

No. 723,309.

PATENTED MAR. 24, 1903.

J. P. RIEDINGER.  
TELEPHONE ATTACHMENT.  
APPLICATION FILED SEPT. 13, 1902.

NO MODEL.

FIG. 1.

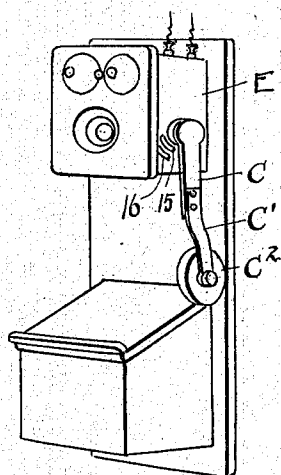


FIG. 2.

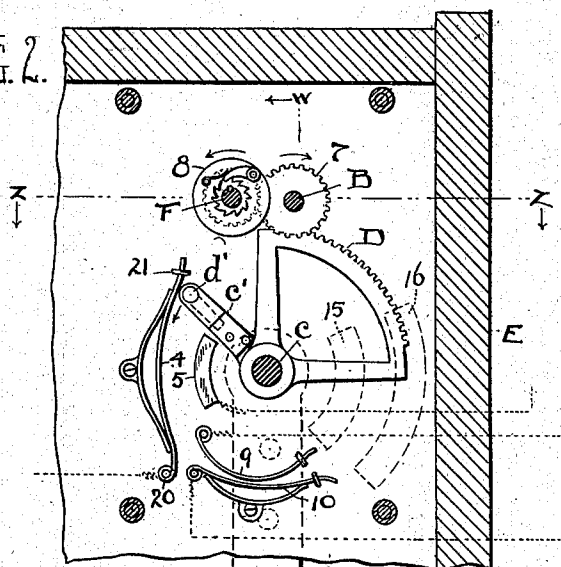


FIG. 3.

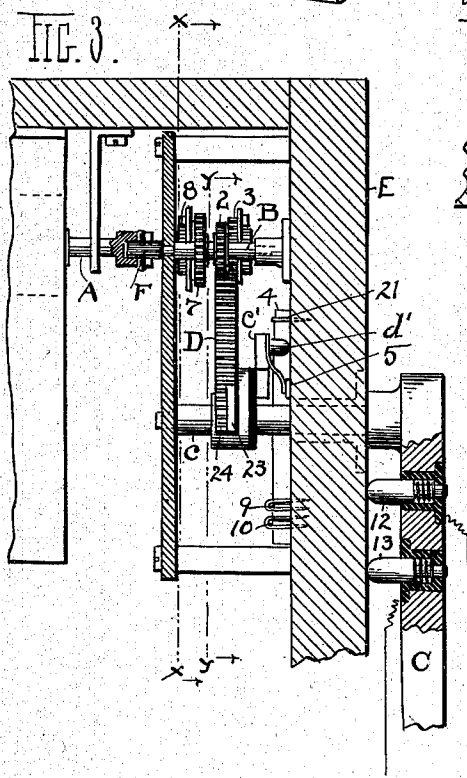


FIG. 4.

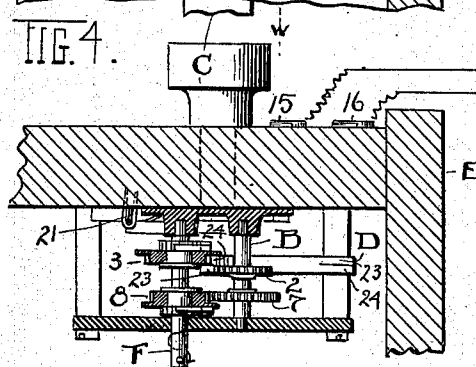
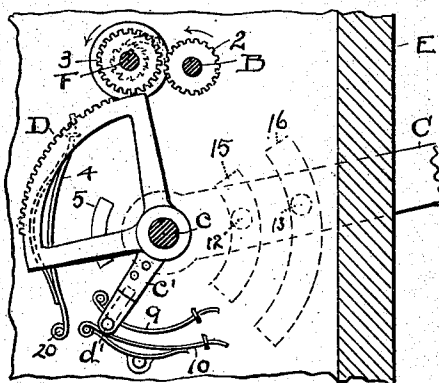


FIG. 5.



ATTEST.

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# UNITED STATES PATENT OFFICE.

JACOB P. RIEDINGER, OF OBERLIN, OHIO.

## TELEPHONE ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 723,309, dated March 24, 1903.

Application filed September 13, 1902. Serial No. 123,257. (No model.)

