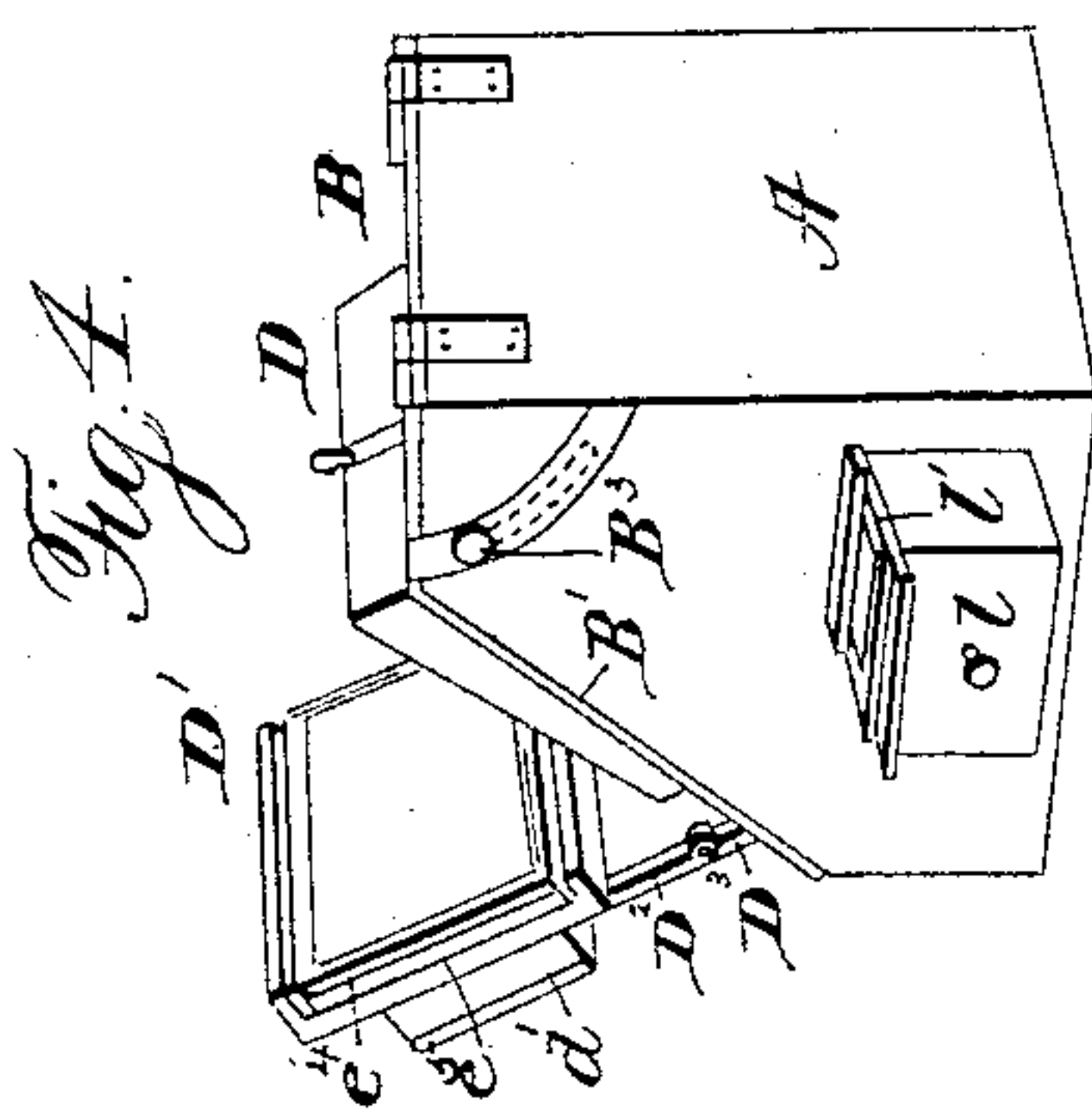
