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TELEPHONE CALL TRANSMITTER

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This invention relates to telephone call transmitters of the finger-wheel operated type, and more particularly to a finger-wheel for use in such transmitters.

5 In automatic telephone systems, a type of call transmitter disclosed in Patent 1,860,535, granted to H. W. Goff May 31, 1932, is used, in which a manually operable element in the form of a finger-wheel serves to tension a motor spring upon its movement from a selected position relative to groups of combined letters and digits appearing on a number plate for operating impulse contacts upon its return movement to normal a number of times corresponding to the number selected, such movement being effected by the tension of the motor spring under control of a speed governor mechanism. The finger-wheel of this type of transmitter is made of metal or other opaque material and is provided with a plurality of finger holds for rotating it and a substantially rectangular hole at the center for engaging a similarly shaped portion at the top end of the transmitter operating shaft, while two diametrically opposite rectangularly shaped holes are provided for receiving the hook portions of a frame or holder of the type disclosed, for example, in Patent 1,575,353, granted to A. C. Magrath March 2, 1926, such holder being used for mounting an instruction card and its protecting transparent disc on the finger-wheel. When it is necessary to substitute another instruction card, such substitution requires not only the removal of the card from the holder, but also the removal of the card holder from the finger-wheel. Furthermore, the return movement of the finger-wheel to normal and the consequent successive eclipsing of the digits on the number plate prevents the subscriber from visually selecting another number prior to the stopping of the finger-wheel when reaching its normal non-operated position and preparatory to a succeeding operation of this wheel, thus causing delay in the selection of the digits comprised in a given telephone call designation.

45 The object of this invention is to provide an operating element for the type of call transmitters above mentioned, which combines a finger-wheel and a card holder, which will simplify the operations involved in changing the instruction card, and which will be cheaper to manufacture than those now in use.

55 Another object is to provide a finger-wheel which not only has the above-mentioned advantages, but which also facilitates the selection of the numbers involved in dialing opera-

tions by forming a finger-wheel of transparent material, which permits the subscriber to see the characters on the stationary number plate while the finger-wheel is rotating to its normal position during the pulsing operation.

According to the present invention, the above-mentioned objects are accomplished by the provision of a finger-wheel in which the frame or holder for the instruction card and its protective transparent disc are combined in a single unit by molding such a unit out of a thermoplastic glass-clear material. The finger-wheel thus formed includes a flange extending downwards around the outer edge which is spaced from the edge of the dial casing a distance within the elastic limits of the material, with the result that a force applied to the peripheral edge of the finger-wheel, and in a direction perpendicular thereto, causes this flange to abut against the edge of the casing to prevent breaking or damaging of the finger-wheel, while the glass-clear transparency of the material in the finger-wheel permits the visibility of the digits and letters on the number plate during the return movement to normal of this wheel, thereby facilitating the successive visual selection of the digits while the finger-wheel is operating which reduces the time heretofore required for the transmitting of a given telephone designation.

Other novel features of the invention and advantages will appear from the following description and by the claims appended thereto, reference being had to the accompanying drawing, in which:

Fig. 1 is an enlarged elevational view of a call transmitter embodying the finger-wheel of the invention, the call transmitter and finger-wheel being shown partially in section;

Fig. 2 is a top view thereof showing the finger-wheel in normal non-operated position;

Fig. 3 is another top view showing the finger-wheel operated a small angular distance from its normal position; and

Fig. 4 is a perspective view of the finger-wheel showing the instruction card, its protecting transparent disc and their securing ring exploded.

