

July 13, 1937.

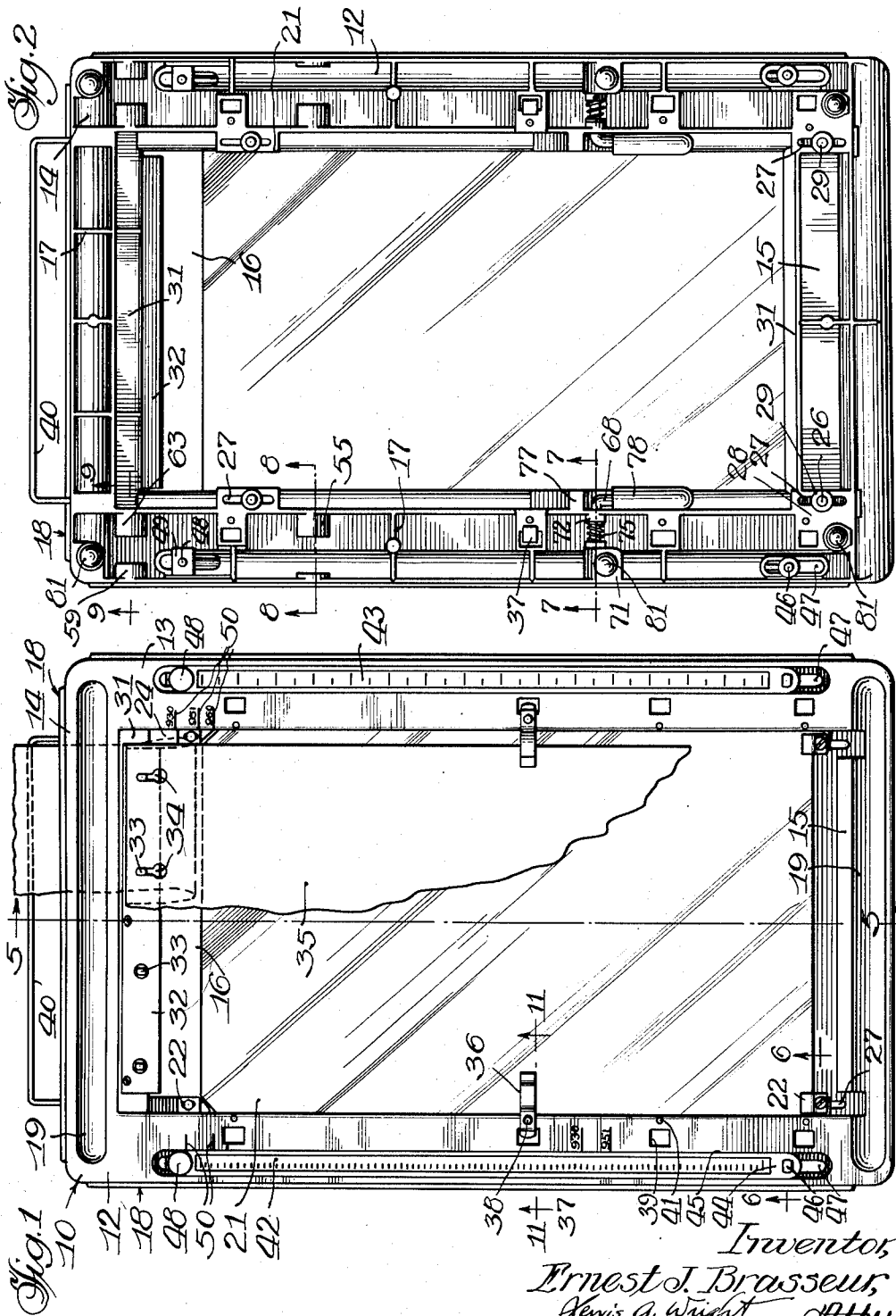
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APPARATUS FOR PREPARING STENCILS

