

June 27, 1944.

J. T. COCHRAN

2,352,518

PRINTING CUT AND METHOD OF MAKING IT

Filed Sept. 30, 1940

2 Sheets-Sheet 1

Fig. 1.

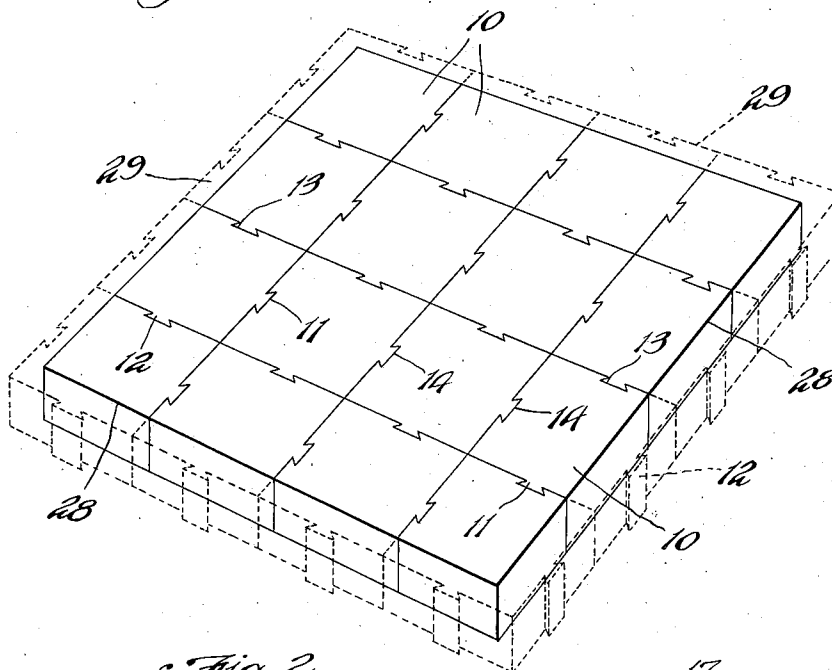


Fig. 2.

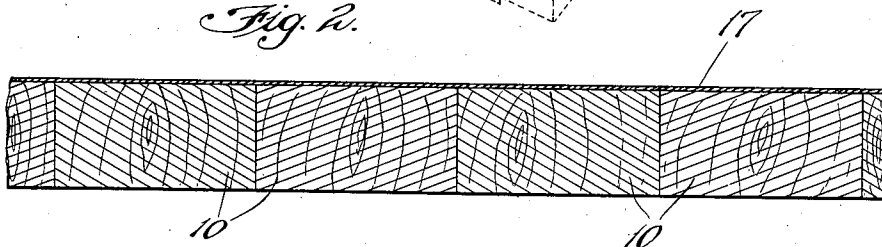
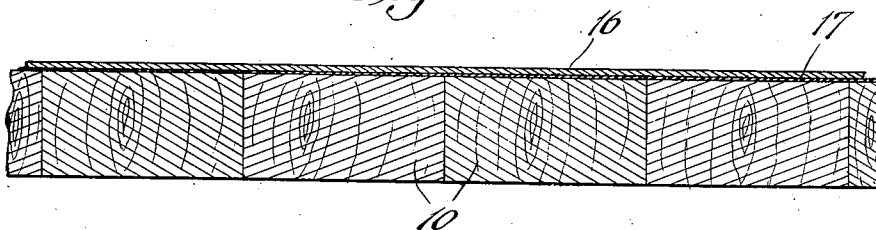


Fig. 3.



INVENTOR:
Joseph T. Cochran
BY *Kent W. Wonnell*
attly.

June 27, 1944.

