

(No Model.)

3 Sheets—Sheet 1.

T. C. DEXTER & J. J. PARKER.  
PAPER REGISTERING MACHINE.

No. 605,275.

Patented June 7, 1898.

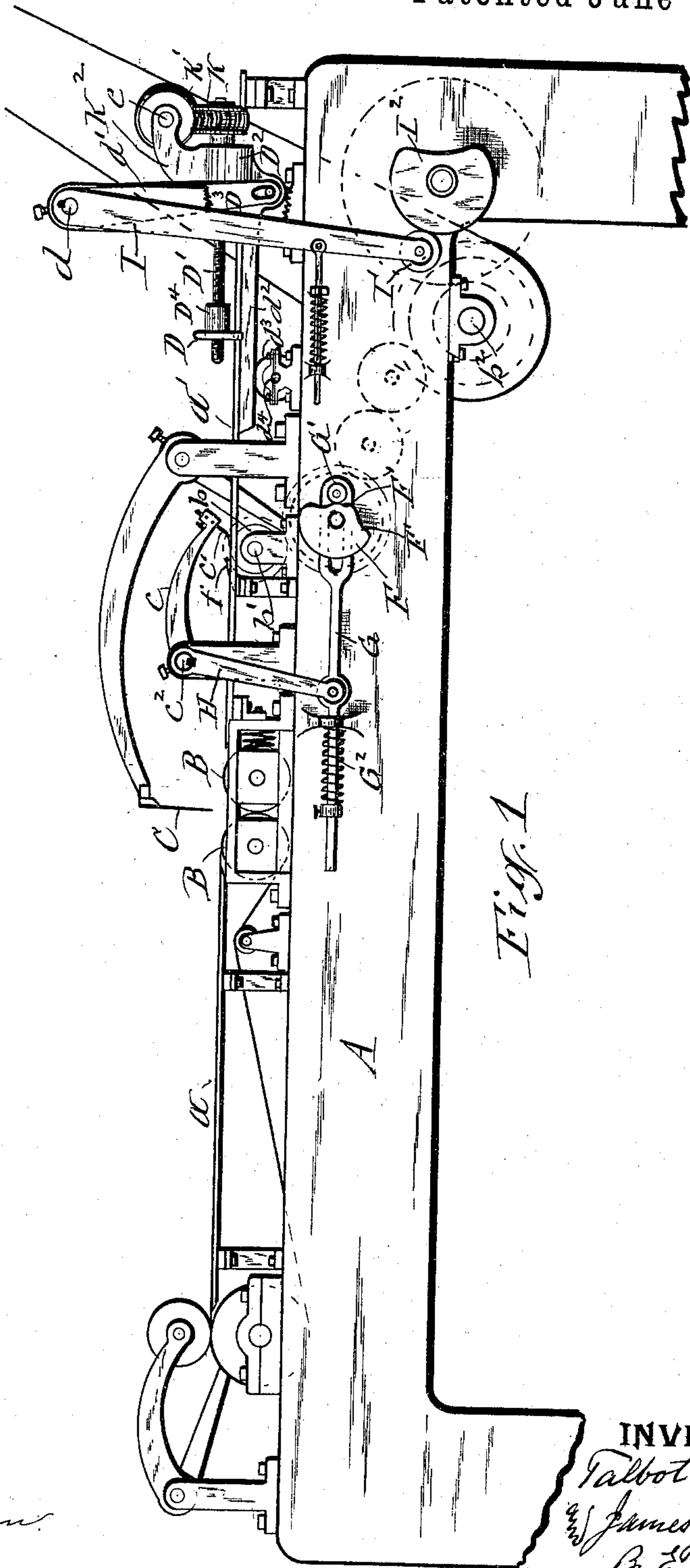


Fig. 1

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