July 18, 1933. C. H. J. DILG 1,918,801

TELEPHONE SET

Filed Oct. 22, 1931

Fig. 1.

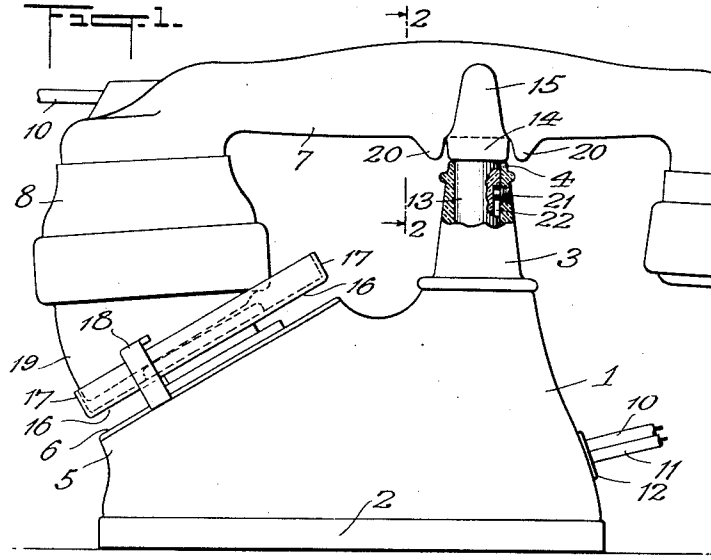


Fig. 2.

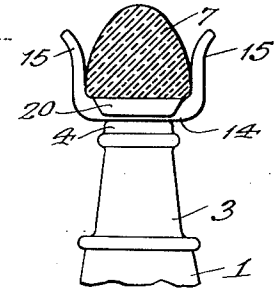


Fig. 3.

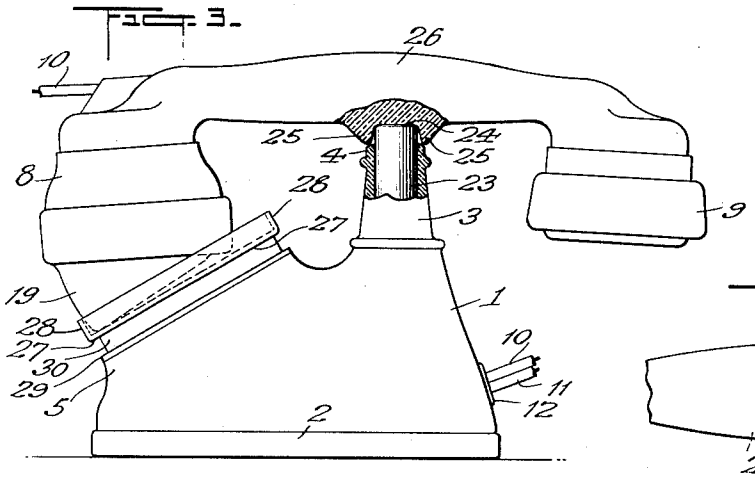


Fig. 4.

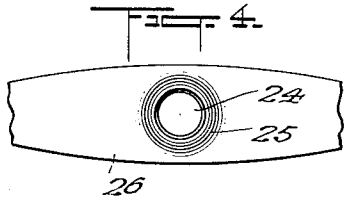


Fig. 5.

