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Patented Aug. 15, 1899.

G. SCHUSTER.

COUNTING OR ADDING MECHANISM FOR CASH REGISTERS.

(Application filed Sept. 10, 1898.)

(No Model.)

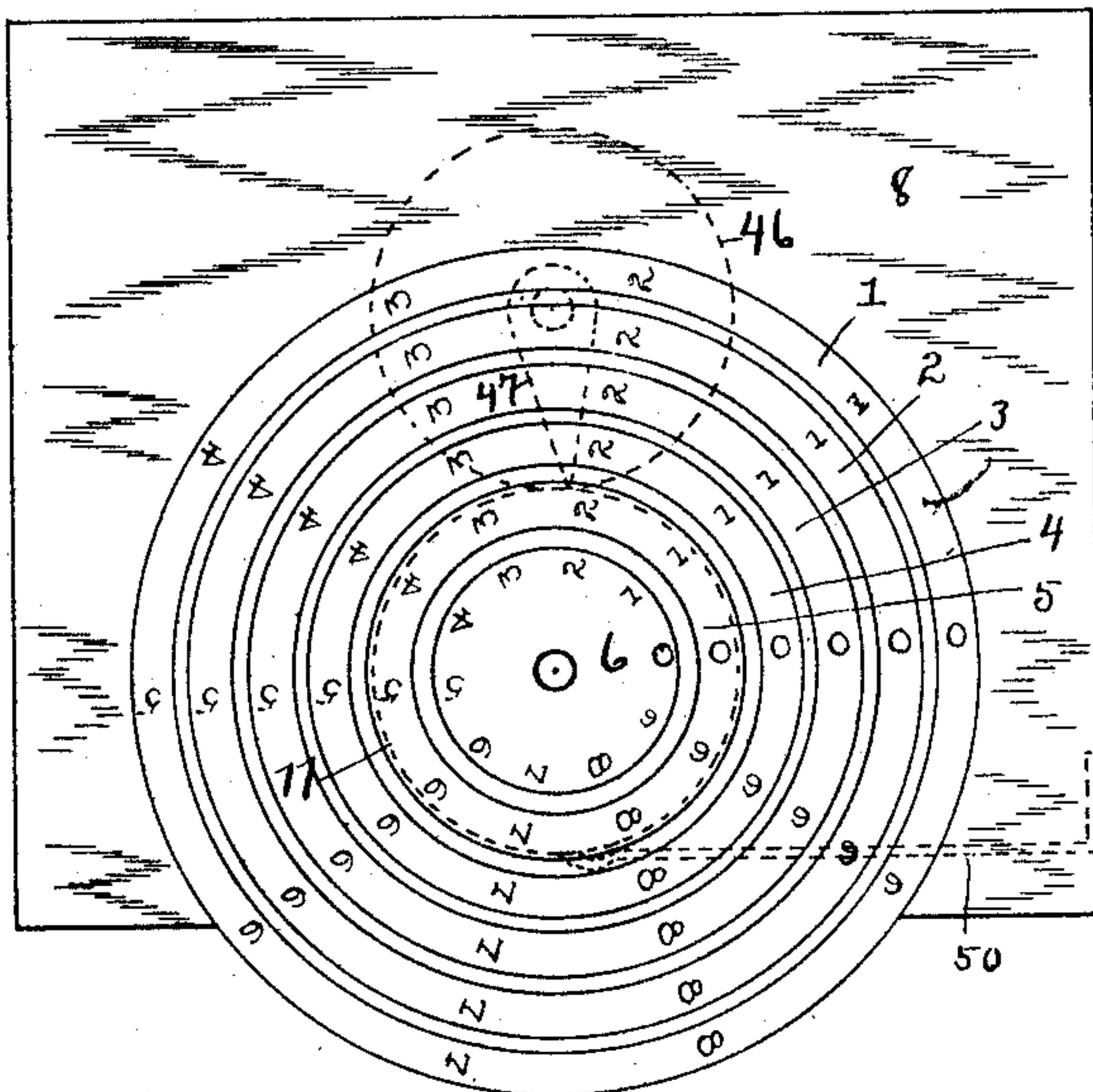
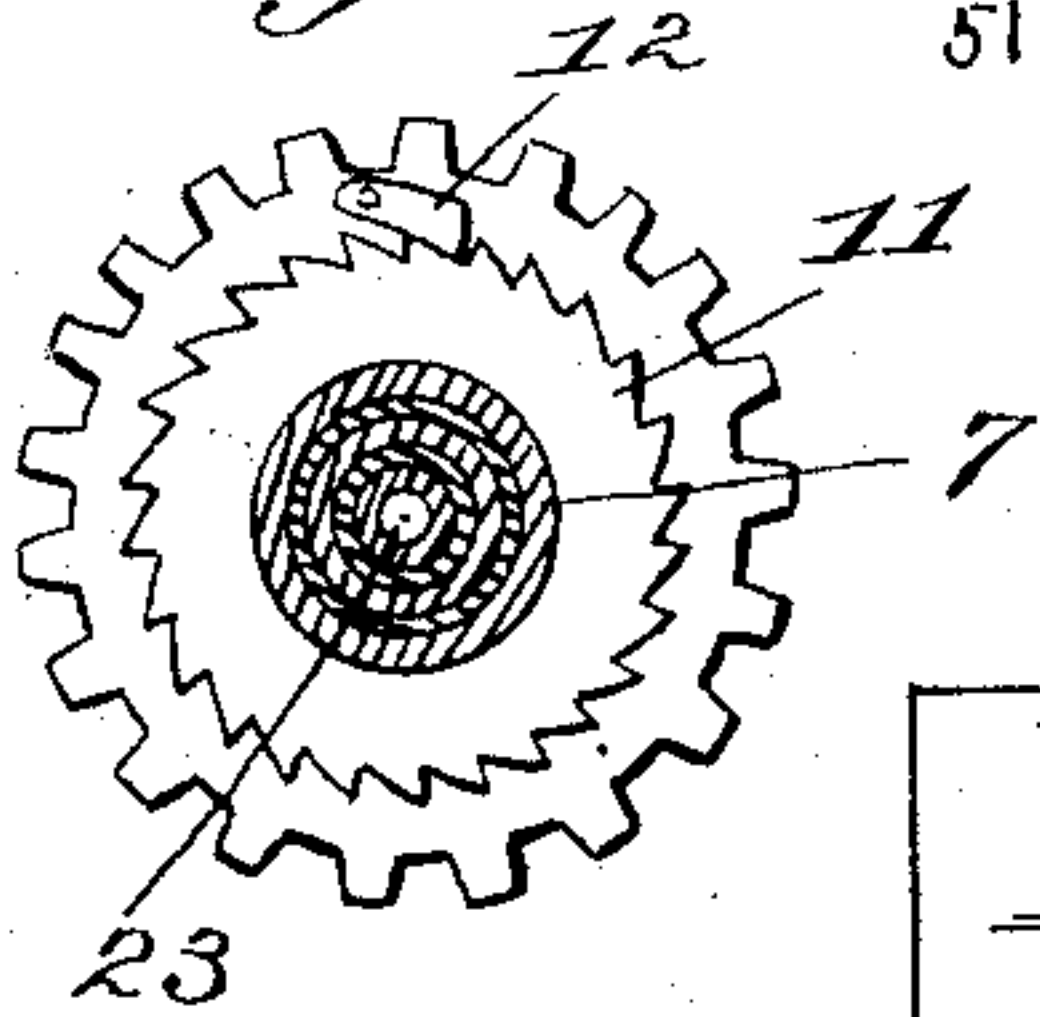
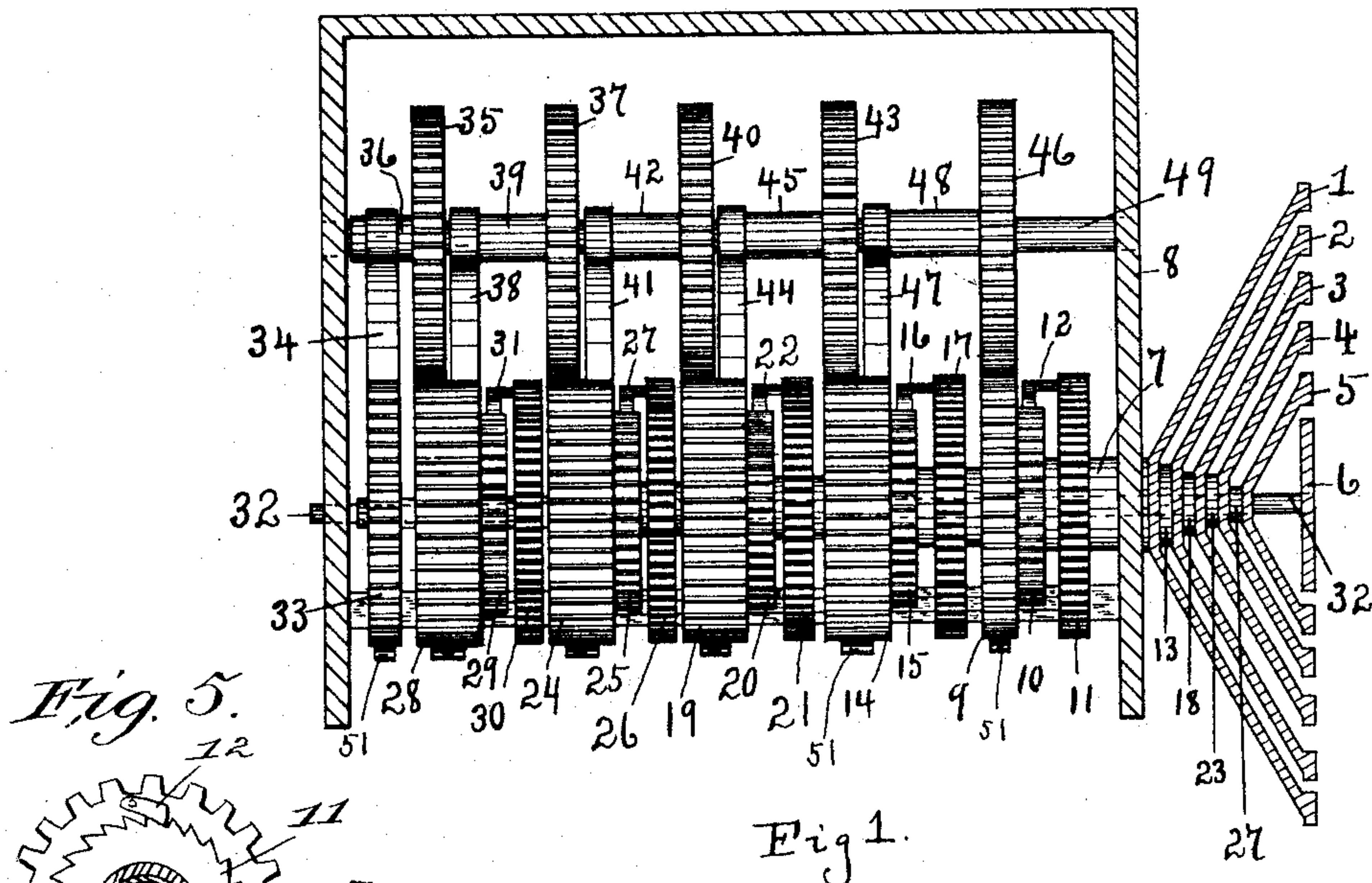


