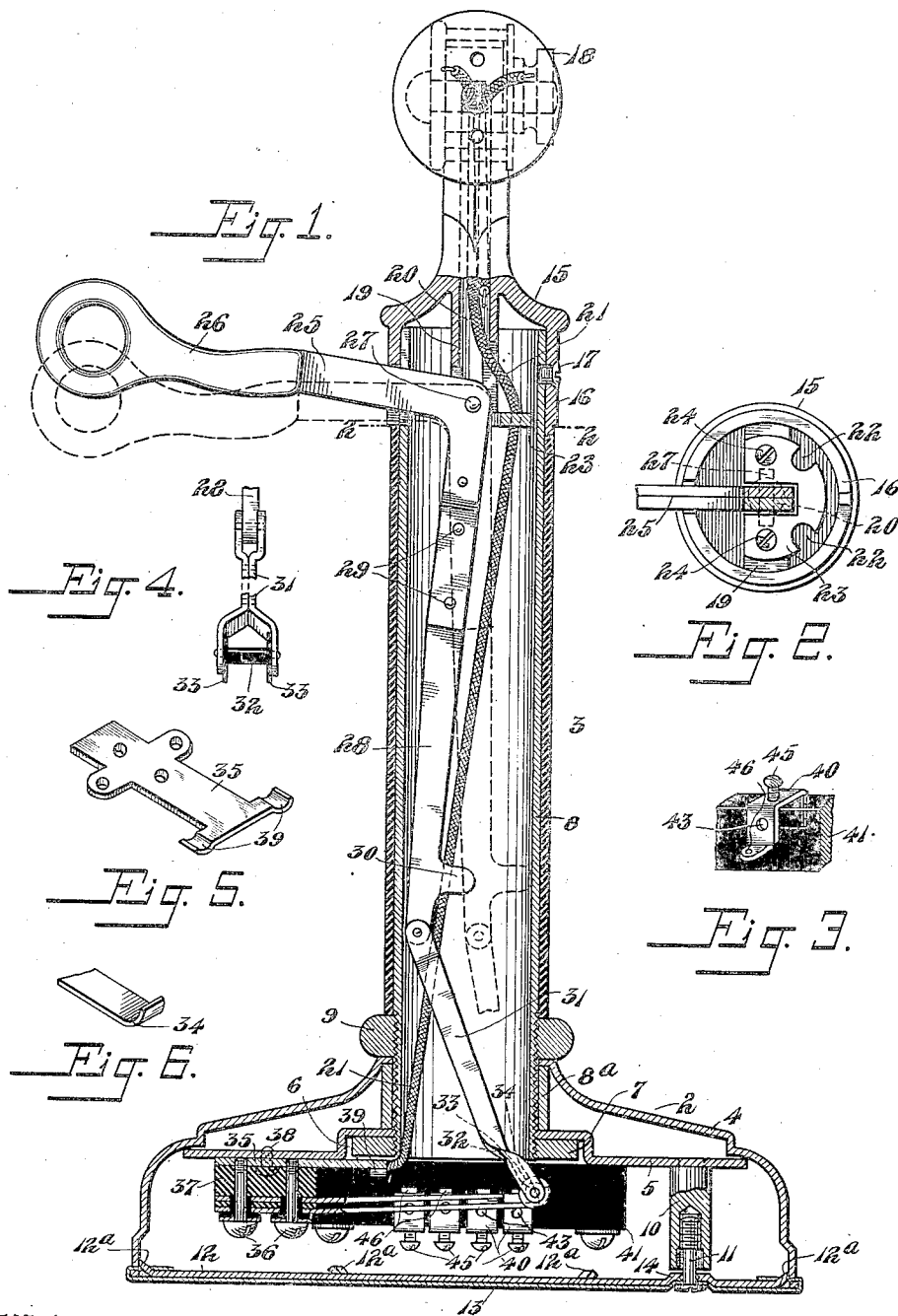


No. 884,500.

PATENTED APR. 14, 1908.