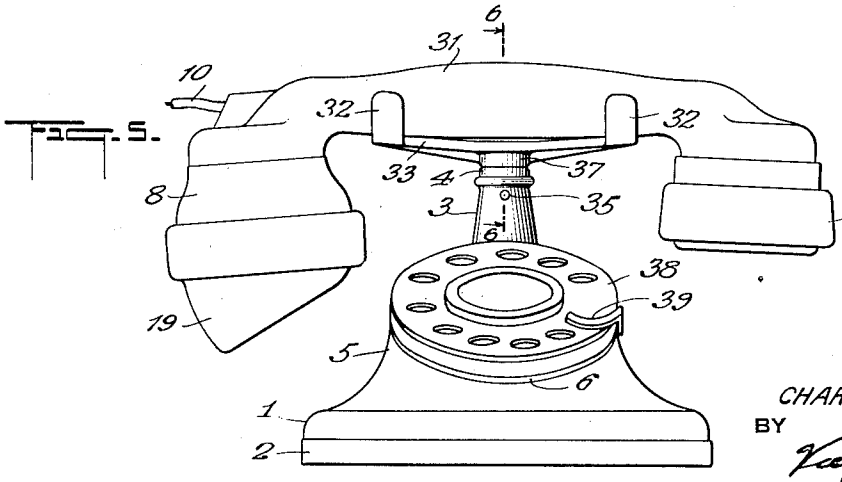
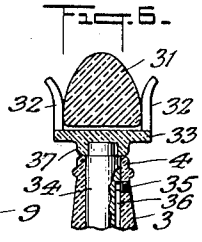


Fig. 6.



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TELEPHONE SET

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This invention relates to telephone desk sets of the type in which a desk stand has a circuit-controlling plunger controlled by a hand set which includes a transmitter and a receiver. As heretofore commonly constructed this type of telephone desk set has proved unsatisfactory in use. In this usual construction the hand set by means of its handle is supported on and between the upstanding prongs of a four-pronged cradle which is fixed on the upper end of a tubular standard which rises from a base portion of the desk stand. The upper end of the circuit-controlling plunger, which is slidable in the standard, has thereon a transverse plate or bar which lies within the cradle and is engaged and held down at open-circuit position by the handle of the hand set, this plunger being spring-actuated upwardly to the closed circuit position when the hand set is removed from the cradle.

It has been found that the telephone line or cord which is attached to the hand set sometimes becomes caught between one of the prongs of the cradle and the handle of the hand set, thereby interfering with and in some instances preventing the opening of the telephone circuit. Also in some cases this telephone cord has slipped beneath the end of the circuit-controlling cross piece on the plunger, above the bottom of the cradle, which prevents this cross piece and consequently the plunger from being moved down to the open-circuit position by the handle of the hand set between the prongs of the cradle. This has resulted in the line being reported as "busy" to those seeking to make calls and when long continued has resulted in the line being reported as "out of order" and the sending out of a repair man to locate the trouble, which in such a case is not easy to find. Other sources of annoyance have been the twisting and kinking of this same telephone cord, and the return of the hand set to its supporting cradle on the stand in a reversed position, which is inconvenient when the telephone is to be again used.

Among the principal objects of this invention is to provide a telephone desk set construction which is free from these above noted defects and objections, while at the same time providing a construction which is highly effective for its intended purposes in operation. Another object of the invention is to effect economy in the cost of manufacture over such telephone desk sets of this general type as heretofore constructed. Other objects of the invention are simplicity of construction, together with dependability and reliability in operation. Other objects and advantages of the invention will hereinafter appear.

In accordance with this invention, the above noted usual four-pronged cradle on the upper end of the desk stand standard is entirely done away with or abolished and the handle of the hand set has a direct cooperating relation with the upper end of the circuit-controlling plunger, by which the hand set is held in place. According to another feature of the invention, in cooperation with that above noted, means are provided on the base of the desk stand for supporting and holding in place the transmitter end of the hand set. Such supporting and retaining means for the transmitter may be the usual rotatable dial disc, which is then to be provided with an upstanding peripheral retaining flange, or in case such call dial is not used, then a more or less similar stationary plate or disc may be provided for supporting the transmitter of the hand set and retaining it in place. The invention further includes various features of construction and combinations of parts, as will appear from the following description.

