June 6, 1950 E. A. FORSHEY ET AL 2,510,624

UNIT STAND FOR OPHTHALMIC INSTRUMENTS

Filed March 26, 1947 2 Sheets-Sheet 1

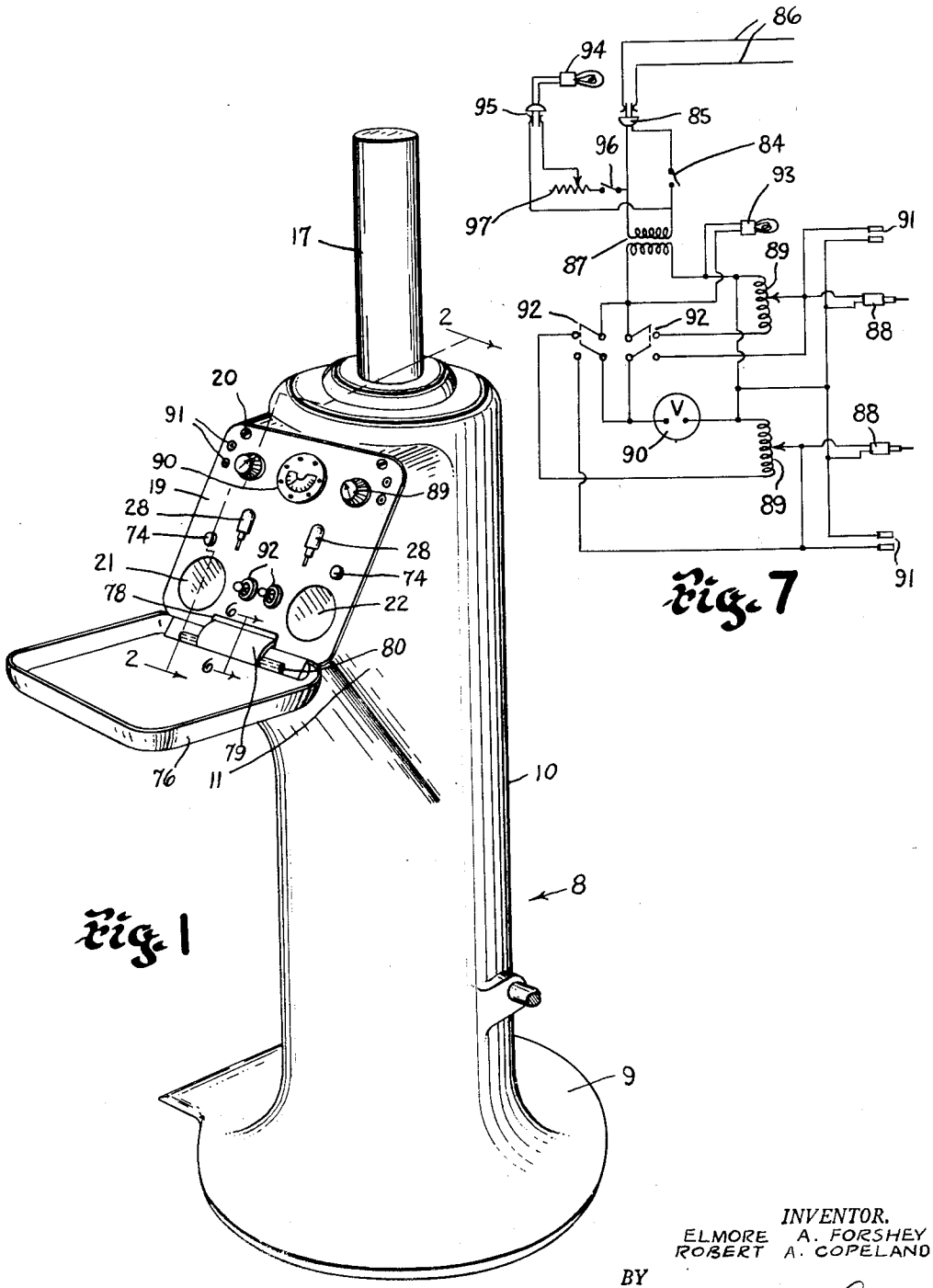


Fig. 1

Fig. 7

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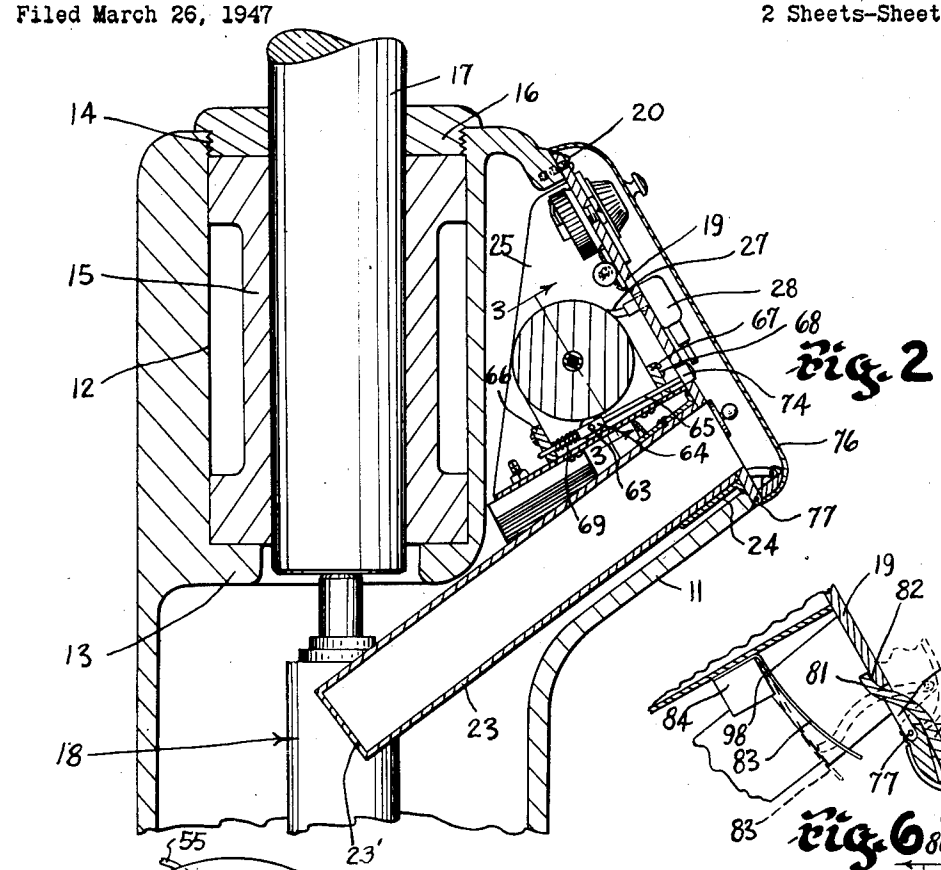