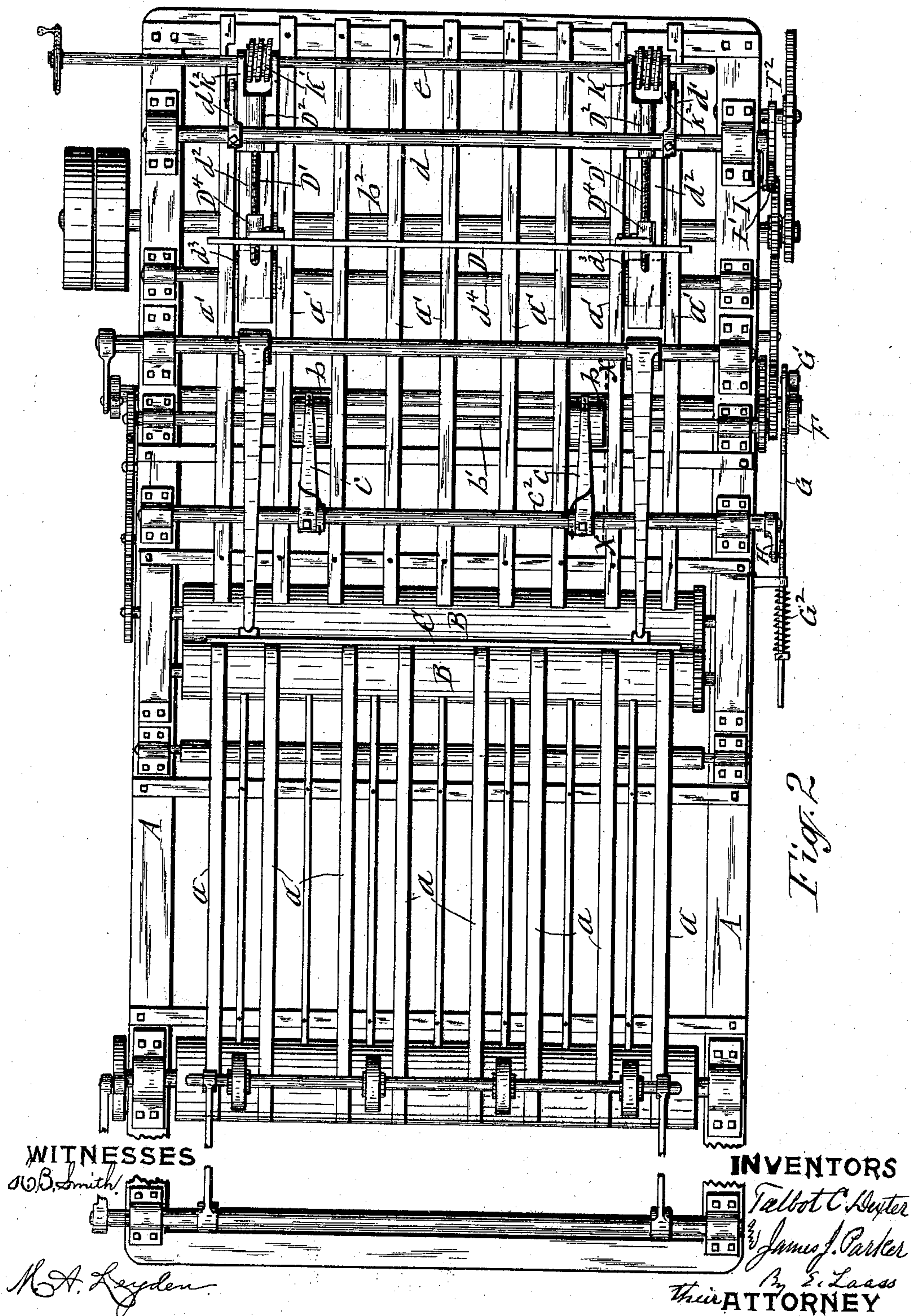
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T. C. DEXTER & J. J. PARKER.  
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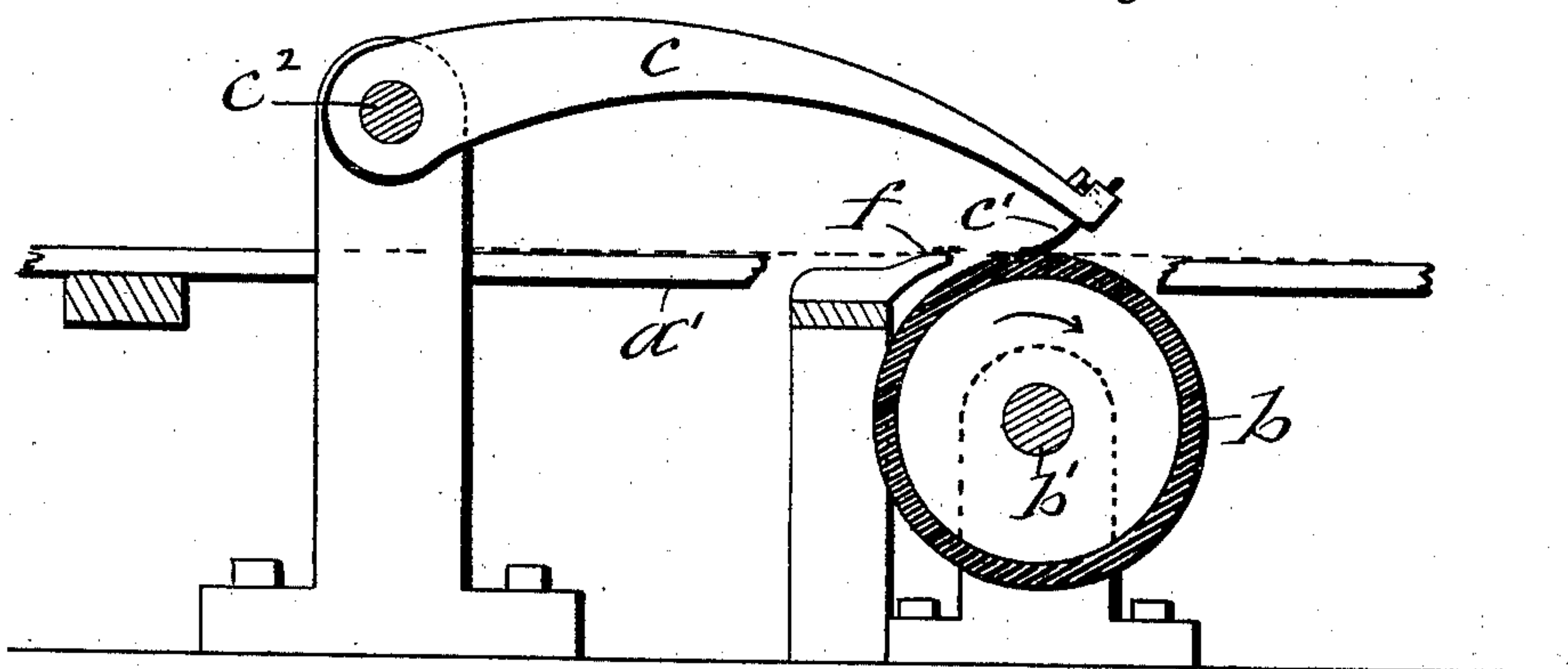
3 Sheets—Sheet 3.

