

No. 859,191.

PATENTED JULY 9, 1907.

M. H. BALLARD.  
PAPER CUTTING DEVICE.  
APPLICATION FILED MAR. 18, 1907.

2 SHEETS—SHEET 1.

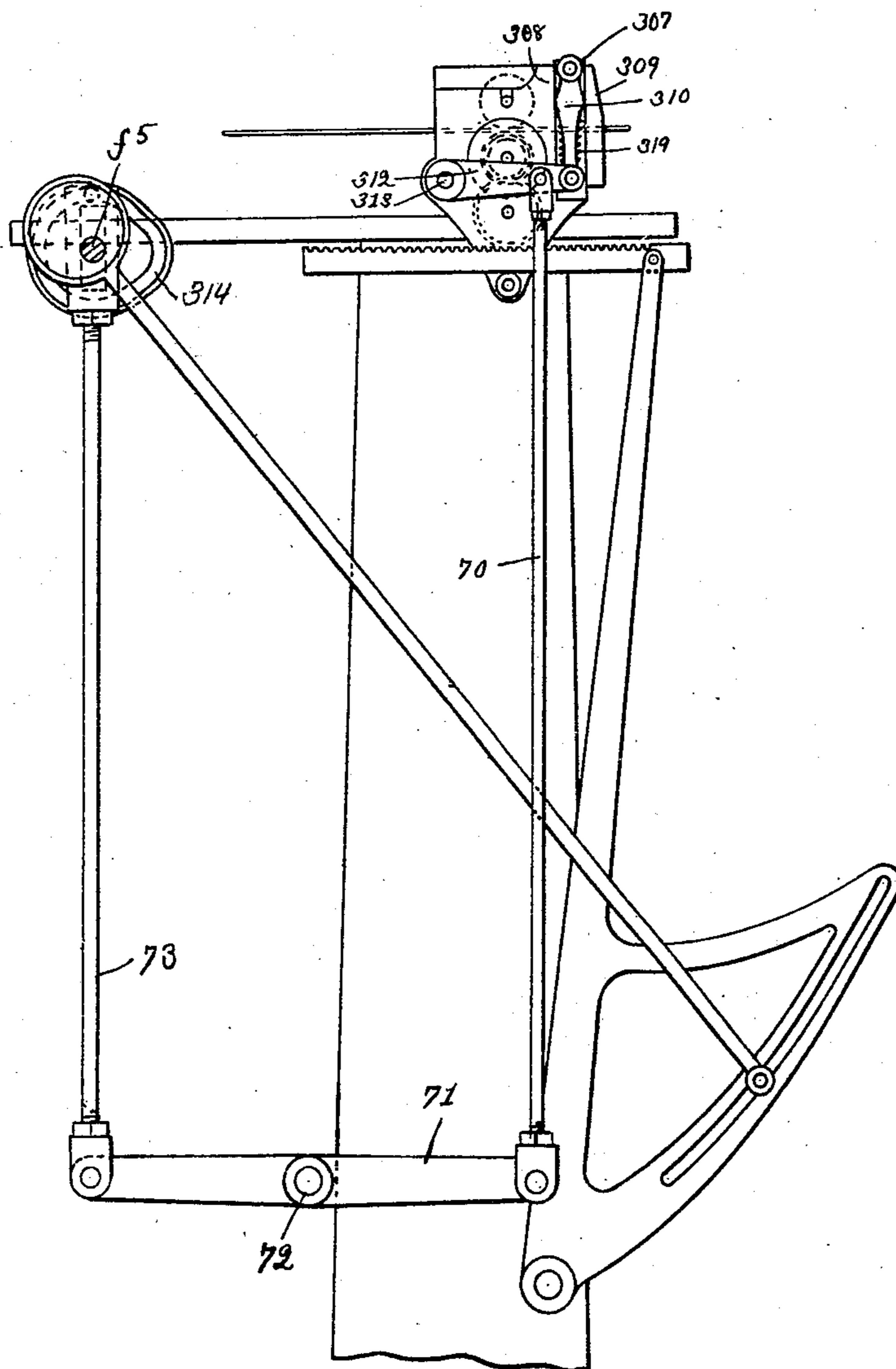


Fig. 1.

