

A. B. DICK.
 APPARATUS FOR COPYING DRAWINGS.
 APPLICATION FILED DEC. 6, 1915.

1,177,936.

Patented Apr. 4, 1916.
 2 SHEETS—SHEET 1.

Fig. 1,

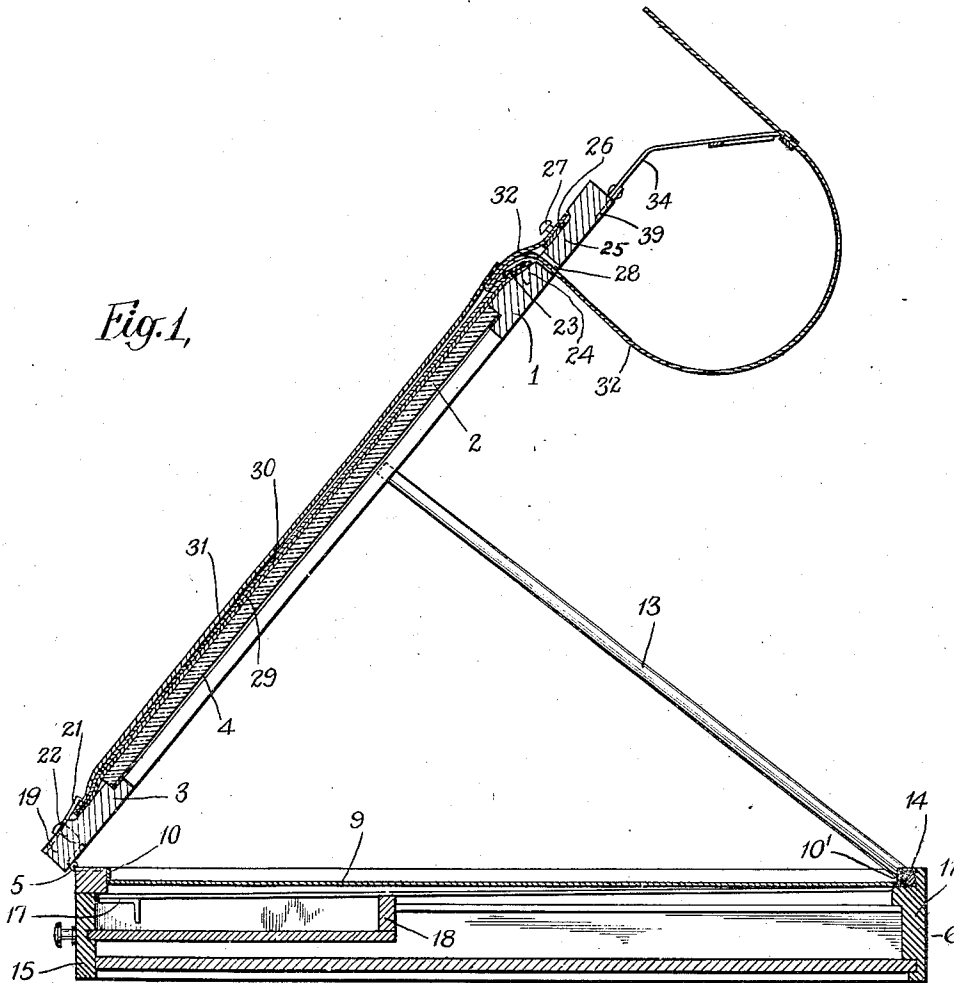
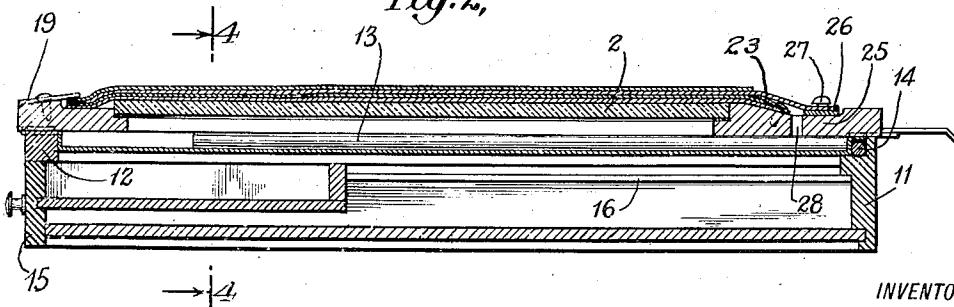