T. C. DEXTER & J. J. PARKER.  
PAPER REGISTERING MACHINE.

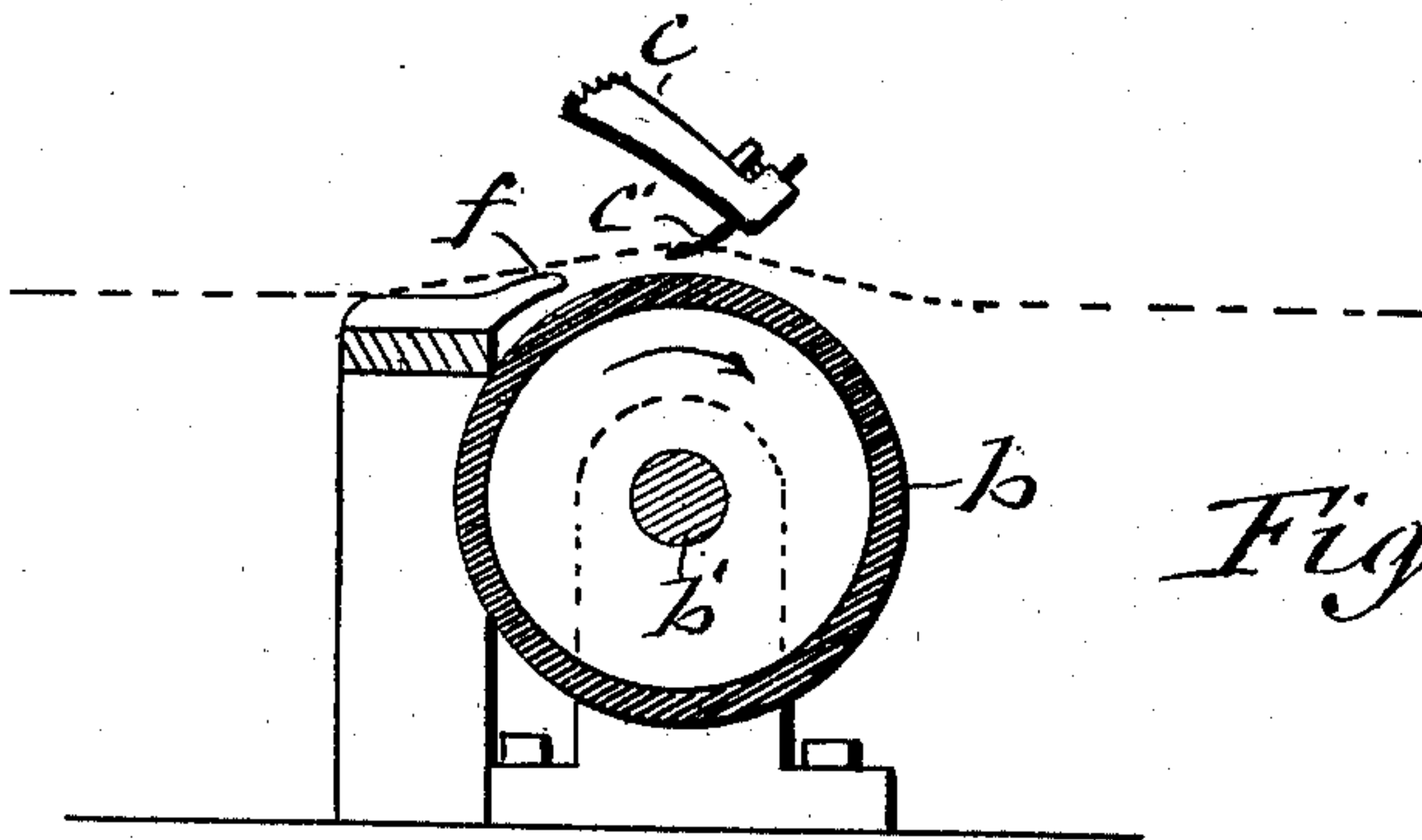