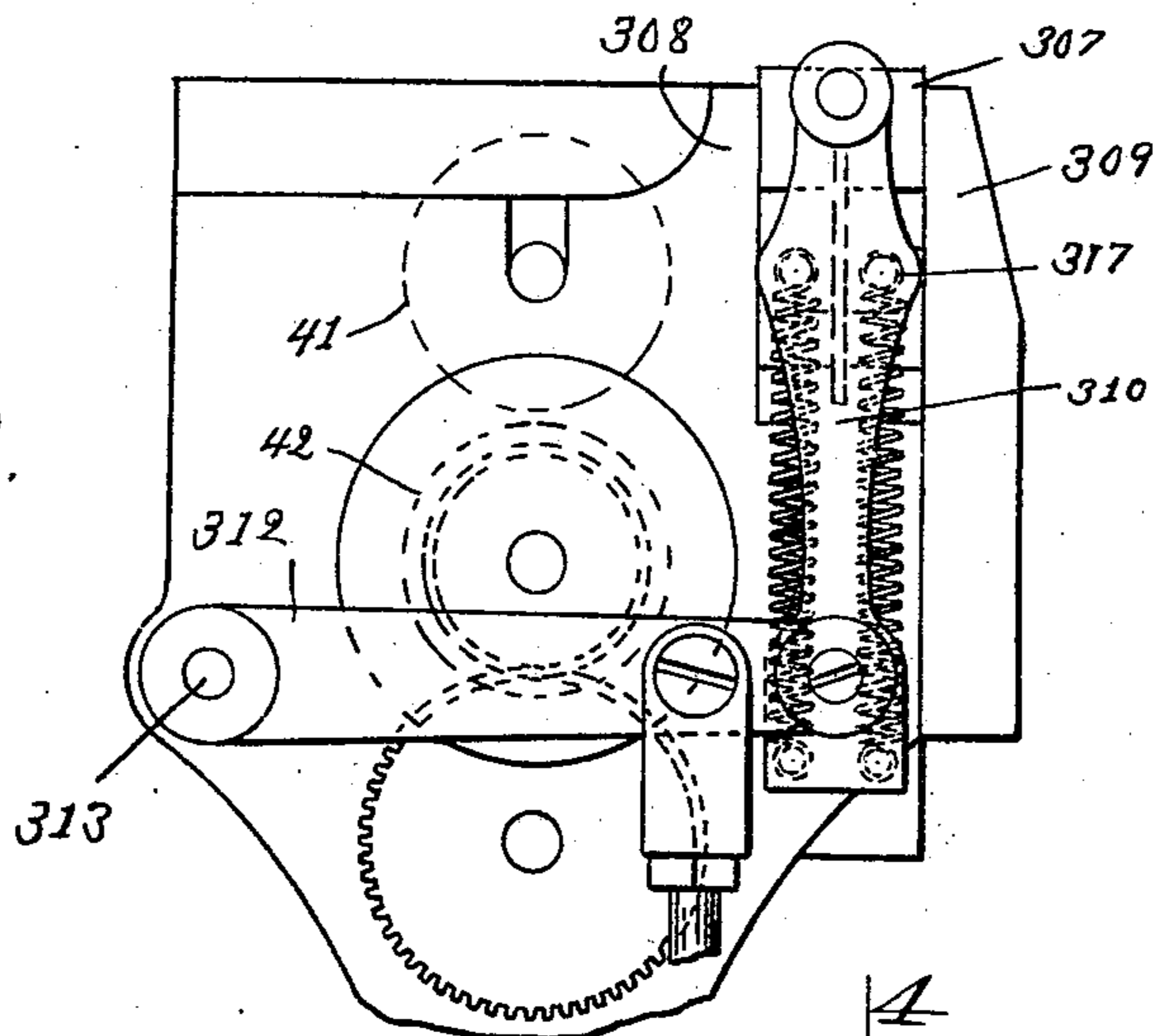
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H. B. Davis.  
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Milton