

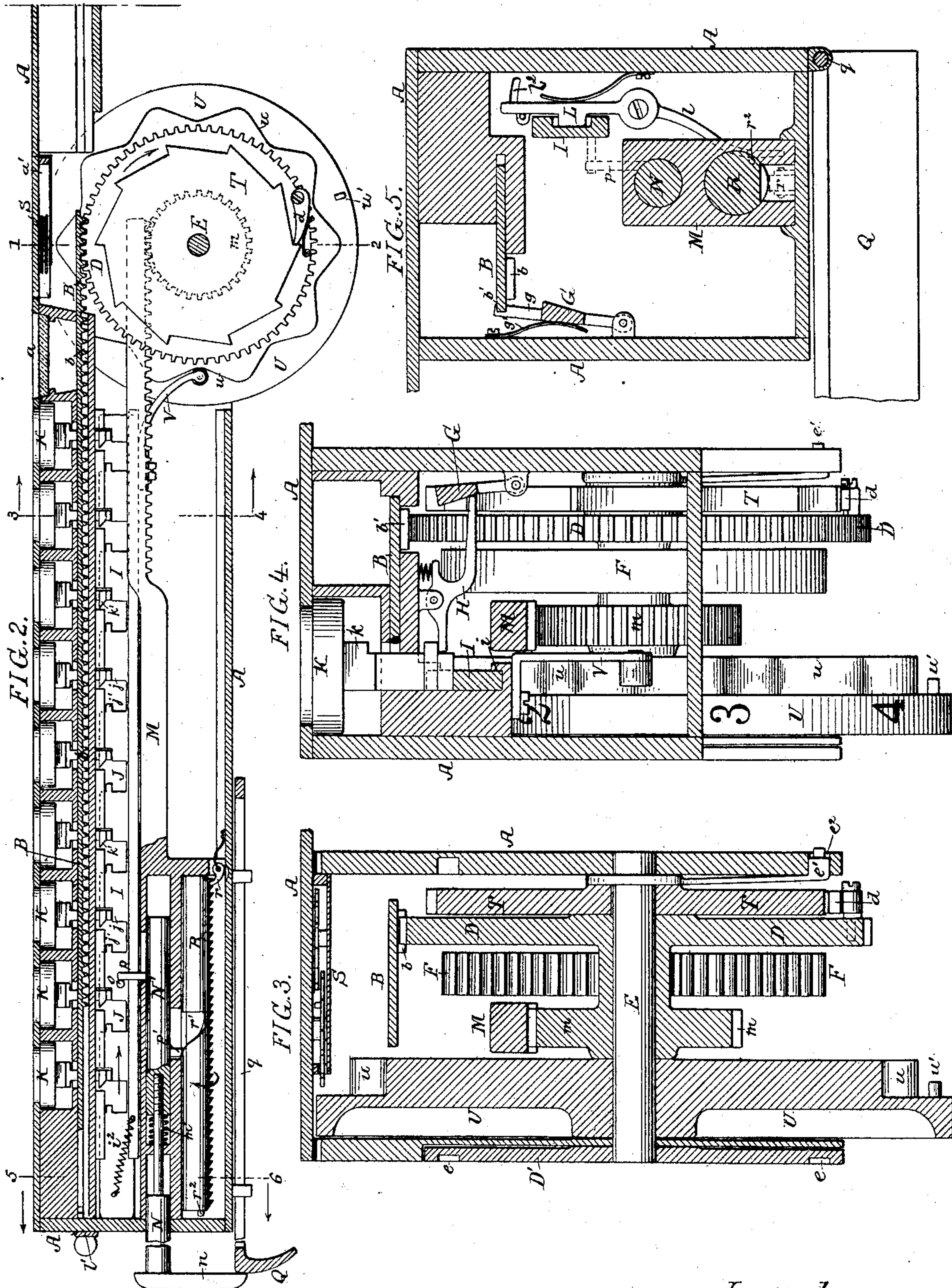
(No Model.)

2 Sheets—Sheet 2.

M. R. LONGACRE.
CASH REGISTER AND INDICATOR.

No. 369,193.

Patented Aug. 30, 1887.



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UNITED STATES PATENT OFFICE.

MATTHIAS R. LONGACRE, OF PHILADELPHIA, PENNSYLVANIA.