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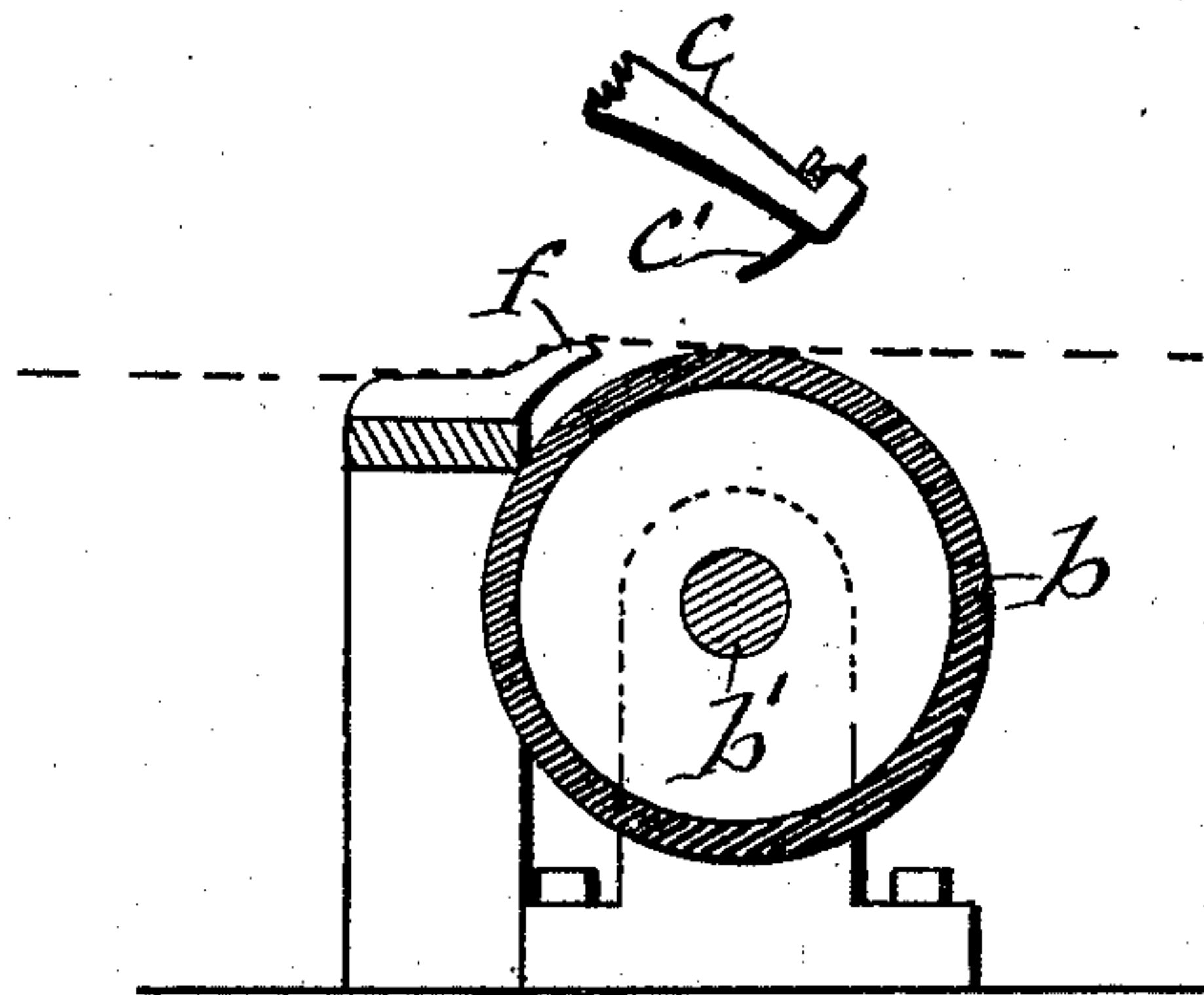
*Fig. 3*



