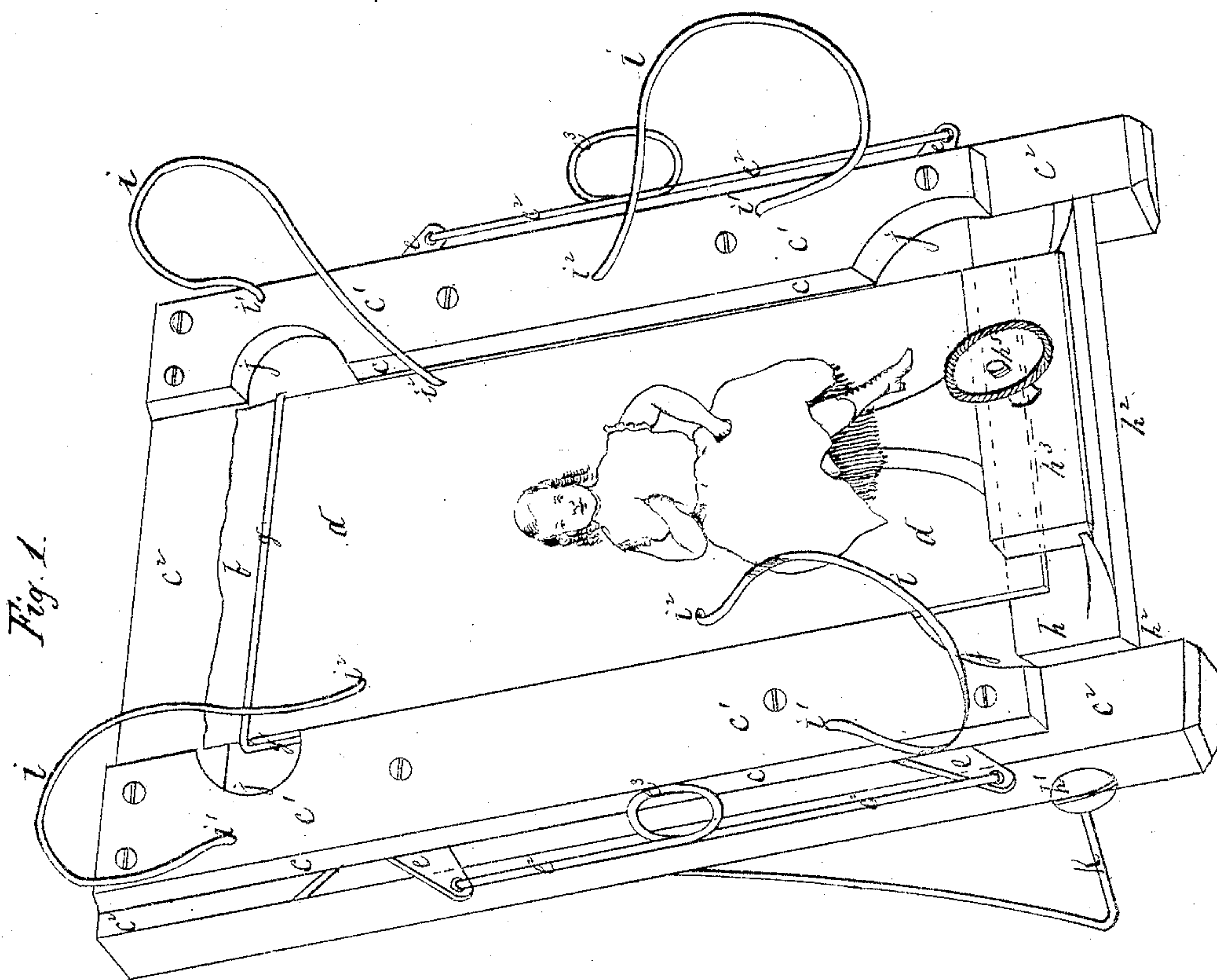


W. H. JACOBY.  
Photographic Printing-Frames.

No. 143,577.

