

No. 677,976.

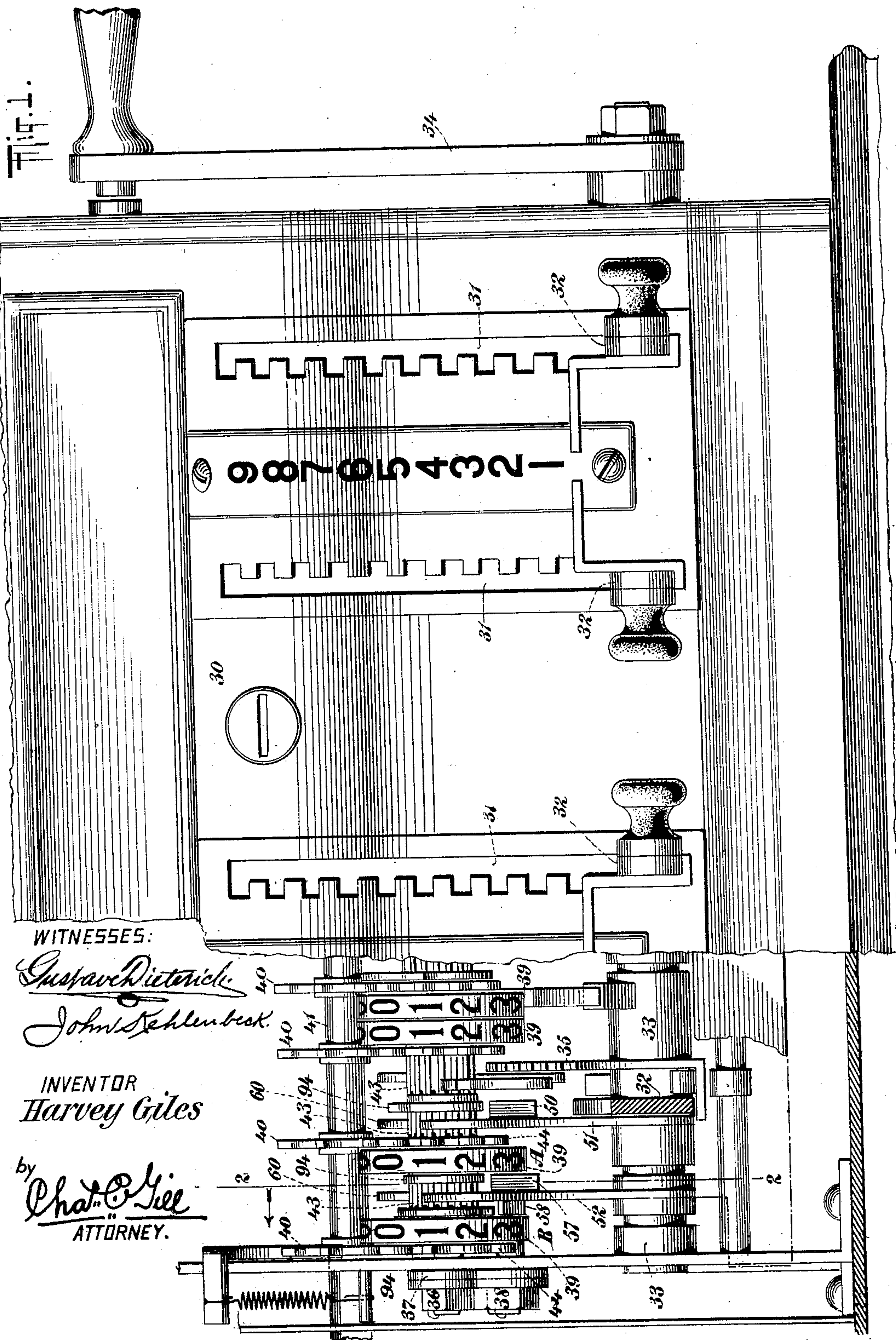
Patented July 9, 1901.