H. Ballard  
By Hayes & Harriman  
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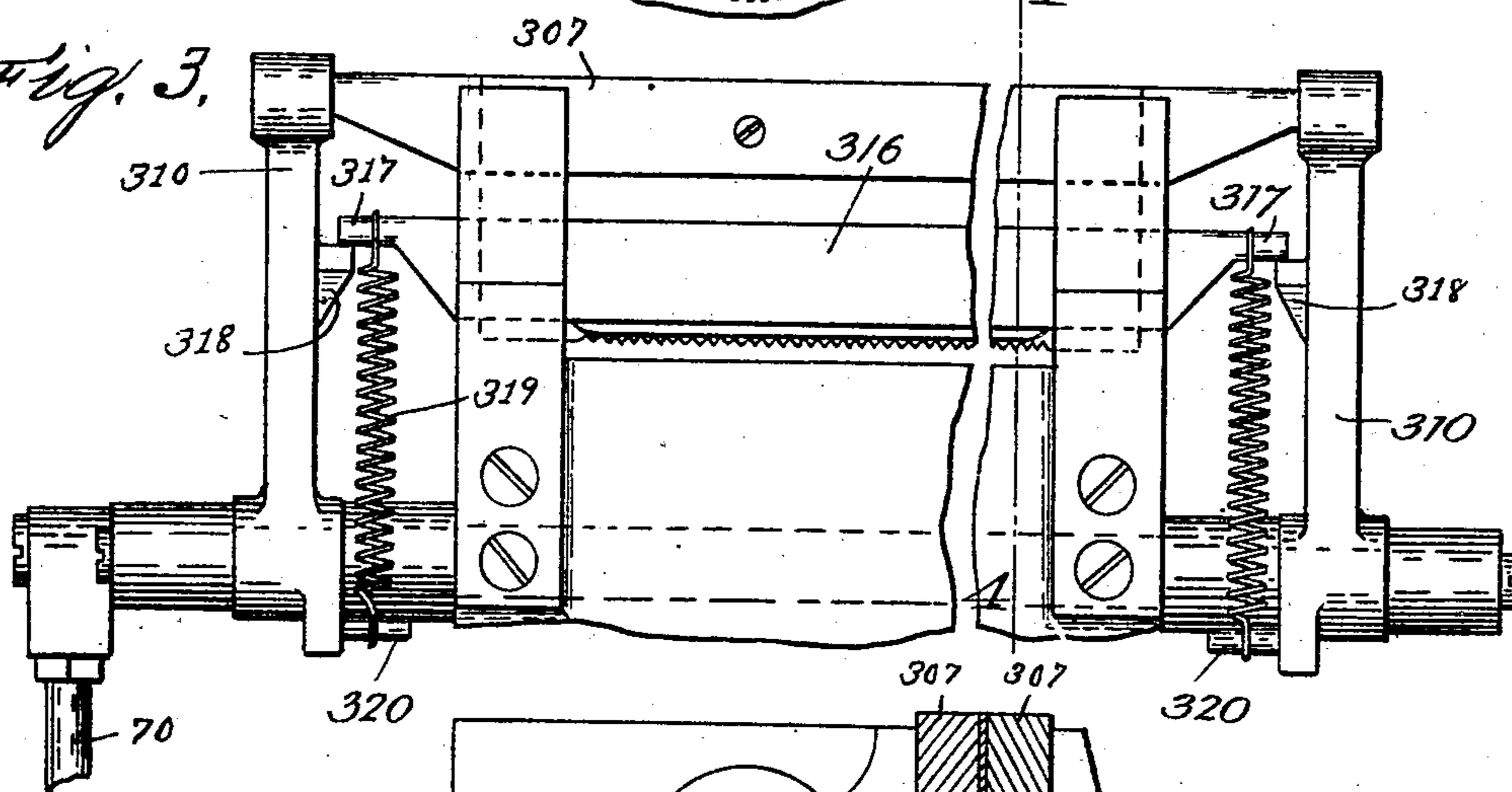
