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4 SHEETS—SHEET 1.

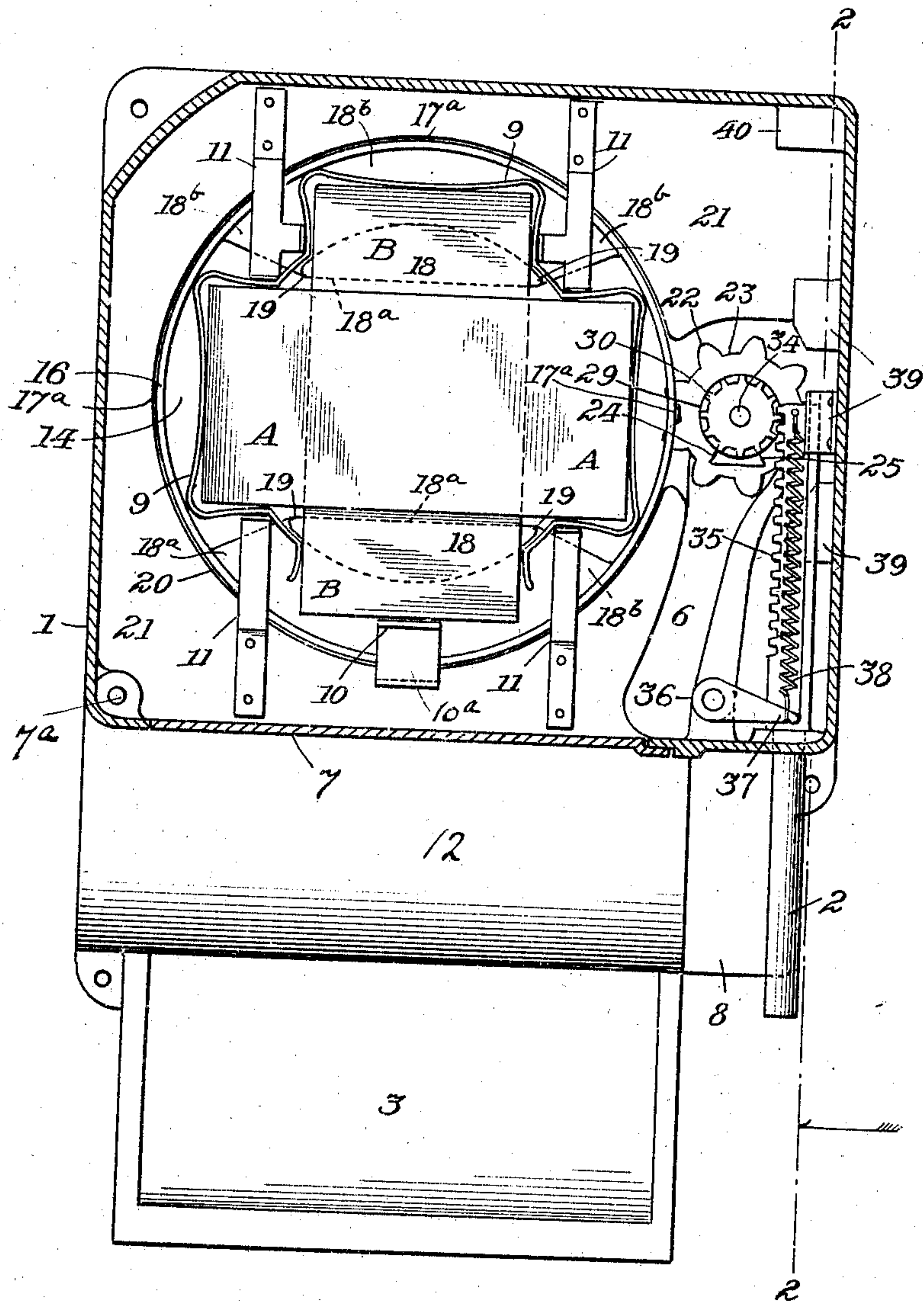


Fig. 1.

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 Rose V. Finn

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By his Attorney Fletcher

987,636.

J. G. C. MANTLE.
COIN CONTROLLED VENDING MACHINE.
APPLICATION FILED APR. 1, 1908.

Patented Mar. 21, 1911.
4 SHEETS—SHEET 2.

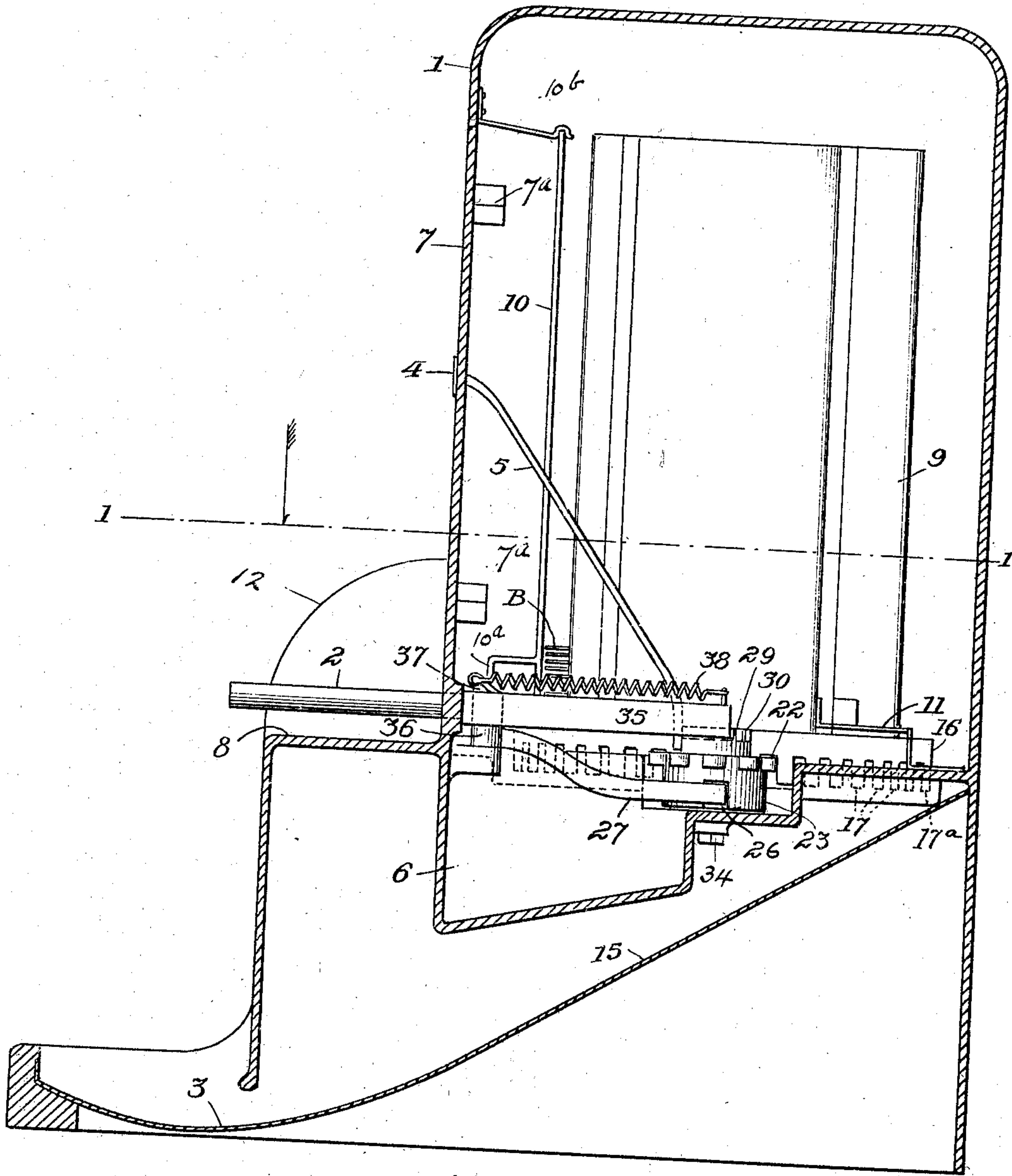


Fig. 2.