H. GILES.
CASH REGISTER.

(Application filed Nov. 24, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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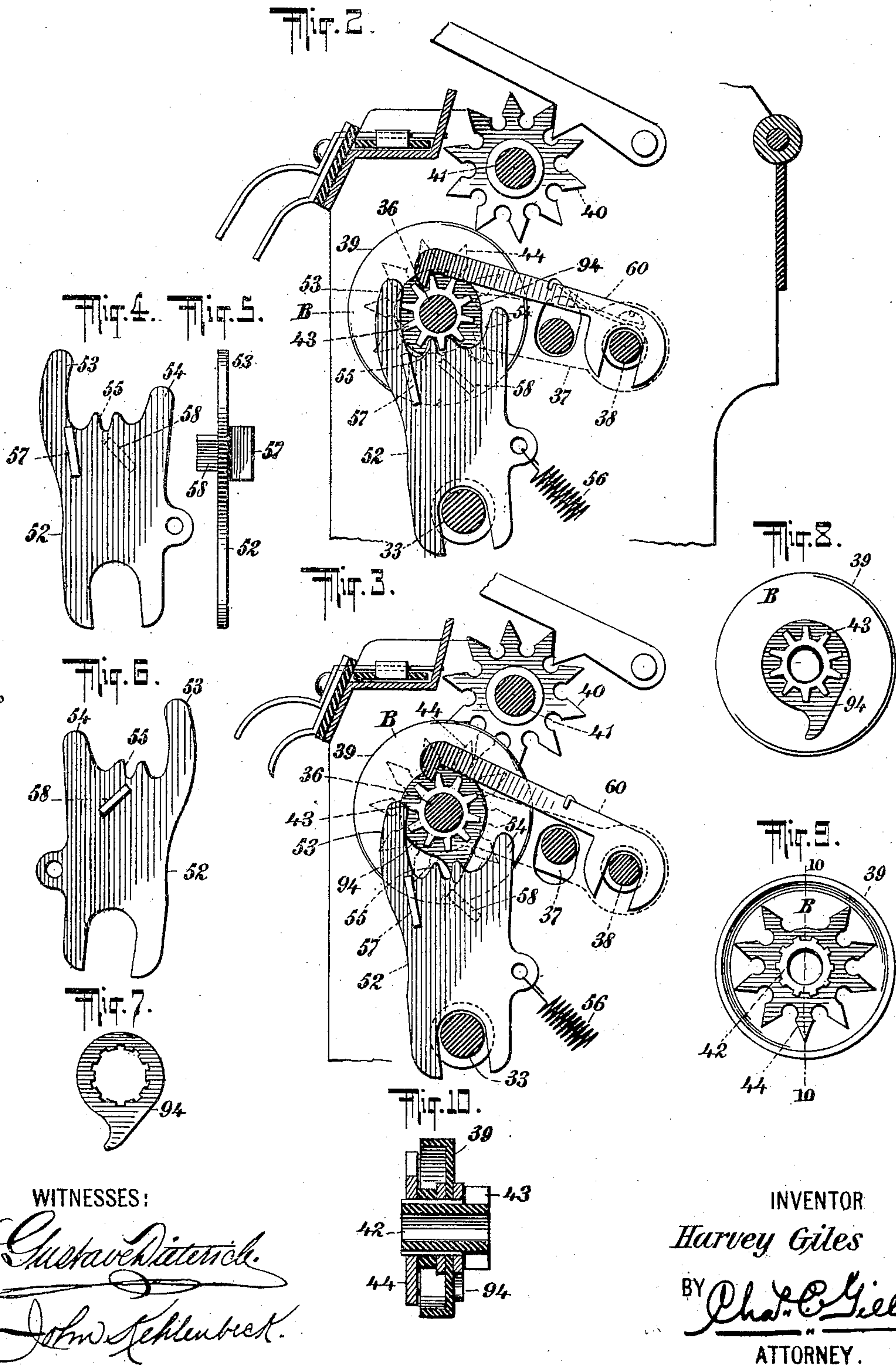
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2 Sheets—Sheet 2.



WITNESSES:

Gustave Dietrich.
John Schlenker.

INVENTOR

Harvey Giles

BY

Chas. C. Gill
ATTORNEY.

