

June 16, 1931.

H. BROADWELL

1,809,887

ADAPTER

Filed June 28, 1930

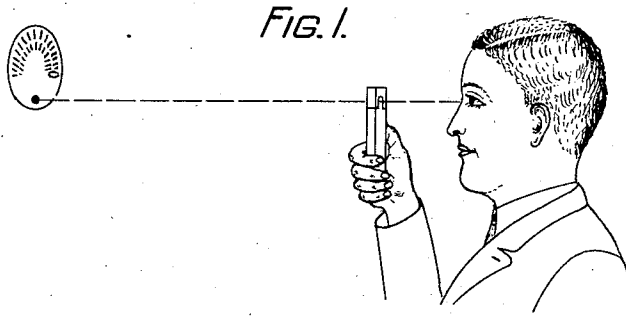


FIG. 2.

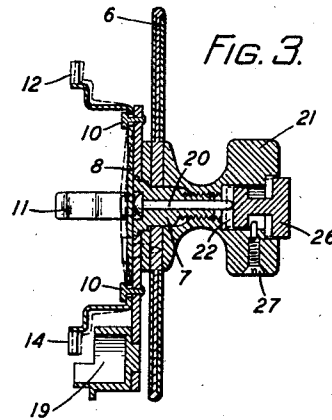
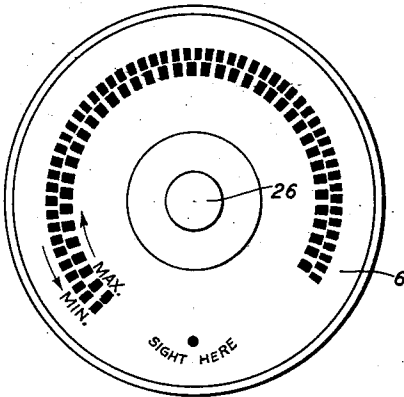


FIG. 4.

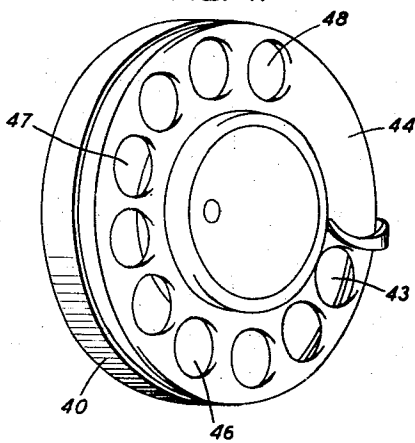
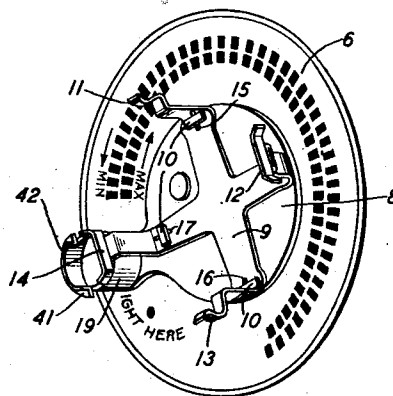


FIG. 5.



INVENTOR
H. BROADWELL
BY *John A. Tall*
ATTORNEY

UNITED STATES PATENT OFFICE

HOWARD BROADWELL, OF RIDGEWOOD, NEW JERSEY, ASSIGNOR TO BELL TELEPHONE LABORATORIES, INCORPORATED, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

ADAPTER

Application filed June 28, 1930. Serial No. 464,505.

This invention relates to systems for determining variations in the speed of a rotating telephone dial by intermittently observing a stroboscopic target secured to the dial and particularly to the means employed in securing the target to the dial.

A stroboscopic system to which this invention is particularly adapted is disclosed in my co-pending application Serial No. 445,182, filed April 17, 1930.