Filed Nov. 20, 1935

2 Sheets-Sheet 1



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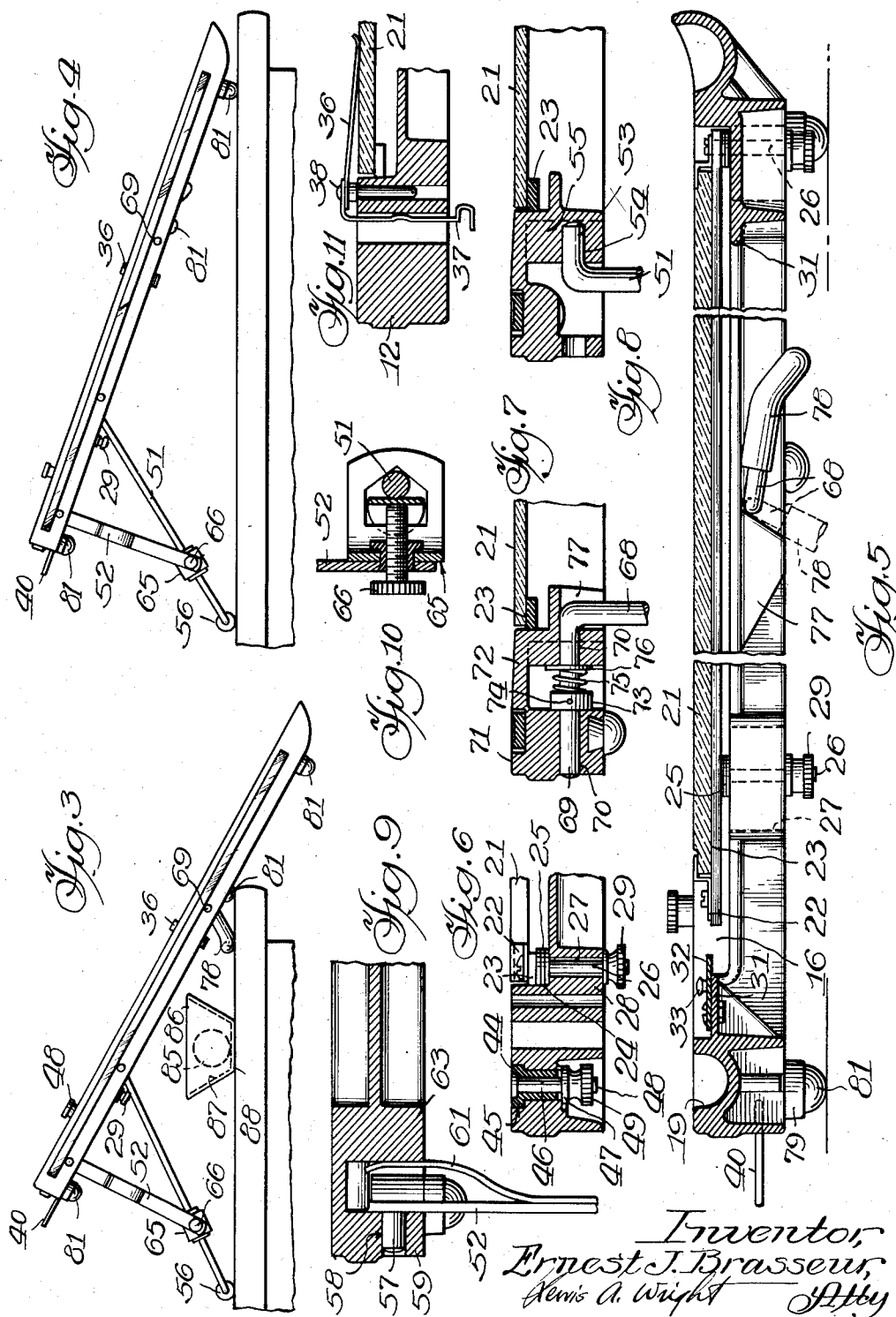
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UNITED STATES PATENT OFFICE

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APPARATUS FOR PREPARING STENCILS

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5 Claims. (Cl. 45—131)

My invention relates to an improved apparatus for making drawings, tracings, or copies of drawings or forms, or other matter to be copied, particularly adapted for making such tracings or copies directly on a stencil sheet which may thereafter be used for the multiple reproduction of the same in a duplicating machine.

My improved apparatus is particularly intended for use in the well known process in which a sheet of paper carrying the drawings or other matter to be copied is placed upon a translucent plate and a stencil sheet of such character that direct light emanating from the opposite side of the plate may penetrate the same is laid upon the drawing. An electric lamp or other suitable source of light is placed beneath the plate and the light coming through the plate, drawing and stencil makes the matter to be copied appear distinctly through the stencil. The drawing to be copied is then traced on the stencil with a stylus or other suitable instrument.