UNITED STATES PATENT OFFICE.

HARVEY GILES, OF SOUTH BOUNDBROOK, NEW JERSEY, ASSIGNOR TO THE
IDEAL CASH REGISTER COMPANY, OF NEW BOUNDBROOK, NEW JERSEY.

CASH-REGISTER.

SPECIFICATION forming part of Letters Patent No. 677,976, dated July 9, 1901.

Application filed November 24, 1900. Serial No. 37,580. (No model.)

To all whom it may concern:

Be it known that I, HARVEY GILES, a citizen of the United States, and a resident of South Boundbrook, in the county of Somerset and State of New Jersey, have invented certain new and useful Improvements in Cash-Registers, of which the following is a specification.

The invention relates to improvements in cash-registers, and pertains more particularly to means for preventing the further rotation of the last registering or totalizing wheel of a cash-register after the full normal limit or capacity of the register has been reached; and the said invention consists in the novel features and combinations of parts hereinafter described, and particularly pointed out in the claims.

The present invention pertains to improvements in the class of cash-registers shown and described in Letters Patent of the United States No. 640,825, granted January 9, 1900, to the Ideal Cash Register Company as the assignee of Elijah F. Spaulding, and also in the application of Elmer S. Smith and Harvey Giles, Serial No. 31,860, filed October 3, 1900, for Letters Patent for improvements in cash-registers.

In the class of cash-registers referred to the operator moves the exposed actuating or setting levers along the line of numerals provided upon the front face of the register-casing for the purpose of setting certain interior segments into proper operative relations to the registering mechanism, and thereafter the operator by moving an exposed crank or handle places the gearing of the registering-wheels into direct engagement with said segments and effects the movement of said segments to their normal position, whereby said segments are caused to operate the registering mechanism to the extent desired and governed by the position given to said segments by the said actuating or setting levers. The registering-wheels and their gears are mounted upon a shaft supported at its ends in the front ends of arms which are secured to a rock-shaft, so that the registering-wheels and their shaft may be lowered and elevated upon the movement of the aforesaid crank or handle. When registration is to be effected, the

registering-wheel shaft is lowered, so that the gear-wheels connected with the registering-wheels may be placed into mesh with the aforesaid segments, and after the registration has taken place the registering-wheel shaft is elevated clear of the aforesaid segments. The registering-wheels are rotated to accomplish the proper registration when their shaft is in its lower position, and at such time the carrying from one registering-wheel to another is effected by suitable intermediate carrying mechanism. The present invention pertains more especially to the carrying mechanism intermediate the last registering or totalizing wheel and the registering or totalizing wheel immediately preceding the same, and in accordance with my invention the carrying to the last registering or totalizing wheel is performed in the usual operation of the register until the normal limit or capacity of the register has been reached, or, in other words, until the register when of the capacity indicated in the construction shown in the present drawings has reached nine thousand dollars, and thereafter the carrying mechanism leading to the last registering or totalizing wheel is prevented from acting on the said wheel, whereby said wheel is from that time on and until the registering-wheels are set back to their "0" position prevented from rotating, but remains stationary on its shaft to denote to the owner of the register that the full normal capacity of the register has been reached.

The nature of the invention and satisfactory means for carrying the same into effect are described in full hereinafter and are illustrated in the accompanying drawings, in which—

Figure 1 is a front view, partly broken away and partly in section, of a cash-register constructed in accordance with and embodying the invention. Fig. 2 is a vertical transverse section of same on the dotted line 2 2 of Fig. 1, this figure showing the registering-wheel shaft in its lower position, in which position the said shaft is held during registration. Fig. 3 is a like view of same, but illustrating the registering-wheel shaft in its upper position. Fig. 4 is a face view of an oscillatory plate which forms a part of the

mechanism for carrying from one registering-wheel to another. Fig. 5 is an edge view of same. Fig. 6 is an elevation of the outer face of same. Fig. 7 is a detached face view of an arm carried by the registering-wheels and forming a part of the carrying mechanism. Fig. 8 is a detached face view of one of the registering-wheels with its pinion-wheel and carrying-arm in position. Fig. 9 is a view of the outer face of same and showing the setting-back gear-wheel in position, and Fig. 10 is a vertical section of same on the dotted line 10 10 of Fig. 9.

