

No. 797,866.

PATENTED AUG. 22, 1905.

T. J. PALMER.

MANUFACTURE OF MOLDED OR EMBOSSED PANELS.

APPLICATION FILED APR. 29, 1904.

2 SHEETS—SHEET 1.

Fig. 2.

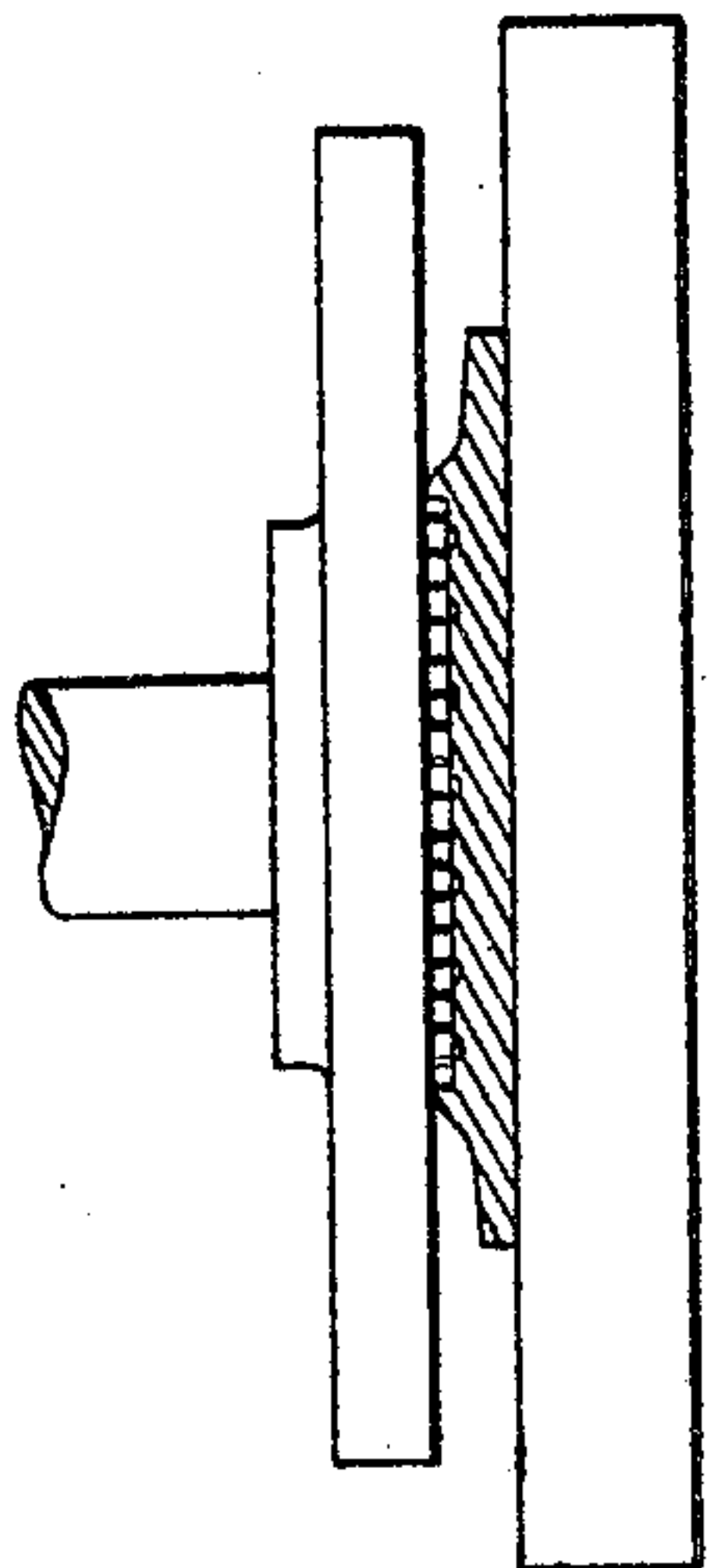


Fig. 1.

