

(No Model.)

F. W. ZIMMER.

2 Sheets—Sheet 1.

APPARATUS FOR SOAKING AND STRETCHING GELATINE COATED SHEETS.

No. 390,639.

Patented Oct. 2, 1888.

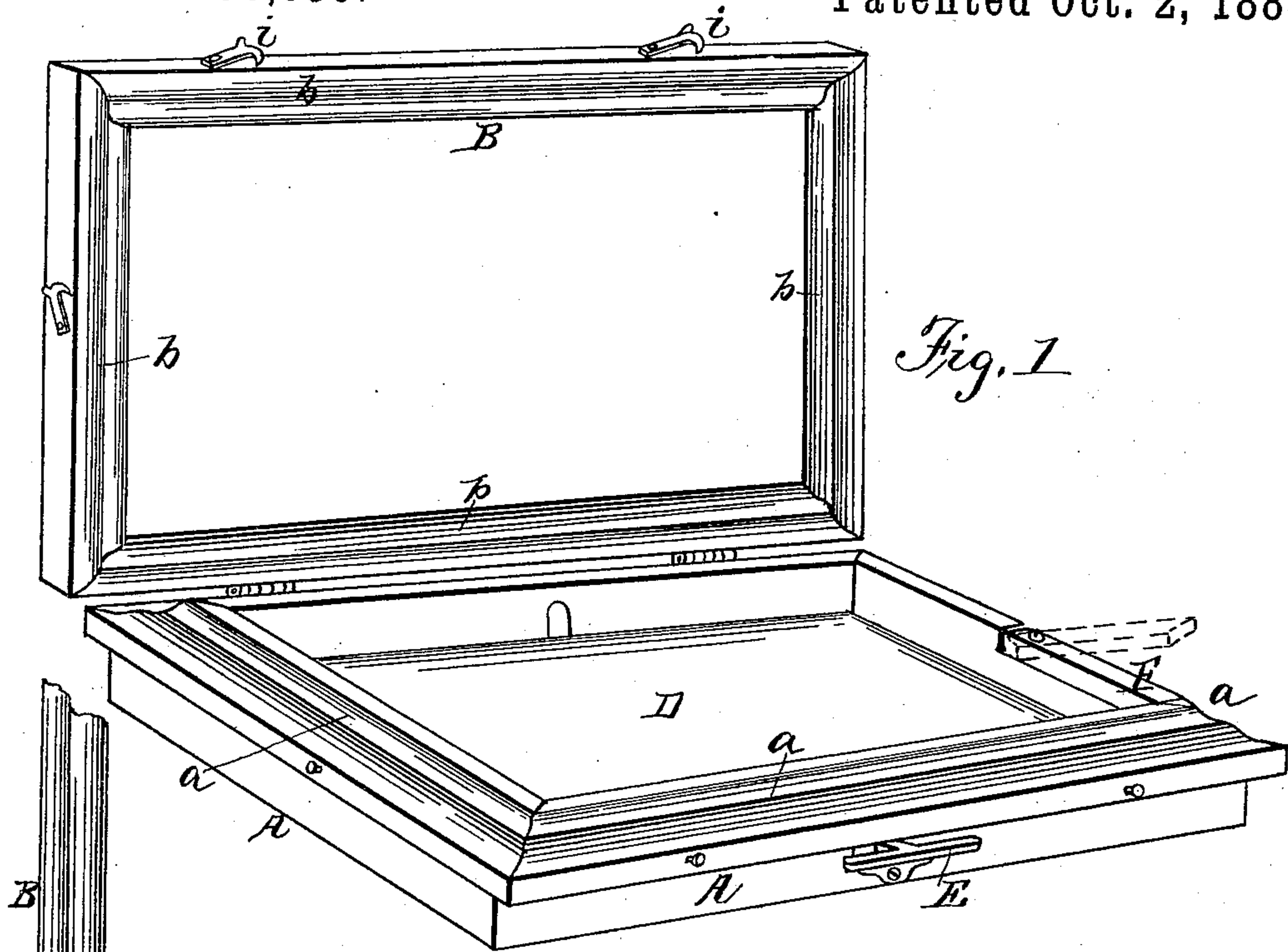


Fig. 1

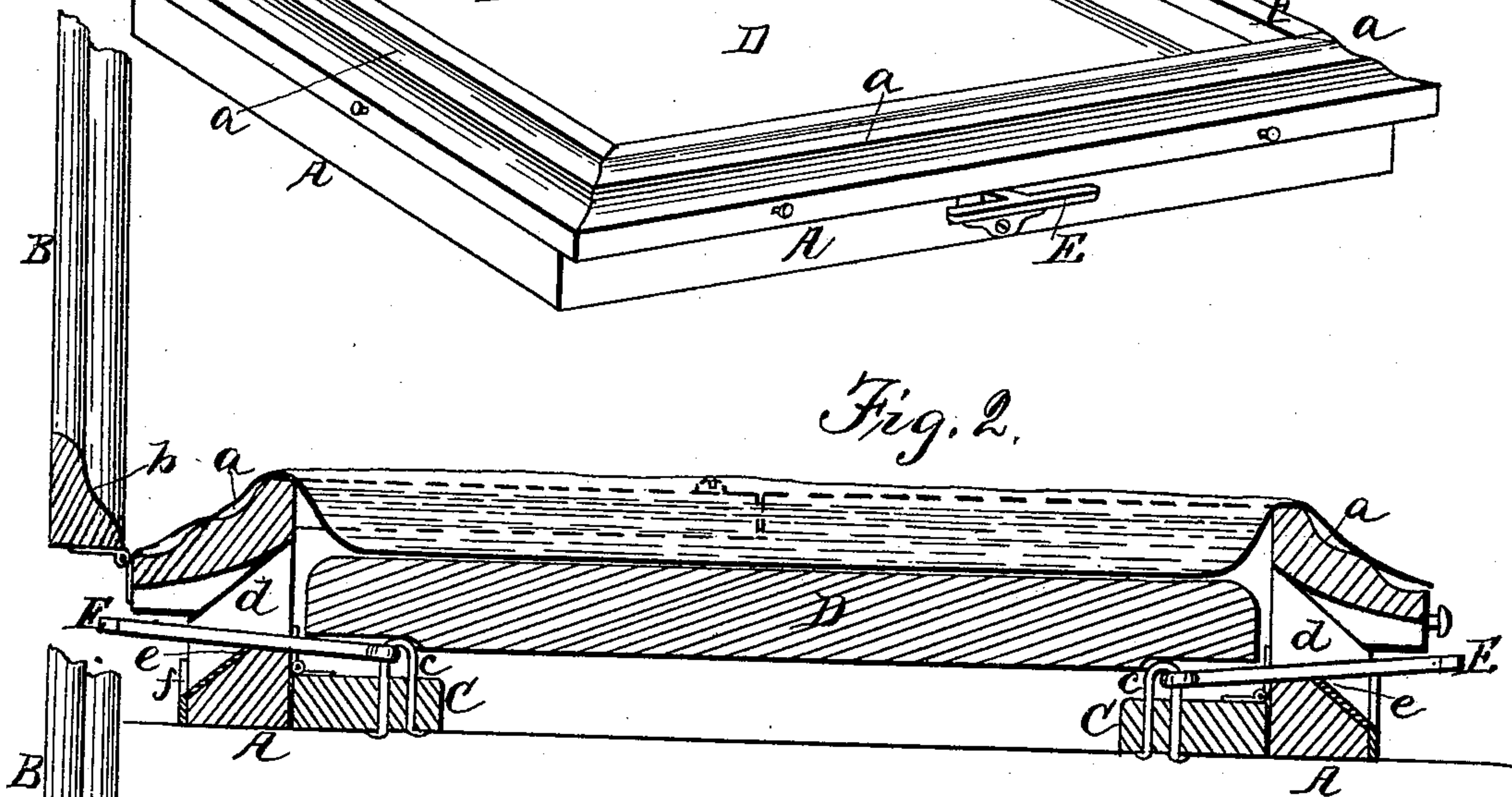


Fig. 2.

