Jan. 9, 1951 R. D. PRICE ET AL 2,537,548

PHOTOGRAPHIC PRINTING APPARATUS

Filed April 14, 1947 2 Sheets-Sheet 1

Fig. 1

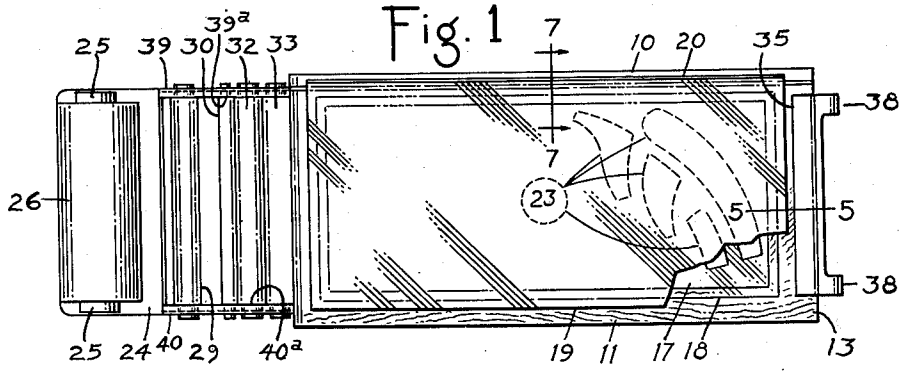


Fig. 2

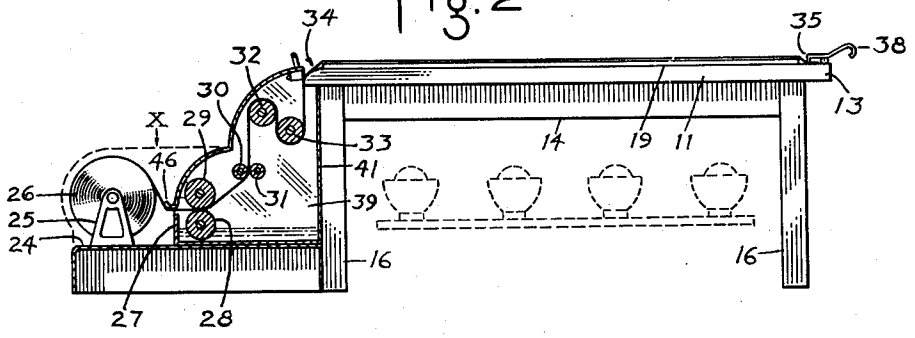


Fig. 3

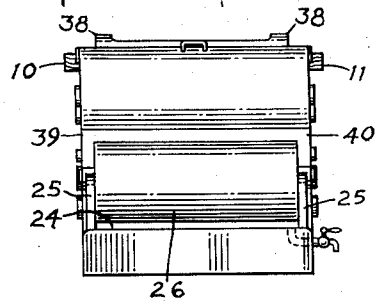
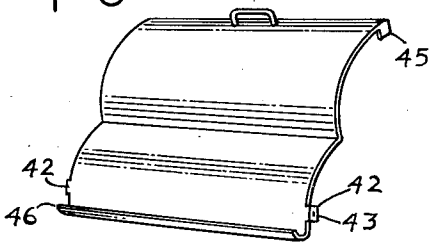


Fig. 4



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PHOTOGRAPHIC PRINTING APPARATUS