Fig. 2.

Fig. 3.

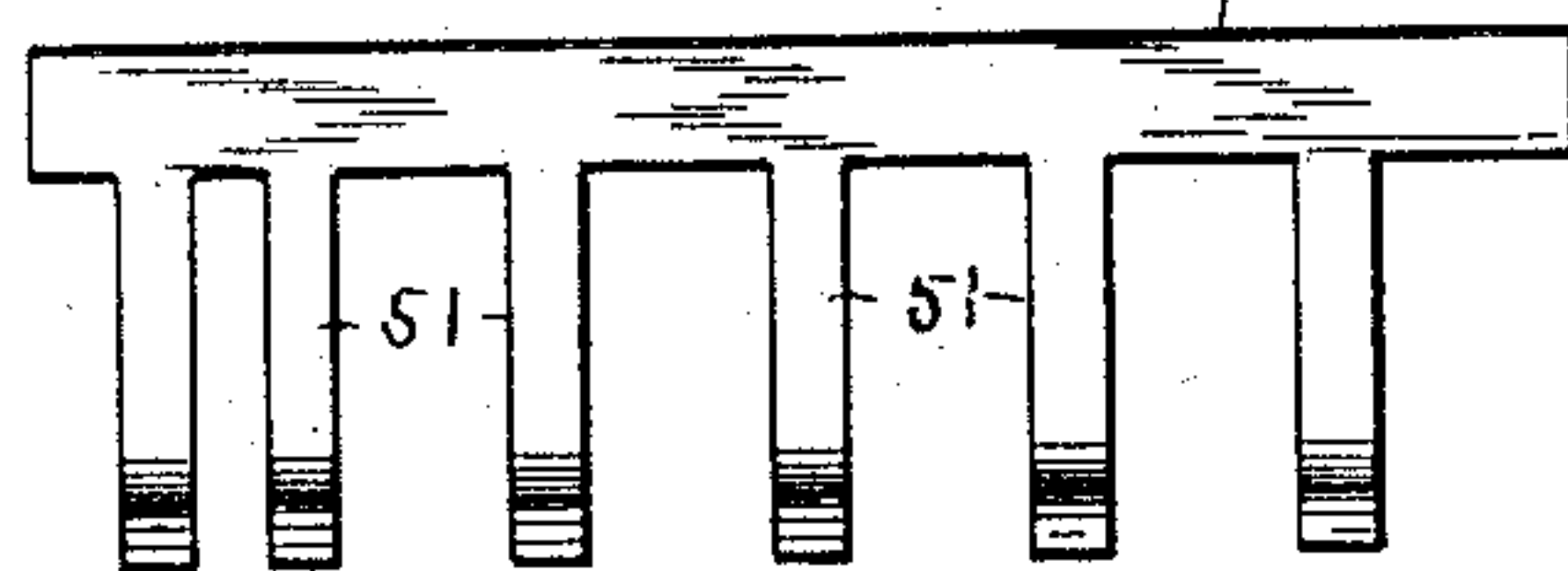


Fig. 4.

ATTEST.

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UNITED STATES PATENT OFFICE.

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COUNTING OR ADDING MECHANISM FOR CASH-REGISTERS.

SPECIFICATION forming part of Letters Patent No. 631,231, dated August 15, 1899.

Application filed September 10, 1898. Serial No. 690,631. (No model.)

To all whom it may concern:

Be it known that I, GEORGE SCHUSTER, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Counting or Adding Mechanism for Cash-Registers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which 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 the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in counting or adding mechanism for use in multiple or total-adding cash-registers and other similar machines.

The object of the invention is to simplify and reduce the mechanism for counting or adding the numbers representing the cash receipts.

A further object of the invention is to so construct and place the counting or adding wheels that they may be grouped together and viewed from a single point in the machine.

In a detailed description of the invention reference is made to the accompanying drawings, of which—

Figure 1 is a side elevation, partly in section, showing my improved mechanism for counting or adding cash receipts. Fig. 2 is a front elevation. Figs. 3 and 4 are detached plan and sectional views of the retaining-springs for holding the wheels against any backward movement. Fig. 5 is an elevation of one of the lower spur-wheels, adjacent ratchet-wheel, and pawl.

I have not shown my invention applied to any particular form of cash-register, as it is my purpose to apply it to one of my own invention.

In a detailed description the numerals 1 2 3 4 5 6 designate the adding or counting wheels, which bear figures on their faces, near the rims, denoting the cash or money deposited in the machine, from units up to any denomination. As shown in the drawings, the said wheels have a capacity for adding a sum as high as nine hundred and ninety-nine thousand nine hundred and ninety-nine.

