Dec. 30, 1947. R. E. HERSEY 2,433,366

TELEPHONE DIAL FINGER HOLE MASKING MEANS

Filed July 11, 1945

FIG. 1

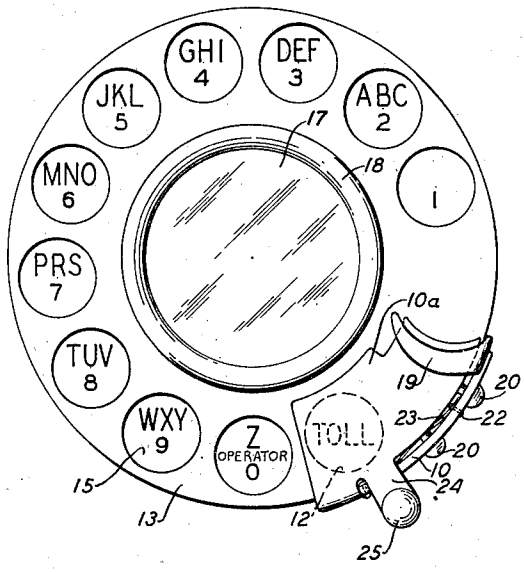


FIG. 2

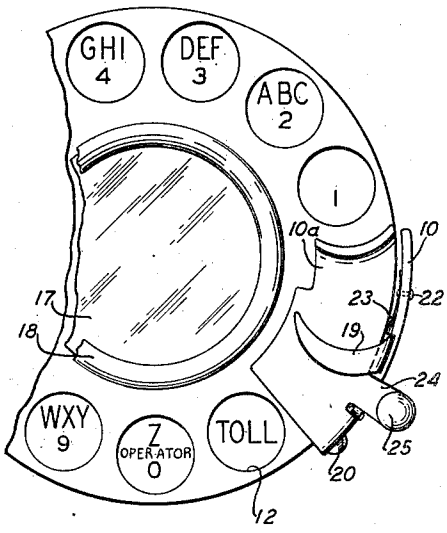


FIG. 3

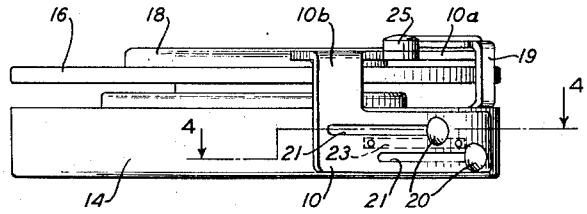
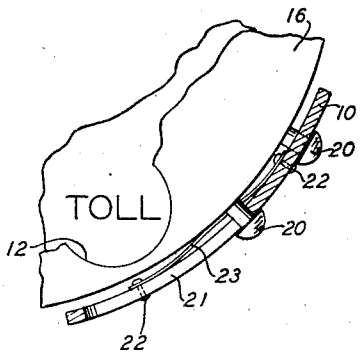


FIG. 4



INVENTOR
R. E. HERSEY
BY A. F. Kane
ATTORNEY

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TELEPHONE DIAL FINGER HOLE MASKING MEANS

Ralph E. Hersey, Madison, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York

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7 Claims. (Cl. 179—90)

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This invention relates to telephone dials and particularly to a telephone dial which may be used at a telephone subscriber's station for dialing toll calls, which calls require the transmission of a toll identification signal to distinguish them from local calls.

In accordance with present day practice a telephone toll call initiated at a subscriber's station is completed under the control of a so-called "long distance" operator. To initiate such a call, the subscriber dials "zero" and reaches the zero operator, or dials 211 and reaches the "long distance" operator. In either case the subscriber gives the details of the desired connection. The "zero" or "long distance" operator then proceeds, in the well-known manner, to have the call extended to the desired destination.

In order to preclude the necessity for the intervention, or assistance of the exchange operators in the completion of toll calls originated at a subscriber's station and to otherwise expedite the completion of such calls, it has been proposed to provide facilities whereby a calling subscriber, through the sole medium of the dial located at the subscriber's station, may originate and control the completion of toll connections directly and without having to employ the services of the exchange operators. In order that the exchange switching equipment be enabled to distinguish between local and toll calls originated at the subscriber's station it is proposed to characterize the toll call designation by an extra digit, such as eleven, which digit supplements the usual station designation. To provide for the transmission of such a toll identification digit the subscriber's telephone dial must be equipped to do so. Furthermore, it is essential that the calling subscriber must be made fully aware of the fact that a toll call is being originated, lest the careless or accidental manipulation of the dial result in the completion of a toll call when only a local call was intended. In other words, the subscriber must be called upon to perform some deliberate act in originating a toll call which act is not required of the subscriber in initiating a local call.

It is the object of this invention to provide a subscriber's telephone dial which may be utilized to transmit a toll identification signal, and which requires a deliberate act by the subscriber to condition the dial for the transmission of such a signal.

