

(No Model.)

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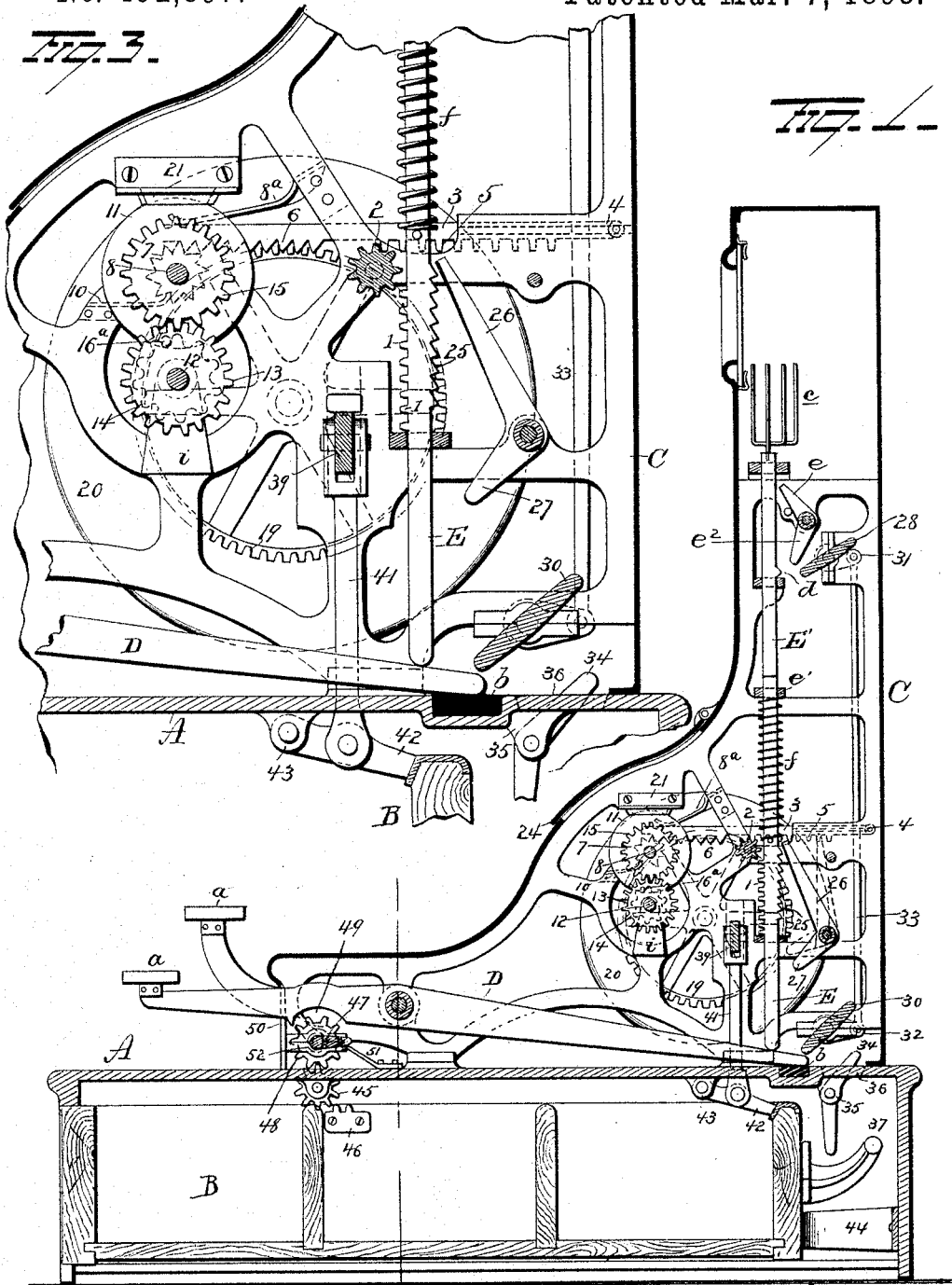
H. G. & C. F. WALTER.
CASH REGISTER AND INDICATOR.