These wheels are constructed in concavo-convex form, so that they may fit within each other and present their indicating-faces in a common plane, as shown in Fig. 1. The larger one of said wheels—to wit, wheel 1—is the units-wheel, while the smallest one—to wit, wheel 6—is that of the highest denomination. Wheel 1 has an integral sleeve or hollow shaft 7, which is journaled in a frame 8. The inner end of said hollow shaft terminates with the gear-wheel 9, which is rigidly attached thereto. On a face of said wheel 9 there is a rigid ratchet-wheel 10, through which the sleeve or shaft 7 and wheel 1 are rotated. This rotary movement is imparted by a loose wheel 11 on the said hollow shaft and which has a spring-pressed pawl 12, that engages with the wheel 10 and transmits variable movements thereto or movements corresponding to the amount or value of the key or keys in the register that operate with the units-wheel 1. The mechanism interposed between the key or keys and the wheel 11 may be any that has a function of rotating said wheel upon each operation of said key or keys. The “tens-wheel” 2 has a shaft 13 similar to shaft 7 of wheel 1, but smaller. Shaft 13 passes through shaft 7 to gear-wheel 14 and terminates at said wheel. The latter wheel is fast on the shaft 13 similar to wheel 9. On the face of wheel 14 there is a ratchet-wheel 15, rigidly connected, which receives a spring-pressed pawl 16 similar to 10 and 11. Pawl 16 is carried on a loose gear-wheel 17 on shaft 13. Wheel 17 is driven in a manner similar to wheel 11, only that the tens series of keys in the register operate in connection with it. The “hundred” or dollar wheel 3 has a hollow shaft 18 similar to shafts 13 and 7 and which passes through shaft 13 and terminates at wheel 19. This latter wheel and wheels 20 and 21, together with pawl 22, operate the same in connection with shaft 18. Shaft 23 of the “tens-of-hundreds” wheel 4 telescopes with shaft 18 and terminates with rigid wheel 24, having adjacent ratchet-wheel 25, loose gear-wheel 26, and pawl 27^a, all of which operate in the manner hereinbefore stated. Shaft 27 of wheel 5 telescopes with or passes through shaft 23 and terminates with rigid gear-wheel 28, having adjacent ratchet-wheel 29, loose gear-wheel 30, and pawl 31,

all operating to move wheel 5 in the manner described. The center or small wheel 6, which is the wheel of the largest denomination, is on a solid shaft 32, which extends through shaft 27 and is journaled in the frame 8. This shaft at the rear end forms the bearing for the entire series of shafts, while the sleeve or hollow shaft 7 forms a bearing in the outer side of the frame. Shaft 32 has a rigid gear-wheel 33 upon it, which is transferred to from wheel 28 by a transfer-pawl 34 and a gear-wheel 35. The latter wheel and pawl are fixed on the sleeve 36, and wheel 35 meshes with wheel 28. Wheel 24 transfers to wheel 28 through a gear-wheel 37 and pawl 38, which are both connected with a sleeve 39. Wheel 19 transfers to wheel 24 through a gear-wheel 40 and pawl 41, which is connected to sleeve 42. Wheel 14 transfers to wheel 19 through a gear-wheel 43 and pawl 44, which are connected to sleeve 45, and, finally, the unit-wheel 9 transfers to wheel 14 through a gear-wheel 46 and pawl 47, connected to sleeve 48. All of the sleeves mentioned in the foregoing in connection with the transferring are loosely mounted on a shaft 49, which is supported in the frame.

50 designates a transverse bar which is fastened to the frame in the rear of the lower wheels and from which there are a series of spring-detents 51, that engage with wheels 9, 14, 24, 28, and 34 and prevent backward movement of said wheels.

Having fully described my invention, I claim—

In a counting or adding machine, the combination of a series of concavo-convex wheels

having figures on their rims denoting values from a lower to a higher denomination, said wheels being of varying sizes and fitting one within the other with suitable space between them to avoid friction when moving, a series of hollow shafts to the ends of which said wheels are fixed, the said shafts varying in lengths and fitting one within the other, the rear end of the innermost shaft being projected beyond the ends of the remaining shafts, and journaled in the frame to constitute the bearing at the rear end for all said shafts, the outer tubular shaft being journaled in the front of said frame and constituting the bearing for the front ends of all of said shafts, a loose spur-wheel on each of the outer shafts, a spur-wheel and a ratchet-wheel fixed to each of said shafts and movable simultaneously from the loose spur-wheels, a parallel shaft mounted above, a series of spur-wheels loosely mounted on said parallel shaft, a sleeve connected to each of said spur-wheels, and the latter spur-wheels engaging with the spur-wheels on the tubular shafts, a series of transfer-pawls carried on said sleeves and engaging with the tight spur-wheels on the tubular shafts on each complete rotation of said sleeves, substantially as and for the purposes specified.

In testimony that I claim the foregoing as my own I hereto affix my signature in presence of two witnesses.

GEORGE SCHUSTER.

Witnesses:

R. J. MCCARTY,
DAN H. PFOUTZ.