Nov. 23, 1948. P. S. ATKINSON 2,454,422

COMBINATION CONTACT PRINTER AND ENLARGER

Filed Dec. 23, 1946 4 Sheets-Sheet 1

Fig. 1.

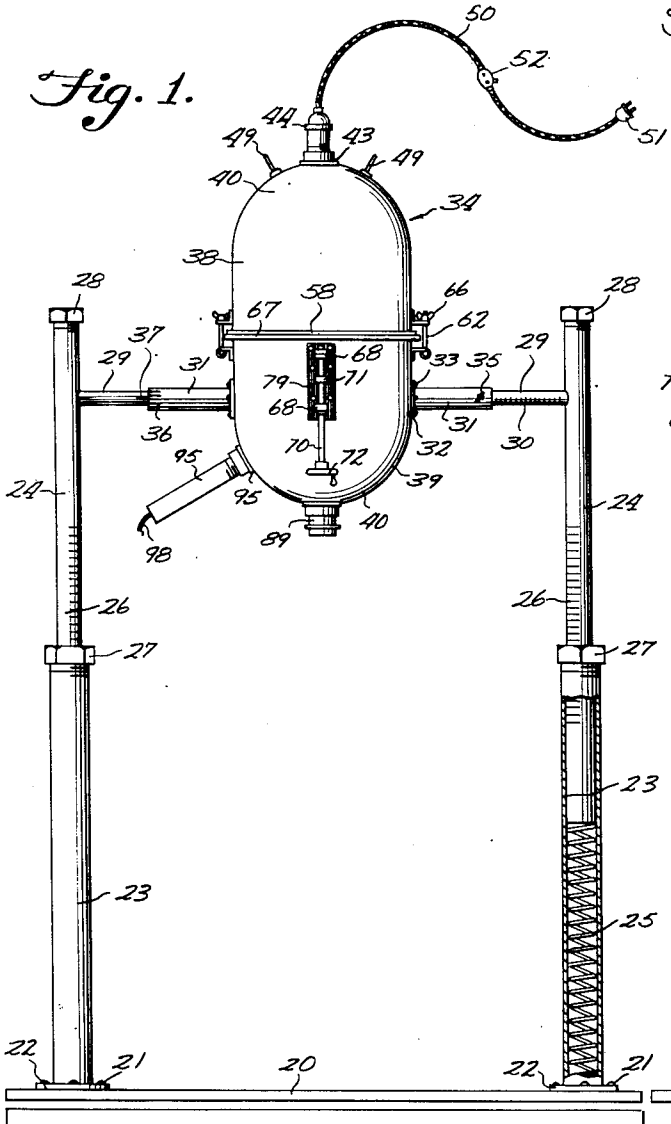
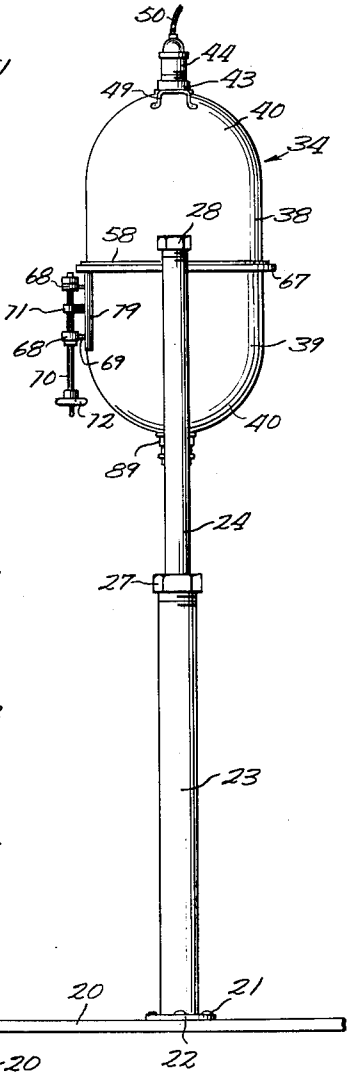


Fig. 2.