The idea and principle of the invention may be carried out in whole or in part by means of various constructions. In the accompanying drawing four variant constructions are illustrated as examples of embodiments of the invention, and it is to be understood that other modifications could be made while still carrying out the idea of the invention. These illustrated embodiments of the invention will now be particularly described and thereafter the invention will be pointed out in claims, reference now being had to the drawing, in which:

Fig. 1 is a side elevation, partly in central

vertical section, of a telephone desk set constituting one embodiment of the invention;

Fig. 2 is a partial vertical section taken on the line 2—2 of Fig. 1;

Fig. 3 is a reduced view similar to Fig. 1 of a somewhat modified or variant embodiment of the invention;

Fig. 4 is an inverted plan view of the middle portion of the handle of the hand set shown in Fig. 3;

Fig. 5 is a front elevation of another modified embodiment of the invention in a telephone desk set; and

Fig. 6 is a partial central vertical section on the line 6—6 of Fig. 5.

The telephone desk set shown in Figs. 1 and 2 as an embodiment of the invention comprises a desk stand and a hand set normally supported by but separable from the desk stand, as usual in that respect. The desk stand has a base 1 of substantially usual shape which provides a housing for and which may contain the usual or any suitable switching or circuit-controlling mechanism (not shown). This base has a flat bottom shown as provided with a usual cushion 2. A short upwardly tapering tubular standard 3 of the desired height rises from the base 1 towards the rear thereof and terminates upwardly in a rather thin outer rounded end shoulder 4. This standard 3 may be formed in the same piece with the base 1 or it may be a separate piece rigidly mounted on the base, that being immaterial to this invention. The front portion of the base 1 has a usual flattened portion 5 which inclines downwardly and forwardly away from the standard 3 and is shown as having mounted thereon a usual stationary dial plate or number plate 6.

The hand set has a handle 7 which connects together and carries, in the usual manner, a pair of telephone units, one of which is a usual transmitter 8 and the other of which is a usual receiver 9. A telephone cord 10 enters the hand set as usual at the back of the transmitter 8, while the other end of this cord 10 enters the back of the base 1, together with a usual service cord 11, through a bushing 12, as usual.

A substantially usual cylindrical circuit-controlling plunger 13 is vertically slidable in the tubular standard 3 and extends out so as to be exposed at the upper end of the standard. This plunger 13 functions in the usual manner in its circuit-controlling operation, whereby when the plunger is in a depressed position the telephone circuit to the hand set is open or disconnected, and when this plunger is unrestrained it will rise automatically, thereby to close a talking circuit through the transmitter 8 and the receiver 9 of the hand set. The upper projecting end of this circuit-controlling plunger 13 has rigidly mounted thereon a transversely extending two-pronged yoke or fork 14 having a pair of spaced upstanding prongs 15, the upper ends of which are desirably curved outwardly as shown in Fig. 2.

Above its inclined front plate 6 the base is provided with a rotatable dial disc 16, which so far as its dialing function is concerned may be operated in substantially the usual manner. However, in the construction shown for carrying out the invention, this rotatable dialing disc 16 is shown as provided with a rather deep peripheral upstanding flange 17, over which a substantially usual stationary finger stop 18 mounted on the base 1 is shown as projecting. The transmitter 8 includes a usual diagonal or inclined mouth piece 19 sloping inwardly and upwardly towards the handle 7. The inner flat side of the handle 7 between the transmitter 8 and receiver 9 is provided at a suitable intermediate location with a pair of longitudinally spaced transverse ridges or lugs 20.

The upstanding prongs 15 of the yoke 14 are spaced apart a distance for freely receiving between them the handle 7, and the transverse ridges or lugs 20 of this handle are spaced from one another a distance freely to receive between them the cross bar or body portion 14 of the pronged yoke. Normally or when the telephone is not in use, the handle 7 between the lugs 20 is supported on the yoke 14 between its prongs 15, thereby holding down the circuit-controlling plunger at its open-circuit position shown in the drawing. At the same time the mouth piece 19 of the transmitter 8 rests upon the dialing disc 16 within its upstanding flange 17, as shown in Fig. 1 of the drawing. The prongs 15, dial flange 17 and lugs 20 prevent the slipping of the hand set, in any direction and also in any ordinary circumstances or usage, prevent it from being accidently dislodged from its position on the desk stand.