Fig. 2,

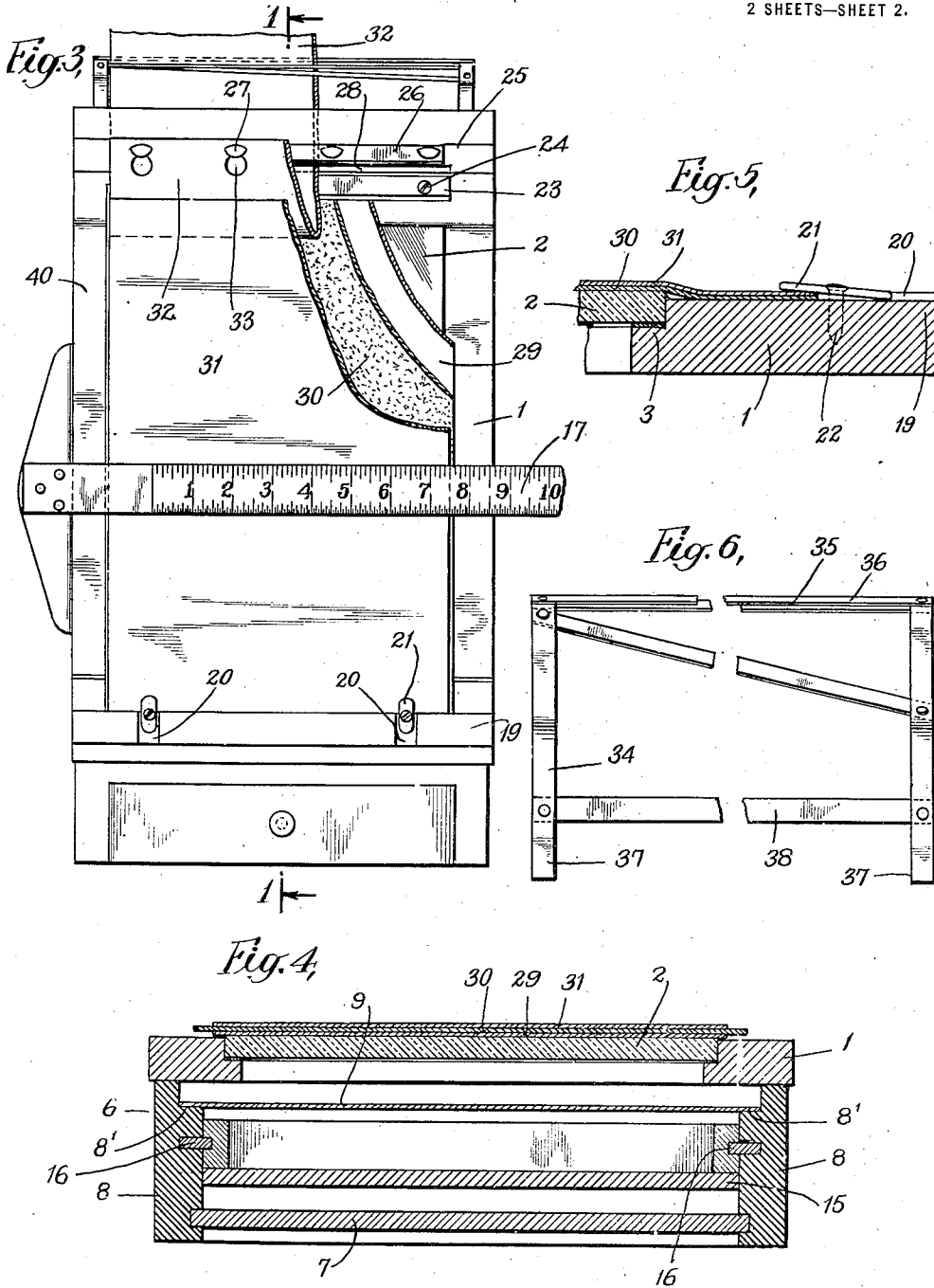


INVENTOR
Albert B. Dick
 BY *J. O. Edwards*
 ATTORNEY

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UNITED STATES PATENT OFFICE.

