No. 846,827. PATENTED MAR. 12, 1907.

S. H. COUCH.

TELEPHONE SERVICE APPARATUS.

APPLICATION FILED APR. 12, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

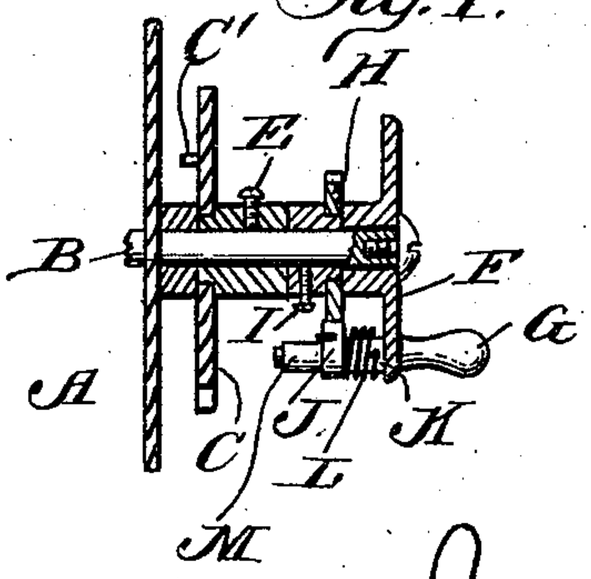


Fig. 2.

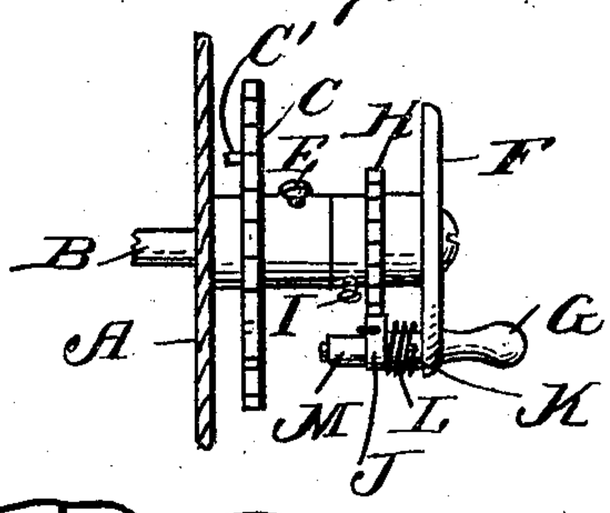
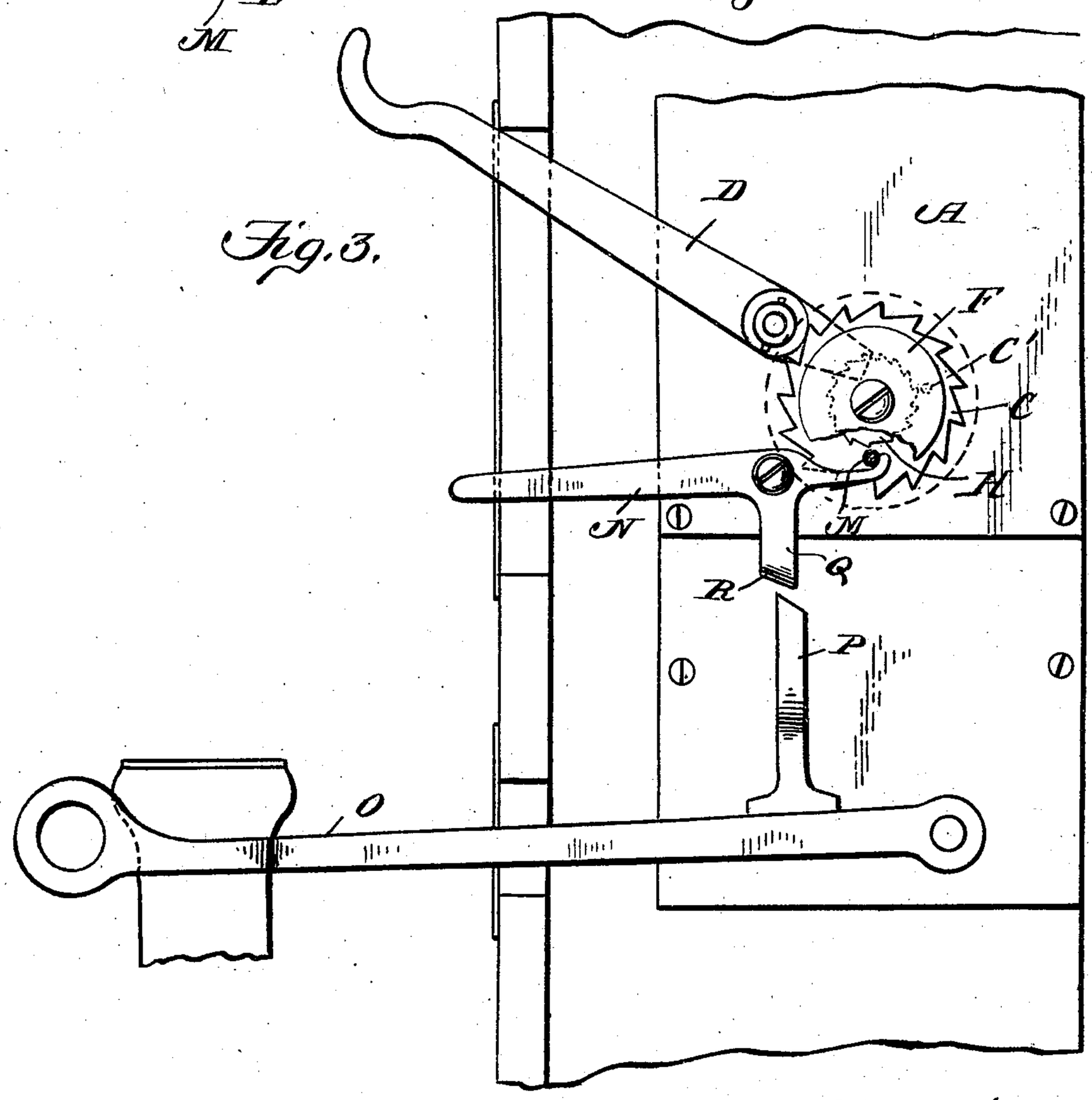