The arrangement, dimensions and proportions of the above described parts are such that while somewhat more than half of the weight of the hand set will be supported on the circuit-controlling yoke 14 by the handle 7, the remainder of the weight of the hand set will be supported by its mouth piece 19 resting upon the rotatable dial disc 16, by reason of the fact that the center of gravity of the hand set along its handle 7 is at a point forward from the center of the plunger 13 which carries the supporting yoke 14. In this connection it will be noted that the transmitter 8 is of considerably greater bulk and weight than the receiver 9, and also if desired and as shown in Fig. 1 of the drawing, the arrangement and relative proportions of the parts of the desk stand and hand set may be such that the line of support midway between the lugs 20 on the handle 7 will be located along the handle 7 at a greater distance from the transmitter 8 than from the receiver 9, whereby the

transmitter 8 will overbalance the receiver 9, not only by reason of its greater weight but also by reason of the increased leverage thus provided.

It is obvious that any accidental rotative movement of the yoke 14 about the vertical axis of the plunger 13 while the hand set is removed from the desk stand should be prevented. This may be accomplished in any convenient way, for example and as shown in Fig. 1 by means of a guide screw 21 passing inwardly through the tubular standard 3 and having an inwardly projecting smooth end portion received in a guide groove 22 in the plunger 13, which is cylindrical in cross section. It will be noted that the upper or rear portion of the flange 17 on the dial disc 16 does not serve any purpose or function so far as holding the transmitter 8 in place on this disc is concerned, and therefore this portion of the flange could be omitted. Also, in view of the holding lugs 20 on the handle 7, particularly the one adjacent to the receiver 9, the lower or front portion of this flange 17 might also be omitted. However, the continuous annular flange 17 such as shown serves also to stiffen and strengthen the dial disc 16. In case any particular telephone should not have a rotatable calling dial, then the mouth piece 19 of the transmitter 8 may be similarly supported and held in place by means of a stationary flanged disc or plate, in that respect similar to the rotatable dial 16 with its flange 17, as will hereinafter more clearly appear, while the construction in other respects may be the same as shown and above described with reference to Figs. 1 and 2.

With reference to this construction just described, it should be obvious that there is no place where the telephone cord 10 may become lodged or caught so that it would interfere with the free circuit-controlling operation of the plunger 13. For example should the cord 10 drop across the yoke 14 between its prongs 15, and then the hand set be returned to the desk stand with its handle 7 resting upon this cord, that could in no manner interfere with the depression of the plunger 13, since this yoke 14 is mounted upon the upper end of this plunger itself. Also it should be noted that since the hand set must always be returned to the desk stand in the same position, with its transmitter 8 supported and held in place by the flanged dialing disc 16, the liability of this cord to become twisted or kinked is thereby greatly reduced and in fact substantially eliminated.

As shown in the drawing, Figs. 1 and 2, with the hand set supported upon the desk stand, the downward movement of the circuit-controlling plunger 13 is stopped by the engagement of the lower side of the yoke 14 on the upper end 4 of the tubular standard 3. However, if desired this downward movement of the plunger 13 may be thus stopped by some other convenient means, such as by means of the upper end of its guide slot or groove 22 coming into engagement with the guide screw 21, so as then to provide as much of an open space as may be desired between the under side of the depressed yoke 14 and the upper end of the standard 3. The projecting lugs or ridges 20 on the side of the handle 7 are not only unobjectionable but are of further advantage in providing a firmer grip and finger hold upon the handle, since these lugs may readily pass partly between the fingers, with one of the fingers between these lugs.