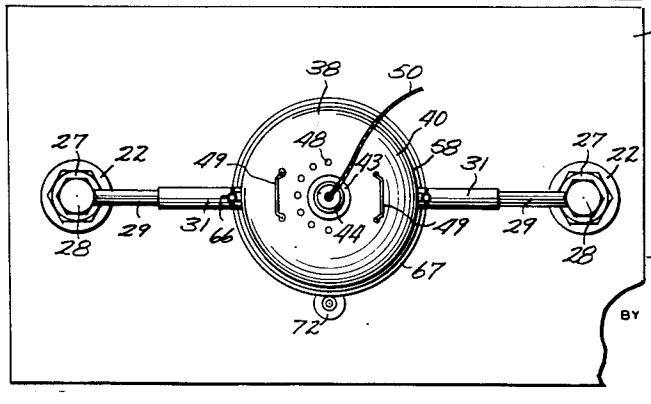


Fig. 3.

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COMBINATION CONTACT PRINTER AND ENLARGER

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Fig. 12.

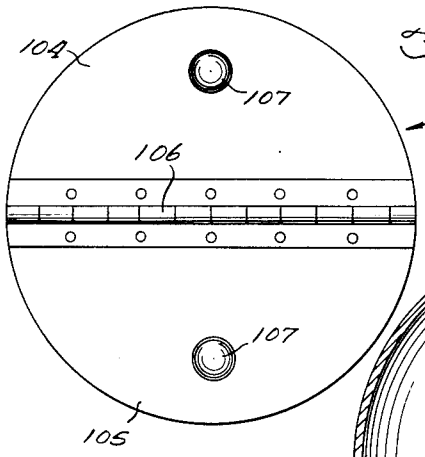


Fig. 4.

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COMBINATION CONTACT PRINTER AND ENLARGER

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Fig. 5.

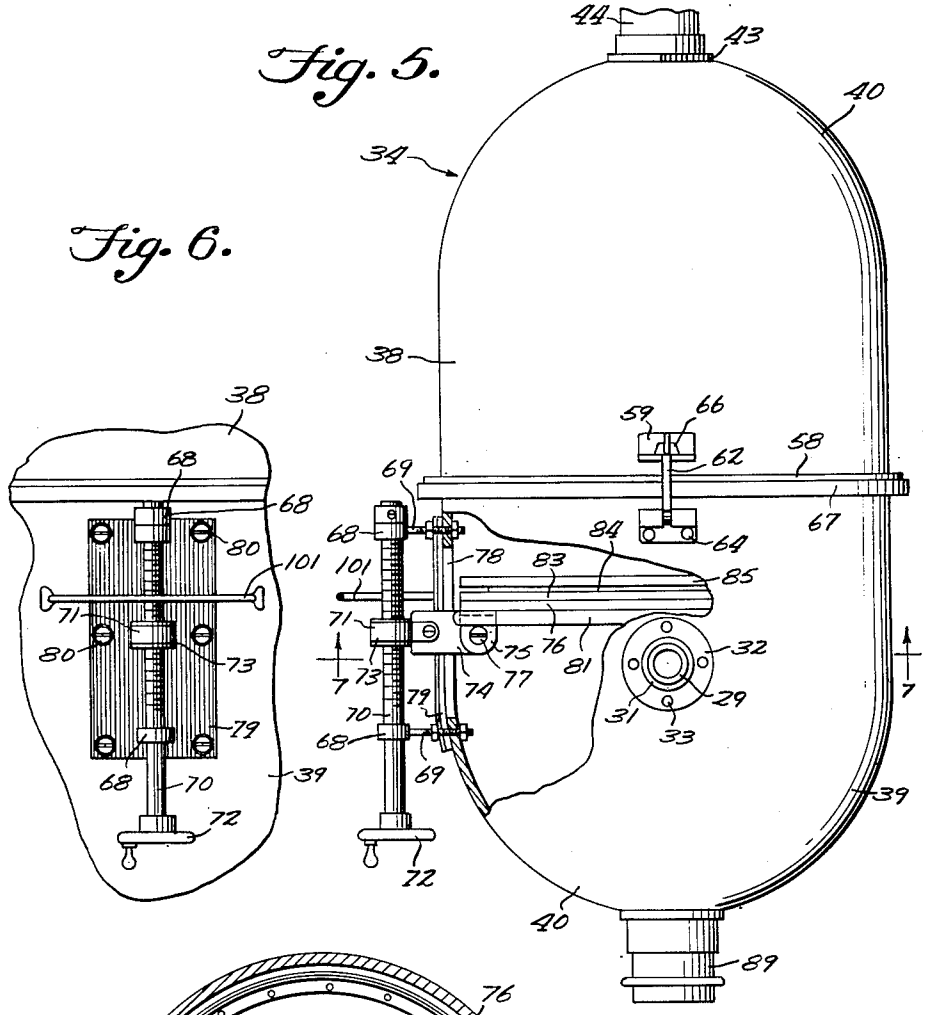


Fig. 6.