Fig. 3.



Witnesses;
M. C. Mallis.
H. H. Bruce

Inventor
Samuel H. Couch
By
Meyers, Cushman & Rea
Atty's

No. 846,827. PATENTED MAR. 12, 1907.

S. H. COUCH.

TELEPHONE SERVICE APPARATUS.

APPLICATION FILED APR. 12, 1906.

2 SHEETS—SHEET 2.

Fig. 4.

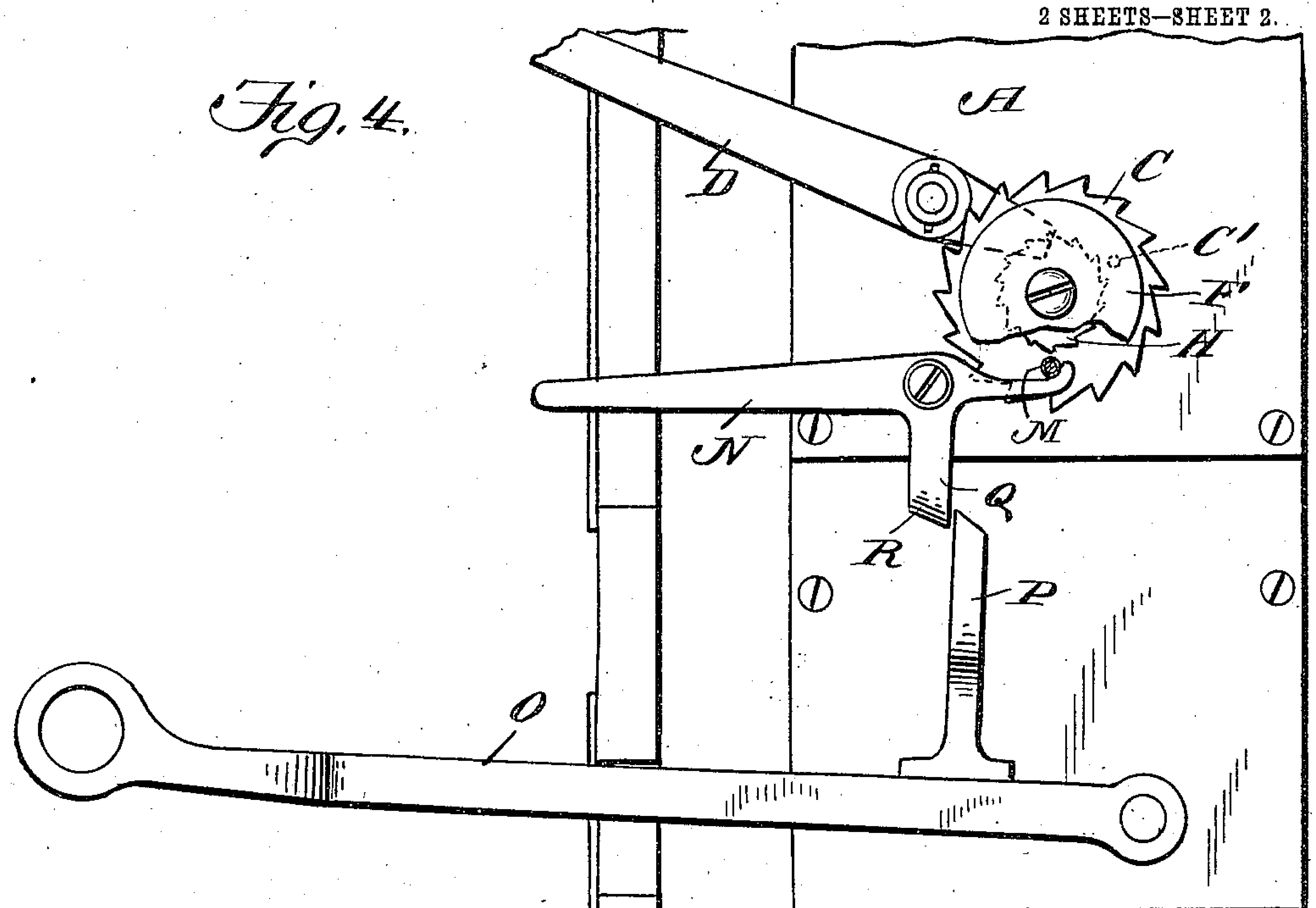
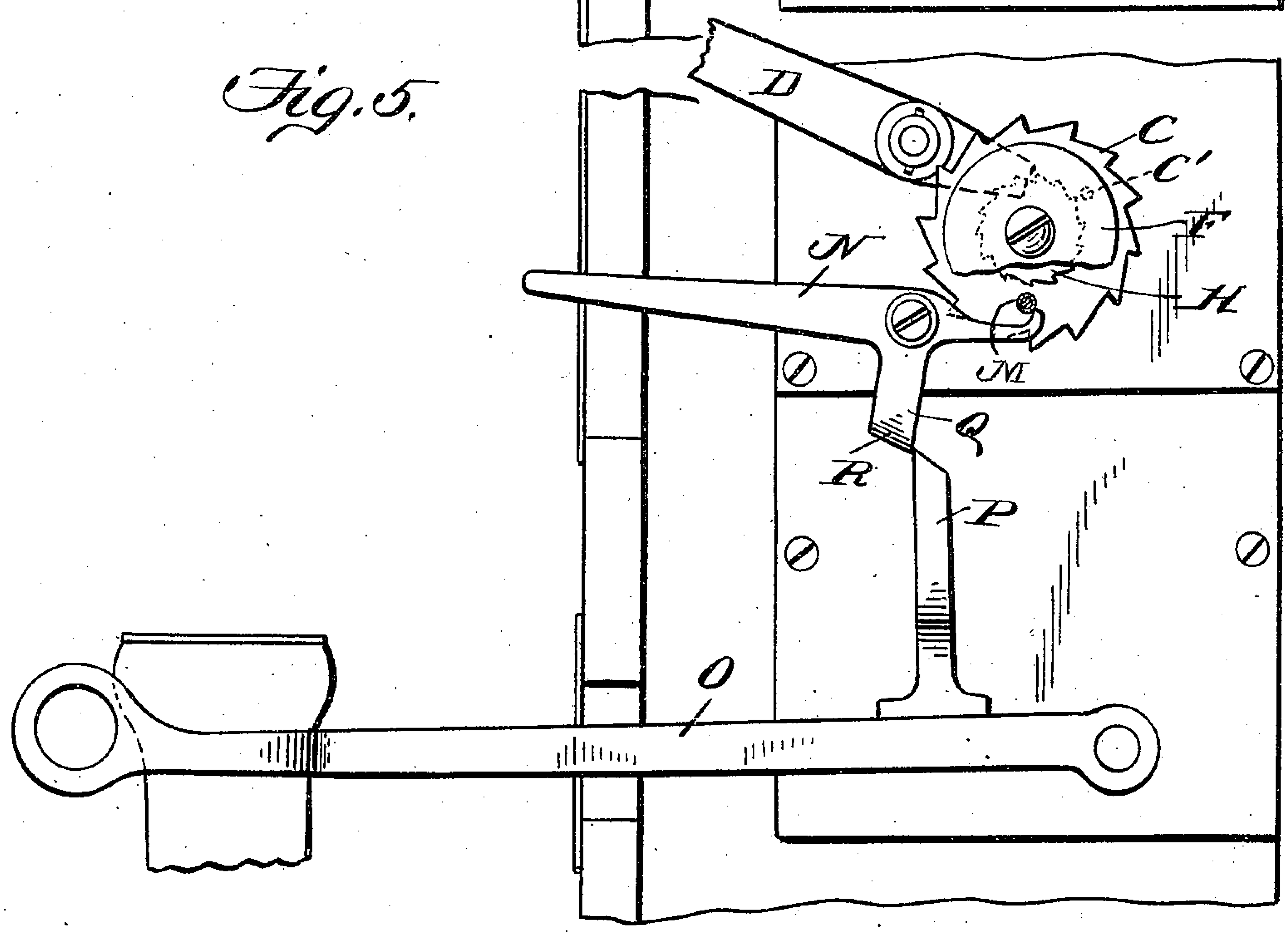