In Figs. 3 and 4 the invention is shown as carried out by means of a modified construction which is only slightly variant from that above described with reference to Figs. 1 and 2. In Figs. 3 and 4 the same reference numerals as before have been employed for parts in which no substantial changes have been made. In this construction shown in Figs. 3 and 4 a cylindrical circuit-controlling plunger rod 23 projects at its upper end above the upper end 4 of the tubular standard 3, with nothing attached to or carried by this projecting upper end. This projecting upper end portion of the plunger 23 is freely received in a socket 24, which is shown as conveniently provided by means of a boss 25 which is in the form of an annular ridge or projecting ring formed on the lower or inner flat side of the hand set handle 26 which connects together and carries the usual transmitter 8 and receiver 9. With the hand set supported on the desk stand, as shown in Fig. 3, the lower rounded edge of this ring 25 rests upon the outwardly rounded upper end 4 of the standard 3, with the circuit-controlling plunger 23 then held down by the handle 26, under the major portion of the weight of the hand set. However, if desired a stop (not shown) may be readily provided for the plunger 23, so that then the hand set may be supported upon the upper end of this plunger, with as much of an open space as may be desired between the lower edge of the ring 25 and the upper end 4 of the tubular standard 3.

It will be noted that the socket 24 prevents the handle 26 from slipping in any direction off the projecting upper end of the circuit-controlling plunger 23. The center of this socket 24 is shown as somewhat farther from the transmitter 8 than from the receiver 9. The increased leverage thus provided on the handle 26 for the transmitter 8, together with its greater weight over that of the receiver 9, results in the transmitter end of the hand set having a tendency to drop. Such tipping of the hand set is prevented and it is held with its handle 26 substantially horizontal by means of a stationary plate or disc 27 upon which the mouth piece 19 of the trans-

mitter is supported. This disc 27 is provided with a rather deep peripheral upstanding flange 28 which prevents the transmitter 8 from slipping off to the sides under any ordinary usage. This supporting disc 27 is secured in place and supported on the forwardly inclined portion 5 of the base 1 of the desk stand by means of a plate 29 and an interposed spacer 30, as shown in Fig. 3.

The spacer 30 is employed for raising the disc 27 to substantially the same position that would be occupied by a rotatable dial disc, such as the disc 16 shown in Fig. 1. The stationary flanged disc 27 is employed as shown in Fig. 3 in case any particular telephone set is not dial operated. Therefore either the flanged rotatable dial 16 such as shown in Fig. 1, or the stationary flanged disc 27 as shown on Fig. 3, may be employed interchangeably so far as the present invention is concerned, and accordingly the rotatable dial disc 16 shown in Fig. 1 could as well be installed upon the telephone set shown in Fig. 3 instead of the supporting disc 27, or vice versa, the stationary flanged supporting disc 27 shown in Fig. 3 could as well replace the rotatable dial disc 16 shown in Fig. 1, with the construction and operation remaining the same in other respects in each instance. It will be noted of this modified construction shown in Figs. 3 and 4 that the operation in general, together with the attendant advantages, is substantially the same as in the construction shown in Figs. 1 and 2.

In Figs. 5 and 6 the invention is shown as carried out by means of a further modified construction which is rather widely variant from either of those hereinbefore described, although this construction shown in Figs. 5 and 6 in some respects bears a somewhat closer resemblance to that shown in Figs. 1 and 2 than it does to that shown in Figs. 3 and 4. In this construction shown in Figs. 5 and 6 a usual handle 31, such as heretofore commonly employed, connects together and carries the usual transmitter 8 and receiver 9 of the hand set. Also this hand set is normally supported on the desk stand entirely by means of its handle 31, as has been commonly done. The hand set is thus supported with its handle 31 received between the upstanding prongs 32 of two rather widely laterally spaced pairs of such prongs provided on the opposite ends of a substantially transverse yoke 33, thus providing a four-pronged cradle for the handle 31 which does not differ greatly from that heretofore commonly employed so far as supporting and holding the hand set in place is concerned.

In carrying out the invention in accordance with this modified construction shown in Figs. 5 and 6, the cradle yoke 33 is firmly and rigidly mounted directly upon the upper end of a cylindrical circuit-controlling plunger rod 34, to move up and down therewith as this plunger rod slides in the tubular standard 3. As a matter of convenience, rotational movement of the cradle yoke 33 about the axis of the plunger 34 may be prevented in any convenient way, such as by means of a guide screw 35 through the wall of the tubular standard 3 and having a smooth inner end which projects into a guide slot 36 in the plunger 34. The lower side of the cradle yoke 33 is shown as provided with a slight boss 37 which, in the normal or open-circuit condition of the set shown in Figs. 5 and 6, rests upon the upper end 4 of the tubular standard 3. However, if desired an open space may be provided between this cradle boss 37 and the upper end 4 of the standard 3, merely by providing any convenient down stop for the plunger 34. For example, the screw 35 and the upper end of the guide groove 36 in the plunger 34 may be utilized for this purpose if so desired.

