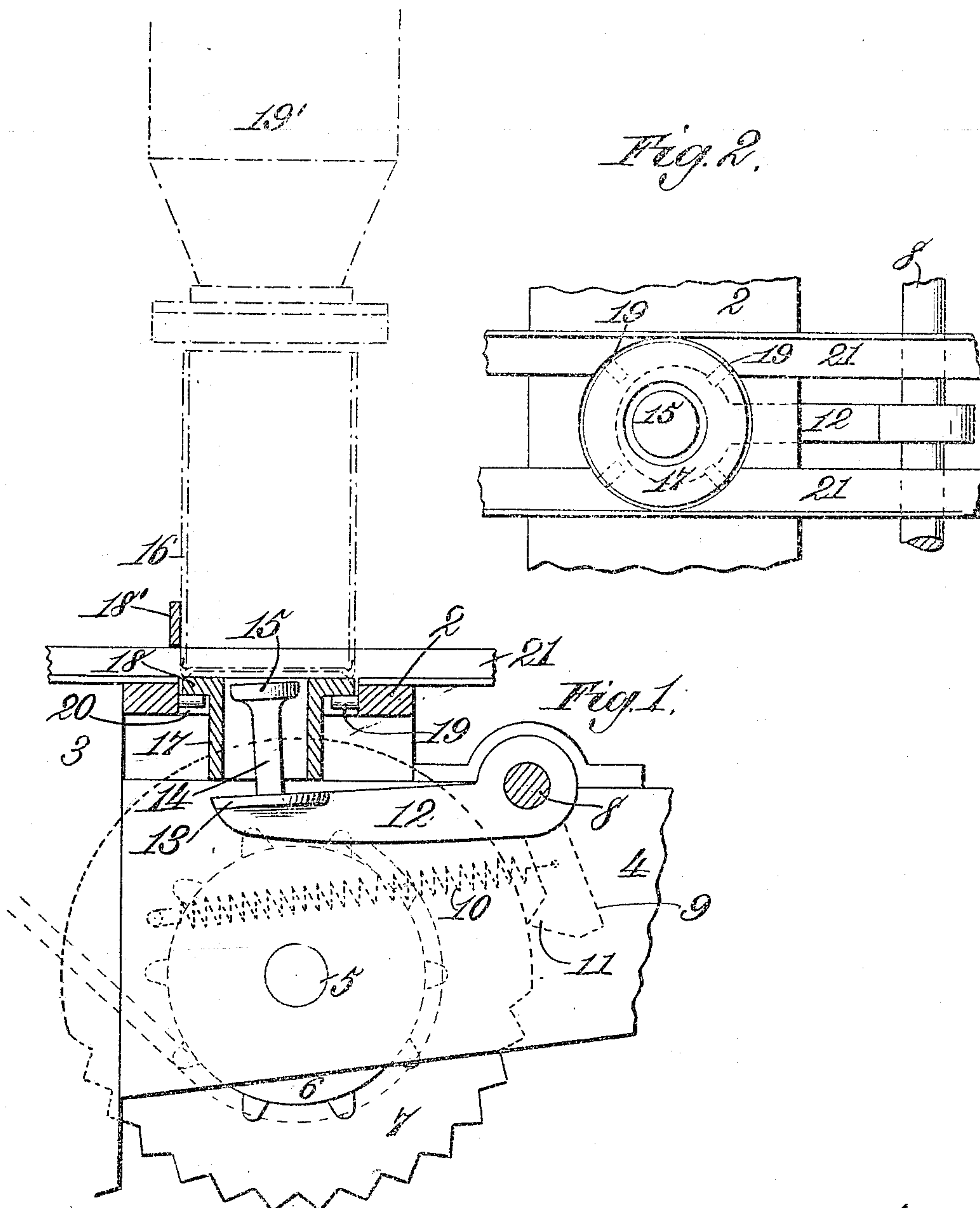


No. 868,605.

PATENTED OCT. 15, 1907.

F. J. HEYBACH.
CAN TAPPING APPARATUS.
APPLICATION FILED SEPT. 11, 1906.

2 SHEETS—SHEET 1.



Witnesses.
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2 SHEETS—SHEET 2.

