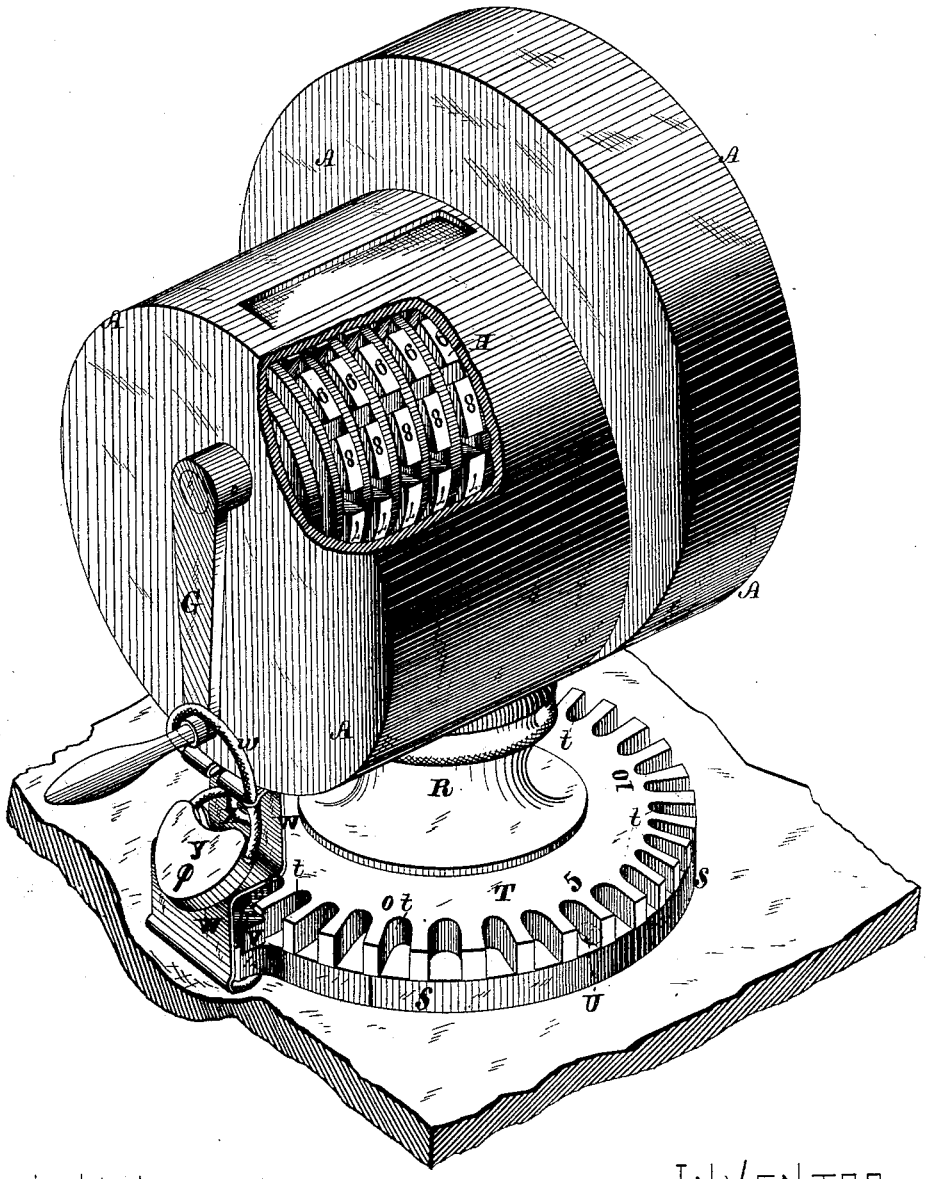
5 Sheets—Sheet 1.

H. CLARKE.

Register.

No. 203,707. Patented May 14, 1878.

Fig. 1.



WITNESSES:

Jas. E. Hutchinson.

Henry C. Hazard.

INVENTOR.