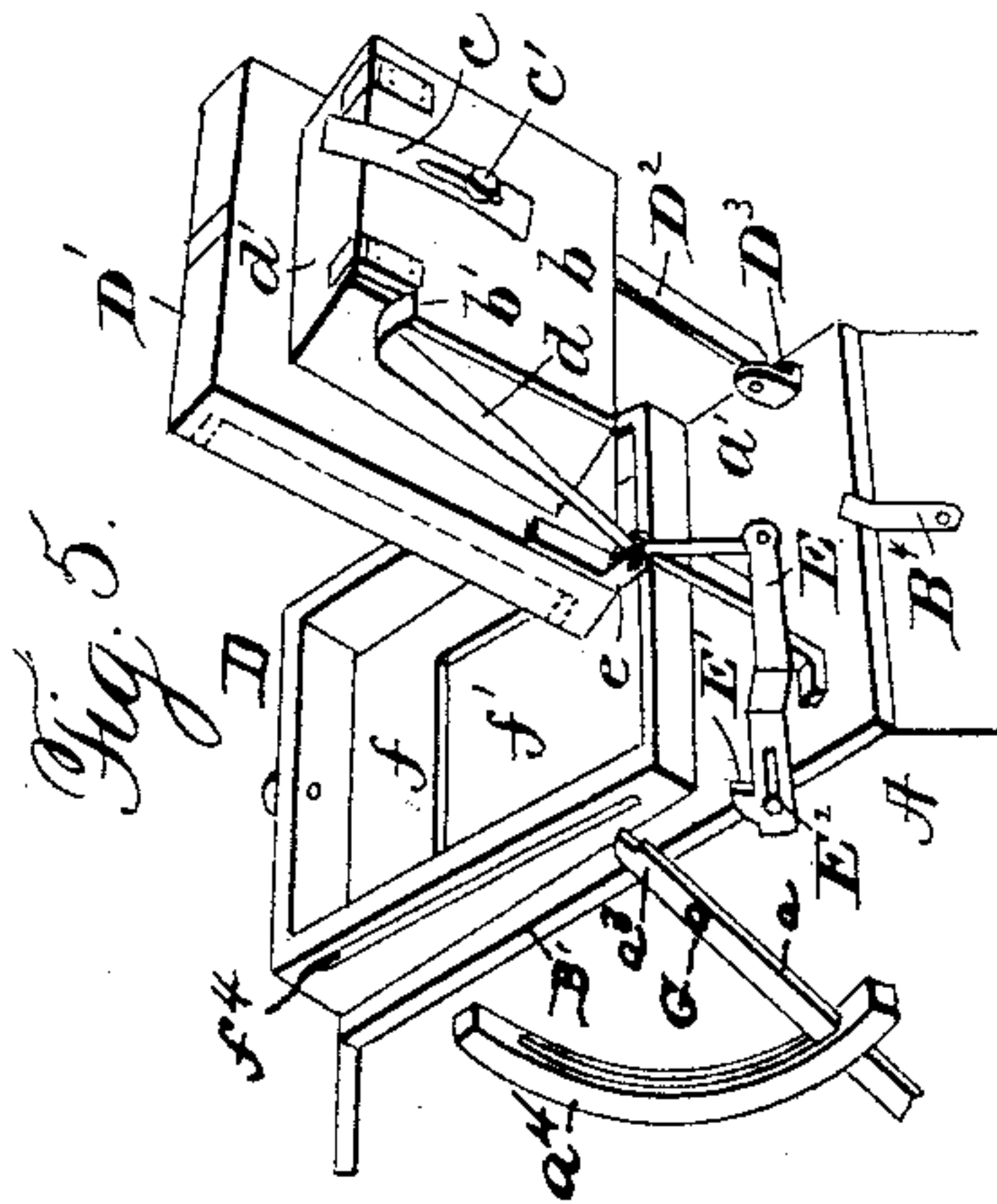
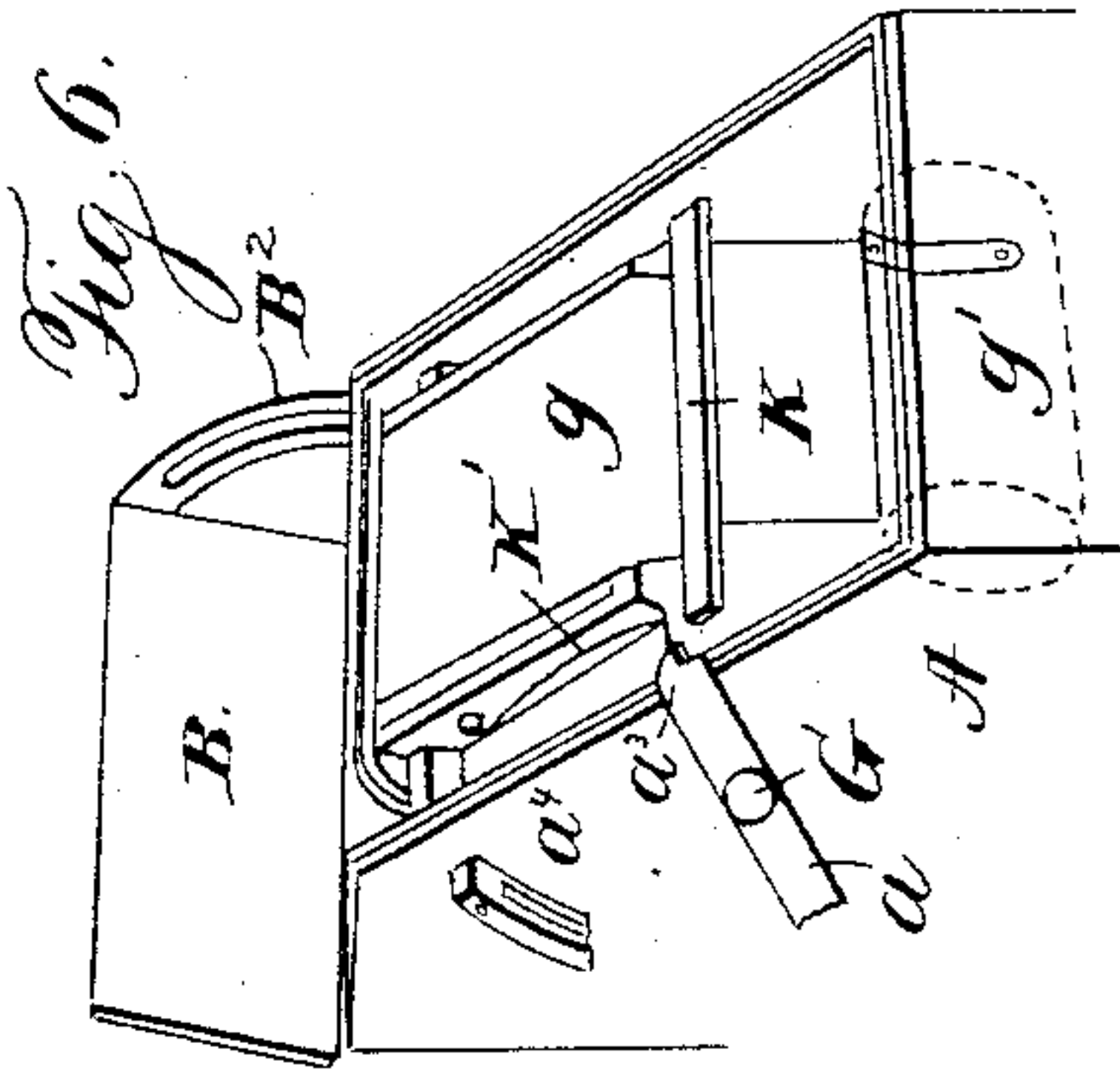