In the drawings, 30 denotes a register-casing of substantially the form and construction shown in the aforesaid Patent No. 640,825, said casing having in its front face the series of slots 31, through which project the actuating or setting levers 32 of the character fully disclosed in the aforesaid patent. The main driving-shaft of the register is designated by the numeral 33, and upon the right-hand end of the shaft is secured the crank-handle 34, of known construction. As described in the aforesaid patent, there are mounted upon the driving-shaft 33 the series of segments, one of which (numbered 35) is shown in Fig. 1, which are moved to certain predetermined positions by the movement of the actuating or setting levers 32 and which are thereafter restored to their normal position by the movement of the crank-handle 34, which, by means of the intermediate mechanism shown in said Patent No. 640,825, first effects the lowering of the registering-wheel shaft, so that the gears connected with the registering-wheels may pass into engagement with the said set segments prior to the return of the said segments to their lower or normal position.

The registering-wheel shaft is numbered 36 and is mounted in the ends of arms 37 37, secured upon the ends of the rock-shaft 38 and which when said rock-shaft is moved by the operation of the crank-handle 34 first carries the registering-wheel shaft 36 to its lower position (shown in Fig. 2) and then to its upper position, (shown in Fig. 3,) the rotation of the registering-wheels numbered 39 to register being effected when the shaft 36 is in its lower position. When the shaft 36 is in its upper position, (shown in Fig. 3,) the registering-wheels can only be rotated for the purpose of restoring them to their "0" position, and this rotation of the registering-wheels is to be performed by the owner of the register and by means of the pinion-wheels 40 and pinion-wheel shaft 41 in the manner fully described in said Patent No. 640,825 and not necessary to be reexplained here, said setting-back mechanism forming no part of the present invention.

The registering-wheels 39 have upon their periphery the numerals from "0" to "9," inclusive, as usual, and each registering-wheel is, as shown in Fig. 10, mounted upon the hub 42 of a pinion-wheel 43, upon which hub

also is mounted a gear-wheel 44, said registering-wheel 39, pinion-wheel 43, and gear-wheel 44 being connected together and freely mounted upon the registering-wheel shaft 36, so as to be capable of rotation thereon. The registering-wheels are also equipped with arms 94, mounted on the hubs 42 of the pinion-wheels 43, said arm 94 at each rotation of the registering-wheels serving to set in motion the intermediate device by which carrying from one registering-wheel to the next higher registering-wheel in series is accomplished.

The last two left-hand registering-wheels 39 are employed as totalizing-wheels, and for convenience of description they are in addition to being numbered 39 designated by the letters A B, respectively, and it will be understood that the carrying is from the wheel A to the wheel B and that the wheel B is the one to be arrested or prevented from rotating when the machine shall have reached the limit of nine thousand dollars. The wheel A is carried to from the tens-of-dollars registering-wheel 39 adjacent to it at the right. With each rotation of the tens-of-dollars registering-wheel 39 the arm 94, Fig. 1, connected with its pinion-wheel 43, will contact with the lip 50, secured on the plate 51, and thereby cause said plate 51 to have a limited motion toward the front, whereby said plate is caused to rotate the pinion-wheel 43 of the first totalizing-wheel A a distance equal to one of its teeth, whereby the carrying from the tens-of-dollars registering-wheel to the first totalizing-wheel A is accomplished, the means referred to for carrying from the tens-of-dollars registering-wheel to the first totalizing-wheel A being described in the aforesaid application of Smith and Giles and not forming any part of the subject of the present application.