Fig. 2

Fig. 6

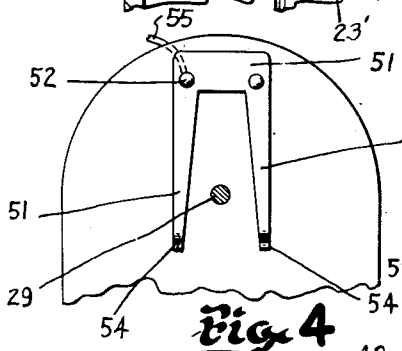


Fig. 4

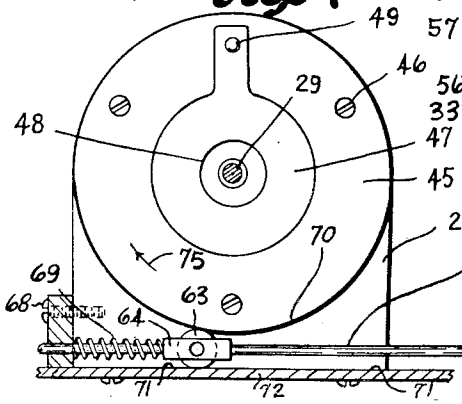


Fig. 5

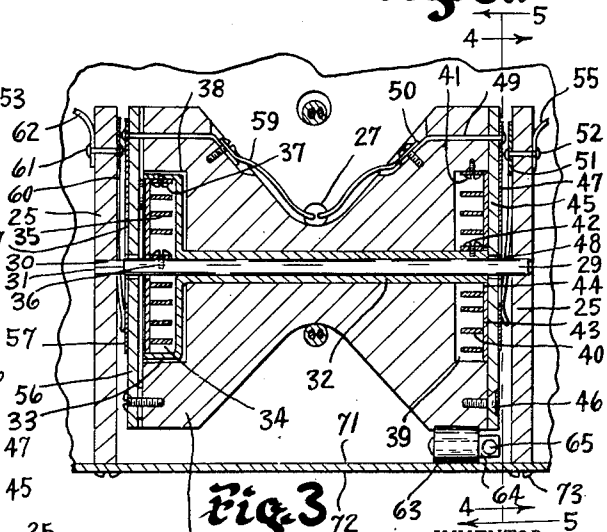


Fig. 3

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2,510,624

UNIT STAND FOR OPHTHALMIC INSTRUMENTS

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5 Claims. (Cl. 128—2)

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This invention relates to improvements in stands for diagnostic instruments and relates particularly to a novel base for such stands.

One of the principal objects of the invention is to provide a base for an instrument stand having a compartment embodying receptacles for diagnostic instruments and embodying means for electrical connection with said instruments, means for controlling and determining the amount of electrical energy directed to said instruments, means for closing the compartment and means associated with said closure means for energizing and de-energizing the means for directing the electrical energy to the instruments at different positions of adjustment of the closure means.

Another object is to provide a novel arrangement for providing extension cords for the means for supplying electrical energy to the instruments with means for taking up the slack of the extension cords when not in use.

Another object is to provide a novel switch arrangement adapted to be operated by the position of adjustment of the cover for the compartment referred to above.

Another object is to provide closure means for the compartment which will function as an instrument supporting shelf when in open position.

Another object is to provide a device of the above nature wherein the various parts are in compact relation with each other.

Other objects and advantages of the invention will become apparent from the following description taken in connection with the accompanying drawings and it is apparent that many changes may be made in the details of construction and arrangement of parts without departing from the spirit of the invention as expressed in the accompanying claims. We, therefore, do not wish to be limited to the exact details of construction and arrangement of parts shown and described as the preferred form only has been given by way of illustration.

Referring to the drawings:

Fig. 1 is a perspective view showing the base of the instrument stand embodying the invention;

Fig. 2 is a slightly enlarged sectional view taken as on line 2—2 of Fig. 1 and looking in the direction indicated by the arrows and showing the door in closed position;

Fig. 3 is an enlarged sectional view taken as on line 3—3 of Fig. 2 and looking in the direction indicated by the arrows;

Fig. 4 is a sectional view taken as on line 4—4 of Fig. 3 and looking in the direction indicated by the arrows;

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Fig. 5 is a sectional view taken as on line 5—5 of Fig. 3 and looking in the direction indicated by the arrows;

Fig. 6 is an enlarged fragmentary sectional view taken as on line 6—6 of Fig. 1 and looking in the direction indicated by the arrows; and

Fig. 7 is a schematic view of the electrical circuit of the device.

Referring more particularly to the drawings wherein like characters of reference designate like parts throughout the various views, the device embodying the invention comprises a base 8 having a lower flanged portion 9, a hollow intermediate upright portion 10 and an angularly disposed compartment 11 adjacent the upper end thereof. The upper end of the upright portion 10 has a vertical bore 12 therein having an inwardly disposed shouldered portion 13 adjacent its lower end and a threaded portion 14 adjacent its upper end. Internally of the vertical bore 12 and resting upon the shouldered portion 13 is a bearing 15 held in place by means of a ring nut or the like 16 threadedly connected with the threaded portion 14. Internally of the bearing 15 there is slidably supported a bar-like shaft or standard 17 of the conventional type and to which a plurality of brackets is connected for supporting various instruments not shown in the conventional manner. The standard 17 is adapted to be raised or lowered to different adjusted positions by means of a hydraulic or pneumatic lift 18 of the standard conventional type operated either through a hand or foot lever and release.