In accordance with the present invention the finger-wheel of a standard telephone dial is provided with eleven finger holes, ten of which are

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normally available for use by the subscriber in dialing local calls, and the eleventh of which is normally inaccessible for use in setting the dial. The eleventh hole, in the normal, or home position of the finger-wheel, follows the usual "zero" hole; is spaced therefrom in a counterclockwise direction by a distance representing one pulse; and is located immediately above a section of the number plate which bears the designation "long distance," "toll," or some other equally appropriate designation. This hole is normally masked by means of a manually displaceable masking member, guard, or slide, so as to be rendered thereby inaccessible to the subscriber. Means are provided whereby the masking member, shield or guard may be manually moved to an unmasking position so as to expose the eleventh finger hole and thereby render it available for use by the subscriber in setting the dial for a toll call. In its unmasking, or alternate position, one end of the slide member projects beyond the fixed finger stop and into the path traversed by the subscriber's finger in setting the dial so as to be engaged by the subscriber's finger as it approaches the finger stop and to be thereby restored to its normal or masking position. When the dial is actuated from the eleventh, or "toll," finger hole it functions to transmit eleven pulses which characterize the toll identification signal.

The invention will be better understood from the following detailed description when read in connection with the accompanying drawing, in which:

Fig. 1 is a plan view of a telephone dial showing the slidable masking member in its normal or masking position;

Fig. 2 is a fragmentary plan view of the dial showing the masking member after having been moved to its unmasking or alternate position;

Fig. 3 is a side elevation of the dial shown in Fig. 1; and

Fig. 4 is an enlarged fragmentary view taken along the line 4—4 of Fig. 3 and looking in the direction of the arrows.

The telephone dial of this invention, except for the addition of the masking member 10 and of the "toll" hole 12 in the finger-wheel 13, is of well-known construction and of the type in common usage. It includes a cup-shaped casing 14 upon which is fixedly supported a number plate 15 bearing the usual groups of designations 1, ABC2, etc., and the additional designation "Toll"; the rotatable finger-wheel 13; designation card and window 17; designation card holder or

clamping ring 18; and finger stop 19. The pulsing mechanism and contacts, and the internally housed operating mechanism whereby the finger-wheel is returned to normal after being manually set and released are not illustrated, being well known in the art.

Fixed to the dial casing 14 in the positions illustrated are two knob-headed pins 20. These pins determine the limit of movement of the masking member 10 in either direction and constitute supports for the masking member upon which it may be slid from one position to the other position. The masking member 10 which is substantially arcuate in configuration so as to coincide with the contour of the vertical wall of the casing 14, is provided with two elongated slots 21 located one above the other and relatively displaced slightly in the direction of their longitudinal axes. Two slots 21 and two pins 20 are employed so as to provide a more stable support for the masking member than would be provided by but one slot and one pin. Fixed to the inner surface of the vertical portion (viewing Fig. 3) of the masking member 10 by means of rivets 22 is a light leaf spring 23 which is so flexed as to lightly bear against the outer face of the vertical wall of the dial casing 14. This spring precludes any wobbling of the masking member and serves also to maintain the masking member in whichever of its two positions it may be moved to.

The masking member includes a horizontally disposed portion 10*a* formed integrally with the vertical portion thereof and joined thereto by the connecting piece 10*b*. Jutting out from the horizontal portion 10*a* of the masking member is an integral tab 24 which supports the finger grip, or button, 25. The forward end of the horizontal portion 10*a* of the masking member is turned up slightly and curved to correspond to the contour of the forward edge of the finger stop 19 which is fixed to the dial structure in the usual manner. The horizontal portion of the masking member is so dimensioned as to extend from the finger stop 19 to a position in which it completely obscures the finger hole "Toll" which is the eleventh hole of the finger-wheel 13. The normal or masking position of the masking member is illustrated in Figs. 1 and 3 and is determined by the engagement of the pins 20 with the right terminal of the slots 21 (viewing Fig. 3). In this position of the masking member the eleventh, or "Toll" hole of the dial finger-wheel is inaccessible to the subscriber so that the dial may not be utilized to transmit the toll identification signal which is characterized by eleven pulses. The dial, however, may be set in the usual manner from any of the other ten holes to effect the transmission of a series of groups of pulses which identify the designation of a local called station.

When the dial is to be used for a toll call the subscriber grasps the button, or handle, 25 and moves it together with the masking member to the right to the limit of its travel, that is, until the shanks of the pins 20 are engaged by the left termini of their respective slots 21. The forward end of the horizontal portion 10*a* of the masking member is thus projected to the right of the finger stop 19 a distance corresponding to the spacing between two adjacent finger holes, or that distance which determines the transmission of one pulse, and into the path traversed by the finger of the subscriber when engaged in a finger hole in setting the dial. When moved to this position the left portion of the masking member clears the eleventh finger hole of the finger-wheel, as shown

in Fig. 2, thereby rendering such hole available to the subscriber for use in transmitting the toll identification signal. The masking member is held in its alternate or unmasking position by the action of the light leaf spring 23. When the eleventh, or "Toll" hole is thus cleared the subscriber inserts the finger therein and rotates the finger-wheel clockwise in the usual manner until the movement of the finger is arrested by the fixed finger stop 19. Just prior to the completion of this dial setting operation, the subscriber's finger engages the right edge of the masking member causing the masking member to be returned to its normal position as the subscriber's finger approaches the finger stop. The masking member presents very little opposition to the subscriber's finger so that the full setting operation of the dial is assured and is terminated only when the masking member is checked against further movement which occurs only when the masking member reaches its home or normal masking position. Withdrawal of the subscriber's finger permits the finger-wheel to restore to normal in the well-known manner during which return movement the dial pulsing contacts are operated eleven times to transmit eleven pulses.

