No. 822,719. PATENTED JUNE 5, 1906.

C. T. BRADSHAW.

TELEPHONE CALL METER.

APPLICATION FILED OCT. 3, 1903.

2 SHEETS—SHEET 1.

Fig. 1.

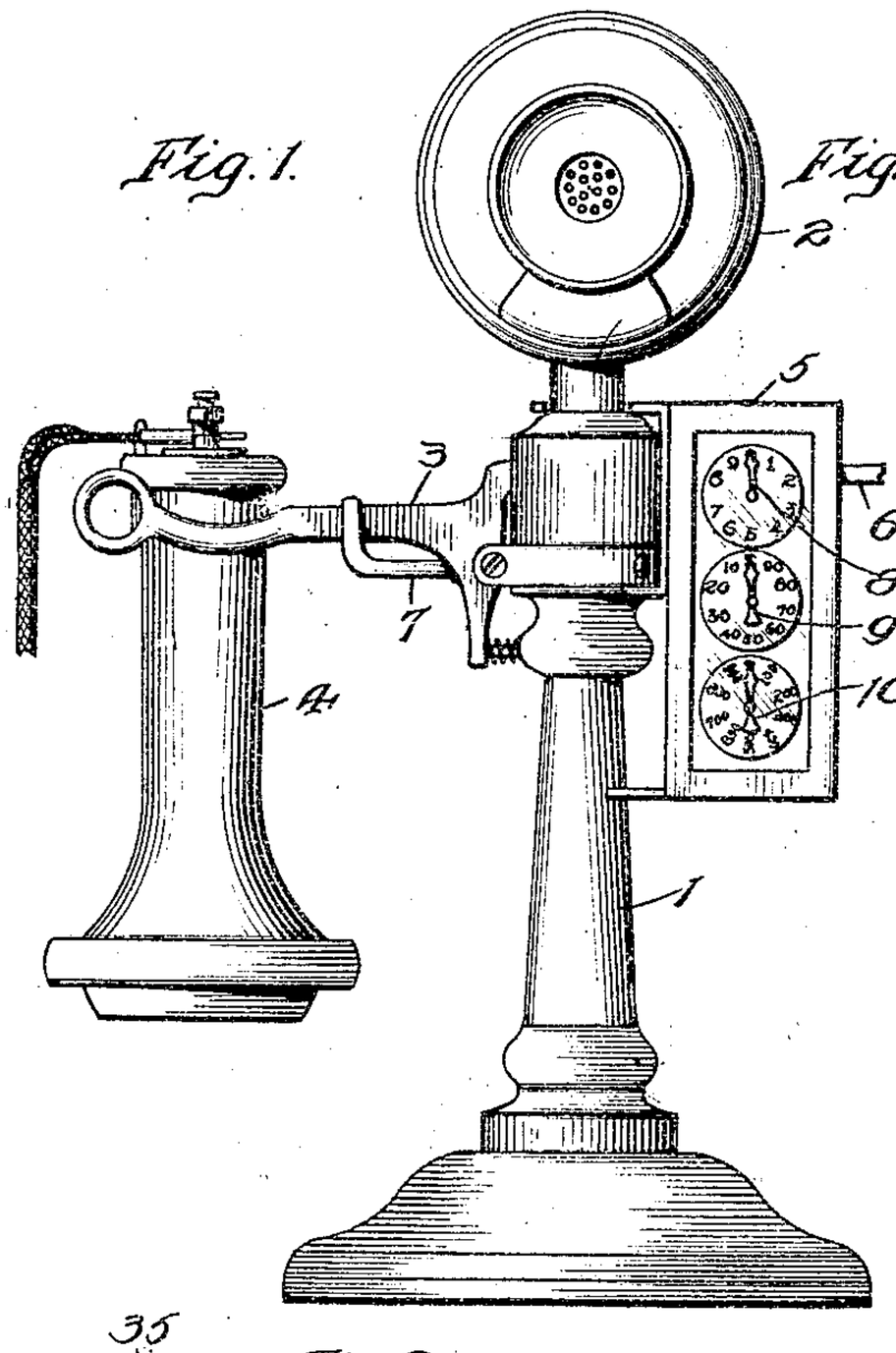


Fig. 2.