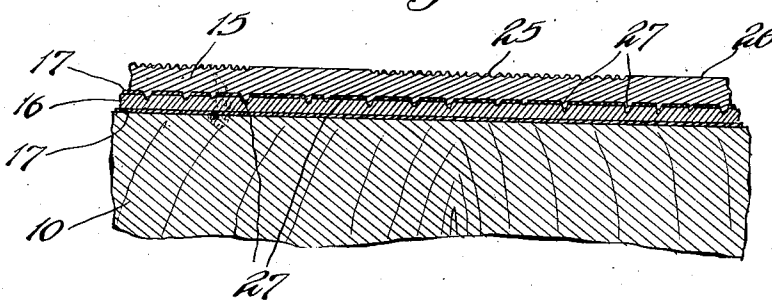
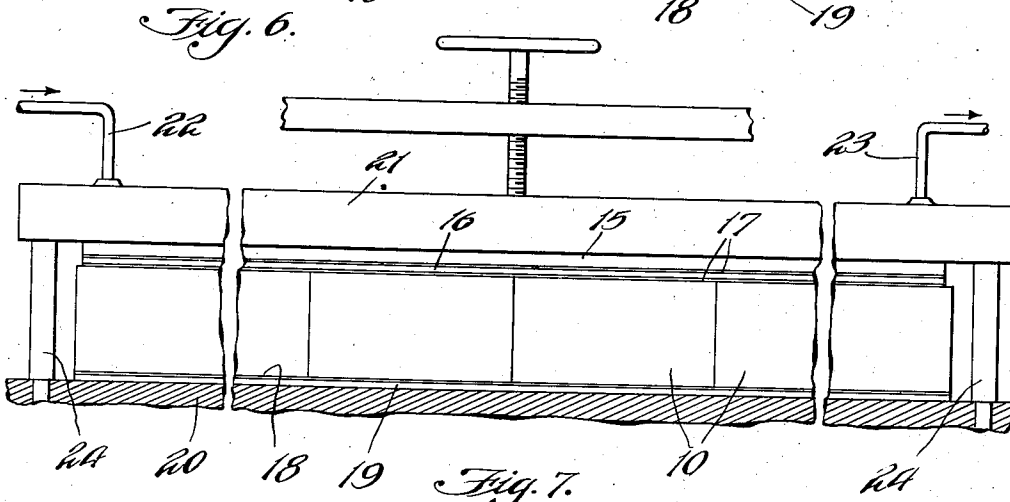
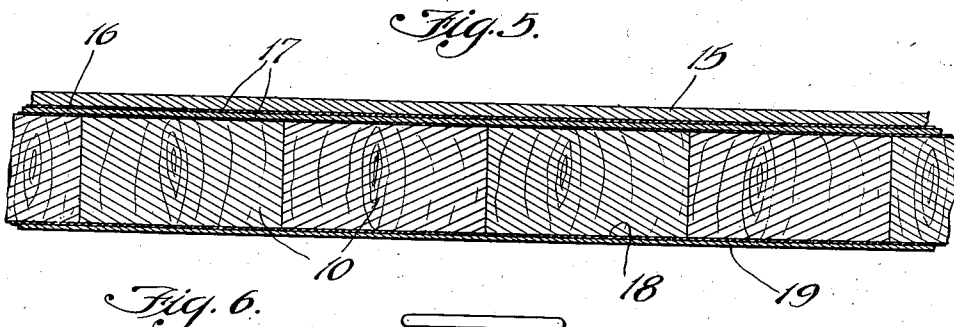
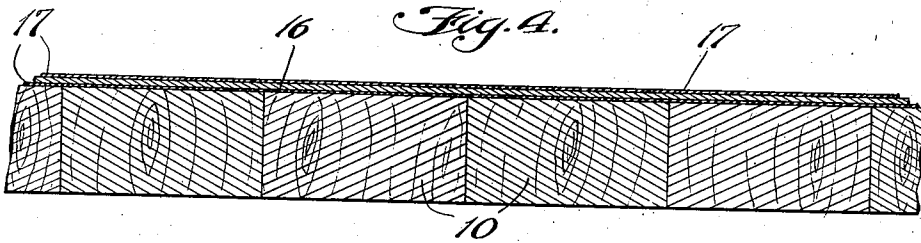
J. T. COCHRAN

2,352,518

PRINTING CUT AND METHOD OF MAKING IT

Filed Sept. 30, 1940

2 Sheets-Sheet 2



INVENTOR:
Joseph T. Cochran
BY Kent W. Wonnell
Att'y.

UNITED STATES PATENT OFFICE

2,352,518

PRINTING CUT AND METHOD OF MAKING IT

Joseph T. Cochran, Chicago, Ill.

Application September 30, 1940, Serial No. 359,032

3 Claims. (Cl. 101—395)

This invention relates in general to a printing cut having a sectional flexible conforming backing which prevents warping and is type high requiring no make ready.

An important object of the invention is in the provision of a sectional block backing in which the grain of the block, if made of wood, is perpendicular to the line of printing pressure so that the backing is relatively non-compressible.

A further object of the invention is in the provision of a backing, comprising a plurality of interengaged connections which together form a somewhat flexible mat, variable in size, but relatively incompressible and rigid when attached to a printing plate.

