(No Model.)

B. E. WATERS.

COUNTING AND SIGNALING APPARATUS.

No. 588,670. Patented Aug. 24, 1897.

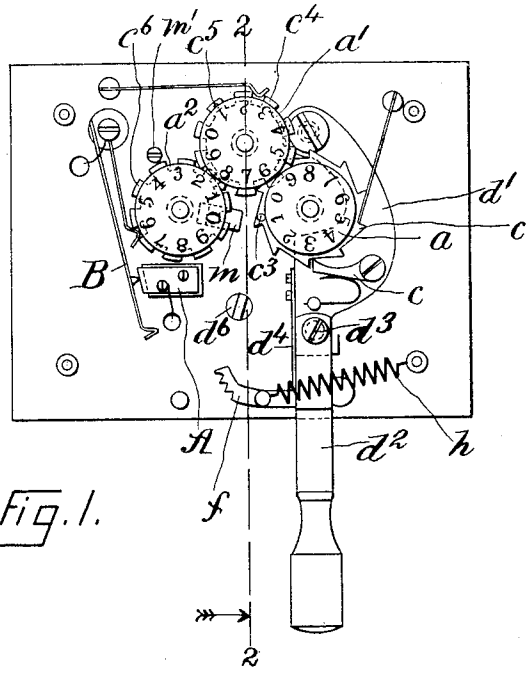


Fig. 1.

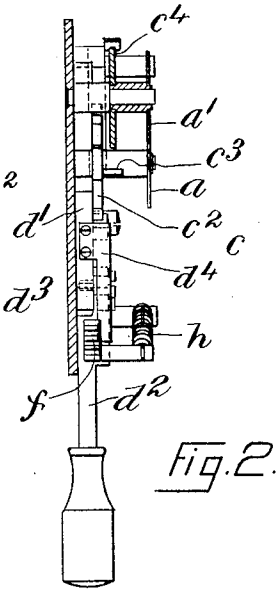


Fig. 2.

Fig. 3.

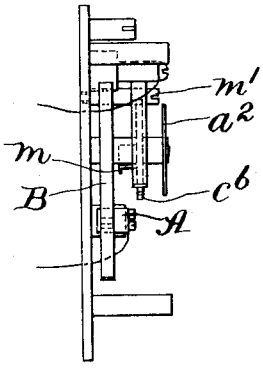
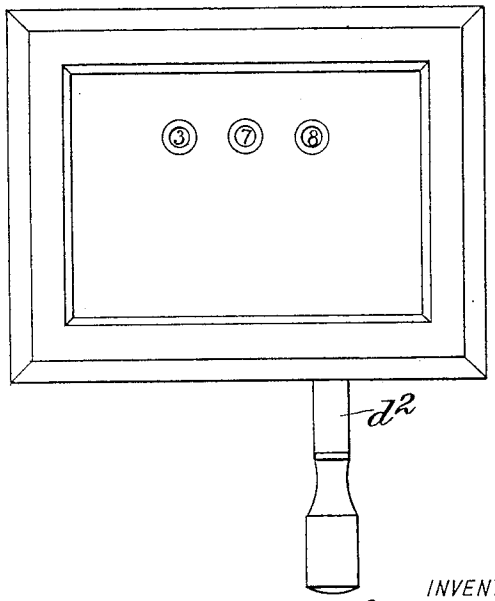


Fig. 4



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UNITED STATES PATENT OFFICE.

BENJAMIN ELLIOTT WATERS, OF BROCKTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO THE SOUTHERN MASSACHUSETTS TELEPHONE COMPANY, OF NEW BEDFORD, MASSACHUSETTS.

COUNTING AND SIGNALING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 588,670, dated August 24, 1897.

Application filed February 8, 1897. Serial No. 622,458. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN ELLIOTT WATERS, of Brockton, in the county of Plymouth and State of Massachusetts, have invented a new and useful Counting and Signaling Apparatus, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation of my apparatus with the case removed. Fig. 2 is a sectional elevation on line 2 2 of Fig. 1, looking in the direction indicated by the arrow. Fig. 3 is a partial elevation, and Fig. 4 is an elevation showing my apparatus with the casing in place.