The compartment 11 which is formed integral with the intermediate upright portion 10, as shown in Figs. 1 and 2, has a front wall portion or panel 19 secured thereto by screws or the like 20. The panel is provided with spaced openings 21 and 22 which have cylindrical or tubular members 23 supported in alignment therewith by a bracket 24 carried by the panel 19. The cylindrical or tubular members 23 have an inner closed member 23' and are adapted to form receptacles in which instruments commercially known in the ophthalmic art such as retinoscopes and ophthalmoscopes may be positioned. Such instruments embody a self-contained source of illumination and are provided with a socket in the handle portions thereof into which an electrical plug may be inserted and thereby be connected with the instrument. Such instruments are used either independently of or in combina-

tion with other instruments carried by the main shaft or standard 17. It is particularly pointed out that the electrical or tubular members 23 are angled with respect to the longitudinal axis of the shaft or standard 17 with the closed end thereof being inclined downwardly so as to cause the instruments to be seated innermost of the tubular members 23 under the action of gravity, that is, by merely placing the instruments internally of the receptacles through the openings 21 and 22, they will slide inwardly thereof under the action of gravity to the innermost position. This angling of the tubular members 23 also enables the panel to be positioned adjacent the top of the intermediate portion 10 and allows the front of the compartment to be formed closer to the side wall of the upright and enables the parts to be more compactly related by affording sufficient length to the tubular members to encase the entire instrument and yet enables the tubular members to span the hydraulic or pneumatic lift without requiring such width as to render the compartment portion of the stand to be too large, bulky and cumbersome.

Internally of the panel 19, there is provided two sets of spaced brackets 25, between which there is pivotally supported a spool-like member 26. These spools are adapted to provide means whereby the electrical cords 27 to which the plugs 28 are attached are wound thereon to take up the slack of the cords when the plugs 28 are not in use and are adapted to permit the plugs to be pulled outwardly for attachment with the instruments as desired and to enable free manipulation of the instruments throughout a relatively wide range.

The spools 26 are preferably formed of non-metallic material such as Bakelite or other similar insulation material and are each rotatably supported by means of a shaft 29 having a squared end 30 fitted within a similarly shaped opening 31 formed in the adjacent side bracket 25. The squared end 30 locks the said shaft 29 against rotation. The shaft 29 has a sleeve 32 rotatably supported thereon, which sleeve has a recessed flanged end 33 thereon forming a housing 34 for a spiral spring 35. The spring 35 is secured adjacent one end thereof to the inner shaft 29 by means of a screw or the like 36 and adjacent the opposed end thereof to the flange-like housing 33 by means of a screw or the like 37. The flange-like housing 33 lies within a recess 38 in the adjacent side of the spool. The opposed side of the spool is also provided with a recess 39 in which a spiral spring 40 similar to the spiral spring 35 is positioned. The spring 40 is secured adjacent one end thereof to the spool 26 by means of a screw or the like 41 and is secured at its opposite end to the sleeve 32 by means of a screw or the like 42. A disc 43 is adapted to form a cover member for said spiral spring 40 and is provided with a central opening 44 of a diameter greater than the diameter of the sleeve 32.

An end plate 45 preferably of non-metallic insulation material is secured to the adjacent end of the spool 26 by means of screws or the like 46. To the outer surface of the end plate 45 there is secured a metallic disc 47 having a central opening 48 of a diameter considerably larger than the diameter of the shaft 29, see Figs. 3 and 5. This is to provide sufficient clearance to avoid electrical contact of the shaft 29 with the disc 47. The said disc 47 is connected to the spool 26 by means of a headed pin or the like 49 having electrical connection with the end 50 of one of the wires of the cable 27. The adjacent side bracket 25, as shown best in Figs. 3 and 4, has a bifurcated member 51 secured thereto by pins or the like 52. The member 51 is provided with spaced resilient branches 53 having ends 54 in frictional engagement with the side surface of the disc 45 forming an electrical contact therewith. The branches 53 of the member 51 straddle the shaft 29 so as to avoid electrical contact therewith. The said bifurcated member 51 is connected through the pin 52 to one pole of a source of electrical energy through the lead wire 55.