Below the pinion-wheel 43 of the last totalizing-wheel B is mounted upon the driving-shaft 33 the oscillatory plate 52, which is shown in position in Fig. 1 and in detail in Figs. 2 to 6, inclusive. The plate 52 is bifurcated at its lower end to form a bearing engaging the driving-shaft 33, and at its upper end the said plate 52 is formed with the stop-arms 53 and 54, while between these stop-arms are fingers 55, which at the proper time engage the teeth of the said gear-wheel 43, connected with the last totalizing-wheel B. The plate 52 is connected with a spring 56, which normally retains said plate in its rear position, as shown in Fig. 2, in which figure it will be observed that the registering-wheel shaft 36 has been lowered and that the fingers 55 of the plate 52 are in engagement with the pinion-wheel 43 of the totalizing-wheel B. During the carrying from a totalizing-wheel A to the totalizing-wheel B the arm 94, connected with the totalizing-wheel A, will at each complete rotation of the said wheel A contact with the lip 57 on the aforesaid plate 52 and move said plate 52 frontward from the

position in which it is shown in Fig. 2, and thereby the fingers 55 of said plate 52 will rotate the pinion-wheel 43 and its totalizing-wheel B a distance equal to one tooth of said pinion-wheel, and thus the carrying from the totalizing-wheel A to the totalizing-wheel B is accomplished, and this carrying being of course done when the registering-wheel shaft 36 is in its lower position. (Shown in Fig. 2.)

Upon the elevation of the registering-wheel shaft 36 from the position in which it is shown in Fig. 2 the spring 56, connected with the plate 52, will return said plate rearward, so that the fingers 55 thereof may be in the proper position upon the next descent of the registering-wheel shaft 36 to again engage the pinion-wheel 43. The upper end of the plate 52 is limited in its oscillatory motion by the fingers 53 and 54, which are on opposite sides of the pinion-wheel 43 of the totalizing-wheel B, the finger 53 when the registering-wheel shaft 36 is elevated contacting with said pinion-wheel. The lip 57 is only employed in connection with the arm 94, connected with the first totalizing-wheel A, and then only for effecting the carrying from the wheel A to the wheel B.

My present invention has for its object to prevent the plate 52 from actuating the last totalizing-wheel B after said wheel registers the numeral "9," and to this end I secure to the totalizing-wheel B the arm 94 for cooperation with said lip 58, the said lip 58 being on an inclination and adjacent to the fingers 55, as shown in Figs. 4 and 6.

The arm 94, connected with the totalizing-wheel B, is so disposed with respect to the numerals on said registering-wheel that when said wheel registers "9" the projecting portion of the arm 94 will be in the vertical position in which it is illustrated in Figs. 3, 7, and 8, and at such time when the registering-wheel shaft 36 is lowered the said arm will contact with the inclined lip 58 on the plate 52 and move said plate frontward against the stress of the spring 56 and prior to the time that the pinion-wheel 43 of the wheel B can reach the fingers 55 of said plate 52, and under said condition the arm 94, connected with the pinion-wheel A, will be prevented from moving the plate 52 frontward to effect carrying from the wheel A to the wheel B, for the reason that the plate 52 will already have been moved to its front position and rendered inoperative to rotate the wheel B. During the ordinary process of the carrying from the wheel A to the wheel B the plate 52 is moved frontward, so that its fingers 55 may while the registering-wheel shaft 36 is in its lower position rotate the pinion-wheel 43, connected with the wheel B, and hence it will be obvious that if prior to the full descent of the registering-wheel shaft 36 the said plate 52 shall already have been moved to its front position said plate will be rendered inoperative to rotate the said pinion-wheel. The arm 94, connected with the last totalizing-

wheel B, and the lip 58, connected with the oscillatory plate 52, constitute the means for rendering said plate 52 inoperative at the time the totalizing-wheel B registers "9." When the totalizing-wheel B registers "9," the arm 94 will, as above described, have reached a substantially vertical position, and from that time onward every time that the registering-wheel shaft 36 descends the said arm will, descending ahead of the pinion-wheel 43, connected with the wheel B, move the plate 52 frontward to the limit of its movement, and thereby incapacitate said plate for performing the operation of carrying to the wheel B. The effect of the arm 94, connected with the totalizing-wheel B, is that with every descent of the registering-wheel shaft 36 it so moves said plate 52 that said plate will be prevented from rotating the pinion-wheel 43, connected with the totalizing-wheel B. With every ascent of the registering-wheel shaft 36 the arm 94 will leave the lip 58 of the plate 52, and thereupon the spring 56 will restore the said plate 52 to its normal position. The arm 94 will not engage the lip 58 of the plate 52 except at the proper end of the rotation of the totalizing-wheel B, and at such end of such rotation said arm 94 will, by rendering inoperative the plate 52, prevent the further rotation of the said wheel B except under proper circumstances, as during the setting back of the registering-wheels to their "0" position by the owner of the register.

