

(No Model.)

3 Sheets—Sheet 1.

E. SCHRABETZ.

CASH INDICATING AND RECORDING APPARATUS.

No. 452,170.

Patented May 12, 1891.

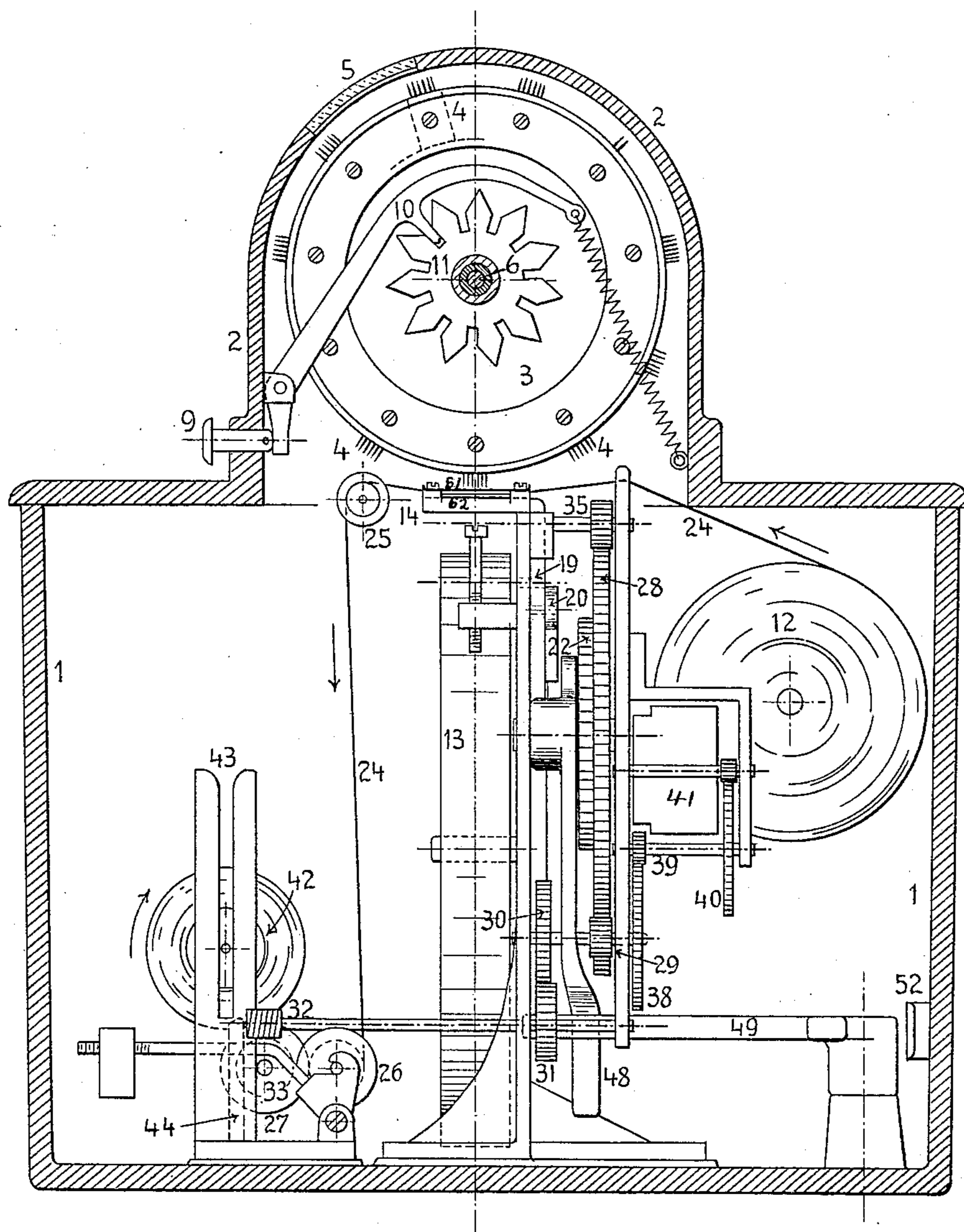


Fig.1.