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Fig. 5

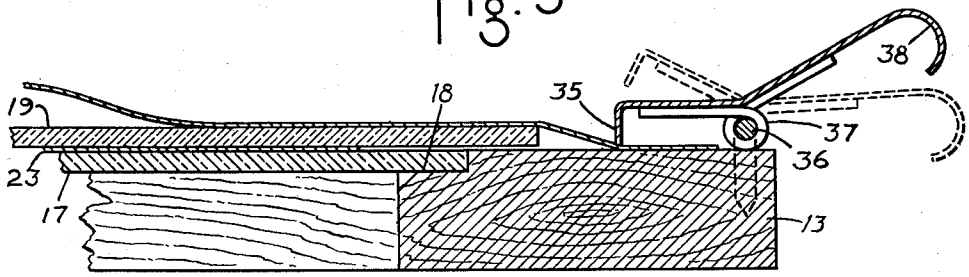


Fig. 6

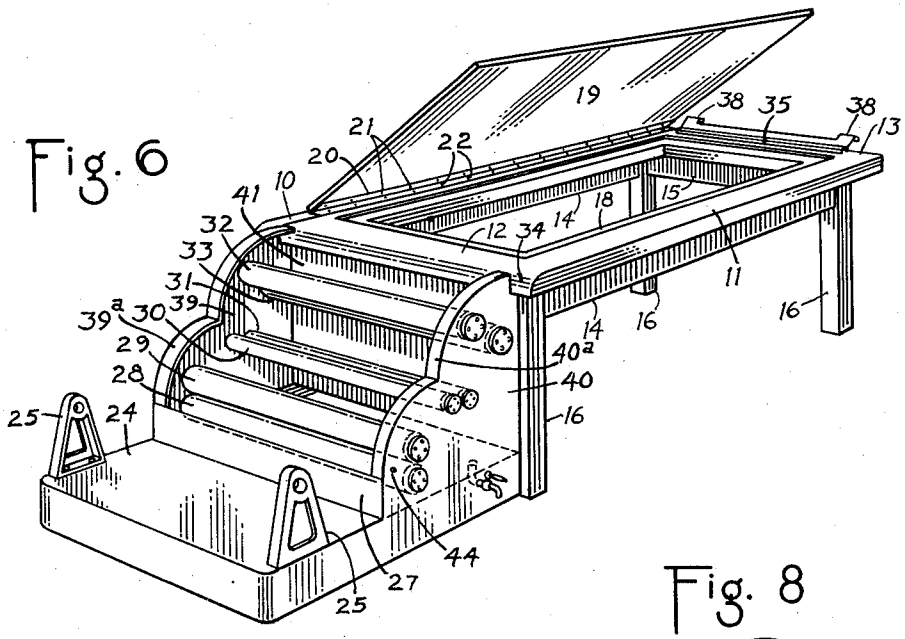


Fig. 8

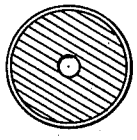
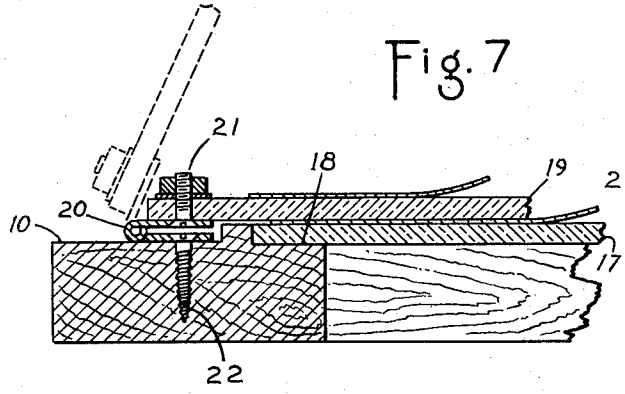


Fig. 7



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Patented Jan. 9, 1951

2,537,548

UNITED STATES PATENT OFFICE

2,537,548

PHOTOGRAPHIC PRINTING APPARATUS

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Application April 14, 1947, Serial No. 741,192

3 Claims. (Cl. 95—75)

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Our invention has for its object to provide a photographic printer for the production of outline copies or silhouettes of flat objects such as pattern templates, or master patterns used in the clothing industry which are laid out in the first instance by the clothing designers, exact copies of which are required for use on the shop cutting tables.

Another object of our invention resides in the provision of a copy holding table on which a set of master designs may be secured, in conjunction with means located at one end of the table for the convenient handling of a continuous supply of paper suitably sensitized to enable lengths thereof to be withdrawn across the table and over the pattern layout so that its photographic surface will record the outlines of the several pattern pieces when exposed to the action of light rays.

Our invention further comprehends a table having a transparent top composed of upper and lower panes of glass between which the template pattern pieces are assembled and held against displacement with means for mounting adjacent thereto a supply of suitable paper together with means for automatically coating its lower side with a light sensitive solution and drying the surface as the paper is drawn forwardly over the table, whereby a fresh photographic area is prepared to receive the silhouette recordings upon successive exposures.