Henry Clarke, by

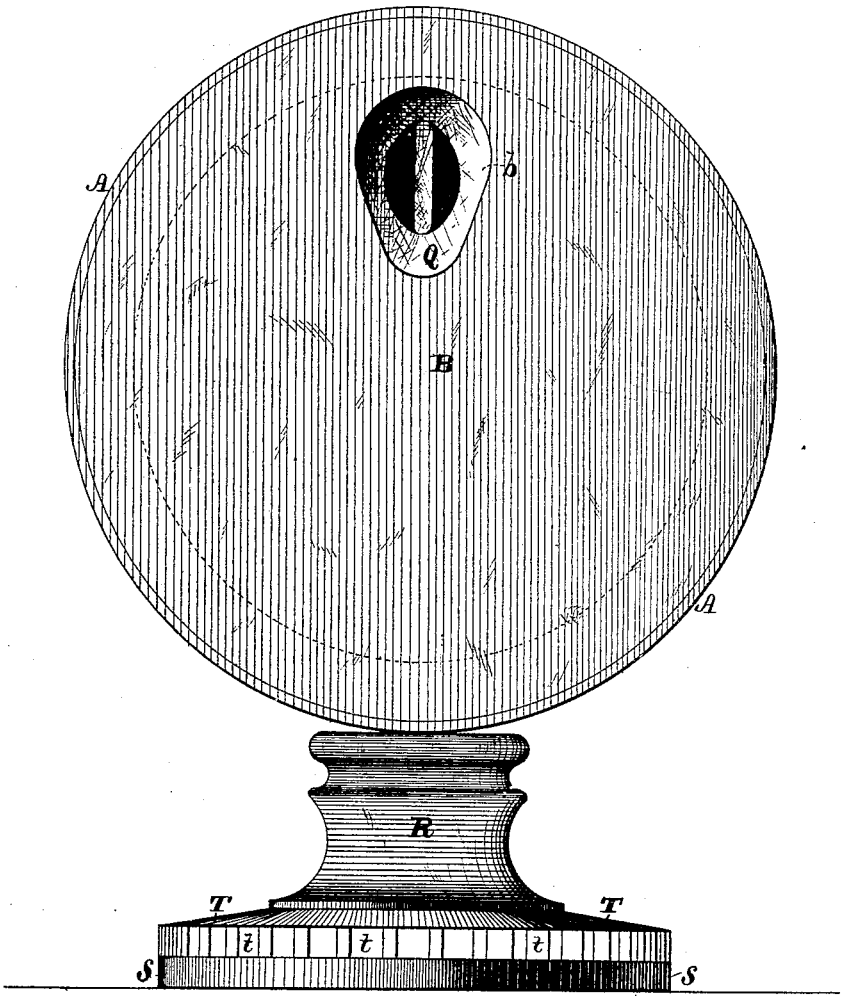
Pindle and Lay his attys

5 Sheets—Sheet 2.

H. CLARKE.
Register.

No. 203,707. **Patented May 14, 1878.**

Fig. 2.



WITNESSES:

Jas. E. Hutchinson.

Henry C. Hazard.

INVENTOR.