It will also be noted of this construction that there is no place in which the telephone cord 10 of the hand set may become lodged or caught in such a manner as to interfere with the free downward circuit-opening movement of the plunger 34. Since the hand set is supported entirely upon the upper end of the circuit-controlling plunger 34, by means of the four-pronged cradle 33, there is no need in this construction of a separate rest or support for the transmitter end of the hand set 7, such as hereinbefore described with reference to the preceding figures. The base 1 of the desk stand may be without a dialing mechanism or, on the other hand, it may be provided, as shown in Fig. 5, with a usual rotatable calling dial 38 and usual finger stop 39.

It is obvious that various modifications may be made in the constructions shown in the drawing and above particularly described, within the principle and scope of the invention as defined in the appended claims.

I claim:

1. In a telephone desk set comprising a desk stand having a base with a tubular standard rising therefrom and a circuit-controlling plunger vertically slidable in and exposed at the upper end of the standard, and a hand set having two telephone units connected together by a handle; the combination of supporting means on the base to be engaged by one of the said units, and other supporting means for the hand set to be engaged by its handle at a point of support on the handle beyond the center of gravity of the hand set from the said unit supported on the base and for maintaining the handle in circuit-controlling engagement with the said plunger.

2. In a telephone desk set comprising a desk stand having a base with a tubular standard rising therefrom and a circuit-controlling plunger vertically slidable in the

standard, and a hand set having a transmitter and a receiver connected together by a handle; the combination of means for supporting the transmitter on the base, and means for supporting the handle in circuit-controlling relation with the plunger.

3. In a telephone desk set comprising a desk stand having a base with a tubular standard rising therefrom and a circuit-controlling plunger vertically slidable in and exposed at the upper end of the standard, and a hand set having a transmitting unit and a receiving unit connected together and carried by a handle; the combination of an upwardly flanged plate on the base providing a support for the transmitting unit, and means for supporting the handle on the standard including means for maintaining the handle in circuit-controlling relation with the plunger.

4. In a telephone desk set comprising a desk stand having a base with a tubular standard rising therefrom and a circuit-controlling plunger vertically slidable in and exposed at the upper end of the standard, the base being provided with a rotatable dial disc which inclines downwardly and outwardly from the standard, and a hand set having a transmitter and a receiver connected together and carried by a handle; the combination of an upstanding peripheral flange on the dial disc whereby the latter may provide a support for the transmitter, the means for supporting the handle in circuit-controlling engagement with the upper end of the plunger including means to produce an interengagement between the handle and the upper end of the plunger.

5. In a telephone desk set comprising a desk stand having a base with a tubular standard rising therefrom and a circuit-controlling plunger vertically slidable in and exposed at the upper end of the standard, the base having thereon a disc which inclines downwardly away from the standard, and a hand set having a transmitter and a receiver connected together and carried by a handle; the combination of an upstanding peripheral flange on the said disc whereby the latter may support the transmitter, and a fork mounted on the upper end of the plunger and having a pair of upstanding prongs between which the handle of the hand set may be received and supported.

6. In a telephone desk set comprising a desk stand having a base with a tubular standard rising therefrom and a circuit-controlling plunger vertically slidable in and exposed at the upper end of the standard, the base having thereon a plate inclined downwardly away from the standard, and a hand set having a transmitter and a receiver connected together and carried by a handle; the combination of an upstanding peripheral flange on the said inclined plate whereby the latter may support the transmitter, the upper end of the said plunger projecting above the upper end of the said standard, a socket being provided in the handle of the hand set to receive the said projecting upper end of the plunger for thereby supporting the handle in circuit-controlling relation with the plunger.

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