No. 492,897.

Patented Mar. 7, 1893.

FIG. 3.

FIG. 1.



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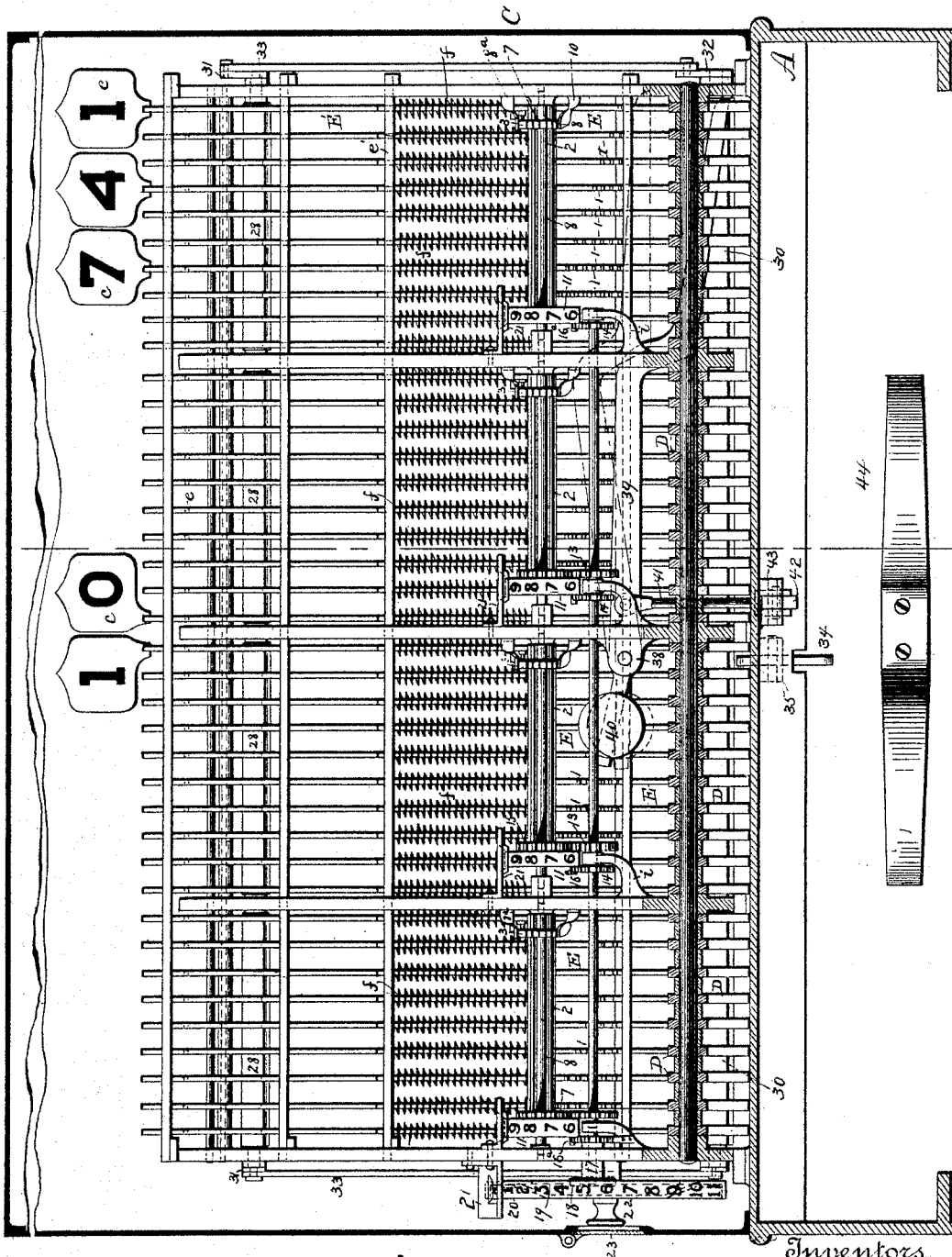
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2 Sheets—Sheet 2.

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CASH REGISTER AND INDICATOR.