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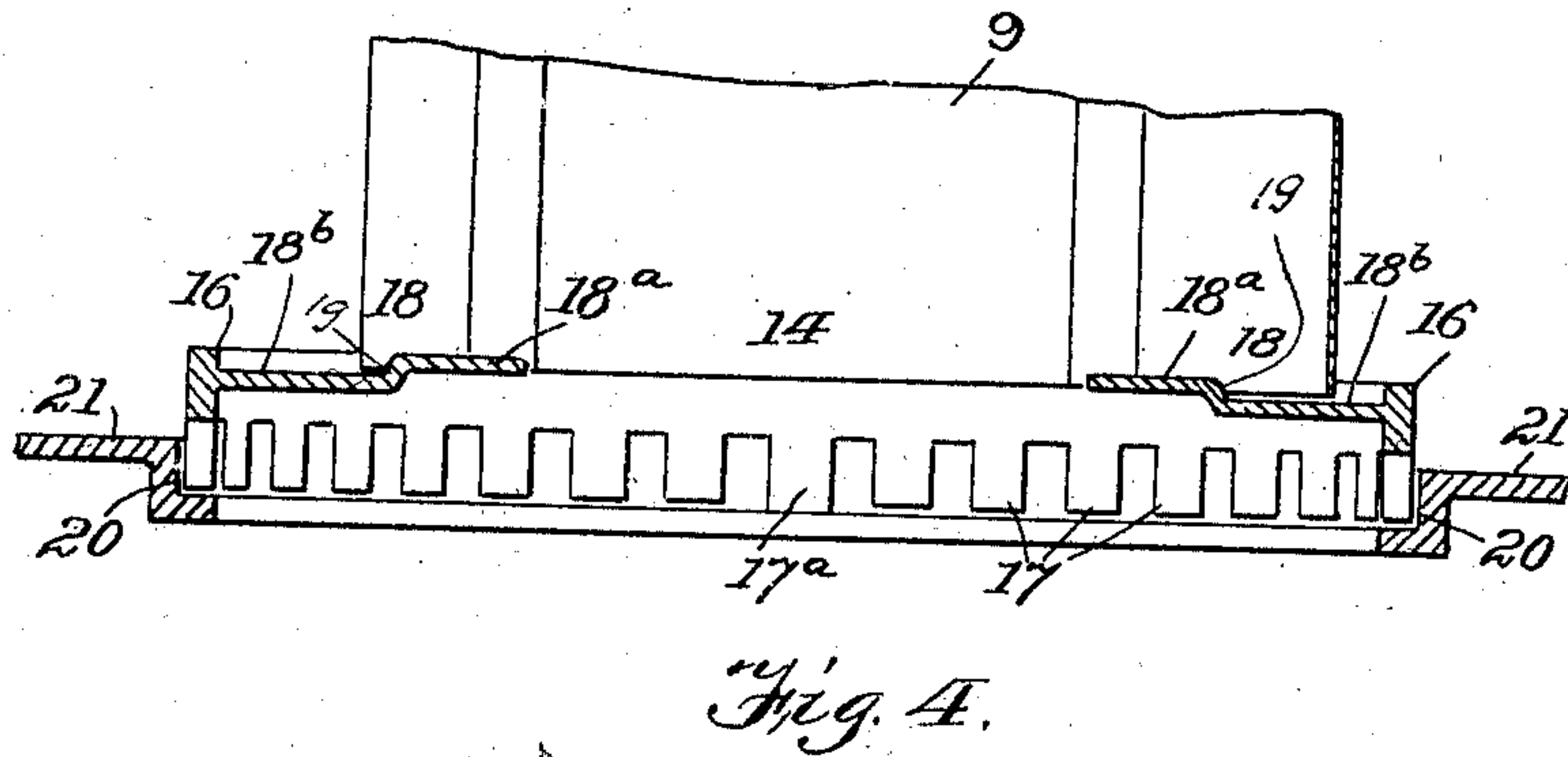
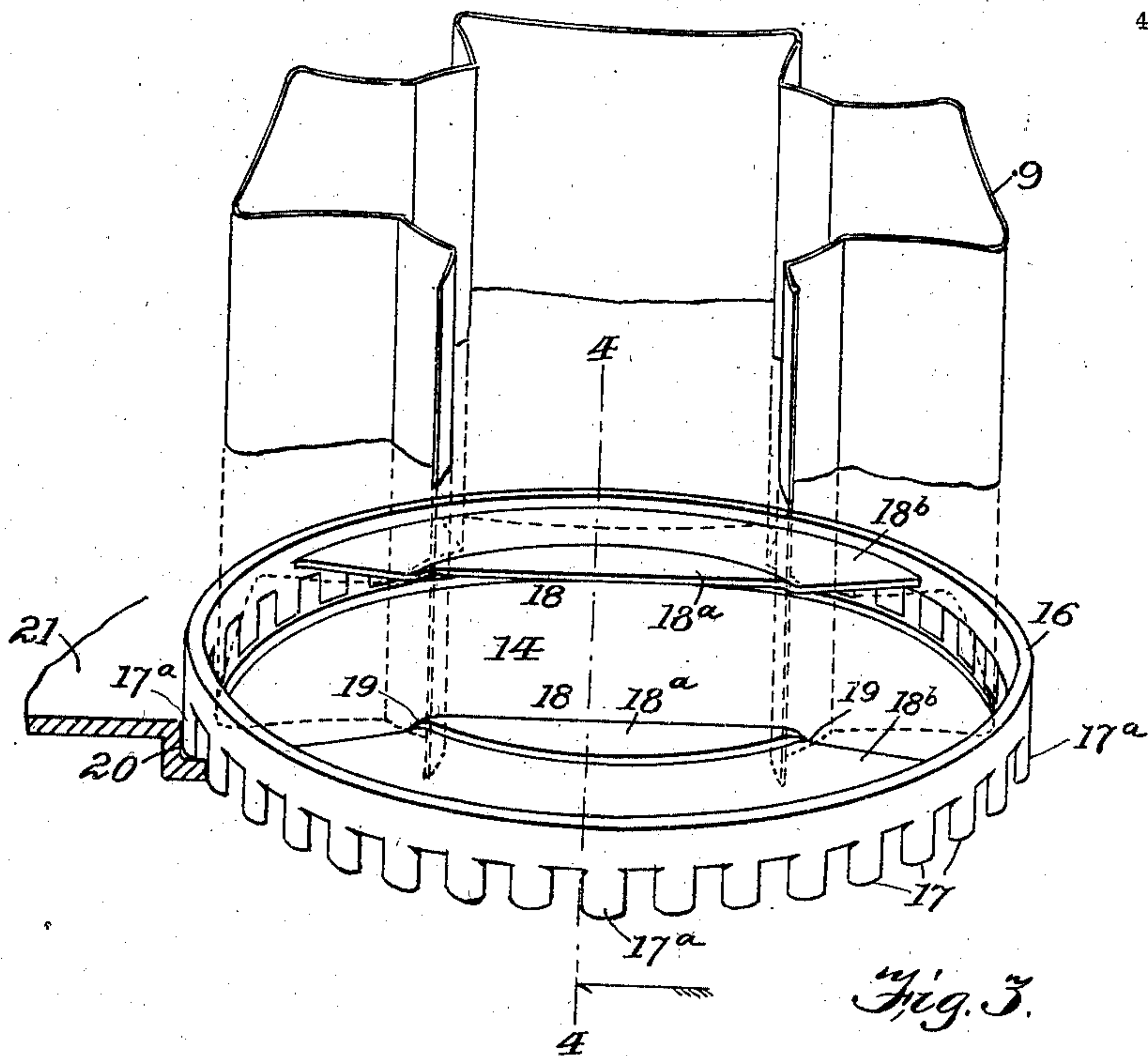
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4 SHEETS—SHEET 3.