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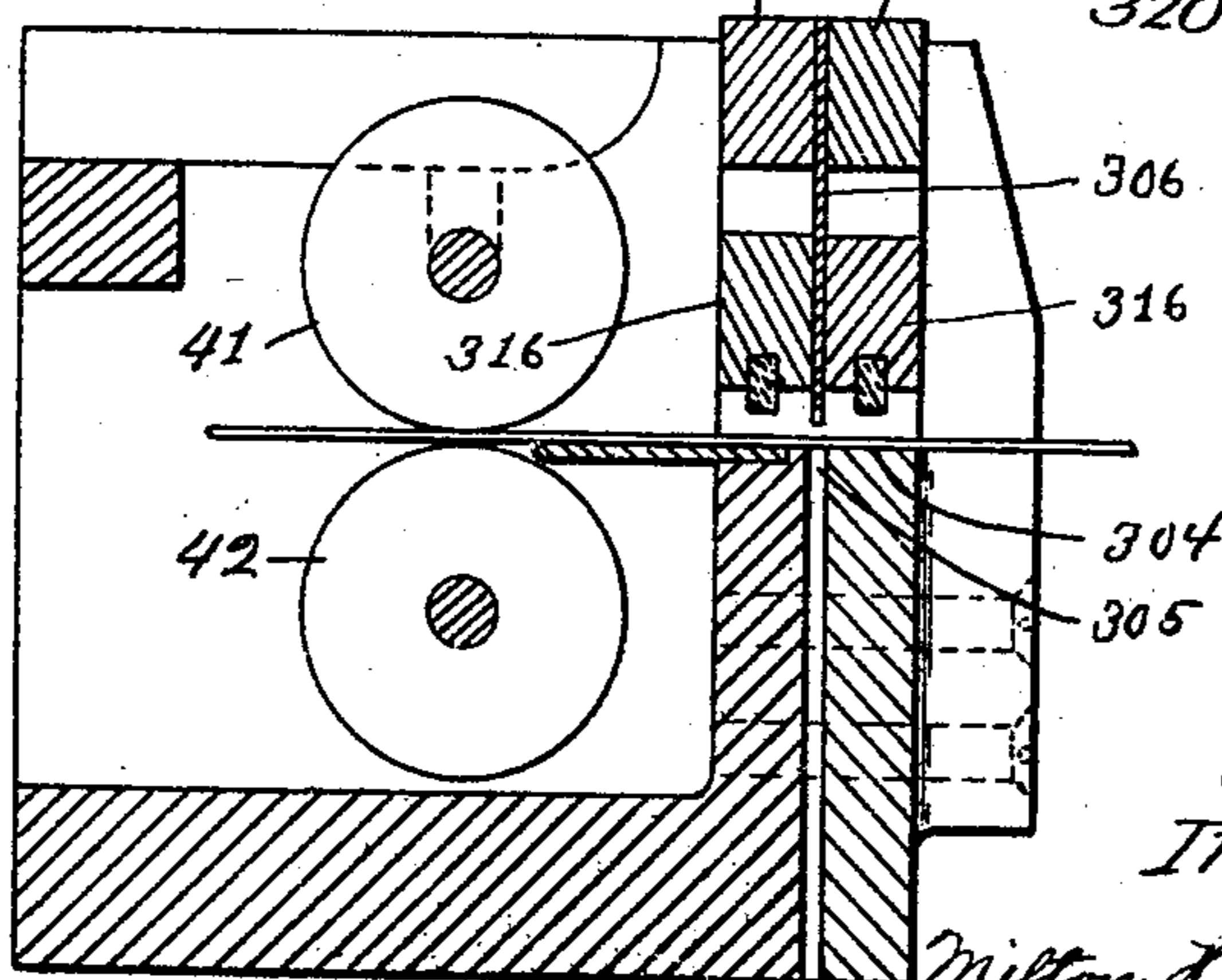
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