Fig. 3.

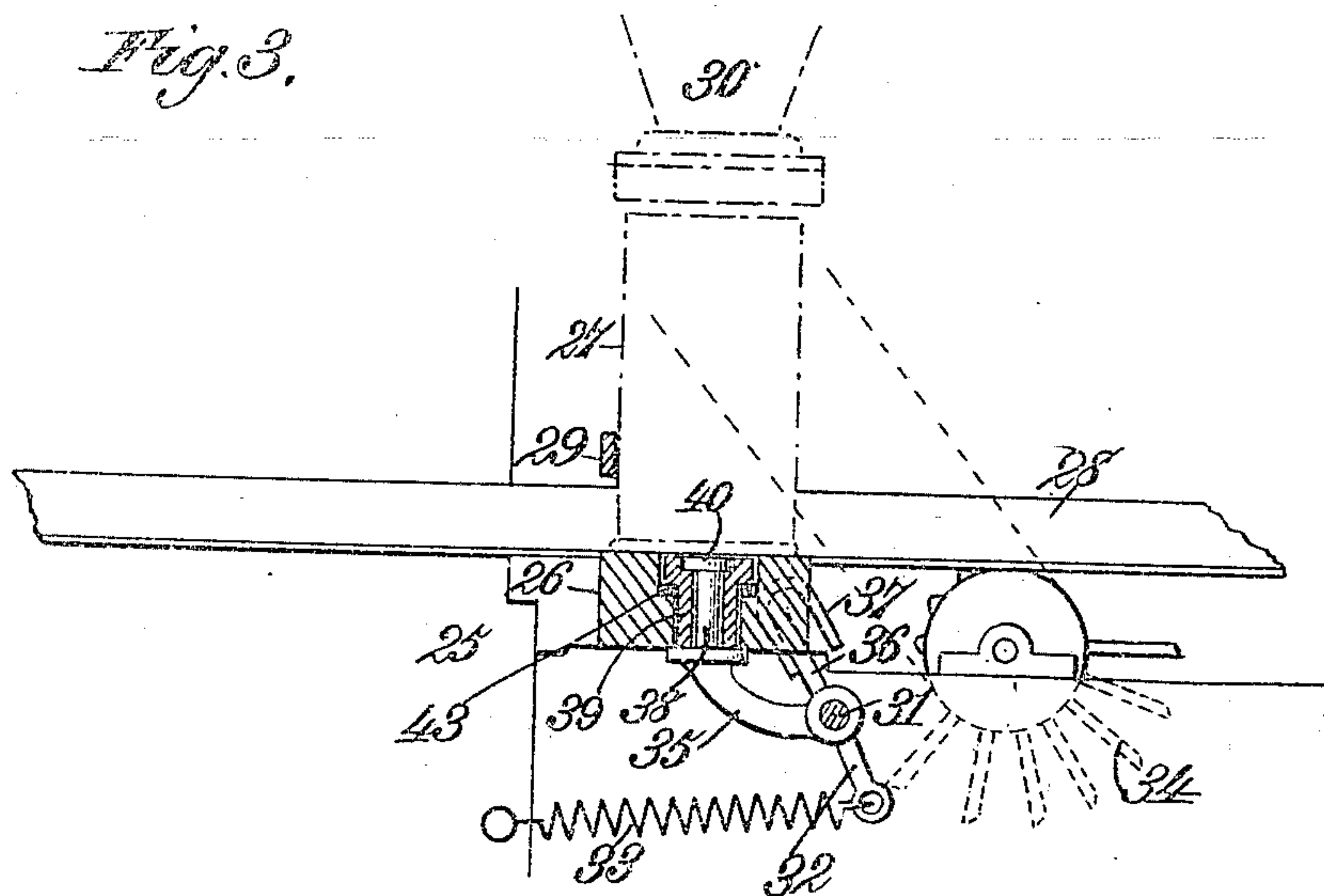


Fig. 4.