The system disclosed in the above mentioned co-pending application comprises a specially designed stroboscopic target which is adapted to be mounted on the finger wheel of a telephone dial and intermittently viewed through the vibrating tines of a tuning fork, or by means of an interrupted light source. In such a system it is essential that the target be rigidly secured to the finger wheel in a removable manner, and as such stroboscopic tests are made in the field it is also necessary that the association of the target with the finger wheel in no way injures the dial or mars its finish. It is also requisite that the target mounting means be of such a nature that dials having varying thicknesses of paint may be tested and the target secured thereto in a rigid manner.

It is therefore the object of this invention to provide a target mounting or adapter which is simple of construction and which permits an easy association of the target with the dial and its dissociation therefrom without scratching or in any way marring the finish on the dial finger wheel.

This object is attained in accordance with a feature of the invention by the provision of a target provided with a plurality of co-operating gripping prongs which are adapted to engage the inner periphery of certain of the holes in the dial finger wheel to secure the target to the dial and of means for distending said prongs for preventing any forcible engagement thereof with any part of the finger wheel during the mounting of the target on the dial or the disassociation of it therefrom.

The invention will be readily understood from the following detailed description made with reference to the accompanying draw-

ings in which Fig. 1 shows how the stroboscopic target is observed through a tuning fork; Fig. 2 is a view of the target per se; Fig. 3 is a sectional view of the target mounting or adapter; Fig. 4 is a perspective view of a telephone dial with which the target adapter functions and Fig. 5 is a perspective view of the underside of the target adapter.

In the following description particular reference is made to Figs. 3 and 5.

The stroboscopic target 6 per se, comprises a circular metallic disc upon either side of which is pasted or otherwise secured a circular sheet upon which the target indications have been plotted.

The gripping mechanism consists of a cross-shaped spring member 9 secured by means of rivets 10 to a circular disc 8. Holes, such as 15, 16 and 17 in the cross-shaped spring member 9 through which the rivets 10 pass are made as elongated slots in order that the arms of the member 9 may experience a relatively small sliding movement when the gripper is actuated, as will hereinafter appear.

Each arm of the member 9 is provided with an integral depending portion constituting a snap-prong such as 11, 12, 13 and 14. A cup-shaped post 19 is staked to an extension of the circular disc 8 and serves to determine the position of the target on the dial as will be described later.

Centrally located on and securely staked to the disc 8 is a hollow screw member 7 which is adapted to pass through the center hole 25 in the target and cooperate with an internally threaded knurled knob 21 in securing the target to the adapter.

A pin or plunger 20 is slidably contained within the hollow screw member 7, its head normally resting upon the center of the cross-shaped member 9, as shown in Fig. 3, and is prevented from falling out by means of shoulders within the screw member 7.

The knob 21 is provided with cylindrical cavity 22 in which a T-shaped button 26 is movably mounted. A set-screw 27 fitting into the side of knob 21 and projecting within the cavity 22 prevents the removal of the

actuating button 26, at the same time permitting a sliding movement thereof.

In normal position, the cross-shaped spring member 9 maintains the head of pin 20 flush against the shoulders within the screw 7 and the pin 20 is of such a length, that under this condition it extends within the cavity 22 of the knob 21 and impinges against the under-surface of the button 26, so that the button 26 is raised to the position shown in Fig. 3.

When it is desired to make a test on a dial 40 such as is shown in Fig. 4, the knob 21 of the assembled unit shown in Fig. 3 is conveniently grasped by the tester, with his thumb depressing the button 26 causing it to slide in the knob cavity 22, whereupon the pin 20 is moved in a downward direction, its head bearing upon the center portion of spring member 9. The mid-section of the gripper 9 is forced away from the disc 8 and the four prongs 11, 12, 13 and 14 move outwardly or are distended, the four small rivets 10 acting as points of leverage. The dash lines in Fig. 3 show the position of the gripper 9 and its associated prongs when in its actuated condition. The arcuate portion 42 of post 19 is then inserted, at an angle, in the zero hole 43 of the finger wheel 44, the shoulder portion 41 and associated flange partially resting upon the outer edge of the hole and the upper surface of the finger wheel to serve as a pivot. Due to the expansion of the gripper, the prongs 11, 12, 13 and 14 will clear the inner peripheries of holes 48, 47, 46 and 43 respectively of the finger wheel 44 while the target is being normally positioned on the dial. When the prongs have entered their respective holes the button 26 is released whereupon the gripper 9 assumes its normal condition causing the prongs to retract and tightly grip the inner periphery of the finger holes. To remove the target from the dial, the button 26 is depressed whereupon the gripping prongs are again distended and moved out of engagement with their respective holes; the target adapter is then lifted bodily, clear of the finger wheel.