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E. J. Griswold

George Baumann

Inventor:

Emil Schrabetz

By his attorneys

Horson and Horson

(No Model.)

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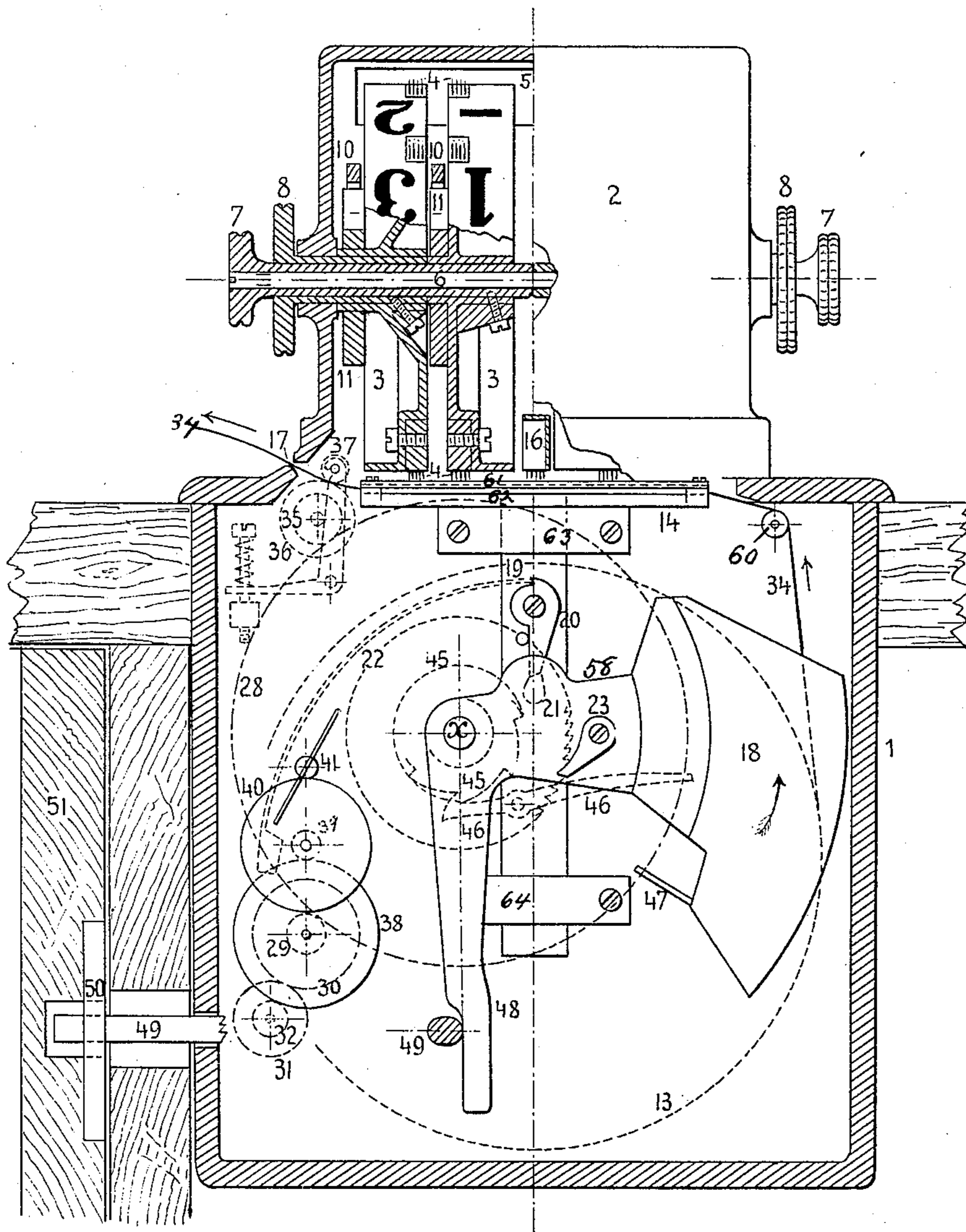


Fig. 2.

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(No Model.)

