

No. 869,626.

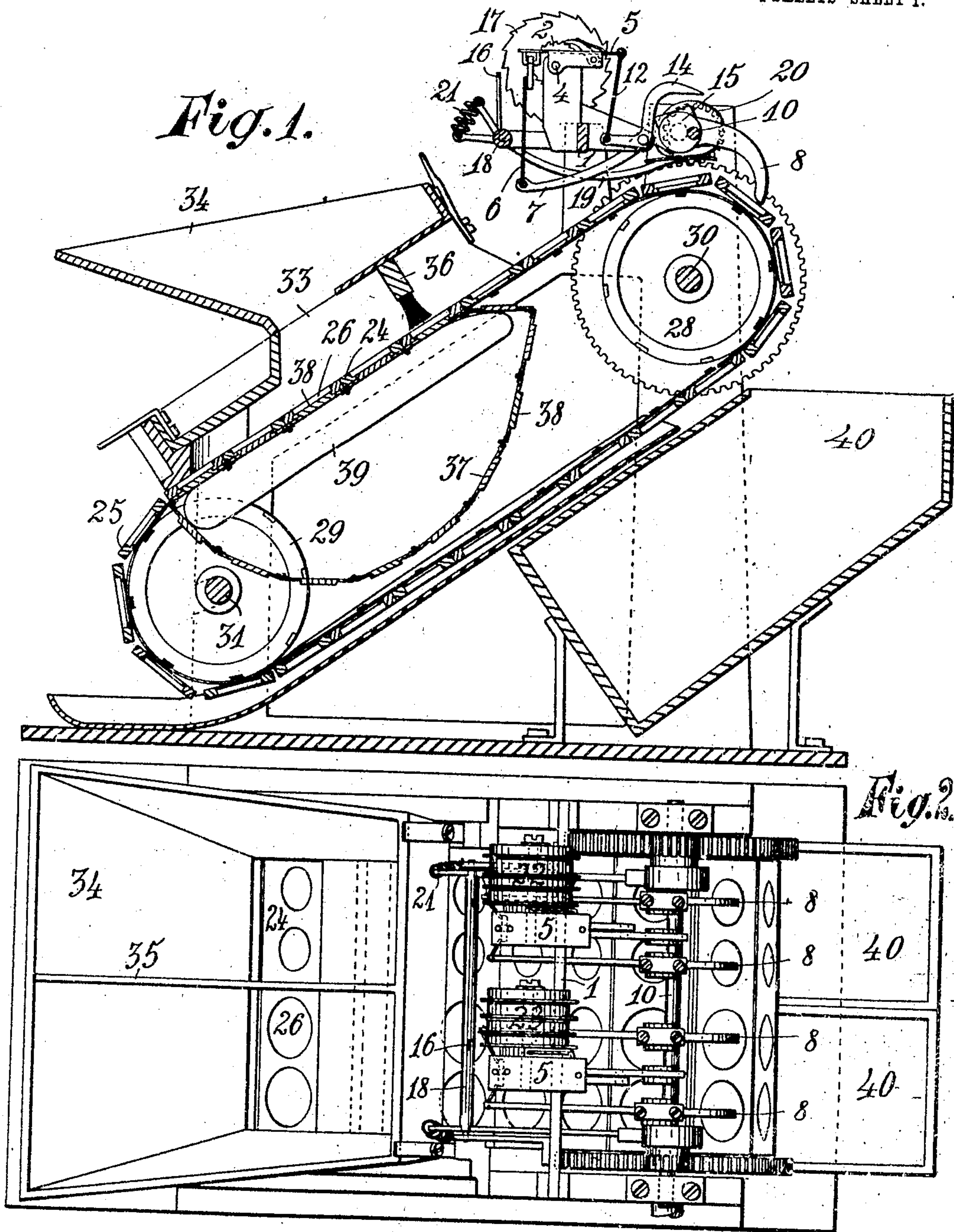
PATENTED OCT. 29, 1907.

B. CRANNER.
COIN COUNTER.

APPLICATION FILED OCT. 4, 1906.

4 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
M. L. Hammon
M. M. Hovey

Inventor:
Bjarne Cranner
by *Alfred Müller*
Attorney.