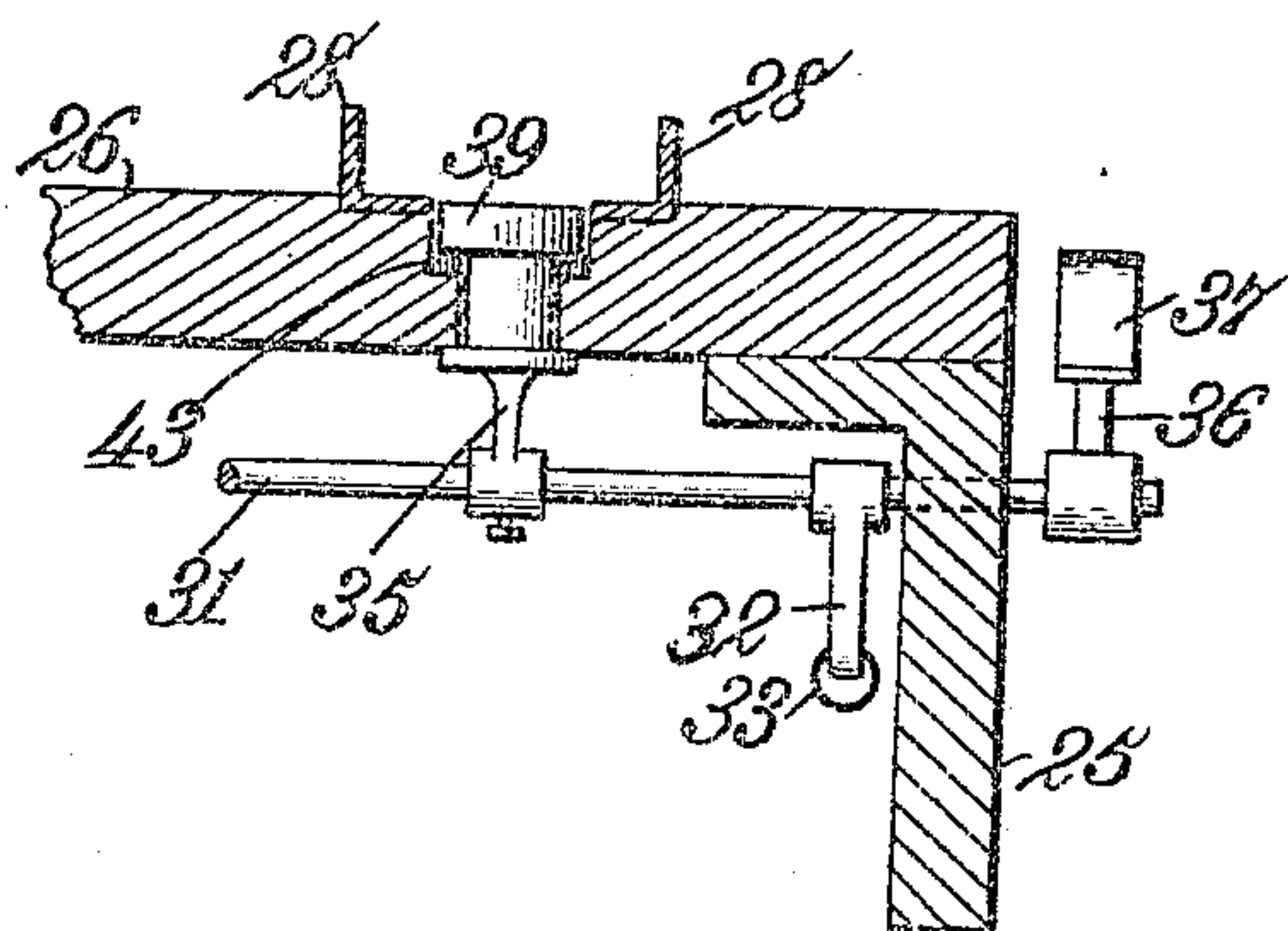