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4 SHEETS—SHEET 4.

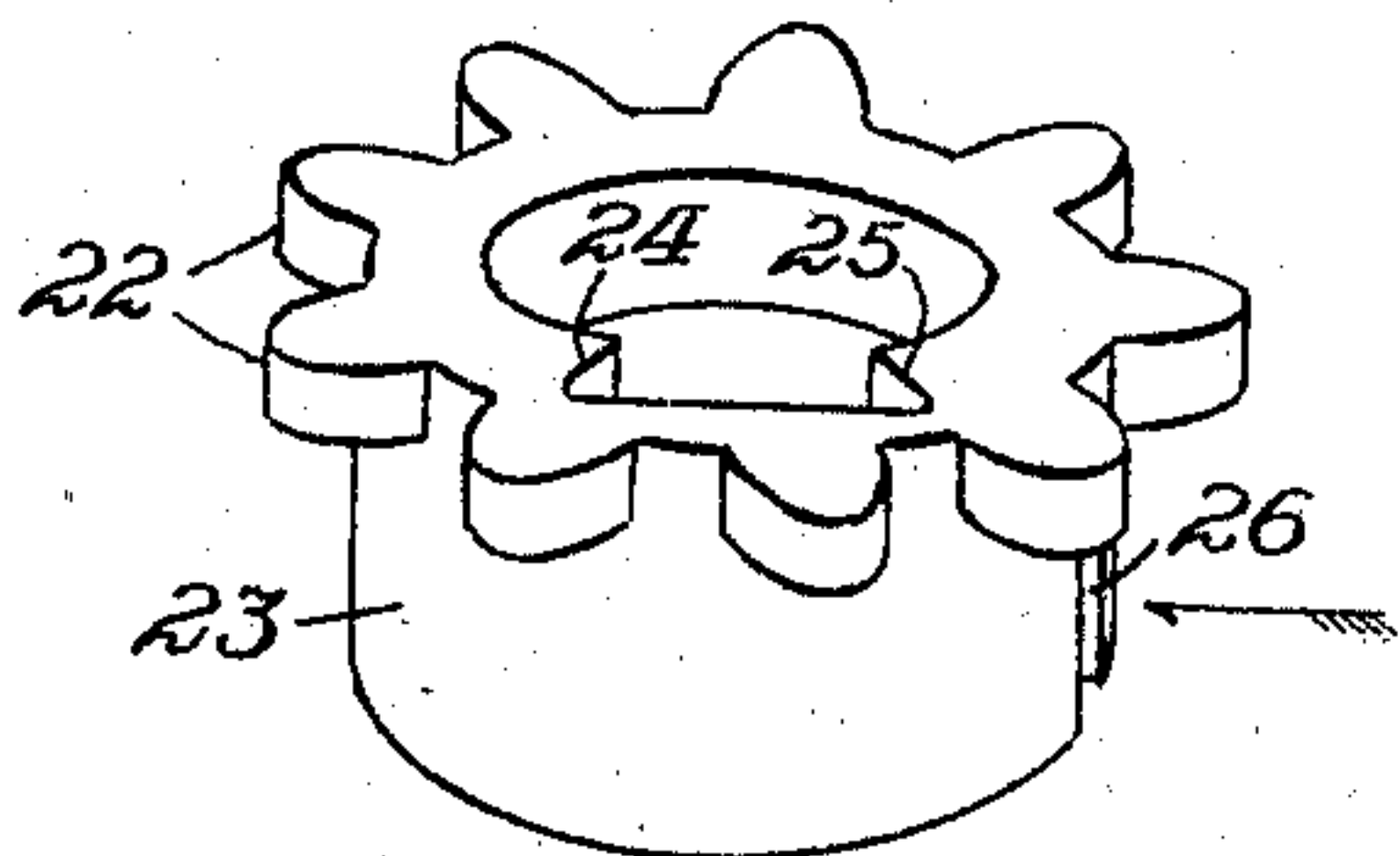


Fig. 5.

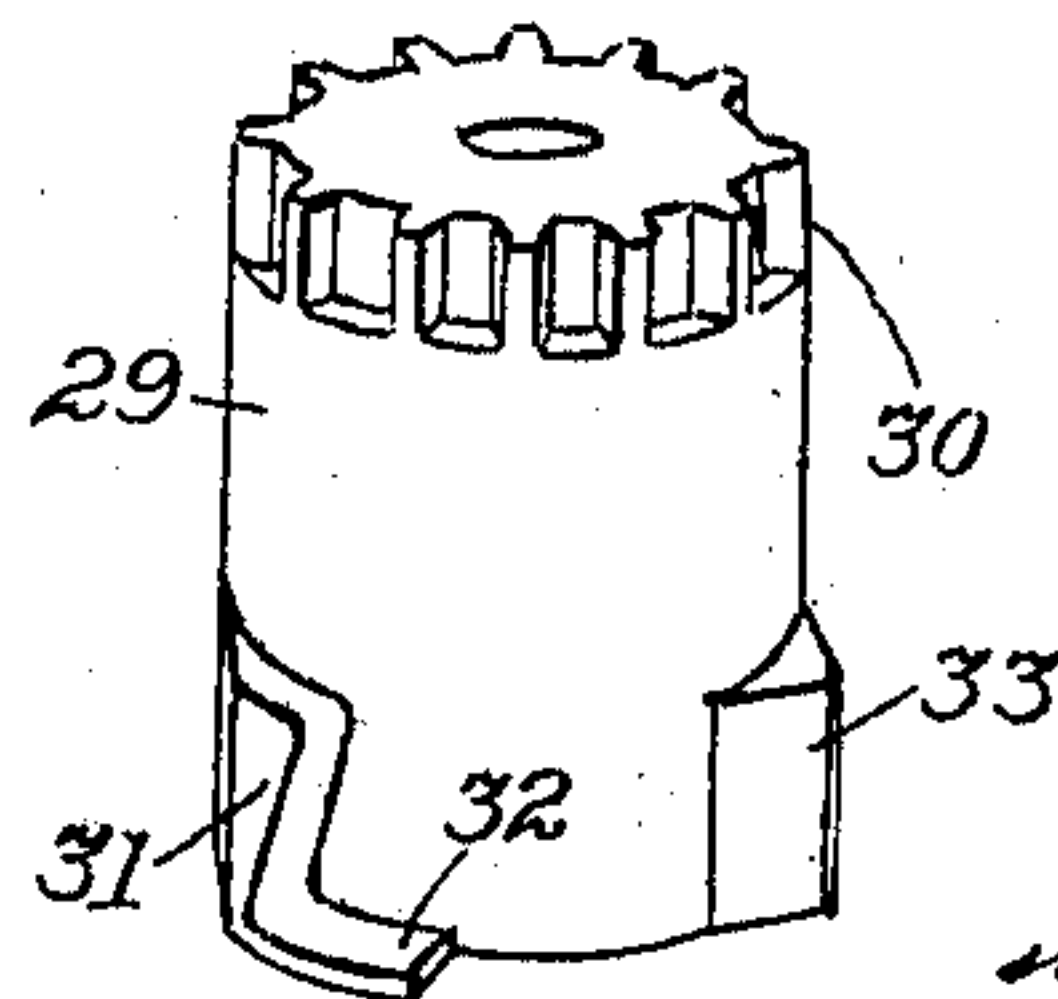


Fig. 6.