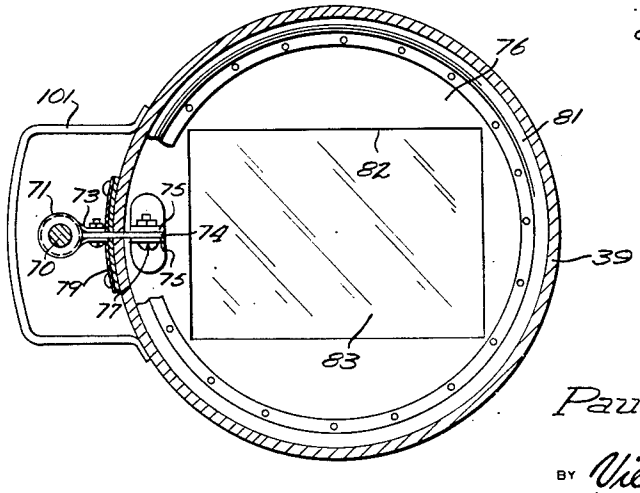


Fig. 7.

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COMBINATION CONTACT PRINTER AND ENLARGER

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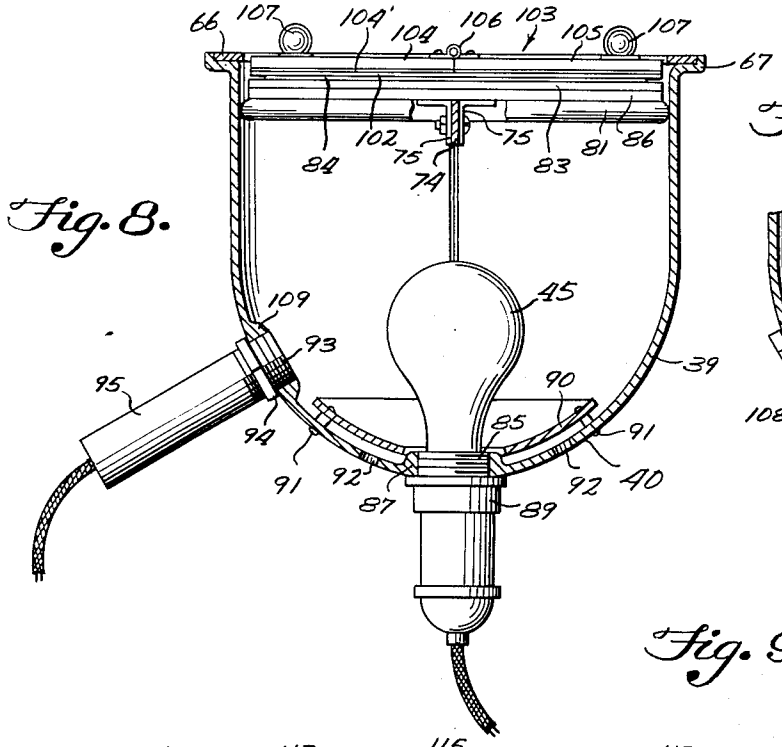


Fig. 8.