Henry Clarke, by

Pindle & Co, his attys

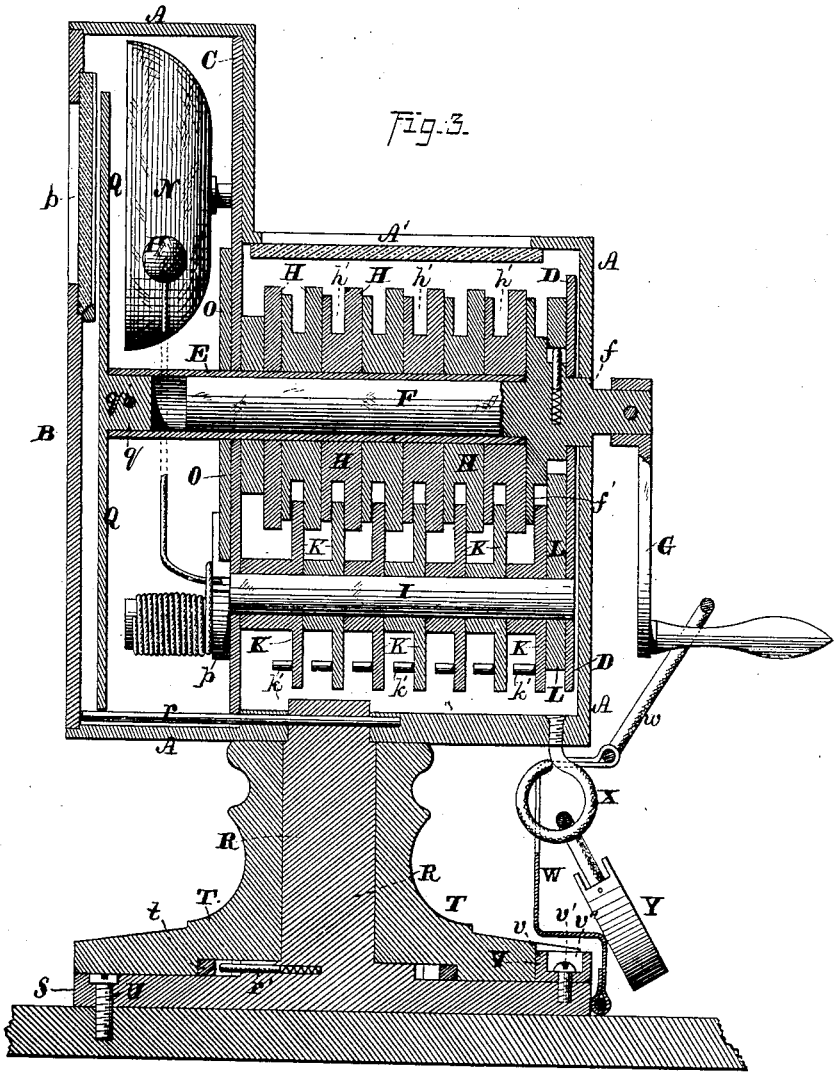
5 Sheets—Sheet 3.

H. CLARKE.

Register.

No. 203,707. Patented May 14, 1878.

Fig. 3.



WITNESSES:

Jas. C. Hutchinson

Henry C. Hazard

INVENTOR.

Henry Clarke, by

Pindle and Pindle his Attys

5 Sheets—Sheet 4.

H. CLARKE.
Register.

No. 203,707. Patented May 14, 1878.

Fig. 4.

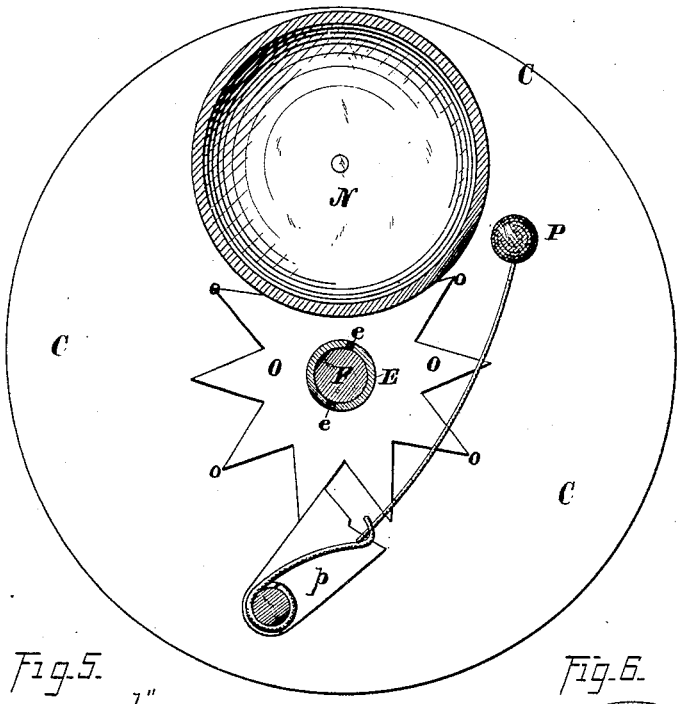


Fig. 5.

