

May 7, 1929.

V. F. MILLER

1,711,687

TELEPHONE CALLING DIAL

Filed Dec. 1, 1927

FIG. 1.

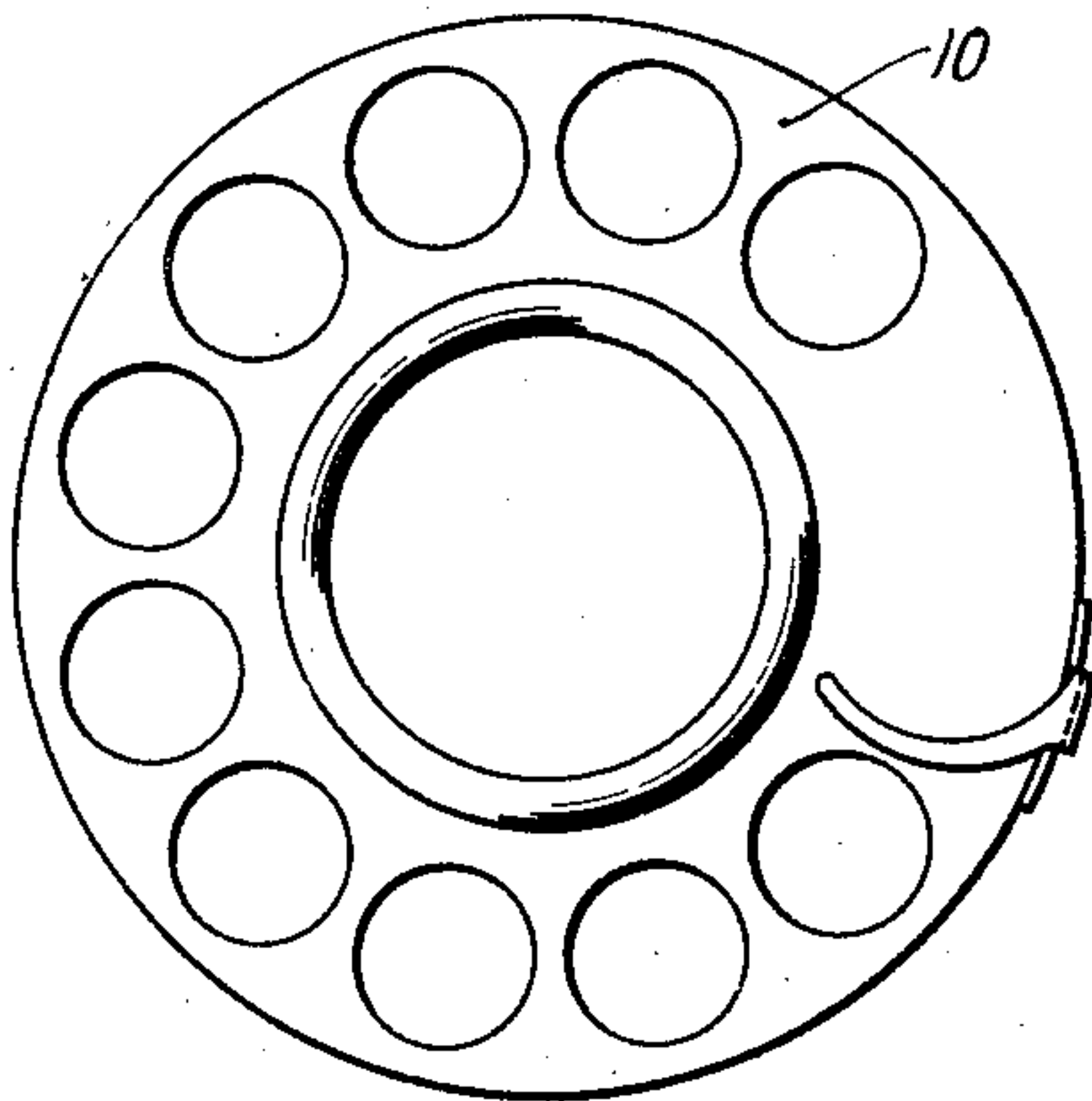


FIG. 2.