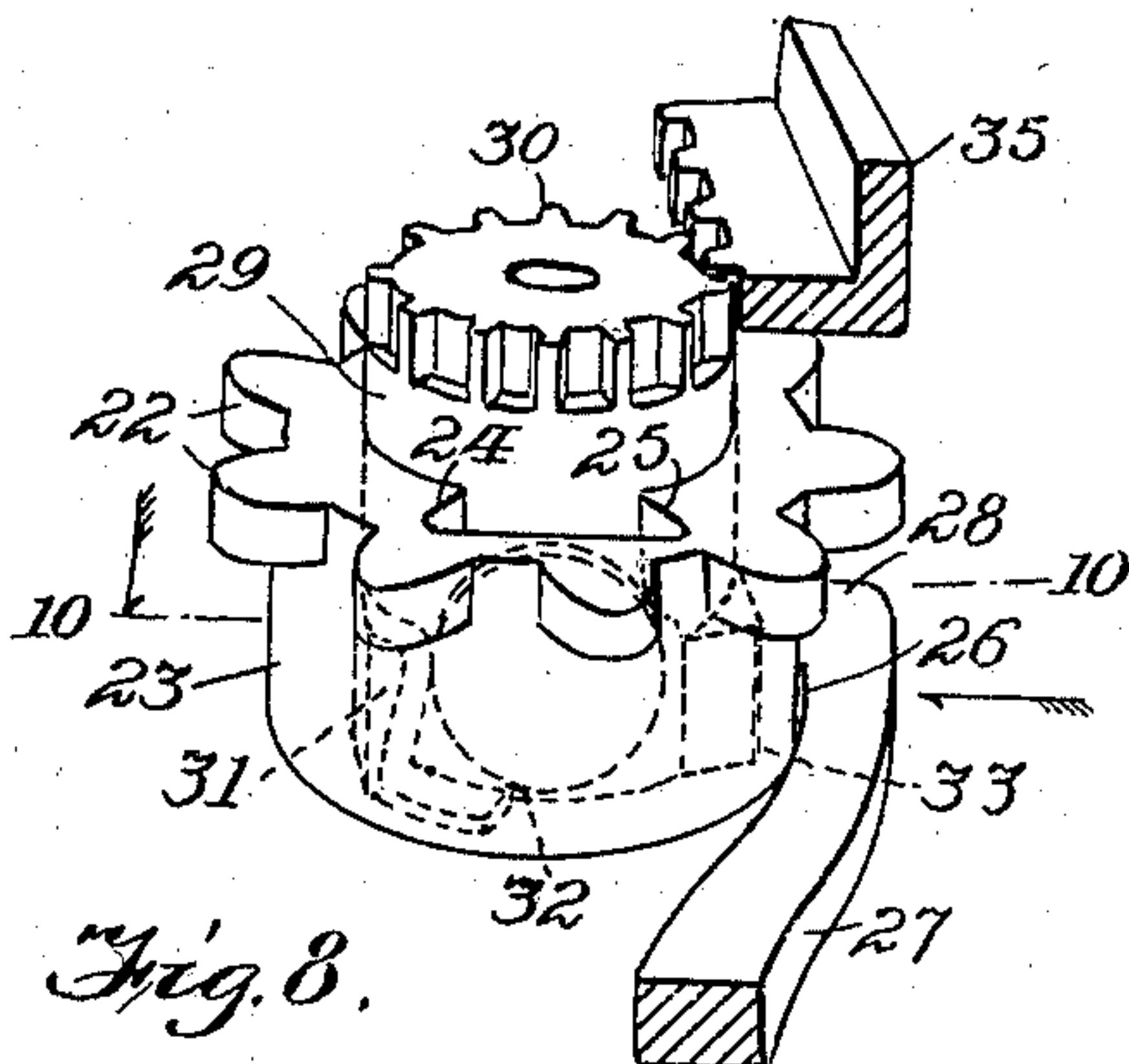


Fig. 8.

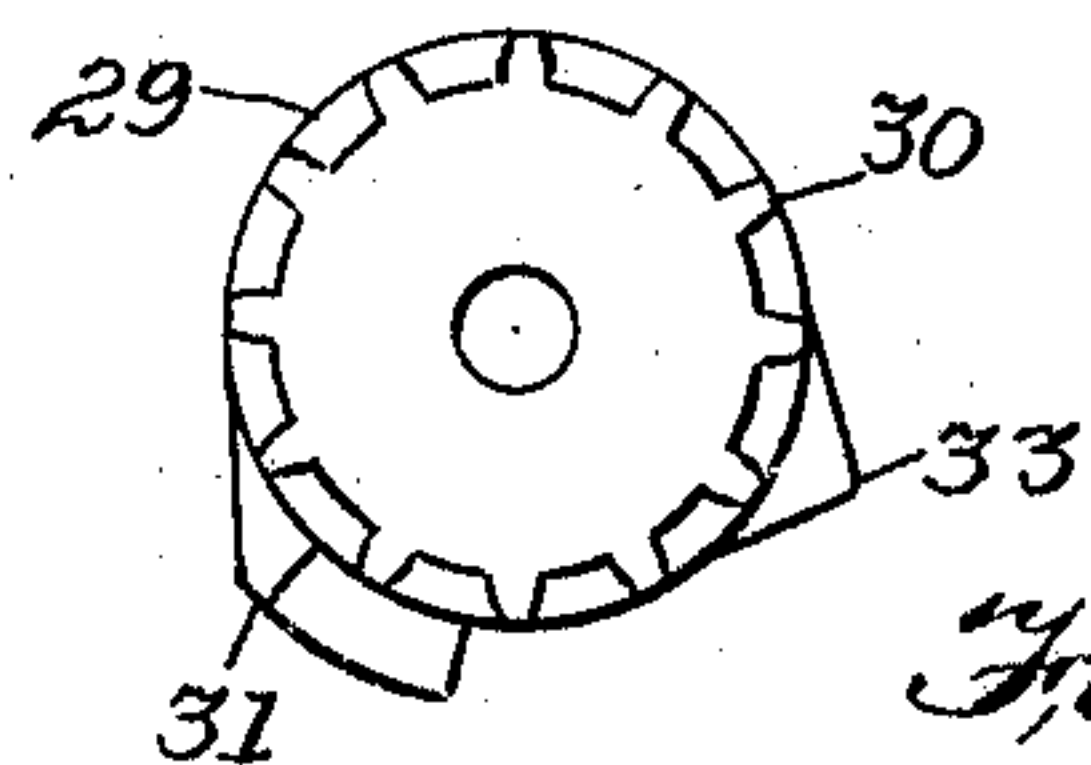


Fig. 7.