Patented Oct. 14, 1873.



Witnesses  
J. Mason Bodzler  
R. S. Lacey

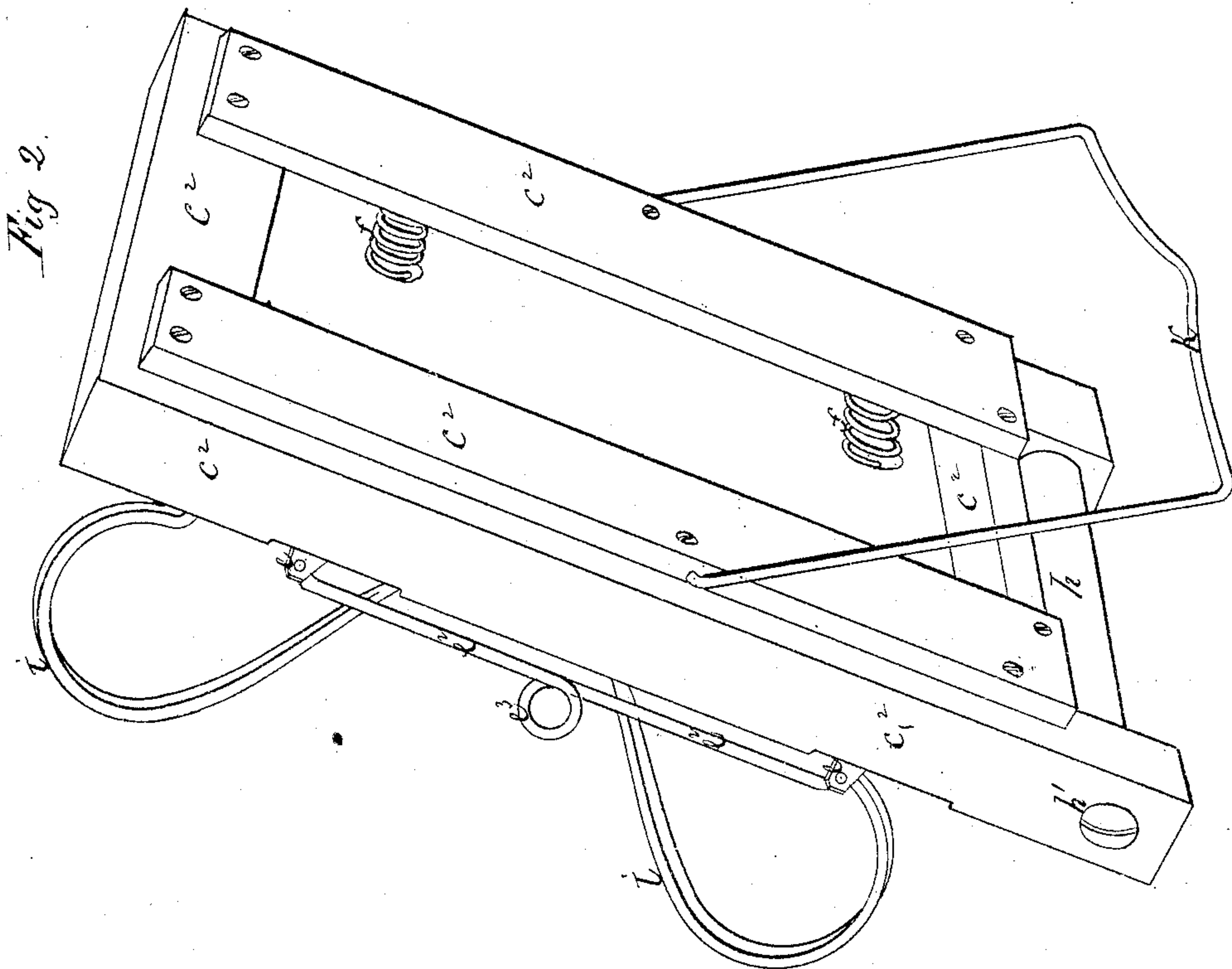