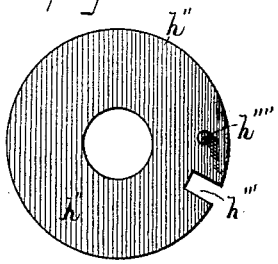
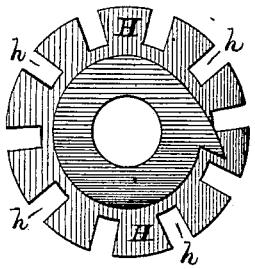


Fig. 6.



WITNESSES:
Jas. E. Hutchinson
Henry C. Hazard

INVENTOR.
Henry Clarke, by
Prindle and Co., his attys

H. CLARKE.
Register.

No. 203,707. Patented May 14, 1878.

Fig. 7.

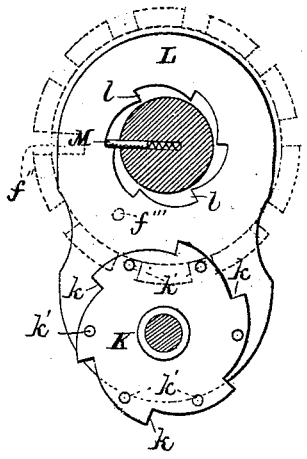


Fig. 8.

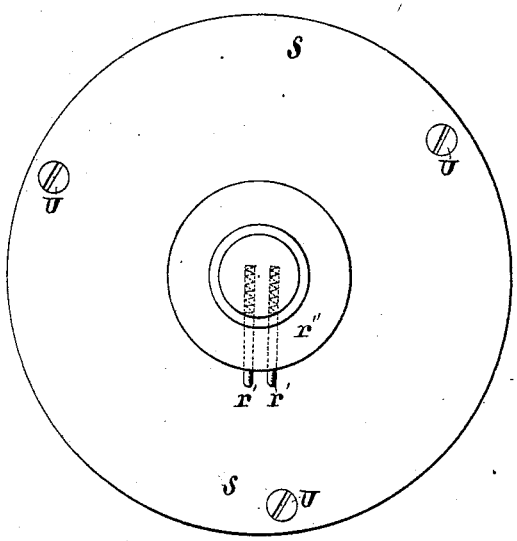
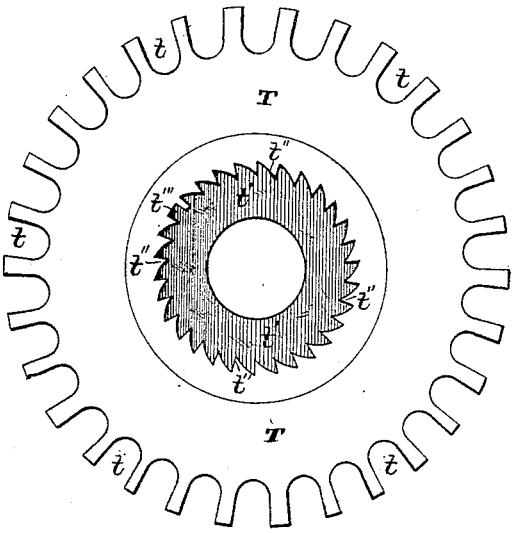


Fig. 9.



WITNESSES:

Jas. C. Hutchinson.

Henry C. Hazard.

INVENTOR.

Henry Clarke, by

Pindle & Co., his Attys

UNITED STATES PATENT OFFICE.

HENRY CLARKE, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN REGISTERS.

Specification forming part of Letters Patent No. **203,707**, dated May 14, 1878; application filed April 25, 1878.