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UNITED STATES PATENT OFFICE.

HENRY G. WALTER AND CHARLES F. WALTER, OF SCRANTON,
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CASH REGISTER AND INDICATOR.

SPECIFICATION forming part of Letters Patent No. 492,897, dated March 7, 1893.

Application filed April 26, 1892. Serial No. 430,714. (No model.)

To all whom it may concern:

Be it known that we, HENRY G. WALTER and CHARLES F. WALTER, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Cash Registers and Indicators; and we 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.

Our invention relates to an improvement in cash registers and indicators,—the object of the invention being to produce simple and efficient mechanism whereby the amount of a sale can be easily and quickly indicated and the total sales of the day registered in such manner that the aggregate amount of money in the drawer of the machine can be ascertained at a glance.

A further object is to produce a very simple and efficient machine, whereby amounts of money ranging from one cent to several thousand dollars may be registered and the amount of money so registered ascertained at a glance.

A further object is to provide simple devices whereby a partial depression of a key, insufficient to open the drawer, will not so operate the parts as to cause a double registration when the key is again struck to its full extent.

A further object is to provide simple devices for releasing the targets.

A further object is to provide a cash indicator and register with devices for simultaneously indicating and registering the amount of a sale when a key is depressed,—said devices being simple in construction, few in number, and effectual in the performance of their functions.

A further object is to provide devices for automatically locking and unlocking the drawer of a cash indicator and register, which devices shall comprise few parts and be sure and effectual in operation.

A further object is to provide effective means whereby to prevent the operation of the keys of a cash indicator and register when the drawer is open.

A further object is to produce a cash indi-

cator and register which shall be simple in construction, comprise a small number of parts, cheap to manufacture and effectual in the performance of its functions.

With these objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts as hereinafter set forth and pointed out in the claims.

In the accompanying drawings: Figure 1 is a vertical sectional view. Fig. 2 is a face view partly in section. Fig. 3 is a detail view.

A represents a base or casing in which the drawer B is located, and located on this base or casing is the framework C in which the operating mechanism is mounted, said framework being preferably made of metal and formed by punching with suitable machinery, whereby said framework will be made light and economically produced. Pivotaly supported by the frame work C near its inner end, are key bars D, each provided with a finger button *a*,—the rear ends of said key bars normally resting on a pad or cushion of rubber or similar material *b*, inserted in a recess in the top of the casing A. The keys are preferably arranged in four series, representing respectively, cents, dimes and dollars.

Mounted in the rear portion of the framework C are vertical sliding bars E, one for each key bar, and adapted to rest at their lower ends on said key bars, as clearly shown.

Mounted on the top of each vertical bar E, is a target bar E', each target bar carrying a target *c* at its upper end, and each having a tooth or shoulder *d*, adapted to be engaged by a dog *e* when the target bar is raised to exhibit the target,—one dog being provided for all the target bars and said dog being adapted to be released in a manner hereinafter set forth. Thus it will be seen that when a key is depressed, the corresponding vertical bar E and target bar E' will be raised and the target exhibited. When the key is released, the corresponding bar E will be made to descend by means of a spring *f*, encircling said bar E, said spring *f* bearing at one end against a pin or projection on the bar and at the other end against a cross bar or arm *e'* of the framework.