ALBERT B. DICK, OF LAKE FOREST, ILLINOIS, ASSIGNOR TO A. B. DICK COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

APPARATUS FOR COPYING DRAWINGS.

1,177,936.

Specification of Letters Patent.

Patented Apr. 4, 1916.

Application filed December 6, 1915. Serial No. 65,200.

To all whom it may concern:

Be it known that I, ALBERT B. DICK, a citizen of the United States, residing at Lake Forest, in the county of Lake and State of Illinois, have invented certain new and useful Improvements in Apparatus for Copying Drawings, of which the following is a specification.

My invention relates to an improved apparatus for making 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 present invention is somewhat similar to that disclosed and claimed in my Patent No. 1,163,647, apparatus for drawing on stencils, granted Dec. 14, 1915. In the patent referred to a stand is provided in which an electric lamp or the like is supported, the stand having a transparent table top which is mounted to revolve about the axis of the standard at the will of the operator. In my present invention the pane of glass or like transparent material is carried by a member which is pivoted at one end to the top of a horizontal supporting frame, against which the pane-carrying member is adapted to seat as a cover, when in inoperative position. A supporting arm is pivoted at the rear of the supporting frame, this arm being adapted to support the pane-carrying member in inclined operative position, or to be positioned out of the way underneath the pane-carrying member when the latter is in closed or inoperative position. The pane-carrying member is provided with suitable clamping means so that a sheet of paper carrying a drawing or the like to be copied may be clamped above the pane of glass, with a stencil-sheet, or medium on which the tracing or the copy is to be made.

In operation a paper sheet carrying the drawing or the like to be copied is clamped above the transparent pane with a stencil-sheet, which is usually the stencil-sheet of a composite stencil having a backing-sheet, secured above the sheet of paper. The pane-carrying member or cover being opened and positioned at the desired inclination by means of the supporting arm, may be so held that light, either natural or artificial,

will shine through the pane of glass, and the drawing and stencil superposed upon the same. Preferably the drawing to be copied and the stencil-sheet are secured at their lower ends by clamps positioned adjacent the lower end of the pane, and the upper end of the drawing is similarly clamped above the upper end of the pane. The upper end of the stencil is provided with the usual button-holes, which are secured over the buttons of a stencil button-bar, or equivalent device, positioned on the frame somewhat above the clamping means last referred to. The frame is provided with a transverse slot between the buttons and the upper paper clamp, the backing-sheet of the stencil being extended through this slot to get the same out of the way. In the preferred construction, a light frame is removably secured to the upper end of the pane-carrying member, and the backing-sheet is looped or secured over this frame, the frame preferably being provided with a transverse slit through which the backing-sheet may be passed to frictionally hold the same.

The objects of my invention are to provide improved devices of the character referred to, other objects of my invention residing in the construction of parts and combinations of elements hereafter more fully described and subsequently claimed.

In order that a clearer understanding of my invention may be had attention is hereby directed to the accompanying drawings forming part of this application and illustrating preferred embodiments thereof.

In the drawings Figure 1 represents a vertical section taken on line 1, 1 of Fig. 3, the pane-carrying member being in open or operative position, Fig. 2 is a section taken on the same line, the pane-carrying member being shown in closed position, Fig. 3 is a front elevation of the device opened, Fig. 4 is a transverse view taken on line 4-4 of Fig. 2, Fig. 5 is a sectional detail showing the lower paper clamping means, and Fig. 6 is a top plan view of the removable frame for supporting the stencil backing sheet.

Referring to the drawings the member 1 carries the rectangular pane 2 of glass or other suitable transparent material, the pane resting on shoulders 3 of frame 1, with a suitable pad 4 of felt or the like interposed.

Member 1 is hinged, as is shown at 5, to the base, or supporting frame 6. The supporting frame 6 is preferably in the form of a box having the bottom 7, side walls 8, 8, and a top 9, which preferably is formed of a sheet of metal having upwardly extending flanges 10, 10' at its front and back ends respectively. Sheet 9 rests on shoulders 8', 8' formed on the side members 8 of the frame 6 and the rear end of sheet 9 may rest on a corresponding shoulder of the back member 11 of frame 6 as shown. The side members 8, 8, the back member 11 and the front member 12 extend upwardly above the sheet 9 a distance equal to or slightly greater than the height of the flanges 10, 10' of sheet 9, forming vertical flanges against which the hinged member 1 seats when the latter is in closed position, as is shown in Fig. 2.

