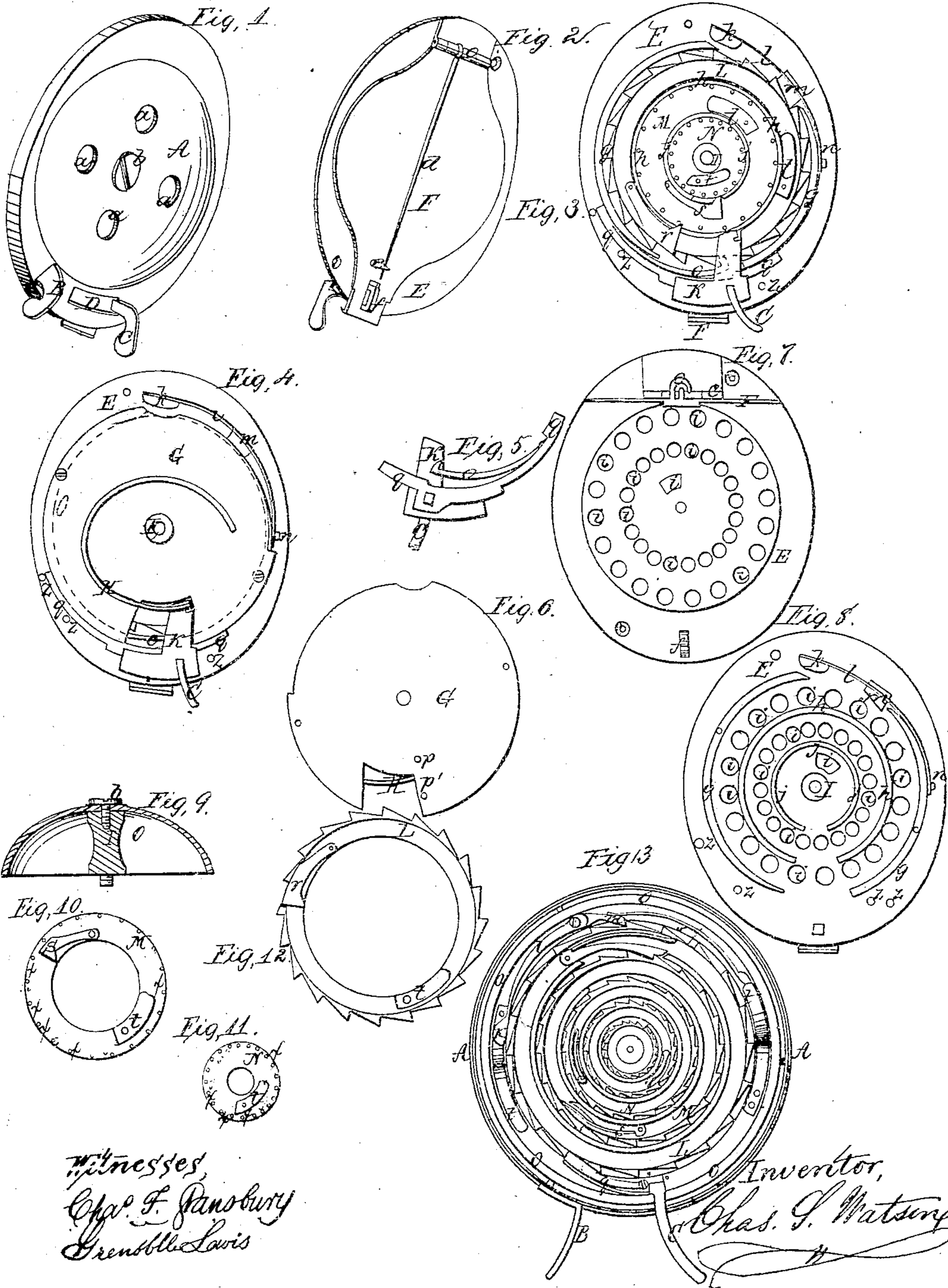


C. S. WATSON.
REGISTER.

No. 26,639.

Patented Dec. 27, 1859.



UNITED STATES PATENT OFFICE.

CHARLES S. WATSON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HIMSELF,
ALBERT S. ASHMEAD, AND E. W. CARR, OF SAME PLACE.

PORTABLE REGISTER.

Specification of Letters Patent No. 26,639, dated December 27, 1859.

To all whom it may concern:

Be it known that I, CHARLES S. WATSON, of Philadelphia, in the State of Pennsylvania, have invented an Improved Register for Cars, Omnibuses, &c.; and I do hereby declare the following to be a correct description of the same, reference being had to the accompanying drawings, making part of the same.