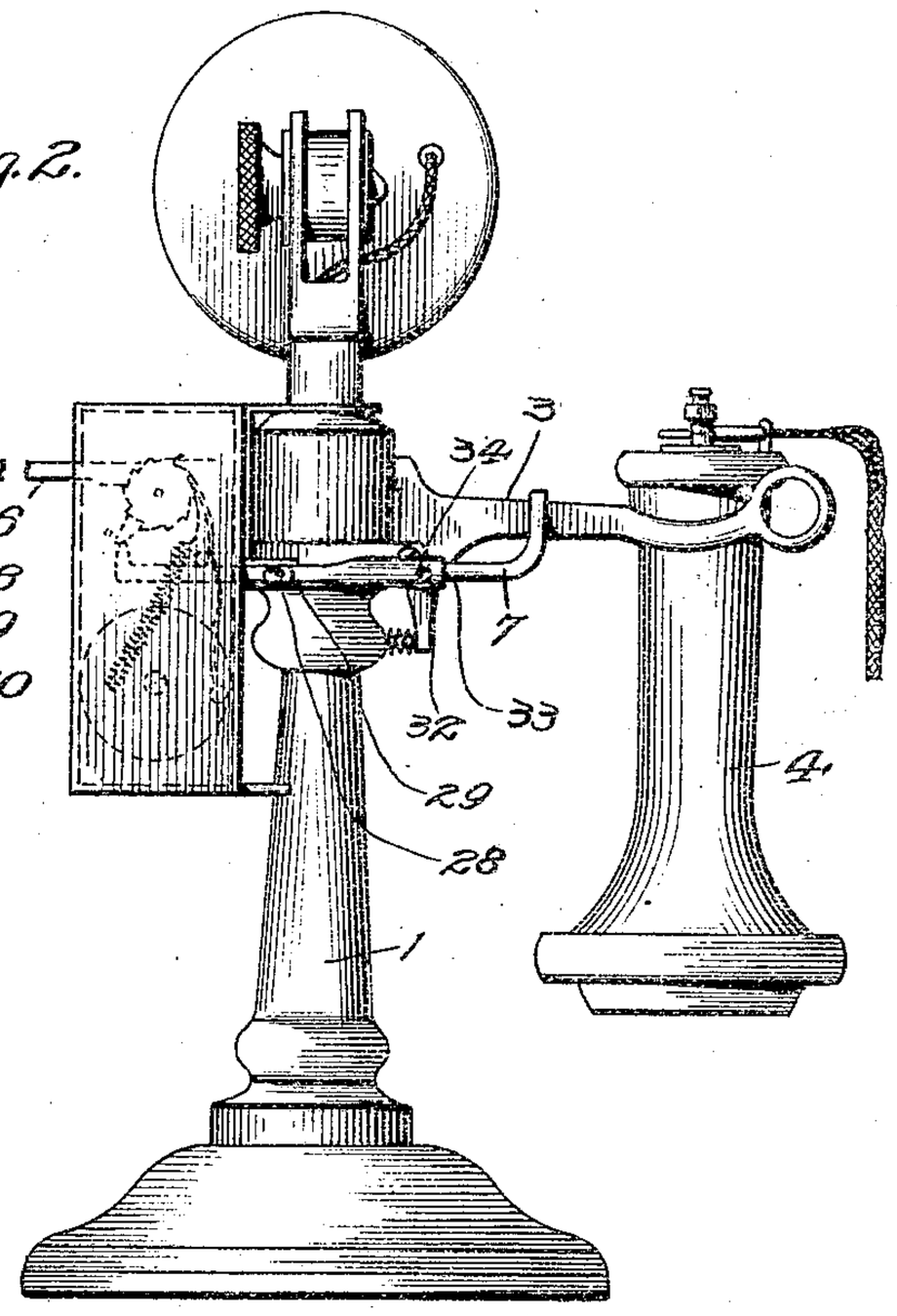


Fig. 8.

