

Dec. 28, 1926.

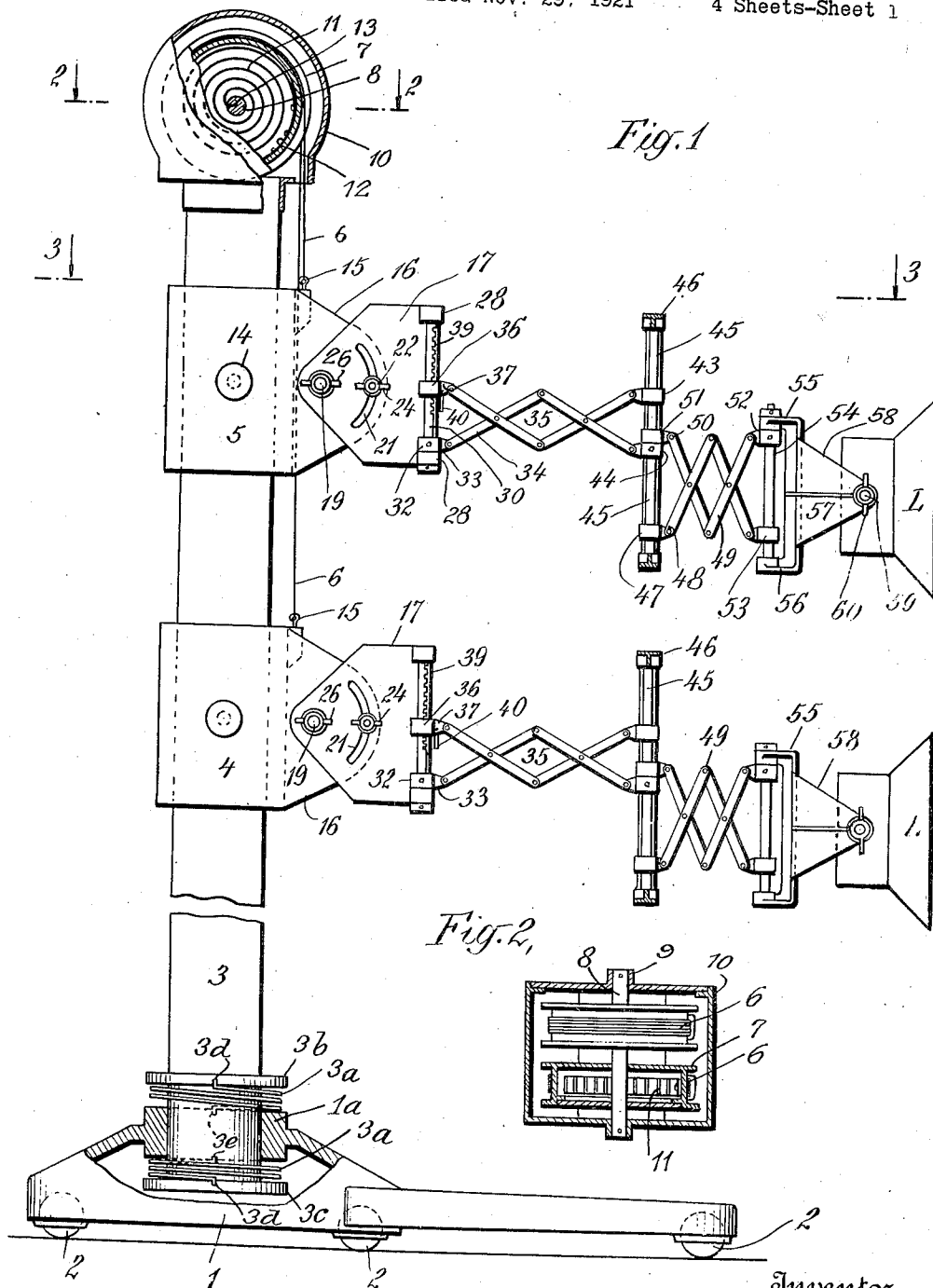
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1,611,903