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## PAPER-CUTTING DEVICE.

No. 859,191.

Specification of Letters Patent.

Patented July 9, 1907.

Application filed March 18, 1907. Serial No. 362,800.

*To all whom it may concern:*

Be it known that I, MILTON H. BALLARD, of Lynn, county of Essex, State of Massachusetts, have invented an Improvement in Paper-Cutting Devices, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to paper cutting devices, and has for its object to improve and simplify the construction of the means employed for operating the presser-bars which are arranged at opposite sides of the knife, and for operating the knife.

The paper-cutting-device herein shown is especially adapted to be used in conjunction with other devices in the production of a wrapping machine for oranges and other articles.

Figure 1 shows in side elevation a paper-cutting-device embodying this invention. Fig. 2 is an enlarged side elevation of the knife, Fig. 3 is a front view of the paper-cutting-device shown in Fig. 1. Fig. 4 is a vertical section of the paper-cutting-device taken on the dotted line 4—4, Fig. 3.

The frame is constructed to provide a flat bed 304 having a knife-slot 305 extending transversely across it, and also to provide vertical guides at the opposite ends of said bed, said guides being formed between the upright portions 308 and 309 of the frame. The portion of the frame of the machine herein shown for the purpose of providing the flat bed and vertical guides, is made in two parts, one of which is provided with the vertical walls 308, and with one half or portion of the flat bed, and the other part is made as a front plate which is adapted to be secured to the aforesaid part, by screws or otherwise and is formed with upright portions 309, and with the other half or portion of the flat bed, the knife slot being arranged between said two parts of the frame. The cross-head which carries the vertical knife 306 consists of two flat bars 307, 307, arranged horizontally and side by side, with the knife between them, and bolted or otherwise secured together, to thereby hold the knife securely in place, and said cross-head works up and down in said end guides. One of said bars 307 has extensions at its ends which enter holes formed at the upper ends of a pair of links 310 which are moved up and down so that said cross-head will be moved up and down by said links. The cross-head may be otherwise connected to said links and in lieu of links other vertically movable members may be employed to which the cross-head is connected.

The lower ends of the links 310 are pivotally connected to the extremities of a pair of arms 312 which are rigidly secured to a horizontal rock-shaft 313, having its bearings in the frame, and an upright rod 70 is loosely connected at its upper end to one of said arms

312, at a point intermediate its length, which is moved up and down to thereby rock the shaft and move the arms and operate the cross-head. The lower end of said rod 70 is connected to one end of a lever 71 pivoted at 72, the opposite end of which is connected to the lower end of a rod 73, the upper end of which is adapted to be engaged by a cam 314 secured to the driving-shaft  $f^5$ . As the driving-shaft  $f^5$  is rotated, the arms 312 to which the links are connected are moved up and down, but in lieu of the particular means herein shown for thus moving the arms 312 any other suitable means may be employed.

To one or both sides of the knife 306, presser-bars 316 are located, and, as herein shown, two presser-bars are provided, which are located in close proximity to the knife, and said bars are formed with flat-faced engaging- portions along their lower edges adapted to engage the paper upon the bed at opposite sides of the knife-slot. The presser bars 316 are arranged to work up and down in the end guides which are provided for the cross-head, and they are provided at their opposite ends with extensions 317 which terminate close to the links 310, and which extend over projections 318 formed on said links. Springs 319 are connected to the extensions 317 on said bars and to fixed pins 320, which latter project laterally from the lower ends of the links 310, and said springs act to normally hold the presser-bars with their extensions 317 in firm engagement with the projections 318, that is to say, when the presser-bars are in their elevated positions. When the links are moved downward to lower the knife, the presser-bars follow until they engage the paper on the bed and then they come to rest, while the links continue their downward movement to operate the knife. While the presser-bars thus engage the paper on the bed and the links continue their downward movement, the springs are extended, and the projections 318 disengage said presser-bars, but said presser-bars are held down by the springs and are also held from displacement by the end guides. The presser-bars thus act to hold the paper with a yielding pressure.