Fig. 5.



Witnesses:

Inventor
Samuel H. Couch
By
Meyers, Cushman & Rea
Atty's

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

SAMUEL H. COUCH, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO SUPERIOR AUTOMATIC TELEPHONE COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MAINE.

TELEPHONE-SERVICE APPARATUS.

No. 846,827. Specification of Letters Patent. Patented March 12, 1907.

Application filed April 12, 1906. Serial No. 311,320.

To all whom it may concern:

Be it known that I, SAMUEL H. COUCH, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Telephone-Service Apparatus, of which the following is a specification.

My invention relates to improvements in telephone-service apparatus, and has for its object to provide, in connection with known types of make-and-break contact mechanism and means for holding said mechanism in position to maintain the talking-circuit of the called station while the calling and called telephones are in use, other mechanical means associated with the telephone receiver-hook for releasing the make-and-break mechanism when the telephone-receiver is disposed in the hook to permit the make-and-break mechanism to assume its normal position.

With the foregoing object in view the invention consists of a means for accomplishing the same hereinafter described, and illustrated in the accompanying drawing.

That which is regarded as new will be set forth in the clauses of claim appended to the description.

In the accompanying drawing, illustrating that which is regarded as the best-known embodiment of the invention, Figure 1 is a longitudinal sectional view of a make-and-break wheel and means for varying the operation thereof. Fig. 2 is a side elevation of the parts shown in Fig. 1. Fig. 3 is a front view showing the position of the parts at the calling-station when the station to be called has been selected and before the receiver at the calling-station has been removed from its hook. Fig. 4 is a similar view showing the position of the parts when the receiver at the calling-station has been removed from the hook; and Fig. 5 is a similar view showing the position of the parts after the receiver at the calling-station has been restored to the hook and during the operation of releasing the make-and-break wheel.

My invention has to do with what is known as "party-line" telephone systems, wherein a number of telephone-stations equipped with like mechanism are included in the circuit and provided with means whereby from any of the stations any other may be called and talking-circuit established therebetween, all stations except the calling and called being cut out, so that while the calling and called stations are in use the conversation cannot be interrupted nor listened into from the cut-out stations. This general type of telephone system is well known, and while the present invention is not restricted thereto within the field of its capabilities it is designed more particularly for use in that species of party-line telephone-service apparatus illustrated in the Letters Patent of Uriah S. Jackson, No. 750,769, granted January 26, 1904, to which reference is made for a complete understanding of one system to which my invention is applicable.

In the accompanying drawings the reference-letter A designates a support for the various elements; B, a spindle or axle projecting therefrom; C, a make-and-break wheel adapted to coöperate with contacts (not shown) in the manner illustrated in said Letters Patent, for example. The make-and-break wheel C is combined for rotation with the spindle B, and the latter may be rotated by suitable power devices, preferably a spring, (not shown,) as in the Letters Patent mentioned, which spring may be wound up by manipulation of the winding-lever D. As shown, the make-and-break wheel C is combined with a hub and may be fastened to the spindle by means of a set-screw E, whereby the wheel C may be adjusted with nicety for accurate operation.

F designates a selector device consisting, as shown, of a disk loosely mounted on the spindle B and provided with an operating-handle G to facilitate rotation thereof. The disk has a one-way connection with the make-and-break wheel, a suitable example of which is illustrated, consisting of a ratchet H, fixed to the spindle B, as by means of a set-screw I, with which a pawl J, mounted upon a stud K, coöperates, being held to operation in the example of invention shown by means of a spring L. The disk F is provided with a stop element M, coincident with the handle G and preferably consisting of an extension thereof, adapted to coöperate with the hooked end of a latch-lever N, pivoted to the

base of the support A. In operation the disk F is designed to be rotated in relation to a dial provided with numerals indicative of the several telephone-stations included in the line, as illustrated in dotted lines in Fig. 3, the handle G serving as an index or pointer. In operation the handle G of the disk normally stands opposite the number on the dial identified with the home station—that is to say, the station with which the particular disk is associated. In operation the disk is rotated to set the apparatus for operation, the handle G being stopped opposite the legend on the dial indicating the station which it is desired to call, disposing the stop member M the predetermined distance from the hooked end of the latch-lever N. The spring or other motive power for the spindle B being now vitalized or having previously been vitalized—as, for example, by manipulating the winding-lever D, the make-and-break wheel C, and also the selector-disk and its stop M through the medium of the pawl and ratchet described—is rotated until arrested by engagement of the stop M by the hooked end of the latch-lever N, in which position of parts a talking-circuit will have been established between the calling and called stations. The parts remain in this position until conversation has ceased and until the stop-pin M is released from the hooked end of the lever N, permitting the mechanism to continue its movement to initial position. The wheel C is provided with what is termed a "home" stop C′, which engages the end D′ of winding-lever D when the several elements are in initial position.

