T. CARROLL.

CASH REGISTER.

APPLICATION FILED JUNE 10, 1905.

951,303. Patented Mar. 8, 1910.

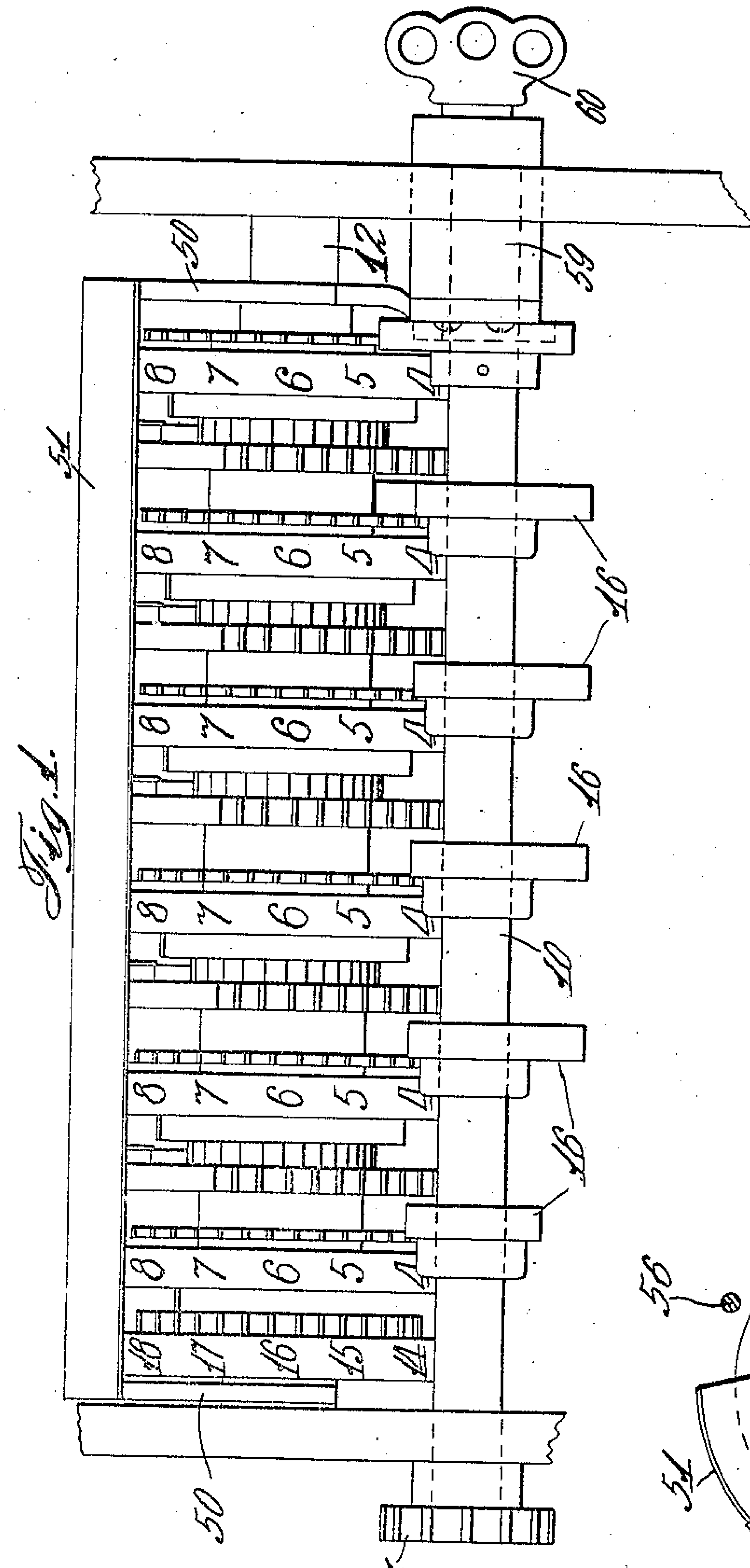

Fig. 1.