My invention comprises improved apparatus for practicing the process described above and similar processes, and the principal object of the invention consists in the improved construction of such devices.

In my preferred construction I employ an integral frame or bed which may be rested upon a desk, table or any convenient support and on which the glass or other translucent plate is carried. The frame may be adjusted in inclined position, either wholly on the horizontal surface of the support, or across an edge thereof, and the adjustable supporting means may be removed to permit the frame to be laid flat, if desired. Suitable clamping means for the stencil and for the work to be copied is provided, including a button strap for the stencil sheet which is rigidly secured to the frame at the top end thereof.

The stencil sheets now generally employed in the duplication of drawn and written matter are attached to hard paper backing sheets by a suitable adhesive applied along the upper edge of the stencil sheet. The backing sheet projects beyond the upper edge of the stencil sheet to form a stub, which is provided with buttonholes for attaching the stencil to the duplicating machine in the well known manner. These stencil sheets are made in several standard sizes, of different lengths but of the same width, and the standard sizes also differ in the length of the stub portion. Accordingly, the longitudinal distance from the buttonholes to the first stencilizable line on the stencil sheet is different in each of the standard sizes. In the preparation of stencils generally,

and particularly those stencils having matter both typed and drawn, the initial line or uppermost stencilizable line is of major importance, usually determining the entire layout of the stencil. Prior devices for the preparation of stencils by this method have been found unsatisfactory in that only one standard size of stencil sheet could be accommodated on a given device. In some instances this difficulty has necessitated the provision of three or more separate devices.

It is a feature of the present construction that any of the ordinary standard sizes of stencil paper may be interchangeably positioned thereon, and it is another object of my invention to provide apparatus of the character designated in which the plate may be quickly and easily adjusted in the frame to accommodate standard stencil sheets of different sizes, particularly with reference to the upper limit line of the stencil sheet.

The laying out of a stencil which is to contain both typed matter and drawn matter is almost invariably measured from some reference line, which is ordinarily and most conveniently the initial or uppermost stencilizable line on the stencil sheet. As previously pointed out, the position of this line is different for each of the various sizes of stencil sheets, and it is another object of the invention to provide a device having slidable scales which may be readily adjusted to read from the initial line of the particular size of stencil sheet to be used.

Other objects of the invention will appear from the following description taken in connection with the drawings which form a part of this specification and in which;

Fig. 1 is a plan view of the upper side of an apparatus constructed in accordance with my invention;

Fig. 2 is a plan view of the lower side of the device shown in Fig. 1, the supporting legs being removed;

Fig. 3 is a side elevation of the device showing the manner in which it is supported in inclined working position across the edge of a table or desk;

Fig. 4 is a view similar to Fig. 3, showing the device in working position on the top of a table;

Fig. 5 is a longitudinal vertical section taken substantially on the line 5—5 of Fig. 1;

Fig. 6 is a detailed section taken substantially on the line 6—6 of Fig. 1;

Figs. 7, 8 and 9 are detailed sections taken re-

spectively on the lines 7-7, 8-8 and 9-9 of Fig. 2;

Fig. 10 is a detail section through the leg adjusting clamp, and

Fig. 11 is a detail section showing the structure and operation of the sheet retaining clamps, taken substantially on the line 11-11 of Fig. 1.

Referring to the drawings, at 10 is indicated generally an integral frame, preferably molded from suitable composition such as the well known bakelite, having side members 12 and 13, an upper member 14 and a lower member 15, which define a rectangular opening 16. The frame members are in general of channel section, having downwardly disposed flanges as indicated in the drawings, and are suitably webbed as indicated at 17 to provide strength with lightness. The outer side faces 18 of the members 12 and 14 are formed as true planes, arranged at right angles, for co-action with a T-square or with other drawing instruments which may be used in connection with the device. The members 14 and 15 may also be formed, as shown, with grooves 19, in which styli or other drawing instruments may be laid.

A translucent plate 21 of ground glass or other suitable material is carried by the frame 10, being disposed in and extending across the opening 16 thereof to form the working surface on which preparation of a stencil or other desired drafting operation is carried out. The plate 21 is removably secured, as by the corner clips 22, to carrier members or rails 23 slidably mounted in grooves 24 formed in the frame members 12 and 13. Shims or washers 25 of any convenient material may be interposed between the rails 23 and the bottoms of the grooves 24 to adjust the level of the glass to proper relation with respect to the working plane. Adjacent their ends the rails 23 are provided with downwardly projecting posts 26 which extend through slots 27 formed in lugs 28 integral with the side members. Thumb nuts 29 threaded to the posts 26, cooperate with the lugs 28 to clamp the rails 23 in adjusted position longitudinally of the frame.

