

P. HOCHGURTEL.

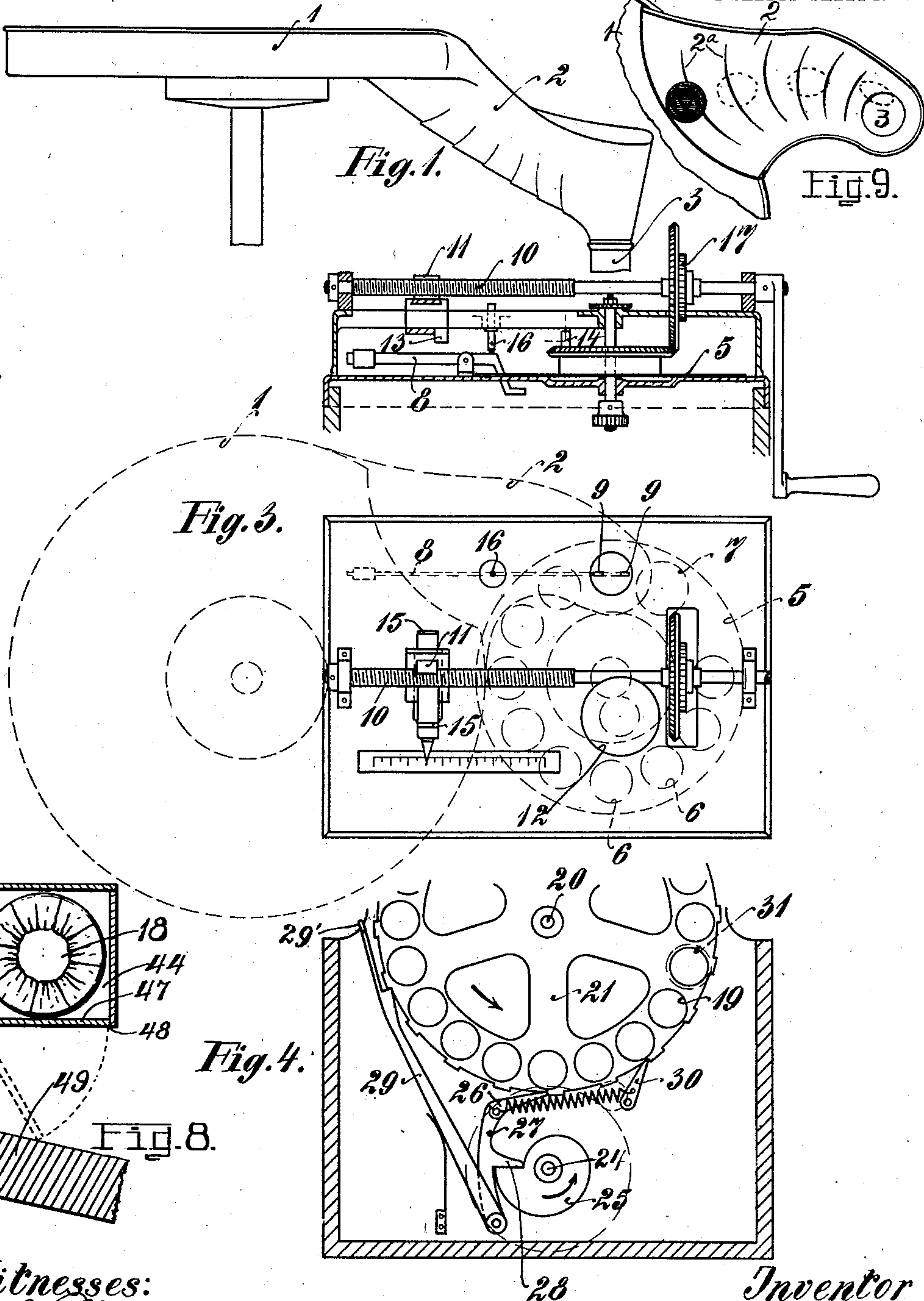
MECHANISM FOR COUNTING AND WRAPPING COINS.

APPLICATION FILED APR. 14, 1910.

973,658.

Patented Oct. 25, 1910.