ADJUSTABLE LAMP SUPPORT

Filed Nov. 29, 1921

4 Sheets-Sheet 1



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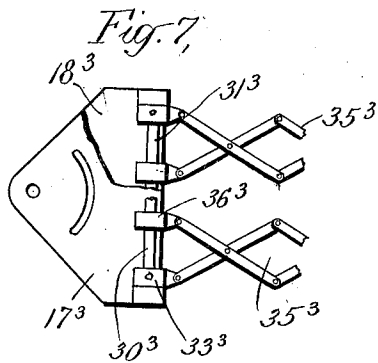
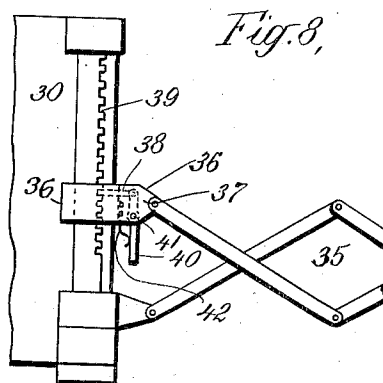
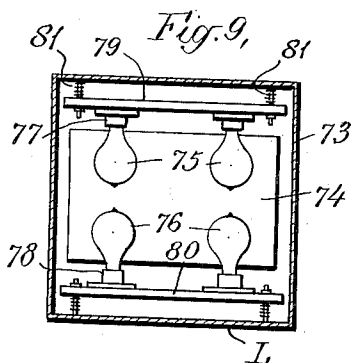
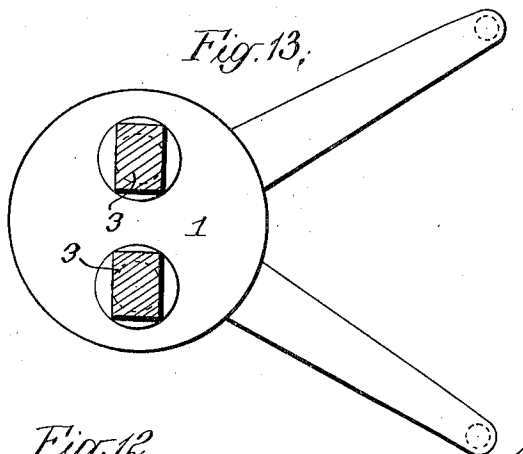
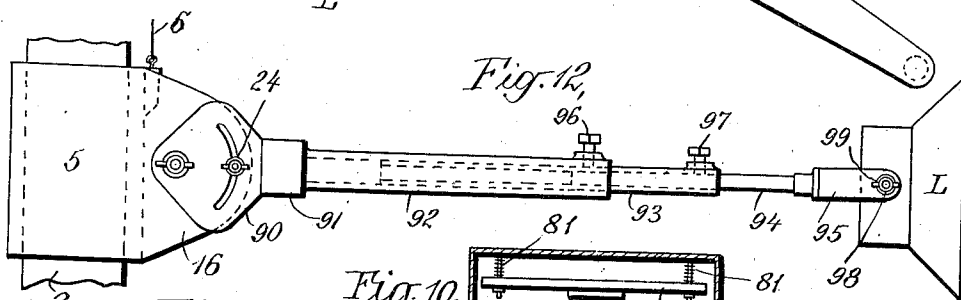
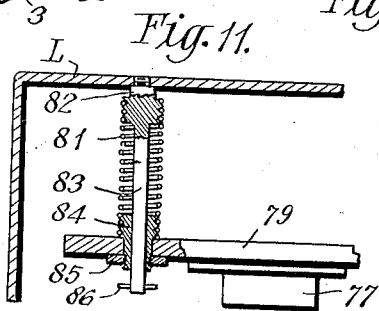
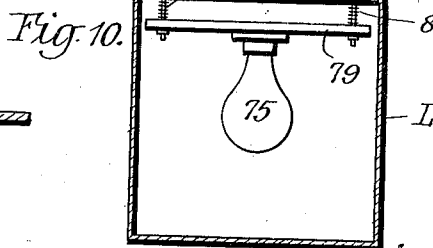
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ADJUSTABLE LAMP SUPPORT

