

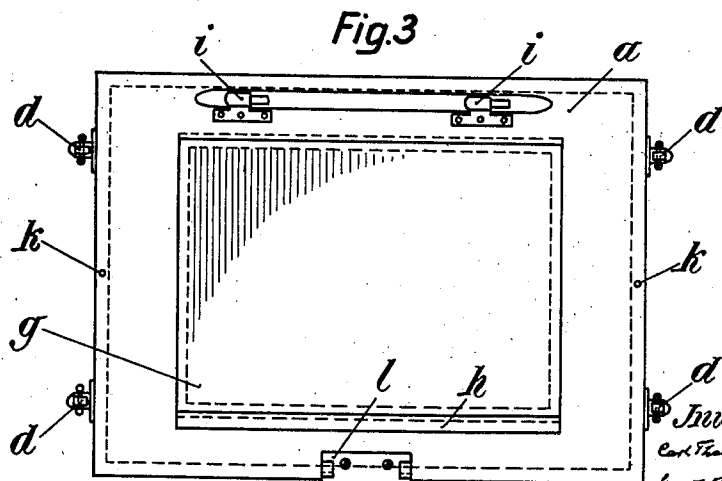
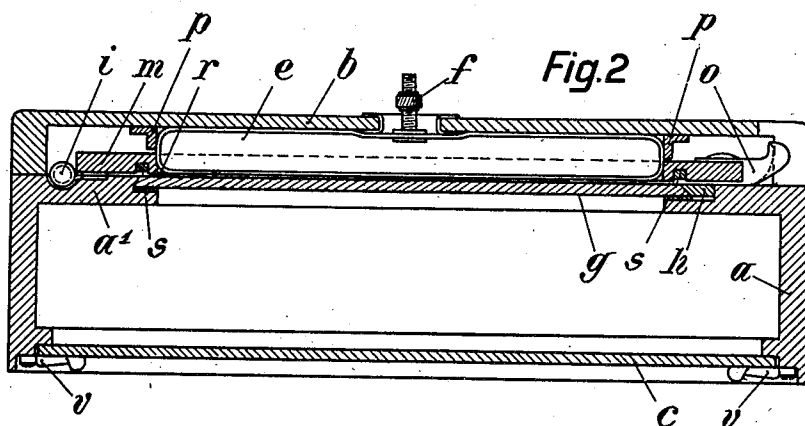
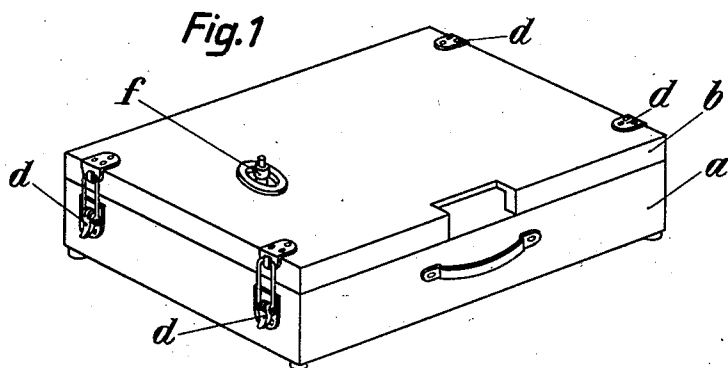
Aug. 1, 1933.