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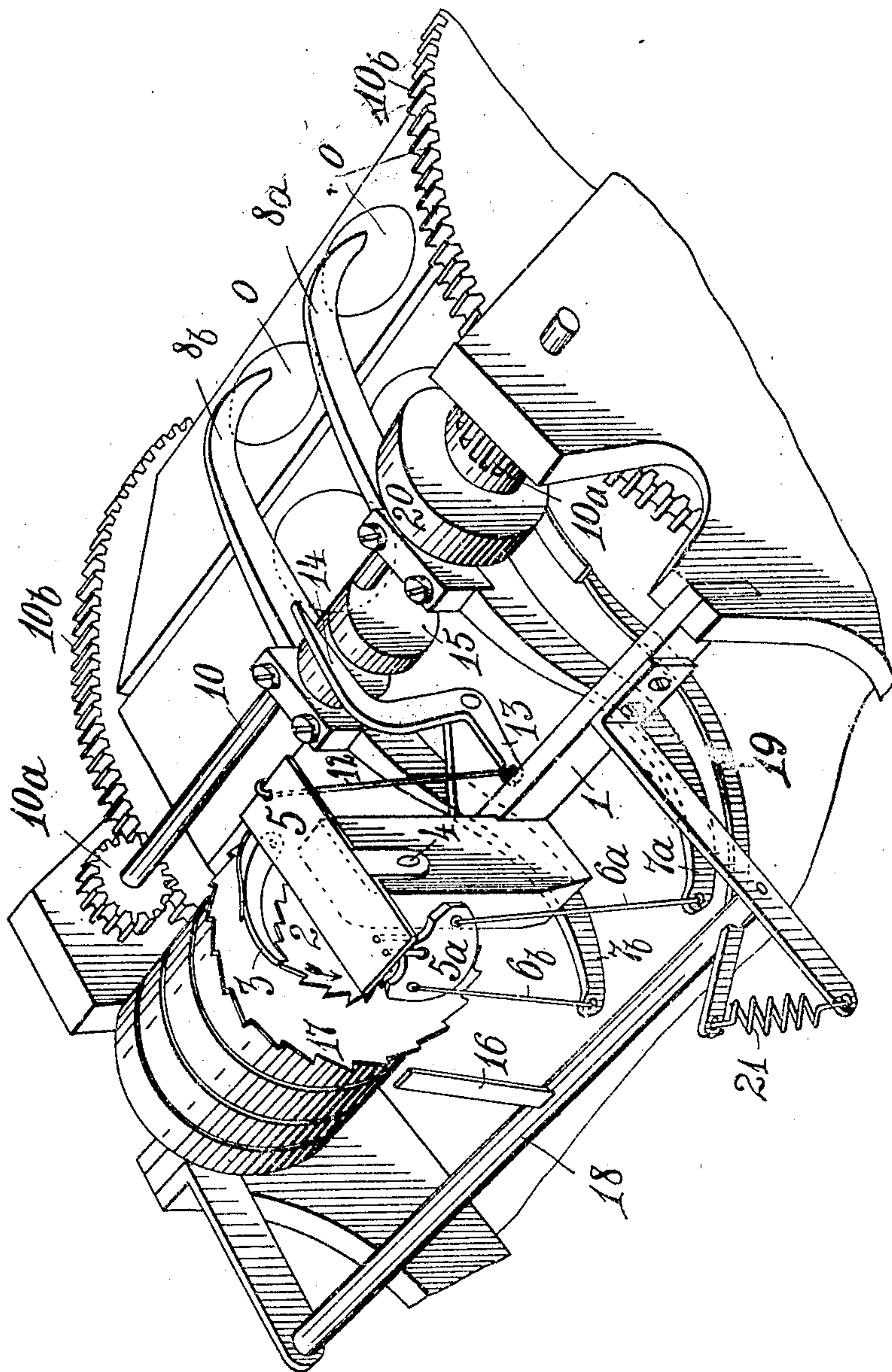
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4 SHEETS—SHEET 2.

Fig. 3.



Witnesses:

M. L. Hamm

M. M. Hovey

Inventor:

Bjarne Cranner

by

Ayred Miller
Attorney.