To these and other ends our invention comprises further improvements and advantages as will be further described in the accompanying specification, the novel features thereof being set forth in the appended claims.

In the drawings:

Figure 1 is a plan view of a machine constructed in accordance with our invention.

Figure 2 is a side elevation partly in section to show the paper coating and treating mechanism.

Figure 3 is an elevational view of the left hand end of the machine shown in Fig. 1.

Figure 4 is a perspective view showing the cover for the roll section of the machine.

Figure 5 is an enlarged detail sectional view taken on the line 5—5 of Fig. 1.

Figure 6 is a perspective view of a photographic copying machine embodying our invention.

Figure 7 is an enlarged horizontal sectional view taken on the line 7—7 of Fig. 1, and

Figure 8 is a sectional view of one of the paper guide rolls.

Similar reference numerals, in the several figures, indicate similar parts.

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In the clothing industry the master designers upon originating new designs for suits, dresses and other articles of clothing lay out a series of patterns which others follow in first cutting the cloth and subsequently in producing the finished garments. In the mass production of clothing many copies of the master patterns are required and the reproduction of these has long been a problem in the industry. This has been especially so because of the necessity of accurately following the pattern outline. It has been customary to make duplicates by tracing around the edges of the several pieces and then cutting around the edges of the tracing. This often damages the originals and inaccuracies often occur in the reproduction of other copies and it will be readily appreciated that the design of a garment, or a whole line of garments as they are eventually completed, might materially differ from the master design should one or more original pattern pieces be destroyed by a careless operator and imperfect copies thereof be substituted. Our invention aims to preserve the master patterns and assure the rapid reproduction of exact duplicates by a method we have adopted in conjunction with an apparatus for photographically printing silhouettes of the several patterns which go to make up a single garment, which can be subsequently cut out of the sheet by merely following the outline of the printed picture.

For the accomplishment of the foregoing objects we have designed a printing table having an open rectangular top frame comprising sides 10—11 and ends 12—13 reinforced by the underlying side and end rails 14 and 15 and supported at its corners on legs 16. The opening in the table top is closed by a plate 17 of glass which is firmly held in place by a surrounding molding 18 which may be formed by rabbeting the top of the frame. A glass cover plate 19, which serves as a backing for the plate 17 and cooperates therewith to create a copy holder, is connected to one of the side rails, such as 10, by a piano hinge 20. One leaf of this hinge is permanently connected to the rail by a series of screws 21 while the other leaf is bolted to the edge of the cover glass, as indicated by 22 in Fig. 7. From this arrangement of the parts it will be seen that by opening the cover plate 19, by lifting its free edge, as shown in Fig. 6, a complete layout of master patterns can be arranged on the plate 17. Such a layout is indicated in part in Fig. 1 where certain pattern pieces are designated by 23. These are made of paper which is sufficiently opaque to interrupt the light rays from lamps, which are indicated

generally in dotted lines in Fig. 2. They are in sufficient number and wattage with suitable reflectors and are located far enough away from the layout and cover plates to direct a flood light of substantially parallel rays upon the objects being copied to avoid halation and resultant fringing in the prints. The lamps are, as will be understood, in a circuit which may be momentarily switched on and off.

At one end of the photographic table we locate the paper supply with its sensitizing and drying mechanism all of which is carried on a base **24** adjacent the table legs, having side pieces in which the ends of various rolls are journaled. At the outer edge of the base are a pair of pillars **25** which serve to carry the end of the arbor for a roll **26** of paper. The latter preferably has an inner surface suitably processed to receive a light sensitive coating, or if desired it may be a roll of sensitized paper and a hood, as shown in dotted lines at X, in Fig. 2, said hood being employed to protect the paper against premature exposure. However, for greater convenience in use, in view of the nature of the shops where the apparatus is generally used we have found in practice that satisfactory results can be accomplished by applying the sensitizing material directly to the paper as it is unwound or drawn off the roll.

To this end we mount on the base **24** a tank or tray **27** for holding a suitable chemical solution and in cooperation therewith employ a coating roll **28** across which the paper is drawn beneath a companion presser roll **29**. Located inwardly and above these rolls are a pair of squeezing rolls **30—31** which serve to remove excess moisture and following these are staggered drying rolls **32—33**. The latter preferably have absorbent surfaces and the last roll over which the paper passes is located with its exit edge parallel to and below the proximate end of the table which is rounded, as indicated at **34** to facilitate the movement of the paper thereacross as it is drawn forwardly by pulling its free end.