Fig. 11

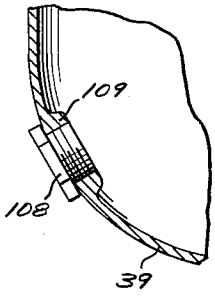
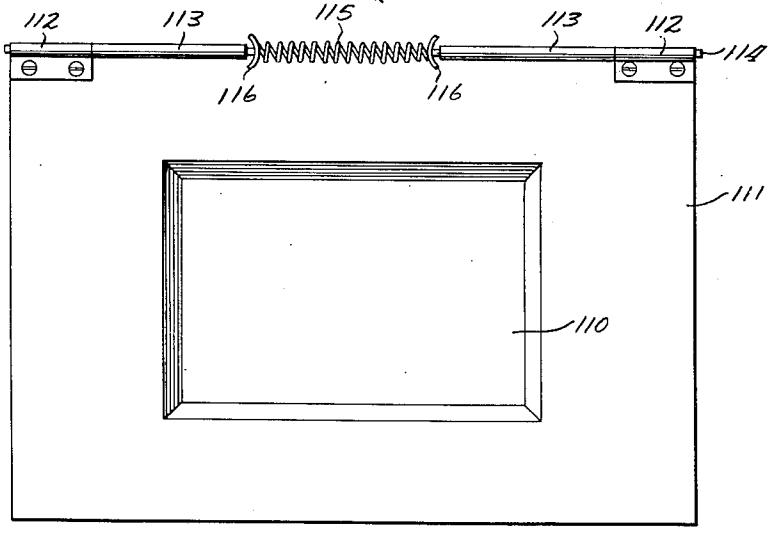


Fig. 9.



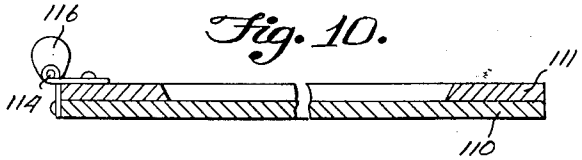


Fig. 10.

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UNITED STATES PATENT OFFICE

2,454,422

COMBINATION CONTACT PRINTER AND ENLARGER

Paul S. Atkinson, New York, N. Y.

Application December 23, 1946, Serial No. 717,873

2 Claims. (Cl. 88—24)

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This invention relates to a combination contact printer and enlarger.

An object of the invention is to provide a device of this character that is possessed of wide adaptability, is simple and sure in operation, and is especially suitable for the purpose for which it has been designed.

Another object of the invention is the provision of a device of this character that has assembled in a single apparatus, the units necessary for printing and reproduction on various and different scales.

Another object of the invention is to provide a device of this character that is susceptible of adjustment in order to handle work of various sizes and proportions.

With the above and other objects in view, the invention consists of the novel details of construction, arrangement and combination of parts more fully hereinafter described, claimed and illustrated in the accompanying drawings in which:

Figure 1 is an elevational view of an embodiment of the invention;

Figure 2 is a side elevational view thereof;

Figure 3 is a top plan view thereof;

Figure 4 is a vertical sectional view of the cylindrical housing of the apparatus;

Figure 5 is an enlarged detailed view of the housing partly broken away and partly in section;

Figure 6 is a fragmentary detailed view of the adjusting means for plate carrier;

Figure 7 is a sectional view on the line 7—7 of Figure 5;

Figure 8 is a cross sectional view of the lower half of the housing;

Figure 9 is a plan view of the enlarging frame;

Figure 10 is a cross sectional view of Figure 9;

Figure 11 is a detailed fragmentary section of a removable plug which is used in the lower half of the housing and

Figure 12 is a top plan view of a hinged pressure plate, as shown in Figure 8.

Referring more in detail to the drawings, the reference numeral 20 designates a rectangular shaped base which may be placed on any suitable support for the operation of the apparatus.

Secured to the base 20 by means of fasteners 21 entering the circular flange 22 on the lower end thereof are the vertical tubular uprights 23, in which are telescopically and slidably inserted the tubular sections 24 and these sections rest on cushion springs 25 mounted within the uprights 23.

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The sections 24 on their lower ends are provided with a scale 26 which coacts with a clamp nut 27 on the upper ends of the uprights 23 to indicate the various heights the sections 24 extend outwardly of the uprights 23, and the nuts 27 will retain the sections in their adjusted positions. Capping nuts 28 are placed on the upper ends of sections 24, and tubular arms 29 having a scale 30 thereon, are joined to the upper ends of the sections 24 at right angles thereto inwardly of the sections 24, in alinement with each other, to be slidably received in the sleeves 31 which are secured by means of a circular flange 32 and fasteners 33 to the cylindrical housing 34, and a set screw 35 will retain the sleeves in adjusted positions on the arms 29. A scale 36 on one of the sleeves 31 coacts with a center mark 37 on the arm 29 coacting with the sleeve 31 on which the scale 36 is located.