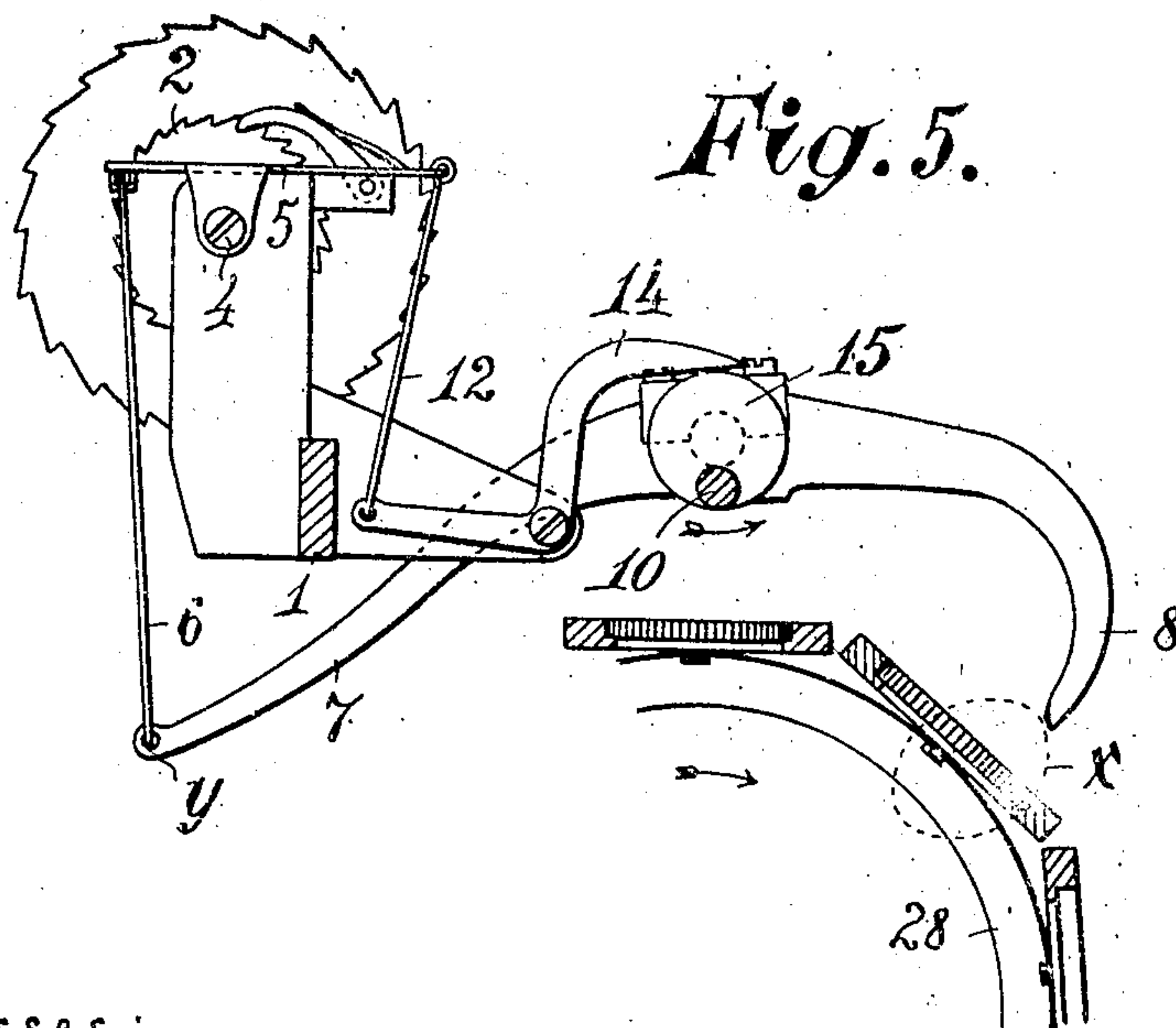
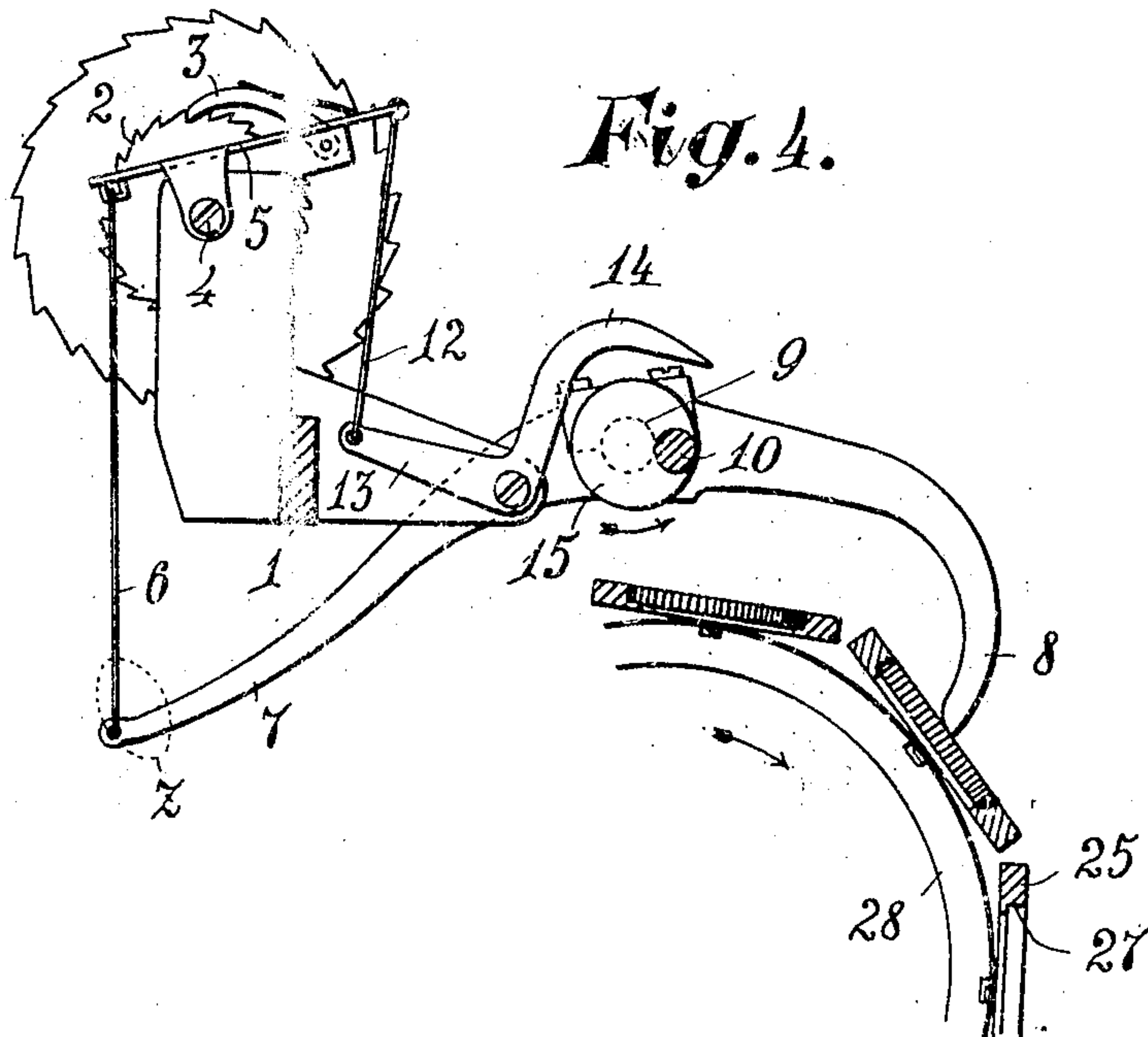
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4 SHEETS—SHEET 3.