The opposed side of the spool 26 is provided with an end plate 56 of non-metallic insulation material similar to the end plate 45 which in turn has a metallic disc 57 secured thereto by a pin 58. The pin 58 forms an electrical connection with the other wire 59 of the cable 27. The adjacent bracket 25 is provided with a bifurcated member 60 having an electrical connection through pin 61 with the other lead wire 62 connected with the main source of electrical energy. This latter bifurcated member has spaced branches formed of resilient material and adapted to have frictional electrical contact with the plate 57 in a manner similar to the first mentioned plate 47 and bifurcated member 51, thereby directing electrical energy through the cord 27. Each of the cords 27 has a plug 28 on the free end thereof which may be attached to the immediate instrument to be used and which is normally supported in the casing 23.

The construction of the spool 29 is such as to enable a substantial amount of the cord to be drawn therefrom and functions in the following manner:

When the cord is being drawn from the spool 26 the spring 40 initially winds up to its fullest extent where upon the spring 35 connected with the bearing 32 through housing 33 and with the central shaft 29 will be caused to be wound thereby permitting further rotation of the spool 26. When the cable 27 is released, the spring 35 will initially function to rewind the spool until the function of the spring 35 is spent and the spring 40 will then take up the rear function until the cord is drawn inwardly of the opening in the plate 19 an amount sufficient to draw the plug 28 into intimate engagement with the plate.

As shown particularly in Figs. 1, 3 and 5, a braking device is provided for retaining the spool 26 in any given adjusted position which braking device may be manually manipulated to release the spool to enable the springs 40 and 35 to impart the desired rewinding of the cord 27. This braking device comprises a roller member 63 pivotally connected to a support 64 carried by a bar 65. The bar 65 is slidably supported in spaced bearing members 66 and 67 connected with the adjacent bracket by means of screws or the like 68. The bar 65 is provided adjacent one end with a coil spring 69 positioned intermediate the bearing member 66 and the support 64 and normally tends to urge the roller member 63 in a direction toward the peripheral edge 70 of the spool 26, as shown best in Figs. 2 and 5. The roller members 63 engages the upper surface 71 of plate 72 secured to the bases of the bracket 25 by means of screws or the like 73 and has a wedging action between said surface 71 and the peripheral edge 70 of the spool, thereby functioning as brake for locking the spool in adjusted po-

sition, particularly when the cord is pulled in a direction outwardly of the panel 19. The bar 65, adjacent the outer end thereof, is provided with a push button 74 which extends through an aligned opening in the panel 19 an amount sufficient to be manually engaged by the operator.

It is particularly pointed out that the roller 63 will permit the cord 27 to be relatively freely drawn from the spool 26. This is due to the fact that the said spool, when the cord 27 is being drawn therefrom will rotate in the direction indicated by the arrow 75 normally tend to urge the brake roller 63 in a direction resisting the tension of the coil spring 69. When the pull on the cord 27 however is released the wedging action of the roller 63 between the surface 71 and periphery 70 of the spool under the tension of the spring 69 will immediately lock the spool against countermovement and thereby retain it in any adjusted position. When it is desired to rewind the cord 27 on the spool all that is required is to apply manual pressure upon the push button 74 thereby releasing the braking action of the roller 63 and allowing the spiral springs 40 and 35 respectively to function to move the spool 26 in a direction for rewinding the cord 27.

To the front of the compartment 11, there is pivotally connected a cover member 76 as shown in Figs. 1, 2 and 6. The pivotal connection is shown at 77 and is to the lower end of the panel 19. The said lower end of the panel is provided with a recess 78 through which a latch member 79 extends. The said latch member 79 is pivotally connected with the cover 76 as illustrated at 80 and has an end portion 81 adapted to engage and latch with the panel 19 adjacent the upper end of the recess 78 as shown at 82 when the cover 76 is in its lower most position as shown best in Fig. 1. The member 79 therefore enables the cover member 76 to be positioned in superimposed relation with the panel 19 or to be opened outwardly and retained in a subsequently horizontal position as shown in Fig. 1. When in this latter position the cover member 76 functions as a shelf upon which the instruments may be rested when not in use.

When the cover is closed or in superimposed relation with the panel 19 the member 79 functions as engagement means with a spring lever 83 carried by a main switch 84 supported internally of the compartment 11.