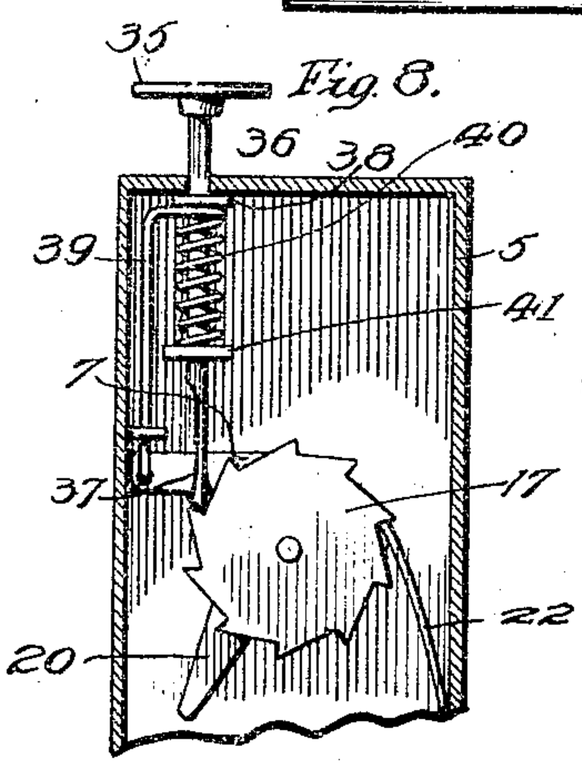
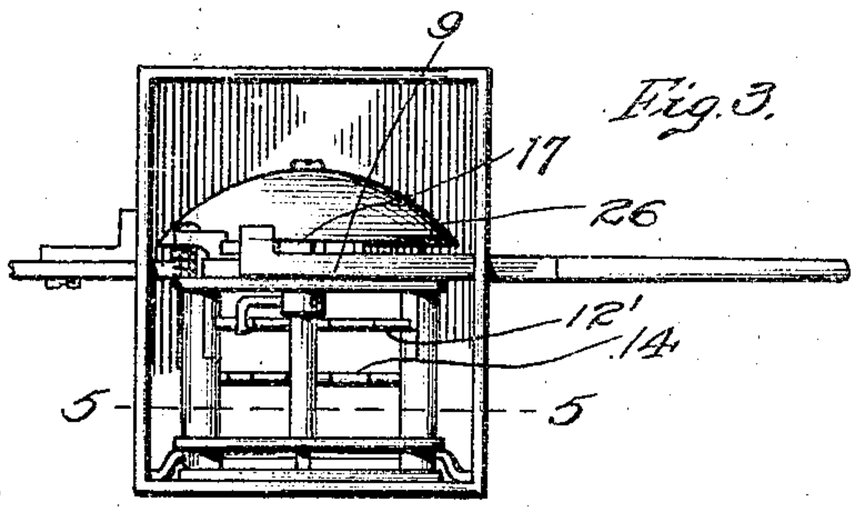


Fig. 3.



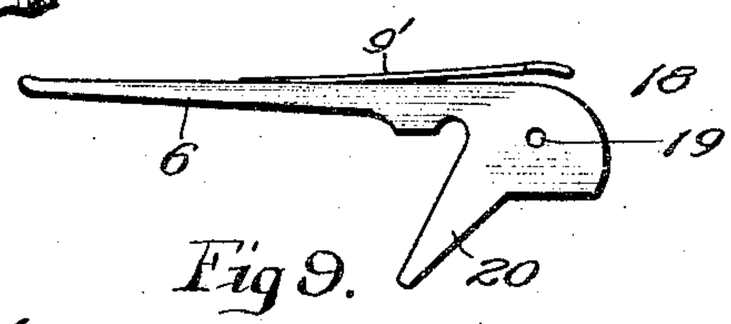


Fig 9.

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TELEPHONE CALL METER.

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2 SHEETS—SHEET 2.

Fig. 4.