Witnesses:
M. L. Hamm
M. M. Hoovey

Inventor:
Bjarne Cranner
by *Alfred Müller*
Attorney.

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4 SHEETS—SHEET 4.

Fig. 6.

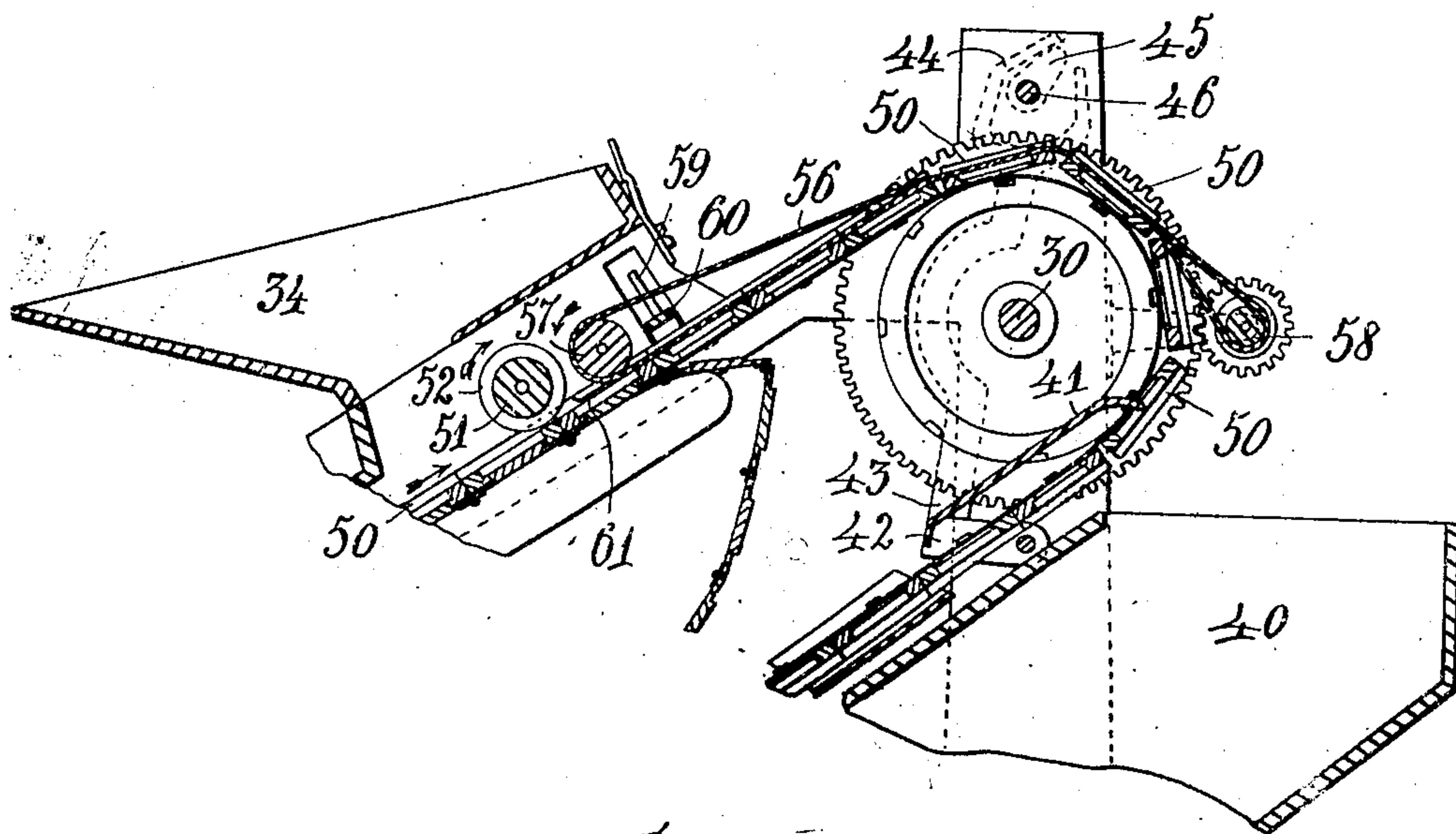
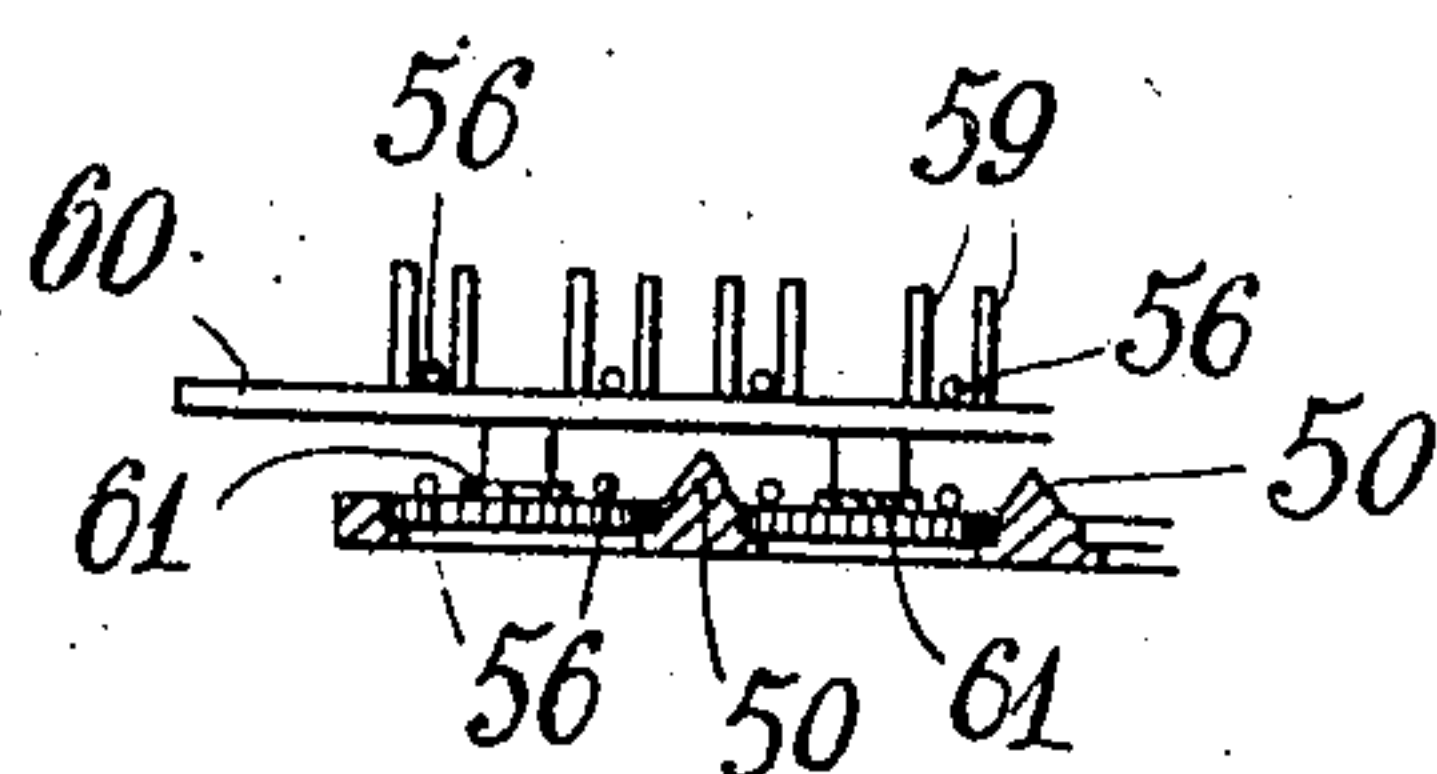