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4 Sheets-Sheet 2



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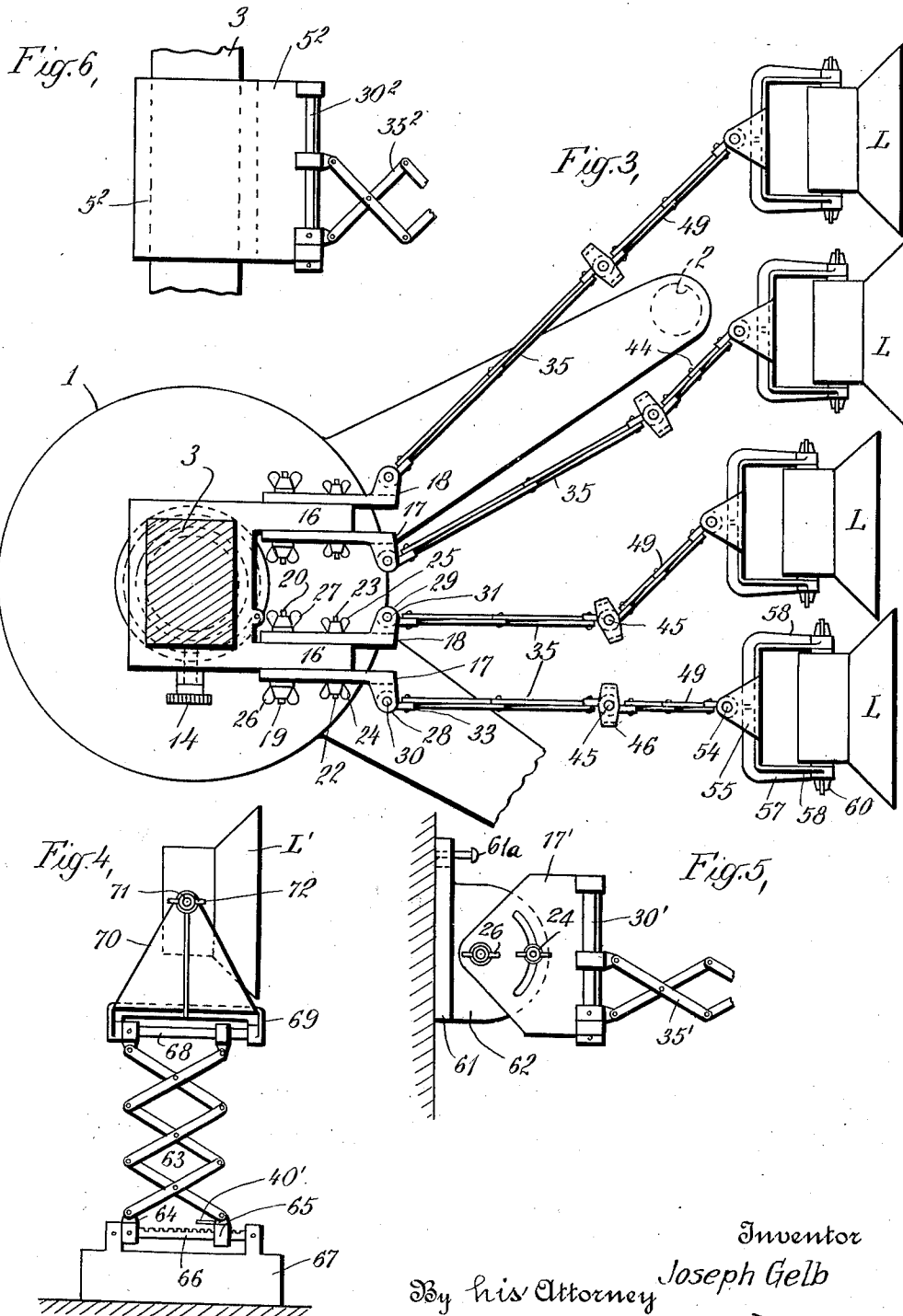
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ADJUSTABLE LAMP SUPPORT