The end members 14 and 15 of frame 10 are formed with integral webs 31 which extend laterally between the side frame members 12 and 13 and below the level of plate 21, to define the upper and lower limits of the opening 16. The web 31 formed on the lower member 15 is sufficiently wide to underlap the plate 21 in all positions to which the plate may be adjusted, so that direct light from the source of illumination beneath the plate will not shine into the eyes of the operator. A button strap is secured to the upper web 31, having attaching devices such as buttons or studs 33, adapted to cooperate with the usual holes 34 in the stub of the stencil sheet 35 whereby said sheet is attached to the device. The side frame members are also provided with removable spring clips 36 of metal or other suitable material by which the side edges of the stencil sheet, tracing, or other work may be clamped to the plate in working position. In the preferred embodiment as best illustrated in Fig. 11, the clips 36 are formed with tail pieces 37 and pins 38 which enter respectively into square holes 39 and adjacent dowel holes 41, formed in the side frame members, snapping into position in such a manner as to resiliently press the clip portion against the work. As such clips are well known in the art and form no part of my invention further detailed description thereof is unnecessary. Thus in working position, as shown in Fig. 1, the stencil sheet 35 and its associated stub are

stretched on the plate 21 between the studs 33 and the clips 36. The backing sheet, which forms a continuation of the stub may be passed through the opening 16 between the upper edge of plate 21 and the adjacent web 31, its free end being retained by a bail 40 mounted on the upper frame member 14.

To facilitate use of the device in the preparation of work such as the laying out of a stencil which is to include both drawn and typed matter, the side frame members are provided with scales 42 and 43 preferably in different units, which are slidably adjustable longitudinally of the work. As illustrated, the scales are formed on metal strips or bars 44 seated in grooves 45 in the members 12 and 13, and slidably secured therein by stud members 46 adjacent the ends thereof. These stud members project through slots 47 in the bottom of the grooves 45 adjacent the ends thereof, and the stud member 46 at one end of each scale may be in the form of a screw 48 cooperating with a nut 49 to clamp the bar 44 in adjusted position. The scale 42 may be conveniently arranged to correspond to conventional typewriter line spacing and the scale 43 may be in inches and fractions thereof, but it is to be understood that I do not limit my invention to the use of these particular scales.

To further facilitate setting of the scales 42, and 43 and to provide for ready adjustment of the plate 21 so that its upper edge may be quickly set to correspond to the first line of the particular size of stencil sheet being prepared, I provide fixed scales or index marks 50 on the face of the frame members 12 and 13, which may be conveniently marked with a designation of the size of stencil sheet to which they correspond and similar marks may be provided to indicate the lower limits for the various stencil sizes.

In normal use the device is supported in inclined position, as illustrated in Figs. 3 and 4, by means of removable legs 51 and struts 52, associated with each of the side frame members 12 and 13. Each of the legs 51 is provided at its upper end with an in-turned portion 53, adapted to seat in a hole 54 formed in a lug 55 on the under side of the frame, as best shown in Fig. 8. The lower end of the leg 51 is provided with a cushion member 56, of rubber or other suitable material adapted to rest on the table on which the device is mounted, and the lower ends of the legs may be connected by a cross brace if desired. A strut 52 co-operates with each of the legs 51, and is provided at its upper end with a pin 57 adapted to seat in a hole 58 formed in a lug 59 on the under side of the frame member, as shown in Fig. 9. A leaf spring 61 is secured to the strut 52 and engages the side of a lug 63 disposed opposite to the lug 59. Pressure of the spring 61 urges the pin 57 into its hole 58 to retain the strut 52 in connected position. By pressing the spring and strut together the pin may be withdrawn from its hole to remove the strut from the frame.

The lower end of the strut 52 is provided with a bracket 65 through which the leg 51 passes and which may be clamped to the leg as by means of the thumb screw 66. In this way the relation of the strut 52 to its corresponding leg 51 may be varied to adjust the inclination of the device in accordance with the convenience of the user.