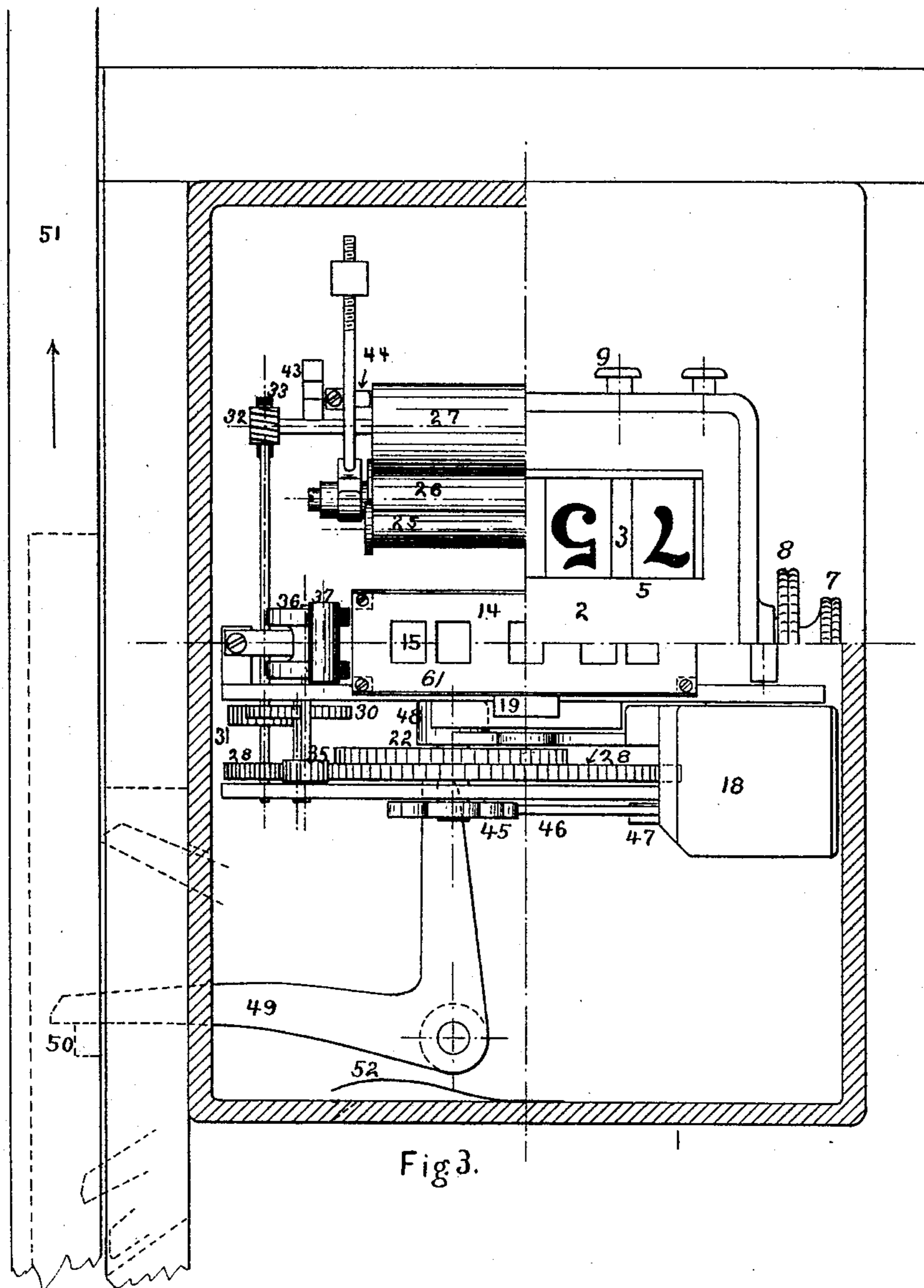
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UNITED STATES PATENT OFFICE.

EMIL SCHRABETZ, OF VIENNA, AUSTRIA-HUNGARY.

CASH INDICATING AND RECORDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 452,170, dated May 12, 1891.

Application filed March 31, 1890. Serial No. 346,125. (No model.)

To all whom it may concern:

Be it known that I, EMIL SCHRABETZ, a subject of the Emperor of Austria, and a resident of the city of Vienna, in Austria-Hungary, have invented certain new and useful Improvements in Cash Indicating and Recording Apparatus, of which the following is a specification.