A. M. KNUDSEN.
TELEPHONE DESK STAND.
APPLICATION FILED SEPT. 2, 1904.

2 SHEETS—SHEET 1.



Witnesses.

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Edith F. Kier

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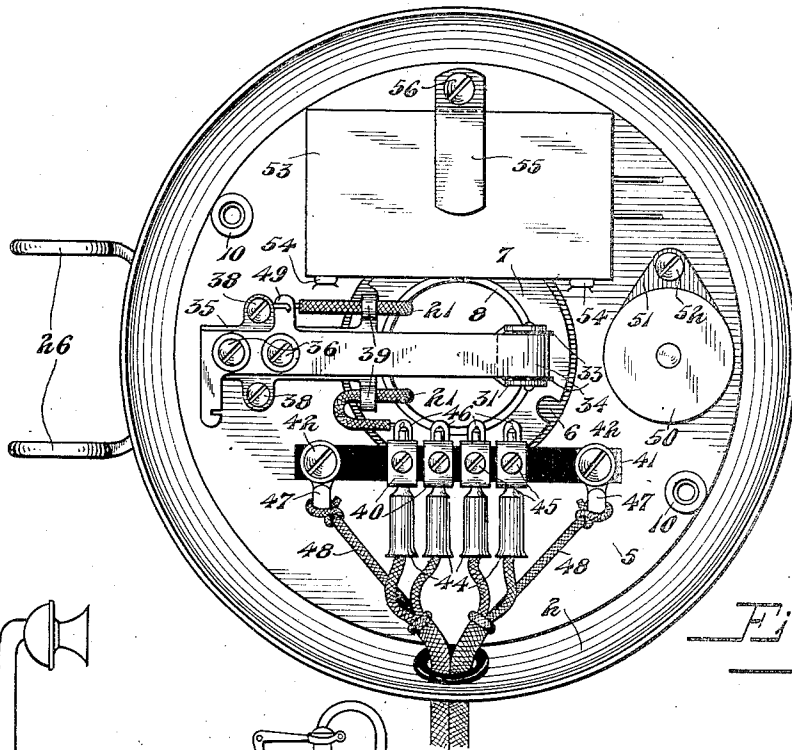


Fig. 7.

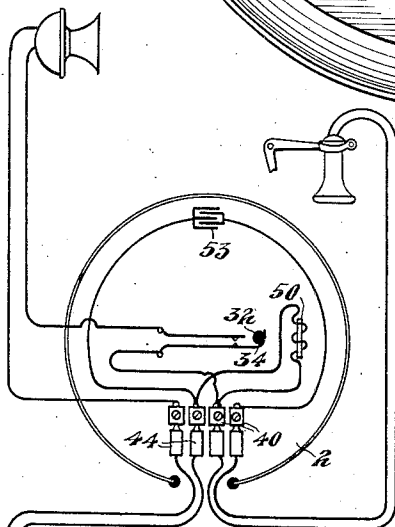


Fig. 8.

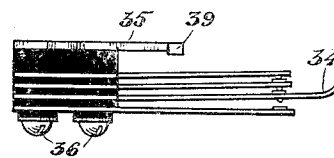
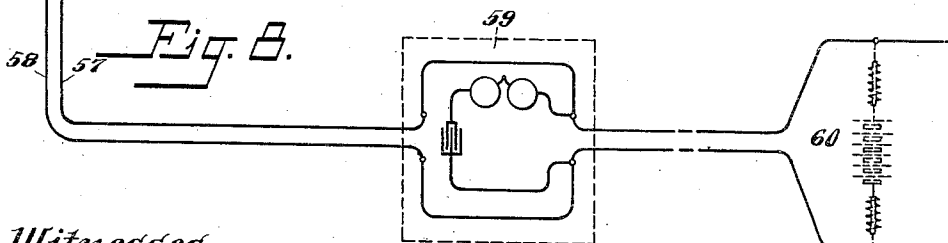


Fig. 9.



