

L. A. & J. W. Brown,

Cutting Veneers.

N^o 10,400.

Patented Jan. 10, 1854.

Fig. 1.

Fig. 3.

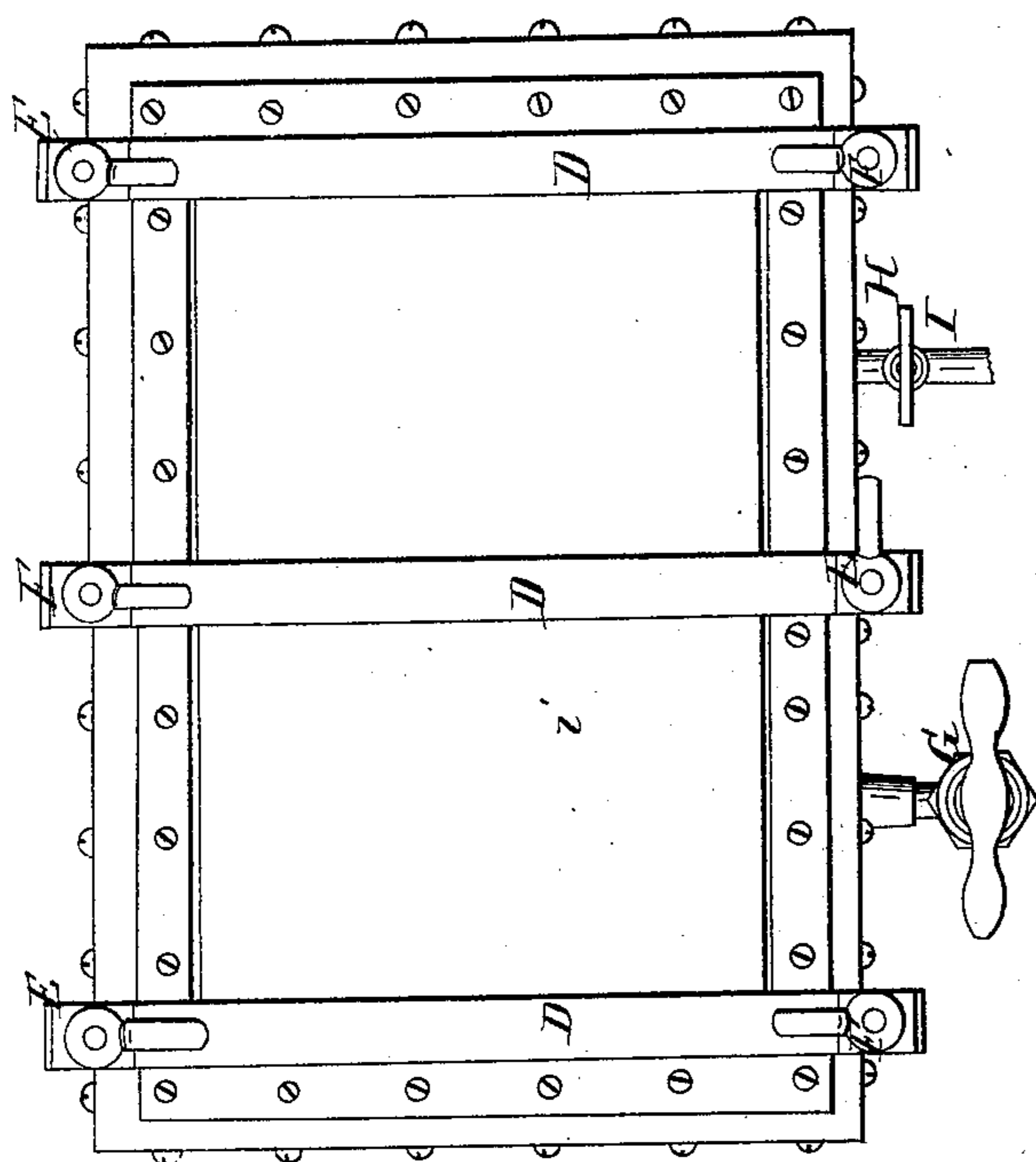
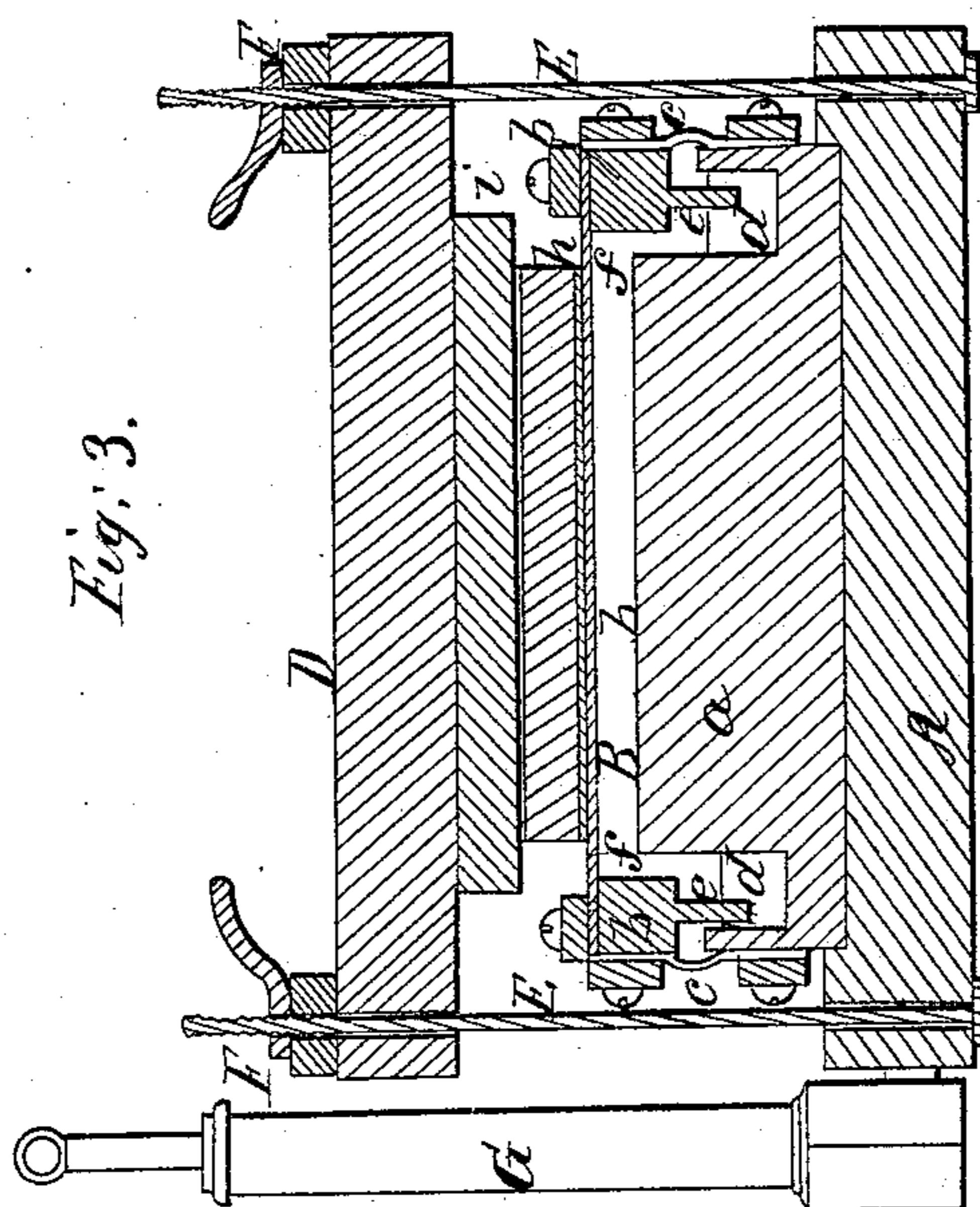
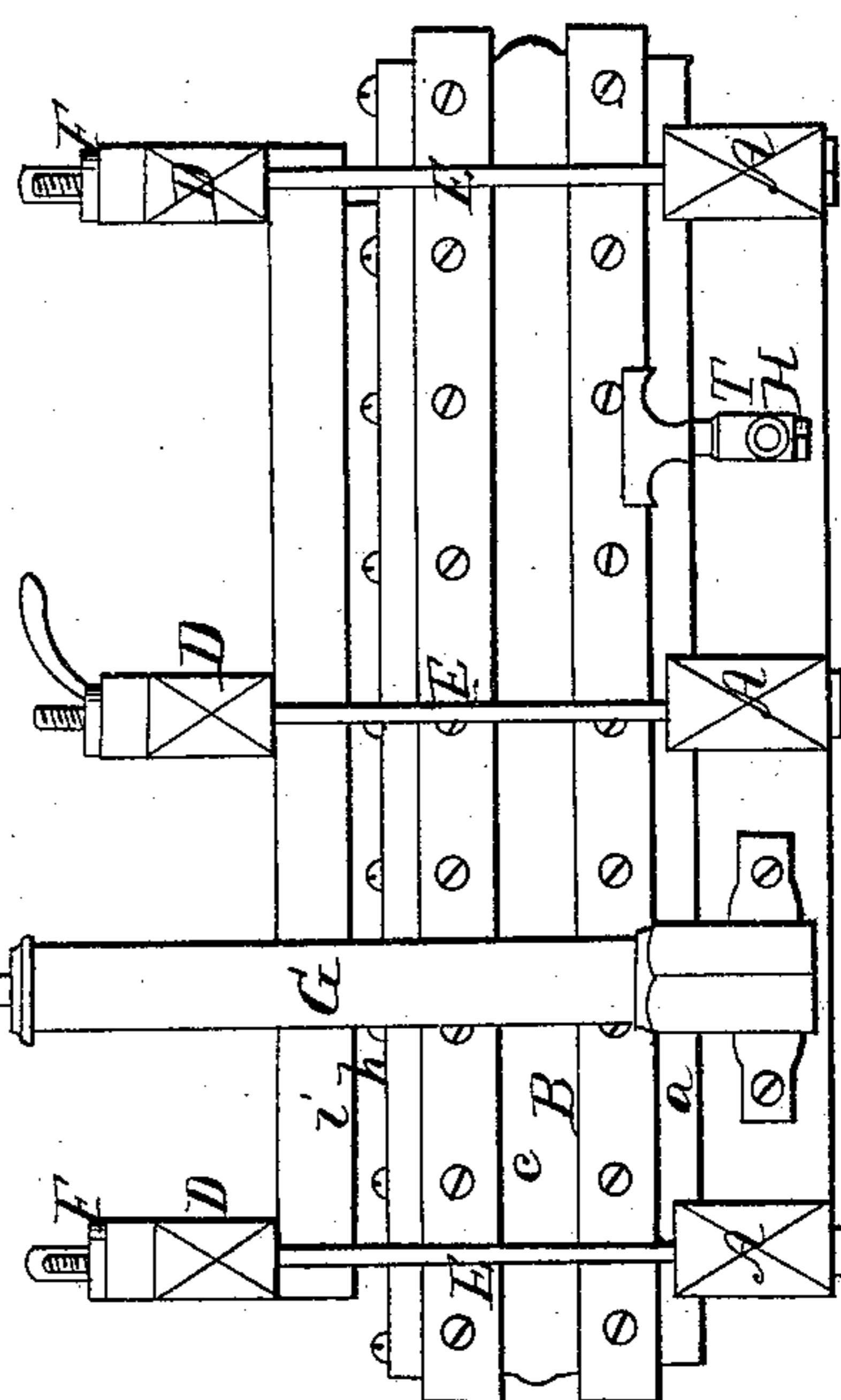