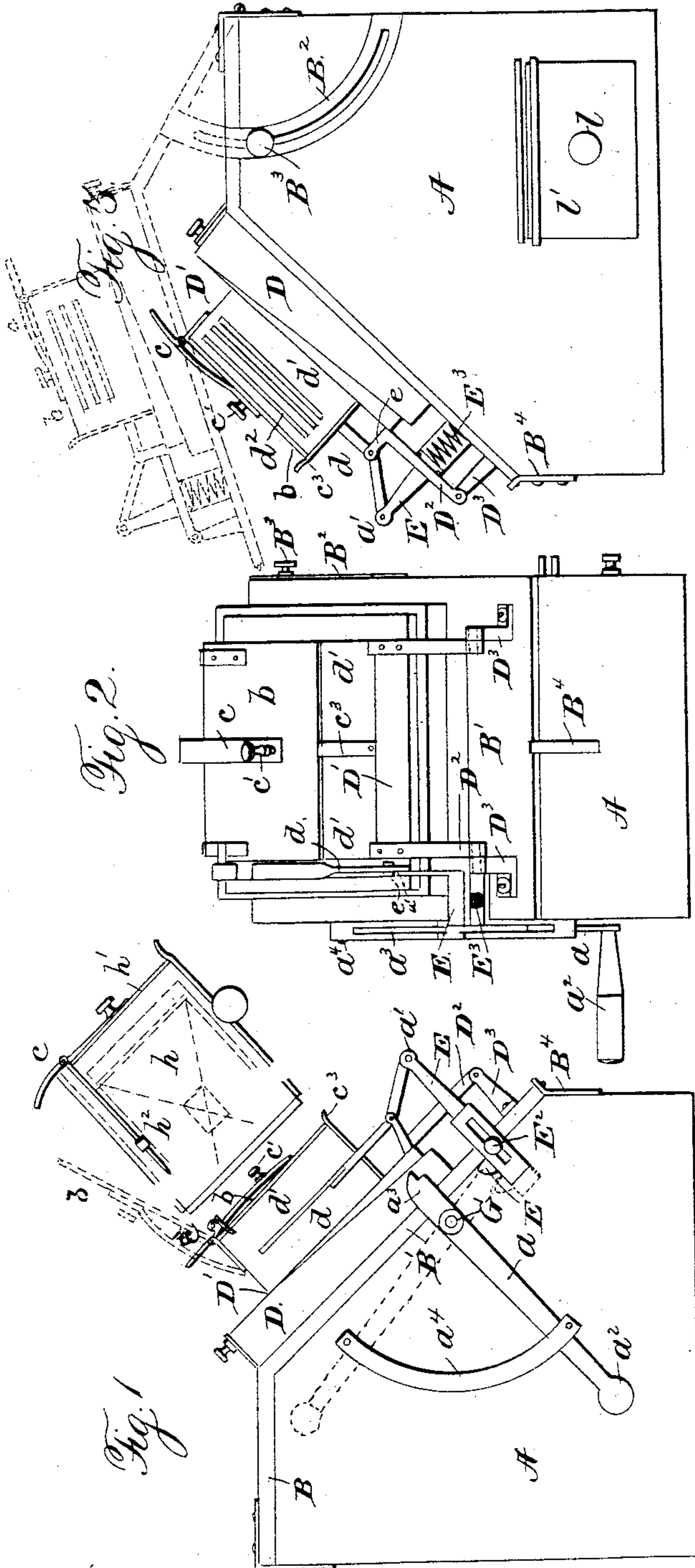