The housing 34 is divided into complementary shaped upper and lower sections 38 and 39 respectively, and each section has a domed end 40. The end 40 of the section 38 is provided with a central aperture 41 in which is mounted a threaded nipple 42 secured to the section 38 by nuts 43 inwardly and outwardly of the section, and a socket 44 for a light bulb 45 is carried by the nipple 42. A reflector and ventilator 46 is mounted on the lower end of the nipple 42, and retained thereon by a nut 47 and spaced from the inner surface of the section 38, permits heat within the housing 34 to pass therearound to emit from the circular row of vents 48 in the domed end 40 of the section 38. Outwardly of the vents 48, handles 49 are secured to the outer surface of the domed end 40 of the section 38, to handle the sections during the operation of the apparatus. It will be obvious that a wire 50 will connect the socket 44 to a current source by a plug 51, and a switch 52 in the wire 50 will control the energizing of the bulb 45.

Secured to the inner surface of the section 38 below the bulb 45 is an angle iron shaped ring 53, and held in engagement with the lower surface of the ring 53 by means of a plate 54, retained in place by spring brackets 55 secured to the inner surface of the section 38 is a piece of square shaped frosted glass 56, the shape of the glass allowing ventilation spaces between the outer edges of the glass and the inner surface of the housing. This not only provides ventilation, but also gives better light distribution. The plate 54 is provided with a central square shaped opening 57 which permits illumination from the

bulb 45 to pass through the glass 56, during operation of the apparatus.

The lower open end of the section 38 is provided with an outstanding annular flange 58, and above the flange 58, keepers 59 are secured to the section 38 by fasteners 60 and slotted at 61 to receive the bolts 62 which are hinged at 63 to the brackets 64 secured to the sections 39 by fasteners 65 and a winged nut 66 on each bolt 62 removably secures the sections together with the flange 58 of section 38 resting on the rubber ring 66*a*, positioned in the circular outstanding seat 67 formed on the upper open end of section 39 to form a light tight seal at the meeting points of the sections.

The section 39 is provided with supports 68 which are secured thereto by screws 69 and a screw 70 journalled in these supports carries a travelling nut 71 thereon which is operated by turning the screw 70 by means of hand wheel 72. Mounted on the nut 71 by a hanger 73, is a bracket 74 having the ears 75 of plate 76 pivotally secured thereto by a bolt 77. The bracket 74 passes through a vertical slot 78 in the section 39, and a flexible piece of material 79 secured to the section 39 by fasteners 80 is provided with a slit which covers the bracket 74 and, due to its flexibility, closes the slit therein to provide a tight seal for the slot 78.

The plate 76 has a rubber gasket ring 81 secured to the bottom thereof to provide a further tight seal, and a square shaped opening 82 is provided in the center of the plate 76. The plate 76 supports a glass 83, the negative 84 and the metal pressure plate 85 which is also provided with a square shaped opening 86 in the center thereof.

At the center of the domed end 40 of the section 39 a threaded boss 87 is provided for the enlarging lens and with the lens removed the boss carries the threaded nipple 88 for the socket 89, and a reflector and ventilator 90 surrounds the nipple 88 and is secured in spaced relation to the section 39 by fasteners 91, vent holes 92 being provided in the domed end 40 of the section 39 for the same purpose as the vents 48 in the domed end 40 of the section 38.

Below the arm 31, on one side, a threaded nipple 93 is retained in the section 39 by nuts 94 and a tubular housing 95 mounted on the nipple 93 carries a socket 96 for the amber negative focusing bulb 97, and the socket 96 is connected by a wire 98 and plug 99 to a suitable source of electric current and a switch 100 in the wire 98 controls the energizing of the bulb 97.

A handle 101 secured to section 39 permits movement of the housing 34 as desired.

In Figure 8, the section 38 has been removed so the device can be used as a contact printer and a sheet of sensitized paper 102 is placed on the negative 84 and a hinged pressure plate 103 having a felt lining 104 is placed on the paper. The plate 103 comprises two semi-circular sections 104 and 105 respectively, which are joined by the medial hinge 106, and the knob 107 on each section permits the hinging thereof as desired.