Each vertical bar E is provided on one face

with teeth 1, adapted, when the bar is raised, to engage a toothed or corrugated cylinder 2, mounted in the framework, one of said cylinders 2 being provided for each series of keys and vertical bars. There will be ten key bars and corresponding vertical bars in each series, and said vertical bars of each series are provided with the teeth 1 ranging from one to nine successively, so that when the first bar E of a certain series is raised the cylinder 2 of that series will be made to turn one tooth,—when the second bar E of the series is raised, the cylinder 2 will be made to turn two teeth, and so on through the series. Located above the cylinders 2 are horizontal sliding bars 3, which are pivotally connected at their rear ends in slots or ways 4 in the framework. Each bar 3 is provided on its under face with a rack bar 5 adapted to mesh with and receive motion from the cylinders 2. The under face at or near the inner end of each horizontal bar 3 is provided with teeth 6, which mesh with star wheels 7, carried by shafts 8,—which latter are mounted in the framework. A spring 8^a is secured at one end to a part of the framework and bears at its free end on the horizontal bar 3 whereby to maintain the teeth thereon in engagement with the cylinder 2 and ratchet wheel 7, one of said springs being provided for each horizontal bar 3. The teeth 6 on the horizontal bar 5 are so shaped that when said bar is moved positively in one direction they will engage the star wheel 7 and cause it to make a partial revolution, but during the return movement of said horizontal bar its ratchet teeth will ride over the teeth of the star wheel 7 without rotating the same. The reverse rotation of said ratchet wheels will also be prevented by means of dogs 10. On the ends of the shafts 8 opposite the star wheels 7, wheels 11, are secured, each wheel 11 having on its periphery a series of numbers from 1 to 10.

The mechanism thus far described will be sufficient to register amounts of money in the "cents series,"—for it will be seen that by depressing a key in the cents series, the corresponding vertical bar E will be elevated and, the rack on said bar meshing with the cylinder 2, motion will be transmitted to the horizontal bar 3, and from thence to the ratchet wheel 7, and then, through the shaft 8 to the wheel 11. Thus it will be seen that the registering wheel 11 will be moved a distance corresponding with the number of teeth 1 on the vertical bar E which is raised. It is necessary that means be provided for transferring the aggregate amount indicated by one registering wheel to the registering wheel of the next series, and this means will now be described.

Mounted in arms *i* projecting from the framework, is a series of shafts 12 arranged in alignment with each other, and on the ends of each shaft 12, pinions 13, 14 are respectively mounted,—the pinions 13 being adapted to mesh with pinions 15 carried by the shafts 8, in the "dimes" and the "dollars" series,

while the pinions 14 are adapted to be engaged by lugs 16^a on the registering wheels 11. Thus it will be seen that when the registering wheel 11 in the "cents" series shall have made one complete revolution, its lug 16^a will engage the adjacent pinion 14 and turn it one tooth,—which motion will be transmitted through the shaft 12 and pinion 13 at the other end thereof to the pinion 15 on the shaft 8 in the "dimes" series, thus turning the registering wheel in the "dimes" series, one tooth or point. When the registering wheel of the "dimes" series shall have made one revolution, the next registering wheel will be turned one tooth or point in the same manner, and when the last mentioned registering wheel shall have made one complete revolution, the next registering wheel will be turned one tooth or point. Thus it will be seen that when ten cents shall have been registered by the first registering wheel, the next registering wheel will be made to indicate one dime, and so on. The wheel 14 with which the lug 16^a carried by the last registering wheel, engages, is secured to a short shaft 17,—on the other end of which a pinion 18 is secured. The pinion 18 meshes with an internal gear 19 carried by a large registering wheel 20,—which latter is suitably supported by the framework. On the periphery of the large registering wheel 20, a series of figures is produced, and preferably range from one to forty. When the lug 16^a of the last smaller registering wheels 11 engages the adjacent pinion 14 the large wheel 20 will be turned one tooth or point. Each revolution of the last small registering wheel 11 represents one hundred dollars, and each revolution of the large registering wheel 20 represents four thousand dollars. Thus it will be seen that by a very simple arrangement of parts any amount of money may be registered by the machine, from one cent to four thousand dollars. There will be secured to the framework perforated plates 21 which will project over the registering wheels, and through which one figure on each wheel can be seen. When the registering wheel 20 shall have made a complete revolution, it can be turned back to the starting point by means of a knob 22 secured thereto,—access to said knob being permitted by a door 23 in the outer casing. A door 24 in the outer casing will also be provided whereby access may be had to read the registering wheels.