R. J. WYNKOOP & J. M. KEMP.
PHOTOGRAPHIC PRINTING APPARATUS.

No. 445,581.

Patented Feb. 3, 1891.



Witnesses:
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(No Model.)

2 Sheets—Sheet 2.

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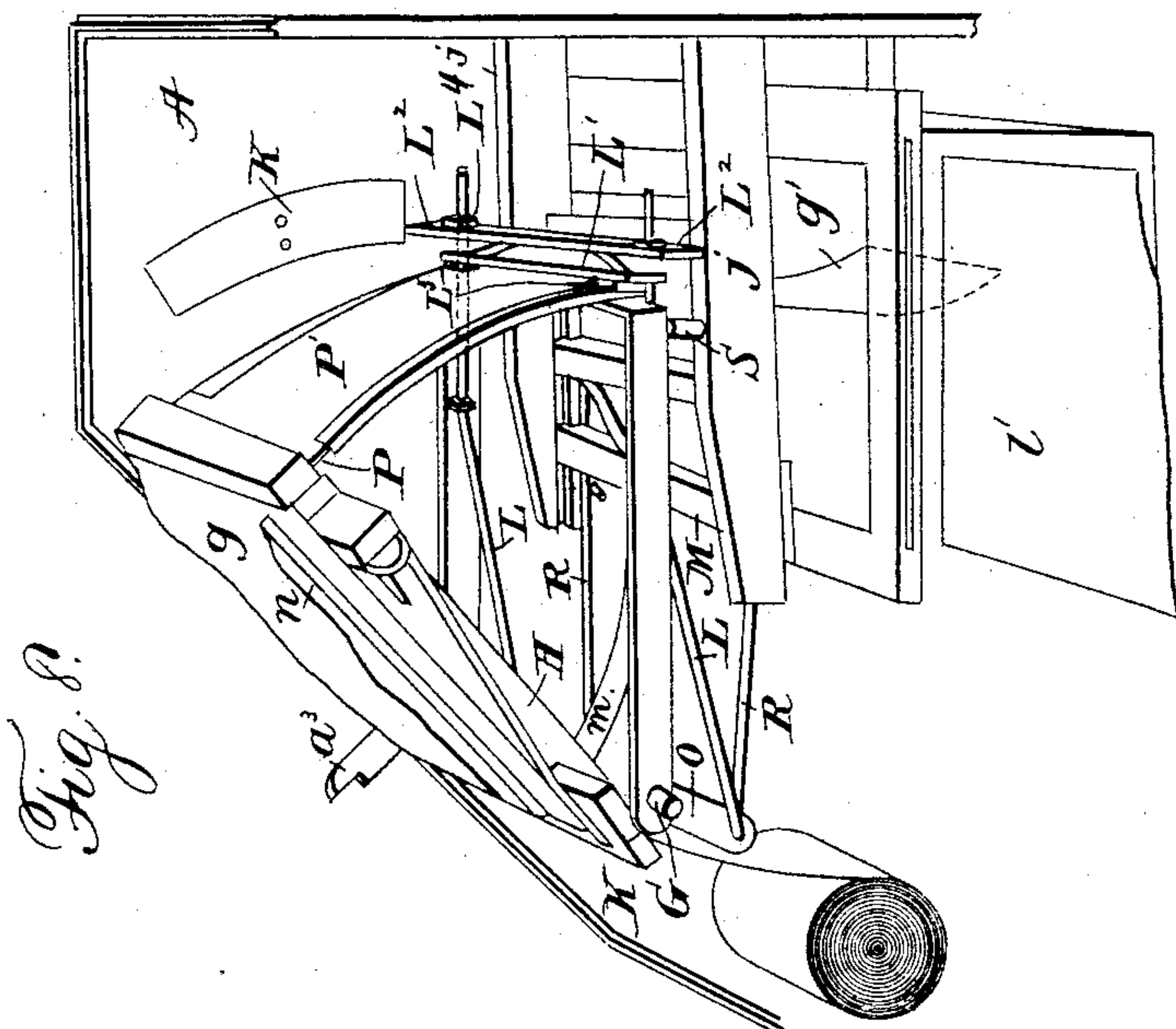