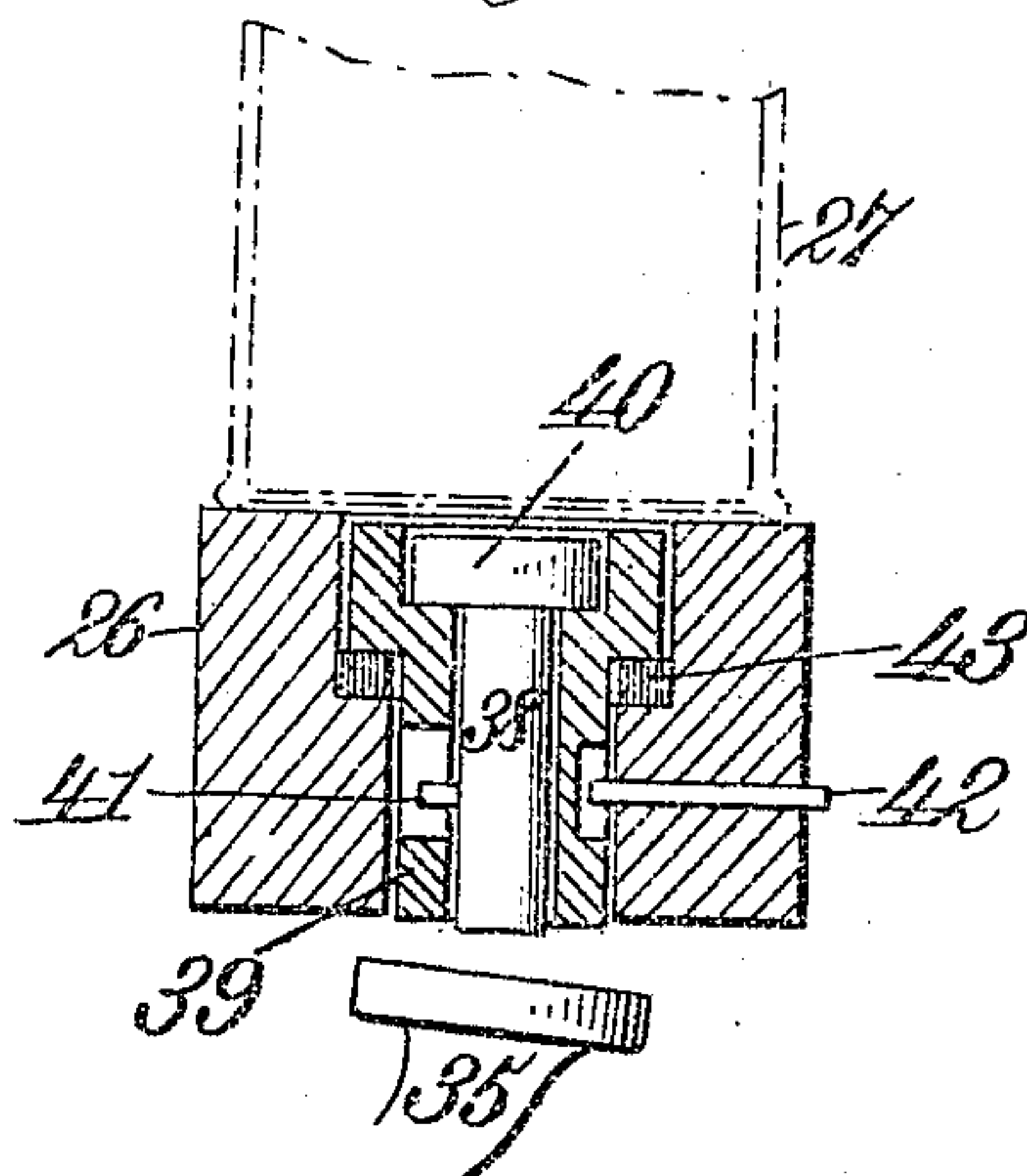