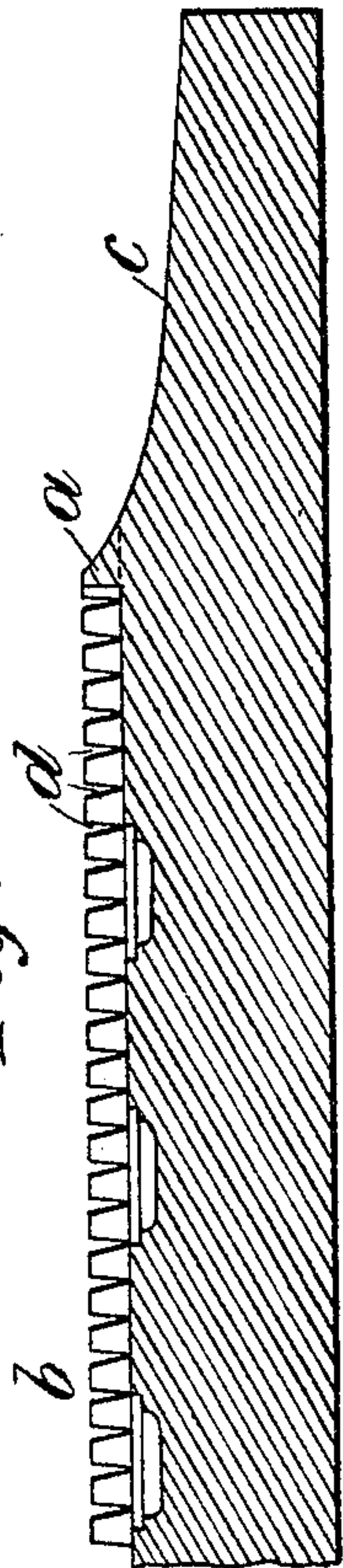


Fig. 4.