Fig. 8.

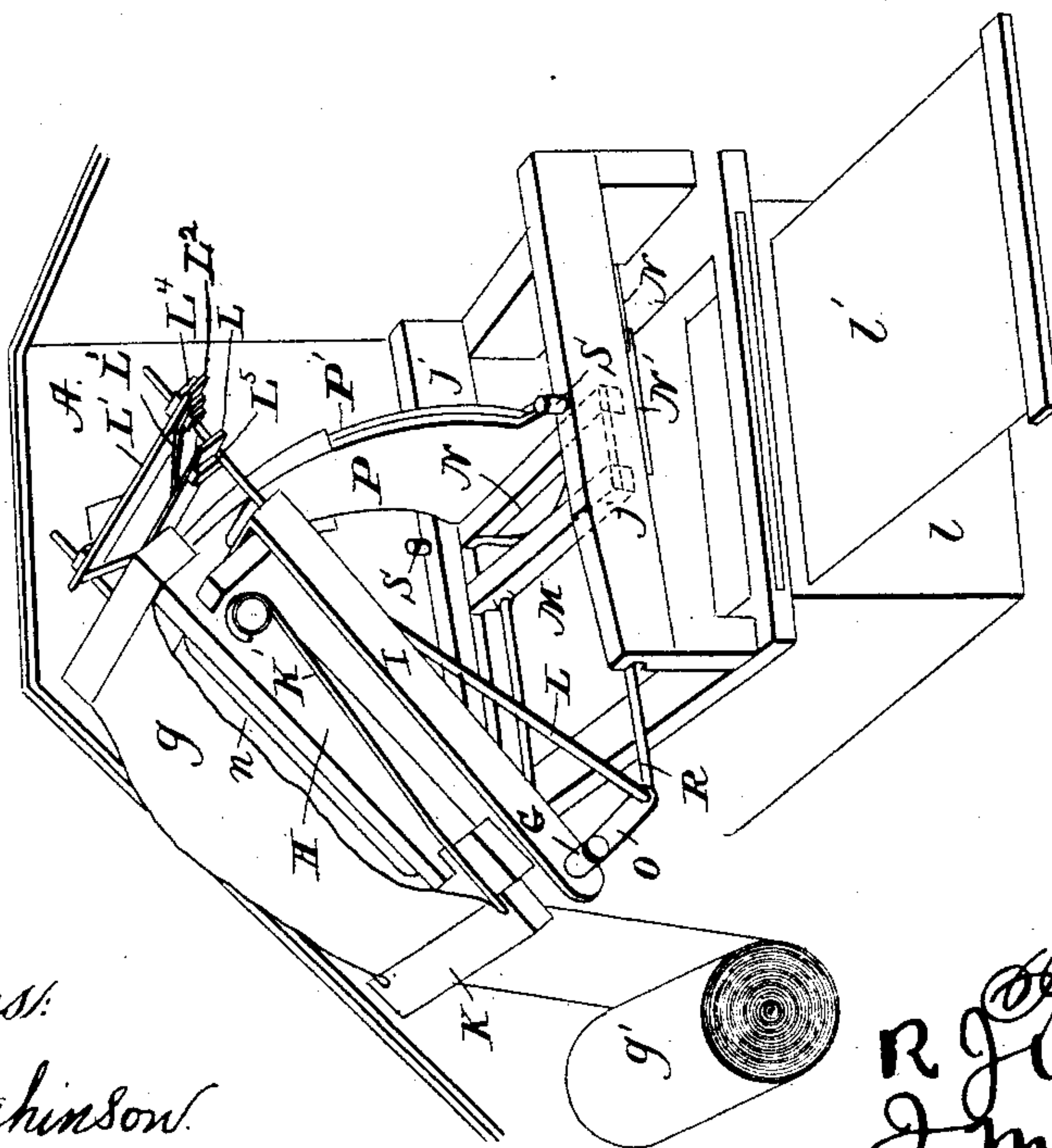



Fig. 1.