Fig. 7.



Witnesses:

M. L. Hamer
M. M. Hovey

Inventor:
Bjarne Cranner
by
Alfred Müller
Attorney.

UNITED STATES PATENT OFFICE.

BJARNE CRANNER, OF KONGSBERG, NORWAY.

COIN-COUNTER.

No. 869,626.

Specification of Letters Patent.

Patented Oct. 29, 1907.

Application filed October 4, 1906. Serial No. 337,422.

To all whom it may concern:

Be it known that I, BJARNE CRANNER, a subject of the King of Norway, residing at Kongsberg, Norway, have invented certain new and useful Improvements in Coin-Counters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to apparatus for counting sorted coins, and has for its object a coin counter, the essential parts of which consist of suitable means for carrying the coins in a fixed position from one magazine to another in combination with means for counting the coins passing a certain point of the apparatus, while resting in the said carrier.

My invention consists in certain combinations of parts and will hereinafter be described, reference being had to the annexed drawings showing one form of carrying out my invention being a duplex machine.

Figure 1 shows a vertical longitudinal section and Fig. 2 a plan view of a compound duplex machine. Fig. 3 is a perspective view of the duplex counting mechanism. Figs. 4 and 5 show the counting mechanism for a single acting counting mechanism in two different positions. Fig. 6 is a vertical longitudinal section through the upper portion of the apparatus, showing a slight modification, the counting mechanism being omitted. Fig. 7 is a cross section of the coin carrier and some adjacent parts.

When speaking of a duplex machine I mean a machine so arranged, that two coins of the same value may simultaneously pass the counting mechanism connected with one and the same adding machine. I shall now first describe the general arrangement and operation of the machine. In the example shown I make use of a carrier in the form of a belt 24 carrying plates 25 in which seats 26 are provided for the coins. The belt runs over two drums 28, 29 on shafts 30, 31, one of which is provided with a crank or connected with a motor. The belt passes in an upward direction underneath the magazine 33 and forms an inclined bottom in the latter. The coins, thrown into this magazine, will be taken up by the belt, one coin in each seat, and after having passed the upper drum underneath the "feeler" 8 of the counting mechanism, they will drop off into the box or magazine 40. The said "feeler" is a lever, the other end 7 of which is connected with the adding machine and has an oscillatory movement imparted to it by a constantly moving shaft, acting by way of an eccentric on the middle part of the lever, and the downwardly directed point of the "feeler" 8 is thereby moved in a path crossing the path of the belt, the mechanism being so timed

that this crossing takes place at each seat provided for the coins. When no coin is carried by a seat passing the path of the "feeler", the latter may perform its regular movement and no impulse is imparted to the adding machine. When, however, a seat, in which a coin is placed passes the path of the "feeler", the latter is stopped in its regular movement and the end of the "feeler" lever connected with the adding machine is then actuated.