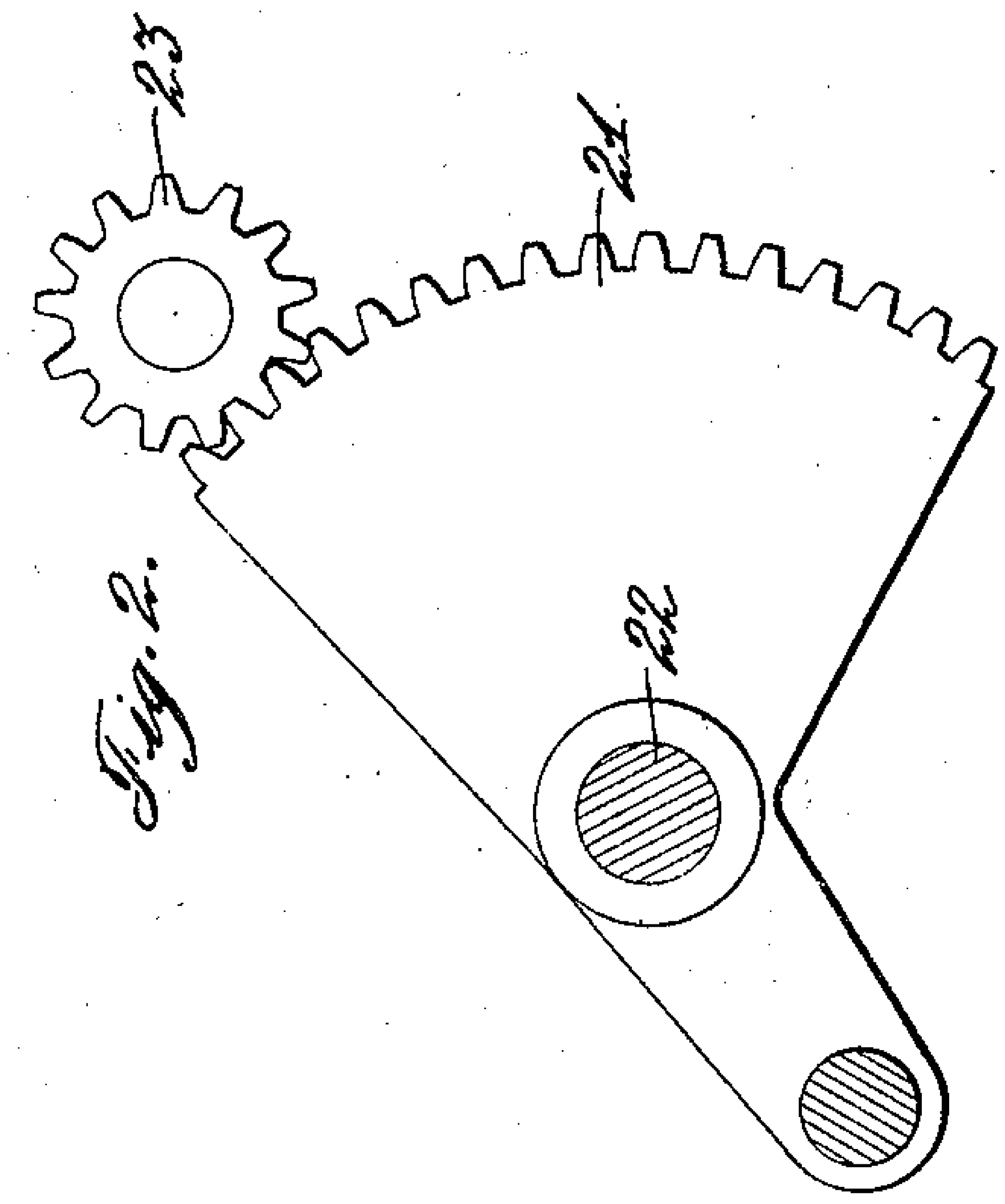

Fig. 2.

