

Dec. 21, 1943.

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2,337,381

DIAL MOUNTING

Filed March 13, 1941

2 Sheets-Sheet 1

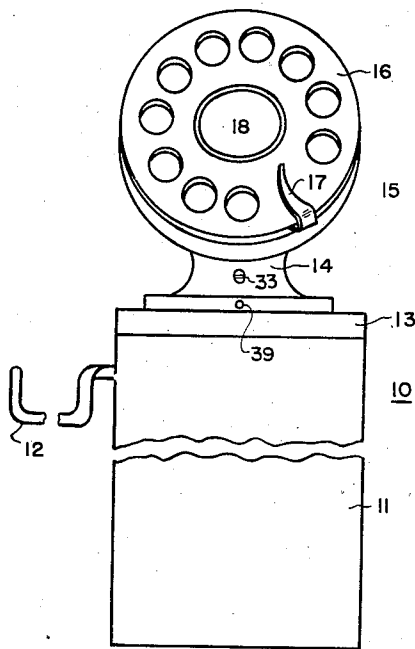


Fig. 1

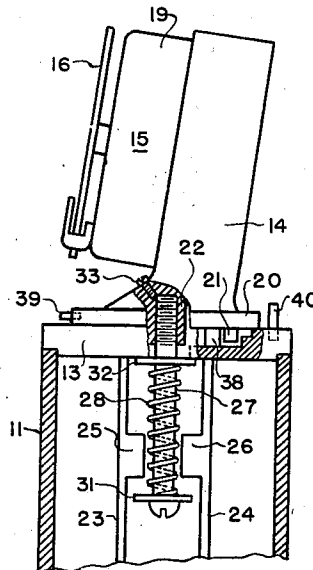


Fig. 2

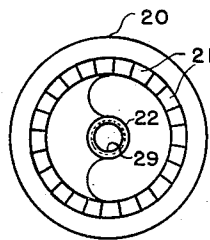


Fig. 3

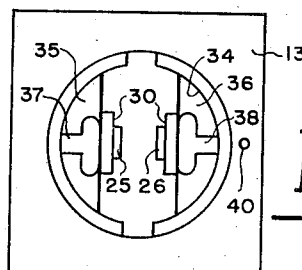


Fig. 4

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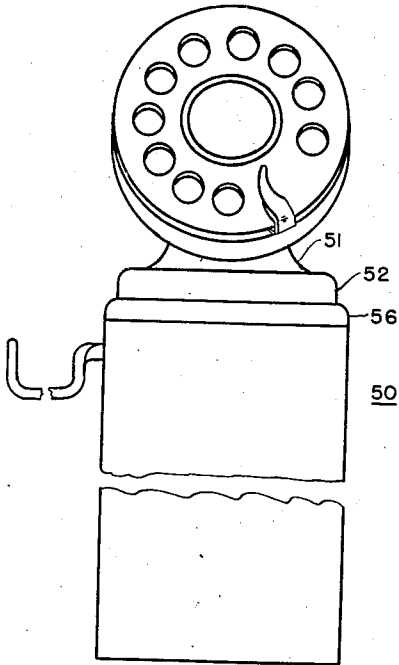


Fig. 5

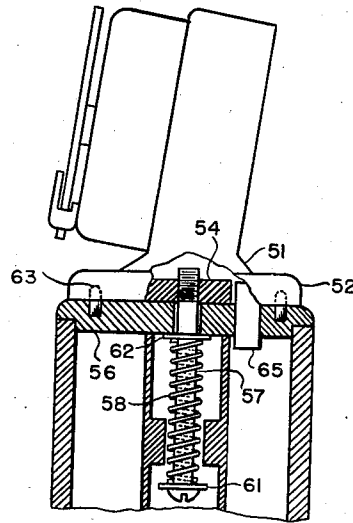


Fig. 6

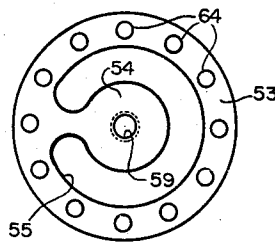


Fig. 7

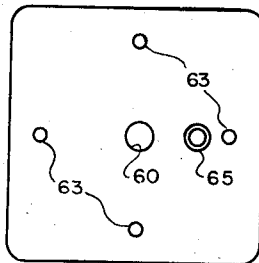


Fig. 8

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## UNITED STATES PATENT OFFICE