The means for preventing the rotation of the last totalizing-wheel after said wheel has reached the limit of its capacity are simple, and they do not interfere with the general further operation of the machine, with the exception that they keep the totalizing-wheel B from being further rotated, and the said means possess the advantage of avoiding any straining of the parts of the machine by any continued operation of the actuating-levers or exposed crank-handle after the last totalizing-wheel has reached the limit of its movement. The totalizing-wheels A B being free upon their shaft 36 should be equipped with dog-arms 60 in engagement with their pinion-wheels 43.

The restoring of the registering-wheels to their "0" position is accomplished when the registering-wheel shaft 36 is in its upper position, with the gear-wheels 44, connected with the registering-wheels, in mesh with the gear-wheels 40, secured on the shaft 41, the said gear-wheels 44 and 40 and shaft 41 constituting well-known setting-back mechanism and having been disclosed in the aforesaid Patent No. 640,825.

The carrying-plate 51, having the lip 50, corresponds exactly with the plate 52, having the lips 57 58, with the single exception that the plate 51 is not provided with and has no occasion to employ the lip 58. The plates 51 and 52, with the exception of the lip 58 on the plate 52, are shown and described in the afore-

said application of Smith and Giles, filed October 3, 1900, and thus it will be seen that the present invention pertains to the arm 94, connected with the last totalizing-wheel B, and the lip 58, connected with the plate 52 and employed for coöperation with the said arm 94.

I do not desire to specifically limit this application to the special form of plate 52, with the lip 58 for coöperation with the arm 94 connected with the last totalizing-wheel B, since said parts in the form illustrated in the drawings constitute simply the preferred physical embodiment of my invention, but not, of course, the only embodiment thereof in its broader scope.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a cash-register, the registering-wheels, and mechanism to be operated by the rotation of one of said wheels for carrying to the next wheel, combined with means operable by the final registering-wheel when said wheel shall have reached the predetermined limit of its movement for acting upon said carrying mechanism to render the same inoperative for carrying; substantially as and for the purposes set forth.

2. In a cash-register, the registering-wheels, and mechanism to be operated by the rotation of one of said wheels for carrying to the next wheel, combined with rotary means connected with the final registering-wheel and set with relation to the numerals thereon for acting on the said carrying mechanism to render the same inoperative with respect to said final wheel when the latter shall have reached the predetermined limit of its rotation; substantially as and for the purposes set forth.

3. In a cash-register, the registering-wheels, and mechanism intermediate and operable from the several wheels for carrying from one of said wheels to the next higher wheel in series, combined with rotatory means connected with the final registering-wheel and set with relation to the numerals thereon for acting on the carrying mechanism directly leading to said final wheel for rendering said mechanism inoperative with respect to said final wheel only when said final wheel shall have reached the predetermined limit of its rotation, whereby said final wheel is thereafter left stationary without interfering with the rotation of the other registering-wheels; substantially as and for the purposes set forth.

4. In a cash-register, the registering-wheels, the pinions connected therewith, and the movable shaft 36 upon which said wheels and their pinions are mounted, combined with the carrying-plate 52 having the fingers 55 to engage the teeth of the pinion connected with the final registering-wheel when said shaft is moved to its position to permit registration, means connected with the preceding registering-wheel to then move said plate, when said preceding wheel has performed its rotation, to effect the rotation of and carrying to said final wheel, and means connected with and

set with relation to the numerals on the final registering-wheel for engaging said plate 52 and moving the same into an inoperative position when said final wheel shall have reached the predetermined limit of its rotation and said shaft is moved to its position to permit registration; substantially as set forth.