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4 Sheets-Sheet 3



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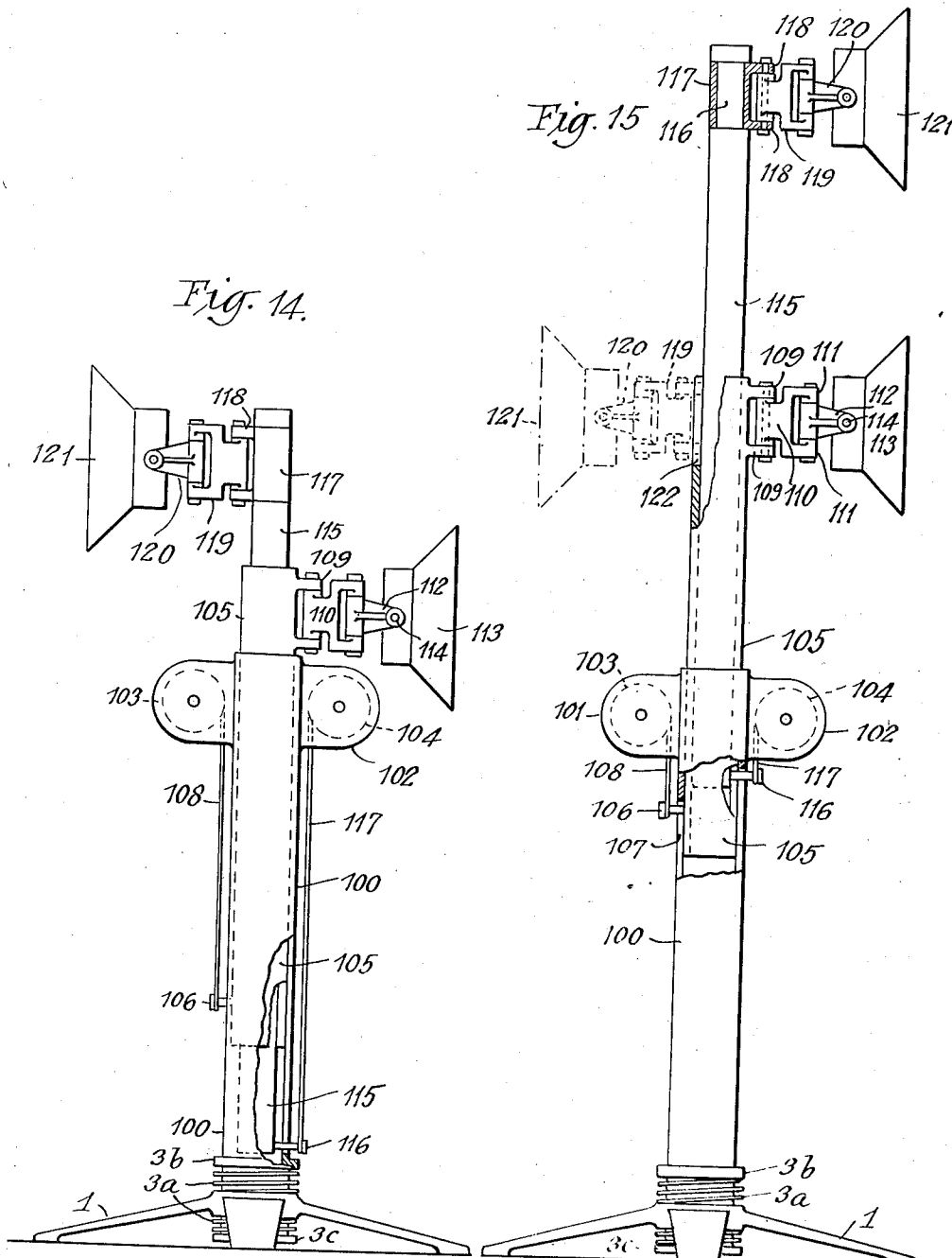
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ADJUSTABLE LAMP SUPPORT

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4 Sheets-Sheet 4



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ADJUSTABLE LAMP SUPPORT.

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This invention relates to means for supporting lamps used principally for photographic purposes. The support is so designed that a great number of lamps can be carried by a single pedestal and the various lamps can be independently adjusted in greatly varying directions.

One of the objects of the invention is to provide means whereby a plurality of lamps can be supported in different elevated positions and held at such positions by a single counter-balancing means. Another object is to provide means whereby a plurality of lamps can be supported on a vertically adjustable bracket in such a manner that the several lamps can be adjusted to direct their rays of light at various angles. Another object is to provide yielding means for securing the pedestal to its supporting base so that vibrations will not be transmitted to the lamps. A further object is to provide yielding means for supporting the lamp bulbs to prevent the breakage of their filaments. A still further object is to provide supports for a plurality of lamps, which are adjustable in vertical and horizontal planes so that the direction of the rays of light may be accurately controlled to suit varying conditions in photographic or motion picture work. Another object is to combine and correlate the various instrumentalities herein set forth in such manner that they will effectively perform the functions described.