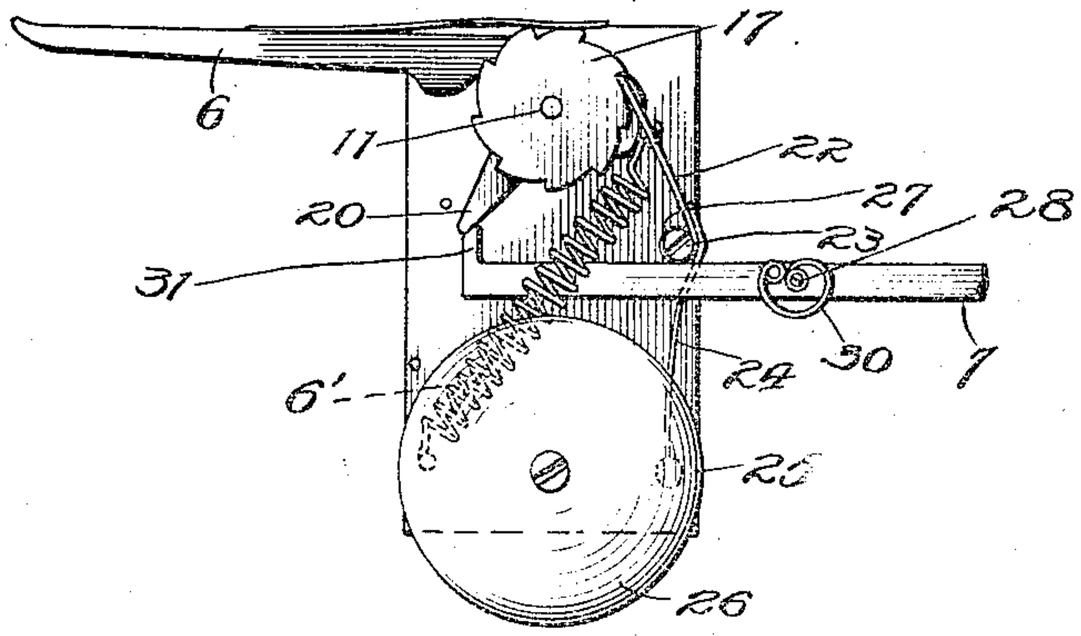


Fig. 5.

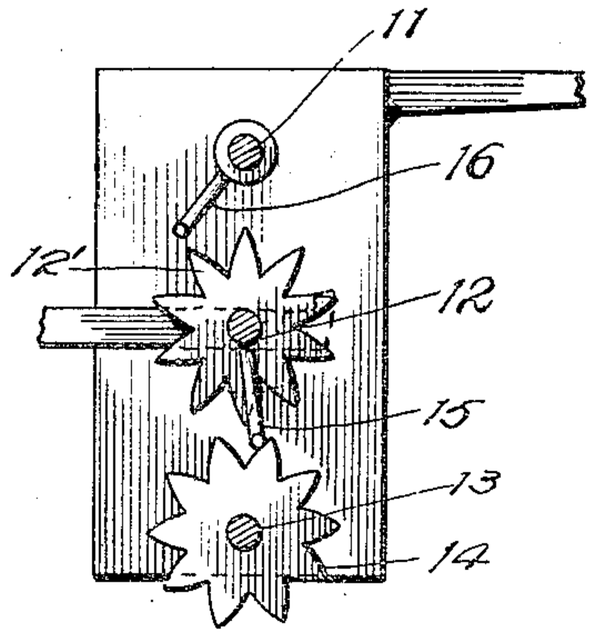


Fig. 6.