2,337,381

## DIAL MOUNTING

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Application March 13, 1941, Serial No. 383,081

10 Claims. (Cl. 179—90)

The present invention relates to dial mountings for telephone substations and, more particularly, to dial mountings for telephone substations of the desk or wall mounted type.

A telephone substation of the type referred to conventionally comprises a casing adapted to be supported upon the side of a desk or the like, and housing the usual apparatus including a hook switch. Also, the casing comprises a switch hook adapted to receive an associated hand telephone, and a dial unit. Ordinarily the dial unit is carried by a pedestal which, in turn, is supported by the casing. Frequently the pedestal is secured to the casing by a number of screws which may be removed in order to permit some adjustment of the position of the pedestal with respect to the casing by the installer, thereby to accommodate change of position of the dial unit for convenient normal use, depending upon the side of the desk upon which the casing is supported.

While the original position of a conventional dial mounting of the type referred to may be adjusted by an installer to the initial convenience of the user, the dial mounting does not permit of any subsequent adjustment whatever of the position thereof by the user to his later convenience.

Accordingly, it is an object of the present invention to provide a dial mounting of the type noted embodying an improved arrangement which facilitates ready adjustment of the position thereof by the user to his convenience at the moment, and in a simple and expedient manner.

Another object of the invention is to provide an improved dial mounting which is of rugged and compact construction and which is economical to manufacture.

The objects set forth above are attained in accordance with the present invention by providing a dial mounting comprising a dial unit, a movable pedestal carrying the dial unit, a stationary base carrying the pedestal, and means for retaining the pedestal and the base in assembled relation and for accommodating both displacement and rotation of the pedestal with respect to the base while the pedestal and the base are retained in assembled relation, whereby the angular position of the pedestal with respect to the base may be readily adjusted in order to facilitate ready change of position of the dial unit for convenient normal use. Also, the dial mounting comprises means for positively preventing rotation of the pedestal with respect to the base except when the pedestal is also displaced with respect to the base, thereby positively to prevent

change of position of the dial unit during normal use. More particularly, the pedestal is resiliently connected to the base and interengaging parts are carried both by the pedestal and the base, whereby the pedestal may be rotated with respect to the base only when it is displaced with respect to the base in order to disengage the parts. Further, the dial mounting includes interengaging elements carried by both the pedestal and the base for limiting rotation of the pedestal with respect to the base when the interengaging parts are disengaged.

The novel features believed to be characteristic of the invention are set forth with particularity in the appended claims. The invention, both as to its organization and method of operation, together with further objects and advantages thereof, will best be understood by reference to the following specification taken in connection with the accompanying drawings, in which Figure 1 is a fragmentary front elevational view of a telephone substation of the desk mounted type, including a dial mounting embodying the present invention; Fig. 2 is a side elevational view, partly in section, of the dial mounting shown in Fig. 1; Fig. 3 is a bottom plan view of a pedestal incorporated in the dial mounting; Fig. 4 is a top plan view of a base incorporated in the dial mounting; Fig. 5 is a fragmentary front elevational view of a telephone substation of the desk mounted type, including a modified form of the dial mounting embodying the present invention; Fig. 6 is a fragmentary sectional side elevational view of the dial mounting shown in Fig. 5; Fig. 7 is a bottom plan view of a pedestal incorporated in the dial mounting; and Fig. 8 is a top plan view of a base incorporated in the dial mounting.