Fig. 2.



UNITED STATES PATENT OFFICE.

L. A. BROWN AND J. W. BROWN, OF HARTFORD, CONNECTICUT.

PRESS FOR VENEERING.

Specification of Letters Patent No. 10,400, dated January 10, 1854.

To all whom it may concern:

Be it known that we, LUCIAN A. BROWN and JEREMIAH W. BROWN, of Hartford, in the county of Hartford and State of Connecticut, have invented a new and useful Veneering-Press or Machine for Pressing upon a Surface Covered with Glue or Cement a Thin Sheet of Wood or other Suitable Material; and we do hereby declare that the same is fully described and represented in the following specification and the accompanying drawings, letters, figures, and references thereof.

Of the said drawings Figure 1, denotes a top view. Fig. 2, a front side elevation, and Fig. 3, a transverse section of our veneering press.

The manner of constructing and using our said press may be thus described.

In the drawings, A, A, A, denote strong transverse bed timbers, on which the lever platform or bottom, *a*, of the expansion box, B, of the press rests. This expansion box is composed of a top frame, *b*, and a bottom, *a*, united at and around their entire edges by a flexible air tight material or membrane, *c*, (such as leather or vulcanized india rubber) such being made to compose the sides of the box. This flexible connection should be secured to the top and bottom of the box with water and air tight joints or joinings. Within the bottom of the box, there is to be a channel or groove, *d*, made to extend entirely around it and near to and parallel to each edge of the said bottom. From the top frame, *b*, of the box, a flange, *e*, is extended downward and entirely around the said top frame and down into the groove or trough, *d*, as seen in Fig. 3. Water, oil, or other suitable liquid is poured into the channel or trough, *d*, to such height as to cause it to flow above the bottom or lower edge of the partition, *e*, when the frame, *b*, is at its greatest elevation. The upper part of the top frame, *b*, is covered with a thin caul or sheet (*f*) of copper or other proper metal made of a thickness such as will enable it to have not only tenacity, but a slight degree of flexibility to yield a little under the pressure to which it is to be subjected. The material of which the top *f* is made should be such as will render it not only sufficiently flexible but capable of withstanding the heat of steam above the ordinary atmospheric pressure, and of resisting the pressure of the

atmosphere when a condensation of steam takes place within the box.

The veneer, during the process of cementing it to a board or surface is to rest directly on the top plate, *f*, such veneer being seen at *o*, while the board to which it is to be affixed is seen at *h*. Over the board is placed another board or platen *i*, which is held down or prevented from rising upward by means of cross timbers, D, D, D, each of which is connected with one of the timbers, A, A, A, by two screw rods, E, E, that pass through them and have screw nuts, F, F, screwed on their upper parts as seen in the drawings.