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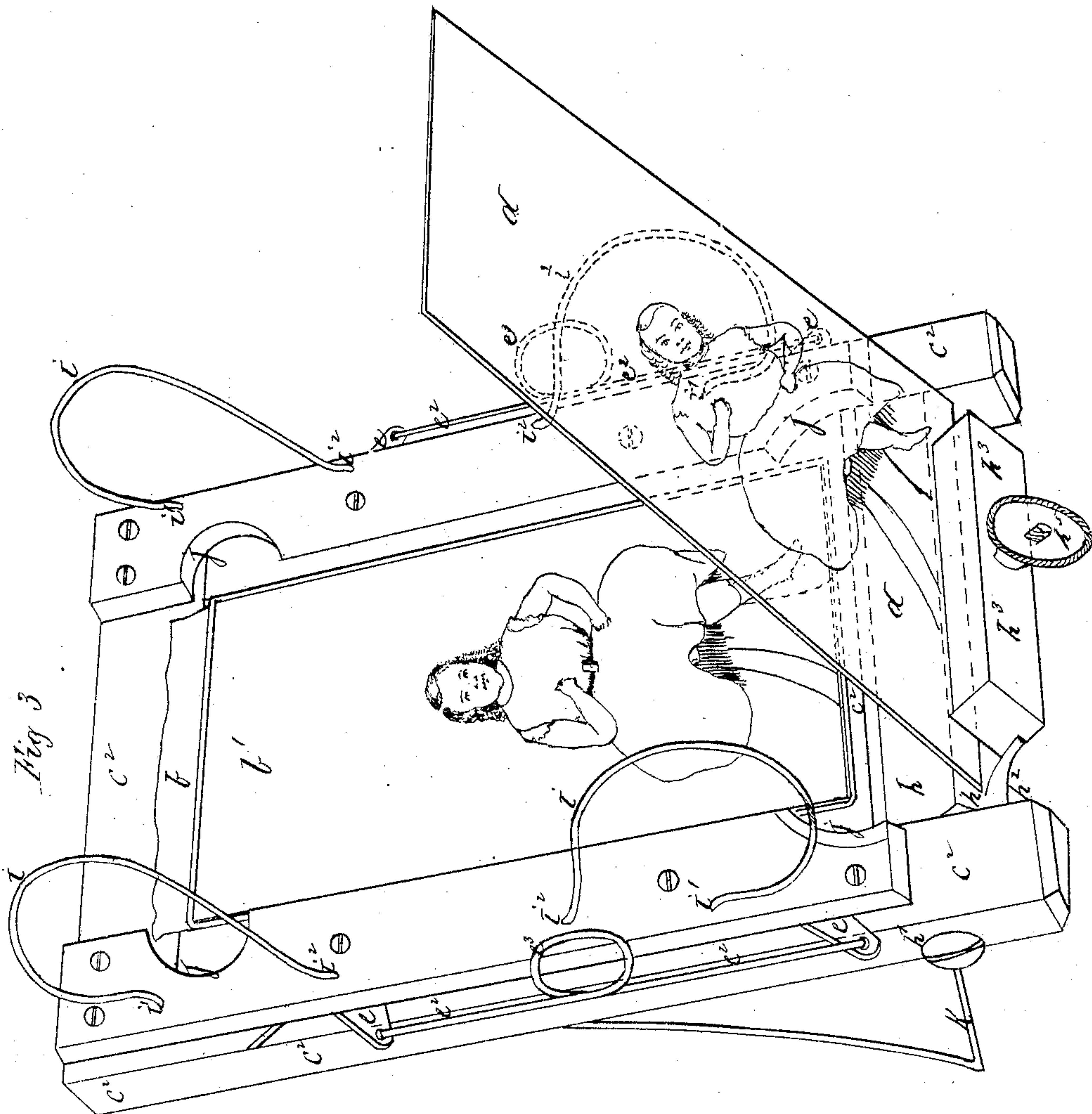