To all whom it may concern:

Be it known that I, HENRY CLARKE, of Baltimore, in the county of Baltimore, and in the State of Maryland, have invented certain new and useful Improvements in Registers; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of my register as arranged for use, a portion of the casing having been broken away for the purpose of showing the registering mechanism. Fig. 2 is a front elevation of the same and shows the detective device. Fig. 3 is a vertical central section upon a line passing from front to rear. Fig. 4 is a side elevation of the alarm mechanism. Fig. 5 is a like view of one of the locking-plates. Fig. 6 is a side elevation of one of the register-wheels. Fig. 7 is an elevation of the rear end of the registering mechanism and of the ratchet employed for preventing backward movement of the operating handle. Fig. 8 is a plan view of the base, the casing being removed; and Fig. 9 is a like view of the lower side of the registering-disk employed for locking the base in position and preventing removal therefrom without detection.

Letters of like name and kind refer to like parts in each of the figures.

The design of my invention is to increase the efficiency of registers, and to render impossible the tampering therewith by unauthorized persons; to which end it consists principally in a register inclosed within a casing, which is secured to or upon a suitable support, and is incapable of removal therefrom without causing such movement of registering mechanism as will cause the same to be indicated, substantially as and for the purpose hereinafter specified.

It consists, further, in a register inclosed within a casing, which is secured to or upon a suitable support, and has its fastening mechanism locked in place by registering mechanism, and said registering mechanism locked by a seal-locked detent, substantially as and for the purpose hereinafter shown.

It consists, finally, in a register inclosed within a casing, which is secured to or upon a suitable support, and has its fastening mechanism locked in place by registering mechanism, and said registering mechanism locked by a seal-locked detent, and said detent covered, so as to prevent tampering with or injury to its seal, substantially as and for the purpose hereinafter shown and described.

In the annexed drawings, A represents the casing of my register, which casing has the form of a large and a small cylinder, united eccentrically, so as to cause their lower edges to be upon a line vertically. Said casing is, preferably, formed of or from cast metal, and is open only at the outer end of its largest portion, at which point is provided a head, B, that is fitted closely into said opening, and after the mechanism is in position is permanently secured in place.

A plate, C, is fitted into the largest portion of the casing A, over the inner end of the smaller portion of said casing, and a similar smaller plate, D, is fitted into the latter at or near its outer end, and said plates secured together by means of three pillars that extend between the same, in the same manner as the pillars of watch-plates.

The plates C and D, thus secured together, form the frame for the operative mechanism of my register, and are detachable from the casing A, and when in place within the latter are securely fastened by means of screws that pass through the upper portion of said plate C into the contiguous portion of said casing. Journaled within the plate C, upon a line with the axis of the larger end of the casing A, is a tube, E, which extends from near the head B nearly to the plate D, and fits over a shaft, F, that is journaled within said plate D, and extends within said tube forward beyond said plate C.

At the rear end of the tube E the shaft F is provided with an enlargement, *f*, which forms an end bearing for said tube, beyond which enlargement said shaft is reduced in size and passes through the plate D and the head of the rear end of the casing A, and upon its projecting portion has secured an operating-crank, G.

Upon the tube E are journaled a number of disks, H, which are in all respects like the plates shown for operating the registering-dials in my Patent No. 200,259, issued February 12, 1878, except that each is journaled independently upon the same bearing, and that each has a width sufficient to enable numerals to be placed upon its periphery, as shown in Fig. 1.

Like the plates named, each disk H is provided at equidistant points upon its periphery with ten radial notches, *h*, and upon one side, separated by a groove, *h'*, has a second smaller disk, *h''*, which is provided with one radial notch, *h'''*, that coincides with one of said notches *h* in circumferential position, while at a point midway between said notch *h'''* and the next forward notch *h* of said disk H is placed a pin, *h''''*, which extends from the same into said disk *h''* through said groove *h'*.

Journaled upon a shaft, I, which extends between the plates C and D, below and parallel with the tube E, are a series of wheels, K, which number one more than the disks H, and have their upper edges contained within the grooves *h'*. Each wheel has six peripheral teeth, *k*, as shown in Fig. 7, and midway between said teeth is provided with a stud or pin, *k'*, that extends laterally outward in a line with the axis of said wheel.

The diameter of each wheel K is such as to bring its teeth *k* into position within the groove *h'* to engage with the pin *h''''*, while its studs *k'* are placed at such points radially as to cause two of them to bear upon the periphery of the disk *h''*, and to be contained within two of the notches *h* of the disk H next in front, and thus lock said wheel and disks in position.