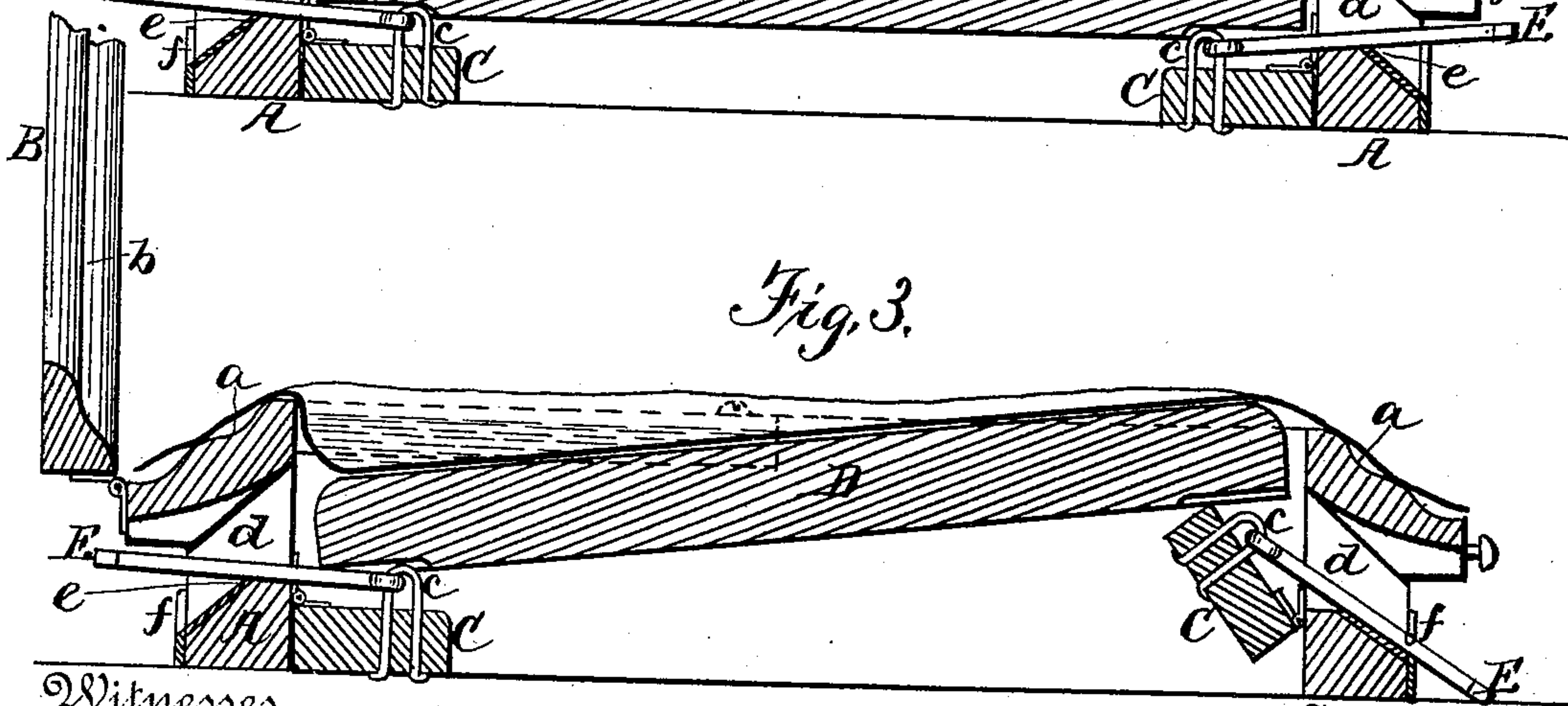


Fig. 3.

Witnesses

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(No Model.)

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2 Sheets—Sheet 2.

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Fig. 4.