*Fig. 4*



*Fig. 5*



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# UNITED STATES PATENT OFFICE.

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## PAPER-REGISTERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 605,275, dated June 7, 1898.

Application filed August 6, 1897. Serial No. 647,316. (No model.)

*To all whom it may concern:*

Be it known that we, TALBOT C. DEXTER, of Pearl River, in the county of Rockland, and JAMES J. PARKER, of Brooklyn, in the county of Kings, in the State of New York, have invented new and useful Improvements in Paper-Registering Instruments, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to the class of paper-registering devices which are designated "point-feed" registering instruments, said instruments being equipped with pins or points which engage or enter into slits made in the paper for that purpose, said adjustment serving to adjust the sheet to its requisite position for being folded or otherwise operated on.

The object of our present invention is to provide simple and efficient means for insuring the entrance of the registering-point into the slit of the paper without unduly straining the sheet or incurring liability of tearing it; and to that end the invention consists in the improved construction and combination of parts hereinafter described, and set forth in the claims.

In the annexed drawings, Figure 1 is a side elevation of a paper-folding machine equipped with our improved registering instruments arranged for registering the sheet longitudinally, some of the minor details of the machine being omitted to avoid obscuring more essential features employed in connection with our invention. Fig. 2 is a plan view of said machine. Fig. 3 is an enlarged longitudinal section on line X X in Fig. 2, showing the registering instrument in its operative position. Fig. 4 shows said instrument in position to allow the paper to be drawn from under it by the folding-rollers drawing the paper down between them, and Fig. 5 shows said instrument lifted to allow the paper to freely pass under it in the process of feeding the paper into the machine.

Similar letters of reference indicate corresponding parts.

A represents the main supporting-frame of a paper-folding machine.

B B denote the folding-rollers; C, the blade which tucks the paper into the bite of said rollers; *a*, the traveling tapes which convey the paper into the machine; *a'*, the stationary bars which support the paper beyond the folding-rollers, and D the gage or front stop which arrests the movement of the paper, so as to cause it to lie with its central portion across the folding-rollers. Said sheet delivering and folding devices operate in the usual and well-known manner and are actuated by suitable gearings and mechanism, which are arranged in various ways on different sizes and types of machines and need no special illustration or description in this instance.