Referring now more particularly to Figs. 1 to 4, inclusive, of the drawings, there is shown a telephone substation 10 of the desk or wall mounted type incorporating a dial mounting embodying the present invention. The telephone substation 10 comprises an elongated casing 11 having a rectangular cross section and adapted to house the usual substation apparatus including a hook switch, not shown. The casing 11 carries a pivotally mounted switchhook 12 adapted to receive and support an associated hand telephone and is provided with a removable cover 13 constituting a base element for an associated pedestal 14 carrying a dial unit 15. More particularly, the dial unit is of conventional construction and arrangement including a rotatable finger wheel 16, a finger stop 17, an escutcheon plate 18 and a casing 19. The casing 19 of the dial unit 15 is of

cylindrical configuration and is suitably secured in an opening provided in the pedestal 14.

The pedestal 14 is of hollow construction and includes a disc-shaped foot 20 which comprises a flat bottom wall, carrying a plurality of depending teeth 21 arranged in spaced-apart relationship about a circle, and a centrally disposed boss 22. The base 13 carries a hook switch supporting frame including two spaced-apart arms 23 and 24 respectively carrying two spaced-apart stops 25 and 26. The pedestal 14 is resiliently secured to the base 13 by an arrangement comprising a screw 27 carrying a surrounding coil spring 28. The end of the screw 27 is threaded into a centrally disposed tapped hole 29 provided in the boss 22 and extends through a centrally disposed opening 30 provided in the base 13. The coil spring 28 extends between a washer 31 disposed adjacent the head of the screw 27 and a washer 32 disposed adjacent the lower surface of the base 13, and is retained under some compression, thereby firmly to urge the bottom wall of the foot 20 into snug engagement with the associated top wall of the base 13. The end of the screw 27 threaded into the tapped hole 29 provided in the boss 22 is retained in place by a set screw 33 threaded into a tapped hole formed in the pedestal 14.

The normal rotary position of the foot 20 of the pedestal 14 with respect to the base 13 is fixed by an arrangement comprising interengaging parts respectively carried by the foot 20 and the base 13. More particularly, an annular depression 34 is formed in the top wall of the base 13 in surrounding relation with respect to the opening 30 provided therein, whereby two laterally spaced-apart ledges 35 and 36 are formed on the opposite sides of the opening 30. The two ledges 35 and 36 respectively carry two upstanding tabs 37 and 38 which are adapted to be straddled by two of the pairs of teeth 21 carried by the bottom wall of the foot 20. Accordingly, the arrangement comprising the two pairs of teeth 21 depending from the bottom wall of the foot 20 and respectively straddling the two upstanding tabs 37 and 38 carried by the base 13 not only positively prevents normal rotation of the foot 20 upon the base 13, but accurately positions the foot 20 upon the base 13 in one of a relatively large number of adjusted positions. The peripheral edge of the foot 20 carries an outwardly projecting stop pin 39 which cooperates with an upwardly projecting stop pin 40 carried by the top wall of the base 13, the stop pins 39 and 40 constituting interengaging elements adapted to limit rotation of the foot 20 with respect to the base 13, in a manner more fully explained below.

The coil spring 28 accommodates limited displacement of the pedestal 14 relative to the base 13 as determined by the distance between the washer 31 disposed adjacent the head of the screw 27 and the stops 25 and 26 respectively carried by the spaced-apart arms 23 and 24 of the frame disposed within the casing 11. The distance between the washer 31 and the stops 25 and 26 is so proportioned and related relative to the length of the teeth 21 carried by the bottom wall of the foot 20 and the length of the stop pin 40 carried by the top wall of the base 13 that, when the pedestal 14 is displaced with respect to the base 13 such that the washer 31 engages the stops 25 and 26, the ends of the teeth 21 clear the tabs 37 and 38 to permit rotation of the foot 20 of the pedestal 14; however, the stop pin 39 carried by

the periphery of the foot 20 is not raised above the end of the stop pin 40 carried by the top wall of the base 13. Accordingly, at this time, the pedestal 14 may be rotated relative to the base 13 a limited amount, as determined by the engagement between the stop pins 39 and 40.