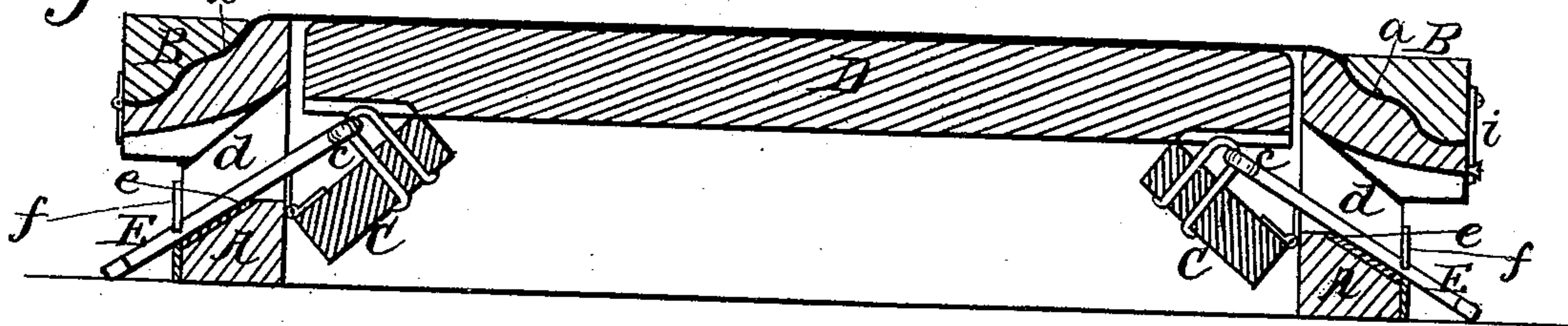


Fig. 5.

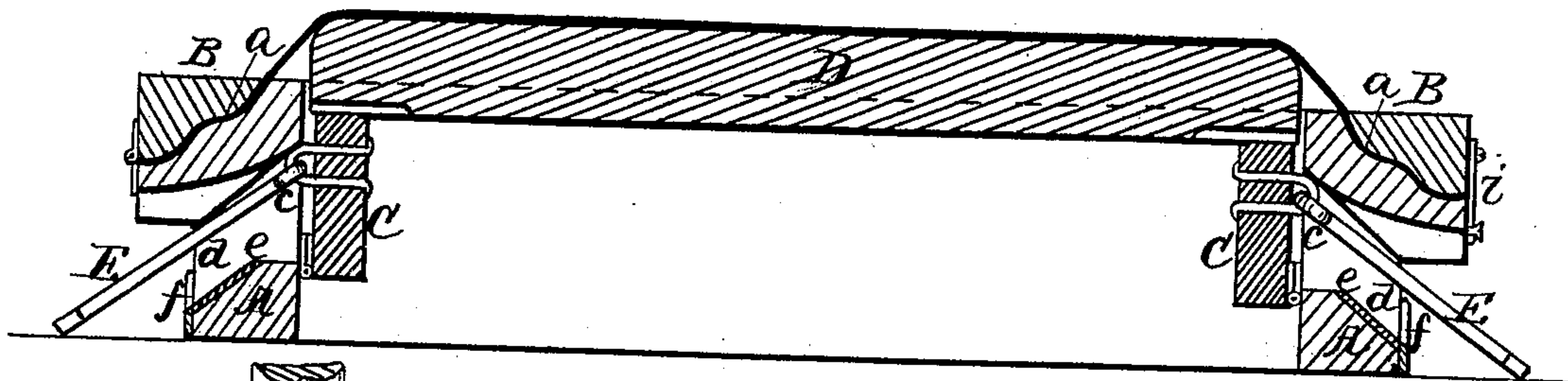


Fig. 6.