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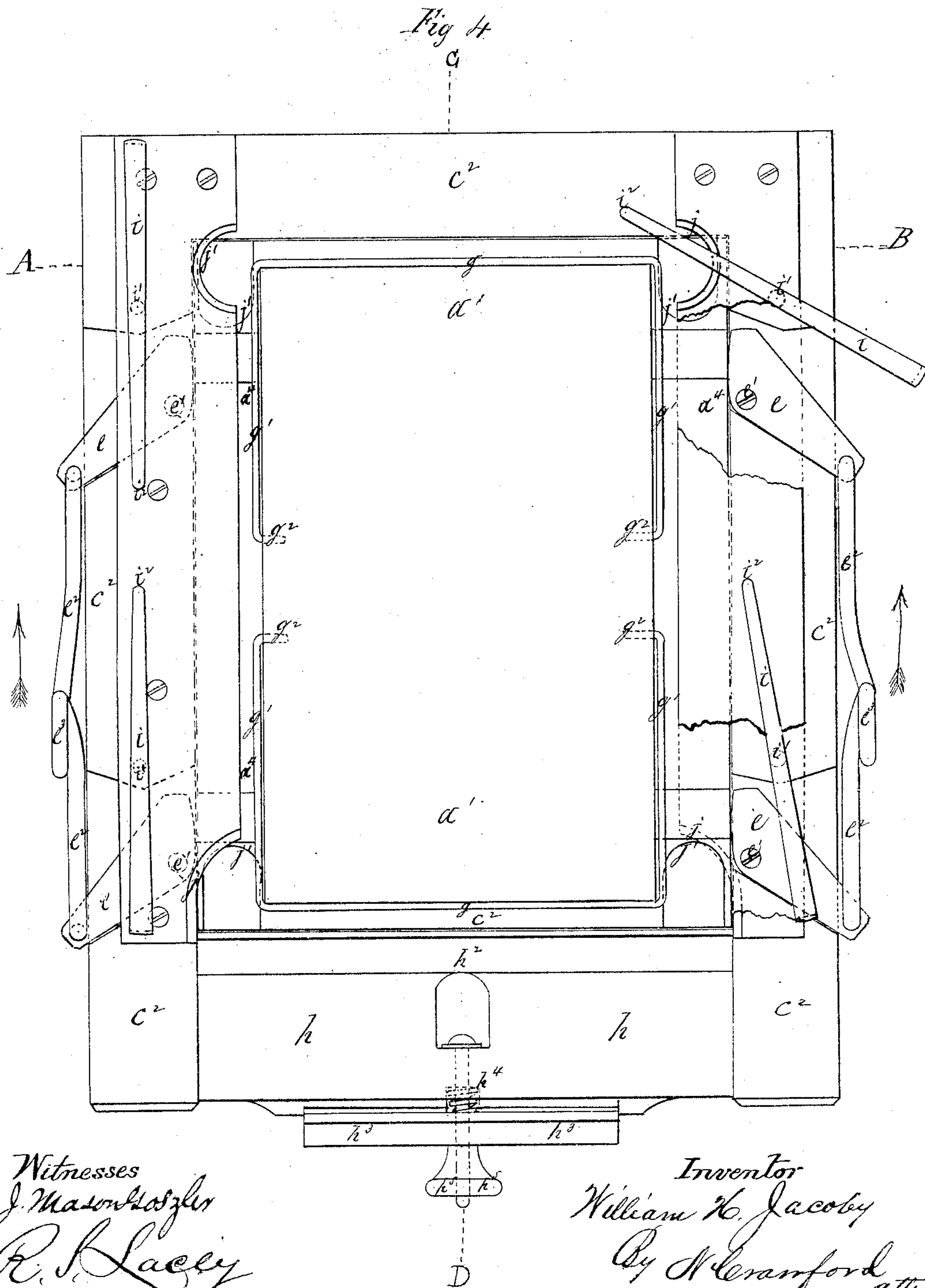