Witnesses.

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UNITED STATES PATENT OFFICE.

ANTON M. KNUDSEN, OF CHICAGO, ILLINOIS, ASSIGNOR TO KELLOGG SWITCHBOARD & SUPPLY COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

TELEPHONE DESK-STAND.

No. 884,500.

Specification of Letters Patent.

Patented April 14, 1908.

Application filed September 2, 1904. Serial No. 223,111.

To all whom it may concern:

Be it known that I, ANTON M. KNUDSEN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Telephone Desk-Stands, of which the following is a specification.

My invention relates to improvements in the construction of telephone desk stands, by means of which a lighter and stronger instrument may be produced and by which a more satisfactory and efficient type of instrument throughout is provided. In instruments of this class the base usually consists of cast iron, but this to be sufficiently strong and in some types of instruments sufficiently large, makes the base very heavy and consequently the instrument is unwieldy.

One object of my invention is to lighten and at the same time strengthen the base and cheapen its construction. This I accomplish in one practical manner by pressing or spinning the base from sheet metal and suitably bracing the same and providing it with means upon which to mount the various parts required to be placed within the base.

Other objects are to improve the hook switch mechanism and various other details of the instrument.

My invention is illustrated in the accompanying drawing in which the same reference letters are used throughout the several views to designate like parts and in which:

Figure 1 is a sectional view of a desk stand embodying my improvements; Fig. 2 is a cross section on the line 2—2 of Fig. 1 and looking toward the head of the stand; Fig. 3 is a detail perspective view of the binding posts; Fig. 4 is a detail view of the lower part of the switch hook; Fig. 5 is a perspective view of the clamping plate for the switch springs; Fig. 6 is a similar view of the projecting end of a spring of the set of switch springs; Fig. 7 is a bottom plan view of the stand; Fig. 8 is a diagram of the circuits of the instrument; Fig. 9 is a view of a different arrangement of the switch springs.

The desk stand includes a suitable pedestal having a base 2 and a standard 3. The base 2 consists of an outer metallic shell 4 of sheet metal pressed or spun into the desired form, and a circular plate 5 which may be termed a "subbase" placed within the said shell 4 and forming a bracing medium therefor, as well as a mounting for the various parts lo-

cated within the base. This subbase is also of sheet metal and is provided with a central depression 6 which is also stamped or spun therein, said depression providing room for a circular nut 7 which is threaded upon the lower end of the metallic tube 8 forming the standard of the instrument. A collar or tube 8^a is placed between the depressed portion of the plate 5 and the inner side of the shell 4 and forms a supporting medium between said plate or subbase and the said shell. A ring or nut 9 is threaded upon said tube 8 and forms an abutment for said shell 4. The subbase is adapted to rest at its periphery upon the inside of the base 4 and when the nut 7 is tightened said subbase and shell 4 are clamped firmly together and to the standard 3, and it is obvious that when the nut 7 is removed, the sub-base 5 and its associated parts may be removed from the base or shell 4 as a unit. As hereinafter explained, the switch springs of the desk stand and the various other parts used therewith, are mounted upon said subbase within the inclosure formed by the shell 4. In order to close said inclosure suitable depending posts 10 are riveted or otherwise secured at their upper ends to said subbase 5 and at their lower ends receive screws 11 extending through the bottom plate 12 which serves when clamped in position to close the opening in base 4. Projections 12^a formed at intervals in the plate 12 engage the inner edge of the periphery of the base 4 and serve to centrally locate the plate and stiffen the base. A covering 13 of felt or other suitable material is glued to the lower face of the bottom plate to prevent the stand from scratching the surface of the desk or other article upon which it is placed. Provision is made for preventing the screws 11 from scratching the surface upon which the set may be placed by means of the depressions formed in said plate 12.

The head piece of the standard consists of a casting 15 having a flange 16 fitting outside of the upper end of said tube 8 and secured thereto by means of one or more screws 17. At the upper end of this head the usual hinge is provided to receive the corresponding part of the transmitter with which the stand is provided, the nut 18 as in common practice being provided to secure the pivot screw of said hinge in place and to increase or decrease the friction between the hinging members.