2 SHEETS—SHEET 1.



Witnesses:
L. E. Parkley
at witness

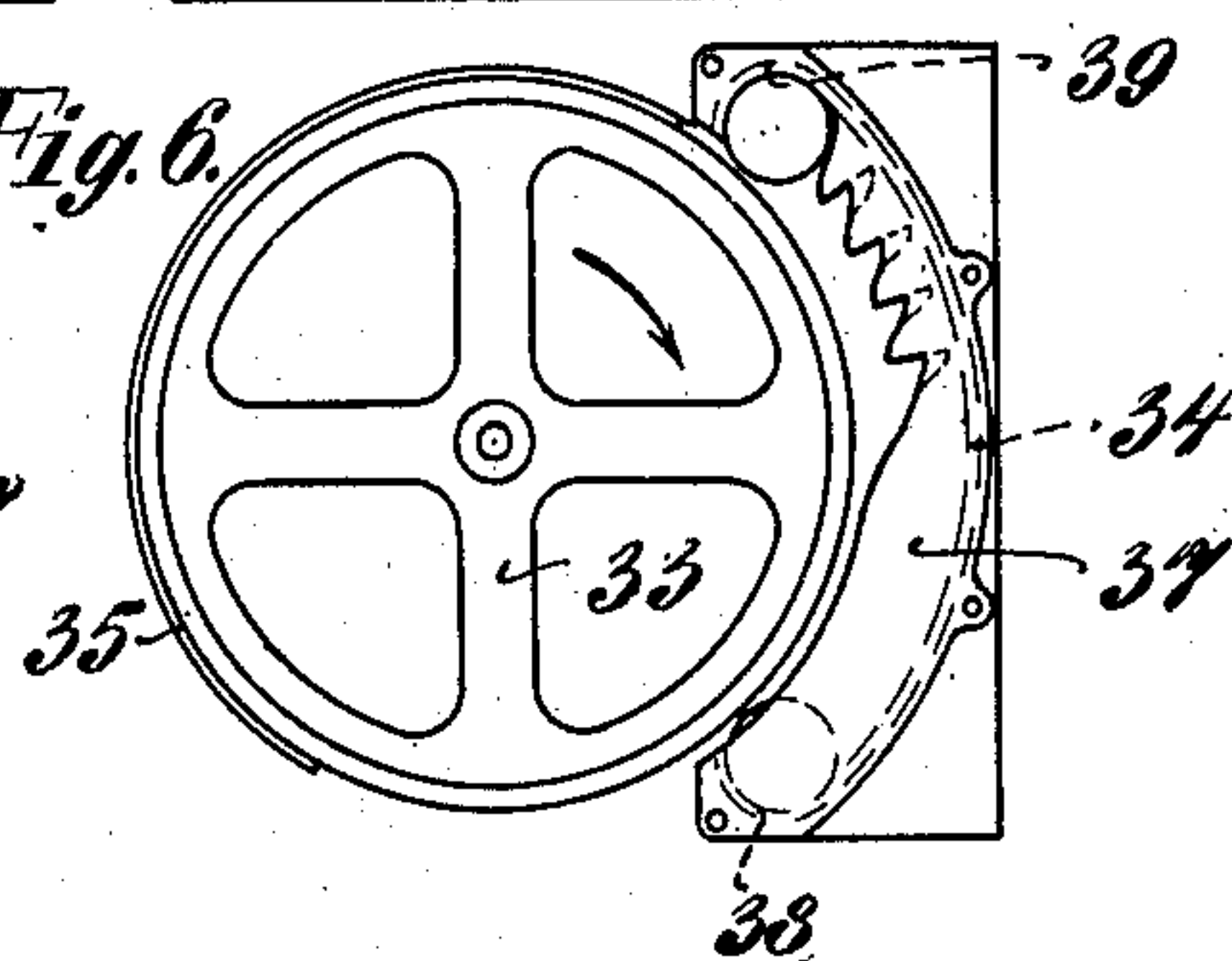