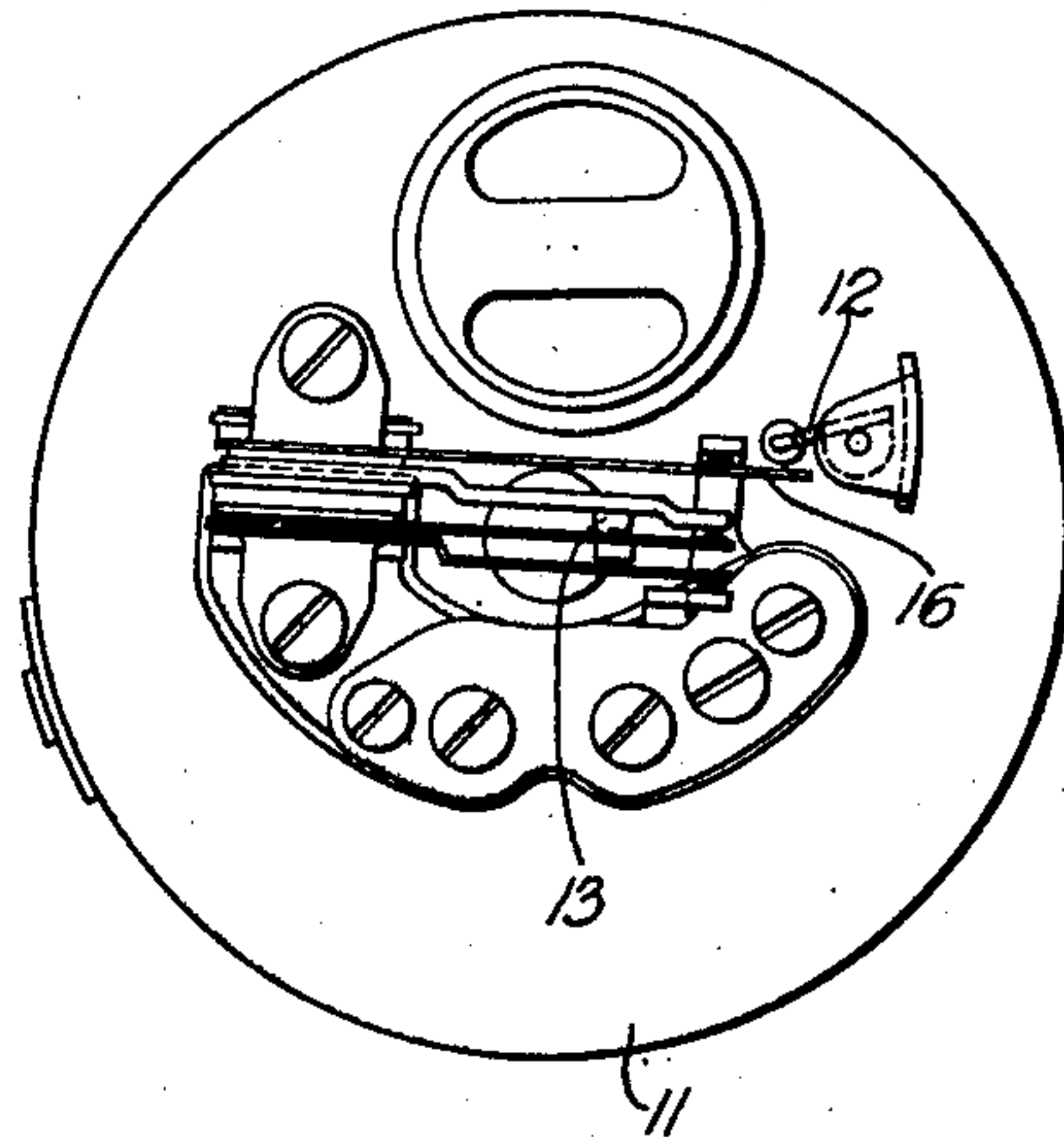


FIG. 3.