CASH REGISTER AND INDICATOR.

SPECIFICATION forming part of Letters Patent No. 369,193, dated August 30, 1887.

Application filed October 20, 1886. Serial No. 216,736. (No model.)

To all whom it may concern:

Be it known that I, MATTHIAS R. LONGACRE, a resident of Philadelphia, Pennsylvania, and a citizen of the United States, have
5 invented an Improved Cash Register and Indicator, of which the following is a specification.

My invention relates to indicating and registering mechanism, more especially such as
10 is adapted for indicating and registering the amounts of cash sales in stores; and one of the main objects of my invention is to so construct the cash indicator and register that the buyer can see the indications of the amount payable for the purchase at the time it is registered.
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In the accompanying drawings, Figure 1 is a perspective view of my improved registering apparatus. Fig. 2 is a longitudinal section of the same. Fig. 3 is an enlarged transverse section on the line 1 2, Fig. 2, of one section of the register. Fig. 4 is a similar section on the line 3 4, Fig. 2. Fig. 5 is a similar transverse section on the line 5 6, Fig. 2. Fig. 6 is a plan view of one of the number-plates. Figs. 7, 8, and 9 are enlarged views of one of the keys and part of the locking-bolt in three different positions. Fig. 10
20 is an enlarged inverted plan view of the registering-wheels. Figs. 11 and 12 are sectional views illustrating parts of the registering device; and Fig. 13 is a perspective view of the indicator and register in a counter, desk, or table.
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Among the essential features of my apparatus are a series of sliding number-plates impelled by suitable springs and each having a number of locking and releasing keys, a locking-bolt for the keys, and devices for returning the parts to their normal positions, as described hereinafter.
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Each number-plate carries on its face figures from 0 to 9, and in the drawings, Fig. 1, I have illustrated four number-plates and their
45 devices for two columns of cents and for two columns of dollars; but the number-plates and their devices may be increased to any desired extent. Through an opening in the top of the case of the indicator and register one or
50 other of the figures on the face of each number-plate is visible to the purchaser, according to the position in which the number-plate

stops in its longitudinal movement under control of the corresponding key.

As the construction and operation of the
55 several number-plates with their keys and their operating parts are alike, a description of one will apply to all, and in Figs. 2, 3, 4, and 5 I have illustrated only one section of the register or set of the devices.
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A is the casing, and in horizontal guides in this casing is adapted to slide the longitudinal number-plate B, having on its under side a rack, *b*, into which gears a cog-wheel, D, mounted to turn freely on a shaft, E, having
65 bearings in the casing. To the hub of this wheel D is secured one end of a coiled spring, F, while the other end is connected to the casing, and the parts are so arranged that the spring tends to turn the wheel D in the direction of its arrow, Fig. 2, so as to impel the number-plate B forward when released from its retaining-catch.
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As illustrated in Fig. 6, the upper surface of the number-plate carries a series of figures—
75 0 to 9—and one or other of these figures will show through a glazed opening, *a*, in the top of the case, according to the position in which the number-plate happens to be. As shown in Fig. 6, this number-plate B has at its outer end
80 a notch, *b'*, with a beveled nose, and with this notch engages a finger, *g*, Fig. 5, forming part of a hinged retaining-frame, G, pivoted to the case and acted upon by a spring, *g'*.

I prefer to bevel the outer face of the swing-
85 ing frame G, and against this beveled face bear the ends of a number of levers, H, pivoted to a fixed part of the casing and acted on at their opposite ends by the vertical stems of the keys K. There are nine of these keys, corresponding
90 with the figures 1 to 9, inclusive, on the face of the number-plate. The faces of these keys also carry numbers on them, but the numbers on the keys run in the opposite direction from those on the number-plate. By
95 pressing one of these keys the retaining-frame G will be pushed back against the action of the spring *g'*, so as to withdraw the finger *g* from the notch *b'*, Fig. 6, of the number-plate, and the latter, consequently, under the action
100 of the spring F, will be pushed forward until arrested at the desired point. I make use of the corresponding keys K to arrest the number-plate at the desired point, a projection, *k*,

being formed upon the upper part of the stem of the key, so that when the latter is pressed down to first release the spring-impelled number-plate this projection k will descend into the path of a shoulder, b^2 , Fig. 6, at the outer end of the number-plate, so that if key number 3, for instance, is pressed down the number-plate will be arrested in such a position that the corresponding number 3 on the number-plate will show through the opening a .