By use of this style of target adapter it is apparent that there is no sliding engagement between the gripper prongs and the finger wheel due to the gripping action of the prongs either upon association of the target with the dial or upon its removal therefrom, thereby preventing rubbing of the engaging surfaces and the consequent marring of the finger wheel finish.

It will be noted that the prongs 12 and 14 are rounded or arc-shaped in such a manner as to take the torque and prevent sliding. The solid finger or post 19 is to indicate the zero hole in the finger wheel and also to take the slam when the dial is fully wound up.

What is claimed is:

1. In combination, a telephone dial having a finger wheel, a disc, means for securing

said disc to the finger wheel of said dial comprising a plurality of prongs adapted to engage the inner periphery of the holes in said finger wheel and means for distending said prongs to permit a non-rubbing engagement thereof with said finger wheel.

2. In combination with a telephone dial having a finger wheel, a disc, means for securing said disc to the finger wheel of said dial comprising a plurality of distendable prongs adapted to engage the inner periphery of certain holes in said finger wheel, a handle, and means embodied in the structure of said handle for distending said prongs to facilitate the association of said disc with the finger wheel of said dial.

3. The combination of an adapter for mounting a target on the finger wheel of a telephone dial comprising a disc, a cross-shaped spring member having a plurality of snap-prongs integrally formed therewith secured to said disc and means for flexing the center portion of said cross-shaped spring member to effect a relative spreading of said snap-prongs.

4. In combination with a telephone dial having a finger wheel, a disc to be removably mounted on said finger wheel, a second disc, a screw secured to said second disc and extending through a hole centrally located in said first disc, a knob cooperating with said screw to securely join together both said discs, a plurality of prongs secured to the underside of said second disc and adapted to be associated with the holes in said finger wheel, and means embodied in the structure of said knob for distending said prongs to facilitate their association with the holes in the finger wheel of said dial and to effect the mounting of said first disc on said dial.

5. In combination with a telephone dial having a finger wheel, a disc to be removably mounted on the finger wheel of said dial, an adapter for mounting said disc on said finger wheel including a plurality of integrally associated prongs adapted to fit in certain of the holes in said finger wheel, a knob cooperating with said adapter for securing said disc thereto, a plunger, and means housed in said knob for actuating said plunger to cause the distention of said prongs to facilitate their association with certain of the holes in said finger wheel.

6. In combination with a telephone dial having a finger wheel, a disc to be removably mounted on the finger wheel of said dial, an adapter for mounting said disc on said finger wheel including a plurality of integrally associated prongs adapted to fit in certain of the holes in said finger wheel, a knob having a cylindrical cavity centrally located in the head thereof, cooperating with said adapter in securing said disc thereto, a plunger operatively associated with said prongs and means located in the cavity in

said knob for actuating said plunger to cause the distention of said prongs to facilitate their association with certain of the holes in said finger wheel.

5 7. In combination with a telephone dial having a finger wheel, a disc to be removably mounted on the finger wheel of said dial, an adapter for mounting said disc on said finger wheel including a plurality of integrally associated prongs adapted to fit in certain of
10 the holes in said finger wheel, a knob having a cavity therein cooperating with said adapter in securing said disc thereto, a plunger operatively associated with said prongs and
15 a push button slidably contained in the cavity in said knob for actuating said plunger to cause the distention of said prongs to facilitate their association with certain of the holes in said finger wheel.

20 In witness whereof, I hereunto subscribe my name this 25th day of June, 1930.

HOWARD BROADWELL.

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