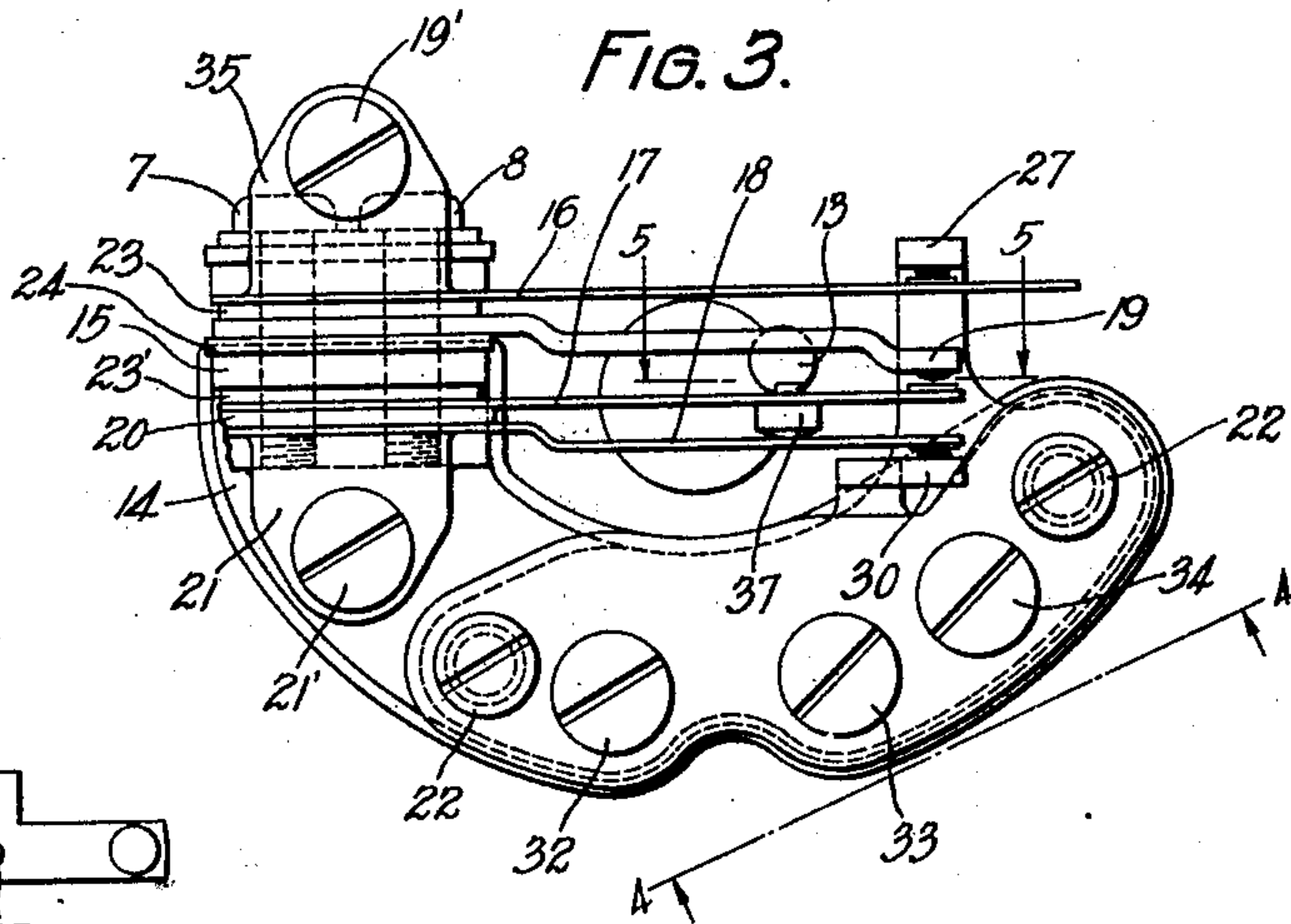


FIG. 5.