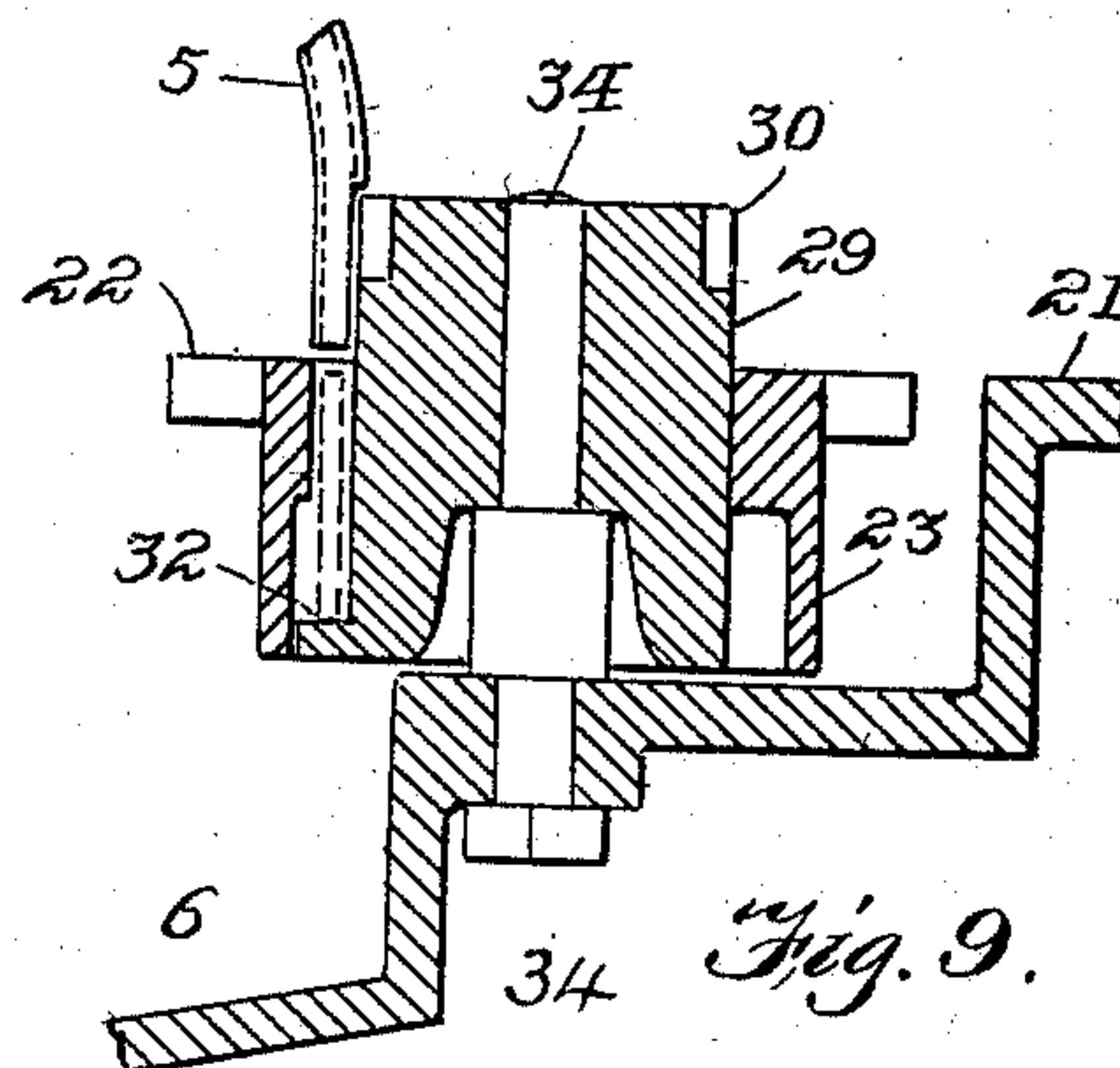


Fig. 9.

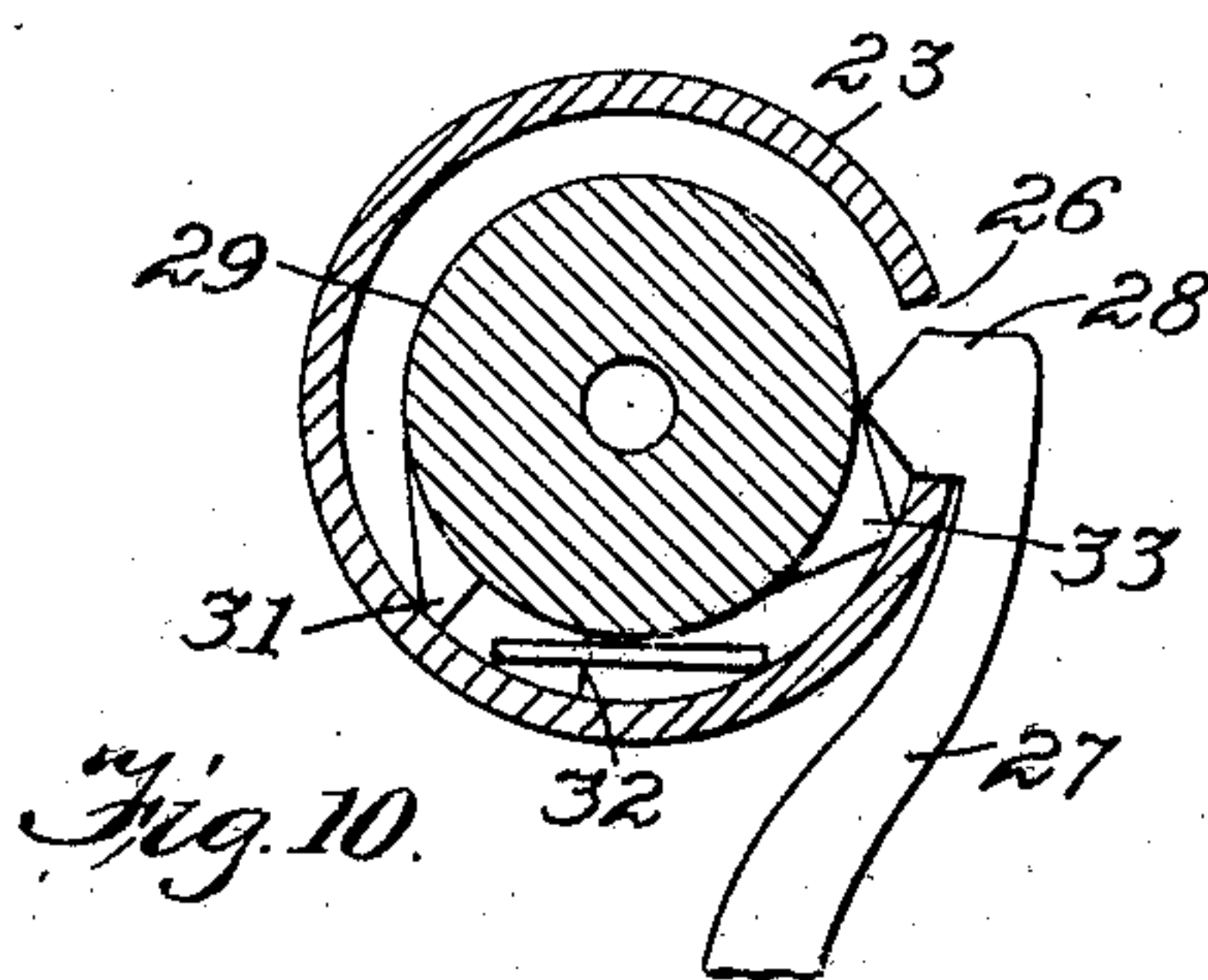


Fig. 10.