Further objects will be apparent from the following description when read in connection with the accompanying drawings in which—

Fig. 1 shows in side elevation one embodiment of my invention;

Fig. 2 is a detail in horizontal section on line 2—2 of Fig. 1;

Fig. 3 is a section on line 3—3 of Fig. 1;

Figs. 4, 5, 6 and 7 are detail views illustrating modifications;

Fig. 8 is an enlarged detail illustrating mean for holding the flexible lamp support in fixed position;

Fig. 9, 10 and 11 are detail views illus-

trating yielding means for supporting incandescent lamps;

Fig. 12 is a detail view showing an alternative construction of adjustable support;

Fig. 13 is a detail of a modified form of base.

Figs. 14 and 15 illustrate another modification embodying the invention.

Referring first to Figs. 1 to 3, 1 represents a base or support which may be either permanently secured to the floor of a building or may be provided with casters 2 to permit the structure to be moved at will. An upright pedestal 3 is yieldingly secured to the base 1 by springs 3^a which are interposed respectively between collars 3^b and 3^c and a hub 1^a formed on the base 1. The ends of the springs 3^a are bent over and engage notches 3^a and 3^c formed in the collars 3^b and 3^c and the opposite ends of the hub 1^a. The portion of the pedestal between the collars 3^b and 3^c is cylindrical in shape to permit of slight rotary movement relatively to the base 1. This construction permits the pedestal to move vertically and also to turn slightly against the action of the springs and thus provides means whereby shocks due to vibrations are damped. The springs are subjected either to torsional or compressive strains, and prevent the lamps from flickering and also lessen the breakage of the filaments of the lamps.

The pedestal 3 slidably supports carriages 4 and 5 which in turn each support a multiplicity of lamps which are adjustable in a great variety of directions as hereinafter described. The carriage 5 is connected by means of a cable 6 to the periphery of a hollow drum 7 loosely mounted on a fixed shaft 8 which is secured to hubs 9 formed in a housing 10 supported at the upper end of the pedestal 3. Mounted in the interior of the drum 7 is a volute spring 11, one end 12 being secured to the inner surface of the drum, and the other end 13 being secured to the fixed shaft 8. The spring 11 is adapted to exert sufficient torque on the drum to counter-balance the weight of the carriage 5 and the various lamps and supports car-

ried thereby. This arrangement permits the carriage to be very easily moved to different positions of vertical adjustment and the spring is sufficiently strong to hold the carriage in such adjusted position. However, to prevent undesired movement of the carriage, I provide thumb screws 14 which are threaded into the walls of the carriage and impinge on the surface of the pedestal 3 so as to positively hold the carriage in position of adjustment and prevent its accidental movement due to carelessness of an operator or to vibration of the building in which the lamps are being used.

The carriages 4 and 5 are identical in construction, as also are the adjustable lamp supports carried thereby, therefore, a description of one carriage and its associated adjustable supports will suffice for both, the same reference letters being applied to the similar parts.

Each carriage is provided with an eyebolt 15 to which the cable 6 above referred to is attached. Each carriage is also provided with a pair of outwardly extending lugs 16, Fig. 3, each of which adjustably supports a pair of brackets 17 and 18 which are pivoted on studs 19 and 20. The brackets 17 and 18 are each formed with an arcuate slot 21 through which projects studs 22 and 23, said studs being carried by the lug 16. Winged nuts 24 and 25 engage the studs 22 and 23 and are arranged to clamp the brackets 17 and 19 in different angular positions of adjustment. The pivot studs 19 and 20 are also provided with winged nuts 26 and 27 which serve to additionally clamp these brackets in their desired position of adjustment. The brackets 17 and 18 are provided at their outer ends with ears 28 and 29 in which are pivotally secured vertical supporting rods 30 and 31. At the lower end of each rod 30 and 31 is secured a fixed collar 32 having a lug 33 to which is pivoted one end 34 of a lazy tongs 35. Located a short distance above the collar 32 is a collar 36 adapted to slide on the rod 30. The collar 36 is formed with a lug 37 to which another member of the lazy tongs 35 is pivoted. It will be understood that as the lazy tongs is collapsed or extended the collar 36 will slide vertically on the rod 30. In order to lock the collar 36 in any desired position of vertical adjustment, I have provided a latch bar 38, Fig. 8, adapted to enter notches 39 cut in the rod 30, this latch bar being carried by a hand lever 40 pivoted at 41 to the lug 37 on the collar 36. A spring 42 carried by the collar 36 normally holds the bar 38 in engagement with the notches 39. By this means it will be seen that the lazy tongs can be held in numerous desired positions of adjustment. At the outer end of the lazy tongs 35 are pivotally secured two collars