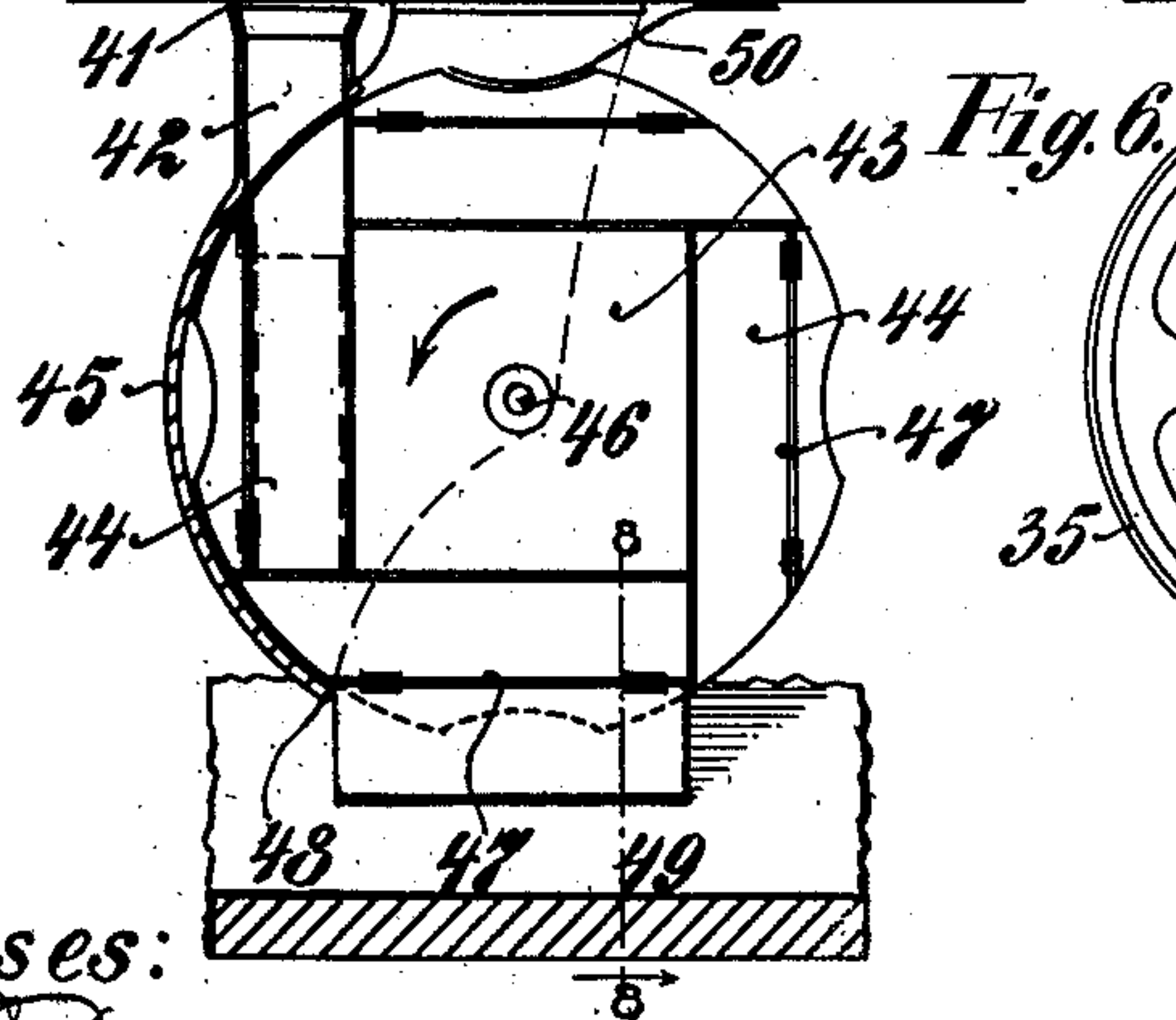
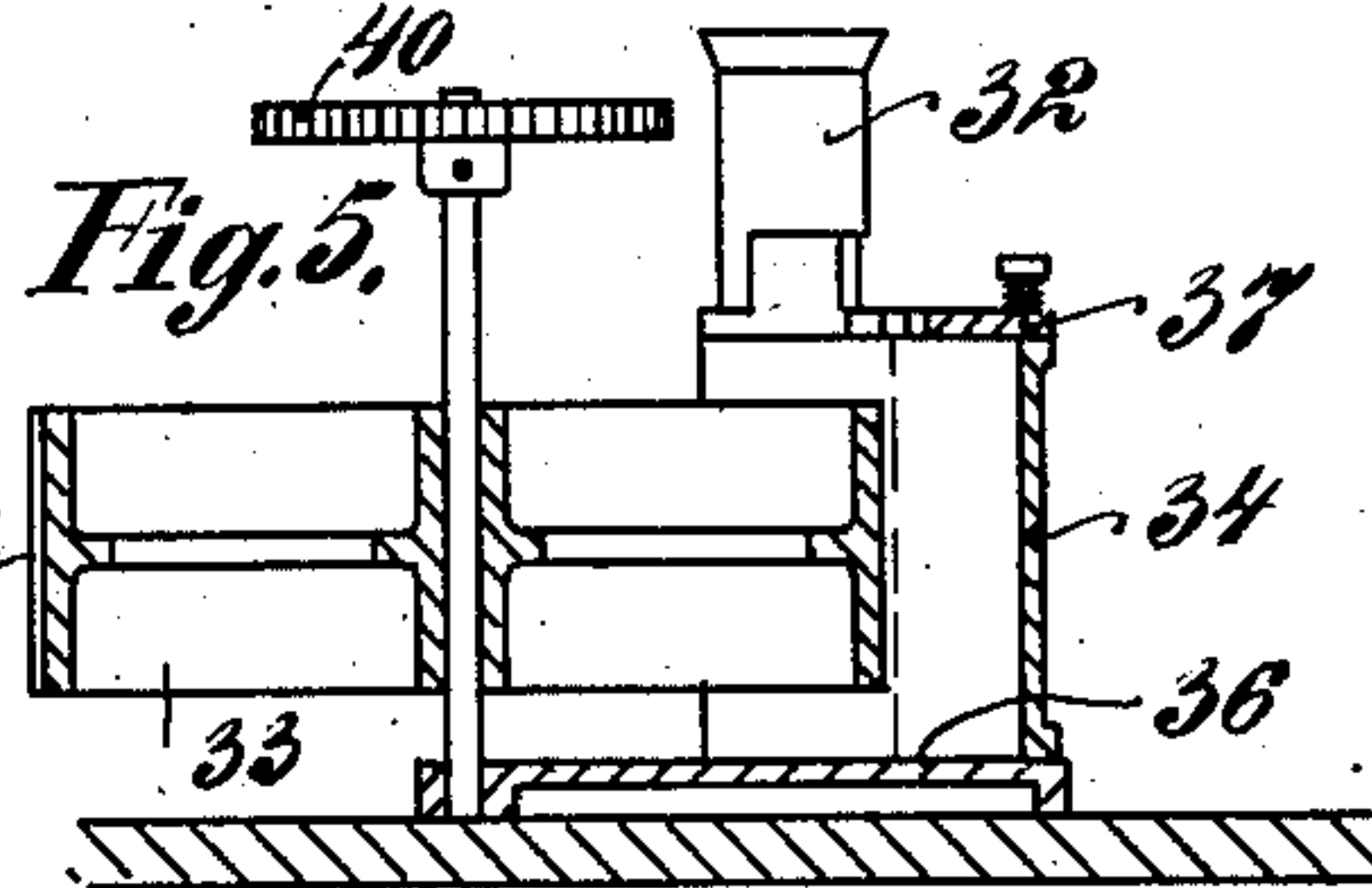
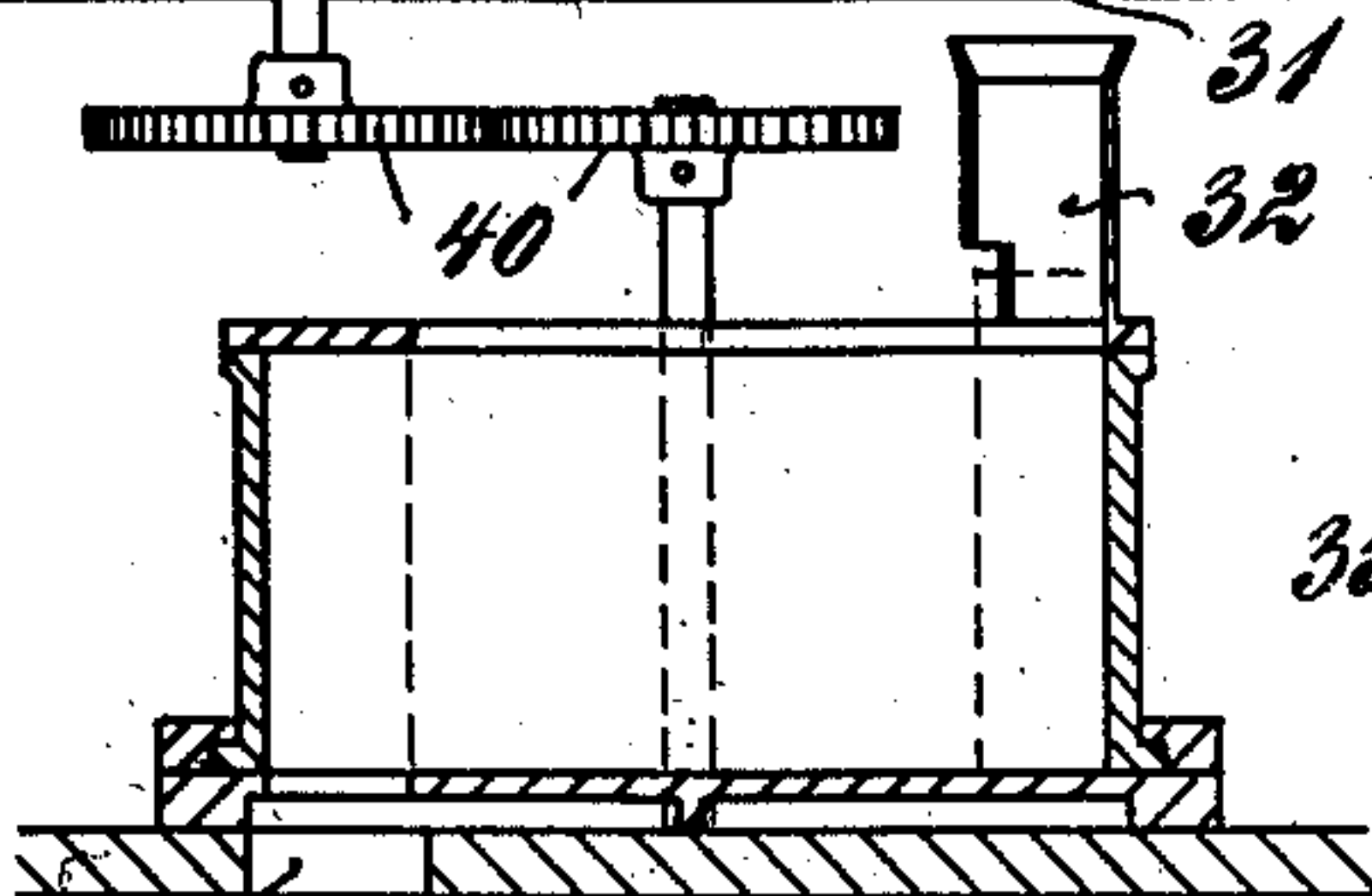