In connection with the keys I make use of a locking-bolt I, which is adapted to guides i in the casing, and which has shouldered notches J, corresponding in number with the keys. As shown more clearly in Figs. 7, 8, and 9, each notch J has a shoulder, j , and a projecting finger, j' . The sliding locking-bolt I has a limited movement in its guides, being acted upon by a spring, i^2 , Fig. 2, which tends to pull the bolt in the direction of its arrow, Fig. 2; but when the parts are out of action the locking-bolt is held in its inward position by a spring-catch, L, Fig. 5, hereinafter referred to. When the locking-bolt is held in this position, the stems of all the keys rest on the shoulders j , as shown in Figs. 2 and 7; but when the catch L, Fig. 5, is drawn back to release the locking-bolt the spring i^2 , Fig. 2, pulls the bolt forward until the fingers j' come into contact with the ends of the stems of the several keys, as shown in Fig. 8. The several parts are then in position ready for action, and then by pressing upon any one of the keys the beveled catch k' will push the bolt I back a little until its catch can pass the finger j' and engage with the under side of the latter, as shown in Fig. 9, to lock the key in that position, while the number-plate slides forward, and until the bolt is pulled back, as hereinafter described. This bolt I thus locks the keys in either their upper or lower positions.

In order to restore the several parts to their normal positions, I make use of a sliding bar, M, which has at its outer end a rack gearing into a pinion, m , connected to or formed in one with the gear-wheel D, as shown in Figs. 3 and 4. To this bar M is connected, as hereinafter described, a stem, N, having a handle, n , so that by pulling on this handle the bar M will be drawn outward and will turn the wheel D, and so draw the number-plate back to its normal position into engagement with the finger of the retainer G, and the figure 0 showing through the opening a of the case.

The connection of the stem N with the bar is a yielding one, the stem N being connected to a stem, N', adapted to have a limited sliding motion in a groove in the bar M, as shown in Figs. 2 and 5. On this stem N' is a vertically-projecting pin, p , which, when the rack-bar M is pulled back, engages with a corresponding pin, o , on the face of the locking-bolt I to pull the latter back to the position shown in Fig. 2 and into engagement with the spring-catch L, Fig. 5. A spring, m' , is interposed between the portion N' of the stem and a suitable shoulder on the bar M, so as to keep

said stem N in such a position that the outer end of the stem N' will be normally in contact with the end of the recess in the bar M.

For purposes of safety, I prefer to use, in connection with the above, an automatic catch, which will prevent the parts from sliding forward and registering if the operator should accidentally happen to let the parts slip forward under the action of the spring F before he has pulled them all the way back into engagement with the retainer G and catch L. For this purpose I make use of a rotary ratchet-bar, R, mounted in the bar M, and having on its under side ratchet-teeth, with which may engage a spring-pawl, r , on the underside of the casing, Figs. 2 and 5. In the periphery of this ratchet-bar R is mounted a triangular recess, r' , Fig. 2, into which projects a pin, p' , on the stem N'. As the stems N N' of the bar M are pulled outward, the pin p' , acting on the inclined sides of the recess r' , will turn the ratchet-bar to the position shown in Figs. 2 and 5 in the path of the spring-pawl r . Thus, when the operator begins to pull on the stems N N', their first action will be to turn the ratchet-bar into position for engagement with the pawl. To throw the ratchet-bar out of action, I provide an arm, l , on the lower portion of the catch L, as shown in Fig. 5, to act on the pin r^2 on the extreme end of the rotary ratchet-bar R, so that when the catch L is pushed back to free the locking-bar I the arm l on the catch will so turn the ratchet-bar as to free it from engagement with the pawl r , and so allow the bar M to slide forward when the number-plate has been released.

In order to operate all the stems N, with their handles n , at the same time after a registry, to restore all the parts to their normal positions, as shown in Fig. 1, I make use of a cross-bar, Q, carried by sliding rods q in guides in the under side of the casing.