43 and 44 respectively. The collar 44 is fixedly secured to a vertical rod 45, the collar 43 being slidably mounted on said rod. Secured to the ends of this rod and straddling the collars mounted thereon, is a yoke 46 adapted to limit the movement of said collar 43 and another collar 47 which is secured at 48 to a second lazy tongs 49. The upper end of this lazy tongs being secured at 50 to a collar 51 slidably mounted on the rod 45. Secured to the outer ends of the lazy tongs 49 are a pair of collars 52 and 53 the former being secured to a vertical rod 54 and the latter being slidably mounted on said rod. This rod 54 is pivotally secured at each end to arms 55 and 56 of a lamp supporting bracket 57 having horizontal arms 58 which pivotally support studs 59 carried by the lamp casings L. Each stud 59 is provided with a clamp nut 60 by means of which the lamp can be securely held in any desired angular position of adjustment.

Reference to Fig. 3 will show that each of the lugs 16 of the carriages 4 and 5 supports brackets 17 and 18, and each bracket 17 and 18 supports one lamp casing L. As there are two brackets 17 and two brackets 18 on each carriage, it will be appreciated that standard 3 supports eight lamp casings L, four being supported by the carriage 4 and the other four by the carriage 5. Each carriage and the plurality of lamps supported thereby is counter-balanced by a single spring drum 7, in other words, one spring drum counter-balances the weight of four lamps. This is an important feature because heretofore each lamp has usually been counterbalanced by a separate weight or its equivalent which required considerable space and greatly increased the number of parts.

From the above description it will be clear that a great variety of adjustments can be obtained for any of the lamps. For example, by loosening the wing nuts 24 or 25 the brackets 17 and 18 may be independently swung on their pivots 19 and 20 so as to adjust the entire assemblage of associated parts including the lazy tongs 35 and 49 to various angles to the horizontal. If desired the lamp L can also be tilted about the stud 59 to further accurately adjust the direction in which the rays of light from the lamp shall be reflected. The lamps may be moved toward or away from the pedestal 3 by collapsing or extending either one or both of the lazy tongs 35 and 49. Additionally the lazy tongs 35 may be swung about the vertical axis of the rod 30 and the lazy tongs 49 may be similarly swung about the axis of the rod 45 to various angular positions. The lamp supporting bracket 57 may also be swung about the vertical axis of rod 54 all as clearly shown in Fig. 3.

This multiplicity of adjustments permits

an operator to accurately direct the rays of light from any given lamp to any portion of an object he may wish to photograph, and it also permits numerous relative adjustments between adjacent lamps as will be understood.

Instead of supporting the lamps from vertically movable carriages riding on a pedestal, I may in some instances wish to support them from a fixed support. Such an arrangement is shown in Fig. 5 in which the bracket 61 is hung on a stud 61^a and is provided with an extension 62 adapted to pivotally support a swinging bracket 17' of substantially the same construction as the brackets 17 and 18, above referred to, this bracket also being provided with a vertical rod 30' adapted to support a lazy tongs 35' in a manner very similar to the way in which the lazy tongs 35, above described, is supported.