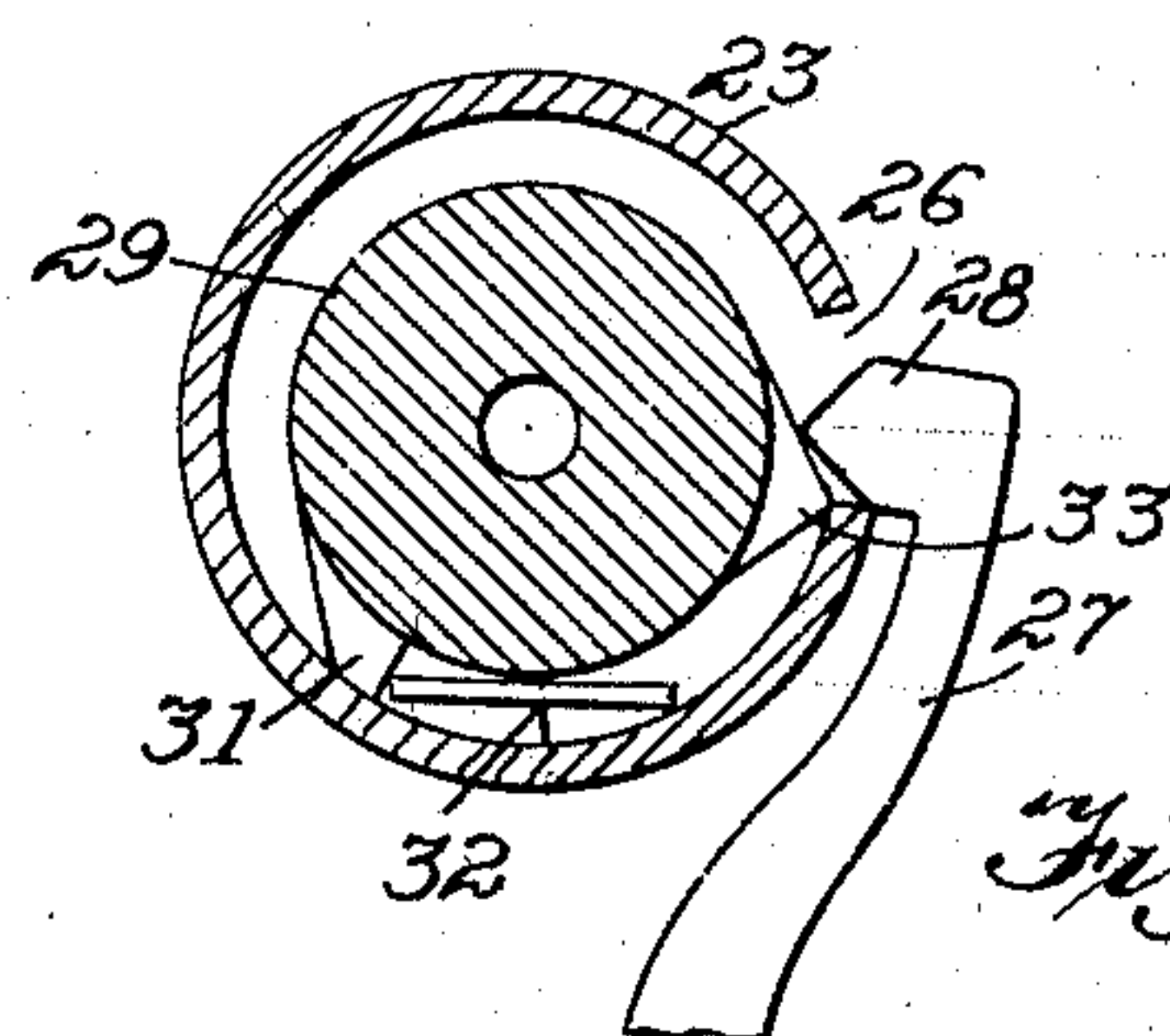


Fig. 11.

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UNITED STATES PATENT OFFICE.

JOSEPH G. C. MANTLE, OF NEW YORK, N. Y., ASSIGNOR TO MANTLE & CO., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

COIN-CONTROLLED VENDING-MACHINE.

987,636.

Specification of Letters Patent.

Patented Mar. 21, 1911.

Application filed April 1, 1908. Serial No. 424,491

To all whom it may concern:

Be it known that I, JOSEPH G. C. MANTLE, a citizen of the United States, and a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Coin-Controlled Vending-Machines, of which the following is a specification.

The machine of my present invention is adapted to automatically vend articles from the deposit of a coin, the particular machine illustrated being one adapted to vend such articles as postal-cards, insurance policies and the like, but it will be understood is equally adapted to vend other articles either with or without such modifications as may be necessary or advisable within the spirit and scope of the invention and claims.

In the drawings which show only one form which my invention may take, Figure 1 is a top plan and horizontal sectional view of the machine taken on the line 1—1 in Fig. 2, looking in the direction of the arrow; Fig. 2 is a vertical sectional view partly in side elevation taken on the line 2—2 in Fig. 1 looking in the direction of the arrow; Fig. 3 is a perspective view of the magazine and related parts as same would appear on an enlarged scale looking at the front of the magazine in Fig. 1, the lower portion of the sides of the magazine being broken away and shown in dotted lines; Fig. 4 is a vertical section partly in elevation on the line 4—4 in Fig. 3; Fig. 5 is a perspective view of one of the parts detached; Fig. 6 is a perspective view of another part detached; Fig. 7 is a top plan view of the part shown in Fig. 6; Fig. 8 is a perspective view of the parts shown in Figs. 5 and 6 assembled, also of related parts; Fig. 9 is a vertical section partly in elevation through some of the parts in Fig. 8 and through other related parts of the machine, said section being taken in the plane of the paper in Fig. 2; Fig. 10 is a horizontal section partly in elevation on the line 10—10 in Fig. 8; and Fig. 11 is the same as Fig. 10 with the parts in different position.

Describing now my invention with particular reference to the devices illustrated in the drawings, the machine comprises exteriorly an upright more or less rectangular casing 1 inclosing a magazine for the goods and the other parts of the machine. At the right-hand side of the front of the casing is

a plunger 2 from the operation of which after the insertion of the coin the goods are adapted to be delivered. The delivery of the goods takes place from a trough 3 which extends out from the front of the machine at the bottom.

4 is a coin-slot (see Fig. 2) in the front of the casing leading to an interior duct 5 which delivers the coin to the operative mechanism of the machine. After the coin has acted to permit delivery of the goods, it drops into a coin-receptacle 6 shown in section in Fig. 2 and access is had to said receptacle to remove the coins through a door 7 in the front of the casing, hinged thereto at 7^a. The front of the casing shown has an outwardly extending ledge 8, under the reciprocating plunger, also the dome 12 at the side thereof, to guard the plunger from injury through being struck by passing objects.

Describing now the operative mechanism of the machine, and beginning with the magazine, it may be said in the first place that the magazine shown is illustrated in connection with postal-cards or the like, but is subject to change in the way of modification or of substitution by other forms of magazine adapted for use in connection with the other parts of the invention, in the event that other articles are sought to be delivered by the machine which are not suitable for delivery by the magazine shown. The particular magazine shown contains the articles in a vertical stack placed face to face in superposed position with each article at right-angles to the adjacent articles above and below. The articles are held against dislocation out of their said crossed arrangement by the sides of the magazine 9 consisting in the magazine shown of a piece of sheet-metal in height equal to the height of the magazine and infolded and otherwise shaped to give it a cross-like horizontal section, as in Fig. 1, to surround the stack of articles on three sides and maintain them in their crossed arrangement. On its fourth side, the stack is bounded by a strip-like member 10. Said strip-like member is removable so that the articles can be stacked in the magazine through the door 7 in the casing. For this purpose the member 10 may have a foot portion 10^a (Figs. 1 and 2), the end of which is adapted to be received in a slot, whereas the upper end of the strip

member is adapted to be snapped under a spring-catch 10^b, (Fig. 2). Members 11 (Figs. 1 and 2) supported on the base-plate 21 have their extremities projecting into the angles of the bent-up sheet metal sides 9 of the magazine and are secured to said sides, thereby insuring the cross-like conformation thereof.

In the magazine shown, the articles are delivered one at a time from the bottom of the stack. Thus the entire stack of articles is supported on top of a turn-table provided with an opening 14 (Figs. 1 to 4) through its top adapted when presented in registered position with the bottommost article to permit same to fall through it, whence the article is delivered down the chute 15 in Fig. 2, to the trough 3.