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UNITED STATES PATENT OFFICE.

RICHARD J. WYNKOOP AND JOHN M. KEMP, OF PATERSON, NEW JERSEY.

PHOTOGRAPHIC-PRINTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 445,581, dated February 3, 1891.

Original application filed June 16, 1890, Serial No. 355,688. Divided and this application filed December 22, 1890. Serial No. 375,398. (No model.)

To all whom it may concern:

Be it known that we, RICHARD J. WYNKOOP and JOHN M. KEMP, of Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Photographic-Printing Apparatus; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an improved machine or apparatus for rapidly printing and trimming or cutting photographs, and is a division of the application, Serial No. 355,688, filed by us June 16, 1890.

The object is to provide means for contact-printing; and the invention consists in apparatus for holding films or sensitized paper in close contact with a photographic negative during exposure, and in certain other novel features of construction and combination of parts, as will be hereinafter described, and pointed out in the claims.

Like letters of reference indicate like parts in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is one side view of our improved photographic printing and trimming apparatus. Fig. 2 is a front view; Fig. 3, a view of the other side. Fig. 4 is a rear perspective view showing the negative-holder swung from the inclined front of box or casing. Fig. 5 is a front perspective view showing the parts in the same position, parts being omitted. Fig. 6 is a front perspective view, the cover being raised entirely, parts being omitted. Fig. 7 is a longitudinal sectional perspective view showing the paper-grip in raised position. Fig. 8 is a similar view showing the grip in a lowered position.

The box or casing A is provided with the hinged cover B, having the inclined part B'. A curved slotted arm B² is secured to the cover, and through the slot of said arm a clamping-screw B³ passes into the side of the casing A, and by means of the slotted arm and the screw B³ the cover B can be held in a raised position, as shown in dotted lines in Fig. 3.

B⁴ is a spring-catch for locking the cover in place.

In the inclined part B' of the cover an opening *f'* is provided, which is surrounded by a box-shaped frame D, having a ledge *f* at its bottom.

The negative-holder D' consists of a frame or box having arms D², hinged to standards D³ on the inclined part B' of the cover B. The negative-holder D' is adapted to pass into the frame D and to fit tightly, and it can be swung out to put in place the negative, as shown in Figs. 4 and 5.

On the top or cover of the negative-holder D' the vignette-holder *d'* is fixed, which is provided with side slots *d*² for inserting the vignettes. This vignette-holder has a hinged cover *b*, on which a longitudinal slotted spring *c* is held by a thumb-screw *c'*, so as to permit the adjusting of said spring-arm to project a greater or less distance beyond the hinged end of the cover *b*. A spring-catch *c*³ serves for locking the cover *b*. The cover *b* is provided at one side edge near the hinged end with a projection *b'*, on which the free end of a spring-arm *d* can act, which arm is pivoted to a standard *c* on the hinged negative-holder D' and has its opposite end pivoted at *a'* to angle-rod E, which is provided with a nose E' and with a longitudinal slot through which a screw E² passes into the side of the box or casing A. A spring E³, of any suitable kind, presses the rod E outward or upward. A shaft G passes transversely through the casing A, and is provided at one end with a crank-arm *a*, provided with a handle *a*² and an extension *a*³. A curved guide *a*⁴ on the side of the box A serves for guiding said crank-arm. Within the casing A a fixed inclined frame H is held parallel with and directly below the inclined part B' of the cover B. The sensitized paper forming the roll *g'*, held in the bottom front part of the casing A, passes over a pad *n*, held loosely in the frame H, and then between two curved plates P P', of less width than the sheet, so that the side edges of the sheet project beyond the side edges of the curved plates P. Said curved plates P extend downward from the upper end of the frame H. A presser-bar K, secured to springs K', fastened on the side of the bars of the frame H, bears on the sheet *g* and holds it taut.