Means is also provided by which the device may be rested across the edge of a table or other support in a position to facilitate work on the upper portion of the stencil. Such means includes a

pair of legs 68 secured to the side members of frame 10 intermediate the lugs 55 and the lower edge of the device. The upper end of each leg 68 is provided with an out-turned portion 69 extending through a pair of aligned holes 70 in spaced lugs 71 and 72 on the under sides of the frame members 12 and 13, as best shown in Fig. 7. Between the lugs 71 and 72 a collar 73 is attached to the leg portion 69 in any convenient way, as by a pin 74, and a spring 75 surrounds the portion 69 between the collar 73 and a washer 76. This washer engages the face of the lug 72, providing a friction device to prevent free swinging of the leg 68. The frame members 12 and 13 are also provided with lugs 77 which engage and support the legs 68 when in use. The table engaging portions of the legs 68 may be covered with cushioning friction material 78 of any suitable material, such as rubber.

The frame 10 is also provided on its lower face adjacent the corners, and also preferably adjacent the legs 68, with lugs 79 adapted to carry cushioning feet 81 of rubber or other suitable material, on which the device may be supported in flat position upon the removal of the legs 51 and the struts 52. In this position the legs 68 are folded back against the frame 10 as shown in full lines in Fig. 5.

For use in the making of tracings a suitable source of light may be placed beneath the frame 10 in the well known manner. In the preferred form, as shown in Fig. 3, this comprises an ordinary electric lamp 85 mounted in a frame 86 and operatively connected to a suitable source of electric current, not shown. The frame 86 is partially polygonal in section and is provided on its interior with reflecting faces 87. The backs of the faces 87 are flat supporting surfaces 88, so that by turning the frame to rest on different surfaces the intensity of the illumination may be varied in any desired portion of the field, as the user may desire.

It will be evident that my improved apparatus provides a strong and rigid device which may be quickly and easily adjusted for rapid and efficient preparation of stencils from stencil sheets of any of the various standard sizes. By adjusting the upper edge of the supporting plate to the initial line of the particular standard sheet to be used, as determined by the indicia 50, and by setting the zero marks of scales 42 and 43 to the same mark, the operator may rapidly lay out drawings and tracings on a stencil which is to be later typed, without errors in spacing or waste of stencil surface.

It will also be apparent that the operator may easily adjust the inclination of the device and its position with respect to the supporting table to suit his convenience and the particular part of the stencil on which he is working. By simply removing the legs and struts, the apparatus

may be laid flat, either for carrying or for work in this position, in which case it is used as a drafting board. The retractable legs 78 are quickly folded out of the way when the device is used in this manner.

While I have herein described in some detail a specific embodiment of my invention, which I deem to be new and advantageous and may specifically claim, I do not desire it to be understood that my invention is limited to the exact details of the construction, as it will be apparent that changes may be made therein without departing from the spirit or scope of my invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. In an apparatus for preparing stencils having a rectangular frame defining an opening, carrier members slidably mounted on said frame, a translucent plate secured to said carrier members and extending across said opening to support the stencil, and means to adjustably clamp said carrier members to the frame whereby the plate may be positioned for stencil sheets of different dimensions.

2. In an apparatus for preparing stencils, an integral frame defining an opening, a translucent stencil support adjustably mounted on said frame disposed across said opening, and web members integral with the frame and extending laterally of said opening at the top and bottom thereof adapted to underlap the stencil support in all adjusted positions thereof.

3. In an apparatus for preparing stencils, an integral frame defining a rectangular opening and including side members having slots, carrier members slidably mounted on said side members, posts on said carrier members projecting through said slots, a stencil support secured to the carrier members and extending across the opening, and clamping means associated with said posts to adjustably secure the stencil support to the frame.

4. In an apparatus for preparing stencils, a frame defining a rectangular opening, a stencil support extending across said opening, carrier members for said stencil support slidably adjustable on the frame, means to adjust the level of the stencil support with respect to the carrier members, and means for clamping the carrier members to the frame adapted to position said level adjusting means.

5. In an apparatus for preparing stencils, a frame defining an opening, a translucent stencil support disposed across said opening and adjustably movable on said frame to accommodate stencil sheets of different sizes, and a scale member adapted to assist the layout of matter to be stenciled on the stencil sheet slidably secured to said frame independently of the stencil support and adjustable in cooperation with said support to facilitate work on stencil sheets of different sizes.

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