My invention relates to cash indicating and recording instruments; and the object is to so construct such machines that the amount of each purchase shall be made to appear through an opening in the case to the customer and each amount be recorded on two separate strips of paper, one of the strips being wound up inside the machine while the other strip is fed out to be torn off as a receipt.

In the accompanying drawings, Figure 1 is a side sectional elevation. Fig. 2 is an end sectional elevation, and Fig. 3 is a plan of my improved machine with the cover and three-quarters of the indicating apparatus removed.

The casing 1 is preferably placed beneath the top of the counter out of sight and contains the greater part of the mechanism. The upper casing 2 above the counter contains the indicating cylinders or wheels 3, and is provided with an opening 5 at the front, through which the numbers on the wheels showing the amount of the purchase can be seen by the customer.

The indicating - wheels 3, any number of which may be employed and of which four are shown in the present instance, are mounted on concentric sleeves projecting outside of the casing at each side. A solid shaft 6, Fig. 1, passes through the inner sleeves and serves as an axis and a support. The outer ends of the sleeves are provided with knobs or disks 7 and 8, by means of which the respective wheels 3 may be rotated. To retain the wheels 3 in any position to which they may be turned, I provide the device shown in Figs. 1 and 2. This device consists of a notched wheel 11, secured to each wheel 3, and a locking-lever 10, pivoted to the casing and provided with a projection to enter the notches in the wheel 11. A spring connecting one end of the lever 10 to the opposite side of the casing 2 normally holds the pro-

jecting part of the lever in engagement with the wheel; but by pressing on a pusher 9, acting upon the short arm of the lever 10, the projection may be raised out of engagement with the ratchet-wheel.

Within the lower casing 1 I provide two rollers 12 and 13, upon each of which is wound a long strip of paper. As these strips 24 and 34 are unwound they are conducted over a printing-table, hereinafter referred to, one strip above the other, either in the same or different directions or crossing each other, as shown. The recording-strip of paper 24 remains within the casing until required, while the other strip 34 passes out through an opening 17 in the upper casing 2. In the machine illustrated in the drawings I have shown these strips as crossing each other. In case the two strips of paper are not arranged to cross each other they would have to be of the same width, and as there can be no printing done upon the receipt-strip between the opening 17 and the printing-table 14 a very large roll of receipt-paper would be required. I prefer, therefore, to cross the strips of paper, as it enables me to use narrow strips for the receipt and thus save space in the machine.

On the indicating-wheels 3 I place, in addition to the indicating-figures, groups of needle-type 4 for pricking or puncturing the figures on the strips of paper. These needle-type figures on each wheel are arranged in such relation to the indicating-figures on that wheel that the group of needle-type just above the printing-table 14 at any one moment corresponds to the number on the indicating-wheel showing through the opening 5.

The printing-table 14 is constructed of plates 61 and 62, between which the strips of paper pass, the plates being provided with openings 15, through which the needle-type pass when the table is raised.

In cases where it is desirable that each receipt-strip should have printed thereon some other matter (such as the name of the house where the purchase is made) I provide fixed pricking or puncturing needles 16, as illustrated in Fig. 2. These are fastened to a bar secured to the casing. The strip of paper 24, which is used for the recording-strip, is wound upon the roller 12. It passes over the printing-table 14, over a guide-roller 25, then be-

tween the guide-rollers 26 and 27, and is wound up on the roller 42, the winding-up mechanism being described hereinafter. The receipt-strip 34, wound upon the roller 13, passes up over a guide-roller 60 to the printing-table 14, then between the rollers 36 37, and out at the opening 17.

The mechanisms for winding up the recording-strip 24, for rotating the rollers 36 37 to unwind the receipt-strip 34, and to raise the printing-table against the needle-type are set in motion by means of a weight. This weight may be raised either by hand or by any suitable device—such, for instance, as illustrated in the drawings, and hereinafter described.

The weight 18 in the present instance is on one end of a pivoted lever 48 58. When the weight rises, it carries the printing-table upward, and when it returns by gravity it operates the mechanism for the winding and unwinding of the two strips of paper, as hereinafter described.