This head piece is provided with a central depending portion 19 provided with an aperture 20 through which the transmitter cords are adapted to pass from the transmitter through the hinging members and to the inside of the tubular standard, by which means they are concealed throughout their length. These transmitter cords or conductors are indicated at 21 and at the lower end of said portion 19 pass toward the rear through a slot formed therein and are held in their proper positions by notches 22 formed in a semi-circular plate 23 secured by screws 24 to the lower end of said part 19. The switch hook consisting of an outwardly-extending arm 25 provided with a hook 26 for the reception of the telephone receiver, is pivoted in a vertical slot formed in the lower end of the part 19 and upon a pivot pin 27 which rests in notches in the lower end of said part 19 and is supported and secured in position in said notches by the plate 23. The upper end of the tube 8 is slotted for the passage of said arm 25 of the switch hook and the cooperating slot or notch is formed in the lower edge of the flange 16 of the head 15. The portion 25 of the hook switch is preferably formed of two members placed face to face and riveted together as indicated in Fig. 2 and the downwardly-extending arm 28, which is a rigid member, consists preferably of a single member riveted between the downwardly-turned ends of the two members forming the arm 25, this being indicated at 29. A stop lug 30 is formed upon the rear edge of the lower end of the arm 28 and engages the inside of the tube 8 when the receiver is hung upon the hook.

To the lower end of the arm 28 the bar or rod 31 is pivoted, said bar consisting also of two members placed face to face and riveted together as indicated in Fig. 4 and carries at its lower end the insulating roller 32 which is provided with an insulating washer 33 at each end. This insulating roller is adapted to engage the forwardly-extending upturned free end 34 of the switch spring which forms the operating member of the set of springs located and secured within the base 2. When the receiver is placed upon the hook 26 therefore, the arms 28 and 31 of the switch hook, which together form a toggle lever, are operated and the spring 34 is depressed. When the receiver is removed from the hook 26 the tension of the spring 34 is sufficient to move the switch hook into the position shown in full lines. The dotted lines are intended to show the normal depressed position of said parts. The stop 30 limits the movement of the arm 28 and prevents the toggle connection from locking the springs in their depressed position. The said springs are clamped to a plate 35 shown in Fig. 5 by means of suitable screws 36, said springs be-

ing insulated from said plate by a suitable insulating block 37 and from each other and from the screws 36 by suitable insulating strips and bushings in the usual manner. The clamping plate 35 is secured to the subbase 5 by means of the screws 38. The forward end of this plate is provided with the laterally-curved tongues 39 beneath which the transmitter cords 21 pass and by means of which they are clamped into position at their lower ends, thus preventing them from interfering in any manner with the operation of the switch hook. The plate 35, therefore, serves as a clamping means for the transmitter cords and as a supporting medium for the switch springs.

The binding posts which I prefer to use in connection with this desk stand are more clearly shown in Fig. 3 and Fig. 7 and which consist of a U-shaped metal strip 40 fitting over a suitable insulating strip or block 41 secured by the screws 42 to the lower face of said subbase 5. An aperture 43 extends transversely through the vertical members of said U-shaped plate 40 to receive the tips of the cord terminals 44 and the binding screw 45, threading through said plate 40 serving as a means to clamp the said tip in place. A projection 46 formed integrally with said member 40 serves as a means for soldering the connecting wires thereto. When the receiver cord or other tips 44 are in place the screws 45 provide a secure mechanical and electrical connection between the same and the said binding posts.

As shown in Fig. 7, the screws 42 are provided with the hooked washers 47 to which the supporting cords 48 of the receiver and line cords may be secured to take the strain off the conductors of said cords. The switch springs are provided with suitable lateral projections 49 by means of which they may be soldered to the conductors of the electrical circuits.