C. T. PASTOR
PRINTING APPARATUS

1,920,429

Filed Aug. 4, 1931

2 Sheets-Sheet 1



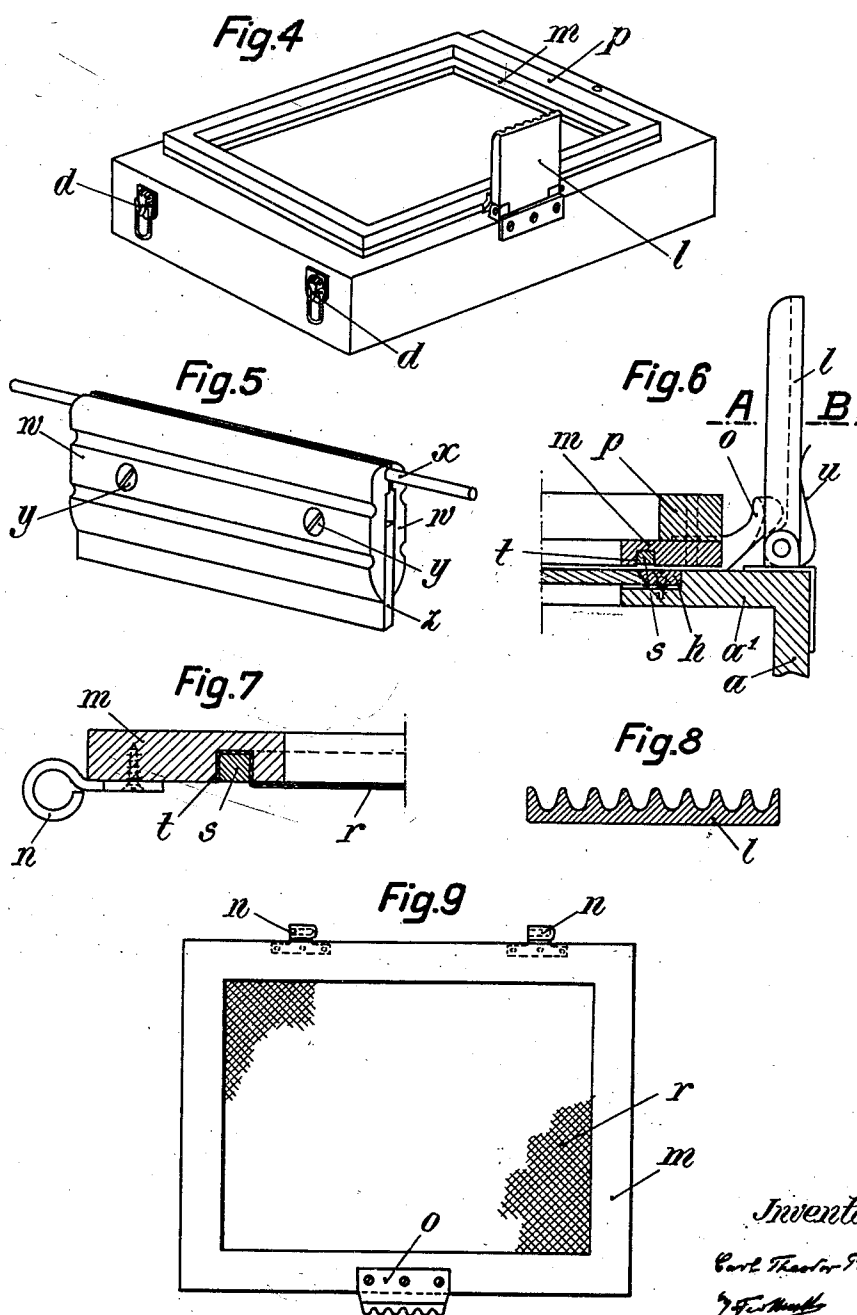
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Inventor:
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UNITED STATES PATENT OFFICE

1,920,429

PRINTING APPARATUS

Carl Theodor Pastor, Krefeld, Germany

Application August 4, 1931, Serial No. 554,979,
and in Germany June 21, 1930

2 Claims. (Cl. 101—126)

It is known in connection with multicolor printing apparatus to print superposed part pictures by means of part stencils which have been produced with special devices and to obtain registering of the next following part picture with the previous production by right angular guiding of the part stencils over a printing table.

According to the invention it is possible to produce in one and the same apparatus part sieve stencils of sensitized gauze and also single or multicolored printed or traced products formed of part sieve stencils.

The invention consists in that a plurality of frames with sensitized gauze covering of cloth, hair or metal fabric belong to a box with transparent work plate and adapted to be closed with a lid. These frames can be attached for the purpose of exposure or stirring of the ink or the like alternately on the work plate so that they can be swung up by means of guide elements adapted to bring the frame into a position inclined at an angle or pressed on by means of a pressure exerting medium, exchangeably accommodated in the box lid above the frame.

An embodiment of the invention is illustrated by way of example in the accompanying drawings in which:

Fig. 1 shows the closed apparatus in perspective view.

Fig. 2 is a cross section through the apparatus on a larger scale.

Fig. 3 is a top plan view of the open box, without printing frame.

Fig. 4 is a perspective view of the box with printing frame attached by an angle piece.

Figs. 5, 6, 7 and 8 show details.

Fig. 9 is a top plan view of a printing frame.

A box *a* closable at the bottom by a removable bottom plate *c*; pressed on by a catch *v*, is covered at the top by a transparent work plate *g*, which rests in grooves of a rigidly mounted cover plate *a'*, having a window, so that it forms a top surface together with the box cover plate *a'*. The work plate *g* engages on its longitudinal sides in dove tail fashion in the cover plate *a'* and is removably fixed by a clamping bar *h*, which, whilst engaging over a chamfered longitudinal edge of the work plate *g*, is fixed by screws in a widened groove of the cover plate *a'*. A box-shaped lid *b* above the plate *g*, is removably connected to the box *a* by spring locks *d*.