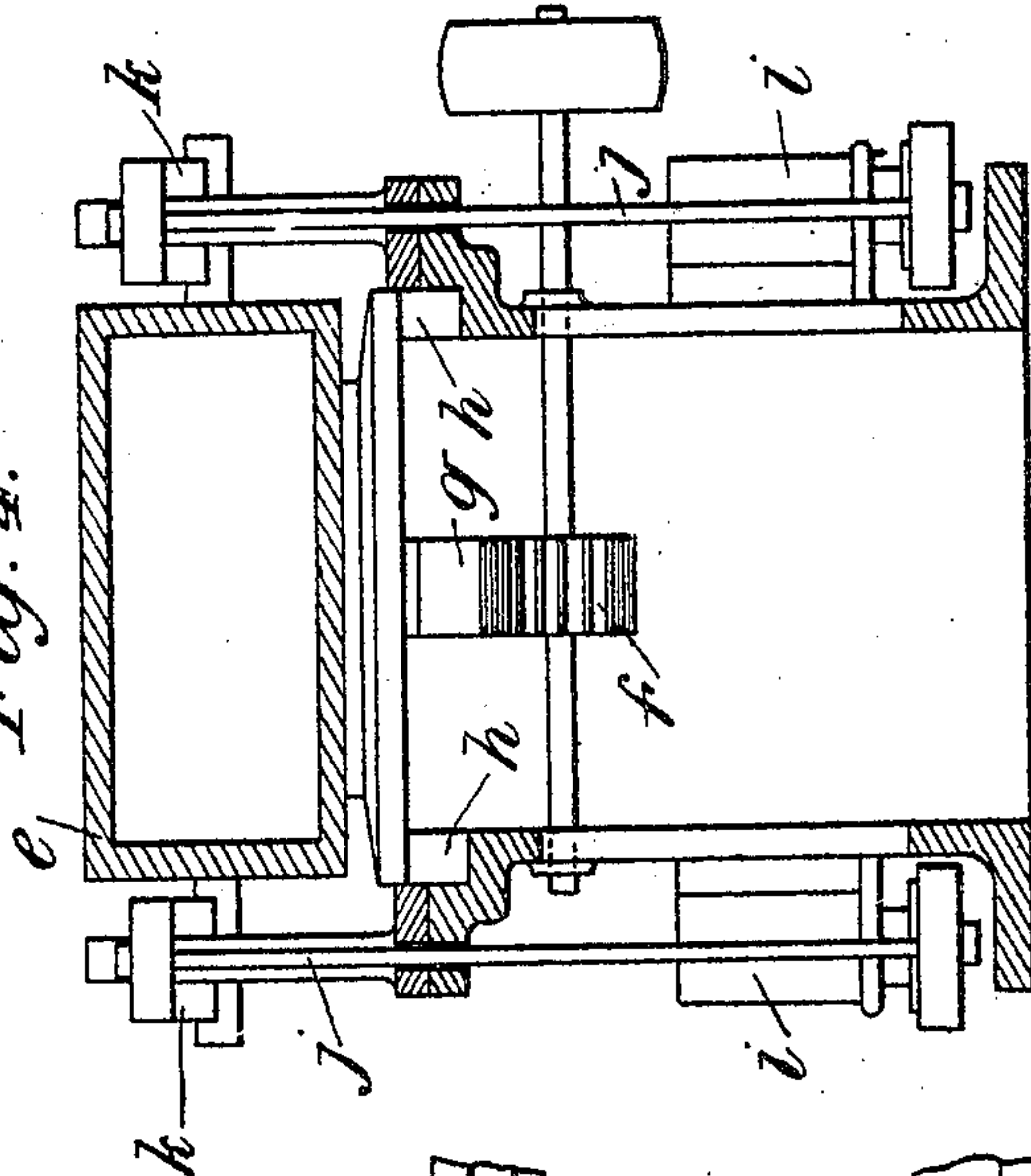
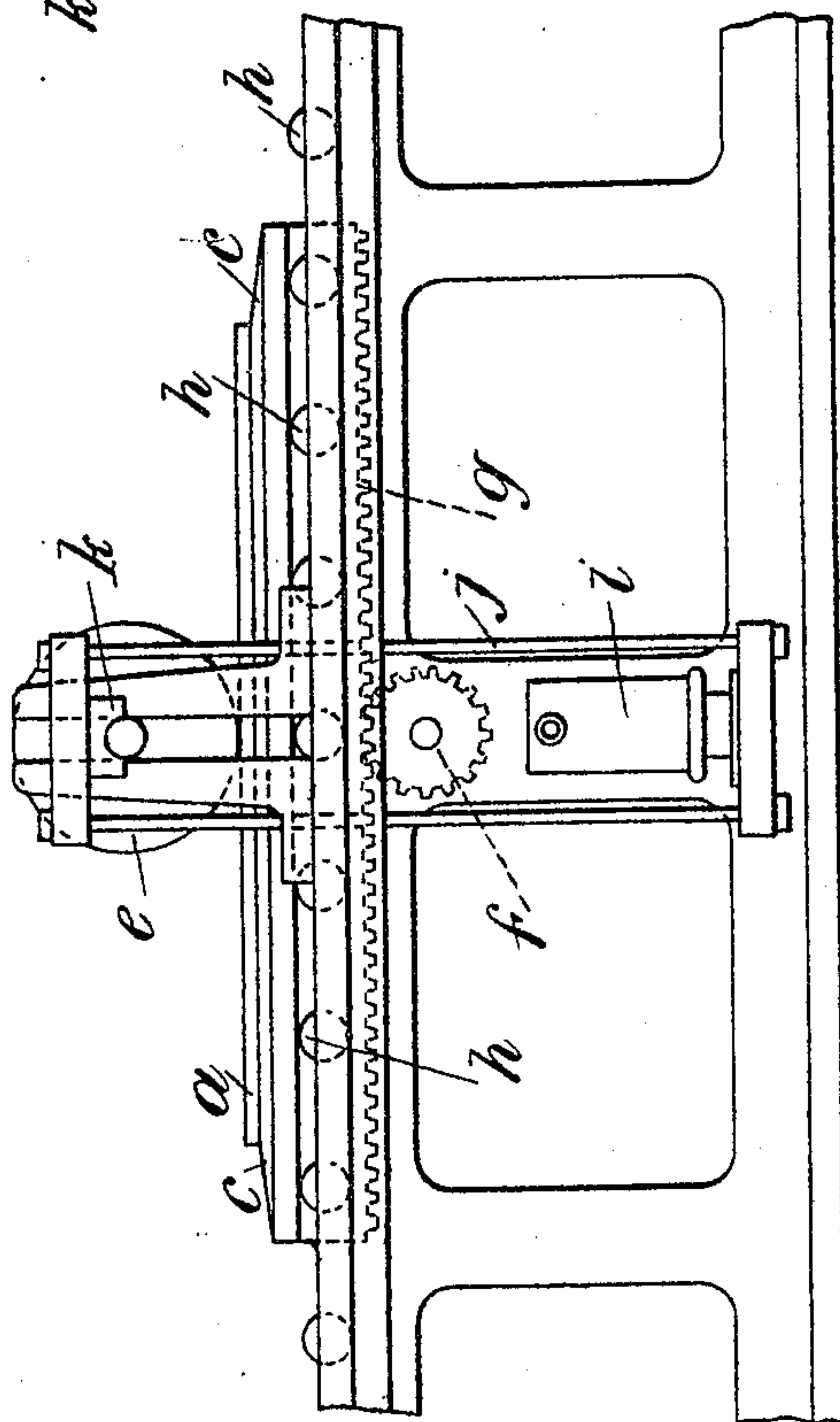


Fig. 3.