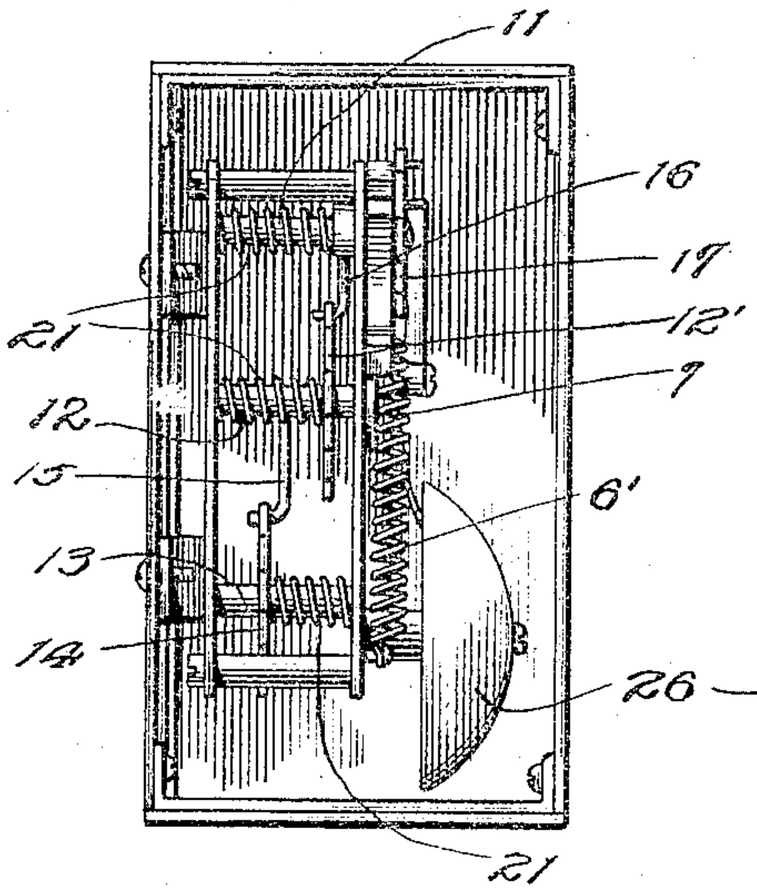
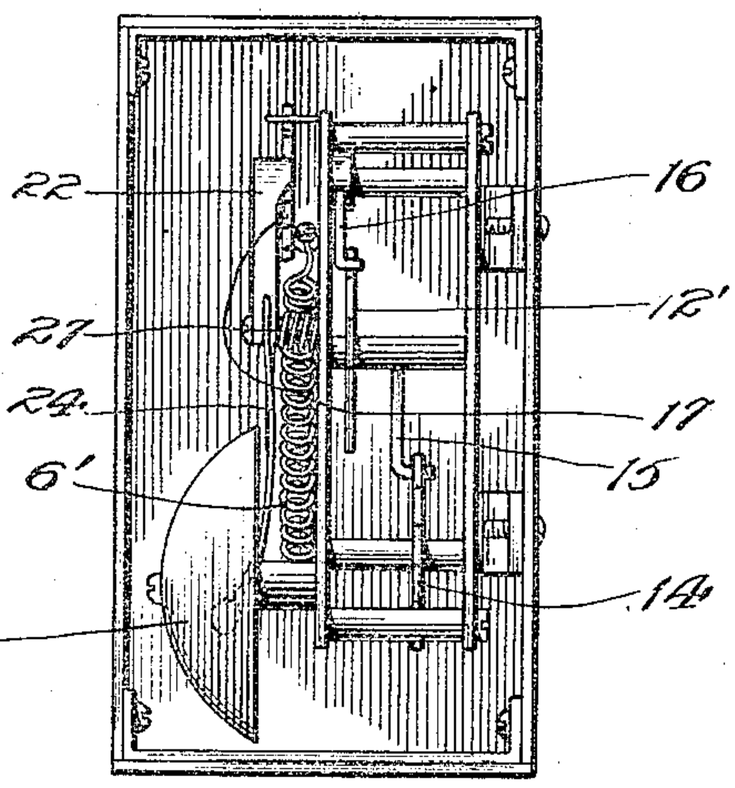


Fig. 7.



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UNITED STATES PATENT OFFICE.

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TELEPHONE-CALL METER.

No. 822,719. Specification of Letters Patent. Patented June 5, 1906.

Application filed October 3, 1903. Serial No. 175,566.

To all whom it may concern:

Be it known that I, CHARLES T. BRADSHAW, a citizen of the United States, and a resident of the city of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Telephone-Call Meters, of which the following is a full, clear, and complete disclosure.

My invention relates to means for registering telephone-calls, and more particularly to devices whereby the subscriber may keep track of and check the number of calls charged up to him at the central office to prevent mistakes and overcharges by the telephone company.

Briefly stated, my invention comprises a meter or registering device which may be attached to a telephone instrument in such a manner as to be easily operated by the subscriber or person talking through the telephone, including also means for preventing the registering device from being operated when the telephone is not in use.