The support for pivoted member 1 comprises an arm 13 which preferably takes the form of a U-shaped rod, the base portion of which, as is shown at 14, being rotatably secured beneath flange 10' upon rear member 11 of support 6. The two arms of the pivoted support 13 extend forwardly at each end of flange 10' and are adapted to be swung upwardly to support member 1 in inclined position, as is shown in Fig. 1. For this purpose the side portions of pivoted member 1 are provided on their under sides with a pair or pairs of alined openings, in any pair of which the ends of arms 13 may be inserted to support member 1 at a desired angle. When the device is out of use, arms 13 may be swung into their inoperative position shown in Fig. 2, in which the same lie on sheet 9, just inside the top flanges of side members 8, 8 of the member 6. In this position arms 13 are out of the way between sheet 9 and member 1, the latter resting above arms 13 on the edge flanges of frame 6 referred to.

Preferably, the support or base member 6 is provided with a sliding drawer 15 slidably mounted on tracks 16 extending inwardly from the side members 8 of the support. The styluses, etc., to be used in tracing or drawing on the stencil may be kept in this drawer and a T square 17 may also be placed therein, as shown in Fig. 1, with the arm of the T square extending over the rear end member 18 of the drawer 15, the sheet 9 being spaced sufficiently above the top of the drawer as shown to permit the positioning of the T square in this manner.

The front or lower transverse member 19 of pivoted member 1 is provided with shallow vertical slots 20 in which are mounted a pair of clamps 21 adapted to overlie the lower edges of the paper sheet carrying the drawing to be copied and the stencil. Clamps 21 may be held in any suitable manner to permit their adjustment as by means of the screws 22. An upper clamp for the

upper end of the drawing may take the form of a transverse bar 23 which may be positioned preferably as shown in Fig. 1, being adjustably secured by screws 24 or the like. A transverse portion 25 of frame 1 above the clamp 23 is preferably formed of somewhat less height than the portion of the frame in which the pane 2 is carried, portion 25 having secured thereto a stencil button-bar 26 extending transversely across member 1 and provided with upwardly extending buttons 27 adapted to be inserted through the usual button-holes of a stencil to secure the stencil in position. A transverse slot 28 extends through member 1 between clamping plate 23 and stencil button-bar 26.

In operation the sheet of paper 29, carrying the drawing or other matter to be traced or copied, is laid upon the pane 2 and preferably a sheet 30 of celluloid having a slightly roughened upper surface is laid upon sheet 29. The use of the roughened transparent sheet 30 is not essential to my invention, but the same has been found useful in many instances, in that, *inter alia*, the same will retain moisture, which is necessary when stencil-sheets are used of the type which is normally dry but hygroscopic and requires to be softened by the application of moisture before being stenciled.

The stencil-sheet 31 is placed above the paper sheet 29 and above the intermediate sheet 30, if the latter is used. The stencil-sheet 31 is represented as being secured at its end, as by mucilage, to a backing-sheet 32, which backing-sheet is usually formed of hard impervious paper. Backing-sheet 32 is provided with the usual button-holes 33, whereby the stencil-sheet may be secured to the button-bar of the usual stencil-duplicating machine, after the stencil has been prepared and is to be used in the making of duplicate copies.

In my preferred device a removable frame 34 is secured to the upper end of pivoted member 1. This frame is preferably made of light metal bent into the form shown in Fig. 6, with an inclined transverse slit 35 formed between a pair of transverse members 36, 36 at the top of the frame. While frame 34 may be secured to member 1 in any suitable manner, it is preferably formed with its side members extending downwardly as shown at 37, 37, below the cross piece 38 of the frame, extensions 37, 37 being adapted to be inserted in corresponding longitudinal slots 39 at the upper end of member 1, extensions 37 being slidably retained in these slots with cross member 38 resting upon the top or rear edge of member 1.