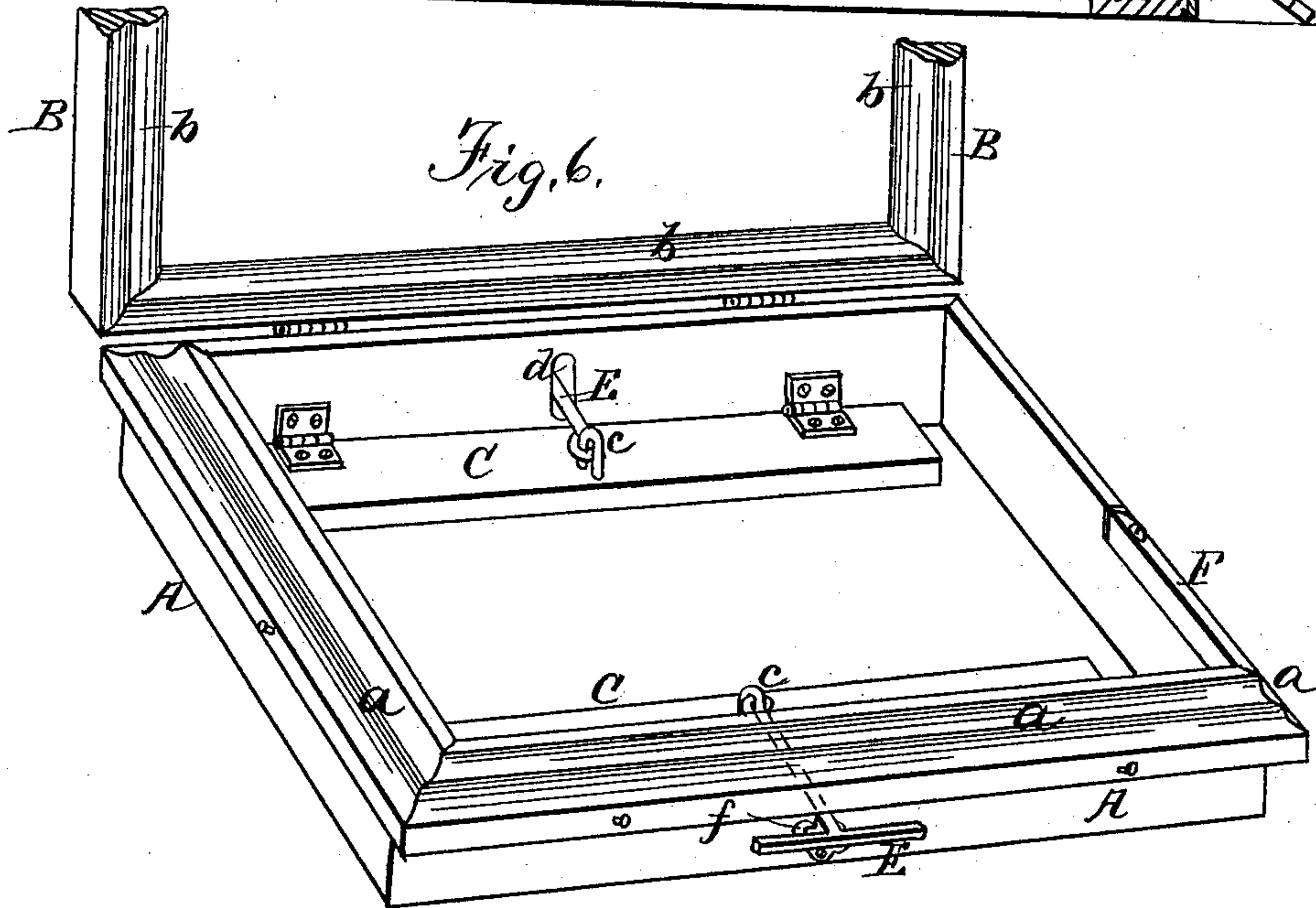
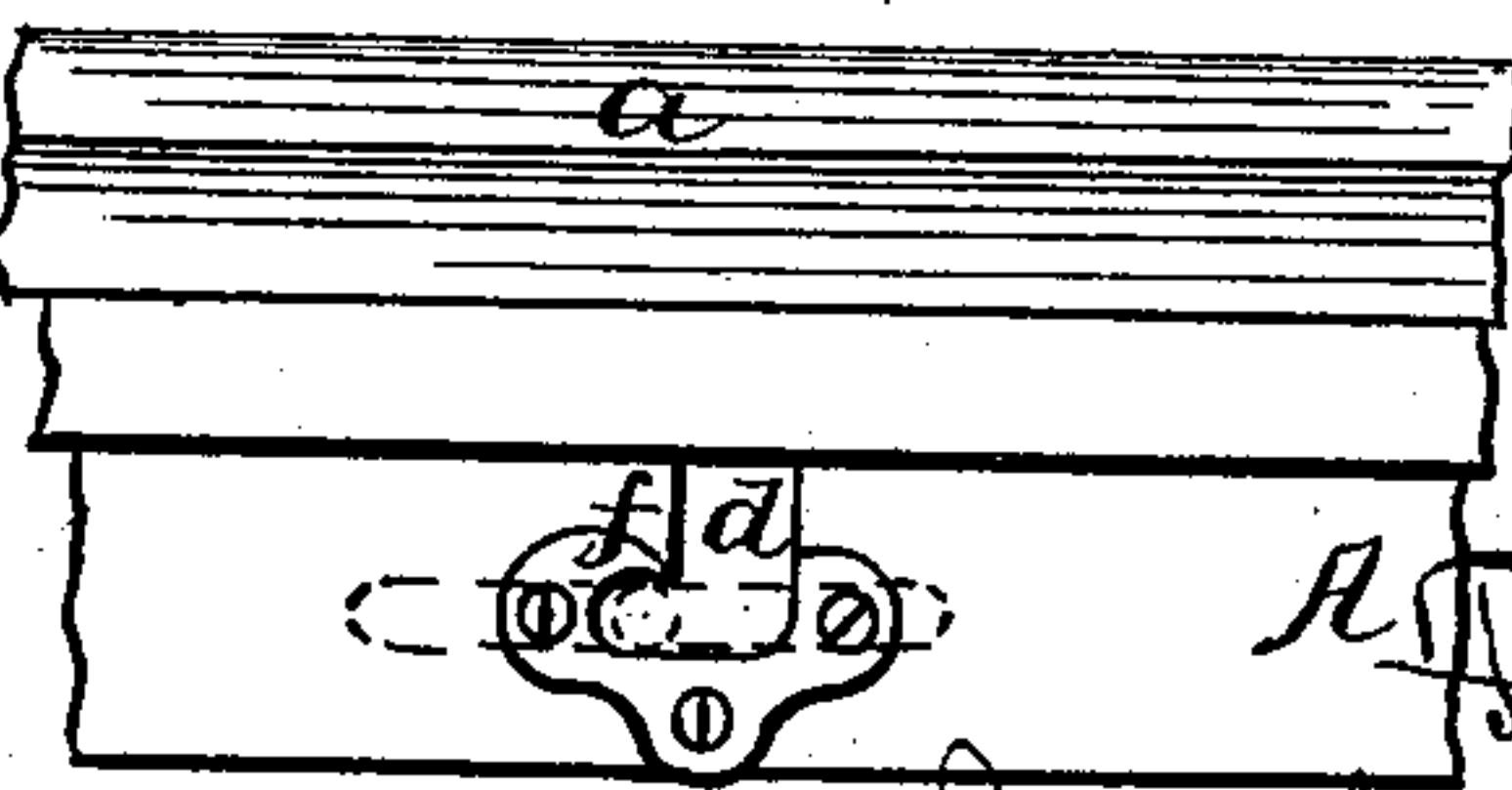