A still further object of the invention is to connect a printing plate or film to a somewhat flexible blocking material by means of a thermo-plastic material which takes up the inequalities of the back of the plate and also transforms the flexible backing blocks into a relatively solid non-warping back which is of the proper height for correct printing when subjected to pressure which eliminates make ready.

A still further object of the invention is in the method of making a printing cut by uniting a printing plate or film to a flexible sectional block base by means of a thermo-plastic material under heat and pressure which unites the sections into a solid flexible base and permanently connects the printing plate thereto ready for use.

Other objects of the invention will appear in the specification and will be apparent from the accompanying drawings in which

Fig. 1 is a perspective of a sectional block base in accordance with the invention;

Fig. 2 is a sectional view of a number of block units to which a plastic or adhesive coating has been applied;

Fig. 3 is a view similar to Fig. 2, showing the application of a thermo-plastic coating or layer;

Fig. 4 is a similar view showing the addition of an adhesive layer;

Fig. 5 is a similar view illustrating the addition of a printing plate and a thermo-plastic and adhesive layer at the bottom of the block section;

Fig. 6 is a somewhat diagrammatic view showing the application of heat and pressure to the assembly shown in Fig. 5 for producing a complete printing cut; and

Fig. 7 is an enlarged sectional view illustrating the penetration of inequalities at the back of a printing plate into the thermo-plastic coating due to the application of heat and pressure.

In the making of printing cuts, it is customary to provide a printing plate of heavy metal with a wood or other backing which is made exactly type high. Large cuts, in particular, become uneven or are easily warped.

The present invention overcomes these objections by providing a sectional block base for

printing cut in which the grain of the units is at right angles to the printing thrust to prevent undue compression, the edges of the units or sections being interengaged for uniting them into a common mat which is more-or-less flexible and conforming for application to the back of a thin printing plate which is united thereto by means of a thermo-plastic layer placed under heat and pressure to produce a compact unitary printing cut pressed under barriers exactly type high, thus making it incompressible and non-warping and therefore requiring little or no make ready due to the conforming block units.

Referring now more particularly to the drawings, a plurality of blocks 10 are shown more clearly in Fig. 1, each of regular size, a little less than type high, and having the grain, if made of wood, running from top to bottom, that is, perpendicular to the printing surface so that there will be the greatest opposition to any compression of the block in the printing direction. Each block is provided at its edges with opposite tongues 11 and 12 and recesses 13 and 14, the edges preferably dovetail or angularly undercut so that adjacent blocks will slip readily together into a regular pattern. The alternate tongues and recesses 11, 13, and 12 and 14 may be at different distances from their intermediate corners in order to insure that the blocks or units are fitted together in a predetermined pattern or arrangement.

As commonly produced, the blocks fit or slide easily together forming a somewhat flexible mat of inflexible sections, the different blocks or units sliding freely with respect to each other so that they conform easily to a common surface or plane upon which they are placed.

A number of the blocks or units 10 are assembled in this manner, forming a flexible jointed mat of the desired size and a printing plate 15 is applied to the upper surface by means of interposed layer 16 of thermo-plastic material usually in the form of a thin plastic impregnated paper or felt sheet. A layer or coating of adhesive 17 may first be applied to the top of the blocks, the layer 16 applied thereto, and another layer of adhesive 17 placed on top of the layer 16 to which the under surface of the printing plate 15 is then applied. Before subjecting the assembly of the plate and backing to heat and pressure, an adhesive coat 18 may be applied to the bottom surface of the block backing and the thermo-plastic layer 19, similar to the layer 17 is applied at the bottom of the cut assembly.

As thus assembled, the cut is placed in a press having a relatively fixed base 20 and a movable top 21 which is represented as hollow and heated by a flow of steam or the like through an inlet pipe 22 and an outlet pipe 23 with suitable gauges 24 to limit the compression of the cut assembly

while subjected to heat and pressure to a printing cut which is exactly type high.

Any inaccuracies of the backing blocks, the plate or any of the other parts is thus taken up by the thermo-plastic layer and the sectional blocks are sealed tightly together to provide a non-warping and practically incompressible plate backing which is coated both on top and at the bottom by an impervious layer which prevents warping and distortion of the block even though subjected to rough usage.