The pedestal 14 is positively prevented from rotation upon the base 13 during ordinary use of the dial unit 15 by the arrangement comprising the interengaging teeth 21 carried by the foot 20 and the tabs 37 and 38 carried by the base 13 and the coil spring 28 which positively retains the teeth 21 and the tabs 37 and 38 in engagement.

When the user desires to change the position of the dial unit 15 relative to his desk supporting the casing 11 it is only necessary for him to lift the dial unit 15 and the associated pedestal 14, thereby to disengage the teeth 21 carried by the foot 20 and the tabs 37 and 38 carried by the base 13, then rotate the dial unit 15 and the pedestal 14 to the desired adjusted position, and finally release the dial unit 15 and the pedestal 14. When the dial unit 15 and the pedestal 14 are thus lifted the coil spring 28 surrounding the screw 27 is placed under further compression; and subsequently, after the dial unit 15 and the pedestal 14 have been rotated to the desired adjusted position and released, the coil spring 28 again urges the foot 20 into engagement with the base 13, whereupon the teeth 21 carried by the foot 20 again straddle the tabs 37 and 38 carried by the base 13, thereby to retain the pedestal 14 and the dial unit 15 carried thereby in its new adjusted position. This arrangement facilitates ready adjustment of the dial unit 15 and the pedestal 14 relative to the base 13 and the casing 11 by the user to his convenience at the moment. By utilizing this improved arrangement, it will be apparent that the casing 11 may be mounted between two adjacent desks, rendering the dial unit 15 readily adjustable to the convenience of the user at either desk, whereby a single telephone substation may be provided for the joint use of the two users at the two adjacent desks.

As previously noted, when the dial unit 15 and the pedestal 14 occupy their lifted positions relative to the base 13, as determined by the engagement of the washer 31 disposed adjacent the head of the screw 27 and the two stops 25 and 26, the dial unit 15 and the pedestal 14 may be adjusted in the rotary direction only a limited amount with respect to the base 13 due to the arrangement of the stop pins 39 and 40. More particularly, at the opposite ends of travel of the pedestal 14 in the rotary direction, the stop pin 39 engages the opposite sides of the stop pin 40. This arrangement is very advantageous in view of the fact that it positively prevents continued rotation of the pedestal 14 relative to the base 13 a plurality of revolutions in the same direction, and consequently the ensuing twisting and tangling of the connecting conductors extending between the dial unit 15 and the interior of the casing 11.

Referring now more particularly to Figs. 5 to 8, inclusive, of the drawings, there is shown a telephone substation 50 of the desk or wall mounted type incorporating a modified form of dial mounting embodying the present invention. The general construction and arrangement of the telephone substation 50 are the same as those of the telephone substation 10, previously described. However, in the telephone substation 50 the hollow pedestal 51 comprises a foot 52

including an annular ring 53 and a connected centrally disposed tab 54, whereby an arcuate shaped recess 55 is defined between the ring 53 and the tab 54. The pedestal 51 is resiliently secured to the associated base 56 by an arrangement comprising a screw 57 carrying a surrounding coil spring 58. The end of the screw 57 is threaded into a centrally disposed tapped hole 59 provided in the tab 54 and extends through a centrally disposed aligned opening 60 provided in the base 56. The coil spring 58 extends between a washer 61 disposed adjacent the head of the screw 57 and a washer 62 disposed adjacent the bottom wall of the base 56 and is retained under some compression, thereby firmly to urge the bottom wall of the foot 52 into snug engagement with the associated top wall of the base 56.

The normal rotary position of the foot 52 of the pedestal 51 with respect to the base 56 is fixed by an arrangement comprising interengaging parts respectively carried by the foot 52 and the base 56. More particularly, the base 56 carries four upstanding pins 63 which are adapted to be received in four of twelve radially disposed recesses or holes 64 provided in the bottom wall of the ring 53. This arrangement not only positively prevents normal rotation of the foot 52 upon the base 56, but accurately positions the foot 52 upon the base 56 in one of a relatively large number of adjusted positions. Also, a tube 65 is fixed in an associated opening provided in the base 56 and projects into the arcuate shaped recess 55 disposed between the ring 53 and the tab 54 carried by the foot 52. The tube 65 carried by the base 56 and the associated arcuate shaped recess 55 provided in the foot 52 constitute interengaging elements adapted to limit rotation of the foot 52 with respect to the base 56. Also, the tube 65 and the hollow pedestal 51 readily accommodate the connecting conductors extending between the dial unit carried by the pedestal 51 and the interior of the supporting casing.