In Figure 11, the housing 95 has been replaced when not in use, by a screw plug 108 which enters the threaded boss 109 formed on section 39.

In Figures 9 and 10, there is shown an enlarger frame that is used in conjunction with the invention, which comprises the base 110 having the frame 111 removably hinged thereto by means of half hinges 112 mounted on the frame 111, and half hinges 113 mounted on the base, separation of the hinges being caused by means of the sectional spring pressed pintle 114 urged outwardly by the spring 115, and moved inwardly by finger pieces 116 mounted on the inner ends of the sectional pintle.

The operation of this device is similar to all combination contact printers and enlargers, but the improvements combined in the structure described are believed to provide a new and useful structure which will carry out the objects of the invention.

It is believed that from the foregoing description, the operation and construction of the invention will be apparent to those skilled in the art, and it is to be understood that changes in the minor details of construction, arrangement and combination of parts may be resorted to, provided they fall within the spirit of the invention and the scope of the appended claims.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In a photographic enlarger, the combination, which comprises, a base having a flat upper surface upon which sensitized paper for enlargements may be positioned, spaced vertically disposed posts extending upward from the base, a vertically disposed housing with dome shaped upper and lower ends, positioned between the posts, said housing separated at a point substantially midway between the ends providing an upper and a lower section with the adjoining ends of the sections formed with outwardly extending flanges, clamping means removably mounting the upper section on the lower section, means supporting the lower section of the housing from the posts, a centrally disposed light socket in the upper end of the upper section of the housing, a reflector carried by said light socket spaced from the housing, an enlarging lens socket in the lower end of the lower section of the housing aligned with the light socket in the upper section, said enlarging lens socket having a threaded inner end for receiving a light bulb, a reflector on the said enlarging lens socket spaced from the housing, said lower section of the housing having a vertically disposed slot in one side thereof, a substantially horizontally disposed frame positioned in the lower section of the housing and spaced from the upper end thereof, said frame having a support extending from one side thereof through the slot in the lower section of the housing, a threaded collar carried by the outer end of the support of the frame, a screw threaded in said collar mounted on the outer surface of the lower section of the housing providing means for vertically adjusting the said frame, a negative-holding plate positioned on said frame, a second light socket provided in the lower section of the housing, a ground glass diffusing plate positioned in the upper section of the housing, and spring clips on the inner surface of the upper section of the housing supporting the said ground glass plate at a point substantially midway of the height of the upper section of the housing.

2. In a photographic enlarger, the combination, which comprises, a base having a flat upper surface upon which sensitized paper for enlargements may be positioned, spaced vertically disposed posts extending upward from the base, a vertically disposed housing with dome shaped upper and lower ends, positioned between the posts, said housing separated at a point substantially midway between the ends providing an upper and a lower section with the adjoining ends of the section formed with outwardly extending

flanges, clamping means removably mounting the upper section on the lower section, said lower section having outwardly extending tubular arms, said posts provided with inwardly extending rods telescoping in the tubular arms of the lower section of the housing providing supporting means therefor, a centrally disposed light socket in the upper end of the upper section of the housing, a reflector carried by said light socket spaced from the housing, an enlarging lens socket in the lower end of the lower section of the housing aligned with the light socket in the upper section, said enlarging lens socket having a threaded inner end for receiving a light bulb, a reflector on the said enlarging lens socket spaced from the housing, said lower section of the housing having a vertically disposed slot in one side thereof, a substantially horizontally disposed frame positioned in the lower section of the housing and spaced from the upper end thereof, said frame having a support extending from one side thereof through the slot in the lower section of the housing, a threaded collar carried by the outer end of the support of the frame, a screw threaded in said collar mounted on the outer surface of the lower section of the housing providing means for vertically adjusting the said frame, a negative-holding plate positioned on said frame, a second light socket provided in the lower section of the housing, a ground glass diffusing plate positioned in the upper section of the housing, and spring clips on the inner surface of the upper section of the housing supporting the said ground glass plate at a point substantially midway of the height of the upper section of the housing.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,075,680	Anderson	Oct. 14, 1913
1,313,815	Hansen	Aug. 18, 1919
1,517,742	Martin	Dec. 2, 1924
1,932,701	Kurze	Oct. 31, 1933