Fig. 5.



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UNITED STATES PATENT OFFICE.

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CAN-TAPPING APPARATUS.

No. 868,605.

Specification of Letters Patent.

Patented Oct. 15, 1907.

Application filed September 11, 1906. Serial No. 334,181.

To all whom it may concern:

Be it known that I, FREDERICK J. HEYBACH, a citizen of the United States, residing at Savannah, in the county of Chatham and State of Georgia, have invented new and useful Improvements in Can-Tapping Apparatus, of which the following is a specification.

This invention relates to what I shall for convenience term "can tapping apparatus". This title as stated is adopted merely for convenience as receptacles of kinds other than those known specifically as cans can be successfully brought under the action of the apparatus. The latter is simple in construction and effective in action, in that it assures the solid and uniform packing of pulverulent substances of different kinds in cans.

An apparatus embodying the invention may be advantageously employed in many ways, for example, in combination with a weighing machine such as that shown in Letters-Patent numbered 791,342 granted to me May 30, 1905, and to which reference may be had.

When the can tapping apparatus is employed with such a weighing machine the latter automatically weighs out and delivers charges of material to cans, which charges are packed as hereinbefore brought out in the respective cans.

In the drawings accompanying and forming part of this specification I show in detail certain forms of embodiment of the invention which to enable those skilled in the art to practice said invention will be fully set forth in the following description, while the novelty of the invention will be included in the claims succeeding said description.

Referring to said drawings, Figure 1 is a sectional side elevation of an apparatus embodying the invention. Fig. 2 is a top plan view of the same. Fig. 3 is a view corresponding to Fig. 1, of a modified form of apparatus. Fig. 4 is a sectional front and Fig. 5 a sectional side elevation of the parts shown in Fig. 3.

Like characters refer to like parts throughout the several figures.

I will first describe the construction represented in Figs. 1 and 2 and afterwards that shown in Figs. 3 to 5. Referring now particularly to the first mentioned two figures, the numeral 2 denotes a frame member represented as horizontally disposed and which may be of wood, metal or a composition of these materials. This frame member constitutes a part of the framework of the apparatus which framework is denoted in a general way by 3. I have only shown a part of the framework of the machine for this is all that is necessary to a full understanding of the invention. From the framework 3 (see Fig. 1) there is shown as extending a bracket 4 which constitutes a support for the shaft 5, said shaft 5 being in practice rotated in any suitable way, for example, by means of sprocket gearing denoted in a general way by 6.

This shaft 5 has fastened to it in any desirable way a toothed member 7 which is represented as consisting of a mutilated ratchet wheel, the teeth of which extend a little less than half the distance around the perimeter thereof; this, however, is not essential, nor is it necessary to employ a ratchet wheel, for as will hereinafter appear I may employ a member for performing the functions that the part 7 does which is not strictly speaking, a ratchet wheel, but is, however, a toothed member.

The bracket 4 in addition to constituting a support for the shaft 5 sustains a second shaft as 8, the latter being in the present case of rocking type and being represented as located above and at one side of the shaft 5. There is fastened to this shaft 8 in some suitable way an arm as 9 to which between the ends thereof is connected one end of a spring as 10, the other end of said spring being connected with the bracket 4 at a point substantially remote from the arm 9. This spring 10 acts upon the arm 9 in opposition to the mutilated ratchet wheel 7. When the teeth of the ratchet wheel 7 are brought opposite the projection 11 at the free end of the arm 9 on the rotation of the said ratchet wheel 7 the spring 10 will draw said projection 11 into the spaces between the teeth of said ratchet wheel and the angular portions of the teeth will move the arm contrary to the spring 10, the result being that when the arm 9 is in the range of action of the teeth of said wheel 7, said arm 9 will be vibrated or oscillated. The shaft 8 fixedly carries a second arm as 12, said arm 12 being represented as provided with a circular or disk-like head 13 (see Fig. 2). From this head 13 at or near the center thereof there rises a shank or stem 14 terminating at its upper end in a head 15 which on the working stroke of the arm engages centrally a can as 16 shown by dotted lines in Fig. 1. The arm 12 with the headed shank or stem 14 constitutes a tapping member, while there is coöperative with said tapping member a second tapping member as 17. The head 15 acts directly and centrally upon the can while the tapping member 17 transfers the force of the head 13 to the can marginally of the latter. The two tapping members, therefore, coöperate to thoroughly and evenly pack the contents of the can and to secure the best possible results the tapping member 17 is loosely mounted so as to impart a quick blow to the can.