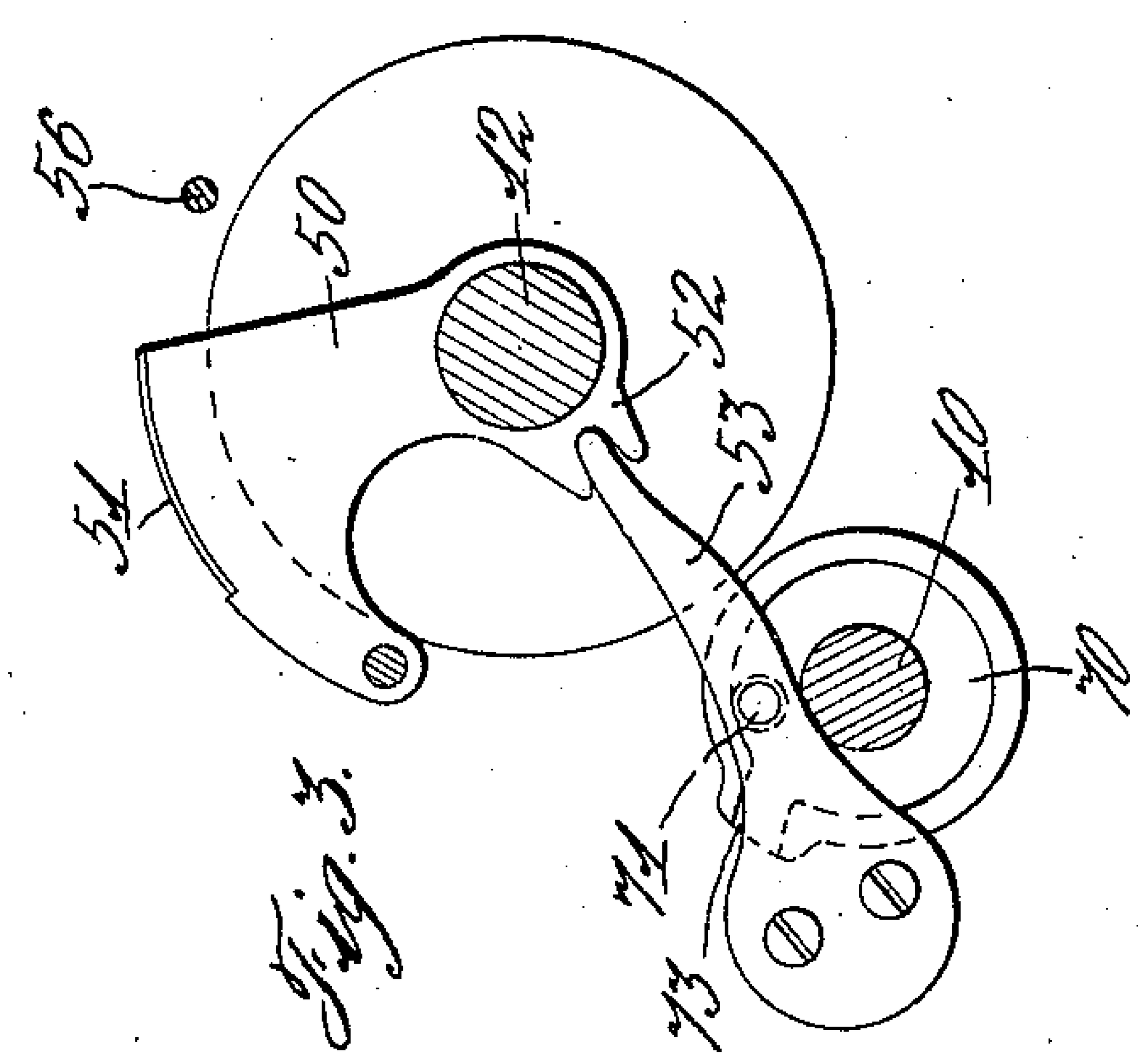

Fig. 3.

Witnesses

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UNITED STATES PATENT OFFICE.

THOMAS CARROLL, OF DAYTON, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE NATIONAL CASH REGISTER COMPANY, OF DAYTON, OHIO, A CORPORATION OF OHIO, (INCORPORATED IN 1906.)

CASH-REGISTER.

951,303. Specification of Letters Patent. Patented Mar. 8, 1910.

Application filed June 10, 1905. Serial No. 264,592.

To all whom it may concern:

Be it known that I, THOMAS CARROLL, 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 Cash-Registers, of which I declare the following to be a full, clear, and exact description.

The present inventions relate more particularly to that portion of the mechanism of cash registers known as the transfer mechanism for the counters and has among its objects to provide improved devices for insuring the accumulations upon the counter of all of the amounts which have previously been entered upon the machine, before the proprietor of the machine may take a reading from the counter. Such a device is particularly applicable to that class of machine wherein the transfers are one operation behind, that is, the transfers which have been tripped in the last transaction are not turned in until the first part of the next operation of the machine, so that if the proprietor should forget to give the machine an extra operation at the end of the day when he desires to take the final reading from the counter, he might thereby secure an erroneous reading from the fact that some of the transfers have not been turned in as above described; and it is the purpose of the present improvements to prevent any such reading of the counter until all the transfers have been turned in.