*To all whom it may concern:*

Be it known that I, JACOB P. RIEDINGER, a citizen of the United States, residing at Oberlin, in the county of Lorain and State of Ohio, have invented certain new and useful Improvements in Telephone Attachments; and I do declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in telephone attachments; and the invention consists in an attachment having the novel features substantially as shown and described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of a telephone box or casing within which the operative portions of my invention are mostly contained; and Fig. 2 is an enlarged elevation thereof on a line corresponding to  $x x$ , Fig. 3, looking to the right. Fig. 3 is a vertical sectional elevation of the box and mechanism looking in on a line corresponding to  $w w$ , Fig. 2, but with some parts removed for clearness; and Fig. 4 is a plan view on line  $z z$ , Fig. 2. Fig. 5 is an elevation substantially on line  $y y$ , Fig. 3.

As thus shown, the idea of my invention is to provide a pivoted receiver and mechanism connected therewith which is adapted to form an attachment to what is now the older style of telephones, wherein a crank is used to ring on and off. Many cities and towns, as well as country places, are still equipped with such telephones, and it is therefore to this style of phone that the present invention is more especially applicable, and my invention is an attachment thereto, as shown in the drawings and as will appear in the further description hereinafter made.

Assuming that A represents the magneto or bell-ringing shaft of the old and well-known form of phone and which has always had a crank to operate the same and ring the bells, I come to this shaft with a shaft F instead of a crank and provide means operatively connected with pivoted receiver-arm C to always rotate shaft F in the same direction, as was formerly always done by the crank-arm referred to. Electrical connections are always made by or through arm C

for receiving and transmitting purposes, and so it follows that the bells are rung and the electrical connections are all made and the telephone is operated in all ways and particulars by raising receiver-arm C to the ear and when through dropping it at the side of the telephone-box E, as seen in Fig. 1. The said box is in this instance enlarged to inclose my attachment also, except arm C; but as the mechanism is comparatively small and compact the difference in the size of the casing does not become material nor especially observable. Now examining the said mechanism more in detail the receiver-arm shaft  $c$  carries a segment D, which meshes with gear 2 and pinion 3 in succession as it is rotated in either direction, and shafts B and F support said gear and pinion, respectively. Another gear 7 is fixed on shaft B and another pinion 8 on shaft F, and both pinions 3 and 8, respectively, are free on their shaft and have pawl-and-ratchet mechanism or clutches to make engagement with the shaft, according as they are to be used. Shaft F is separably coupled to magneto-shaft A by any suitable means. Hence to rotate shaft A always forward, whether arm C be raised or lowered to ring on or off, or both, the first forward rotation to ring on occurs when said arm is raised through gears 2 and 7 and pinion 8. Meantime segment D has been carried back into engagement with pinion 3, which is in the path thereof at all times; but in this direction said pinion turns free on shaft F. In the reverse direction, however, when receiver-arm C is dropped and the segment returns to normal position the ratchet or clutch mechanism of pinion 3 engages shaft F and continues its rotation in the same direction it was originally rotated through the raising of arm C. Segment D on this return movement also rotates gears 2 and 7 and pinion 8; but as pinion 8 is free to ride over the ratchet-teeth when in reverse rotation there is no interference with the action of pinion 3 in driving shafts F and A in the opposite direction. Thus it occurs that whether arm C is raised or lowered the magneto or bell-ringing shaft will turn in the same direction in either case and the phone will ring on and off at the right times, and all this automatically through the handling of the receiver alone.

Suitable electrical connections are also made through arm C or parts operated thereby, as will now be seen. Thus I provide shaft *c* with a short arm *c'*, which has a lateral stud *d'* at its extremity adapted to engage with a spring-metal spring-pressed circuit-connecting strip 4 in the magneto-generator connections and through which and arm 4 and contact-plate 5 said circuit is continued. Then the same arm *c'* after leaving strip 4 drops down and connects up the circuit on the transmitter-line through strips 9 and 10 when the receiving-arm C is raised for use. At the same time the spring-pressed pins 12 and 13 in arm C are in contact with contact-strips 15 and 16 on box E. These or any other equivalent and sufficient electrical connections may be employed.

In either case, whether arm C be in use or down out of use, the segment D is so constructed and arranged as to be out of contact with gear or pinion on shafts B and F. Thus it is out in Fig. 2, when the receiver is down, and also in Fig. 5, when the receiver is up, but in opposite positions.

The receiver or ear portion *c*<sup>2</sup> is mounted upon a spring-metal strip *C'*, which is rigidly fastened to arm C. This provides a yielding support for the ear portion, which accommodates itself within limits to the position of the person using the telephone.

Any suitable arrangement of segment-gear D may be employed to actuate gear 2 and pinion 3; but the preferred form of construction of said segment is one wherein both gear and pinion 3 can be brought into mesh with said segment the moment arm C is initially moved and which also will release both said gear and pinion upon the final movements of said arm.