By reference to Fig. 7 wherein a schematic wiring diagram of the device is shown the main switch 84 is illustrated as being directly in the incoming circuit through the plug connection 85 with the main electrical supply wires 86. The incoming circuit is connected to a transformer 87 for reducing the main line voltage to the voltage required for the instruments. This voltage may be varied in the circuits leading to the respective plugs 88 by means of the rheostats 89. The exact line voltage is determined by the voltmeter 90. Suitable jacks 91 are provided in the plug circuits to provide electrical connection for other instruments as desired. A telltale light 93 is provided in the plug circuits. Adjacent the top of the upright 17 there is supported a source of illumination, not shown. This source of illumination is indicated at 94 in the wiring diagram of Fig. 7 and is illustrated as having a plug connection 95 with the main incoming source of electric energy. A suitable switch 96 is provided for independent control of the source of illumination 94 and there is also provided a rheostat 97 by means of which the voltage supply may be varied.

By referring back to Fig. 6, and as shown by the dash lines, the member 79 pivotally connected with the cover 76, when said cover is in closed position, is adapted to engage and depress the spring lever 83 which in turn depresses the plunger 98 of said switch thereby opening the circuit to the transformer 87 and disconnecting the main line electrical energizer therefrom. When the cover is opened the resiliency of the lever 83 causes said lever to move outwardly, due to its tendency to return to its initial setting and thereby trips the switch 84 and automatically energizes the circuit to the plugs and jacks.

From the foregoing description it will be seen that simple and economical means have been provided for accomplishing all of the objects and advantages of the invention.

Having described our invention, we claim:

1. An instrument stand of the character described comprising a hollow upright provided with a bearing adjacent its upper end in which an instrument supporting shaft is mountable for slidable movement in the direction of the vertical axis of the upright and having control means for moving said shaft in the bearing, said hollow upright having a substantially plane panel portion extending outwardly from one side thereof adjacent the bearing, said panel portion being inclined at approximately sixty degrees to the vertical axis of the upright and to intersect said axis substantially above the upper end of the upright, and having sidewalls extending inwardly to merge with the hollow upright and form an enclosed compartment, said panel portion having openings formed therein and supporting at least one cylindrical member in alignment with one of said openings, said cylindrical member being disposed in the compartment in substantially normal relation to the panel portion with its sidewalls substantially coinciding with the periphery of said opening and having a closed inner end, the dimensions of said cylindrical member and aligned opening being such as to permit the cylindrical member to receive and substantially encase conventional type electrically operated manual instruments, said compartment having a rotatable spool mounted therein about which an electrical cord is wound, said cord having one end extending through an opening in the panel portion and adapted to be connected with said manual instruments, the opposed end of the cord being connectable to a source of electrical energy, and spring actuated means for rotating the spool to permit a winding and unwinding of the electrical cord.

2. An instrument stand of the character described comprising a hollow upright provided with a bearing adjacent its upper end in which an instrument supporting shaft is mountable for slidable movement in the direction of the vertical axis of the upright and having control means for moving said shaft in the bearing, said hollow upright having a substantially plane panel portion extending outwardly from one side thereof adjacent the bearing, said panel portion being inclined at approximately sixty degrees to the vertical axis of the upright and to intersect said axis substantially above the upper end of the upright, and having sidewalls extending inwardly to merge with the hollow upright and form an enclosed compartment, said panel portion having openings formed therein and supporting at least one cylindrical member arranged with one of

said openings, said cylindrical member being disposed in the compartment in substantially normal relation to the panel portion and having a closed inner end, with the dimensions of said cylindrical member and arranged opening being such as to permit the cylindrical member to receive and substantially encase conventional type electrically operated manual instruments, said compartment having a rotatable spool mounted therein about which an electrical cord is wound, said cord having one end extending through an opening in the panel portion and adapted to be connected with said manual instruments, the opposed end of the cord being connectable to a source of electrical energy, and a cover portion hingedly connected adjacent the lower portion of the panel portion, said cover portion comprising a substantially flat portion having inturned sidewalls and being shaped and of a size to substantially completely cover the panel portion when in closed position, and stop means for maintaining said cover portion in a substantially horizontal plane as a tray when in open position.