Our invention resides in the means for registering the paper on the machine preparatory to its being folded or otherwise operated on.

The location of the registering instruments depends on the location of the slits in the paper. In the majority of cases said instruments are required to be located in front of the folding-rollers, as shown in Figs. 1 and 2 of the drawings, in which *b b* represent two soft-rubber-faced rollers disposed beneath the plane of the travel of the paper and mounted rigidly on a rotary shaft *b'*, which extends across the machine and is journaled in suitable bearings on the sides of the frame A. Said shaft supports the rollers in positions to bring their upper peripheries even with or in the plane of the travel of the paper.

The rollers *b b* are adjustably secured to the shaft by means of set-screws passing through the hubs of the rollers and engaging the shaft. By loosening the set-screws the rollers can be shifted lengthwise on the shaft and thus adjusted to proper positions to receive over them the portions of the paper which are provided with the registering-slits.

By means of suitable gearings rotary motion is transmitted from the driving-shaft *b<sup>2</sup>* to the shaft *b'*, as indicated by dotted lines in Fig. 1 of the drawings, and from the shaft *b'* to the nearest folding-roller B rotary motion is transmitted by an even number of gears, as shown in full lines at the top of Fig. 2 of the drawings. Hence the said folding-roller rotates reverse from the roller *b*, and inasmuch as said folding-roller rotates in a



direction contrary to the feed of the paper the rollers  $b$  are caused to rotate in the direction of the feed. Over each of the said rollers  $b$  is a rocking arm  $c$ , which moves at properly-timed intervals to and from the periphery of the subjacent roller and is equipped with a point or pin  $c'$  for entering into the slit in the paper lying upon the roller. The two rocking arms  $c$  are mounted on a rock-shaft  $c^2$ , to which they are adjustably secured to allow them to be set into their requisite positions over the rollers  $b$  and at proper angles to cause the points or pins  $c'$  to be brought to bear on the paper with sufficient pressure to subject it to the friction of the rubber faces of the revolving rollers  $b$  and thereby cause the paper to receive a forward impulse, during which the points or pins  $c'$  enter into the slits made in the paper for that purpose. The aforesaid rock-arms require two successive lifts from their depressed positions after the paper has been registered by the pins having entered the slits. The first lift is made to release the paper from the downward pressure of the registering-pins  $c'$  and to allow the paper to be readily drawn out of engagement with the said pins in the operation of introducing the paper into the bite of the folding-rollers  $B$ . The second lift raises the free ends of the rock-arms  $c$  still higher to allow the succeeding sheet to pass freely under the registering-pins  $c'$ . This motion of the rock-arms is obtained from a rotary cam  $F$ , formed with two steps  $F'$   $F''$ . A rod  $G$  has pivoted to it a roller  $G'$ , which is held in contact with said cam by a spring  $G^2$ , forcing the rod in opposition to the cam. Said rod thus receives reciprocating motion. A lever  $H$  is fastened at one end to the shaft  $c^2$  and at the opposite end to the rod  $G$ , which latter imparts oscillatory motion to said lever and a corresponding rocking motion to the shaft  $c^2$ .

In order to insure the entries of the registering points or pins into the slits in the paper, as aforesaid, we prefer to employ the bridges  $f$ , rising slightly above the plane of the travel of the paper in proximity to and facing the registering-pins  $c'$ , as more clearly shown in Fig. 3 of the drawings. The slitted portion of the paper is carried onto the tops of the bridges by the time the movement of the paper is arrested by the gage  $D$ . This gage then recedes and the registering-pins  $c'$  are brought down to bear on the paper and by the aid of the bridges open the slits in the paper to facilitate the entrance of the registering-pins during the subsequent movement imparted to the paper by the rollers  $b$ , as hereinafter described.

In connection with the registering instruments located as aforesaid we employ an alternately receding and advancing gage  $D$ , which is connected by adjusting-screws  $D'$  to blocks  $D^2$ , carried on the lower ends of arms  $D^3$ , which are fastened in pendent positions to a rock-shaft  $d$ , extending across the machine

and journaled in posts  $d'$ , erected on the sides of the frame  $A$ .