For a full, clear, and exact description of my invention reference may be had to the following specification and to the accompanying drawings, forming a part thereof, in which—

Figure 1 is an elevation of a telephone transmitter and receiver in the form of a desk instrument, showing my recording or registering device applied thereto; Fig. 2, a reverse view of the same instrument, showing the rear thereof and also showing the back of the recorder removed; Fig. 3, a plan view of the recording device, showing the top of the casing removed; Fig. 4, a rear view of the recording mechanism somewhat enlarged and detached from the casing; Fig. 5, a sectional view of the recording mechanism, taken substantially on the line 5 5, Fig. 3; Fig. 6, an elevation of the recording mechanism, showing one side of the casing removed; Fig. 7, an elevation of the recording mechanism, showing a side opposite to that shown in Fig. 6; Fig. 8, a view showing a modified form of the means for actuating the recording device, and Fig. 9 a detail view showing the operating-lever with its projection for preventing said lever from being moved when the telephone is not in use.

Referring to the drawings, the numeral 1 indicates the supporting post or standard for the transmitter 2. The numeral 3 indicates the usual switch-lever pivoted to the standard 1 and is adapted to support the receiver 4 when the instrument is not in use. These parts are those usually provided with what is known as a "desk" instrument. Attached to the standard 1 is a casing 5, which contains the recording mechanism. 6 indicates the lever for operating said mechanism, and 7 is a secondary lever which is connected with the switch-arm 3 for locking the arm 6, so that the same cannot be operated unless the receiver 4 rests upon the lever 3. The casing 5 may be attached to the standard 1 or other part which carries the transmitter; but it should be supported in such a way that the arm 7 may easily engage the arm or lever 3. These are the general arrangements of the principal parts of my device, and I shall now proceed to describe the details thereof.

The casing 5 has upon its front a plurality of indicating-dials which are arranged in the usual manner of meters and other recording instruments. The hands or indicators 8, 9, and 10 are mounted upon shafts 11, 12, and 13, respectively. The shaft 13 carries a star-wheel 14, which is rotated tooth by tooth by means of a bent arm 15, carried by the shaft 12. The shaft 12 also carries a star-wheel 12′, which is similarly moved tooth by tooth by means of a bent arm 16, carried by the shaft 11. The shaft 11 also carries a ratchet-wheel 17, which is adapted to be operated by the lever 6 in the following manner: The arm 6 projects from a central plate 18, having a hole 19 therein, through which one end of the shaft 11 is adapted to pass. The plate 18 is also provided with a projection 20, the function of which is to be hereinafter described and is also attached to a spring 6′ for keeping the arm in its raised position. Attached to the top of the arm 6 is a spring 9′, forming a pawl which engages the teeth of the ratchet-wheel 17. Each of the shafts 11, 12, and 13 is provided with springs 21, which are adapted to hold said shafts frictionally to prevent them from being easily rotated.

It will now be seen that as the lever 6 is operated by oscillating the same vertically each oscillation will cause the ratchet-wheel 17 to advance one tooth. Every revolution of the ratchet-wheel 17 will advance the star-wheel 12′ one tooth, and every revolution of this star-wheel will advance the star-wheel 14 one tooth. This will cause the hands on the

front of the casing to indicate successively units, tens, and hundreds. If a greater number of hands and corresponding dials are used, it is obvious that a larger number of calls may be recorded.

In connection with the recording device I prefer to provide means whereby an audible signal is given when the arm is operated to register a telephone-call. This consists of a pawl or arm 22, pivoted at the point 23 and having a spring extension 24, provided with a knob or hammer 25. A small gong or bell 26 is located adjacent the hammer 25, so that when the arm 22 drops from each of the teeth of the ratchet-wheel 17 under the influence of the spring 27 the hammer 25 will be vibrated and strokes given to the bell 26. This will indicate to the subscriber using the telephone that the call has been registered and also, because the casing which carries the bell and recording device is attached to the standard 1, will communicate the sound to the transmitter 2, and so to the operator at the central station, which will thereby indicate to her also that a call has been registered.