Fig. 7.



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FREDERICK WILLIAM ZIMMER, OF NEW YORK, N. Y.

APPARATUS FOR SOAKING AND STRETCHING GELATINE-COATED SHEETS.

SPECIFICATION forming part of Letters Patent No. 390,639, dated October 2, 1888.

Application filed February 8, 1887. Serial No. 226,960. (No model.) Patented in England May 23, 1887, No. 7,501.

To all whom it may concern:

Be it known that I, FREDERICK WILLIAM ZIMMER, a subject of the Emperor of Germany, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Apparatus for Soaking and Stretching Gelatine-Coated Sheets, (which was patented in England May 23, 1887, No. 7,501,) of which the following is a specification.

My invention relates to apparatus for holding and stretching gelatine-coated sheets as a means for autographic copying or surface-printing for obtaining reproductions of writings, drawings, and the like.

My improvement is more particularly directed to the production of apparatus adapted for soaking and stretching parchment gelatine-coated sheets; and the objects of my improvements are to provide for soaking the flexible gelatine-coated sheet in the same frame in which it is stretched for use in a manner to render the operation perfect and to displace the water from the soaked sheet without spilling it about or wetting the apparatus, and to provide for operating the stretching panel or support for the gelatine-coated sheet from the outside of the frame to render such operation more convenient.

In my improved apparatus the stretching panel or support for the gelatine-coated sheet can be lowered below the top level of the confining-frame to form a convenient tray in which one or more flexible gelatine-coated sheets can be soaked, while such stretching-panel can also be raised above the top level of the confining-frame in its stretching function for the confined gelatine-coated parchment sheet. The confining-frame is finished with a top surface-molding, and a hinged top clamping-frame has a corresponding under surface-molding to form the clamp for the flexible gelatine-coated sheet. At one end of said confining-frame its raised molding part has a removable section, whereby to allow the water to be poured out from the frame in the soaking operation while the sheet is retained upon the panel. For this purpose provision is made for inclining the sheet-supporting panel so as to form a gutter of the gelatine-coated sheet in line with the removable molding-section of the frame. The sheet having been properly soaked and the

water discharged from it, the supporting-panel can be easily and quickly adjusted in its raised stretching function by hand-levers adapted to be operated by pressure upon a fulcrum and by pulling, or by either, so that the panel may be inclined, raised horizontally and depressed horizontally without handling the parchment sheet, as will be seen in the drawings, in which—