The table 14 is attached to a guide-stem 19, sliding in suitable frames 63 64. As the weight 18 is raised, a projection 21 on the arm 58 comes in contact with a tappet 20 on the guide-stem 19, and so raises the table to press the strips up against the type-needles 4. When the upward movement of the weight is completed, this projection 21 has passed beyond the tappet and the table 14 falls to its normal position. As the weight is allowed to descend again, the projection 21 pushes the tappet 20 aside in passing.

Rigidly mounted on the shaft x , Fig. 2, is a ratchet-wheel 22, which is not affected by the rising of the weight, but as the weight descends the pawl 23, mounted on the said weight, engages in the teeth of the ratchet-wheel 22 and partially rotates it to impart the necessary motion to the shaft x , which may be called the "driving-shaft."

In order to make the winding and unwinding of the strips of paper uniform, I provide a device shown in dotted lines in Fig. 2 and in full lines in Fig. 3, which limits the movement of the driving-shaft to a certain distance. This device consists of a toothed wheel 45, rigidly mounted on the driving-shaft and ratchet-wheel 22. The pawl 46, pivoted to the framework, has a tail-piece projecting into the path of an arm 47 on the weight 18. As the weight is nearing its highest point this arm 47 comes in contact with the tail-piece on the pawl 26, disengaging the pawl from the teeth on the wheel 45. The arm 47 holds the pawl 46 out of engagement with the teeth on the wheel 45 until the shaft has turned sufficiently to cause the pawl 46, when it returns to its normal position, to fall into the next notch on the toothed wheel 45. The shaft continues to rotate until it is stopped by the pawl 46 coming in contact with the next tooth on the wheel 45. The roller 42, upon which is wound the recording-strip, is mounted upon an axis guided in slots 43. The periphery of this roller bears upon the periphery of the

roller 27, and as the roller 27 is made to rotate the roller 42 rotates by frictional contact therewith and winds up the strip 24. At the place where the strip 24 begins to wind onto the roll 42, I provide springs 44, bearing against the edges of the strips on both sides of the roller to guide the paper so that each wind is directly over the preceding one, as shown in dotted lines in Fig. 1 and full lines Fig. 3. The rollers 26 and 27 are rotated by gear-wheel 28 on the driving-shaft, and intermediate gears 29 30 31 and worm 32, as shown in all the views. The rollers 36 and 37, which unwind the receipt-strip, are rotated by means of the gear-wheels 28 on the driving-shaft and 35 gearing with wheel 28, the roller 36 being on the same shaft with the gear 35. The two rollers 26 and 27 and the two rollers 36 and 37 are respectively provided with suitable pressing devices to hold them together, such devices as a weighted bell-crank lever, Fig. 1, or a spring-actuated bell-crank lever, Fig. 2, the free end of which engages the shaft of one of the rollers to constantly tend to draw that roller against the other one. A fly-wheel 41 is operated by means of the gear-wheels 28 29 38 39 and 40 to steady the feed-movement.

The device shown in the drawings for raising the weight consists of a projection 50 on the cash-drawer and a bell-crank lever 49 pivoted to the lower casing. The projection 50 acts upon one arm of the bell-crank lever while the other arm of the bell-crank lever presses the arm 48, thus raising the weight, as will be seen by referring to Figs. 2 and 3. In order that the mechanism shall be free to return to its normal position of rest in its own time, the bell-crank lever must not be connected with the arm 48. The arm of the bell-crank lever 49, which engages with the projection 50, oscillates in a groove in the side of the drawer and casing.

The operation of this machine is as follows: By pressing in any of the pushers 9 the projections on the corresponding levers 10 are disengaged from their toothed wheels 11, thus freeing the corresponding indicating-wheels. By means of the knobs 7 and 8 the indicating-wheels are rotated until the numbers indicating the correct amount show through the opening 5 in the casing 2. The pushers 9 are then released and the indicating-wheels are thus locked in the positions given them. By the separate and direct operation of every simple type-wheel I obviate the use of the complicated transmitting mechanism which would have to be employed in connection with these wheels. The knobs or other operating devices are arranged one behind the other in convenient positions, and the exhibition of the figures can be effected without straining the eye. When the drawer is pulled out, the projection 50 acts upon the bell-crank lever 49, the inner end of which pushes the arm 48, and thus raises the weight 18. As the weight 18 rises the projection 21 comes into contact