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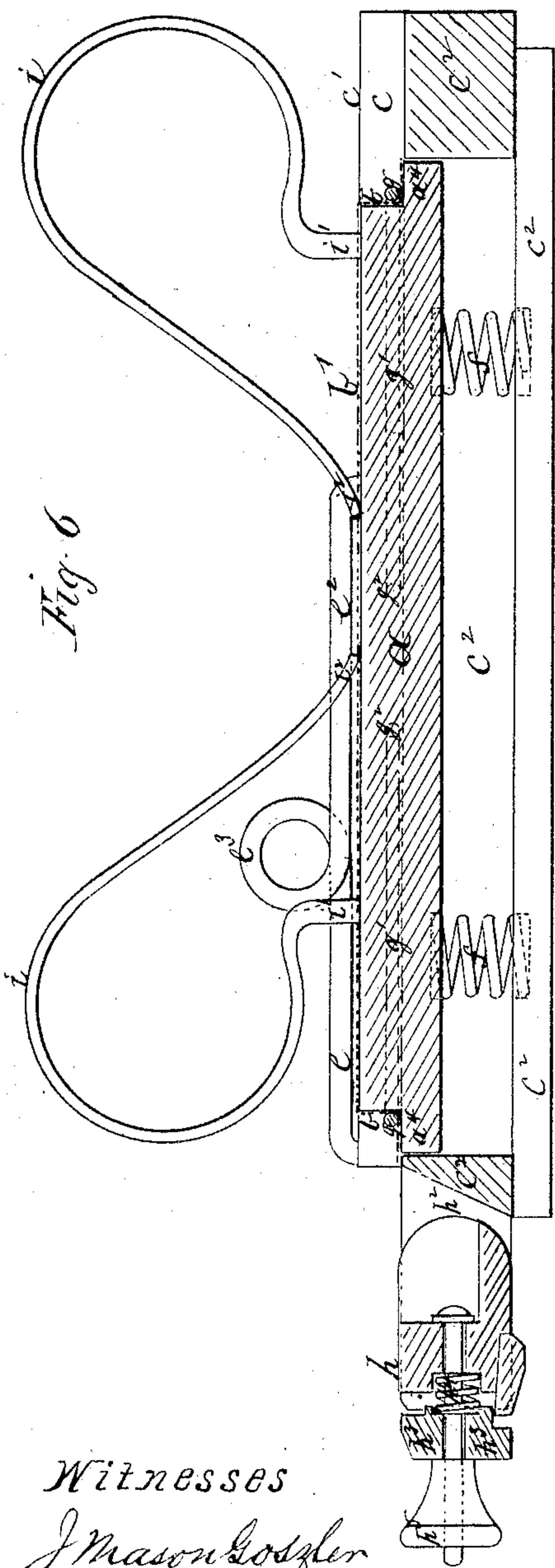
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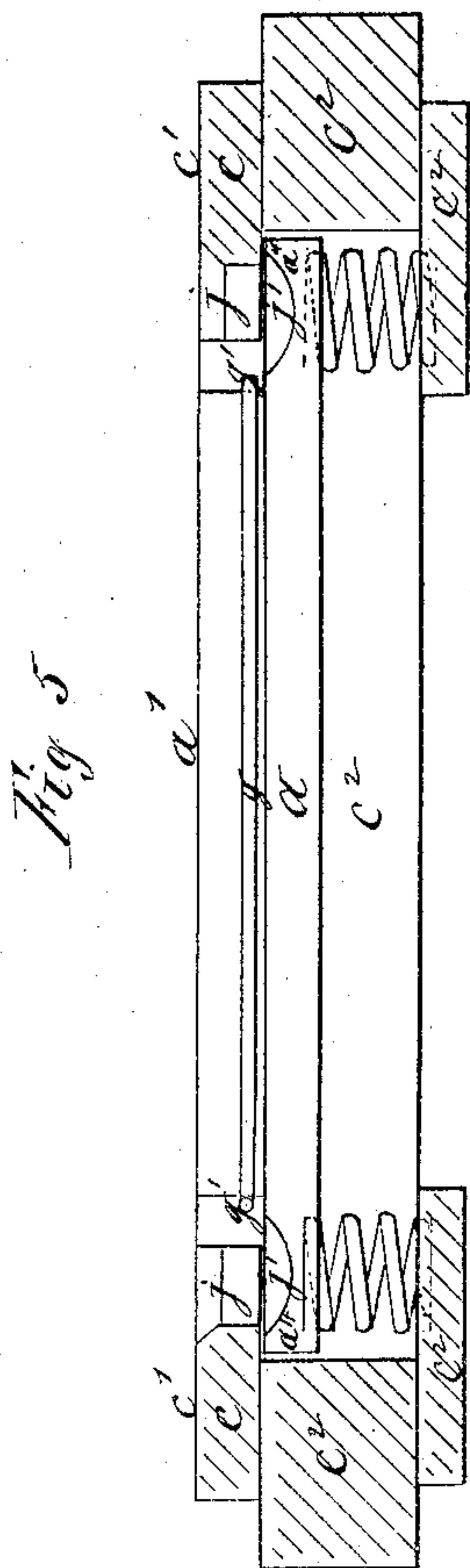
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# UNITED STATES PATENT OFFICE.

