Jan. 19, 1932. F. G. SCHRANZ 1,842,209

STEAM PLATEN

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Fig. 1.

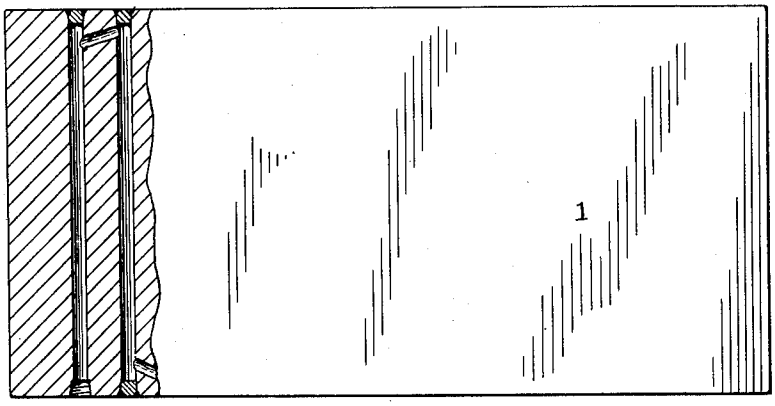


Fig. 2.

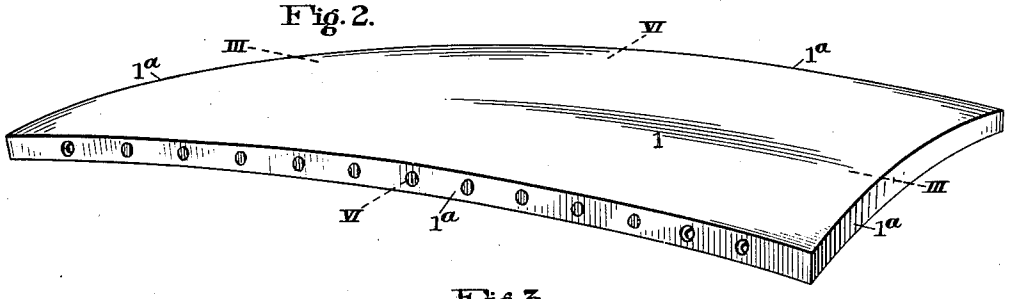


Fig. 3.

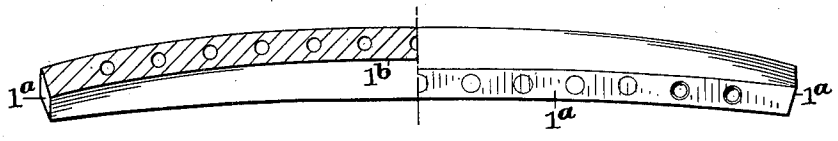
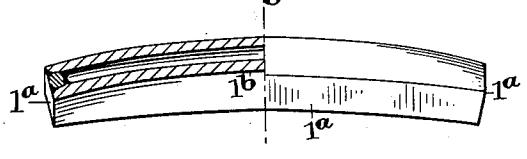


Fig. 4.



INVENTOR:

F. G. Schranz,

by Murray C. Boyer

Atty.

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Fig. 5.