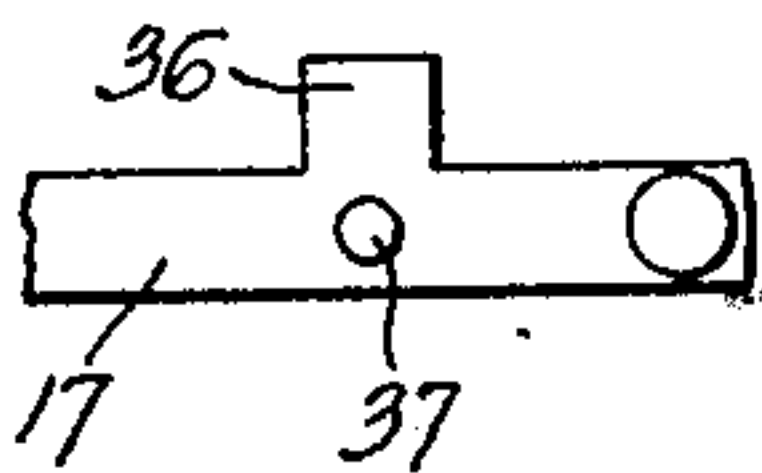
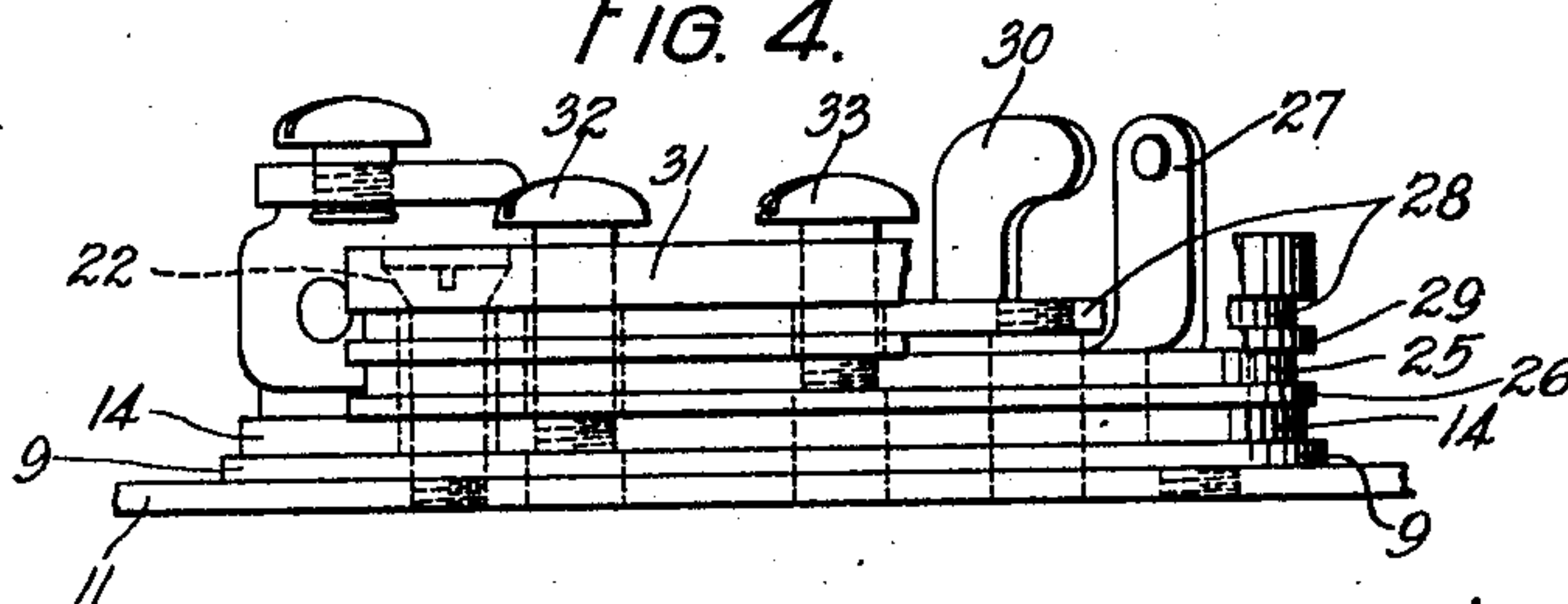


FIG. 4.



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TELEPHONE CALLING DIAL.

Application filed December 1, 1927. Serial No. 236,932.

This invention relates to calling dials of the type used in automatic telephone systems, and more specifically, to contact assemblies used in such calling dials.

Its object is to provide a dial which is simple, cheap to manufacture and efficient in use.

In accordance with this invention the fixed contacts of the contact assembly are formed by lugs struck up from a pile-up of metal plates insulated from each other and secured to the back of the casing, these lugs being located in operative relation to the active or leaf spring contacts which are actuated by the operation of the dial mechanism. Terminal screws for the reception of the line conductors pass through the pile-up of metal plates and interposed insulating strips, these screws making contact with their respective plates. This construction not only dispenses with the usual soldered connection from the contact springs to terminals in the insulating block to which these connections lead, but dispenses with the block itself, thus reducing manufacturing and installation costs and also providing a very compact arrangement.

In the accompanying drawings Fig. 1 is a front view of the dial;

Fig. 2 is a rear view of the dial showing the contact spring assembly in operable relation with the dial actuating mechanism;

Fig. 3 is an enlarged view of the contact springs shown in Fig. 2;

Fig. 4 is a side view of the contact assembly observed in the direction indicated by the arrows in Fig. 3; and

Fig. 5 is a detail view of a spring used in this contact assembly.