5. In a cash-register, the registering-wheels, the pinions connected therewith, and the movable shaft 36 upon which said wheels and their pinions are mounted, combined with the carrying-plate 52 having the fingers 55 to engage the teeth of the pinion connected with the final registering-wheel when said shaft is moved to its position to permit registration, means connected with the preceding registering-wheel to then move said plate, when said preceding wheel has performed its rotation, to effect the rotation of and carrying to said final wheel, the arm 94 carried by said final wheel and set with relation to the numerals thereon, and the lip 58 on said plate 52 to be engaged by said arm 44 on the movement of said shaft to its position to permit registration and the arrival of said final wheel at the predetermined limit of its rotation, whereby said plate is then moved to an inoperative position and said final wheel is saved from rotation; substantially as set forth.

6. In a cash-register, the registering-wheels, the pinion connected with the final registering-wheel, and the movable shaft upon which said wheels are mounted, combined with the carrying-plate 52 having the lips 57 and 58 and also the fingers 55 to engage the teeth of the said pinion-wheel when said shaft is moved to its position to permit registration, an arm connected to the preceding registering-wheel to then engage said lip 57 and move said plate, when said preceding registering-wheel has performed its rotation, to effect the rotation of and carrying to said final wheel, and the arm 94 connected with said final wheel and set with relation to the numerals thereon to engage said lip 58 on the movement of said shaft to its position to permit registration and the arrival of said final wheel at the predetermined limit of its rotation, whereby said plate is then moved into an inoperative position and said final wheel is saved from rotation; substantially as and for the purposes set forth.

7. In a cash-register, the registering-wheels, the pinion connected with the final registering-wheel, the movable registering-wheel shaft 36 carrying said wheels, the arms 37 connected with said shaft, and the rock-shaft 38 to which said arms 37 are secured, combined with the carrying-plate 52 having the fingers 55 to engage the teeth of said pinion-wheel when said shaft 36 is moved to its position to permit registration, the spring 56 connected with said plate 52 and tending to normally move said plate to the position in which said fingers may engage said pinion-wheel when said shaft 36 is moved to its po-

sition to permit registration, an arm connected with the registering-wheel preceding the final registering-wheel to engage said plate 52, during the operation of registering, and cause the same to move its said fingers 55 against said pinion-wheel to effect the carrying from the said preceding registering-wheel to said final wheel, and an arm connected with and set with relation to the numerals of said final registering-wheel to engage said plate 52 and move the same into an inoperative position upon the arrival of said final wheel at the predetermined limit of its rotation and at each movement of said shaft 36 to its position to permit registration, whereby said plate 52 is, when the final registering-wheel has reached the predetermined limit of its movement, prevented from acting on said final wheel; substantially as set forth.

8. In a cash-register, the registering-wheels, the pinion connected with the final registering-wheel, the movable shaft 36 upon which said wheels are mounted, the arms 37 carrying said shaft, and the rock-shaft 38 upon which said arms 37 are secured, combined with the carrying-plate 52 having the lips 57 and 58 and also the fingers 55 to engage the teeth of the said pinion-wheel when said shaft 36 is moved to its position to permit

registration, the spring 56 connected with said plate 52 and tending normally to draw said plate to a position in which its fingers 55 may engage the teeth of said pinion-wheel when said shaft 36 is moved to its position to permit registration, an arm connected to the preceding registering-wheel to then engage said lip 57 and move said plate, when said preceding registering-wheel has performed its rotation, to effect, through said fingers and pinion-wheel, the rotation of and carrying to said final wheel, and the arm 94 connected with said final wheel and set with relation to the numerals thereon to engage said lip 58 on the movement of said shaft to its position to permit registration, and the arrival of said final wheel at the predetermined limit of its rotation, whereby said plate is then moved into an inoperative position and said final wheel is saved from rotation; substantially as set forth.

Signed at Boundbrook, in the county of Somerset and State of New Jersey, this 23d day of November, A. D. 1900.

HARVEY GILES.

Witnesses:

ROBT. T. BRAMPTON,
ELMER S. SMITH.