A U-shaped bar *i* has its ends secured on

the shaft G, the cross-piece of said bar being adjacent to the concave side of the plate P. Sliding rods L are secured to cranks *o* of the shaft G, and their opposite ends are passed through apertures in the cross-piece of the bar *i* and through apertures in the cross-piece L', extending transversely across the convex surface of the plate P'. The ends of the rods L are also passed through a cross-piece L², carrying a spring L³, and through nuts L⁴. Pads L⁵, of rubber, felt, or other suitable material, are secured to the cross-piece L for gripping the paper.

Segmental guide-plates *k* are secured to the inner surface of the sides of the casing A and serve to guide the cross-piece L² in a manner that will be set forth. This is an essential feature of our invention, and by way of further emphasis it may be added in this connection that a perfect print is dependent upon the sensitized paper or film being pressed firmly against or kept in close contact with the negative the moment that the printing is being done and during the period of exposure to light. This is of course momentary, and the contact of the paper or film with the negative is simultaneous with this exposure.

Between fixed rails *j* in the casing A a fixed knife N is arranged, and between said rails a sliding frame M is arranged, which carries a knife *n'*, both knives being directly below the bottom edges of the curved plates P P'.

Rods R connect the sliding frame M with the cranks *o* of the shaft G.

S are buffers for the swinging bar *i*.

l is a drawer for the prints that are cut off, and *l'* is the sliding light-excluding cover for the said drawer.

The operation is as follows: The negative *e*⁴ is adapted to be properly adjusted in the holder D', and to this end there is a frame *e*⁵, upon which the negative is held, which is made to slide laterally in the holder, and by way of further adjustment the negative itself may of course be freely moved endwise as much as desired in either direction, so that between the two adjustments the negative is capable of being moved to the exact position required. The crank-arm *a* is raised, whereby the bar *i* is swung down, and as the ends of the cross-piece L² slide along the concave edges of the guides *k* the spring L³ presses the pads L⁵ against the projecting edges of the sheet *g*, which is thus gripped and pulled downward between the curved plates P P', and at the same time the knife-frame M is withdrawn. By drawing down the paper between the curved plates P P' a fresh part of the paper is drawn up over the pad *n*. Just before the upstroke of the crank is completed the arm *a*³ strikes the nose E', pulling the same downward suddenly, whereby the free end of the spring-arm *d* is thrown up suddenly, and, striking the projection *b'* of the cover *b*, throws the cover *b* upward suddenly, thus permitting the light to enter and to act on that part of the film or sheet *g*, which film is pressed at that moment

by the spring *m* and pad *n* against the negative. The projecting end of the spring *c* strikes against the back of the casing *d'* and throws the cover *b* back again. According as a greater or less length of spring *c* projects beyond the cover *b*, said cover closes more or less rapidly. The crank *a* is then raised, and thereby the bar *i* is raised, the cross-piece L² sliding on the convex edges of the guides *k*, whereby the pads L⁵ are clear from the sheet and do not affect the same. At the same time the sliding knife-frame M is moved toward the rear, and the previously printed part of the sheet is cut off by the knives N N' and drops into the drawer L. By the next upward movement of the crank *a* that part of the film or sheet *g* just printed is moved down between the plates P P' and a fresh supply of paper is moved over the pad N, and by the downward movement of the crank *a* the sheet is cut off, and so on.

In order to exclude light from the interior of the apparatus when it is necessary to remove a negative from the holder, a slot *f*⁴ is formed in the side of the holder to receive a slide. This slide is pushed through the slot, after which the negative-holder may be swung open, as shown in Fig. 5, without letting light into the apparatus to injure and fog the paper contained therein. By means of this slide the interior is kept just as dark as though the holder were closed, and so its only function is to exclude the light when the negative-holder is raised or opened. When the holder is closed again, the slide is removed.

On the vignette-holder *d'* the enlarging-box *h* may be placed, which has a spring-cover *h'*, operated by a rod *h*² from the spring-arm *d*, as shown in Fig. 1.

We make no claim in this application to a combination of the casing, means contained therein for holding and actuating sensitized paper, a cover constructed with a holder in which a negative may be removably secured, and also provided with a shutter for admitting the light to and excluding it from the negative-holder, nor to a casing and means contained therein for holding and feeding sensitized paper, a hinged negative-holder, and a separably-hinged shutter, as these features are fully described and covered by the application, Serial No. 355,688, filed June 16, 1890.

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a negative-holder, of a paper-feeder and a paper-cutter, substantially as set forth.

2. The combination, with a casing, a negative-holder, and shutter, of a paper-cutter and a shaft from which the shutter and paper-cutter are operated, substantially as set forth.