10 The nature of my invention consists in the arrangement within a small portable outer case, of a number of concentric annular plates with mechanism for moving the same, and for announcing audibly each movement, 15 for the purpose of registering any succession of numbers that it may be desired to record, such, for instance as the number of passengers that enter an omnibus or car, the number of packages in a cargo, the measurement 20 of grain, coal or other commodities, or any other similar series. The instrument is as portable as a common watch, and may be carried in the pocket, or attached by a pin to the coat or other portion of the dress, and yet, without exceeding the dimensions shown 25 in the drawings, may be made to keep a record of numbers as high as several millions.

In the accompanying drawings, the same part is marked by the same letter of reference wherever it occurs.

Figure 1, is a perspective view of the front of the instrument; Fig. 2, is a similar view of the back of the same; Fig. 3, is an elevation showing the interior of the instrument, 35 the outer case; bell and inner front plate being removed; Fig. 4 is a similar elevation, the inner front plate being in place and the position of the bell indicated by dotted lines; Fig. 5 is a rear view of the finger piece, plate, 40 and spring pawl; Fig. 6 is a view of the inner side of the front plate, showing the position of the pins that operate the dogs; Fig. 7 is a rear view of the dial plate with the dial cover thrown up; Fig. 8 is a 45 view of the inner side of the dial plate, the annular plates being removed to show the rims or divisions between the spaces in which they work. Fig. 9 is a central section of the bell and its post or standard. Figs. 10, 11 and 12 views of the three annular plates. Fig. 13 is a front elevation of a modified form of the instrument in which all the annular plates are notched and the dogs and

bell hammer operate in a somewhat different 55 manner.

To enable others to make and use my improved register, I will proceed to describe its construction and operation.

The outer case A is made of metal, and 60 is of the shape and size required by the character of the instrument. It has a convex projection in front, which covers the bell within. This convex part is perforated with holes *a*, to allow free egress to the sound of 65 the bell. On the lower part of the front of the instrument, are the thumb piece B, and finger piece C, by which it is operated; the thumb piece being stationary, and the finger piece moving in a slot, D, in the case, provided for that purpose. 70

The back of the case consists of the dial plate E, and its cover F, which is attached to it by a hinge *e*. The cover F, shuts down upon the dial plate, and entirely conceals it 75 from view. A staple *f*, on the lower end of the dial plate E, receives the slotted end of the cover, which may be secured by a padlock to prevent inspection. There is a pin *d*, on the back of the cover, arranged and 80 operated like an ordinary shawl pin, the office of which is to attach the instrument to some convenient portion of the dress.

The dial plate is perforated with numerous holes *i*, *j*, and *c* through which the numbers on the annular plates below can be read. 85 The drawings which are of full size represent an instrument not much larger than a common chronometer.

Removing the outer casing, we discover 90 the bell O, attached to its post I, to which it is confined by the screw *b*. The bell post is screwed into the center of the inner front plate G, see Fig. 4. On the front face of this plate, is spring H, which acts against 95 the plate K, to which finger piece C, and spring pawl *o* are attached. On the inner face (Fig. 6) of this plate, are placed two pins, *p* and *p'*, having the proper position and projection to come in contact with the 100 inclined side of the dogs *s* and *r*, respectively, when those dogs are in the position to engage with the pins on annular plates N and M.

The front plate G, being removed, the interior of the instrument is presented to view, 105 as shown in Fig. 3. The back or dial plate E is divided here into three annular spaces

by the three projecting rims *g*, *h*, *k* and the central nave *v* (see also Fig. 8). In these spaces are placed three annular plates L, M and N, separate views of which are seen in Figs. 10, 11 and 12. Plate L, is notched on its outer periphery; but the inner plates have pins *x*, *x*, &c., in place of notches. Springs *t*, *t*, &c., are placed on the faces of these plates which, by acting against the inner face of plate G, keep the plates in place without interfering with their revolutions. The plate L has a dog *r* pivoted to it, and a similar dog *s* is pivoted to plate M. The external rim *g* has a break or opening at top to admit the tooth or catch *m* of the handle of the bell hammer *k* (see Fig. 8). It has also an opening at bottom to admit the spring pawl *o* (see Fig. 3). The inner rims *h* and *j* have breaks or openings at the bottom only, for the admission of the dogs *r* and *s*.