The pedestal 51 is positively prevented from rotation relative to the base 56 during ordinary use of the dial unit carried thereby by the arrangement comprising the interengaging pins 63 and the holes 64 and the coil spring 58 which positively retains the pins 63 in the holes 64.

When the user desires to change the rotary position of the dial unit carried by the pedestal 51 relative to his desk supporting the associated casing, it is only necessary for him to lift the pedestal 51 and then to rotate the pedestal 51 to the desired adjusted position, and finally to release the pedestal 51. When the pedestal 51 is lifted relative to the base 56 the pins 63 disengage the associated holes 64, thereby to free the foot 52 for rotation relative to the base 56. The displacement of the pedestal 51 relative to the base 56 is limited by the engagement between the washer 61 and the two associated stops carried by the two arms of the frame disposed within the casing. Also, when the pedestal 51 is thus lifted the coil spring 58 is further compressed. Subsequently, after the pedestal 51 has been rotated to the desired adjusted position and released the coil spring 58 again urges the foot 52 toward the base 56, whereupon the pins 63 reengage the associated holes 64, thereby to retain the pedestal 51 in its new adjusted position. This arrangement facilitates ready adjustment of the pedestal 51 relative to the base 56 by the user to his convenience at the moment,

thereby permitting a single telephone substation to be used jointly by subscribers at two adjacent desks, in the manner previously explained.

The distance between the washer 61 disposed adjacent the head of the screw 57 and the two associated stops carried by the arms of the frame arranged in the casing is so proportioned and related relative to the length of the pins 63 above the top wall of the base 56 and the length of the tube 65 above the top wall of the base 56 that, when the pedestal 51 is lifted in order to cause the washer 61 to engage the two associated stops, the pins 63 disengage the associated holes 64; however, the end of the tube 65 does not disengage the arcuate recess 55 provided in the foot 52. Hence, when the pedestal 51 is thus lifted the arrangement of the end of the tube 65 in the arcuate recess 55 provided in the foot 52 of the pedestal 51 positively limits rotation of the pedestal 51 with respect to the base 56. More particularly, at the opposite ends of the travel of the pedestal 51 in the rotary direction, the tube 65 engages the opposite ends of the arcuate recess 55 provided in the foot 52. This arrangement is very advantageous in view of the fact that it positively prevents continued rotation of the pedestal 51 relative to the base 56 a plurality of revolutions in the same direction and, consequently, the ensuing twisting and tangling of the connecting conductors extending through the tube 65 between the dial unit carried by the pedestal 51 and the interior of the associated casing.

While there has been described what is at present considered to be the preferred embodiment of the invention, it will be understood that various modifications may be made therein and it is intended to cover in the appended claims all such modifications as fall within the true spirit and scope of the invention.

What is claimed is:

1. A dial mounting comprising a dial unit, a movable pedestal carrying said dial unit, a stationary base carrying said pedestal, means including a resilient connection between said pedestal and said base for urging said pedestal toward said base, thereby to retain said pedestal and said base in assembled relation, said connection accommodating both limited displacement and limited rotation of said pedestal with respect to said base, whereby the angular position of said pedestal with respect to said base may be readily adjusted by the user in order to facilitate ready change of position of said dial unit for convenient normal use, and means for positively preventing rotation of said pedestal with respect to said base except when said pedestal is also displaced with respect to said base, thereby positively to prevent change of position of said dial unit during normal use.