As shown in the drawing, 10 indicates a circular casing which serves for housing a gearing mechanism (not shown) and to this gearing is operatively connected a pulsing cam 12 provided for opening the normally closed contact members 13 under control of a speed governor 11. The operation of the gearing mechanism and the pulsing cam 12 actuated thereby is effected by a motor spring 14 which is tensioned upon the se-

lective movement of the finger-wheel 15 from any one of a plurality of groups of digits and letters as 1,

5 $\frac{ABC}{2}, \frac{DEF}{3}, \frac{GHI}{4}, \frac{JKL}{5}, \frac{MNO}{6}, \frac{PRS}{7}, \frac{TUV}{8}, \frac{WXY}{9}$

and

$\frac{Z}{0}$

10 appearing on a number plate 16 to a finger stop 17, secured to the casing 10.

According to the invention, the operating element or finger-wheel 15 is made of a thermoplastic material, comprising a polymeric alpha methyl methacrylate resin, which has a high coefficient of elasticity and hardness and a glass-clear transparency. As shown in Figs. 1 and 4, this finger-wheel combines a centrally disposed fastening portion F, a card holder portion H, a disc portion having a plurality of finger holds 1, 2A, 3D, G4, J5, M6, P7, T8, W9 and OP0, and a rim portion RP which is provided for reenforcing the disc portion at its peripheral edge. The card holder H is formed with a central shoulder portion SP serving as a bearing portion or rest for an instruction card 18 and a protecting disc 19 of transparent material. The instruction card 18 and the protecting transparent disc 19 are held in the holder thus formed by a split ring 20 engaging a circular groove 21 in the holder, the transparent disc 19 and the instruction card 18 being each formed at their peripheral edge with a flat segmental portion 24 and 22 shown in Fig. 4 registering with a segmental portion 23 formed with the holder for readily locating the instruction card relative to the general position of the finger-wheel on the transmitter.

By the use of a finger-wheel constructed of a glass-clear transparent material all the groups of letters and digits on the number plate remain entirely visible upon the return movement of this wheel, as for example, when successively reaching the positions as shown in Fig. 3, thus permitting the operator to visually select another number during the rotation of this wheel preparatory to a second operation of this wheel, following the transmitting of a set of pulses.

Further, the forming of the holder or frame for the instruction card with the finger-wheel considerably reenforces this wheel at its point of greatest strain and thereby avoids the breaking and damaging of the finger-wheel and considerably reduces the manufacturing cost of this wheel over the type where the operating element

of the transmitter and the card holder are made independent units, while the forming of rim RP at the peripheral edge of the finger-wheel and the spacing of this rim a distance from the edge of the casing 10 corresponding to the coefficient of elasticity of the transparent thermoplastic material used effectively prevents the breaking and damaging of the finger-wheel while permitting its operation without interference from a cooperating element of the call transmitter, i. e., the casing 10 or number plate 16.

What is claimed is:

1. An operating element of a glass-clear material for a telephone call transmitter having a cup-shaped casing, a circular number plate and a centrally disposed operating shaft, said element being molded to combine finger hold portions having uniform radial thickness to form a flexing region, a peripherally disposed reinforcing rim and a projection forming a holder for an instruction card, said holder having means for securing the operating element to the operating shaft and a segmental portion registering with means carried by said instruction card for readily locating the latter in adjusted position relative to said finger hold portions, said rim being disposed at the greatest distance from said securing means and projecting toward the number plate to abut against the casing upon the flexing of said finger hold portions by a force applied at the periphery of said element.

2. An operating element of a glass-clear material for a telephone call transmitter having a pulsing mechanism, a cup-shaped casing, a number plate supported in the casing adjacent the edge thereof and a shaft operatively connected to the pulsing mechanism, said element being molded to combine a flat circular portion having a uniform sectional thickness, a plurality of finger holds in said portion forming a flexing region, a circular projection extending perpendicularly from one of the faces of the element having an annular shoulder portion and a radial lug portion, an instruction card resting on said shoulder portion and having means for engaging said lug portion for locating said instruction card relative to said finger holds, means inwardly coextensive from the region of said projection for securing said element to the shaft of the transmitter and a reinforcing rim portion formed integral with said circular portion and spaced from the casing such a distance that the operating element will not be bent beyond its elastic limit when it strikes the casing.

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