At the far end of the table there is provided a suitable paper clamp. This we make of sheet metal having a downwardly extending flange **35**, equal in length to the full width of the paper, pivoting it, as indicated at **36**, and operating it into clamping position against the end rail of the table by a spring **37**. Extensions **38** at the ends of the plate facilitate its release as shown in dotted lines in Fig. 5.

The several rolls around which the paper passes are carried in suitable anti-friction journal boxes mounted on the side pieces **39—40** of the base. The latter together with the side pieces and connecting back board **41** are constructed of metal, and form a cabinet which fits against the end of the table. The front of the cabinet is normally closed by a removable cover, shaped as shown in Fig. 4, which fits against the inturned edge flanges *39a—40a* of the side pieces and is latched in place by providing at its lower end ears **42** provided with embossures or dimples **43** which snap over small projections **44** on the side pieces. At its upper end the cover is held in position by downwardly extending ears **45** which fit into recesses at the upper ends of flanges *39a—40a*. The upper extremity of the cover is positioned slightly above the curved edge **34** of the table to permit the free exit of the paper and at its lower end it is curled outwardly, as indicated at **46** and terminates in line with the meeting plane of the rolls **28—29** shortly above the forward edge of the tray **27** and serves as an entrance guide for the paper.

In the operation of the above described apparatus it will be noticed that the passage of the paper around the several rolls in the cabinet places sufficient tension thereon so that when the paper is stretched over the table top and secured by the clamp **35** that it lies in close contact with the cover glass **19** and is thus devoid of wrinkles so that sharp images are reproduced on its sensitized surface. When the momentary exposure to the active rays of the flood lights below the table has been completed the exposed area of the paper is submitted either to a fixing bath, or washed, as the case may be, depending upon the chemical composition of the sensitizing material employed, as will be understood.

It is to be understood that certain changes in the structure and arrangement of the device may be made within the scope of the claims without departing from the spirit of the invention.

Having thus described our invention and what we claim as new and desire to secure by Letters Patent is:

1. A photographic printer comprising a table having an open top frame having a rounded edge at one side, a transparent layout plate for copy subjects spanning the frame opening, a transparent cover plate overlying the first mentioned plate, a hinge connection between the edge of cover plate and table top extending at right angles to said rounded edge, a cabinet in front of the latter located below the top of the table comprising a platform, side walls, a back wall and a removable closure supported on the side walls, a tray for photographic chemicals within the cabinet, a coating roller in the tray and pairs of squeegee and drying rolls journaled in side walls of the cabinet, a support for a roll of paper mounted on said platform exterior of the cabinet said paper having its free end passing from the support through the cabinet in successive engagement with the coating roll, the squeegee and drying rolls, to the rounded edge of the table, and beyond and over the last mentioned transparent cover plate.

2. A photographic printing apparatus for making photographic silhouettes including an open top table, a transparent plate mounted on said table and completely covering the opening therein, a second transparent plate hingedly connected to said table so as to be moved into and out of covering relation with respect to the first named plate whereby an object to be photographed may be received therebetween, a platform secured to said table below the top thereof and extending outwardly therefrom, a pair of spaced standards carried by said platform spaced from said table, a photographic chemical receiving tray mounted on the platform between the standards and the table, spaced mounting means carried by the tray, a coating roll in the tray, a coacting presser roll thereabove, a pair of coacting squeegee rolls and a pair of drying rolls carried by said mounting means respectively between the standards and the proximate edge of the table top, a supply roll of paper mounted between the standards, the free edge of said paper passing successively between the coating and presser rolls, the squeegee rolls and drying rolls and across the uppermost movable transparent plate, and a source of light beneath the first named transparent plate.

3. A photographic printing apparatus for making photographic silhouettes, in accordance with claim 2, wherein the several rolls are mounted so

as to tension the paper passing therebetween and wherein there is means carried by the table top to maintain the free end of the paper in engagement with the top surface of the second named transparent plate during exposure of the paper to the light source.

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