In an actual mounting of a printing plate as represented in enlarged detail in Fig. 7, the plate is represented as having a printing surface which may consist of highlight and shadow portions 25 and 26 with various points and projections 27 at the under side or back thereof. As pressure is applied, these points or projections are caused to penetrate through the upper layer 17 of adhesive and into the thermo-plastic layer 16 in which they become embedded, thus taking up any roughness or any qualities on the underside of the plate, leaving the printing surface thereof smooth and with the printing surfaces all in a common plane. The contact of the underside of the plate with the thermo-plastic layer may be distorted in various ways other than as represented in Fig. 7, the essential feature of which is that the layer is of sufficient thickness to take up the points or projections of the underside of the plate and to make a firm and lasting contact therewith, embedding the projections and uniting the plate to the upper side of the sectional block mat. The underside of the block sections are similarly united and any unevenness is smoothed or leveled by the application of the thermo-plastic bottom layer thereto.

When a cut has been made in this manner, the edges of the block backing which project beyond the edges of the printing plate applied thereto, may be trimmed therefrom in any suitable manner, the outer line 28 of the backing as shown in Fig. 1 representing the trimmed edge thereof from the full section of the connected block units, the outer edges of which are represented by the broken outline 29.

With this construction, the backing may be fitted to the plate either before the plate is fastened thereto or the backing may be trimmed after the plate is attached by the method above described. In either way, a backing of the proper or approximate size is quickly supplied for and easily applied to a plate of any size, and after the printing plate is applied, it adheres tightly to the backing without requiring any fastening nails which frequently distort the edges of the printing cut making it unfit for use.

I claim:

1. The combination with a printing plate member, of a backing therefor comprising a plurality of block sections having interengaging portions and inter-connected loosely together to form a somewhat flexible but relatively incompressible mat, and means for sealing the member to the tops of the sections and uniting them into a comparatively rigid non-warping base.

2. The combination with a printing plate, of a backing therefor comprising a plurality of separate blocks, the blocks having interengaging portions by which they are loosely assembled in a flexible mat which may be varied in size and shape and a thermo-plastic layer uniting the back of the plate and the blocks at their tops to form a relatively rigid printing cut.

3. The combination with a thin printing plate, of a sectional backing therefor comprising a plurality of block units, interengaging portions at the edges of the blocks for assembling them in a loose flexible mat, a thermo-plastic layer between the plate and backing, adhesive means securing the plate, layer and backing together, and another covering layer attached to the rear of the backing and firmly connecting the sections thereof.

4. In a printing cut, a thin printing plate with uneven projections at the under side, a sectional block backing, interengaging means at the edges of the blocks for loosely and flexibly assembling them, and a connecting pressure adhesive layer between the plate and block with the plate projections imbedded in said layer leaving the printing face in a common plane.

5. In a printing cut, a printing plate with printing projections in a common plane on the outer face and uneven projections on the under face, a flexible loosely interengaging and connected sectional block backing, an adhesive thermo-plastic layer connecting the plate and backing, the said uneven projections imbedded in the layers to unite the blocks and plate into a solid rigid cut.

6. The method of making printing cuts with a printing plate, which comprises assembling a plurality of base blocks of a combined area as great or greater than the area of the plate, interengaging the edges of the blocks to form a flexible mat of the size and shape desired, and applying an adhesive layer between the back of the plate and the surface of the blocks to bind them together and provide a rigid backing for the plate.

7. The method of making printing cuts with a thin printing plate having uneven projections on the back, comprising the assembling of a flexible mat of loosely interengaged backing block units to cover the back of the plate, in interposing a plastic hardening layer between the faces of the block units and the back of the plate, and in applying pressure to embed the projections in the layer and to secure the block units thereto in a common rigid base.

8. The method of making printing cuts with a thin printing plate having uneven back projections, which comprises assembling a flexible back mat of loosely interengaged separate blocks as large or larger than the plate, in interposing a layer of thermo-plastic material between the back of the plate and the tops of the blocks, and in subjecting this assembly to heat and pressure to embed the projections in the layer and to rigidly connect the blocks in a common base of proper height therefor.

9. The method of making printing cuts with a thin printing plate which has uneven back projections, which comprises assembling and loosely interengaging a plurality of backing block units sufficient to cover the back of the plate, interposing an adhesive and a thermo-plastic layer between the tops of the units and the back of the plate, in subjecting the plate and blocks with said layer therebetween to heat and pressure between predetermined gauges to embed the projections in the layer and to unite the units into a solid base, and in applying a bottom cover to the backing units to seal the spaces between the units.

JOSEPH T. COCHRAN.