It sometimes happens that a key is pressed sufficiently to actuate the registering mechanism but insufficiently to exhibit the target and open the drawer, in which case the key is again depressed. In order to avoid a "double" registering the devices now to be described are provided. Each vertical bar E is provided on its rear face with a series of ratchet teeth 25, with which a dog 26, pivotally connected to the framework, is adapted to engage, said dog having a depending arm 27. When a key is depressed to raise its corresponding vertical bar E, the dog 26 will engage the teeth 25 and thus prevent the return of

said vertical bar until said dog shall have been disengaged from said teeth. When the key bar and vertical bar shall have moved to the extremity of their throw, the end of the key bar will engage the depending arm 27 of the dog 26 and thus engage said dog from the teeth of the vertical bar, whereupon said vertical bar will follow the downward movement of the end of the key bar and again assume its normal position.

When the vertical bar E is raised, the target bar E' will also be raised and the target carried thereby will be exhibited, said target bar being held elevated by the dog *e*. A revoluble bar 28 is mounted in the framework in proximity to the dog *e* and extends from one end of the machine to the other, said bar being adapted to strike an arm *e*² depending from the dog or bar *e*,—said dog or bar *e* also preferably extending the full length of the machine. If desired a single dog *e* may be provided for each target bar. A revoluble bar 30 is mounted near the bottom of the framework C and extends from end to end thereof.

On each end of the bars 28, and 30, crank arms 31, 32 are secured, the crank arms of the bar 28 being connected with the crank arms of the bar 30, by means of pitmen 33. From this construction it will be seen that when a key is depressed, the rear end of the key bar will strike the lower revoluble bar 30 and cause it to make one-quarter revolution,—which motion is transmitted through the crank arms 31, 32 and pitmen 33 to the revoluble bar 28, which, striking the depending arm *e*² of the dog or bar *e*, will move said dog or bar out of engagement with the teeth or shoulders *d* of all the target bars which might have been previously elevated, and thus release said target bars. A lever 34 is pivotally supported in ears 35 projecting downwardly from the top of the casing A, one arm of said lever projecting upwardly through a slot 36 in the top of the base or casing A and the other arm depending in rear of the drawer B, and adapted to be struck by an arm or bracket 37 secured to the back end of said drawer. When the drawer B is opened the bracket 37 will strike the depending arm of the lever 34 and said lever swinging on its pivot, will permit said arm or bracket to pass it. When the drawer is again closed the arm or bracket 37 will strike the other side of the depending arm of the lever 34 and cause the upwardly projecting arm of said lever to engage the lower revoluble bar 30, causing it to make a quarter turn and assume its normal position as shown in Fig. 1, ready to be again struck by the depression of a key.

Pivotally connected to ears 38, projecting from the framework preferably at its center, is a lever 39 having a counterbalance weight 40 on its short arm. The long arm of the lever 39 is extended toward the "cents" series of keys and is so bent as to rest normally on the key bars of said cents series. A rod or

bar 41 is pivotally connected at its upper end to the long arm of the lever 39, preferably at a point in proximity to its pivot, and at its lower end projects through an opening in the top of the base or casing A. A locking arm 42 is pivotally connected to ears 43 projecting from the top of the casing and is connected at a point between its ends to the depending rod or bar 41,—said locking bar being adapted to normally bear against the end of the drawer B when the latter is closed and thus securely lock said drawer, as most clearly shown in Figs. 1 and 3. From this construction it will be seen that when any key in the "cents" series is depressed, the long arm of the lever 39 will be elevated, carrying with it the depending rod or bar 41 and the locking arm 42,—thus moving said locking arm out of contact with the drawer B, whereupon said drawer will be forced out by means of a spring 44, secured to the rear of the casing A.

In order to provide means whereby the operation of any key will be prevented when the drawer B is open, the devices now to be described will be employed.