A plurality of frames *m* is supplied with each box *a*. These frames are covered with sensitized gauze *r* of cloth, hair or metal fabric, stretched

over their bearing surface and adapted to be placed singly over the work plate *g*, so that the frame actually mounted on the box can be folded back and removed in lateral direction. A hinge on which the frame can swing, is formed parallel to the rear edge of the work plate by pins *i*, arranged above a groove in the box *a*, and engaging in sleeves *n* fitted on the rear edge of the frame *m*. The gauze stretched on the frame faces the work plate and it can be oscillated and folded back in the same angle together with the frame. In folded back position the frame *m* engages by means of a comb *o* projecting from its front edge for the purpose of obtaining a reliable guiding in all positions in a fold back grooved guide *l* pressed against the comb *o* by a pressure spring *u*. The gauze *r* is fastened on the frame *m* by battens *s* of wood, vulcanized fibre or the like, which expand on being moistened and enable to stretch the gauze in the plane of the bearing surface of the frame. The expansible battens *s*, which may be of any suitable cross section, are loosely clamped together with the four ends of the gauze in dry condition into grooves *t* of the frame *m* and then moistened so that the already stretched gauze is further stretched.

If it is desired to produce a multicolor print with the aid of the box, a number of frames *m* corresponding to that of the number of colors required for the colored picture, are stretched with gauze *r* and this gauze is light sensitized in a suitable manner and the sieve stencils are produced therefrom. The drawing copy for each sieve stencil, made on opaque paper or the like having the thickness of the fittings *o* and *n* projecting beyond the frame *m*, (said copy being not shown) is placed in semi-darkness on the work plate *g*, and the frame *m* placed thereover so that the gauze lies directly on the copy. The pressure means is then placed on the rear side of the gauze *r* and the box lid *b* thereover, which lid is fixed on the box by means of the spring fastenings *d*. The pressing of the gauze on to the work plate *g* is effected by a deflated rubber cushion placed between the gauze and the lid *b* and adapted to be inflated from the exterior by means of a valve *f*, extending through the lid *b*. In order for the rubber cushion *e* to exert its full effect, a frame *p* is provided either on the lid *b* or on the printing frame *m* laterally limiting the expansibility of the rubber cushion with the printing frame *m*. The box *a*, after the removal of its bottom plate, is placed so that its transparent work plate *g* is directed towards the

sun or a source of artificial light, and the gauze *r* is thus exposed through the copy. After a sufficient exposure the frame *m* is removed from the box and washed out in semi-darkness, the rubber cushion having been previously deflated and the lid *b* removed. Only the portion exposed through the copy dissolves from the gauze, and a sieve, having a contour corresponding to this copy, is obtained. After the sieve stencil has dried, it can be subjected to the action of the light and used for reproduction. All the sieve stencils required for the multicolor printing are produced successively in the manner described, whereupon any desired number of multicolor prints can be obtained therewith.

Multicolor prints are produced by making part prints and preferably all copies of a part picture are produced consecutively and dried. The second part picture is printed over the first and so on, until all part pictures have been printed the one on the other whereby the finished multicolor picture is obtained. The production of a multicolor print is effected without rubber cushion *e* and without box cover *b*. The cardboard, fabric or the like, on which the multicolor picture is to be printed, is placed on the work plate *g* which now serves as printing table and the sieve stencil is placed thereon and adjusted by means of the guides *i*, *n*, *o*, *l*. The desired color ink is then applied on the rear side of the stencil and is pressed through the meshes onto the printing support, not shown in the drawings. The pressing through of the colored ink is effected by a rubbing movement and carried out by a scraper (Fig. 5), which is formed of a rubber plate *z* clamped between two plates *w* forming a handle, so that the rubber plate slightly projects from

the lower end of the plates *w* which are held together by screws *y* and hold in a groove a rod *x*, projecting at both sides and serving for facilitating the guiding of the scraper.

If it is desired, to produce heliographic copies by means of the sieve stencils, the sensitized paper is placed between the work plate and the sieve stencil and exposed through the sieve stencil. During the exposure the bottom plate *c* can therefore remain in the box, whereas the rubber cushion *e* and the box lid *b* must be removed.

The apparatus is arranged so that it can be easily carried, and all the accessory parts are accommodated in the lower portion of the closed box.

I claim:

1. A printing apparatus for mono- and multicolor printing, in which the colored picture is produced by part sieve stencils printed superposed, comprising in combination a box, a lid adapted to close said box, a transparent work plate in said box, frames adapted to be singly inserted in said box, a gauze covering each frame, guide elements adapted to automatically adjust and secure said frame to said work plate, and to allow said frame to fall back on said work plate, and pressure means accommodated in said lid over said frame adapted to exert pressure on said frame.

2. A printing apparatus as specified in claim 1, comprising in combination with the lid, an inflatable rubber cushion in said lid, and an air valve extending from said rubber cushion through said lid.

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