To operate the catches L of all the sections at the same time, I connect them by a cross-bar, l' , as shown in Fig. 1, on the outside of the casing, this cross-bar l' being united with all the catches L by pins passing through slots l^2 in the front of the casing, Fig. 5, so that a transverse movement of the cross bar will move all the catches at once.

To register the successive sales, as well as to indicate them to the customer, as described above, I provide registering-dials or other suitable devices, S, preferably only in connection with the devices operating the number-plate carrying the figures for the highest column.

As shown in Fig. 3, I secure to the axis E a ratchet-wheel, T, which is connected with the cog-wheel D by its pawl d , while at the opposite end of the shaft E is secured a wheel, U, having raised numbers (0 to 9) on its periphery and provided with an undulating collar, u , as shown in Fig. 2, and against this collar bears a spring-arm, V, having an anti-friction roller. The undulations or recesses in this wheel are equal in number to the figures on

the periphery of the wheel U, so that the spring-arm will insure the stopping of the wheel in the position to which it has been moved, with a number at the top in line with the dials S, and the pawl and ratchet allow the communication of motion to the register only as the wheel D moves in one direction.

On the face of the wheel U, near the periphery, is a pin, u' , which, at each revolution, comes into contact with an arm of the star-wheel Y, Fig. 10, to give this a movement to the extent of one number.

A pin on the wheel Y, (indicated by dotted lines in Fig. 10,) near the figure "9," comes into contact with an arm of the second registering-wheel, Y', and the number of these wheels may be continued so far as needed. Springs t , bearing on the peripheries of the dials, prevent their movement beyond one tooth at a time. These registering-dials I prefer to mount in a movable box, a' , Figs. 1, 11, and 12, which may be provided with any suitable form of retaining-catches or locking-bolts to hold it in place in the casing. In the drawings I have shown the box a' as provided with bolts v , engaging with notches in the side plates of the casing, and controlled by a key, v' , Fig. 12. Thus at any time the registering-box may be detached from the box and taken to the counting-room for examination and entry on the business books. I also provide for carrying with the box a record of the position of the wheel U in the following manner: I prefer to make the notches in the side plates in which the projecting ends of the cover of the box a' rest somewhat deeper than the thickness of such cover-plate, and to interpose springs w , Figs. 1 and 11, below the ends of the plate, so that by slipping a piece of paper between the plate and the wheels U and pressing on the cover-plate a record may be obtained of the uppermost of the raised numbers on the said wheels.

In order to register totals on the dials, in connection with the section which has the highest column, I make use of any suitable device which shall, at each complete revolution of the shaft E of one section, impart a partial revolution to the shaft E of the next section, carrying the number-plate to indicate the next higher column of figures.

In the drawings I have shown, Fig. 3, the shaft E of each section as provided at one end with a wheel, D', having on its outer face notches or ratchet-teeth e , while to the opposite end of the shaft E is secured a spring-pawl, e' . The nose of this pawl travels in an annular groove in the side plate, and at each complete revolution of the shaft projects through an opening, e^2 , (with beveled edges,) in the said plate, and engages with a tooth or notch of disk or wheel D' of the next section for a sufficient length of time to impart a partial movement to the shaft E and wheel U of the latter to the extent of one number. The spring-pawl e' , as the shaft E of the first section rotates, is forced by cams or inclines out of contact with

the wheel D' of the second section and held out of contact therewith until the shaft of the first section has made another complete revolution. Other devices, however, may be used for the same purpose without departing from my invention.

As I have said, my register has been designed more particularly for use for indicating and registering cash sales in stores, and for this purpose I mount the register in the surface of a counter, desk, or table, C, Fig. 13, so as to be flush, or nearly so, with the top thereof, in a position convenient for the salesman to register and indicate the sales, by pressing on the buttons or keys above described, and convenient also for the buyer to see that the indication is correct, by examining the numbers through the opening or openings a in the top of the case.

This sales-indicator, it may be observed, is a structure independent of the structure of the desk, counter, or table, and is removable therefrom.

By constructing the register in the manner described, and arranging it in the surface of the counter, desk, or table, the handling of goods or various other articles on the surface of such counter is not interfered with.

I claim as my invention—

1. A sales-indicating apparatus adapted to be placed in the surface of a counter, desk, or table, and having sliding number-plates, a series of operating-keys for each number-plate, and an opening in the surface of the apparatus to show the numbers on the plates, substantially as set forth.