WITNESSES:

Geo. Wright
E. W. Collins

INVENTOR

Thomas John Palmer

BY

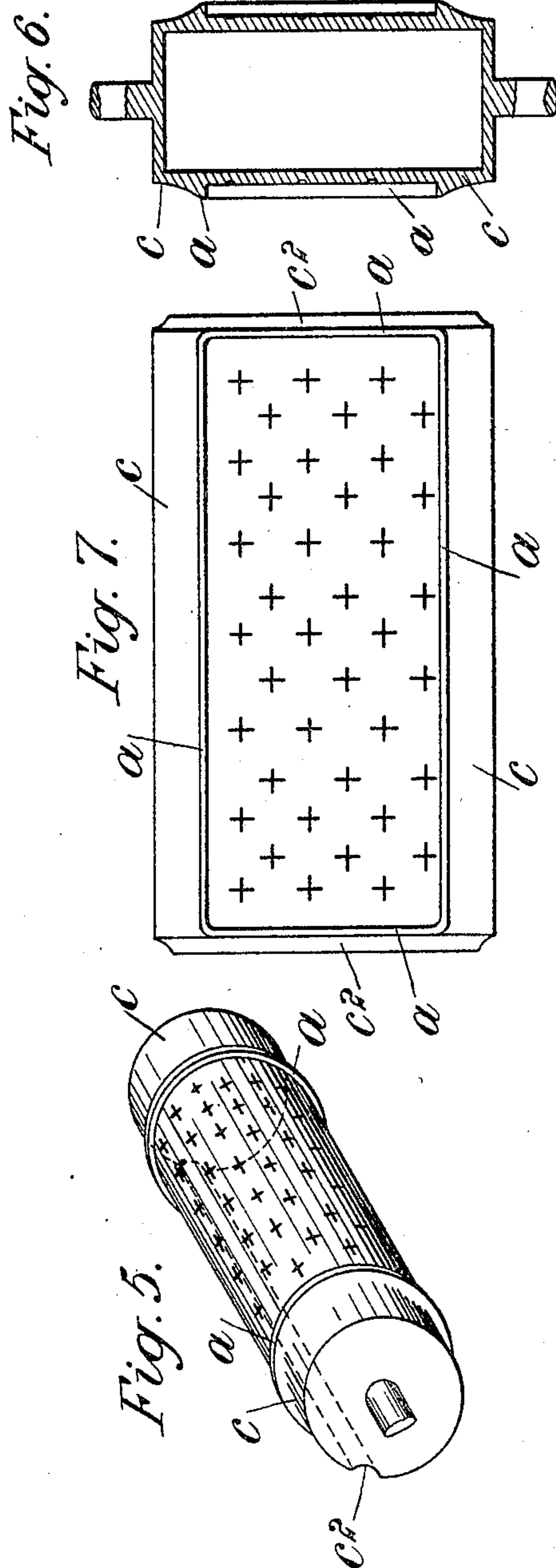
Howson and Howson
HIS ATTORNEYS.

T. J. PALMER.

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2 SHEETS—SHEET 2.



WITNESSES:
P. W. Wright.
E. W. Collier

INVENTOR
Thomas John Palmer
 BY
Howden and Howden
 HIS ATTORNEYS.

UNITED STATES PATENT OFFICE.

THOMAS JOHN PALMER, OF SOUTHPORT, ENGLAND.

MANUFACTURE OF MOLDED OR EMBOSSED PANELS.

No. 797,866.

Specification of Letters Patent.

Patented Aug. 22, 1905.

Application filed April 29, 1904. Serial No. 205,539.

To all whom it may concern:

Be it known that I, THOMAS JOHN PALMER, anaglypta manufacturer, of 36 Arbourstreet, Southport, in the county of Lancaster, England, have invented certain new and useful Improvements Relating to the Manufacture of Molded or Embossed Panels and the Like; and I do hereby declare that the following is a full, clear, and exact description of the same.

Panels and the like for decorative purposes have been produced by first manufacturing millboard and then decorating it by applying to it another article of manufacture to which the required design has been applied by molding or embossing.

The object of my invention is to considerably reduce the cost of manufacturing this class of goods, which I effect by treating the pulp which is employed in the manufacture of the millboard, as hitherto, up to the formation of a sheet or sheets of thick pulp; but instead of proceeding to make plain millboard, as hitherto, I take the wet pulp material and I apply the pressure necessary to make the millboard by means which at the same time emboss or mold the design or device in the wet material, so as to make by one continuous process millboard panels or the like which themselves have formed in or upon them the required design or device. The pressure to effect simultaneous consolidation of the thick pulp into millboard and the embossing or molding may be applied in a press provided with means for allowing water (or other liquid that may be used) to pass off, especially when a comparatively large amount of liquid is contained in the partially-formed millboard under treatment. Such press may, for example, be provided with means to allow liquid to escape, such as are described in the specification of my application of even date herewith. In order to give the required shape to the panels or the like, I surround the pattern in the pattern-plate by blunted knife-edged walls or ridges inclosing the shape and dimensions of panel or the like required and projecting above or beyond the face of the pattern-plate preferably a little less than the thickness which the finished panel or the like is to have. I prefer to sink all that portion of the pattern-plate which is outside the aforesaid knife-edged walls or ridges below the patterned face of the said plate to an extent in accordance with the amount of pulp per square foot that is being used to form the millboard panel or the like, so that the pulp