Secured upon or forming part of the enlargement *f* of the shaft F is a disk, *f'*, which corresponds to the disks *h''* in size, and, like them, is provided with a peripheral notch, *f''*, and a pin, *f'''*.

As the parts are now arranged each of the wheels K occupies the position shown in Fig. 7, two of its studs *k'* being engaged with two of the notches *h* of the next forward disk H, and at the same time resting upon the periphery of the smaller disk *h''* next in rear of the latter, all of said parts being thus locked in position and prevented from rotation except the rear disk *f'*.

If, now, the shaft F is caused to rotate, the disk *f'* will revolve until its pin *f'''* engages with and moves forward the tooth *k* of said wheel that is contained within the groove of said disk, while at the same instant the notch *f''* of said disk comes opposite to the rear one of the studs *k'* which were resting upon the periphery of said disk, and permits said wheel K to turn freely until the next succeeding stud is arrested by the solid portion of the periphery of said disk *f'*. This movement of the wheel K causes the first disk H, with which its studs *k'* were engaged, to be moved forward one-tenth of a revolution, the operation being repeated at each revolution of the shaft F.

When the first disk H has made a complete revolution it moves the second wheel K forward one tooth, and by such movement causes the second disk H to be rotated one-tenth of a revolution, said operation being repeated whenever each disk makes a complete revolution.

If desired, the pin *f'''* of the disk *f'* may be omitted, and in its place be substituted a tooth, as shown in Fig. 6.

Each disk H has ten peripheral numbers—from 1 to 0, both inclusive; and by means of a glazed opening, A', formed in the upper side of the smaller portion of the casing A, the numbers which are uppermost upon each dial can be seen, said numbers being so arranged as to be read in a line from front to rear.

The figures of the first or rear disk indicate units, those of the second tens, the third hundreds, the fourth thousands, &c., so that the difference between the numbers shown before and after the crank is turned will correctly indicate the number of revolutions of said crank.

In order that the crank G may not be turned rearward, so as to lessen the total number indicated by the register, a series of ratchet-teeth, *l*, are formed within an opening in a plate, L, which is placed between the plate D and the enlargement *f* of the shaft F, and with said teeth engage a spring-pawl, M, that projects outward from said shaft F. Each revolution of the shaft F is caused to sound an alarm upon a bell, N, which is secured upon the outer face, near the upper side of the plate C, by means of a star-wheel, O, that is secured upon and revolves with the tube E, and is provided with ten radial teeth, *o*, one of which engages with and trips the tail-piece *p* of a hammer, P, as shown by Fig. 4, at each movement of said tube.

Notice of a movement of the registering mechanism is given to the eye from the front by means of a dial, Q, which is secured upon and revolves with the sleeve E, has nearly the diameter of the interior of the front end of the casing A, and upon its outer face, at equidistant points, has ten figures or characters, that are caused to appear successively in rear of a glazed opening, *b*, in the head B as said tube revolves.

The dial Q is secured upon or to the end of the sleeve E by means of a central hub, *q*, which projects rearward from the rear face of said dial into the open end of said tube, while the relative radial position of said parts is insured by means of a pin, *q'*, that passes radially through said hub and has its projecting ends contained within slots *e* that are provided within the end of said tube.

The casing A is supported upon or by means of a standard, R, which rises from a circular base, S, and has its upper reduced end contained within a corresponding opening that is provided in the bottom of said casing. A pin, *r*, passes from the front inward through openings in said casing and said standard, and firmly unites said parts together. Said pin is inserted from the interior of said casing, and can only be removed while the head B is detached, by which means unauthorized tampering with said connection is prevented.