K, Figs. 3, 4, and 5, is a plate to which the finger piece C, and the spring pawl *o*, are attached. It is seen in front view in Figs. 3 and 4, and in rear view in Fig. 5. At its upper right-hand corner it receives the end of spring H, on plate G, which forces it, and the finger piece C, to the right, and away from the thumb piece B. Attached to this plate and forming part of it, is a guiding arc *q* which works in contact with the outer surface of outer rim *g*, being held in place by pins *z*. To the inner surface of this arc, is attached the spring pawl *o*, whose free end passes through the lower opening in rim *g'*, and engages the teeth, or notches, on the periphery of annular plate L.

The bell hammer *k* is attached to an elastic handle *l* which has a tooth *m* upon it, so shaped and placed as to engage the teeth of the outer plate L, by the action of spring *l*, pressing it inward. The spring handle *l* is attached to the outer rim *g* at the point *n*.

The rear faces of the annular plates L, M and N, have numbers cut upon them, corresponding with the number of teeth or pins on the plate. These numbers are inspected through the holes *i*, *i*, *i*, &c. of the dial plate, Figs. 7 and 8. One hole for each plate is sufficient. The numerous perforations of plate E serve merely to make it lighter.

Operation: The operation of the instrument is as follows:—All the plates L, M, and N, are set at the zero point before beginning to use the instrument. Before being acted upon by the operator, the finger piece C, is at the greatest distance from the thumb piece B, as in Fig. 1. When in this position, the spring pawl *o*, is engaged, (see Fig. 3,) with a notch on the outer plate L. The tooth *m*, of the spring *l*, is similarly engaged with another notch of the same plate, (Fig. 3). When finger piece C, is drawn toward thumb piece B, the pawl *o*, draws the plate L, the length of one notch in the same di-

rection. At the same time, the notch in contact with tooth *m*, causes that tooth to slide up its inclined face, and retract the bell hammer. When the plate L, has moved the length of one notch, the tooth *m*, falls into the succeeding notch, and releases the bell hammer, which, obeying the impulse of the spring *l*, gives a forcible blow to the bell. A stroke of the bell thus announces, and accompanies each advance of the plate. The finger piece C, is now released, and flies back to its original position, by reason of the action of spring H; and pawl *o*, engages the succeeding notch of plate L. Each advance of this plate presents a new figure to view, at the hole in the dial plate through which it is read. When the outer annular plate has made an entire revolution, the dog *r*, comes opposite the opening in the rim *h*, and its inclined side strikes against pin *p'*, on the inner side of plate G, (Fig. 6). It is thus forced to engage a pin on plate M, and move it forward a distance equal to that between two of its pins. When the plate M, has made one entire revolution, the dog *s*, is forced to engage a pin on plate N, by the operation of pin *p*, on the inner side of plate G, and move plate N, forward one division. Each of these concentric annular plates being divided into twenty divisions, and each of the interior plates being moved one division only by an entire revolution of the plate exterior to it, it is clear that one revolution of plate L indicates the number 20; one revolution of plate M, indicates $20 \times 20 = 400$; and one revolution of plate N, indicates $20 \times 20 \times 20 = 8,000$, which is the limit of the present instrument. It is obvious, however, that by increasing the number of concentric annular plates, or the number of teeth in each, the number registered may be increased almost without limit. I have an instrument but little larger than the one shown in the drawing, which registers 4,000,000.

The instrument I have described is capable of some modification without departing from the principle of my invention; and I have represented one of the modifications which I have made, in Fig. 13. The parts in this modified instrument, which correspond in function, though not in form, with those of the instrument first herein described, are marked by the same letters as in the first described instrument. It will be seen, on reference to this figure, that all the annular plates are notched, and that the pawls *r* and *s*, &c., are operated, not by pins, but by springs which force them to descend through openings in the upper part of the rims, and engage the notches of the annular plates. The bell is, in this instrument, struck on the inside; and the clapper is a lever of the first class, operated by a separate spring *x*, and having the tooth *m*, on the short arm of the lever. Though somewhat more expensive

than the other, I have found this instrument to operate well in practice.

Having thus fully described my invention what I claim and desire to secure by Letters Patent is—

1. A portable alarm register constructed and operating substantially as described.
2. The dogs on the annular plates in combination with the pins on the inner front plate as described.
3. The combination of the dogs with the

notches or pins of the annular plates and the openings in the rims through which the dogs operate, as described.

The above specification of my said invention, signed and witnessed this sixteenth day of November A. D. 1859.

CHAS. S. WATSON.

Witnesses:

C. BRAZER,
D. T. HASSINGER.