WILLIAM H. JACOBY, OF MINNEAPOLIS, MINNESOTA.

## IMPROVEMENT IN PHOTOGRAPHIC PRINTING-FRAMES.

Specification forming part of Letters Patent No. **143,577**, dated October 14, 1873; application filed March 7, 1873.

*To all whom it may concern:*

Be it known that I, WILLIAM H. JACOBY, of Minneapolis, in the county of Hennepin, in the State of Minnesota, have made certain Improvements in Photographic Printing-Frames, of which the following is a specification:

The object of this invention is to so construct photographic printing-frames that positive pictures may be printed from negative plates, either upon porcelain plates or upon other surfaces, so as to imitate the effects produced by printing on porcelain plates, mezzotint-printing, or by the ordinary system of contact-printing on paper or other surfaces, by the same frame at will without the addition, substitution, or removal of parts of the apparatus, while at the same time the negative plate may be raised from its printing position for inspection of the positive picture, and accurately returned to such printing position without danger of spoiling the positive picture.

In carrying out my invention, the bed or surface upon which the plate or sheet (on the surface of which the positive picture is to be produced) is placed is so arranged as to be adjustable and capable of being moved backward and forward, for the purpose of adjustment, either for effect to be obtained, or to allow of sufficient space for the reception of the plates. The bed on which the surface to receive the positive picture is held is moved backward or allowed to be pressed forward at the option of the printer, by the movement of handles operating connecting-rods on each side of the frame, to the ends of which levers are connected, having cam-surfaces formed on their under sides of increasing diameter. These cam-surfaces, when withdrawn, allow the bed to be forced upward or forward to its normal position for contact-printing, by springs arranged at the back of the bed; but when it is required to withdraw the bed backward, such cams are caused to bear on the upper edge of projecting portions of the bed, and by this means force it back the desired distance from its normal position.

When paper or other flexible substance is used for the surface on which the positive picture is to be produced, a sheet or strip of the same, cut to the desired width, not exceeding

the breadth of the upper surface of the bed, is laid over the same and held firmly and tightly stretched by means of a pair of rods, one at each end of the bed, such rods being connected to the ends of levers turning on axes affixed to or in the sides of the bed, and serving as clamps.

When a porcelain plate is employed as the surface to receive the positive picture, the back of such plate is temporarily affixed to a sheet or slip of paper or other flexible substance, by mucilage or other means, and after the plate has been placed in the desired position on the bed it is there retained by the ends of the sheet or slip to which it is affixed, being held or clamped, as before described, when printing on paper or other flexible material. The bed being supported on and pressed forward by springs, will also adjust itself to different thicknesses and forms of plates upon the surface of which positive pictures are to be produced.