In Fig. 4 I have shown a vertically adjustable lazy tongs 63 supported at the bottom on a fixed collar 64 and another collar 65 which slidably engages a supporting rod 66 secured to a fixed base 67. At its upper end the lazy tongs 63 carries a bar 68 which in turn supports a bracket 69 having upwardly extending arms 70 provided with trunnions 71 and suitable clamping means 72 for holding the lamp L' in different positions of angular adjustment. In this device it will be seen that by extending or collapsing the lazy tongs 63 the lamp can readily be adjusted so as to direct its rays of light from different elevations and the lamp can also be swung about its pivot 71 to any desired angular adjustment. The collar 65 to which the lower end of the lazy tongs 63 is attached is preferably provided with a locking means 40' similar to that shown in Fig. 8, so as to hold the lamp in different elevated positions. This form of device can be collapsed into a very small space and carried about for outside work in a suitable carrying case.

Fig. 6 shows a modification in which lazy tongs 35² is mounted on a vertical rod 30² carried directly on a carriage 5² which is slidably mounted on the pedestal 3.

In Fig. 7 I have shown a slightly modified arrangement in which the bracket 17³ carrying the rod 30³ has a lazy tongs 35³ supported thereon, the lower collar 33³ being fixed, and the upper collar 36³ being slidable thereon. Behind bracket 17³ is a bracket 18³ carrying a rod 31³ supporting another lazy tongs 35³ which is the same as the similar element mounted on the rod 30³, but mounted in inverted position, that is to say, its upper supporting collar is fixedly secured to the rod 31³ and its lower supporting collar slides thereon. As thus arranged it will be seen that when the two lazy tongs are in the partly extended position, as shown, it is possible to swing one of them about its vertical

pivot across the top of the other. Such an adjustment is sometimes very desirable, for instance after one lamp has been adjusted to a given position and it is then desired to direct more light to one side or the other of the position to which the first lamp is adjusted.

The lamps L supported by the adjustable means above described may be either arc or incandescent lamps or in fact these supporting structures may support lights of any sort suitable for various purposes.

Fig. 9 shows a preferred arrangement for supporting incandescent lamps in such manner that vibrations will not cause the destruction of the sensitive tungsten filaments. The casing 73 is substantially rectangular in shape and has a suitable reflector 74 mounted therein behind the incandescent lamps 75 and 76 which are carried by receptacles 77 and 78 secured to bars 79 and 80. These bars are each supported by springs 81. They are supported in identically the same manner and a description of one will suffice for both. Details of this supporting structure are shown in Fig. 11. Each spring 81 is secured at its upper end in grooves formed in a fitting 82 which in turn is screwed to or otherwise secured to the wall of the lamp casing L. The fitting 82 is formed with an elongated shank 83 which projects through the center of the spring 81, and is guided at one end in a bushing 84 which is secured by means of a nut 85 to the lamp carrying bar 79 or 80. The bushing 84 is provided with grooves on its exterior in which a few convolutions of the end of the spring are firmly seated. A cotter pin 86 is secured near one end of the shank 83 to limit the downward motion of the lamp carrying bar in the event that the spring 81 accidentally becomes dislodged. This construction provides a yielding support for the lamps 75 and 76 and serves to dampen shocks due to rough handling when adjusting the position of the lamp brackets and also absorbs shocks due to vibrations in buildings in which the lamps are used and assists in prolonging the life of incandescent lamps which are provided with sensitive tungsten filaments. The construction also lessens the transmission of heat from the lamp to the casing L as it is apparent that the bars 79 and 80 are so positioned that air can circulate freely around them and thus tending to cool the same. On the other hand if the bars 79 and 80 were mounted directly on the metallic casing the heat would be more directly transmitted to said casing by radiation and convection.

The base 1^a instead of carrying one pedestal 3, as shown in Figs. 1 and 3, may be provided with a plurality of such pedestals as indicated in Fig. 13, thus providing a structure which will carry practically double the

number of adjustable lamps, Fig. 13 illustrating a horizontal section of such an arrangement.

In Fig. 12 I have illustrated an alternative arrangement in which in place of the lazy tongs above described I use a series of members adapted to telescope one into the other. In this form of my device the carriage 5 pivotally supports a bracket 90 which may be clamped in different angular positions by the wing nut 24 similar to the arrangement shown in Fig. 1. The bracket 90 is formed with a hub 91 having an elongated tubular member 92 secured thereto. Into the end of said tube is telescoped another tube 93 which in turn slidably supports a rod 94 having a yoke-like bracket 95 secured to the end thereof. The members 92 and 93 are provided with set screws 96 and 97 by means of which the telescopic members can be locked in various positions of adjustment. The yoke 95 pivotally supports a stud 98 carried by the lamp L, said stud being provided with a wing nut 99 for securely clamping the lamp in any desired angular position.