In operation as stated paper sheet 29, intermediate sheet 30, if the same is used, and stencil-sheet 31 are laid in superposition above pane 2, the upper end of paper sheet

29 and of intermediate sheet 30, if the same is used, being secured by the upper clamp 23, and the upper end of the stencil being secured by inserting buttons 27 through the button-holes 33 of the stencil. The backing-sheet 32 is folded back, as is shown in Fig. 1, and passed downwardly through slot 28, and then extended through slit 35 of the frame 34, to get the backing-sheet out of the way. The paper sheet, intermediate sheet and stencil sheet are then drawn taut and secured at the bottom by clamps 21. The member 1 now being raised and supported in a desired inclined position by arms 13 is moved so that strong sunlight or artificial light will shine through the pane 2 and the sheets 29, 30 and 31, so that the drawing on sheet 29 will be clearly visible on the stencil-sheet, whereupon the desired drawing may be made with suitable instruments on the stencil-sheet. For this purpose the left hand side member 40 and the bottom member 19 of member 1 are preferably squared so that the T square 17 may be used in connection with either the side edge or the bottom edge of member 1. The sheet 9 may be silvered or otherwise given a reflecting surface, if desired, to act as a reflector, to aid in passing light through the pane. The paper sheet 29 need not be secured at the bottom by clamps 22, as stated, if it is not long enough to reach to that point. In that case sheet 29 will be held firmly in position by flexible writing sheet 30, and the stencil-sheet, clamped above it.

It should be understood that my invention is not strictly limited to the exact details of construction described, but is as broad as is indicated by the appended claims.

Having now particularly described my invention, what I claim and desire to protect by Letters Patent is as follows:—

1. In apparatus of the character described, the combination of a horizontal supporting frame having upstanding marginal flanges, a member pivoted to the front end thereof, and adapted to seat against said flanges when closed, said member being provided with a pane of transparent material, and means for clamping sheets in superposition over said pane, and an arm pivoted inside the rear flange of said frame, adapted to support said member in inclined position when open, said arm being adapted to rest on the inner side of a side flange of said frame, beneath said member, when

said member is closed, substantially as set forth.

2. In apparatus of the character described, the combination of a member having a pane of transparent material therein, clamping means at one end adapted to secure a paper sheet and the stencil-sheet of a composite stencil, in superposition, over said pane, clamping means adjacent the opposite end of said member, adapted to secure the opposite end of the paper sheet, and stencil buttons extending upwardly from said member, nearer said last-named end than said second clamping means, said buttons being adapted to extend through button-holes in the end of the stencil, and said member having a slit therethrough, parallel to and between said buttons and said second clamping means adapted to have the backing-sheet of said composite stencil said backing-sheet, substantially as set forth.

3. In apparatus of the character described, the combination of a member having a pane of transparent material therein, clamping means at opposite ends adapted to secure a paper sheet, and the stencil-sheet of a composite stencil, with said stencil-sheet above said paper sheet above said pane, and a frame extending from one end of said member, said member having a slit therethrough, adapted to have the backing-sheet of said stencil extend therethrough, and said frame being adapted to support said backing-sheet, substantially as set forth.

4. In apparatus of the character described, the combination of a member having a pane of transparent material therein, clamping means at opposite ends adapted to secure a paper sheet, and the stencil-sheet of a composite stencil, with said stencil sheet above said paper sheet above said pane, said member having a transverse slot therethrough, adjacent one end, and frame-holding means, at said end; and a frame removably mounted in said frame-holding means extending beyond said end, and having a slit in its outer end, said transverse slot and slit being adapted to have the backing-sheet of the stencil extend therethrough, substantially as set forth.

This specification signed and witnessed this 2 day of December, 1915.

ALBERT B. DICK.

Witnesses:

M. H. BURKART,

R. R. HARRINGTON.

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It is hereby certified that in Letters Patent No. 1,177,936, granted April 4, 1916, upon the application of Albert B. Dick, of Lake Forest, Illinois, for an improvement in "Apparatus for Copying Drawings," an error appears in the printed specification requiring correction as follows: Page 3, line 78, claim 2, for the words "said backing-sheet" read *extend therethrough*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 25th day of April, A. D., 1916.

[SEAL.]

J. T. NEWTON,

Cl. 35—12.

Acting Commissioner of Patents.