The dial or impulse sender to which the contact assembly of this invention may be used generally consists of a finger wheel 10 and a casing 11 in which the contact operating mechanism (not shown) is mounted. A contact mechanism of the type shown in Patent 1,161,854 of November 30, 1915 to O. F. Forsberg may be used. In the contact operating mechanism of such impulse senders the movement of cams under control of a speed governor is effective to cause the operation of certain impulse and shunt contacts to perform switching functions well known in telephone art.

The spring assembly of this invention comprises a plate or bracket 14 which is mounted

on the rear of the casing 11 and insulated therefrom by insulating plate 9. This bracket has a lug portion 15 which extends at right angles to the plane of the plate for supporting the active impulse contact spring 16, active shunt contact springs 17 and 18, passive contact member 19 and brackets 35 and 21. The passive and active contact springs together with brackets 35 and 20 are disposed in a pile-up arrangement, as shown in Figs. 2 and 3. Impulse spring 16, shunt springs 17 and 18, passive shunt contact member 19 and brackets 35 and 20 are held securely in position on lug portion 15 by screws 7 and 8 threading in bracket 21. In this pile-up, impulse spring 16 is disposed in contact with the bracket 35 to which its respective wire from the telephone subset may be secured by screw 19'. The free end portion of active contact spring 16 extends in operative relation to the dial operating member or pawl 12 and is electrically connected to passive contact member 19 by a metallic spacer member 23. The spring and contact member 19 are in turn insulated from supporting lug 15 by insulating plate 24. Active shunt contact spring 17 has a lug portion 36 as shown in Fig. 5 which extends laterally therefrom in operative relation to cam 13 actuated by the dial mechanism. This spring is electrically connected to supporting lug 15 by a metallic spacer member 23'. Active shunt spring 18 is insulated from spring 17 by insulating plate 20, and is disposed in operative relation to an insulating stud 37 carried by spring 17. Spring 18 is electrically connected with bracket 21 to which its respective conductor from the telephone subset may be secured by screw 21'.

On plate 14 there is mounted a metallic plate 25 insulated therefrom by insulating plate 26. Plate 25 has an arm 27 integrally formed therewith which extends at right angles therefrom in contacting relation with the active or impulse contact spring 16. Similarly, conducting plate 28 is mounted on plate 25 and is insulated therefrom by insulating plate 29. Plate 28 has an arm 30 integrally formed therewith which extends in contacting relation with active contact 18.

Conducting plates 14, 25 and 28 and their insulating plates 9, 26 and 29 are held on the dial casing in a superposed arrangement by

screws 22 engaging the dial casing 11 and passing through a comparatively thick insulating plate 31 at the top of the pile-up. Contact members 30 and 27, which are carried by
5 conducting plates 28 and 25 and active contact spring 17 in electrical connection with supporting bracket 14, may thus be electrically connected to their respective wire terminals from the telephone subset by screws 34,
10 33 and 32, respectively.

By the use of this combination of parts, the soldered wire connections between the different contact springs to terminals leading to the telephone subset are entirely eliminated
15 while at the same time making possible the removal or mounting of the entire pile-up on the dial casing as a unit which permits a finer adjustment of the springs with respect to the dial operating mechanism.

20 What is claimed is:

1. An impulse sender comprising a casing, contact actuating mechanism mounted thereon, a bracket secured on the outer side of said casing, a set of contact springs secured at one

end on said bracket, metallic plates and insulating strips secured to said casing in superposed arrangement with said bracket, said plates having arms extending in position adjacent to the free ends of said springs and cooperating therewith to form contacts adapted
25 to be opened and closed by said mechanism, and certain terminal screws passing through said plates and strips and making contact with their respective plates only.

2. An impulse sender comprising a casing, 35 contact actuating mechanism thereon, a set of leaf springs, superposed metallic plates and insulating strips secured to said casing, certain of said plates having contact arms cooperating with said active springs to form con- 40 tacts adapted to be opened and closed, one of said plates having a lug for supporting the said active springs and being electrically connected to one of said leaf springs.

In witness whereof, I hereunto subscribe 45 my name this 30th day of November, A. D. 1927.

VICTOR F. MILLER.