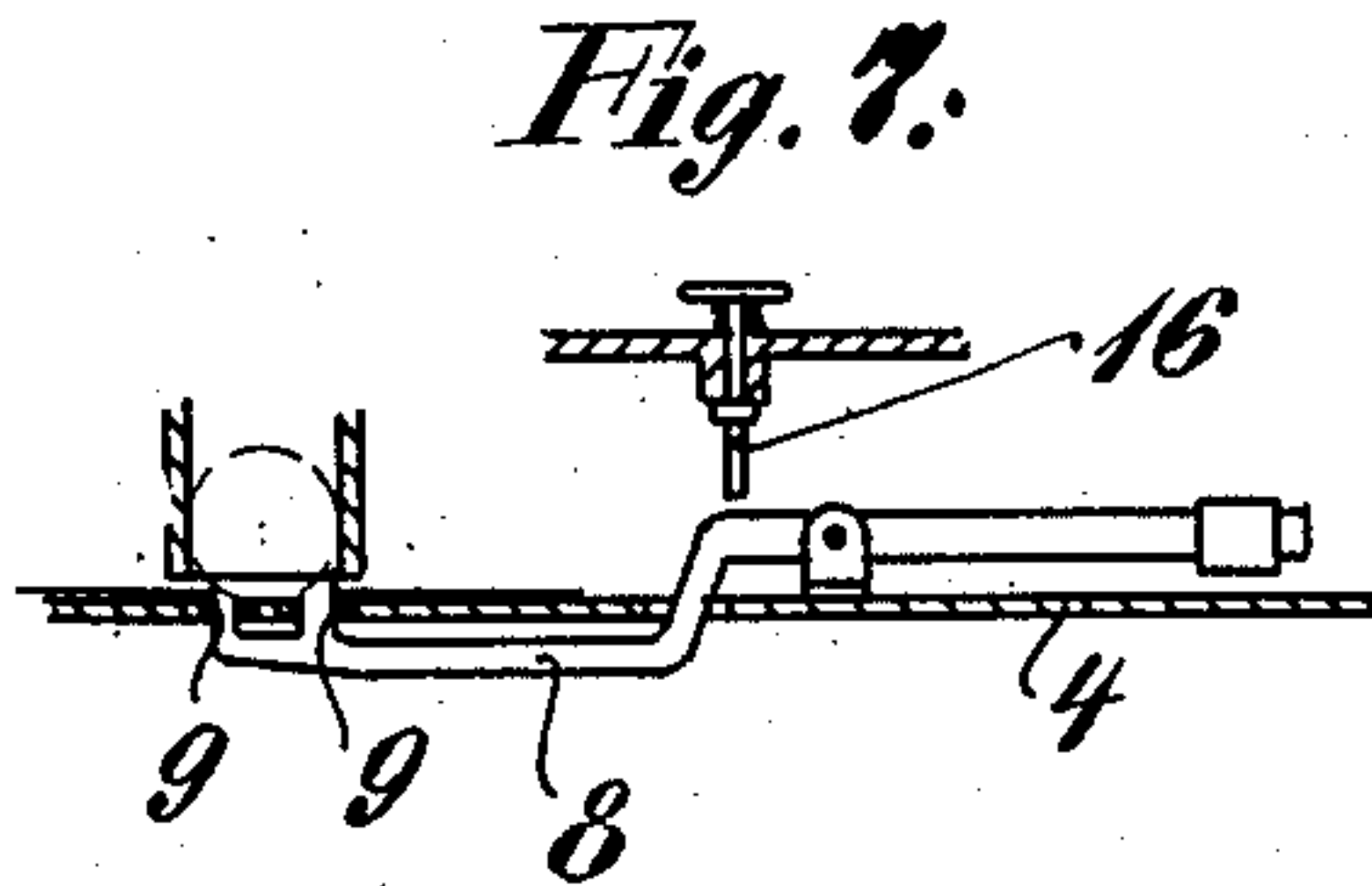
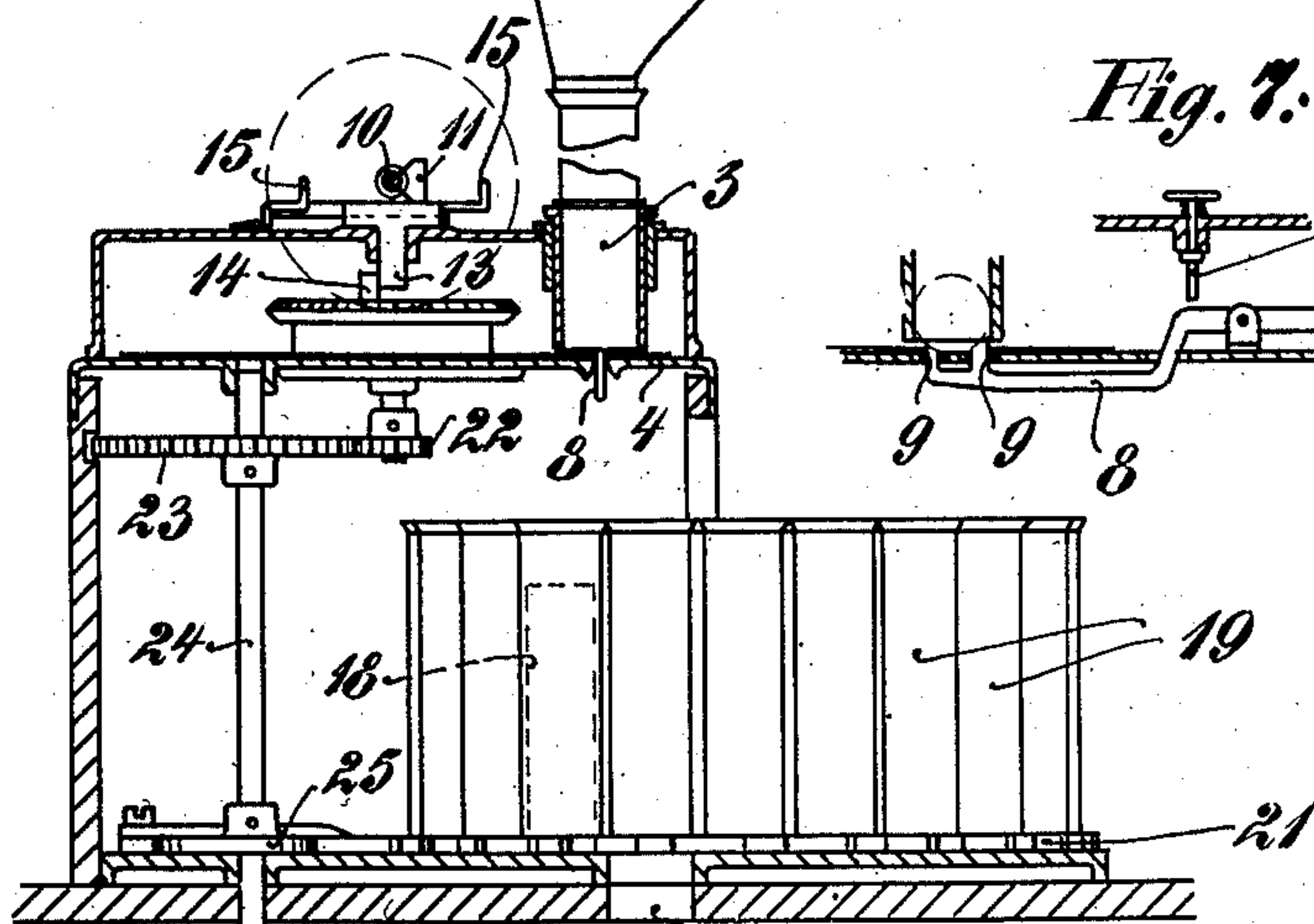
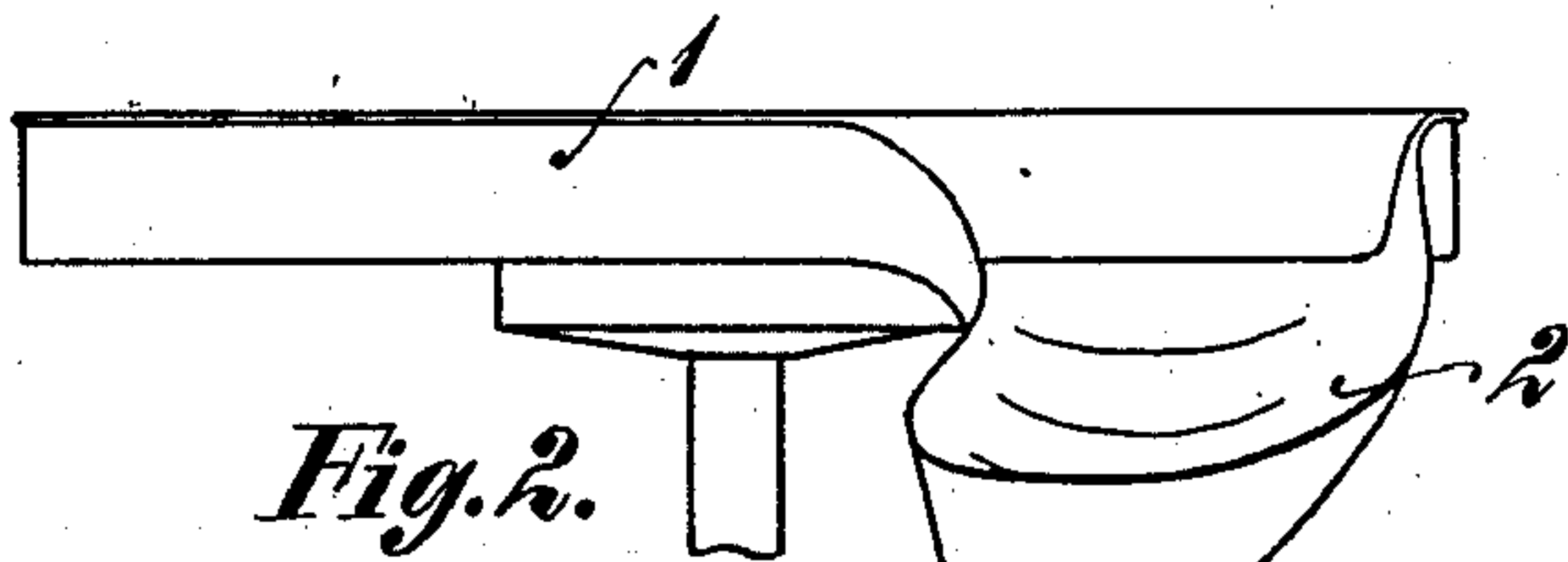
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2 SHEETS—SHEET 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