The tapping member 17 is represented as being of annular form; by this I do not mean that it is necessarily circular, but rather that it is tubular in order that the headed shank 14 may work therethrough. At the upper end of the tapping member 17 is a flange which is that part of the tapping member 17 which engages the can. This flange is represented as resting upon several pins 19 extending from the wall of an

opening as 20 formed in the frame member 2. The pins 19 will not prevent any material that may enter the opening 20 from above falling completely through said opening. The upper surface of the tapping member 5 17 or the flanged portion 18 thereof is in the same horizontal plane as the horizontal flanges of the parallel L-shaped strips 21, which L-shaped strips coact to produce a way for the can 16 which is advanced along said way in some suitable manner as by a slat 18' constituting part of can advancing mechanism, not shown. 10 In dotted lines in Fig. 1 I have represented at 19' a hopper which delivers the charge of material into the can 16 located below said hopper and while said can is resting on the tapping member 17. When a can as 16 is 15 upon the tapping member 17 as shown in Fig. 1 and when the arm 12 is in motion as hereinbefore set forth, the head 15 will first of all be brought centrally against the under side of the can bottom so as to propel the material in the central part of the can rapidly upward, 20 such material subsequently settling in a dense condition. After the head 15 strikes the can the head 13 strikes the lower edge of the tapping member 17 so that the flanged upper end of said tapping member 17 will engage the marginal part of the can in order to up- 25 wardly elevate the material in the can around the central part thereof such outer material afterwards settling in a dense condition. These operations are repeated in close order during the vibration of the arm 9 in order to effectually pack the material in the can.

30 The form of invention shown in Figs. 3 to 5 is of advantage and will now be set forth. The framework shown in these figures is denoted in a general way by 25 and comprises a frame member or transversely disposed beam as 26 in connection with which the tapping 35 mechanism directly coöperates, the can 27 being sustained by said frame member or beam 26 while its contents are being densified. In said Fig. 3 and in Fig. 4 are shown strips 28 and a slat 29 which perform the 40 same functions as the strips 21 and slat 18' hereinbefore described. The hopper for delivering a charge of material to the can 27 is denoted by 30. The can 27 is moved onto the frame member or beam 26 by conveying mechanism of which the slat 29 forms a part.

To the right of and below the frame member 26 and 45 supported for rocking motion by the frame work 25 is a rock-shaft 31. Affixed to and depending from the rock-shaft 31 is an arm 32 to the lower end of which is fastened one extremity of a spring as 33, the opposite end of said spring being connected with the framework 50 25, this spring serving to impart a working stroke to a tapping member hereinafter described, the return stroke of said tapping member being effected by a toothed member as 34, as will hereinafter appear. This toothed member 34 may be operated like the wheel 7 55 hereinbefore described, that is, by sprocket gearing. The shaft 31 is provided with a longitudinally curved arm 35 constituting a tapping member and with a third arm 36 having fastened to its free end one branch of a resilient U-shaped member 37, the other branch of said 60 member 37 being engageable by the teeth of the toothed member 34. The spring 33 as indicated imparts a working stroke to the tapping member 35, the return movement of said tapping member being effected by the teeth of the member 34 striking against the U-shaped 65 member 37. Therefore, when the arm 36 is being op-

erated by the member 34 striking against the U-shaped part 37, the tapping member 35 will be vibrated by the conjoint action of said part 34 and the spring 33. The tapping member 35, however, does not directly engage the can 27 but operates on the same through the inter- 70 vention of two tapping members 38 and 39. The tapping member 38 consists of an elongated shank having a head 40 at its upper end which engages the under side of the can 27 substantially centrally thereof. The two tapping members 38 and 39 operate vertically in an 75 opening in the beam or frame member 26, which latter during the tapping operation sustains the can 27. The outer tapping member 39 is of tubular form, the head 40 of the inner tapping member being movable in the hollow head of the outer or tubular tapping member. The 80 tapping member 38 has a pin 41 to enter a slot in the body of the tapping member 39, while a pin as 42 on the frame member 26 enters a peripheral groove in the body of said tapping member 39, the two pins preventing the two tapping members 38 and 39 from being accidentally 85 moved from place. The tapping member 39 seats against a ring as 43 of rubber or other suitable cushioning material. The lower end of the tapping member 38 extends slightly below the corresponding end of the tapping member 39 and the lower end of the tapping 90 member 39 extends below the under surface of the beam or frame member 26. In addition to this the upper surfaces of the tapping member 38, tapping member 39 and frame member 26 are arranged in superposed 95 planes as indicated clearly in Fig. 5 by virtue of which a succession of blows can be imparted to the can resting on said frame member 26. First of all the tapping member 35 will thrust the tapping member 38 upward; the tapping member 39 will then be engaged by the tapping member 35 and finally the frame member 26 will 100 be engaged by said tapping member 35 to give the can three distinct and rapid blows.