2. A dial mounting comprising a dial unit, a movable pedestal carrying said dial unit, a stationary base carrying said pedestal, interengaging parts carried by both said pedestal and said base, and a resilient connection between said pedestal and said base, whereby said pedestal and said base are retained in assembled relation and said interengaging parts are urged into engagement, thereby positively to prevent rotation of said pedestal with respect to said base when said interengaging parts are engaged, said connection accommodating limited displacement of said pedestal with respect to said base by the user, whereby said interengaging parts are disengaged, thereby to accommodate rotation of said pedestal with respect to said base when said interengaging parts

are disengaged in order to facilitate ready change of position of said dial unit for convenient normal use.

3. A dial mounting comprising a dial unit, a movable pedestal carrying said dial unit, a stationary base carrying said pedestal, interengaging parts carried by both said pedestal and said base, a resilient connection between said pedestal and said base, whereby said pedestal and said base are retained in assembled relation and said interengaging parts are urged into engagement, thereby positively to prevent rotation of said pedestal with respect to said base when said interengaging parts are engaged, said connection accommodating limited displacement of said pedestal with respect to said base by the user, whereby said interengaging parts are disengaged, thereby to accommodate rotation of said pedestal with respect to said base when said interengaging parts are disengaged in order to facilitate ready change of position of said dial unit for convenient normal use, and means including interengaging elements carried by both said pedestal and said base for limiting rotation of said pedestal with respect to said base when said interengaging parts are disengaged.

4. A dial mounting comprising a dial unit, a movable pedestal element carrying said dial unit, a stationary base element carrying said pedestal, means including a member carried by one of said elements and projecting through an opening provided in the other of said elements for mounting said pedestal for rotation with respect to said base, whereby the angular position of said pedestal with respect to said base may be readily adjusted in order to facilitate ready change of position of said dial unit for convenient normal use, means including a coil spring surrounding said member for urging said pedestal toward said base and for accommodating limited displacement of said pedestal with respect to said base by the user, and means including interengaging parts carried by both said pedestal and said base for positively preventing rotation of said pedestal with respect to said base except when said pedestal is also displaced with respect to said base.

5. In a dial mounting arrangement for telephone sets comprising a stationary casing and a movable dial mounting pedestal mounted on the top of said casing, a retaining member, one end of said member being secured to said pedestal and the other end thereof terminating in an enlarged head, said member extending through an opening in the top of said casing with said head located within said casing at a predetermined point, means including a resilient element extending between said head and said casing for resiliently retaining said pedestal in assembled relation with said casing, means normally preventing rotation of said pedestal with respect to said casing, said last-mentioned means accommodating rotation of said pedestal when said pedestal is displaced a predetermined distance against the bias of said resilient element, a stop located in said casing at a predetermined distance from said head and engaged thereby to limit the amount of displacement of said pedestal, and means associated with said pedestal and said casing for limiting the amount of rotation of said pedestal with respect to said casing when said pedestal is displaced.

6. In a dial mounting arrangement for telephone sets comprising a stationary casing and a movable dial mounting pedestal mounted on the top of said casing, a retaining member, one end

of said member being secured to said pedestal and the other end thereof terminating in an enlarged head, said member extending through an opening in the top of said casing with said head located within said casing at a predetermined point, means including a resilient element extending between said head and said casing for resiliently retaining said pedestal in assembled relation with said casing, means normally preventing rotation of said pedestal with respect to said casing, said last-mentioned means accommodating rotation of said pedestal when said pedestal is displaced a predetermined distance against the bias of said resilient element, a stop located in said casing at a predetermined distance from said head and engaged thereby to limit the amount of displacement of said pedestal, a stop pin secured to the outside edge of the base of said pedestal and extending in a horizontal plane parallel with the top of said casing, and a stop post secured on the top of said casing and cooperating with said stop pin in order to limit the amount of rotation of said pedestal with respect to said casing when said pedestal is displaced.