The particular arrangement of the "feeler" and adjacent parts is shown in Figs. 4 and 5 as far as regards the arrangement of a single acting machine. Fig. 3 shows in a perspective view the arrangement in a duplex machine. In these figures, 1 denotes parts of the frame; 2 is the ratchet wheel of the adding machine and 3 the ratchet-pawl which is mounted in an arm 5 pivoted on the shaft 4 of the said wheel. In this arm is hung a rod 6 connected with the arm 7 of a lever, whose other end forms the "feeler" 8 and which is carried by an eccentric or crankpin 9 on the shaft 10, the latter having its bearings in the frame and provided with pinions 10^a meshing with gearwheels 10^b on the shaft 30 (see Figs. 1, 2 and 3). The shaft 10 rotates in the direction of the arrow as shown in Figs. 4 and 5. At the other end of the arm 5 is hung a rod 12, which is connected with one end 13 of a bell crank lever, whose other end 14, which has a curved shape, extends above an eccentric 15 on the shaft 10. The fulcrum of the said bellcrank is on the frame.

It will be seen from Fig. 5, that when the "feeler" 8 is allowed to move unhindered, its point will during one revolution of the eccentric 9 perform a motion about as the curve indicated by *x* in Fig. 5, the whole lever swinging about *y* as a fulcrum, *y* making a small vibrating motion; when, however, as shown in Fig. 4 the point of the "feeler" abuts against a coin the lever will swing about the point of the "feeler" as fulcrum, and the end of the arm 7 connected with the rod 6 will then describe a curve *z* (Fig. 4). By such downward movement the pawl 3 will be moved and push the ratchetwheel 2 one tooth forward. The returning of the pawl to its initial position is performed by means of the eccentric 15, which when rising will lift the arm 14 to the position shown in Fig. 5, and bring the arm 5 with connected parts back to the initial position.

The duplex-mechanism shown in Fig. 3 differs from the just described single acting apparatus in the following points. The two "feelers" are marked 8^a and 8^b; their operation is exactly the same, but the other ends 7^a and 7^b of the levers are not connected to separate ratchet-pawls but by way of the rods 6^a and 6^b and a balance piece 5^a hung in one and the same arm 5, carrying the pawl 3 acting on the ratchetwheel 2. The parts are so dimensioned that when there is a coin *O* in each of the two seats in a beltplate just passing the "feelers" 8^a and 8^b, so that both "feelers" hit

on a coin the movement imparted to the arm 5 will be sufficient to bring the ratchetwheel two teeth forwards. When, however, there is no coin for instance in the seat underneath the "feeler" 8^b, this "feeler" will make its regular movement, that is to say the end of the arm 7^b will remain at rest, and the corresponding end of the balance piece 5^a will then also remain at rest, and the arm 5 will therefore only make a motion equal to half of the motion of the arm 7^a.

10 In Fig. 3 is shown a stopperarm 16 engaging the teeth of a wheel 17 connected with the ratchetwheel 2 and serving to arrest the latter when it has made a step. This stopperarm is mounted on a shaft 18, carrying a spring arm 19, which projects underneath a
15 cam-wheel 20 on the shaft 10. This camwheel under a part of its rotation presses the arm 19 down, so that the stopperarm 16 is held against the wheel 17, when it has been turned by the pawl. A spring 21 holds the shaft and arm 16 in the position shown when the
20 camwheel 20 does not press on the arm 19.

I will now describe the machine shown in Figs. 1 and 2, it being a compound duplex-machine, that is to say a machine with two duplex counting mechanisms arranged for two different sizes of coins. The
25 counting mechanism is designated with the same reference numerals as in Figs. 3, 4 and 5. There are, as will be seen four "feelers" (8), two for each kind of coin. One pair acts on the adding machine 22, the other on the adding machine 23. Of course the belt
30 may be made still wider, so it may take up more kinds of coins.

The belt 24 is provided with plates 25, in which there are holes 26 the edges of which are recessed so as to form a seat for the coin. The belt runs over
35 drums 28, 29 on shafts 30, 31, and above the belt is placed a magazine 33 and a hopper 34, with a partition 35, whereby a separate receptacle for each sort of coin is formed. The upper wall in the magazine is provided with a brush 36, serving to press the coins
40 into the seats in the belt. Underneath the belt right below the magazine there is arranged a belt 37 provided with covering plates or disks 38, the diameter of which corresponds with the diameter of the holes in the feeding belt. The belt 37 is kept close up to
45 the feeding belt by means of guides 39, so that it is carried along with the feeding belt, till it has passed the brush 36, the disks 38 fitting into the holes 26 and forming bottoms underneath the seats, so that the coins can not get hanging on the edge across the holes.
50 The seat itself is free. The recess forming the seat, is preferably somewhat deeper at the upper than at the lower part, so that the coins will not extend above the plane at the top; by this arrangement is prevented, that coins in the magazine are stopped and taken
55 along with the belt by being fetched by the coins in the seat. Coins which are smaller than those for which the apparatus are designed, and which are erroneously thrown into the receptacle, fall through the holes and are collected in the trough below the
60 feeding belt. The coins carried along with the belt after having passed the "feeler" drop down into the receptacle 40.