More specifically stated, the present improvements comprise a shutter for concealing the registering wheels, with means for operating said shutter to expose the wheels, and means for preventing such operation of the shutter when the rotatable transfer operating mechanism occupies a certain position, this rotatable transfer operating mechanism in the present instance consisting of the revoluble transfer operating shaft which must first be rotated sufficiently to turn in all of the transfers before the shutter operating means may be operated; and associated with this mechanism is a device for locking the transfer operating mechanism and the main operating mechanism of the machine while the shutter operating mechanism is operated to expose the registering wheels.

The present application embodies subject matter which is common to two other and co-pending applications filed by the same applicant, of which applications Serial No. 264,229, filed June 8, 1905 will be referred to as case "A", and application Serial No. 264,411, filed June 9, 1905, will be referred to as case "B"; and in said other two cases the present case will be referred to as case "C", it being intended to claim the broad subject matter of these three applications in case "A" these three applications involving various specific means of accomplishing the general broad results desired, and the specific form of the present application being indicated as above.

With these and incidental objects in view, the invention consists of certain novel features of construction and combinations of parts, the essential elements of which are set forth in appended claims and preferred forms of embodiment of which are hereinafter specifically described with reference to the drawings which accompany and form part of this specification.

Of said drawings: Figure 1 represents a top plan view of the counter of the machine to which these improvements are applied. Fig. 2 represents a detail view of the gearing connected to the main driving shaft for operating the transfer shaft, and Fig. 3 represents a detail view of the mechanism for controlling the operation of the shutter for the counter wheels.

These particular improvements are shown as applied more specifically to the counter of a cash register set forth in English Letters Patent issued to Frederick L. Fuller, No. 22,535 and bearing application date of October 19, 1904, and reference may be had to said patent for a complete and detailed description of the general construction of the cash register. In this patent an operating lever is first given a complete oscillation back and forth to release any previously depressed keys and store up power in the spring motor and then the desired keys are depressed according to the amount to be registered and finally a special key depressed which effects the release of certain operating segments which move to differential positions determined by the keys and these differential movements are transmitted to the counter. This operation of the machine

merely effects the tripping of certain transfer elements and the actual turning in of these transfers does not take place until the next operation of the operating lever. This being the general operation of the machine as disclosed in the aforesaid patent the particular operation of the parts involving the transfer mechanism and forming part of the present improvements will now be described.

In Fig. 1 the various counter wheels are shown having numerals on their periphery in the ordinary manner, and in front of said counter is a horizontally extending transfer shaft 10 carrying various transfer cams 16 for causing the transfers to be turned in by the rotation of the shaft 10 after the transfers have been tripped upon the normal registering movement of the various registering wheels. The operation of this shaft 10 is effected by means of a gear 21 (see Fig. 2) which is fast upon the driving shaft 22 to which driving shaft is attached the oscillating operating lever as described in the said Fuller patent, and this gear 21 meshes with pinions 23 (see also Fig. 1) fast upon the left hand end of said shaft 10, so that upon the oscillation of the shaft 22 by the oscillating lever the pinion 23 and shaft 10 will be revolved to turn in the transfers all as described in said patent, and in the present instance the pinion 23 and shaft 10 are capable of being given only about nine-tenths of one complete revolution which is however sufficient to turn in all of the transfers successively.