It being desirable that when the register has been fastened to a counter or other support it should not be capable of removal there-

from without detection, the following-named construction of parts is employed: Surrounding the standard R is a disk, T, which extends between the casing A and base S, and at its lower end has nearly or quite the diameter of said base. Within the periphery of the lower portion of the disk T are provided a number of notches, *t*, which have a width slightly greater than the diameter of the head of one of the screws U employed for securing the base S to or upon its support, so that said screws may be inserted within said base through said notches, after which, by turning said disk until the solid metal between its said notches covers said screw-heads, all interference with or withdrawal of said screws will be prevented while said disk retains such position or until it has been turned until the next notches coincide with said screw-heads.

It is intended that the disk T shall move in but one direction, and that after making one revolution it shall be incapable of further movement. This result is accomplished by the following-named means: Within a recess, *t'*, formed within the lower side at the center of the disk T, are provided a series of internal ratchet-teeth, *t''*, which equal in number the notches *t*, and are engaged by means of two radial spring-pawls, *r'*, that project outward from an enlargement, *r''*, of the standard R. Said pawls are relatively arranged so that they alternately engage with the same tooth, the effect being the same as though a single pawl were employed and twice the number of teeth provided.

At one point one of the teeth *t'* of the disk T is omitted, and in its place is provided a plain square recess, *t'''*, from which the engaging pawl *r'* cannot be forced, so that when said disk has been rotated until said pawl reaches and enters said recess further rotation is prevented, and it becomes necessary to remove said disk, which can only be done after the casing A has been opened. At equidistant points upon the upper face of the lower portion of the disk T are provided numbered graduation-marks, and at a suitable point upon the base S a single mark, the latter being so arranged that when the pawl *r'* is engaged with the first of the series of teeth *t'* said mark upon said base shall coincide with zero of the graduated scale of said disk, which position said parts should occupy when furnished for use.

When the proper officer has screwed the base upon its support he turns the locking-disk until the screws are covered by the solid portions of the said disk, and then notes the number which coincides with the indicator-mark upon said base, after which, if the register is removed from its support, the change in position of the register-disk rendered necessary before the screws can be withdrawn will at once show that said register has been tampered with.

To prevent malicious persons from turning the registering-disk T, so as to cause suspicion to rest upon the user of the register of having tampered with the same, I provide a locking-lug, V, which has a projection, *v*, that enters into one of the notches *t* of said disk, while said lug is secured to or upon the base S by means of a screw, *v'*.

The head of the screw *v'* is contained within a recess, *v''*, which has such diameter and depth as to enable a lead seal to be inserted above said screw by the person using the register, by which means the removal of said lug and the movement of the registering-disk are rendered more difficult.

To prevent the crank G from being turned during the absence of the proper person, a hasp, W, is hinged upon the base S, and is arranged to be turned upward over a staple or an eye, X, which projects downward from the bottom of the casing A, and, after said hasp is in place, receives a padlock, Y. The hasp W has a bail, *w*, pivoted or hinged upon its upper end, which bail may be passed over the handle of the crank G before said hasp is locked upon the staple X, thus preventing all movement of said crank. By placing the hasp W in front of the seal-locked locking-lug V it may be caused to cover the latter and prevent mutilation of the seal by malicious persons.

The register described affords perfect protection against tampering with the operative parts and the removal of the register from position, and also affords protection to its user against the interference of those who might desire to injure him by a change of the registering-disk of the base or by turning the handle.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

1. A register inclosed within a casing, which is secured to or upon a suitable support, and has the mechanism employed for fastening the same thereon locked in place by registering mechanism, substantially as and for the purpose specified.

2. A register inclosed within a casing, which is secured to or upon a suitable support, and has its fastening mechanism locked in place by registering mechanism, and said registering mechanism locked by a seal-locked detent, substantially as and for the purpose shown.

3. A register inclosed within a casing, which is secured to or upon a suitable support, and has its fastening mechanism locked in place by registering mechanism, and said registering mechanism locked by a seal-locked detent, and said detent covered, so as to prevent tampering with or injury to its seal, substantially as and for the purpose shown and described.

In testimony that I claim the forgoing I have hereunto set my hand this 25th day of April, 1878.

HENRY CLARKE.

Witnesses:
GEO. S. PRINDLE,
JAS. E. HUTCHINSON.