In Figs. 6 and 7 I have shown some modifications of my apparatus substantially relating to devices for
65 securing the regular working of the apparatus. Fig. 6

is a vertical section of the upper part of the apparatus, the counting mechanism being left out; Fig. 7 is a cross section of the carrier belt and some adjacent parts. I have shown in these figures a carrier belt with plates having ridges 50 between each row of
70 coin seats, such ridges serving to guide the coins in the magazine, so as to secure their entering the seats as rapidly as possible. Instead of the brush 36 I employ a roller 51 rotated opposite the direction of the movement of the belt, the roller having rubber
75 flanges or ribs 52 entering between the ridges 50 so as to take hold of coins following the belt without having entered a seat, and pushes them down in the magazine again. 56 are cords passing over rollers 57 and 58, the latter of which is rotated by means of a
80 pinion, as shown. These cords press on the belt and on the coins carried by the belt and serve to keep the coins in place, so that they can not, in case the machine is worked at a somewhat high rate of speed, spring out of the seats. The cords pass between pins
85 59 on a bar 60 placed above the belt and being mounted in the side walls of the magazine. This bar also serves as a holder for a row of flat springs 61, which are pressed against the top face of the belt and so insures that the coins lie flat down in the seats. The
90 bar 60 may be adjustably mounted at its ends or may be pressed down by way of springs.

In Fig. 6 I have also shown an ejector 41, serving to loosen the coins, which may stick in their seat; this ejector is an arm fixed to a racking frame 42 having a lever 43 with a fork 44, which is acted on by a
95 cam 45 on a rotating shaft 46.

Claims.

1. In a coin counter, a receptacle, a movable coin carrier adapted to feed coins from the said receptacle, seats on the
10 said coin carrier equidistantly spaced apart and adapted to receive the coins, holes in the said seats, a movable member, means to move the same, so that a part of said movable member will describe a path crossing the path of the carrier at each of the said holes, an adding machine
10 and a connection between the latter and the said movable member.

2. In a coin counter the combination with a coin carrier having coin seats equidistantly spaced apart and an adding machine, of a movable member connected with the actuating member of the adding machine and means to impart an
11 oscillatory motion to said member in synchronism with the feeding movement of the coin carrier, whereby a point of the said movable member, adapted to form a fulcrum, may be brought in contact with a coin in a seat, the point connected with the adding machine thereby being positively
11 moved.

3. In a coin counter the combination with a coin carrier having two parallel rows of coin seats equidistantly spaced apart and an adding machine of two movable members, a
12 balance piece hung in the actuating member of the adding machine and connected at each end with one end of each of said movable members and means to impart an oscillatory motion to said movable members in synchronism with the feeding movement of the coin carrier, whereby a point
12 of each of the said movable members, adapted to form a fulcrum may be brought in contact with a coin in each of the rows of coin seats and the point connected with the said balance piece thereby positively moved.

4. In a coin counter the combination with a positively
13 driven belt carrying plates provided with holes having recesses around their edges adapted to form coin seats, said belt forming a movable bottom of a coin receptacle of an auxiliary belt having its path inside of the aforesaid belt and being provided with circular projections adapted to enter the holes in the coin belt and fill said holes on the
13 part of the path of the coin belt forming the movable bot-

tom in the coin receptacle and means to guide the auxiliary belt, so that it is taken along by the coin belt.

5. In a coin counter, an adding machine, a movable member adapted to actuate the same and to have its regular motion changed when a coin is passing, a belt carrier adapted to carry two or more rows of coins equidistantly spaced apart, said belt carrier having longitudinal ridges between each row of coins.

6. In a coin counter the combination with a coin magazine and a belt carrier forming an inclined bottom for the magazine, means to prevent coins not seated in the carrier to be taken along with it out of the magazine, a spring

pressing on the coins in the belt as it is leaving the magazine and an endless cord running over rolls and serving to hold the coins in place, till the same have passed the counting mechanism. 15

In testimony that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

BJARNE CRANNER.

Witnesses:

HENRY BORDEWICH,
MICHAEL ALGER.