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MECHANISM FOR COUNTING AND WRAPPING COINS.

973,658.

Specification of Letters Patent.

Patented Oct. 25, 1910.

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To all whom it may concern:

Be it known that I, PETER HOCHGÜRTEL, a subject of the Emperor of Germany, residing at 41 Löhrstrasse, Koblenz, Germany, have invented a new and useful Improved Mechanism for Counting and Wrapping Coins, of which the following is a specification.

This invention relates to a money handling machine of the kind in which the coins piled up in a tube are removed from the tube by means of a revolving disk moving in front of the orifice of the tube and provided with holes for the reception of the coins, and the said coins are counted by registering the number of turns of the disk.

A machine of this kind is, in accordance with the present invention, provided with a number of important improvements and especially connected with a device which receives the counted coins in predetermined number in paper wrappers, closes these latter, and finally deposits the finished rolls of money in proper order in a receptacle.

The improvements and the new apparatus can be more exactly explained in combination with the rest of the machine by aid of the drawing.

Figure 1 shows a vertical section through the upper part of the machine, the coin counting apparatus proper, in combination with the coin plate and the insertion chute. Fig. 2 shows a vertical section through the entire machine with the device for the rolling up, closing and delivery of the money rolls. Fig. 3 shows a plan view of the machine with the counting mechanism. Fig. 4 shows the outline of the drum for the reception of the paper envelopes together with the apparatus for the moving of the drum. Fig. 5 shows another vertical section through the device for closing the money rolls. Fig. 6 shows the corresponding plan view. Fig. 7 shows a detail of the counting machine, namely, the device for locking the counting disk in the case of the money tube being empty or in the case of an irregularity. Fig. 8 is a plan view of the chute 2, showing the course of a coin in its descent; and Fig. 9 is an enlarged detail sectional view of one of the chambers 44, containing a wrapped roll of coins.

Referring in detail to these drawings, the coin plate 1 serves as a receptacle for the coins to be counted. From this plate they

are pushed by hand into the chute 2, and through this arrive into the upright tube 3 in which they arrange themselves flat one above another. The tube 3 is open and connects with slight play to the revoluble perforated disk 5 which rests upon a fixed supporting plate 4. Said disk carries with it during its revolution the coins that gravitate into the holes 6. For a regular counting it is moreover of great importance that the coins in the tube 3 always lie flat upon one another, and not in the upright position. This is accomplished with the greatest certainty by means of the special construction of the feed chute 2. In this chute, regard is first had to the very varying nature of the coins. As is well known, coins which have been in use for a long time have often a greasy surface and they are often also moist, especially in saloons. It is evident that coins of such different nature will act differently when they are passed into the tube 3. The sticky coins will slip less easily over the guiding track than the smooth and clean ones, and consequently they may easily occasion stoppages. In the present machine these stoppages are entirely prevented by the special shape given to the chute 2, as best illustrated in Fig. 9. This is firstly, in contradistinction to the already known delivery chutes, considerably wider than the diameter of the coins and converges constantly toward the filling tube, without however, converging to the diameter of the coins or of the tube 3.

The cross section of the chute, which is bent in the form of a horn, corresponds at each point of its course to a curve, so that the chute forms a casing without any flat part. Because of this construction the coins touch the chute at each stage of their travel at two or three points of their rims so that they can never remain sticking even if their surface is sticky, and will all assume a uniform speed. In consequence of the convexed, curved and inclined formation of the chute the coins glide down it along a track freely taken by themselves, but they do not come immediately upon the vertical axis of the coin tube, but pass first in a tangential course past the orifice thereof, whereby they receive a twirl which is of particular importance for the regular disposal of the coins in the tube. The said twirl renders it impossible for any coin to take the

vertical position in the tube because it continues farther in the tube and assures for each coin a position inclined to the horizontal. This twirl is brought into effect by the tendency of the coin, in its travel down the chute 2, to go in a straight line, and by the counteracting force of the curved chute forcing it in a curved course as shown in dotted lines, Fig. 9.