The shutter mechanism for concealing the counter wheels will now be described. The counter wheels are mounted upon the transverse shaft 12 and also pivoted upon this shaft are two arms 50 carrying between them a cross bar 51 which serves as the flash or shutter to conceal the counter wheels. The right hand arm 50 is formed with a double toothed projection 52 as shown in Fig. 3, between which teeth there projects an arm 53 extending rearwardly from the rotatable barrel of a lock 59, the barrel of this lock being oscillated by means of an ordinary key 60, and when so oscillated, raising and lowering the arm 53 to act upon the projection 52 to raise and lower the shutter above its pivot. The shutter may be normally dropped in concealing position over the counter wheels by reason of its own weight or may be provided with a spring for that purpose and the rearward or exposing position of the shutter may be limited by a suitable stop pin 56. Such a shutter is shown in said Fuller patent for the purpose of normally concealing the reading on the counter wheels and this shutter therein is also operated by a key to raise the same and permit the counter wheels to be read, but the nature of the present improvements is such that this shutter cannot be raised to expose the counter wheels until the oscillating lever, or the driving shaft 22, has been given its initial oscillation necessary to turn the transfer shaft 10 sufficiently to turn in all of the transfers. This result is effected by means of a flanged disk 70 fast upon the right hand end of the aforesaid transfer shaft 10. This flanged disk is in proximity to the aforesaid lock-operated arm 53, which arm carries a pin 71 which projects into the center portion of said flanged disk and by reason of the flange normally prevents the lock arm 53 from being raised to lift the shutter to expose the counter wheels when the operating lever and the shaft 10 are in normal position, but as soon as the lever has been oscillated to its other or half stroke position and the pinion 23 and shaft 10 have thereby been turned their nine-tenths of a complete revolution, the flanged disk 70 is also thereby turned through nine-tenths of a revolution and thus an opening 73 in said flange is brought opposite the pin 71 so that now the arm 53 may freely be raised by the turning of the key 60, and thus the shutter may also be raised to expose the counter wheels. Such a half stroke however of the operating lever and the nine-tenths revolution of the shaft 10 has turned in all of the transfers and therefore if there were any transfers tripped but remaining not turned in, this device effectually prevents the proprietor from inadvertently taking an erroneous reading from the counter wheels, for he cannot operate the key to raise the shutter until he has thrown the operating lever to its half stroke position and thereby turned in all of the transfers which might have been left over from the previous transaction. When the flanged disk 70 has been turned in this manner to permit the raising of the arm 53, the pin 71 rests between the walls of the aforesaid opening 73 and consequently the flange 70 cannot be restored to normal position until the shutter is again dropped to concealing position, that is, the operator cannot restore the main operating lever to home position until the shutter has been dropped by the reverse rotation of the key in its lock to carry the arm 53 and pin 71 into normal lower position.

While the forms of mechanism here shown and described are admirably adapted to fulfil the objects primarily stated, it is to be understood that I do not care to confine myself to any one form of embodiment of the invention here disclosed, for it is susceptible of embodiment in various forms all coming within the scope of the claims which follow.

Having thus described my invention what I claim is:

1. In a registering machine, the combination with a series of registering wheels, of a transfer operating shaft therefor; a shutter for said wheels; manipulative means for

operating said shutter; and means connected with said transfer shaft for preventing the operation of said manipulative means until said transfer shaft has been rotated to turn in all of the transfers.

2. In a registering machine, the combination with a series of registering wheels, of a transfer operating mechanism therefor; a shutter for said wheels; means for operating said shutter to expose said wheels; means for preventing said shutter operating means from being operated until said transfer operating mechanism occupies a certain position; and means for locking said transfer operating mechanism while the shutter operating mechanism is being operated.

3. In a registering machine, the combination with a series of registering wheels, of a transfer operating shaft therefor; a shutter for said wheels; means for raising said shutter to expose said wheels; means for preventing such raising of the shutter until said transfer shaft has been rotated to turn in all of the transfers; and means for locking said transfer shaft when said shutter is so raised.

4. In a registering machine, the combination with a series of registering wheels, of a transfer operating shaft therefor; a shutter for said wheels; manipulative means having an operative connection for raising said shutter; and a disk connected with said transfer shaft and formed with a flange for normally locking said shutter operating connection, and also formed with a recessed portion for unlocking said connection when said shaft has been rotated to turn in the transfers.

5. In a registering machine, the combination with a series of registering wheels, of a transfer operating shaft therefor; a shutter for said wheels; manipulative means having an operative connection for raising said shutter; and a disk connected with said transfer shaft and formed with a flange for normally locking said shutter operating connection, and also formed with a recessed portion for unlocking said connection when said shaft has been rotated to turn in the transfer, said recessed portion being formed with locking walls to lock said disk and said transfer shaft when said shutter operating connection is displaced from normal position upon the raising of said shutter.

6. In a registering machine, the combination with a series of registering wheels, of a transfer operating mechanism therefor; a shutter for said wheels; means for operating said shutter to expose said wheels; means for preventing such operation of the shutter except when said transfer operating mechanism occupies a certain position; a main operating element for the machine; and means for locking said element when said shutter operating means is operated.

In testimony whereof I affix my signature in the presence of two witnesses.

THOMAS CARROLL.

Witnesses:
J. B. HAYWARD,
CARL W. BENST.