Mounted in the upper portion of the base or casing A, and adapted to project through the top of said casing and slightly into the drawer B, is a pinion 45, said pinion being adapted to be engaged and partially rotated when the drawer is opened or closed by a toothed plate 46 secured to the drawer B. A shaft or oscillatory bar 47 is mounted in the framework immediately over the pinion 45, and carries a pinion 48 adapted to mesh with the pinion 45. Each key bar is provided near its inner end and in its under edge, with a recess 49 and a tooth or projection 50. When the oscillatory bar 47 is in its normal position when the drawer is closed, it rests on a spring 51, secured to the top of the base or casing A. From this construction it will be seen that when the drawer is opened the toothed plate 46 will engage the pinion 45 and cause it to make a partial revolution, which motion is transmitted in the reverse direction to the pinion 48 carried by the oscillatory bar 47. Said oscillatory bar will thus be made to move or oscillate, pass through the recesses 49 in the under edges of the key bars and bear against the teeth of projections 50. When the bar 47 is in this position it will be impossible for a key to be depressed and therefore no registration can be made when the drawer is open. When the drawer is again closed the toothed plate 46 will again cause the partial rotation of the pinion 45, which motion will be transmitted to the pinion 48 and the bar 47 moved out of contact with the key bars and caused to assume its normal position, resting on the spring 51. It is necessary that, when the drawer is closed, a tooth of the pinion 45 be just in position to be struck by the toothed plate 46 as soon as the drawer is opened, and as the momentum imparted to the pinions, 45, 48 and the bar 47 is liable to cause said pinions to move too far, the spring 51 is provided. By

the provision of this spring it will be readily seen that when the bar 47 strikes it, said bar will slightly depress the spring, but that the rebounding of the spring will cause said bar to assume exactly the proper position to sufficiently turn the pinions 45, 48 as to bring one of the teeth of the pinion 45 immediately in front of the toothed plate 46 on the drawer.

It will be observed by inspection of Fig. 2 that the tenth key and the parts operated thereby, do not actuate the registering mechanism, and that the tenth target of each series, has "0" thereon, so that by depressing the tenth key of any series no registration will be made. By depressing the tenth key of the "cents" series the drawer may be opened without operating the registering mechanism, and can be utilized for making change. It will also be noticed that the tenth targets of the first, second and third series, and the first targets of the second, third and fourth series will be secured at one edge (instead of in the center) to the target bars so that when the tenth target of one series and the first target of the next series are struck simultaneously, one will not be hid by the other.

In order to lock the keys when the drawer is closed, one end of the oscillatory bar 47 will be provided with a key socket 52 for the reception of a suitable key to be inserted through a key hole in the end of the casing of the machine, whereby said oscillatory bar can be turned to a position to prevent the depression of the keys.

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a cash register, the combination with a key-bar, of sliding rack-bars located and arranged to move in planes at an angle to each other, a rotary toothed or corrugated device with which the teeth of the bars are adapted to engage to communicate motion from one sliding rack-bar to the other, and registering wheel adapted to be operated by one of the bars, substantially as set forth.

2. In a cash register, the combination with a key bar and a vertical rack bar, of a horizontal rack bar having a sliding pivotal connection at one end, a rotary toothed or corrugated device with which the bars engage for transmitting motion from the vertical to the horizontal rack bar, a registering wheel and means for transmitting motion from the horizontal rack bar to said registering wheel, substantially as set forth.

3. The combination with a key bar and a vertical rack bar, of a grooved cylinder with which said vertical rack bar is adapted to mesh, a horizontal rack bar adapted to receive motion from said grooved cylinder, a shaft, a ratchet wheel carried by said shaft and adapted to receive motion in one direction from said horizontal rack bar, and a register-

ing wheel carried by said shaft, substantially as set forth.

4. The combination with a key bar and a vertical rack bar, of a grooved cylinder with which said vertical rack bar is adapted to mesh, a horizontal rack bar having a sliding pivotal connection and adapted to mesh with said grooved cylinder, a shaft, a ratchet wheel carried by said shaft and adapted to receive motion from the horizontal rack bar, a spring for maintaining said horizontal rack bar in mesh with the grooved cylinder and ratchet wheel, and a registering wheel carried by said shaft, substantially as set forth.

5. In a cash register, the combination with a key bar and a vertical sliding rack bar, of a grooved cylinder adapted to mesh with said rack bar, a horizontal rack bar adapted to receive motion from said grooved cylinder, ratchet teeth on said horizontal rack bar, a shaft, a ratchet wheel carried by said shaft and adapted to receive motion in one direction from the ratchet teeth of the horizontal rack bar, a spring for maintaining the horizontal rack bar in engagement with the grooved cylinder and ratchet wheel, means for preventing the retrograde movement of the ratchet wheel, and a registering wheel carried by said shaft, substantially as set forth.