If the chute is long enough the coins can be pushed forward quite unregulated from the plate 1, because they assume immediately the regular sequence. Of course the number of the coins put in must bear a proper relation to the number of the coins passing away from the tube in order to prevent overfilling. The sticking together of the coins, as easily occurs with sticky and greasy coins, is moreover effectively prevented by providing the bottom of the channel with ridges 2^a vertical to the curved axis thereof.

Through the holes 6 of the counting disk 5, the coins are removed one by one from the lower orifice of the tube 3 and carried away. The disk lies flat upon the end support 4. Immediately after its removal from the tube, each coin falls through an opening 7 of the end support into the paper envelop placed beneath it. As soon as the last coin has been removed from the tube the perforated disk must be stopped in order that the counting device shall always indicate the correct amount. This is effected by means of a two-armed lever 8, the pivot of which lies above the plate 4 and one arm thereof engages through an opening of the plate so that it comes to lie underneath the same. The end of this arm is forked and engages with both fork ends from below through two apertures 9 of the plate 4. The apertures lie exactly under the coin tube 3 so that the fork ends are depressed by the weight of the coin in the plate 4. The lever 8 is so counterbalanced that the weight of a single coin suffices to depress it. Consequently as long as there are coins in the tube 3 the lever 8 is kept out of action, but as soon as the last coin has been removed, the fork ends engage in the next opening of the counting disk and hold it fast. The fork construction of the end of the lever has for its object to prevent a depressing of the lever by coins which may accidentally stand edgewise. As will be seen from Fig. 7 an edgewise standing coin cannot reach the fork ends but will touch only the under plate between the openings 9. In consequence of this arrangement, the counting will therefore be interrupted with certainty even in the case when by some unusual accident a coin should have passed edgewise into the tube.

The revolutions of the perforated disk are transmitted by means of cone gearing to the

screw spindle 10, and are recorded by means of a counting nut or matrix 11. The fractions of a disk revolution are transmitted by the shaft of the perforated disk immediately or by means of a pair of toothed wheels to a circular index 12. If the perforated disk contains, for instance, ten apertures, then 100 revolutions of the disk of the screw spindle will indicate 1,000 coins. After attaining the highest figure on the disk, the counting nut 11 has advanced so far that it is adjacent to the cone wheel of the disk axle. At this moment the nut, by means of a projection 13, encounters a projection 14 on the cone wheel, whereby the apparatus is brought to a standstill. In order to cause the index nut to return quickly to the zero position, it is so constructed that it does not entirely surround the spindle 10 but only rests upon the same at one side, or is divided. By means of suitable projections 15, the nut can therefore be lifted from the spindle against the pressure of a spring (not shown in the drawing) and can be restored to its initial position. In order to be able to bring the circular scale 12 also back into the zero position, the lever 8 must be depressed, which is effected by means of a spring pin 16. A ratchet wheel 7 on the spindle shaft 10 prevents any turning backward of the machine itself.

The counted coins traveling with the disk 5 fall through the opening 7 of the under plate and are received in one of the paper wrappers 18 placed vertically underneath the same. These wrappers are placed in receivers 19 which are carried upon a disk 21 which is revoluble around the vertical shaft 20. As soon as one wrapper is filled, the disk 21, is automatically rotated, whereby another is put in its place. The propulsion of the wrapper disk 21 is effected by means of a shaft 24 connected with the driving mechanism of the counting disk 5 by means of gear wheels 22, 23; on the said shaft 24 there is fixed a spiral disk 25. Against the periphery thereof there rests by means of a catch 28 a lever 27 provided with a spring catch 26. This catch engages the disk 21 once after each full rotation of the spiral disk 25 and the lever 27 moves the disk 21 one division farther by means of the spring catch 26. Upon the pivot on which the lever 27 is journaled, there is journaled another locking lever 29 which engages a toothed disk 21, and thus interrupts the transmission each time at the right moment.

For the purpose of manually rotating the disk 21 during the adjustment of the machine, the locking lever 29 may be disengaged from said disk by engaging said lever at its end, with the fingers. For this purpose, said end protrudes through an opening in the casing as shown at 29'. A further locking catch 30 prevents any turning backward of the disk.

Although a mechanism of this kind permits of a very quick motion of the disk 21, there might nevertheless be troubles easily caused by the fact that in course of operation, coins, in passing from the orifice 7, may tend to fall between the filled and the unfilled envelopes. In order to render such an accident impossible, the perforated disk 5 is not provided with holes in the parts which pass over the opening 7 during the motion of the disk 21, so that the next coins from the tube 3 can only pass out after the next envelop has been completely adjusted to the correct position. From the metal cases which are opened below, the filled money rolls fall through an opening 31 of the disk and through a tube 32 which is somewhat widened at its upper end into the closing apparatus placed underneath the same. The opening 31 is so placed that the filled wrappers are carried only one division by the disk 21; whereby they are ejected by gravity through the opening 31, whereby an unnecessary weighting of the disk 21 is avoided and thereby the motion is assisted.