It is apparent that applicant has devised a dial the usual ten finger holes of which are normally available for use in setting the dial and the "Toll" hole of which is normally masked and cannot be used to set the dial without the subscriber first performing the deliberate act of moving the masking member to its alternate or unmasking position.

The particular embodiment of the invention shown in the drawings is by way of illustration only and is not intended in any way to limit the scope of the invention to this specific structure.

What is claimed is:

1. In a telephone dial of the finger-wheel type which requires the transmission of a toll identification signal therefrom in order to originate a toll call and in which the finger-wheel is, at all times, freely operable, means including an eleventh finger hole in the finger-wheel of said dial for transmitting the toll identification signal, said eleventh finger hole being normally inaccessible to the dial operator, and means responsive to the performance of a deliberate act by the dial operator for rendering the said eleventh finger hole accessible for use in transmitting the toll identification signal.

2. The combination in a telephone dial of a casing, a finger-wheel freely rotatable relative to said casing and having a plurality of finger holes therein by means of which said finger-wheel may be rotated from a normal position through arcs of various lengths, a guard normally positioned relative to the finger holes of said finger-wheel so as to render only one of the finger holes inaccessible for use in rotating said finger-wheel from normal position, means slidably mounting said guard on said casing, and manually operable means for sliding said guard on said casing to render the said one of the finger holes of said finger-wheel accessible for use in rotating said finger-wheel from normal position.

3. In combination, a freely rotatable telephone dial having a casing and means for variably setting said dial comprising a rotatable finger-wheel having a plurality of finger holes, means rendering a single one of the finger holes of said finger-wheel inaccessible for setting said dial when said finger-wheel is in its normal position comprising

a guard member having a normal position on said casing in which it masks the said single one of the finger holes when said finger-wheel is in its normal position and an alternate position in which it exposes the said single finger hole, and means slidably supporting said guard on said casing whereby said guard may be moved from its normal position to its alternate position.

4. In combination, a telephone dial having a casing and a rotatable finger-wheel, said finger-wheel having a plurality of finger holes therein, and means for masking one of the finger holes of said finger-wheel comprising a masking member slidably mounted on the casing of said dial in superposed relation to said finger-wheel and having a normal position on said casing in which it masks the said one of the finger holes and an alternate position on said casing in which the said one of the finger holes is unmasked, said finger-wheel being freely rotatable when said masking member is in either its normal or alternate positions.

5. In combination, a telephone dial casing, a finger-wheel supported by said casing and rotatable relative thereto, means including finger holes in said finger-wheel whereby said finger wheel is rotated by the finger of an operator when inserted in a finger hole and moved in an arcuate path, a guard movably mounted on said casing and having a normal position thereon in which it masks a single one of the finger holes and an alternate position in which the said single one of the finger holes is unmasked, and means for moving said guard from its normal position to its alternate position, said finger-wheel being rotatable by way of all but the said single one of the finger holes when said guard is in its normal position and by way of all of the finger holes when said guard is in its alternate position.

6. The combination in a telephone dial of a freely rotatable finger-wheel having a plurality of finger holes by means of which said dial may be variably set, and means for limiting the setting of said dial to all but one of the finger holes

of said finger-wheel comprising masking means mounted for movement on said dial between normal and alternate positions for masking one of the finger holes when said masking means is in its normal position.

7. In combination, a telephone dial having a casing, a finger-wheel and a finger stop, said finger-wheel having a plurality of finger holes arranged in an arcuate row thereon, a terminating finger hole of said row being located on each side of said finger stop and said finger hole constituting means whereby said finger-wheel may be rotated through variable arcs by the insertion of a finger of the dial operator therein and then moving the finger in an arcuate path until the finger engages the finger stop, and means comprising a guard member disposed in superposed relation to said finger-wheel and spanning that portion thereof which extends from said finger stop and includes one of the said terminating finger holes whereby the said terminating finger hole is rendered inaccessible for use in rotating said finger-wheel from normal, means for slidably supporting said guard member on said casing, and manually operable means for moving said guard member in a direction towards the other terminating finger hole to render the first said terminating finger hole accessible for use in rotating said finger-wheel from normal, said guard member, when so moved, projecting into the arcuate path traversed by the finger of the dial operator in rotating the finger-wheel so as to be engaged thereby and restored to normal position.

RALPH E. HERSEY.

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