Figure 1 represents a view in perspective of my improved autographic copying apparatus, showing the clamping-frame open and the panel-support for the gelatine-coated sheet depressed in position to receive the latter and allow of its being formed into a tray upon said panel for holding the water by which it is soaked. Fig. 2 represents a vertical cross-section of the same. Fig. 3 represents a vertical cross-section showing the panel-support for the gelatine-coated sheet adjusted in an inclined position to form a gutter at one side of the frame to facilitate discharging the water after soaking the sheet. Fig. 4 represents a vertical cross-section showing the panel-support partially raised and the gelatine-coated sheet clamped. Fig. 5 represents a vertical cross-section of the apparatus, showing the gelatine-coated sheet properly stretched and the apparatus ready for work. Fig. 6 represents in perspective the frame for receiving the panel-support and the hand-lever devices by which it is operated from the outside. Fig. 7 shows a detail view of the holding-catch for the hand-lever of the panel.

The frame A of the apparatus is preferably of wood, of rectangular form, has a molding, *a*, on one side, and is open, like a picture-frame. It has an open clamping-frame, B, hinged to one side, having a molding-surface, *b*, corresponding with the molding of the bed-frame, with which it forms a clamp for the edges of the parchment sheet, as shown in Figs. 4 and 5.

To the inner walls of the bed-frame, at its two opposite sides, are hinged two lifting-bars, C C, so as to be turned upward and supported in inclined and in vertical positions, and for this purpose they are preferably flat bars of a length a little less than the space between the bars of the frame. They are so hinged that when they are turned down in horizontal positions they will rest upon the work-table or against the inner walls of the bed-frame, as

shown in Fig. 2, and form supports for the panel D, which is placed loosely within the bed-frame, so that it is supported within the latter a sufficient distance below the upper edge of the molding *a* to allow the gelatine-coated parchment sheet to form a basin within the frame upon the panel to hold the water necessary for soaking the parchment sheet, the edges of which lie over and upon the molding of the bed-frame. These hinged lifters are provided with hand-levers E, which have a jointed connection with said lifters at *c*, and extend through openings *d* in the sides of the bed frame, with their handle ends outside of the latter, so that they can be conveniently grasped by the operator, the openings *d* being so formed as to give a fulcrum-point, *e*, at the bottom of each, upon which the levers rest when depressed to incline the panel and to raise it from such incline. The jointed connection of the hand-levers with the lifters is such as to allow the latter to be turned up in vertical positions by an outward pulling action of the levers in the operation of stretching the sheet, and such joint-connection is made with the hinged lifters at the middle of their length at that side which folds up against the inner wall of the bed-frame and at or near their non-hinged edges, so that in turning them up they act as cams against the under side of the panel, and in assuming vertical positions are held firmly in position by the panel under the force exerted upon it in the stretching operation.

In the inclined position of the panel I provide for supporting it in soaking the sheet by pressing down one of the levers under a catch, *f*, secured to the frame at the opening through which the lever-handle passes, as seen in Fig. 3 and in dotted lines in Fig. 7.

At one end of the frame the molding *a* is cut away and the section F is hinged within the cut so as to be turned outward, as shown by dotted lines in Fig. 1, to allow the parchment soaked sheet to be depressed within the recess formed by the cut-in line with the gutter formed by said sheet to facilitate the discharge of the water from the basin formed by the sheet after the latter has been soaked. This hinged frame-section may be placed in any convenient part of the molding *a*; but the panel must be inclined to form the gutter in the parchment sheet in line with the recess or cut in said molding.

It is more convenient to have the hinged molding-section placed as shown in Fig. 1, but it may be placed next the hinged side of the frame, as seen in Fig. 3; but however placed, it permits the water to run out of the basin formed by the sheet, so that the latter is not removed or handled after it is soaked, but retains its position upon the panel while being soaked and ready to be clamped and stretched.

It will be understood that my improved apparatus is designed for obtaining reproductions from a flexible printing surface or medium composed of parchment, paper, linen, or

other flexible material provided with a surface-coating of gelatine as a base or medium for obtaining such copies in indelible black, with ink prepared for the purpose of producing the original to be reproduced upon the gelatinized parchment, and from which, by the use of an ordinary inking-roller, such as used by printers, passed over such gelatinized surface, the copies can be taken in perfectly clear fine lines.