The bed is inclosed and operates in a frame, upon the front surface of which rests are formed on either side to receive the edges of the negative plate while the printing is taking place. In addition to these rests, the negative plate is held in a screw-clamp, which is arranged to turn on axes in a recess formed at one end of the printing-frame in such manner that while the negative plate is being employed to print a positive picture, such negative plate may be lifted or tilted up at one end and away from the side rests, the positive picture inspected, and the negative plate returned to its original position, if required, with certainty as to its accuracy of position. The upper half of the screw-clamp for holding the negative plate is forced away from the negative plate by a spring when the retaining-nut is loosened. Springs are arranged on each side of the printing-frame which turn on axes, so that when desired their ends may press on the negative plate, to retain the same in position against the side rests of the frame, but when not required they may be turned round, so that their ends press on the side rests of the frame and leave the negative plate free to be lifted or tilted forward. Recesses are formed in the side rests and projecting portions of the bed, in order that the printer may have room for his or her finger un-



derneath or at the side of the negative plate, for the purpose of placing such plate into, lifting the same forward, or removing it out of position for printing. The printing-frame has a stretcher affixed to its back, so that it can be placed either at any desired angle to suit the light while printing, or such stretcher may be folded against the back and the printing-frame laid flat on a table or other surface, or otherwise. The upper surface of the bed is, by preference, covered with black cloth; but

That my invention may be fully understood, I will proceed to describe the same more in detail by aid of the accompanying drawings, viz:

Figure 1 represents a front view of the apparatus in perspective, with the parts in the position they will assume when printing. Fig. 2 shows a back view of the same, also in position. Fig. 3 is a front view of the printing-frame, showing the negative plate tilted forward in its clamp for the inspection of the positive picture and exposing the positive picture to view. Fig. 4 is a front elevation of the apparatus with parts removed. Fig. 5 represents a horizontal section of parts taken through the line A B of Fig. 4. Fig. 6 shows a vertical section taken through the line C D of Fig. 4.

$a$  is the bed or surface upon which the plate or sheet  $b$  (on the face  $b'$  of which the positive picture is to be produced) is placed after being prepared, as is well understood by operators and printers acquainted with the art of photography. The bed  $a$  supporting the plate or sheet  $b$  is adjustable, and is capable of being moved backward from its normal position, with the surface  $a'$  of the plate or sheet  $b$  level with the surface of the top sides  $c'$  of the rests  $c$  upon which the negative plate  $d$  bears while printing, and consequently in contact with the negative plate  $d$ , in order to allow of adjustment of the position of the surface  $a'$ , either to obtain the effect of printing on porcelain plates, upon paper, or other substances, mezzotint-printing, or to allow of sufficient space between the surface  $a'$  of the bed  $a$  and the under surface of the negative plate  $d$  for the reception of plates when porcelain is used. The bed  $a$  is moved backward from the negative, or allowed to be pressed toward it by means of levers  $e$ , which have cam-surfaces formed on their under sides of increasing diameter. The levers  $e$  turn on axes  $e^1$  and are operated by the handles  $e^2$  of the connecting-rods  $e^3$  on each side of the printing-frame, to the ends of each of which a lever,  $e$ , is connected.  $f f$  are springs arranged at the back of the bed  $a$  to keep such bed in its normal position for contact-printing when the cam-levers  $e$  are withdrawn or when the levers  $e$  are in action, firmly bearing against them in order that its position may be accurately controlled. When it is required to withdraw the bed  $a$  backward the handles  $a^2$  are pressed in the direction of the arrow in Fig. 4, thereby causing the cams  $e$  to bear on the upper edge of the projecting portions  $a^4$  of the bed  $a$  and by this means force it back the desired dis-