The particular arrangement of binding posts and switch springs which I have shown and described thus far is for so-called common battery telephone systems in which a central source of current is provided for the operation of the substation transmitters. In the circuit in which this instrument is shown connected, the diagram of which is illustrated in Fig. 8, a retardation coil 50 is provided and which is secured to the subbase 5 by means of an extended portion 51 formed upon one of its end pieces together with the screw 52 threading therethrough and into the subbase. A small condenser 53 is also provided in the base of this set and is held in position therein by the lugs 54 which may be formed therein at the same time that the depression 6 is made in the subbase, and by the clamping strip 55 also secured to the subbase by the screw 56. I have not shown all of the conductors in Fig. 7 to connect the binding

posts, the retardation coil and the condenser together, since these are indicated in Fig. 8. From this latter figure it will be observed that the two conductors 57 and 58 extend
 5 between the desk stand and the usual bell box 59, a central source of current 60 being suitably connected with the telephone line at the central office to provide current for talking purposes.

10 In Fig. 9 I show an arrangement of switch springs adapted for local battery work or systems in which the battery for talking is located at the substation and which arrangement requires a greater number of springs.
 15 These additional switch springs are shown and it will be understood that their number may be increased or varied to suit the requirements of any particular system, whether of local battery or common battery, and it will
 20 also be understood that the sub-base 5 may be removed and a sub-base substituted having mounted thereon apparatus suitable for a different system, as, for instance, if it is desired to change from a common battery to a
 25 local battery or to a magneto system the other parts of the stand remaining the same. The special arrangement of the switch hook is of advantage in this type of desk stand for the reason that as the movement and the
 30 tension of the switch springs increases the power developed by the toggle levers also increases and an extra heavy receiver is not required to operate the same. Again, this
 35 arrangement of the switch hook produces a larger movement of the free ends of the springs than is possible in the ordinary instrument where a single elbow lever is employed as a switch hook unless an unduly
 heavy receiver be provided.

40 It is apparent that various changes may be made in the details of my improvements without departing from the intended scope or spirit of the invention, and I accordingly do not wish to be limited in all respects and
 45 claims to those described herein, but

What I do claim and desire to secure by Letters Patent is:

1. In a desk stand, the combination with hollow standard and a thin metal base, of a
 50 transmitter and switch-hook carried at the upper end of said standard, a metal plate secured horizontally within said base, switch springs carried by said plate and adapted to be actuated by a movable member within
 55 said hollow standard, terminal conductors leading downward from the transmitter, said plate having an aperture directly beneath the opening in the hollow standard through which said terminal conductors and movable
 60 member pass, substantially as described.

2. In a desk stand, the combination with a hollow standard and a thin metal base, of an interior reinforcing base secured in position by attachment to the lower end of the
 65 standard, substantially as described.

3. In a desk stand, the combination with a hollow standard and a thin metal supporting base, of an interior base having an aperture through which the lower end of said standard extends, said base providing means to secure
 70 apparatus within the base without marring the exterior surface of the outer base, substantially as described.

4. A desk stand, having a base and a standard mounted thereon, said base having
 75 an outer shell of comparatively thin metal, a plate or subbase within the shell extending across the same and bearing against the inside of the shell at its periphery, and means including the standard to clamp said plate
 80 within and to the shell, substantially as described.

5. A desk stand, having a base and a standard mounted on the base, said base comprising an outer shell of sheet metal
 85 spun or pressed to the desired form, a central aperture in said shell, a plate extending across the shell and having a central aperture, said plate bearing at its periphery against the inside of the shell, and means
 90 extending through said apertures to clamp said shell and plate together, substantially as described.

6. A desk stand, having a base and a standard mounted on the base, said base
 95 comprising an outer shell, an inner subbase formed from a plate resting at its periphery upon the inner face of said shell, and means including the standard to clamp the said plate within and to the shell, substantially as
 100 described.