which comes outside the knife-edged walls or ridges against which the pressing means will bear will not be so heavily pressed, and therefore can be more readily repulped. The knife-edged walls or ridges are formed with transverse grooves, apertures, or the like to allow the expression therethrough of liquid during the pressing operation.

Figure 1 of the accompanying illustrative drawings shows in longitudinal section a portion of one side of a pattern-plate constructed according to this invention. Fig. 2 shows a press with its bed-plate carrying a pattern-plate and with the movable part of the press in the position it occupies when the pulp is pressed and embossed or molded. Fig. 3 shows in side elevation, and Fig. 4 in transverse section, an arrangement where a roller is used, as hereinafter described. Fig. 5 shows separately in perspective a pattern-roller which can be used with a plain table or a pattern-plate. Fig. 6 shows this roller in section, and Fig. 7 shows it developed or spread out.

Referring first to Fig. 1, *a* is the wall or ridge surrounding the patterned face *b* of the plate. *c* is the marginal portion of lower level outside the wall or ridge *a*, which is formed with numerous grooves or channels *d*, that form ducts for the escape of liquid from the pulp within the wall or ridge when the same is subjected to pressure and facilitate the removal of the compressed pulp material from the pattern-plate. When pressing and molding or embossing the pulped material into ornamented millboard, as aforesaid, in cases where it is desired that both sides of the millboard being made shall have relief decoration or other required formation, pattern-plates or a pattern-plate and a pattern-roller may be used simultaneously on both sides, so as to impart relief decoration or formation to each side of the panel or the like.

A roller or rollers may be used to give the necessary pressure while embossing or molding the pattern or patterns in or upon the pulp. Figs. 3 and 4 show such an arrangement in which a pattern-plate of the character shown in Figs. 1 and 2 is used with a roller *e* in place of the movable plate of the press, the pattern-plate (or it may be a table carrying it) being moved beneath the roller *e* by a pinion *f* and rack *g* and running on rollers *h*, the pressure of the roller being augmented, if necessary, by weights or pressure applied at *i* to carriers *j*, hung on the bear-

ings k of the axle of the roller e . If a roller or rollers is or are used to emboss or mold the pattern into or upon the pulp, knife-edged walls or ridges, such as a , may be provided upon the face of the roller or faces of the rollers, as shown in Figs. 5, 6, and 7, to determine the shape and size of the panel or device, as hereinbefore described, for pattern-plates, and the parts of the face of the roller or faces of the rollers outside the edges or ridges may be sunk at c c^2 in a manner equivalent to that hereinbefore described with regard to the part c of the pattern-plate and for the same purpose—namely, to prevent the parts of the pulp which are not used in making the panel from being subjected to such pressure as would interfere with repulping. The longitudinal sunk portion c^2 will if a continuous sheet of pulp or a sheet long enough to make two or more panels is being pressed and embossed or molded leave an unconsolidated part of the pulp between the panels and enable the panels to be readily separated. The ornamental part of the roller for molding or embossing is indicated by small crosses.

I claim as my invention—

1. An apparatus for the manufacture of molded or embossed panels, or the like, comprising a frame, a pattern-plate thereon, a ridge with ducts therethrough surrounding

said plate, and means for pressing the material on said plate, in combination with marginal portions on said plate and pressing means outside of said ridge and of different levels from said pressing-surfaces.

2. An apparatus for the manufacture of molded or embossed panels, or the like, comprising a frame, a pattern-plate thereon, a ridge with ducts therethrough surrounding said plate, and means for pressing the material on said plate, in combination with a marginal portion on said plate outside of said ridge and said pressing means projecting beyond said ridge.

3. An apparatus for the manufacture of molded or embossed panels, or the like, comprising a frame, a pattern-plate thereon, a ridge surrounding said plate, and means for pressing the material on said plate, in combination with a marginal portion without said ridge, said pressing means being adapted to bear against said ridge.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THOMAS JOHN PALMER.

Witnesses:

RICHARD TOMLINSON,
J. H. RAMSDEN.