My invention relates to the combination, with the latch-lever of such or analogous mechanism, of mechanical means whereby without any act independent of returning the receiver to its hook the latch-lever will be moved to release the stop-pin M and permit the parts to assume normal position. Should the subscriber or other operator at the calling telephone-station after having made use of the telephone fail to release the parts from talking position and permit them to assume their normal positions by manually operating a trip or removing the stop member M all the other telephones on the line would remain locked out of service and the line rendered useless. This difficulty is obviated in a simple manner by my invention. The telephone receiver-hook O and the latch-lever N are provided with normally coöperating arms P and Q, having a temporary one-way connection, the former in the particular embodiment shown being capable of yielding or springing at its free end and the end of the arm Q presenting a cam-face R. In operation when one station has been called from another the position of the parts at the calling-station prior to removal of the receiver from the hook is shown in Fig. 3. When the receiver is removed from the hook, the latter rises, as shown in Fig. 4, and the arm P wipes past and snaps back of the arm Q, as in Fig. 4, without disturbing the engagement of the hooked end of the latch-lever with the stop-pin M, and the parts remain in this position during use of the telephone. When the receiver is returned to the hook, Fig. 5, the arm P positively temporarily engages the arm Q, tilts the lever N, and withdraws its hooked end from the pin N, whereupon the operative parts of the telephones are moved to normal position and all the telephones of the line restored to condition for use. After releasing the parts as described the arm P passes out of engagement with arm Q and the hooked end of latch-lever N automatically assumes its normal position in the path of stop element M.

As shown, the latch-lever N is capable of manipulation to free the stop M independent of the operation of the arm P. For this purpose the free end of the lever N is accessible to the operator for manual manipulation. This capacity of the arrangement is of advantage in that should the subscriber in the act of rotating the selector-disk move the handle past the station which he desires to call, since the disk cannot be rotated in the reverse direction, the mistake can only be corrected by continuing the forward rotation of the disk. In order to remove the hooked end of the stop-lever from the stop-pin M to permit this continuous forward rotation, the free end of the stop-lever may be manipulated for this purpose without the necessity of removing the receiver from and replacing the same in its hook.

Having thus described my invention, what I claim is—

1. In a telephone-service apparatus, the combination with contact make-and-break mechanism, and a pivoted lever provided with a latch for holding the contact make-and-break mechanism in given position, said catch being normally in position to engage the contact make-and-break mechanism, of a telephone receiver-hook, normally out of engagement with said lever, and a temporary one-way mechanical connection between said hook and holding means.

2. In telephone-service apparatus, the combination with contact make-and-break mechanism and means for holding the same in given position, said holding means being normally in position to engage the contact make-and-break mechanism, of a telephone receiver-hook normally out of engagement with said holding means, and a temporary one-way mechanical connection between said hook and holding means.

3. In telephone-service apparatus, the combination with contact make-and-break mechanism, of a pivoted lever provided with a latch for holding the same in given position,

said latch being normally in position to engage the contact make-and-break mechanism, a telephone receiver-hook, and arms provided on said lever and receiver-hook, said arms being normally out of engagement with each other, the receiver-hook arm having a temporary one-way connection with the arm of the latch.

4. In telephone-service apparatus the combination with contact make-and-break mechanism, of a latch for holding the same in given position, a telephone receiver-hook, an arm connected to the latch and having a cam-surface, and a yielding arm connected to the receiver-hook having a temporary one-way connection with the arm of the latch.

5. In telephone-service apparatus the combination with contact make-and-break mechanism, and a telephone receiver-hook, of stop M, latch N, and arms P and Q.

6. In telephone-service apparatus the combination of contact make-and-break mechanism, means for holding same in given position, a telephone receiver-hook, a one-way connection between said hook and holding means which connection is established and actuated by the removal of the receiver from the hook and its subsequent replacement therein, and independent means for releasing said holding means.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

SAMUEL H. COUCH.

Witnesses:

JOHN N. MORRISON,

JOHN A. MCFAHEY.