The closing mechanism consists essentially of a cylindrical roller 33 with vertical shaft and a cylindrical casing 34 arranged concentric thereto. The roller is enveloped at one part with an elastic cover 35. The cylindrical casing 34 rests with its lower edge upon a plate 36, while on the upper edge a cover 37 provided with teeth rests elastically upon it. The height of the casing 34 corresponds exactly to the height of a filled money roll. The ends 38 and 39 of the casing are turned inward in such a manner that they press against the convexity of the money roll. This roll then passes through the tube 32 into the locking mechanism and remains finally stationary at the end 39 of the cylindrical casing. The projecting rim of the paper wrapper extends above the lid 37. As soon as the roller 33 is turned in the direction indicated by the arrow, the elastic support 35 propels the money roll along the casing 34 with it, whereupon the projecting edge of the wrapper is pressed down by the toothed part of the lid 37 and the roller is then closed. In this condition it reaches the other end 38 of the casing where it is held fast by the bent portion.

The actuation of the roller is effected by aid of wheels 40 driven from the shaft 24 of the gearing. The elasticity of the cover 37 causes it to fit any small irregularities in the height of the roll resulting from coins of unequal thickness.

When released from the elastic support 35 of the roller the closed money roll falls through an opening 41 into the receptacle placed underneath it. This receptacle is devised to prevent an irregular tumbling about of the rolls. From the opening 41 the

money roll first passes into a tube 42 and then reaches a wheel 43 with four chambers 44 arranged at right angles one to another. The wheel is revolvably supported in a casing 45 upon the axle 46 and is turned by the weight of the money roll falling into it.

The chambers have covers 47 passing to the outside. The cover of the chamber filled with the money roll is kept closed by the cover 47 until the roll through the turning of the wheel has arrived at the horizontal position. Then the lid is released from contact with the edge 48 of the casing at 48 and can open downward so that the money roll falls out. It passes then over a sloping plane 49 which is indicated in the drawing in section, and falls into a collecting receptacle. Until another roll enters the box, the wheel is held in its position by means of a weak spring 50.

What I claim is:

1. In combination, a mechanism for counting and wrapping coins, comprising a coin receptacle, a feed chute, a disk having apertures therein for carrying the coins, an envelop carrier, means automatically actuating said carrier, an envelop closing mechanism under said carrier, and means for transferring the envelopes containing the coins from said carrier to said closing mechanism by gravity.

2. The combination in a machine for assembling, counting and wrapping coins of like denomination, of the curved delivery channel 2, ridges on the bottom of said channel, a vertical terminal tube on said channel, a rotatory counting disk adapted to receive consecutively the coins falling through said tube, counting mechanism actuated by the rotation of said disk, means for consecutively conveying coins from the disk into envelopes, and means for closing and delivering the filled envelopes.

3. The combination in a machine for assembling, counting, and wrapping in rolls coins of like denomination, the curved delivery channel 2, ridges on the bottom of said channel, a vertical terminal tube on said channel, the rotatory disk 5, said disk having perforations arranged concentrically and adapted to allow coins to pass there-through, means for carrying envelopes, means for consecutively conveying coins from the disk into said envelopes, and means for closing and delivering the filled envelopes.

4. The combination in a machine for assembling, counting, and wrapping coins of like denomination, the curved feed channel 2, a vertical terminal tube on said channel, the rotatory disk 5, having concentrically arranged apertures therein, imperforate sections in said rotary disk intervening said apertures, means for arranging envelopes, a perforated guide plate, a weighted lever

arm, ends on said arm adapted to project through the guide plate and lock the rotatory disk after delivery of the last coin from said terminal tube, means for consecutively conveying coins passing from the disk into envelopes, and means for closing and delivering said filled envelopes.

5. The combination in a machine for assembling, counting, and wrapping coins of like denomination, the curved feed channel 2, ridges on the bottom of said channel, a vertical terminal tube on said channel, the rotatory disk 5, said disk having apertures arranged concentrically therein and adapted to allow coins to pass therethrough, imperforate sections in said rotatory disk which pass beneath the orifice of the coin delivery tube, the plate 4, the weighted lever arm 8 adapted to be held down by the pressure of the coins in the coin tube, forked ends on said lever adapted to pass through openings in the plate 4, means for consecutively conveying coins from the disk into envelopes, means for shifting the envelopes horizontally, and means for closing and delivering the filled envelopes.

6. In combination with apparatus for arranging and counting coins of like denomination, the rotatory disk 21, envelop holders 19 concentrically arranged on said disk, means for filling the envelopes, means for rotating the base plate periodically after each envelop is filled, the roller 33, the casing 34 so placed with regard to the roller 33 that each filled envelop falls between them, a roller cover 35 cooperating with the casing 34 to roll the wrapper around its contents, the toothed closing cover 37 adapted to fold over and press down the open end of the coin envelop during the action of the parts

33, 34, and 35, and means for consecutive delivery of the filled and closed envelopes.

7. In combination with apparatus for arranging and counting coins of like denomination, the rotatory disk 21, envelop holders 19 concentrically arranged on said disk, means for filling envelopes within the holders, means for shifting the envelop holders periodically as each envelop is filled, the roller 33, the casing 34 so placed with regard to the roller 33 that each filled envelop falls between them, a roller cover 35 cooperating with the casing 34 to roll the wrapper around its contents, the cover 37 adapted to fold over and press down the top end of the coin envelop, the wheel 43 placed underneath the base plate 41, boxes 44 on said wheel each adapted to receive a filled wrapper and closed coin envelop, and to be rotated 90° by the weight thereof, and a sloping plane 49 adapted to guide the roll from the box 44 to a receptacle.

8. In combination, apparatus for counting and packaging coins, comprising a coin receptacle, a feed channel, a conveyer, an envelop carrier, means actuating said carrier, means directing coins from said conveyer to envelopes in said carrier, an envelop closing mechanism, means directing the envelopes from said carrier to said closing mechanism, and a vertically rotatable delivery mechanism to receive and deliver the closed rolls of coins.

And in testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

PETER HOCHGÜRTEL.

Witnesses:

LOUIS VANDORN,
BESSIE F. DUNLAP.