The particular turn-table shown, is adapted to be made out of a single casting, and may be described as comprising a low, thin-walled cylinder 16, (Figs. 1 to 4) of comparatively large diameter and formed into gear-teeth 17 and 17^a directed toward its bottom edge and having across its top two oppositely disposed webs or platforms 18 separated by the space 14, adapted in length and breadth to let the articles drop through it, one at a time.

The particular turn-table shown has platforms 18, each of which comprises a central elevated portion 18^a and depressed end portions 18^b. The elevated portions 18^a of the platforms constitute the supporting surfaces upon which the bottom of the stack rests and are located above the bottom edges of the sides of the magazine (see Figs. 3 and 4). These elevated portions 18^a may have their front edges parallel, and in length approximating the width of one of the articles in the magazine. Whereas the end portions 18^b of the platforms preferably have their front edges inclined away from each other so as to enlarge the width of the opening 14 from its central portion toward its ends. Each central portion 18^a also preferably merges into its depressed end portions 18^b by having the ends of said central portion beveled respectively at 19 (Figs. 1, 3 and 4). From the description thus far of the parts of the magazine and referring to Fig. 1, it will show that when the turn-table is in the position shown the bottommost article which is parallel to the article marked A, will drop through the space 14 between the platforms 18 of the turn-table and thence by the chute 15 will be delivered at the trough 3. Meanwhile the stack of articles above it will be supported by the bottommost article that extends parallel to B, because the ends of said article rest on the platforms 18, or more particularly on the elevated portions 18^a of the turn-table. Should the turn-table be now shifted through a quarter turn, it will be apparent that the

support of the platforms will be withdrawn from the bottommost article B, and will be carried over under the next above article A, thereby supporting the stack but permitting said bottommost article B to drop through the opening in the turn-table. Thus in the same manner every succeeding quarter turn of the turn-table delivers an article from the stack. Moreover only one article can be delivered at a time due to the crossed arrangement of the articles and the supporting action of the platforms of the turn-table.

The effect of having the articles supported on a bottom member which extends inside the bottom edges of the sides of the magazine is to insure against any possibility of the bottommost article becoming jammed between said bottom and sides or of working thus improperly out of the magazine. The bevel portions 19 and the cut-away end portions 18^b have the purpose in among other respects of preventing a card with an accidentally or improperly down-bent end from jamming the magazine by preventing rotation of the turn-table. Thus in the first place unless the card be bent down to a considerable extent it will not contact with the end portions 18^b to jam the magazine because same as already explained are depressed below the level of the supporting central portions 18^a. In the second place, even assuming that the down-bent portion is below the level of the end portions 18^b so that without more it would contact with said portions to prevent turning the table, said action would be prevented by the bevel portion 19 working under the edge and bottom of the card to lift up its down-bent end and elevate it above the end portions 18^b, before said portions on account of their cut-away front edges can come into contact with the card to jam the magazine.

It may be noted that preferably the construction of the magazine is as shown, wherein the sides 9 are out of contact with the rotating bottom member, being supported in such position by the members 11. Compare Figs. 4 and 1. The purpose of this is not to introduce friction from this source between the rotating bottom member and the sides of the magazine. Whereas the magazine sides are elevated above the bottom member, it is nevertheless impossible for a card to work out under the sides of the magazine because as already explained, said bottom within the magazine is elevated. Describing now the devices for effecting said operation of the turn-table when the machine is operated after the deposit of a coin, in the first place the turn-table is supported teeth downward in a flanged circular depression 20 (Figs. 1 and 2) in a horizontal plate 21 across the interior of the machine. To lessen the frictional bearing of the ex-

5 10 15 20 25 30 35 40 45 50 55 60 65

tremities of the turn-table teeth on their support 3 flange (Figs. 3 and 4) certain of the teeth, designated 17^a, are made longer than the others so that they alone bear upon the flange. Preferably the longer teeth are four in number located respectively at the ends of the diameters of the turn-table. For the same reason, that is to lessen frictional contact and thereby make the table more easily rotatable, these same teeth are made to project outwardly beyond the outside of the other teeth so that the former alone bear against the vertical wall of the circular depression in the plate, (compare Figs. 1 and 3).

A turn-table pinion 22 meshes with the teeth of the turn-table and in the particular machine shown is adapted for one of its revolutions to rotate said table through a quarter revolution. A top plan view of the turn-table pinion is shown in Fig. 1, a side elevation in Fig. 2, whereas a perspective view thereof, detached from the rest of the mechanism is shown in Fig. 5. From these figures it will be noted that in its particular form shown, the pinion 22 is integrally formed on the upper end of a sleeve 23, said sleeve interiorly having its wall recessed by an opening running lengthwise or axially of the sleeve and in width somewhat greater than the diameter of the coin. Said coin recess is bounded at either side by shoulders 24 and 25. The sleeve 23 at about right-angles to its coin-recess has its wall penetrated by an opening 26 (Figs. 5 and 10) subsequently described as cooperating with a latch-member 27 to receive the latch projection 28 thereof. The approximate location of the opening is indicated by the arrow in Figs. 5 and 8.

Extending up through the sleeve 23 is a cylindrical member 29 (Fig. 8) carrying what may be called a plunger rack-pinion 30. This cylindrical member is shown in Fig. 8 assembled inside of the sleeve, and in Figs. 6 and 7 is shown independently. From these views, it will be seen to comprise a cylindrical member having a diameter such as to work freely within the sleeve 23, that it is provided at its upper end with gear teeth and that it has exteriorly at its bottom a right-angled lug 31 raised from its surface, said lug having an upwardly extending portion and a horizontal or ledge portion adapted as will be hereinafter seen to support the bottom edge of a coin. (See 32 in Fig. 8). Further it will be noted that the member shown in Figs. 6 and 7 has a second outwardly extending lug 33 at its bottom. Also that said cylindrical member is provided with an axial hole to adapt said member to be received with a bearing fit over a vertical stud 34 (Figs. 2 and 9) projecting from any suitable support. Thus the cylindrical member is adapted to be rotated on said stud. Moreover it is perfectly

free to rotate inside of the sleeve member 23 without carrying said sleeve member with it. However, referring to Fig. 8, should a coin 32 be dropped into the recess of the sleeve member so that it rests on the ledge portion of the lug 31 of the cylindrical member, it will be apparent that rotating the cylindrical member in anti-clockwise direction will carry the vertical portion of its lug 31 against the left-hand edge of the coin and will jam said coin between it and the shoulder 25 of the sleeve recess and will therefore on its anti-clockwise rotation push the sleeve-member along ahead of it.

In mesh with the cylinder-pinion 30 is a rack 35 on the plunger 2 (Figs. 1, 2 and 8) adapted to reciprocate horizontally therewith. A latch-arm 27 shown in top plan in Figs. 1, 10 and 11, in side elevation in Fig. 2, and in perspective in Fig. 8, has a latch projection 28 adapted to be received in the opening 26 (see Figs. 8 and 10) through the wall of the sleeve-member 23 to lock said member in fixed position; said latch-arm 27 is secured at its other end to a hub 36 (Figs. 1 and 2) working on a vertical stud to give the latch-arm a swinging motion to insert or withdraw its latch projection into or out of the opening in the sleeve-member. The hub 36 has an arm 37 (Figs. 1 and 2) shown extending therefrom at right-angles to the latch-arm 27, and connected by a spiral spring 38 with the inner end of the plunger-rack 35. The plunger rack is guided in its horizontal reciprocation by guides and supports 39 (Fig. 1). A buffer 40 is provided at the rear of the machine to receive against it the end of the rack when the plunger has been pressed inward to the required extent to operate the machine.