tance from its normal position. When paper or other flexible material is used for the surface on which the positive picture is to be produced a strip of the same is cut to the width desired, not exceeding the breadth of the upper surface  $a^1$  of the bed  $a$ , and laid over the surface  $a^1$ . It is then held firmly on and stretched over the surface  $a^1$  by means of the clamping-rods  $g g$ , one at each end of the bed  $a$ , such rods  $g$  being connected to the ends of levers  $g^1$ , turning on axes  $g^2$  working in bearings formed on the sides of the bed  $a$ . When a porcelain plate is employed as the surface to receive the positive picture the back of such plate is affixed temporarily to a sheet or strip of paper or other flexible material by mucilage or other means, and, after such plate has been placed in the desired position on the bed  $a$ , it is there retained by the ends of the sheet or slips, to which it is temporarily affixed, being clamped, as before described, by means of the rods  $g g$ . The bed  $a$  being supported and pressed forward by springs  $f f$ , it will adapt itself to different thicknesses and forms of plates upon the surfaces of which positive pictures are to be produced by printing. The bed  $a$  is inclosed and operated in a frame,  $c^2$ , upon the front surfaces of which the rests  $c$  are formed on each side to receive and support the negative plate  $d$  while the printing is taking place. In addition to being received and supported on the rests  $c$ , the negative plate  $d$  is held in a screw-clamp,  $h$ , arranged to turn on axes  $h^1$  in a recess,  $h^2$ , formed at one end of the frame  $c^2$  in such manner that while the negative plate is being employed to print a positive picture, as shown by Fig. 1, such negative plate may be lifted or tilted up at one end and away from the side rests  $c$ , as shown by Fig. 3, the positive picture  $b^1$  inspected, and the negative plate returned to its original position, if required, without any danger of spoiling the positive picture by reason of the negative plate being inaccurately replaced. The upper half  $h^3$  of the screw-clamp  $h$  is forced away from the negative plate  $d$  by a spring,  $h^4$ , when the binding-screw  $h^5$  is loosened for the purpose of removing the negative plate  $d$ .  $i i$  are springs arranged on either side of the printing-frame, which turn on their axes  $i^1$ , so that, when desired, their ends  $i^2$  may press on the negative plate  $d$ , to retain the same in position against the rests  $c$ , but, when not required, they may be turned around so that when ends  $i^2$  press on the side rests  $c$  and leave the negative plate free to be lifted or tilted forward, as shown by Fig. 3, or removed.  $j j$  are recesses formed in the side rests  $c$  and the projecting portions  $a^4$  of the bed  $a$ , in order that the printer may have room for his or her fingers under or at the side of the negative plate  $d$ , for the purpose of placing such plate into, or lifting, tilting, or removing the same out of position for printing.  $K$  is a stretcher affixed to the back of the printing-frame, in order that it may be supported at any desired angle to suit the light while print-



ing, or such stretcher K may be folded against the back and the printing-frame laid flat on a table or other surface, or otherwise.

By this arrangement of printing-frame it will be readily seen by those acquainted with photographic printing that the following advantages are obtained: First, positive pictures can be produced from negative plates either on paper or other suitable surfaces by contact-printing—that is, with the collodion or varnish side of the negative plate close down upon the surface on which the positive picture is to be produced. Second, imitation porcelain-printing—that is, somewhat the effect of pictures printed on porcelain, or mezzotint-printing—may be obtained on paper or other substances by withdrawing the bed *a* and the surface *b*<sup>1</sup> (to receive the positive picture) away from the negative plate *d*. Third, porcelain-printing—or, in other words, positive pictures—may be printed from negative plates onto porcelain

plates without necessitating the addition, substitution, or removal of any of the parts of the apparatus.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination of the movable or adjustable bed *a*, levers *e*, rods *e*<sup>1</sup>, handles *e*<sup>2</sup>, springs *f*, and clamping-rods *g g*, in the manner and for the purpose substantially as described.
2. The combination of the parts named in the preceding claim with the springs *i i*, substantially as and for the purpose described.
3. The combination of the parts named in the two preceding claims with the rests *c*, clamp *h*, when constructed and operated substantially as and for the purpose described.

WILLIAM H. JACOBY.

Witnesses:

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R. S. BRYANT.