6. In a cash register, the combination with a key bar and a vertical rack bar, of a grooved cylinder, a horizontal rack bar adapted to receive motion from said grooved cylinder, a shaft, a ratchet wheel carried by said shaft and adapted to receive motion from the horizontal rack bar, a registering wheel also carried by said shaft, a pinion also carried by said shaft and gearing meshing with said pinion, whereby the aggregate amount of money indicated by one registering wheel of a series will be transferred to the next adjacent registering wheel, substantially as set forth.

7. In a cash indicator and register, the combination with a key bar and a vertical rack bar adapted to be elevated thereby and registering mechanism adapted to be actuated by said vertical bar, of ratchet teeth on one face of said vertical bar, a pivoted dog adapted to engage said teeth, and an arm depending from said pivoted dog and adapted to be struck by the key bar to release the vertical bar, substantially as set forth.

8. In a cash indicator and register, the combination with a key bar, a vertical bar adapted to be elevated thereby, and registering mechanism adapted to be actuated by said vertical bar, of ratchet teeth on one face of said vertical bar, a pivoted dog adapted to engage said teeth, an arm depending from said pivoted dog and adapted to be struck by the key bar to release the vertical bar, and a spring adapted to return said vertical bar, substantially as set forth.

9. In a cash indicator, the combination with a key bar, a vertical bar adapted to be raised

thereby, and a target bar normally resting on said vertical bar and carrying a target, of a dog or bar adapted to maintain the target bar elevated, an arm depending from said dog or bar, a revoluble bar in proximity to said arm, a revoluble bar mounted in proximity to the end of the key bar and adapted to be struck thereby, crank arms carried by said revoluble bars and pitmen connecting the crank arms of said revoluble bars, whereby, when a key is depressed said revoluble bars will be turned and the upper revoluble bar made to strike the arm depending from the said dog or bar and release the elevated target bar, substantially as set forth.

10. In a cash indicator the combination with a target bar, a key bar, and a vertical bar interposed between the key bar and target bar, of a dog adapted to maintain the target bar elevated, an arm depending from the dog, a revoluble bar located in proximity to the said arm, a revoluble bar located in proximity to the key bar and adapted to be struck thereby, gearing connecting said revoluble bars whereby the engagement of the key bar with the lower revoluble bar will operate to turn the upper revoluble bar to release the target bar, a pivoted lever, a drawer and an arm carried by the drawer and adapted to strike the pivoted lever and cause it to return the lower revoluble bar to its normal position, substantially as set forth.

11. In a cash indicator and register, the combination with the keys thereof and the drawer, of an oscillatory bar, a pinion carried thereby, a pinion located below the pinion carried

by the oscillatory bar, and a toothed plate carried by the drawer and adapted to operate said pinions to turn the oscillatory bar to lock the keys, substantially as set forth.

12. In a cash register and indicator, the combination with the keys thereof and the drawer, of an oscillatory bar, a pinion carried thereby, a pinion located below the pinion carried by the oscillatory bar, a toothed plate carried by the drawer and adapted to mesh with the last mentioned pinion, and a spring adapted to receive the free edge of the oscillatory bar and maintain it in a proper normal position, substantially as set forth.

13. In a cash indicator and register, the combination with the key bars thereof and a drawer, of an oscillatory bar, a pinion carried by said oscillatory bar, a pinion located beneath the pinion carried by the oscillatory bar, a toothed plate carried by the drawer and adapted to engage the lower pinion, a spring adapted to receive the free edge of the oscillatory bar and maintain it in proper normal position, and projections on the under edge of the key bars, against which said oscillatory bar is adapted to abut when the drawer is opened, substantially as set forth.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

HENRY G. WALTER.
CHARLES F. WALTER.

Witnesses:

SAMUEL W. EDGAR,
MARK K. EDGAR.