To use the apparatus, the sheet-supporting panel is set at its lowest level by pushing in the hand-levers. The hinged top clamping-frame is then opened and the gelatinized sheet is placed with its prepared surface upward upon the supporting panel, and water is poured upon it, causing it to form a tray within the raised molding of the frame, which thereby forms a secure hold for the sheet. The sheet having been thus sufficiently soaked to properly prepare its gelatinized surface, the panel is raised at one side by pressing down the hand-lever at that side of the frame and fastening it under the catch, so as to form a gutter in the gelatine sheet at the other side of the frame. The end gate, F, is then opened and the water is discharged, the frame being slightly tilted toward the gate for that purpose and while the sheet is retained upon the panel. The gutter-forming side of the panel is then raised and fastened by the hand-lever under the catch, which brings the panel and its sheet on a level with the top of the bed-frame, and the sheet is then clamped by the hinged top frame, which is fastened by hooks *i*, as seen in Figs. 4 and 5. The hand-levers are then released from their holding-catches and pulled out, which will turn up the hinged lifters in vertical positions to raise the panel to its highest level, and thus stretch the sheet which has been clamped all around its edges to the molded surface of the frame, as seen in Fig. 5. The sheet is then ready to receive the negative by placing the original writing or drawing upon it, so as to make the transfer. This original writing or drawing is prepared with such inks as will make the proper transfer upon the gelatine surface and form the negative, from which the reproductions are taken in a manner similar to that of the lithographic process. The required number of reproductions having been taken, the gelatine sheet is removed and replaced by one of the others, which by my improvement may have been soaked in quantities at the same time and kept in a stack ready to be used.

When a number of gelatinized sheets are required to be soaked—say from six to twelve at the same time—for use, after the soaking of the first one a second sheet is then placed upon the water retained in the basin formed by the first sheet; then pour water on the second sheet, and so on until the required number of sheets are in soak. The soaking in this way of all the sheets will be complete in about eight minutes, when the water is poured off from all

at once, and the sheets removed and placed in stack, in readiness for use as printing mediums.

5 The coincident molding-surfaces *a* and *b* of the open hinged frames give the advantages of an extended clamping-surface, a secure and uniform clamp, and a smooth surface to the flexible printing medium when the same is being stretched.

10 I claim—

1. In apparatus for soaking and stretching flexible gelatinized printing mediums or sheets, the combination, with the open bed-frame, an open clamping-frame, and the panel 15 D, of the lifters C C, for said panel, hinged to the inner walls of said open bed frame, and suitable hand-levers joined to said hinged lifters, substantially as described, for the purpose specified.

20 2. The combination of the open bed-frame and a panel adapted to be operated within the opening thereof at levels above and below its top, with lifting-bars hinged upon the inner walls of said frame at the bottom thereof, adjus- 25 tably supporting said panel, and having means accessible outside of said frame for operating the panel within the latter, substantially as described.

30 3. The combination, in an apparatus for soaking gelatine-coated sheets as autographic-printing mediums, of an open bed-frame, and

a panel adapted to be operated vertically within the opening of said frame, with lifting-bars hinged to the inner walls of said frame and adapted to support the said panel in horizon- 35 tal position below the top of said frame, substantially as described, for the purpose specified.

4. The combination, in apparatus for stretching gelatinized sheets as printing mediums, 40 of the hinged frames A B, said frame A having the side openings, *d*, and the catches *f*, with the hinged lifters C C, and the hand-levers E E, jointed to said lifters, substantially as described, for the purpose specified. 45

5. The combination, with the open bed-frame A, having the side openings, *d*, of the lifters C C, hinged to the inner walls thereof, the panel D, supported upon said lifters, and the hand-levers E, jointed to the latter, where- 50 by to partially turn up the lifters by pressing down the levers and completing the vertical positions of the lifters by a pulling action of the levers, as described.

In testimony whereof I have hereunto set my 55 hand in the presence of two subscribing witnesses.

FREDERICK WILLIAM ZIMMER.

Witnesses:

A. E. H. JOHNSON,
WM. R. MACKRILLE.