2. A registering and indicating device comprising a case, a series of sliding number-plates, springs to operate the same, and a number of locking and releasing keys for each number-plate, substantially as set forth.

3. A registering device comprising a casing, a series of sliding number-plates, and operating-springs, with a locking and releasing key for each number-plate and a locking-bolt for the keys.

4. A registering device comprising a case, a series of sliding number-plates, and operating-springs, with a number of locking and releasing keys for each number-plate, and devices, substantially as described, for returning the plates and other parts to their normal positions.

5. A registering and indicating device adapted to be placed in the surface of a table, desk, or counter, and having rows of operating-keys on its surface, sliding number-plates, and an opening in the surface of the case through which the numbers on the plates can be inspected.

6. The combination of the case, the sliding number-plate having a notch, b' , and shoulder b^2 , with a retainer, G, and a series of keys adapted to release the retainer and at the same time to come into the path of the shoulder b^2 of the number-plate, substantially as set forth.

7. The combination of the case, sliding number-plate having a notch and shoulder, and an operating-spring with a retainer to engage with the notch of the number-plate, 5 pivoted levers to act on the retainer, and a series of keys to act on the levers and form stops to engage with the shoulder on the number-plate.

8. The combination of the case, sliding 10 number-plate, and operating-spring with locking and releasing keys having beveled catches k' , and a notched locking-bolt, I, having a shoulder, j , and projection j' , substantially as and for the purpose set forth.

9. The combination of the sliding number-plate, operating-spring, and locking and releasing key with locking-bolts for the keys and catches to retain the locking-bolt, substantially as described. 15

10. The combination of the sliding number-plates having racks on their under sides and locking and releasing keys therefor with gear-wheels to engage with the number-plates and spiral springs to operate the said wheels when 20 the number-plates are released, substantially as set forth.

11. The combination of the rack, number-plates, locking and releasing keys therefor, and gear-wheels with a rack-bar, N, a pinion 30 connected to the gear-wheel, and an operating-spring, substantially as set forth.

12. The combination of the rack number-plates, locking and releasing keys therefor, and a locking-bar for the keys with a gear-wheel, operating spring and pinion, and a rack-bar engaging with the pinion, and having a pin, p , to act on the locking-bar for the keys and return it to its normal position when the other parts are pulled back. 35

13. The combination of the number-plates and locking and releasing keys and operating-springs with a rack-bar, M, to return the parts to their normal positions, a pawl on the case, and an automatic ratchet-bar carried by 40 the bar M, to be thrown into engagement with the pawl as the said bar M is drawn back, substantially as described.

14. The combination of the return-bar M, having a stem adapted to have a sliding movement therein, and having a pin, n' , and a 50

spring with a rotary ratchet-bar, R, having a triangular recess, r' , and a pawl carried by the case, substantially as and for the purpose set forth.

15. The combination of the return-bar and 55 rotary ratchet-bar R, mounted therein, a pawl upon the case, and a lever, L, having an arm, l , adapted to partially rotate the said bar R to disengage its teeth from the pawl, substantially as specified. 60

16. The combination of the return-bars M, having stems and fingers n , with a sliding cross-piece, Q, as and for the purpose specified.

17. The combination of an indicator having 65 sliding number-plates, operating-springs, and locking and releasing keys for each number-plate with registering-dials adapted to be operated from the sliding number-plates, substantially as set forth. 70

18. The combination of the sliding number-plates and wheels geared thereto and a series of operating-keys for each number-plate with shafts E, carrying ratchet-wheels having a pawl-connection with the gear-wheel, and an 75 indicating-wheel, also carried by the shaft, substantially as set forth.

19. The combination of the sliding number-plates and operating-springs and locking and releasing keys with a wheel geared to the 80 number-plates, an indicating-wheel controlled by the said gear-wheel, and dials to be operated by the indicating-wheels, substantially as set forth.

20. A registering and indicating apparatus 85 adapted to be placed in the surface of a counter, desk, or table, and having rows of operating-keys, number-plates, and an opening in the surface of the case to show the numbers, registering-dials operated by the number- 90 plates, and a removable box carrying the registering-dials, all substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MATTHIAS R. LONGACRE.

Witnesses:

WILLIAM D. CONNER,
HUBERT HOWSON.