7. A desk stand, having a base and a standard mounted on the base, said base comprising an outer shell, an inner subbase formed from a plate resting at its periphery upon the inner face of said shell, said shell and said plate being provided with central apertures, the standard extending through said apertures, a shoulder upon the standard outside of the said shell, and a threaded nut
 110 adapted to screw upon the lower end of the standard beneath the said plate whereby the said plate and shell may be clamped together, substantially as described.

8. A desk stand, consisting of a base and a
 115 suitable standard mounted on the base, said base comprising an outer shell of sheet metal pressed or spun into the desired form and having a raised central portion, a subbase consisting of a circular disk resting at its
 120 periphery upon the inside of said shell and extending across inside the same, said shell and said disk having central apertures through which the tube forming the standard is adapted to extend, a shoulder provided
 125 upon said tube which rests against the outside of said shell, a nut threaded upon the lower end of said tube beneath the said plate, a sleeve or collar surrounding said tube between the plate and shell and serving
 130

to properly space the same apart, whereby when the nut is tightened the disk and shell are firmly clamped together to form a rigid structure, substantially as described.

5 9. In a telephone desk stand, the combination with a hollow base, of a suitable standard mounted thereon, a plate detachably
10 mounted wholly within said base, said plate having a central aperture therein whereby
15 access may be had to the interior of the standard without removing the plate, and having contact springs carried by said plate adapted to make and break the circuit of the device, said plate and its associate parts
20 being readily removable therefrom as a unit, and a suitable hook switch mechanism for operating said springs, substantially as described.

10 10. In a telephone desk stand, the combination with a hollow base, of a suitable standard mounted thereon, a subbase detachably secured within said hollow base, said subbase having an aperture therein
25 allowing access to the interior of the standard, and having mounted thereon the operative parts of the stand a cover for the base removable to inspect said parts, and said subbase being readily removable as a unit,
30 whereby the repair of said parts is greatly facilitated, substantially as described.

11. In a telephone desk stand, the combination with a base, of a suitable standard mounted thereon, said base comprising an
35 outer shell, and a sub-base having mounted thereon the operative parts of the stand disposed within said shell, said base having an aperture therein through which a repair man
40 may have access to the interior of the standard, said sub-base and its associate parts being readily removable therefrom as a unit, substantially as described.

12. In a desk stand, the combination with a thin metal exterior base, of an interior thin metal base, said bases having apertures
45 through the central portions thereof, a hollow standard extending through said apertures, said interior base engaging the outer base at points near the periphery of the exterior base, means for securing the two bases to-

gether, whereby the interior base will be 50 slightly sprung out of its normal shape when the two bases are in position, thereby forming a rigid structure, substantially as described.

13. In a desk stand, the combination with a hollow standard and a thin metal base, of 55 an interior base tightly held in contact with the exterior base by attachment to the lower end of the standard, said interior base reinforcing the outer base and providing means for securing apparatus in the base without
60 marring the external surface of the outer base, substantially as described.

14. In a telephone desk stand, the combination with a tubular standard and a hollow base, of transmitter cords or conductors pass- 65 ing down through the said hollow standard, binding posts provided for said cords, a plate secured within the base having laterally-extending tongues to clamp the transmitter
70 cords in position at the lower end of the tubular standard, and a set of switch springs also mounted upon said plate, substantially as described.

15. In a desk stand, the combination with a hollow standard and a thin metal base, of a 75 second base within the outside base having an aperture therein through which the standard extends, and a nut threaded upon the standard to hold the inner base securely against the outer base, substantially as de- 80 scribed.

16. In a desk stand, the combination with a standard, of exterior and interior bases, each having an aperture therein through which the standard extends, a shoulder upon 85 the standard against which the outer base abuts, and means secured upon the lower end of the standard and abutting the lower side of the inner base, said means being adapted to hold the two bases securely together, where- 90 by a rigid structure is obtained, substantially as described.

In witness whereof, I hereunto subscribe my name in the presence of two witnesses.

ANTON M. KNUDSEN.

Witnesses:

ROBERT LEWIS AMES,
EDITH F. GRIER.