3. The combination of a casing, a negative-holder, a shutter on the latter, a paper-feeder,

a paper-cutter, and a shaft from which the shutter, feeder, and cutter are operated, substantially as set forth.

4. The combination, with a casing, of a negative-holder, a vignette-holder on the latter, and a shutter on the vignette-holder, substantially as set forth.

5. The combination, with a casing, of a negative-holder, a vignette-holder on the latter, a shutter on the vignette-holder, a spring-arm for operating the shutter, and a shaft adapted to vibrate the spring-arm, substantially as set forth.

6. The combination, with a casing, of a negative-holder, a vignette-holder on the latter, a shutter on the vignette-holder, a spring-arm for operating the shutter, a shaft having an arm, and a slide adapted to be acted upon by said arm, and said slide connected with the spring-arm, substantially as set forth.

7. The combination, with a negative-holder, of a frame to which the latter is connected and having a slot therein adapted to receive a slide, whereby light is excluded when the negative-holder is raised from the frame, substantially as set forth.

8. The combination of a casing, a cover provided with an opening, a negative-holder, a vignette-holder, a cover or shutter, a spring on the cover, a projection on the cover, a spring-arm, a spring-actuated slide having a nose thereon, and a crank having an extension thereon, substantially as set forth.

9. In an apparatus for photographic printing, the combination, with a pad or support for supporting the film or sensitized paper, of a spring-actuated bar for pressing the film or paper against the pad and a gripping device for feeding the paper and drawing it across and in close contact with the pad or support, substantially as set forth.

10. In an apparatus for photographic printing, the combination of the casing, a frame, shaft, guide-plates, and a swinging paper-feeder on the shaft, substantially as described and shown.

11. In an apparatus for photographic printing, the combination of the casing, a frame, shaft, U-shaped bar *i*, cross-pieces, a spring-pad, rods, and cranks on the shaft, substantially as described and shown.

12. In an apparatus for photographic printing, the combination of the casing, a frame, a swinging paper-feeding device, and the curved plates *P P'* for guiding the paper, substantially as described and shown.

13. In an apparatus for photographic printing, the combination of the casing, frame thereon, a pad in said frame, a shaft, spring *m* on the same, adapted to act on the pad, a negative-holder, and a paper-feeding device, substantially as set forth.

14. In an apparatus for photographic printing, the combination of the casing, the frame *H*, guides for a paper sheet, guides *k*, and a swinging paper-feeder on which the guides *K k* act, substantially as described and shown.

15. In an apparatus for photographic printing, the combination of the casing, the frame *H* therein, a paper-feeder, a shaft from which said paper-feeder is operated, the guide-plates, and a cutter below said plates and operated from the shaft, substantially as described and shown.

16. In an apparatus for photographic printing, the combination of the casing *A*, the frame *H* therein, the guide-plates *P P'*, a swinging paper-feeder operated from the shaft *G*, and a fixed knife below the plates *P P'*, operated from the shaft *G*, substantially as described and shown.

17. In an apparatus for photographic printing, the combination of the casing *A*, a negative-holder, a paper-feeder and a paper-cutter operated from the same shaft, a drawer in said casing, and a slide on said drawer, substantially as described and shown.

18. In a photographic apparatus, the combination, with a negative-holder and a support for the film or sensitized paper, of a gripping device for feeding the paper and another device for holding the paper while the feeding gripping device is being moved to take a fresh grip, substantially as set forth.

19. In a photographic apparatus, a cutter, in combination with a negative-holder and means for severing the sensitized paper after the operation of printing, substantially as set forth.

20. In a photographic apparatus, the combination, with a negative-holder and support for the film or sensitized paper, of a cutter for cutting the sensitized paper after it has been printed and a device for gripping and holding the paper while it is being cut, substantially as set forth.

21. In a photographic apparatus, the combination, with a cutter, of a removable box for receiving the severed sheets of sensitized paper, the box being provided with a cover to exclude the light from its contents, substantially as set forth.

22. In a photographic apparatus, the combination, with a negative-holder shutter and means for supporting sensitized paper while being printed, of means for feeding and holding the sensitized paper and a cutter for severing it into sheets after it has been printed, substantially as set forth.

23. In a photographic apparatus, the combination of the following instrumentalities, to wit: a negative-holder, a support for the film or sensitized paper, and means for automatically, feeding, holding, and cutting the sensitized paper, substantially as set forth.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

RICHARD J. WYNKOOP.
JOHN M. KEMP.

Witnesses:

EDWARD R. WEISS,
JOHN H. WHITE.