My invention is the combination, with a counting apparatus, of an electrically-operated signaling apparatus so arranged that the operation of the counting apparatus causes the signaling apparatus to operate.

My invention is intended especially for use with a telephone to enable the user to keep account of the number of times it is used, but it is of course applicable in all cases in which it is desirable that the user of any instrument should keep count of the number of times it is used and also to make or break a circuit when the instrument is used.

In the drawings I have shown my invention with a counting apparatus composed of three disks a a' a^2, each bearing figures from "0" to "9," the disk a being operated by the movement of the jointed lever, through pawl c, mounted on arm d' of the jointed lever and ratchet c^2, each movement of arm d' from right to left causing disk a to turn one member. The disk a' is turned once for each revolution of disk a by pin c^3 on ratchet c^2, engaging with gear c^4, and disk a^2 is turned once for each revolution of disk a' by pin C^5 and on gear C^4, engaging with gear c^6, thus causing disk a to register the units, disk a' the tens, and disk a^2 the hundreds. The disk a^2 has an arm m projecting from its under side. This arm is so arranged with relation to a stop m' in the casing that when the counter registers "999" the arm m is against stop m' and prevents the further operation of the counting mechanism. The counting mechanism is operated by the jointed lever, made up of arms d' d^2, connected at d^3. The spring d^4, extending by the joint in the lever, prevents the arm d^2 from swinging on its pivot d^3 until the counting operation has been completed, and the arm d' brings up against the stop d^6 when the arm d^2 is swung on pivot d^3 against the force of spring d^4, for a purpose explained below.

The signaling apparatus consists of the insulated electrode A, which forms one terminal of the battery-circuit, and the spring-electrode B, which forms the other terminal of the battery-circuit and is normally in contact with electrode A. Arm d^2 of the jointed lever carries finger f. When the lever is moved from right to left and arm d^2 swung on pivot d^3, the finger f strikes against the spring-electrode B and pushes it out of contact with electrode A, thus breaking the circuit and giving a signal. The lever is pulled back to place by spring h.

It will be clear that the jointed lever renders it certain that the counting mechanism will be operated before the signaling mechanism, the spring d^4, which extends by the joint, being strong enough to prevent the arm d^2 from swinging on its pivot d^4 until the counting mechanism is operated. The jointed lever also prevents the breaking of the mechanism when the counting mechanism can no longer be operated, for when the stop m on disk a^2 is against screw m' arm d' of the jointed lever will be held fast, but arm d^2 can still be moved against the force of spring d^4, but the finger will not engage electrode B, and no signal will be given.

My invention is especially adapted for use with a telephone in places where the charge for the telephone is regulated by the number of times it is used. In such a case the user of the telephone calls up the central office and asks to be connected. If the line is not busy, the operator at the central office before connecting the user tells him to count, whereupon the user presses the lever from right to left, counting one and also giving a signal to the operator that he has done so.

I have shown the end of the spring-electrode B provided with a shoulder which engages with the toothed end of finger f. It

will be clear that by this construction the circuit is broken and closed by the passage of finger f by the end of electrode B and that this opening and closing will give the signal to the operator at the central office.

What I claim as my invention is—

The counting and signaling apparatus above described made up of the disks $a\ a'\ a^2$; the jointed lever made up of arms $d'\ d^2$; spring d^4 fast to one arm of the jointed lever and passing by the joint d^3; pawl c on arm d' engaging with ratchet c^2 fast to disk a; insulated electrode A; spring-electrode B normally in contact with electrode A and finger f on arm d^2 all arranged to cause the movement of the jointed lever to first operate the counting mechanism and then to operate the signaling mechanism by the further movement of the arm d^2, substantially as described.

BENJAMIN ELLIOTT WATERS.

Witnesses:

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