The projections 318 are made wide enough to receive the adjacent ends 317 of both presser-bars and to serve as lifting devices and supports for the bars, but it is obvious that said lifting-device and supports may be otherwise constructed or formed on the links and yet lift the presser-bars and support them without departing from this invention. As the links 310, or equivalent vertically movable members are moved up and down the cross-head which is carried by them will be moved to correspondingly move the knife to sever the paper and the presser-bars will be moved into engagement with the paper at opposite sides of the knife-slot and will be subsequently picked up by the lifting projec-

tions on the links 310, as the latter return to their normal elevated positions. The paper to be cut, is fed to the knife by an intermittingly operated paper-cutting-device comprising essentially a pair of intermittingly operated feeding rolls 41, 42.

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

1. In a paper-cutting-device, the combination of a frame having a flat bed provided with a knife-slot and also having end-guides, a cross-head working in said end-guides bearing a vertical knife, vertically movable members to which the opposite ends of said cross-head are connected, a presser-bar located close to said knife which also works in said end-guides, a support on each vertically movable member adapted to engage the adjacent end of said presser-bar, springs connected to the presser-bar for holding it in engagement with said support, but which are extended when the presser-bar strikes the bed during the downward movement of said members, and means for simultaneously moving said members to operate the presser-bar and knife, substantially as described.

2. In a paper-cutting-device, the combination of a frame having a flat bed provided with a knife-slot and also having end guides, a cross-head working in said end-guides bearing a vertical knife, vertically movable members to which the opposite ends of said cross-head are connected, a presser-bar located close to said knife which works in said end-guides, a projection on each vertically movable member adapted to support the adjacent end of said presser-bar, springs connected to the opposite ends of the presser-bar for holding it in engagement with said rest or support, but which are extended when the presser-bar strikes the bed during the downward movement of said members, and means for simultaneously moving said members to operate the presser-bar and knife, substantially as described.

3. In a paper-cutting-device, the combination of a frame having a flat bed provided with a knife-slot, and also having end-guides, a cross-head working in said end-guides bearing a vertical knife, vertically movable members to which the opposite ends of said cross-head are connected, a pair of presser-bars located at opposite sides of said knife which work in said end-guides, a support on each vertically movable member adapted to receive the adjacent ends of both presser-bars, springs connected to the presser-

bars for holding them in engagement with said supports, but which are extended when the presser-bars strike the bed during the downward movement of said members, and means for simultaneously moving said members to operate the presser-bars and knife, substantially as described.

4. In a paper-cutting-device, the combination of a frame having a flat bed provided with a knife-slot, and also having end-guides, a cross-head working in said end-guides bearing a vertical knife, vertically movable members to which the opposite ends of said cross-head are connected, a pair of presser-bars located at opposite sides of said knife which work in said end-guides, projections on said vertically movable members upon which said presser-bars normally rest, springs connected to said presser-bars and to fixed pins on said members, which normally hold the presser-bars in engagement with said projections, but which are extended when the presser-bars strike the bed during the downward movement thereof, and means for moving said members to operate the presser-bars and knife, substantially as described.

5. In a paper cutting machine, the combination of a slotted bed, a cross-head bearing a knife, end-guides for said cross-head, links connected to the opposite ends of said cross-head, arms to which said links are connected, a rock shaft bearing said arms, means for moving the arms to raise and lower the cross-head, a presser-bar located close to the knife, springs connecting the opposite ends of said presser bar with the links and projections on said links for lifting the presser-bars when the knife resumes its elevated position, substantially as described.

6. In a paper cutting machine, the combination of a slotted bed, a cross-head bearing a knife, end-guides for said cross-head, links connected to the opposite ends of said cross-head, arms to which said links are connected, a rock shaft bearing said arms, means for moving the arms to raise and lower the cross-head, a pair of presser-bars located at opposite sides of the knife, springs connecting the opposite ends of the presser-bars with the links, and a wide projection on each link for engaging the ends of both bars and lifting them when the knife resumes its elevated position, substantially as described.

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

MILTON H. BALLARD.

Witnesses:

A. D. NICHOLS,

M. S. ROBERTSON.