Intstead of using carriages slidable vertically on a fixed pedestal, I may make the pedestal itself of separate members which telescopically engage one another so that the lamps carried thereby can be adjusted to different elevations as desired. Such an arrangement is shown in Figs. 14 and 15, in which the fixed pedestal 100 carries on opposite sides thereof housings 101 and 102 within which are mounted spring actuated drums 103 and 104, similar in construction to that shown in Fig. 1. A tubular member 105 is slidably mounted in the hollow pedestal 100 and carries at its lower end a lateral pin 106 which rides in a slot 107 formed in one side of the wall of the pedestal. A cable 108 connects the pin 106 with the drum 103 so that the weight of the member 105 and the parts carried thereby is counterbalanced by the spring drum. The member 105 carries a pair of lugs 109 which pivotally supports a bracket 110 having lugs 111 formed thereon which in turn pivotally support a yoke 112 which supports a lamp casing 113 on pivots 114.

A rod 115 is slidably supported by the member 105 and carries a lateral pin 116 near its lower end which extends through slots formed in the member 105 and the pedestal 100 and is connected by a cable 117 to the spring actuated drum 104. The rod 115 is reduced in diameter at 116 to form a journal for a bracket 117 which swivels thereon. The bracket 117 carries lugs 118 which pivotally support a bracket 119. This bracket carries a yoke 120 which adjustably supports the lamp casing 121 in the same manner that the yoke 112 supports the lower lamp casing 113.

The advantage of this construction will be apparent by comparison of Figs. 14 and 15 which show two extreme positions of adjustment. The upper bracket 117 can be turned 180 degrees and the rod 115 lowered to bring the lamp 121 to the dotted line position of Fig. 15 to substantially the same elevation as the lamp 113, the tube 105 being slotted at 122 to permit the lugs 118 to travel therein. By adjusting the brackets 119 and 110 or the yokes 120 and 112, both lamps can be focused on the same object or on different parts of the same object as desired. Various other combinations of adjustment may be made to direct the light to any desired location as will be understood by those skilled in the art.

While I have described with great particularity the details of the embodiment of the invention shown, it is not to be construed that I am limited thereto as changes in arrangement and substitution of equivalents may be made by those skilled in the art without departing from the invention as defined in the appended claims.

What I claim is:

1. An adjustable lamp support comprising a supporting base, a pedestal yieldingly carried thereby, a carriage slidable on said pedestal, means carried by said carriage for adjustably supporting a plurality of lamps and a single device for counterbalancing the weight of said carriage and the lamps and lamp supporting means carried thereby.

2. An adjustable lamp support comprising an upright pedestal having a slidable carriage mounted thereon, a bracket mounted on said carriage for movement about a substantially horizontal axis, clamping means for locking the bracket in adjustable position, means for adjustably supporting a lamp on said bracket for movement about a substantially vertical axis and means located wholly above said carriage for counterbalancing the weight thereof and parts supported thereby.

3. An adjustable lamp support comprising an upright pedestal having a slidable carriage thereon, a spring counterbalancing drum secured to the top of the pedestal and having a flexible member connected to the top of said carriage, an angularly adjustable bracket on said carriage and an expansible lamp supporting member mounted on said bracket for adjustment about a substantially vertical axis.

4. An adjustable lamp support including an upright pedestal, a carriage slidably mounted thereon, a bracket pivoted to said carriage on a horizontal pivot, a lazy tongs supported on a vertical rod pivotally mounted in said bracket and means movable relatively to said lazy tongs for supporting a lamp and a spring actuated drum for coun-

terbalancing the weight of said carriage and parts supported thereby.

5. An adjustable lamp support comprising an upright pedestal, a carriage movable vertically thereon, an angularly adjustable bracket secured to said carriage, a lazy tongs supported by said bracket and movable relatively thereto about a vertical axis, a second lazy tongs pivoted to the first named lazy tongs for angular horizontal adjustment, and a yoke adjustably secured to the second named lazy tongs having horizontal pivots for adjustably holding the lamp. 10

In witness whereof, I have hereunto signed my name.

JOSEPH GELB.