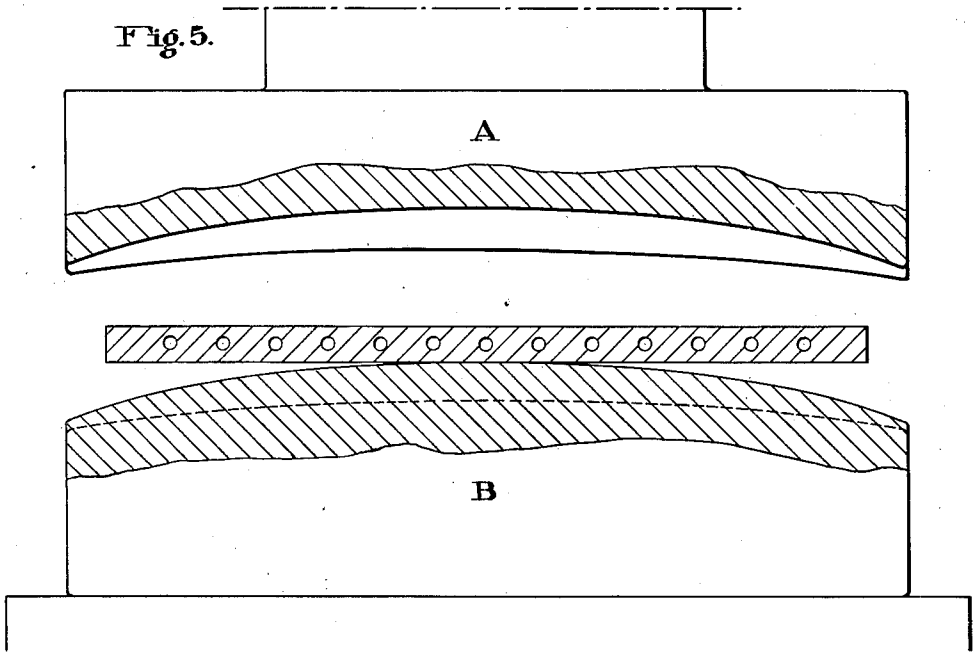
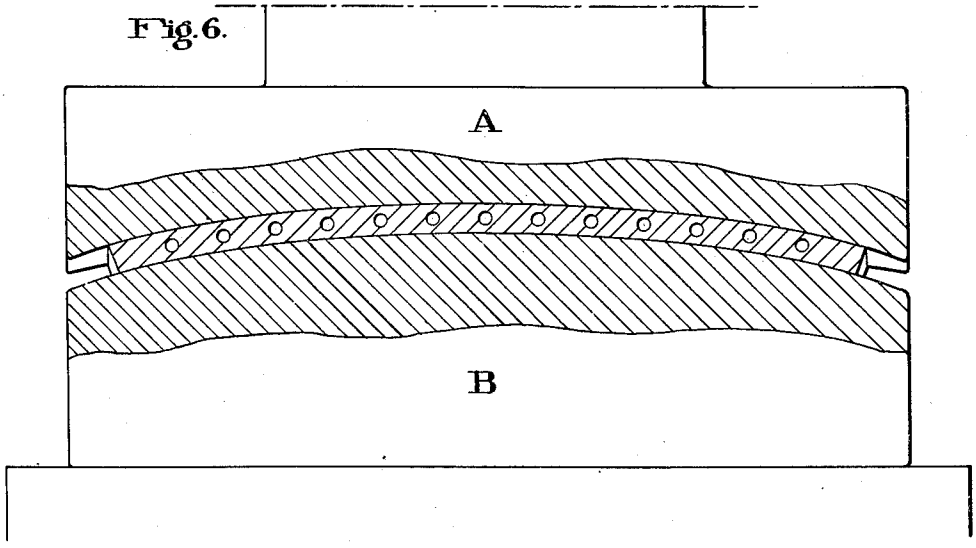


Fig. 6.



INVENTOR:

F. G. Schranz,

by Murray B. Boyer

Atty.

Patented Jan. 19, 1932 1,842,209

UNITED STATES PATENT OFFICE

FREDERICK GEORGE SCHRANZ, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO SOUTHWARK FOUNDRY & MACHINE COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA

STEAM PLATEN

Application filed October 5, 1928. Serial No. 310,467.

My invention relates to steam plates or as they are called "platens", such as are employed with suitable presses in the curing and shaping of rubber, plastic compositions and/or other materials, or for other purposes where a heated plate is required; such plates or platens being of relatively thin metal and having internal passages drilled therein for the circulation of steam or other heating medium and, in some instances a cooling medium. For this purpose provision is made for connecting suitable pipes to the said plates or platens for the introduction and withdrawal of such heating or cooling medium. In order that such heating medium, whether liquid or fluid, may be circulated continuously throughout the whole extent of the platen, the passages therein are in communication with each other and provide a continuous or substantially continuous conduit.

Plates of this type are set forth in the patent of R. W. Dinzl, No. 1,549,464, dated August 11, 1925, and the patents of H. J. Ruch, Nos. 1,594,120 and 1,594,121, dated July 27, 1926. In carrying out the improvements forming the subject of my invention, however, I may employ any suitable form of plate or platen having interconnected drilled passages whereby a conduit, preferably continuous, is provided within the body of the platen for the circulation of a heating medium and/or, in some instances, a cooling medium.