The effect of pressing in the plunger is to turn the cylindrical member 29 through somewhat more than a complete revolution in anti-clockwise direction, and said member may or may not carry with it the sleeve member 23 to operate the magazine turn-table depending upon whether or not a coin has been inserted. As already explained, if no coin has been inserted, the cylindrical member merely turns idly in an anti-clockwise direction in Fig. 1 without affecting the sleeve member or the magazine turn-table. Similarly no effect is had on said last named members when the plunger is released from its innermost position, the effect being merely that the spring 38 returns the plunger into its outermost position shown in Fig. 1, and the rack traveling with it, rotates the cylindrical member 29 through a complete revolution in the return or clockwise direction. Said operation of the plunger and rack before the insertion of a coin cannot act to frictionally carry the sleeve-member 23 along with the cylindrical member 29 because the latch-arm 27 has its projection

28 entered into the sleeve opening 26 (Fig. 10) in positive locking contact with the wall of said opening, making it impossible to rotate the sleeve. The plunger and rack being in their outermost or normal position and the cylindrical member 29 in corresponding position, should now a coin be inserted in the coin slot 4 it will drop down the duct 5 into the coin recess in the sleeve member 23 and will be upheld in said recess by resting on the ledge portion of the lug 31 of the cylindrical member 29. Thus the coin will take the position shown in Fig. 8, with the cylindrical and sleeve members located in the relative position there shown.

Pressing inwardly the plunger 2 will as before rotate the cylindrical member in an anti-clockwise direction and said member will receive a partial rotation before the upright portion of the lug 31 contacts with the edge of the coin. The result of this partial rotation is to move the other lug 33 of the cylindrical member from the position shown in Fig. 10 to the position shown in Fig. 11, said lug thereby pressing outwardly to a partial extent the latch-projection 28 so that its bevel portion is in contact with the side of the sleeve opening 26. The upright portion of the lug 31 being now in contact with the edge of the coin, presses said coin against the shoulder 25 of the recess in the sleeve member 23, and accordingly carries said sleeve member before it in anti-clockwise rotation with the result that the near side of the sleeve opening 26 (Fig. 11) is carried against the bevel of the latch-arm projection 28 and presses it out of said opening, so that the sleeve member of Fig. 5, now wholly released, is carried along with the cylindrical member 29 and the interlocked coin 32 for a complete rotation in anti-clockwise direction, by the complete inpushing of the plunger rack. In the particular machine shown, the relation of the sleeve-pinion 22 to the turn-table is such that for every complete revolution of the former, the latter is turned through a quarter revolution and delivers an article from the magazine, consequently said complete inpushing of the plunger rack causes the delivery of an article from the magazine to the purchaser at the trough 3.

While the plunger rack is in the course of its inward reciprocation and the sleeve member 23 due to the interlocked coin is being carried in anti-clockwise rotation to operate the magazine, the latch-arm projection 28 rides against the outside of said sleeve member, being spring-pressed against it by the tension on spring 38. When the plunger rack has reached its innermost position, and has thereby given the sleeve member (Fig. 5) a complete rotation to deliver an article from the magazine, said sleeve member will obviously have returned to its initial posi-

tion in Fig. 1, consequently its opening 26 will again be presented to the latch-arm projection 28 which therefore will spring into said opening impelled by the spring 38, and said sleeve member and consequently the magazine turn-table will be held stationary until again operated by the insertion of a coin and the inpushing of the plunger. This stationary locking of the sleeve member at the moment when it has made a complete revolution and the article has been delivered from the magazine prevents said member from being disturbed by the return rotation of the cylindrical member 29, when the plunger rack, having been released from its innermost position, is impelled outwardly by the spring 38 and thereby reverses the rotation of the cylindrical member to restore it to its normal position shown in Fig. 8. Moreover, the return of the plunger rack to its normal position has no driving effect on the sleeve 23 to operate the magazine because on said return stroke the cylindrical member 29 is rotated in clockwise direction with its lug 31 carried away from the shoulder 25 on the sleeve, so that the coin being no longer compressed between said parts or supported from below by the ledge of the lug 31 drops down out of the position shown at 32 in Fig. 8 into the coin receptacle 6 in Fig. 2.

It is immaterial that the particular magazine shown is arranged for a crossing of the articles at right-angles, since it is a simple modification to arrange the magazine for a crossed-relation of the articles, which is at a different angle or angles. Moreover it is recognized that other modifications and substitutions of equivalents can be made in the herein described and illustrated embodiment of my invention without departing from its scope and spirit, and these are intended to be covered hereby.

Having thus described my invention, what I claim is:

1. The combination of an exterior rotatable member; an interior rotatable member, said members being separated by a space adapted to receive a coin between them, and through which space the coin can drop, a projection on each of said members into said space adapted to abut against opposite edges of the coin, one of said members being manually rotatable to move its projection toward the projection on the other member and through the interposed coin to rotate the other member, said other member being operatively connected with a magazine to operate said magazine from its said rotation; and said magazine.

2. The combination of a rotatable sleeve, a cylinder rotatable within said sleeve, pinions respectively on said cylinder and sleeve, a magazine geared to the sleeve pinion to be operated from its rotation, a manually op-

erable reciprocating rack in mesh with the cylinder pinion, means operating to carry the rack and the cylinder into a normal position, said sleeve and cylinder being separated by a coin space between the inside of the former and the outside of the latter through which a coin can drop, a projection on each of said members into said space adapted to hold the coin between them, the projection on the cylinder being in coin-supporting relation to the projection on the sleeve when the cylinder is in normal position, and being carried toward the projection on the sleeve as the cylinder is rotated from the manual operation of the rack.

3. The combination of a primary rotatable member; a secondary rotatable member; a magazine operatively connected with the secondary member to be operated from its rotation; a manually operable reciprocating rack in operative relation with the primary rotatable member; means operating to carry the rack and the primary member into a normal position; means on the primary rotatable member and means on the secondary rotatable member supporting a coin between them when the primary member is in normal position, said means on the primary member being carried toward that on the secondary member and rotating said secondary member by means of the supported coin, when the primary member is rotated from the manual operation of the rack; and a releasable latch normally locking the secondary member against rotation, said latch being released by engagement therewith of the secondary member when coin-driven from the primary member.

4. The combination of a primary rotatable member; a secondary rotatable member; a reciprocating rack geared to said primary member to give it rotation in either direction; a releasable latch locking the secondary member against unintentional rotation; a spring connecting said rack and said latch and acting to return the rack and primary member to a normal position and to hold the latch spring-pressed into

locking position with the secondary member; a magazine operatively connected with the secondary member to be operated from its rotation; means on the primary rotatable member and means on the secondary rotatable member supporting a coin between them when the primary member is in normal position, said means on the primary member being carried toward that on the secondary member and rotating said member by means of the interposed coin to operate the magazine when the primary member is driven from the operation of the rack contrary to the tension of the above named spring, the coin being released as the primary member returns to normal position.

5. The combination of a rotatable sleeve; a cylinder rotatable within said sleeve, said sleeve and cylinder having between the inside of the former and the outside of the latter an axially extending recess, adapted to receive a coin in tangential position, projections into said recess, one on the sleeve and one on the cylinder, adapted to abut against the opposite side-edges of the coin in the coin recess, and a ledge on the cylinder located to be under the bottom edge of the coin when the aforesaid projections are adjacent its side-edges; a stationary coin-duct for delivering a coin down the coin-recess when same is under said duct; the cylinder being manually operable to rotate its projection toward the projection on the sleeve and through an interposed coin to carry the sleeve through a complete revolution and when released, being reversely rotatable to resume a normal position wherein its ledge is in supporting position for the coin under the coin-duct.

In witness whereof I have signed my name to the foregoing specification in the presence of two subscribing witnesses.

JOSEPH G. C. MANTLE.

Witnesses:

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E. W. SCHEN, Jr.