7. In a dial mounting arrangement for telephone sets comprising a stationary casing having a top portion and a movable dial mounting pedestal having a base portion, a threaded hole in said base portion and an aligned hole in said top portion, a retaining member extending through said hole in said top portion and having one end threaded for cooperation with said threaded hole in said base portion and securing said member to said pedestal, the other end of said member terminating in an enlarged head disposed in said casing at a predetermined distance from said top portion, means including a coil spring encircling said member and extending between said top portion and said head for resiliently retaining said pedestal in assembled relation with said casing, interfitting means in the base of said pedestal cooperating with interfitting means in the top portion of said casing normally preventing rotary movement of said pedestal with respect to said casing, a stop pin carried by the base portion of said pedestal and extending in a horizontal plane parallel with the plane of the top portion of said casing, a stop post carried by the top portion of said casing and extending in a vertical plane at right angles to the plane of said stop pin and located so as to cooperate with said stop pin to limit the amount of rotary movement of said pedestal with respect to said casing when said interfitting means are rendered ineffective to prevent rotary movement of said pedestal, and means including a stop member located within said casing at a predetermined point between the top portion of said casing and the head of said retaining member and engaged by said head for limiting the distance said pedestal can be raised from said casing, such distance being sufficient to render said interfitting means ineffective to prevent rotation of said pedestal but insufficient to prevent the cooperation between said stop pin and said stop post, whereby the amount of rotary movement of said pedestal is dependent upon the relative locations of said stop pin and said stop post.

8. A dial mounting comprising a dial unit, a movable hollow pedestal carrying said dial unit, a stationary base carrying said pedestal, means for retaining said pedestal and said base in assembled relation and for accommodating both

displacement and rotation of said pedestal with respect to said base while said pedestal and said base are retained in assembled relation, whereby the angular position of said pedestal with respect to said base may be readily adjusted, in order to facilitate ready change of position of said dial unit for convenient normal use, means for positively preventing rotation of said pedestal with respect to said base except when said pedestal is also displaced with respect to said base, thereby positively to prevent change of position of said dial unit during normal use, and means including a tube extending through said base and projecting into a cooperating arcuate recess provided in said pedestal for limiting rotation of said pedestal with respect to said base, said tube and said pedestal being adapted to accommodate exterior conductors extending to said dial unit.

9. In a dial mounting arrangement for telephone sets comprising a stationary casing and a movable dial mounting pedestal mounted on the top of said casing, a retaining member, one end of said member being secured to said pedestal and the other end thereof terminating in an enlarged head, said member extending through an opening in the top of said casing with said head located within said casing at a predetermined point, means including a resilient element extending between said head and said casing for resiliently retaining said pedestal in assembled relation with said casing, means normally preventing rotation of said pedestal with respect to said casing, said last-mentioned means accommodating rotation of said pedestal when said pedestal is displaced a predetermined distance against the bias of said resilient element, a stop located in said casing at a predetermined distance from said head and engaged thereby to limit the

amount of displacement of said pedestal, an arcuate recess in said pedestal, and means carried by said casing and cooperating with said recess for limiting the amount of rotation of said pedestal with respect to said casing when said pedestal is displaced.

10. In a dial mounting arrangement for telephone sets comprising a stationary casing and a movable dial mounting pedestal mounted on the top of said casing, a retaining member, one end of said member being secured to said pedestal and the other end thereof terminating in an enlarged head, said member extending through an opening in the top of said casing with said head located within said casing at a predetermined point, means including a resilient element extending between said head and said casing for resiliently retaining said pedestal in assembled relation with said casing, means normally preventing rotation of said pedestal with respect to said casing, said last-mentioned means accommodating rotation of said pedestal when said pedestal is displaced a predetermined distance against the bias of said resilient element, a stop located in said casing at a predetermined distance from said head and engaged thereby to limit the amount of displacement of said pedestal, an arcuate recess in said pedestal, and means including a tube carried by said casing and extending into said recess a predetermined distance and cooperating with the ends of said recess for limiting the amount of rotation of said pedestal with respect to said casing when said pedestal is displaced, said tube providing a channel for electrical conductors extending between said pedestal and said casing.

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