As shown, segment D is wide enough on its circumferential face to mesh with gear 2 and pinion 3, but is preferably placed out of mesh with said gear and pinion at the end of each movement of arm C. At the beginning of the movement of segment D when the teeth are again placed in mesh it is desirable to have little or substantially no lost play before engaging both gear 2 and pinion 3, and therefore it is necessary to have part of the teeth at the ends of said segment in advance of others or of less width than those in the center, because gear 2 and pinion 3 are on separate shafts and in advance of each other along the radial engaging line of the segment and are, furthermore, not in line, but are staggered, as viewed from above, so that each will pick up and leave the last of their respective teeth on segment D at the same instant. The continuation of the teeth, or rather the narrowing of the teeth at either end of segment D, is clearly shown in Figs. 3 and 4 at 24. Spring 4 is preferably anchored with a pivoted connection 20 at one end and a free sliding connection at its other end. The same general arrangement is also shown and used for springs 9 and 10. Springs

9 and 10 also act as frictional engaging and holding members for arm C when in raised position. When the receiver is raised, the current is automatically changed from ringing to receiving or speaking current.

What I claim is—

1. In telephones, an attachment to rotate the bell-ringing shaft of a telephone comprising a receiver-arm adapted to be raised and lowered, and positive engaging and operating mechanism between said arm and shaft constructed to rotate said shaft when said arm is raised and to continue said rotation in the same direction when said arm is lowered, substantially as described.

2. A telephone attachment having a shaft adapted to be coupled to the bell-ringing shaft of a phone, a receiver-arm pivoted to be raised and lowered and direct-actuating mechanism between said arm and shaft to rotate said shaft when said arm is raised and to continue said rotation in the same direction when said arm is lowered, substantially as described.

3. A telephone provided with a shaft to operate a generator, in combination with an attachment provided with gear mechanism having reversely-rotating ratchet connections constructed to rotate said shaft always in the same direction, and a pivoted receiving-arm operatively engaged to rotate said gear mechanism when said arm is raised and when said arm is lowered, substantially as described.

4. A telephone attachment comprising a shaft and a pivoted receiver-arm and gear mechanism actuated by said arm having reversely-rotatable ratchet connections on said shaft constructed and arranged to turn said shaft in the same direction when said arm is raised and lowered, substantially as described.

5. The attachment substantially as described, comprising a pivoted receiver-arm and a coupling-shaft, and mechanism between said shaft and arm and in actuating connection with the arm to rotate the shaft in one direction only, said mechanism comprising a segment, and a plurality of gears and pinions having ratchet connections adapted to make reverse engagement with the said coupling-shaft, substantially as described.

6. A telephone attachment comprising a receiver-arm pivoted to be raised and lowered, and electrical connections to make and break circuits when said arm is raised and lowered and comprising contact members and spring metallic strips having free pivotal and sliding connections at their ends, substantially as described.

7. A telephone attachment having a generator-operating shaft, a receiver-arm adapted to be raised and lowered, positive engaging mechanism between said arm and shaft constructed to rotate said shaft when said arm is raised and to continue said rotation in the same direction when said arm is lowered, and means to free said shaft and mechanism from its positive engaging relations with said arm

at the end of each movement of said arm, substantially as described.

8. A telephone attachment having a shaft adapted to be coupled with the bell-ringing shaft of a phone, a receiver-arm pivoted to be raised and lowered, direct actuating mechanism between said arm and shaft to rotate the latter when said arm is raised and to continue said rotation in the same direction when the arm is lowered, and means to disconnect said shaft and mechanism from working relation with said arm at the extreme raised and lowered positions of said arm, substantially as described.

9. A telephone attachment comprising a shaft and a pivoted receiver-arm, and gear mechanism having a segment-gear actuated by said arm, said gear mechanism comprising reversely-rotatable ratchet connections on said shaft constructed and arranged to turn said shaft in the same direction when said arm is raised and lowered, and said segment-gear having separate releasing-teeth adapted to engage with said gear mechanism at the extreme raised and lowered positions of said arm, substantially as described.

10. The attachment substantially as described, comprising a pivoted receiver-arm and a coupling-shaft, and mechanism between

said arm and shaft in actuating connection with the arm to rotate the shaft in one direction only, said mechanism comprising a segment-gear having portions of the end teeth in advance of those at the side, and a plurality of gears and pinions having ratchet connections adapted to make reverse engagement with said coupling-shaft, substantially as described.

11. In telephones, an attachment to rotate the bell-ringing shaft of a telephone, comprising a receiver-arm adapted to be raised and lowered and mechanism operatively connecting said shaft and arm, said mechanism comprising separate shafts having gears and pinions with reversely-mounted ratchet connections thereon constructed to turn said bell-ringing shaft in one direction only, and a segment-gear mounted to mesh with said gears and pinions and constructed to engage and release the same, when said arm is in its initial and final movements, substantially as described.

Witness my hand to the foregoing specification this 27th day of August, 1902.

JACOB P. RIEDINGER.

Witnesses:

R. B. MOSER,  
H. T. FISHER.