The device for preventing the operation of the lever or arm 6 when the receiver 4 is on the arm 3 consists of the following parts: The lever 7 loosely engages the arm 6 and is pivoted at 28 to a projection 29, extending from the casing 5. A coiled spring 30, one end of which is attached to the lever 7 and the other end affixed to the pivot 28, tends to rotate said lever upon its pivot, so that its outer end, or that connected to the arm 3, will be pulled downward. The inner end of the lever 7 passes through the casing 5 and extends to a point adjacent the projection 20 where it carries an upturned lug 31, which is adapted to come into the path of the projection 20 when the receiver is in position upon the arm or lever 7. It will now be seen that the arm 6 can be operated only when the receiver is removed from the arm 7, which will effectively prevent persons from inadvertently or intentionally recording strokes when calls have not been made.

The arm 7 may be provided with means for adjusting the length of the same to correspond to different sizes of instruments and different conditions of arrangement and position. This adjustable feature consists of a socket portion 32, within which the outer end portion 33 of the arm is adapted to be held by means of a screw 34.

In the modified form shown in Fig. 8 I make use of a push-button 35 instead of the projecting lever 6 for the purpose of operating the registering device. The push-button 35 is mounted upon a vertical rod 36, which has at its lower end a spring-pawl 37, adapted to engage the ratchet-wheel 17. A pin or other stop 38 is fixed to the rod 36 and contacts with a link 39, which is pivoted at its lower end in the lever 7. A spring 40 surrounds the rod 36 and bears at its upper end against the pin 38 or the link 39 to keep said rod 36 and the button 35 in its raised posision. The spring 40 at its lower end bears against a support 41, attached to the casing 5. It will be seen that this modification operates in substantially the same manner as that first described, the button 35 and the rod 36 being only necessary where it is preferred on account of its appearance or convenience.

My improved device may of course be applied to any other form of telephone instrument which may be in use in connection with any particular system, it only being necessary to change the proportion and arrangement of parts to accommodate the same to instruments of different makes.

Having thus described my invention, what I claim, and desire to protect by Letters Patent of the United States, is—

1. In a registering device for telephones, the combination with a subscriber's set, of a visible register attached to one part of said set, an audible signal operated by said register, said audible signal being in phonetic connection with said subscriber's set, hand-operated means for operating said register, a receiver-holder and a locking-lever actuated by said receiver-holder for said hand-operated means.

2. As an article of manufacture, a registering device for telephones, comprising a casing, a registering mechanism within said casing, a part projecting from said casing and operatively connected with said registering mechanism, a lever pivoted in relation to said casing, the inner end of which forms a stop for locking said registering mechanism, said lever being adapted to be operatively connected with the receiver-arm of a telephone instrument so as to lock said registering mechanism when the telephone is not in use.

3. In a registering device for telephones, a combination with a subscriber's set, of a register attached to one part of said set, hand-operated means for actuating said register, and means connected with a movable operating part of said set for locking said hand-operated means to prevent a movement of the same, and to prevent the register from being actuated, respectively, when the telephone is not in use.

4. In a registering device for telephones, the combination with a subscriber's set, of a register attached to one part of said set, hand-operated means for actuating said register and a locking device connected to the receiver-holder of the telephone for locking said hand-actuated means.

5. In a registering device for telephones, the combination with a subscriber's set and the receiver-support therefor, of a register attached to one part of said set hand-actuated means for operating said register and a stop

connected to said receiver-support for locking said hand-actuated means when the telephone is not in use.

6. In a registering device for telephones, the combination with a subscriber's set and the switch-arm therefor, a register, hand-operated means for actuating said register, and a locking-lever connected to said switch-arm and forming a stop to prevent the movement of said hand-actuated means.

7. In a registering device for telephones, the combination with a subscriber's set and the switch-arm thereof, of a register attached to one part of said set, hand-actuated means for operating said register and an adjustable locking-lever connected to said switch-arm and forming a stop to prevent the operation of said hand-actuated means.

8. In a registering device for telephones, the combination with a subscriber's desk set, a register attached to the standard thereof, hand-operated means for actuating said register, a locking-lever connected to the receiver-supporting arm and adapted to lock said hand-operated means when the telephone is not in use, and an audible signal mounted upon said register and coöperating therewith to indicate to both the subscriber and the operator the record of a call.

In witness whereof I have hereunto set my hand this 26th day of September, A. D. 1903.

CHARLES T. BRADSHAW.

Witnesses:
CHAS. K. BENNETT,
LEWIS H. VAN DUSEN.