The gage  $D$  is supported on bars  $d^2$ , extending from the blocks  $D^2$  and riding with their free ends on rollers  $d^3$ , pivoted to a shaft  $d^4$ , which extends to the sides of the frame  $A$ , where it is suitably supported.

The rock-shaft  $d$  is actuated by means of a lever  $I$ , fixed to the end of said shaft and having pivoted to its free end a roller  $I'$ , by which it bears on a rotary cam  $I^2$  and receives oscillatory motion therefrom. The gage  $D$  is provided with screw-threaded hubs  $D^4$ , through which the screws  $D'$  pass, and to the outer end of each of said screws is fastened a gear  $K$ , which engages a worm-gear  $K'$ , fastened to a shaft  $e$ , journaled in brackets  $K^2$ , formed on the blocks  $D^2$ . By turning the shaft  $e$  the screws  $D'$  are caused to turn and thereby move the gage  $D$  either toward or from the folding-rollers  $B$  and thus adjust said gage for different-sized sheets of paper to be folded.

In the operation of the machine the paper is carried into the machine in the usual manner by means of the traveling tapes  $a$ . During this conveyance the rock-arms  $c$  are held in their elevated positions and the gage  $D$  is in its innermost or advanced position to arrest the movement of the sheet, so as to cause it to lie with its central portion across the folding-rollers  $B$ . Then the gage recedes and the rock-arms  $c$  descend and cause the registering-pins  $c'$  to bear on the sheet, which is thereby brought into more intimate contact with the rubber-faced peripheries of the revolving rollers  $b$ , the frictional hold of which causes the sheet to advance, and in this latter movement of the sheet the registering-pins  $c'$  enter the slits in the sheet and thereby stop the further advance of the sheet and register the same. The cam  $F$  then imparts by its first step a slight lift to the arms  $c$  to relieve the sheet from the pressure of the pins  $c'$  and allow the sheet to be readily drawn out of engagement with said pins by the draft of the sheet toward the folding-rollers incident to the introduction of the sheet into the bite of said rollers by the folding-blade  $C$ , which operates immediately after the pins  $c'$  have been lifted as aforesaid. After the sheet has passed completely from under said pins the latter are lifted still higher by the second step of the cam  $F$  to more positively avoid obstructing the passage of the next sheet under the pins and to the gage  $D$ , which by that time has been advanced to its requisite position for arresting the forward travel of the sheet.

What we claim as our invention is—

1. A paper-registering instrument consisting of a rotary roller disposed to receive upon the top of its periphery the slitted portion of the sheet in transit, and a pin or point carried over said roller and to and from the same to enter into the slit made in the paper for that purpose.

2. A paper-registering instrument comprising a soft-rubber-faced roller disposed to re-



ceive upon the top of its periphery the slit-  
ted portion of the paper, a registering-pin  
over said roller and moving intermittently to  
said roller to press the paper upon it and en-  
5 ter into the slit in the paper, and mechanism  
imparting motion to said roller and pin.

3. A paper-registering instrument compris-  
ing a soft-rubber-faced roller disposed to re-  
ceive the slitted portion of the paper upon  
10 the top of its periphery, a bridge rising from  
the plane of the travel of the paper adjacent  
to the aforesaid roller, a registering-pin mov-  
ing intermittently to the roller to press the  
paper upon it and in conjunction with the  
15 bridge open the slit in the paper preparatory  
to the entering of the pin into the slit, and  
mechanism imparting motion to the said  
roller and pin, as set forth.

4. A paper-registering instrument consist-  
20 ing of a rotary roller provided with a friction-  
surface on its periphery and receiving upon  
it the slitted portion of the sheet, a rock-arm  
over said roller moving intermittently toward

and from the roller and a pin attached to the  
free end of said rock-arm and entering into 25  
the slit in the sheet, as set forth.

5. In combination with the sheet-deliver-  
ing tapes, sheet-supporting bars and alter-  
nately advancing and receding end-gage, a 30  
rotary shaft extending across the machine,  
rubber-faced rollers secured to said shaft and  
receiving upon their peripheries the slitted  
portions of the sheet, rock-arms over said  
rollers moving intermittently to and from the  
rollers, and pins attached to the free ends of 35  
said arms and entering into the slits in the  
sheet, as set forth.

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