The box, B, is to be provided with an air pump, G, by which air may be forced into it and besides this it is to be connected with a steam boiler or generator by means of a pipe, H, (having a stop cock I,) and so that steam may be suffered to pass from the boiler into the box. The object of employing steam is to heat the top plate, *f*, so as to warm it and liquefy or preserve in a fluid state, the glue or cement, when placed on the top surface of a sheet of veneering laid on the said plate. The object of the air pump is to force air into the box, B, and thereby elevate it so as to press the glued veneer closely up against the surface to which it is to be affixed.

In case the surface to be veneered is not a plane surface, but a curved one, the top plate, *f*, is to be formed to the counterpart of such curve.

We are aware that a box or chamber, having a flexible vulcanized india rubber top has been employed for the purpose of pressing a veneer against a surface or article to be covered by it, such having been done by means of water forced into the box, such water having been in a warm state for the purpose of heating the flexible top and preserving the glue on the veneer in a fluid state. We are also aware that in applying a veneer to a surface, it has been customary to press a bag of water against it in order to cause it to conform to such surface so long as may be necessary. This mechanism and method of operating have disadvantages, which it has been our purpose to overcome.

In the use of water, it can only be employed at a temperature of 212° Fahrenheit, whereas steam may be employed at a much greater temperature. Besides, when water is used

for the purpose of heating and pressure, it requires a long time for it to cool down sufficiently for the glue or cement to become properly hardened, whereas by the employment of steam for heating and compressed air for pressure, the cooling of the plate and work may be effected in a very much shorter time comparatively speaking—for the cool air when forced into the box not only at once or shortly condenses the steam, but rapidly lowers the temperature of the top plate, *f*. The slight and peculiar flexibility and tenacity of the thin metallic plate or caul allows it under the pressure exerted on it to have a different action on the veneer from what results from a diaphragm or top made of a substance having the elasticity of vulcanized caoutchouc. It is often found in practice, that in order to press the entire surface of a veneer against a surface to which it is to be attached something more than a flexible and elastic top or caul is necessary, or in other words, that besides possessing flexibility, it must have tenacity, that is to say, it must be too flexible, for if it is so, it will not set or press closely down what are termed "curls" in the veneer. In most veneers, these curls or bulged places occasionally occur, and it is all important that they should be pressed so closely against the surface to which they are to be affixed, as to remove them from the veneer. To do this a caul having the tenacity or rigidity of a metallic plate is necessary, and this tenacity or rigidity must be such as not to yield to the projection of the caul, which it will allow the whole plate except where it is confined around its edges, to spring upward a little under the pressure distributed over it.

When the air is forced into the box, *B*, its pressure has a tendency to depress the water (of the trough, *d*,) on the inner side of the partition or flanch, *e*, and raise it on the outer sides of it. In doing this it forces the water against the inner surface of the membrane or flexible sides, *c*, thereby wetting the same and keeping it so swelled in its joints or so covered by water as to obstruct the passage of air through it or its joints.

We would remark that the employment of flexible sides, *c*, to the box, *B*, and in conjunction with thin metallic caul, *f*, has a

great advantage because were the sides inflexible, or made of an unyielding material, the pressure of the air against the caul would elevate it in its middle, while it would be held firmly at its edges. This would prevent it from operating correctly. When the flexible sides are used the whole caul is allowed to move simultaneously upward, and it will readily adapt itself to the work.

In some cases we may dispense with the use of the air forcing pump—and by confining the air within the box, *B*, and forcing the work and the top of the box down toward the bottom of it, we can cause the condensed air to exert an upward pressure on the caul. This method of operation however we by no means consider of such practical value as that wherein an air forcing pump is employed.

We do not claim, the method or process of setting or pressing a veneer down on a surface by the employment of the pressure of water exerted against a flexible material or caul, having the elasticity of vulcanized caoutchouc, nor the application of heat to such caul through such water, but

We do claim as our improvement in veneering surfaces—

1. The employment in the manner set forth of a thin metallic plate or caul not only having the property of flexibility, but that of sufficient tenacity to take out the curls in manner and under circumstances above stated.

2. And we also claim the combination of a flexible metallic caul with a box having flexible sides.

3. We also claim the combination of the water trough, *d*, and flanch, *e*, with the flexible sides, *c*, and frames or posts, *a*, *b*, of the box, *B*, the same being made to operate substantially in manner and for the purpose as stated.

In testimony whereof, we have hereto set our signatures this twentieth day of July A. D. 1853.

LUCIAN A. BROWN.
JEREMIAH W. BROWN.

Witnesses:

JOHN HILL,
H. H. BARBOUR.