with the tappet 20 and raises the printing-table against the needle-type, so that the pricking or puncturing of the indication is made on the two strips of paper. Just before the weight 18 has reached its highest point the projection 47 comes into contact with the tail of the pawl 46, disengages the pawl 46 from the ratchet-wheel 45, and unlocks the main shaft. When the projection 50 on the drawer has gone beyond the arm of the bell-crank lever 49, the weight is released and begins to descend, and the pawl 23, engaging in the teeth on the ratchet-wheel 22, carries the wheel 22 with it and rotates the driving-shaft. When the weight 18 has fallen part of its way, the projection 47 leaves the tail on the pawl 46 and allows the latter to come into contact again with the wheel 45, and as the next tooth on the wheel 45 reaches the pawl the feed mechanism stops again. The gear-wheel 28, which is fixed to the driving-shaft, operates the toothed wheel 29, on the shaft of which is the wheel 30, gearing into the wheel 31. On the same shaft with the wheel 31 is a worm 32, which drives the gear-wheel 33 on the shaft of the roller 27. The gear-wheel 28 also operates the gear 35, on the shaft of which is the roller 36. Thus it will be seen that the two strips are first printed upon and then while the recording-strip is pulled along to be wound upon the roller 42 the receipt-strip is pulled by the rollers 36 37 and directed out of the opening 17, where it can be torn off and given to the customer as a receipt.

Although I have described the mechanism as being operated by a bell-crank lever and a projection on the drawer, I do not limit myself to this construction, as any other suitable device can be used, such as a pressing, turning, or pulling knob, a lever or a crank. Neither do I limit myself to the weight as motive power, as this may be replaced by a spring.

If the back of the strip is covered with black paint, the needles draw up the paint and render the marks very distinct, which greatly facilitates in adding the column of figures upon the registering-strips.

I claim as my invention—

1. In a cash indicating and recording machine provided with two strips of paper, the combination of cylinders provided with needle-type and actuated directly, and fixed types, with a table composed of plates between which the strips of paper pass and provided with openings, and mechanism for moving the table against the needle-type, consisting of a lever and a tappet carried by the table to be engaged by the lever.

2. In a cash indicating and recording machine provided with two strips of paper, the combination of two or more indicating-cylinders alongside each other and provided with needle-type, each cylinder mounted upon an axis concentric to the others, and knobs at the ends of the axes by which to rotate the cylinders, with a table consisting of two plates between which the strips of paper pass and provided with openings, and means for moving the table against the needle-type, substantially as described.

3. In a cash indicating and recording machine provided with two strips of paper, the combination of cylinders provided with needle-type, with a table composed of plates between which the strips of paper pass and provided with openings, a weighted lever by which the table is moved, and means for raising the weighted end of the lever and permitting its free return motion, substantially as set forth.

4. In a cash indicating and recording machine, the combination of cylinders provided with needle-type, and a table composed of plates between which the strips of paper pass and provided with openings, with mechanism for moving the table, consisting of a weighted lever, a bell-crank lever, and a drawer to engage one end of the bell-crank lever, substantially as and for the purposes set forth.

5. In a cash-recording machine provided with one or more strips of paper, a device for obtaining a uniform feed of the strips, consisting of a ratchet-wheel attached to the driving-shaft, a pawl engaging with the teeth on the wheel, and mechanism for holding the said pawl out of engagement with the wheel until the driving-shaft has started and until a tooth on the ratchet-wheel has passed the pawl, substantially as set forth.

6. In a cash-recording apparatus, the combination of two strips of paper crossing each other, mechanism for feeding the strips across each other and for feeding one of the strips out of the machine, devices for winding up the other strip, a movable table having plates between which the strips are fed across each other, a series of needle-type wheels, and means for pressing the table with the strips up to the wheels, all substantially as described.

In testimony whereof I have affixed my signature in presence of two witnesses.

EMIL SCHRABETZ.

Witnesses:

I. G. HARSDY,
E. G. I. MOELLER.