The object of my present invention is to provide a steam platen curved throughout its extent, which curvature may extend in a plurality of directions, being usually of a compound character; that is to say, the edges of the platens may have one curve or shape, while the central portion of the platen may be curved on the arc of a circle or otherwise and such curvature may differ from that of the edges of the platen. Such central portion of the platen may be curved in both directions and the curvature in each direction may be the same, or different, as the final shape or condition of the material undergoing pressure may demand.

These and other features of my invention are more fully described hereinafter, reference being had to the accompanying drawings, in which:

Figure 1 is a plan view, more or less diagrammatic, of an ordinary drilled plate or platen in flat condition.

Fig. 2 is a perspective view of one form of platen, more or less diagrammatic, shaped in accordance with my invention.

Figs. 3 and 4 are side and end elevations respectively of the shaped plate shown in Fig. 2, partly in section on the lines III—III and IV—IV, Fig. 2.

Fig. 5 is a sectional view illustrating dies which may be employed in curving or shaping these platens, in the open position, and

Fig. 6 is a similar view showing the dies in the closed position.

In the preparation or manufacture of various plastic or semi-plastic and other materials in sheet form it is frequently desirable to impart a curvature to the same, which curvature may be in one direction only or may be a compound curvature extending in both directions wherein the curves are struck from various centers and wherein the finished product is desired to be arched in both directions, and to have finished and substantially polished surfaces. I propose to provide steam plates or platens for curing these sheets of plastic or other materials whether of hard rubber, compositions, synthetic resins and/or other materials which, in their finished condition, are to have a curvature which may be simple or compound. For this purpose I propose the development of steam platens of a concavo-convex character or other curvature which, when arranged in pairs, may be employed to impart the desired curvature to the sheets of plastic or semi-plastic material undergoing heat treatment.

To this end I may take a platen of the character referred to in the several patents herein above set forth, or other flat commercial platens, having internal passages, continuous or otherwise, drilled therein, and place the same between suitable dies whereby such platen, after it has been drilled and its internal passage or passages completed for the circulation of a temperature controlling

medium, may be brought to the desired curvature.

In the drawings, the plane and otherwise finished platen is indicated at 1, Fig. 1, and the same platen after curvature has been imparted thereto, is shown in Fig. 2. In the present showing, which is more or less diagrammatic, the four edges, indicated at 1^a, have curvature which may be the same or relatively the same, for opposite edges, while the body of the platen at its central portion may have a different curvature, such as indicated at 1^b in the sectional views, Figs. 3 and 4.

In Figs. 5 and 6, I have indicated, diagrammatically, dies between which the flat platens may be shaped to the desired curvature, such dies being indicated at A, B, and any suitable mechanism may be employed for forcing these dies into contact with the platen.

While I have illustrated in the drawings the fact that the lower die is substantially convexly curved and the upper die substantially concavely curved, it may be understood that the relation of the dies may be reversed, without departing from my invention.

It will also be understood that while I have indicated a substantially regular curvature which, nevertheless, is compound in its nature producing a concavo-convex plate, it will be understood that platens curved in one direction only are within the scope of my invention, and that platens having reverse curves; that is to say, one portion or portions curved in one general direction and another portion or portions curved in another general direction, are within the scope of my invention.

I claim:

1. As a new article of manufacture, a metal platen of uniform thickness throughout having a plurality of cross bores connected alternately in pairs adjacent opposite edges to form a continuous internal passage for the circulation of a temperature controlling medium, with its body curved in two directions between opposite edges.

2. As a new article of manufacture, a metal platen having a series of connected passages forming a continuous internal conduit for the circulation of a temperature controlling medium, and being curved in a plurality of directions between opposite edges of the same.

3. As a new article of manufacture, a metal platen having a continuous internal conduit for the circulation of a temperature controlling medium made up of a series of connected cross passages; said platen being curved in a plurality of directions between opposite edges of the same.

4. As a new article of manufacture, a concavo-convex platen of solid metal and of uniform thickness throughout having a continuous internal conduit for the passage of a temperature controlling medium.

5. As a new article of manufacture, a concavo-convex platen of solid metal and of uniform thickness throughout having a continuous internal conduit made up of connected cross passages for the circulation of a temperature controlling medium.

In witness whereof I have signed this specification.

FREDERICK GEORGE SCHRANZ.