It will be apparent from what I have previously stated that the can tapping mechanism has a plurality of tapping members, the working portion of one of 105 which surrounds the working portion of another. By virtue of tapping members related as thus set forth one tapping member serves to operate upon the substantially central portion of the bottom of the can, while another operates against the marginal portion of said 110 can, and these working portions are preferably, though not necessarily, flattened so as to secure a wide area of effectiveness.

The present application is in the nature of a division of an application for patent filed by me on April 11, 115 1906, Serial No. 311,157, said application being entitled "Weighing and can filling apparatus". In said application 311,157, I have shown and fully described, but have not claimed the form of the present invention included by Figs. 3 to 5 herein. I do not 120 employ exactly similar designations in both cases. This, however, is considered quite immaterial, for in the other application as in the present one, the different terms are employed in their generic senses.

What I claim is:

1. A can tapping apparatus having a plurality of can tapping members, mechanism for positively operating one of said tapping members, and the tapping member thus positively operated serving to operate another tapping member.

2. A can tapping apparatus having a plurality of tap-

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ping members, one to operate against the substantially central portion of the bottom of a can, and another having an annular working portion to operate against the marginal portion of said bottom, and means for causing the operation of said tapping members.

3. A can tapping apparatus having a plurality of can tapping members, the working portion of one tapping member surrounding the working portion of another tapping member, and means for causing the operation of said tapping members.

4. A can tapping apparatus having a plurality of tapping members, one to operate against the substantially central portion of the bottom of a can and the other having an annular working portion to operate against the marginal portion of said bottom, and means for causing the operation of said tapping members in succession.

5. A can tapping apparatus having a plurality of tapping members, one adapted to work through another.

6. A can tapping apparatus involving a plurality of can tapping members, one of which is tubular and another of which works through said tubular tapping member.

7. In a can tapping apparatus, the combination of a support, a can tapping member resting on said support, and means for imparting a working stroke to said can tapping member during which the latter is carried from its support.

8. In a can tapping apparatus, the combination of a can tapping member, a support for said can tapping member, a second can tapping member for imparting a working movement to the first tapping member during which the same is carried from its support, and means for positively operating the second tapping member.

9. In a can tapping apparatus, the combination of a can tapping member, spring operated in one direction, and a toothed member for operating the can tapping member in opposition to the spring thereof, and a second can tapping member operable by the power of the first mentioned can tapping member.

10. In a can tapping apparatus, the combination of a can tapping member, spring operated in one direction, means for positively operating the can tapping member in

opposition to the spring, and a can tapping member operable by the first mentioned can tapping member.

11. In a can tapping apparatus, the combination of a can tapping member, a second can tapping member having a head to operate against the can and a second head to operate the first mentioned can tapping member, and means for positively operating the second can tapping member.

12. In a can tapping apparatus, the combination of a substantially tubular can tapping member, a second can tapping member having a head to operate the first can tapping member and a stem projecting from the head and terminating in a head to tap the can, and means for positively operating the second can tapping member.

13. In a can tapping apparatus, the combination of a support having an opening, the wall of which is provided with pins, a can tapping member resting on said pins, and means for operating said can tapping member.

14. In a can tapping apparatus, the combination of a support having an opening, a can tapping member situated in said opening, the wall of the latter being provided with means upon which said can tapping member is supported, and means for operating the can tapping member.

15. In a can tapping apparatus, a support having an opening, a tubular can tapping member disposed in said opening, the wall of the latter having pins on which the can tapping member rests, and means for operating said can tapping member.

16. In a can tapping apparatus, the combination of a support having an opening, a tubular can tapping member disposed in said opening and provided with a shoulder, the wall of the opening having pins on which said shoulder rests, a second can tapping member extending through the tubular tapping member, and means for causing the operation of the can tapping members.

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

FREDERICK J. HEYBACH.

Witnesses:

HEATH SUTHERLAND,
ROBERT EVERETT.