3. An instrument stand of the character described comprising a hollow upright provided with a bearing adjacent its upper end in which an instrument supporting shaft is mountable for slidable movement in the direction of the vertical axis of the upright and having control means for moving said shaft in the bearing, said hollow upright having a substantially plane panel portion extending outwardly from one side thereof adjacent the bearing, said panel portion being inclined to intersect the vertical axis of the upright substantially above the upper end of said upright, and having sidewalls extending inwardly to merge with the walls of the hollow upright and form an enclosed compartment, said panel portion having openings formed therein and supporting at least one cylindrical member arranged with one of said openings, said cylindrical member being disposed in the compartment in substantially normal relation to the panel portion and having a closed inner end, with the dimensions of said cylinder member and arranged opening being such as to permit the cylindrical member to receive and substantially encase conventional type electrically operated manual instruments, said compartment having a rotatable spool mounted therein about which an electrical cord is wound, said cord having one end extending through an opening in the panel portion and adapted to be connected with said manual instruments, the opposed end of the cord being connected to a switch member having a lever for operating the switch member, said switch member being connectable to a source of electrical energy to provide an electrical circuit to the cord, and a cover member hingedly connected to the lower part of the panel portion, said cover member having a latch extending through an opening in said panel portion, said latch being adapted to engage the rear surface of the panel portion when the cover member is pivoted to a substantially horizontal plane so as to support the cover member as a tray in said position, and being adapted to engage the lever on said switch member when the cover member is in closed position so as to cause the switch member to break the electrical circuit to said cord.

4. An instrument stand of the character described having its component parts arranged in compact relation with each other, said stand comprising a hollow upright having a bearing portion in the top end wall thereof, with the major part of said bearing extending downwardly and inwardly of the upright, an instrument supporting shaft mounted in said bearing for rotatable and slidable movement in a direction longitudinally of the bearing and having control means inwardly thereof for moving said shaft in the bearing, said hollow upright having an enlarged compartment portion projecting outwardly from adjacent the top end wall thereof, said compartment portion having a relatively narrow upper wall portion adjacent the top end wall of the upright lying in a plane substantially parallel with the plane of said top end wall of the upright, a bottom wall portion angled outwardly and upwardly with respect to the adjacent side wall of the upright and having its side walls substantially flush with the side walls of the upright, said compartment having a substantially plane front wall portion inclined downwardly and outwardly with respect to the top wall portion of said compartment and having a plurality of openings therein, and tubular members supported in said compartment portion and in alignment with said openings, said tubular members extending inwardly substantially parallel with the plane of the bottom wall of the compartment and lying between said wall and inner end of the bearing in adjacent relation therewith, and said tubular members having inner closed ends straddling the control means in said upright.

5. An instrument stand of the character described having its component parts arranged in compact relation with each other, said stand comprising a hollow upright having a bearing portion in the top end wall thereof, with the major part of said bearing extending downwardly and inwardly of the upright, an instrument supporting shaft mounted in said bearing for rotatable and slidable movement in a direction longitudinally of the bearing and having control means inwardly thereof for moving said shaft in the bearing, said hollow upright having an enlarged compartment portion projecting outwardly from adjacent the top end wall thereof, said compartment portion having a relatively narrow upper wall portion adjacent the top end wall of the upright lying in a plane substantially parallel with the plane of said top end wall of the upright, a bottom wall portion angled outwardly and upwardly with respect to the adjacent side wall of the upright and having its side walls substantially flush with the side walls of the upright, said compartment having a front wall portion inclined downwardly and outwardly with respect to the substantially plane top wall portion of said compartment and having a pair of spaced openings adjacent the bottom portion thereof, and a tubular member supported in said compartment portion and in alignment with each of said openings, said tubular members each extending inwardly substantially parallel with the plane of the bottom wall of the compartment and lying between said wall and the inner end of the bearing in adjacent relation therewith, said tubular members having inner closed ends straddling the control means in said upright, and with the front, upper and side wall portions of the compartment, the adjacent sides of the tubular members and bearing portion forming an open area therebetween, said front wall having an apertured portion communicating with said open area, and a rotatable spool mounted in said area, electrical cord means adapted to be wound about said spool, having

one end extending through the apertured portion in the front wall of the compartment and terminating in plug means, together with means operating on the spool for drawing the cord normally inward in wound relation with the spool and so as to retain the plug means normally at rest on the front wall of the compartment.

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