

No. 668,148.

Patented Feb. 12, 1901.

J. MEEK.

MACHINE FOR ROUNDING AND BACKING BOOKS.

(Application filed Oct. 13, 1900.)

(No Model.)

4 Sheets—Sheet 1.

FIG. 3.

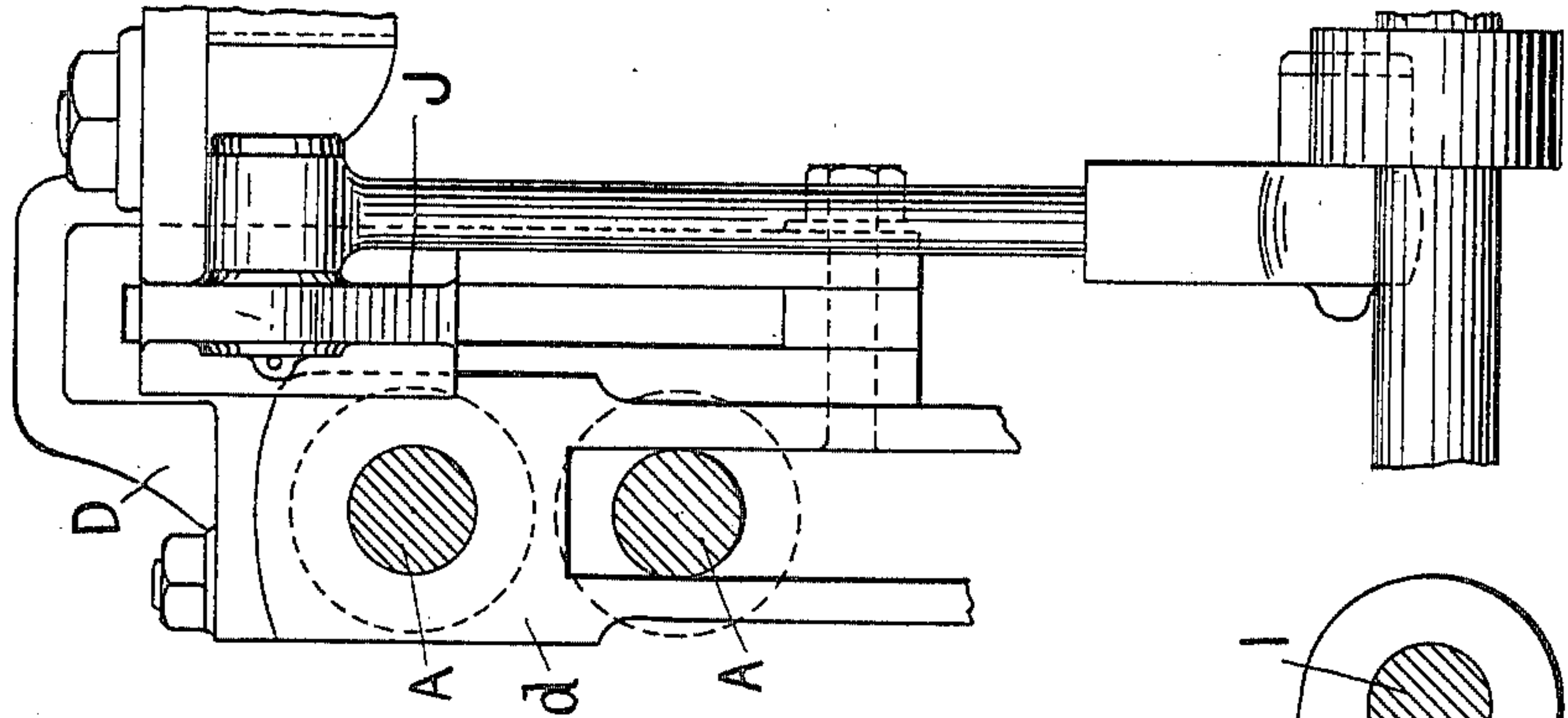
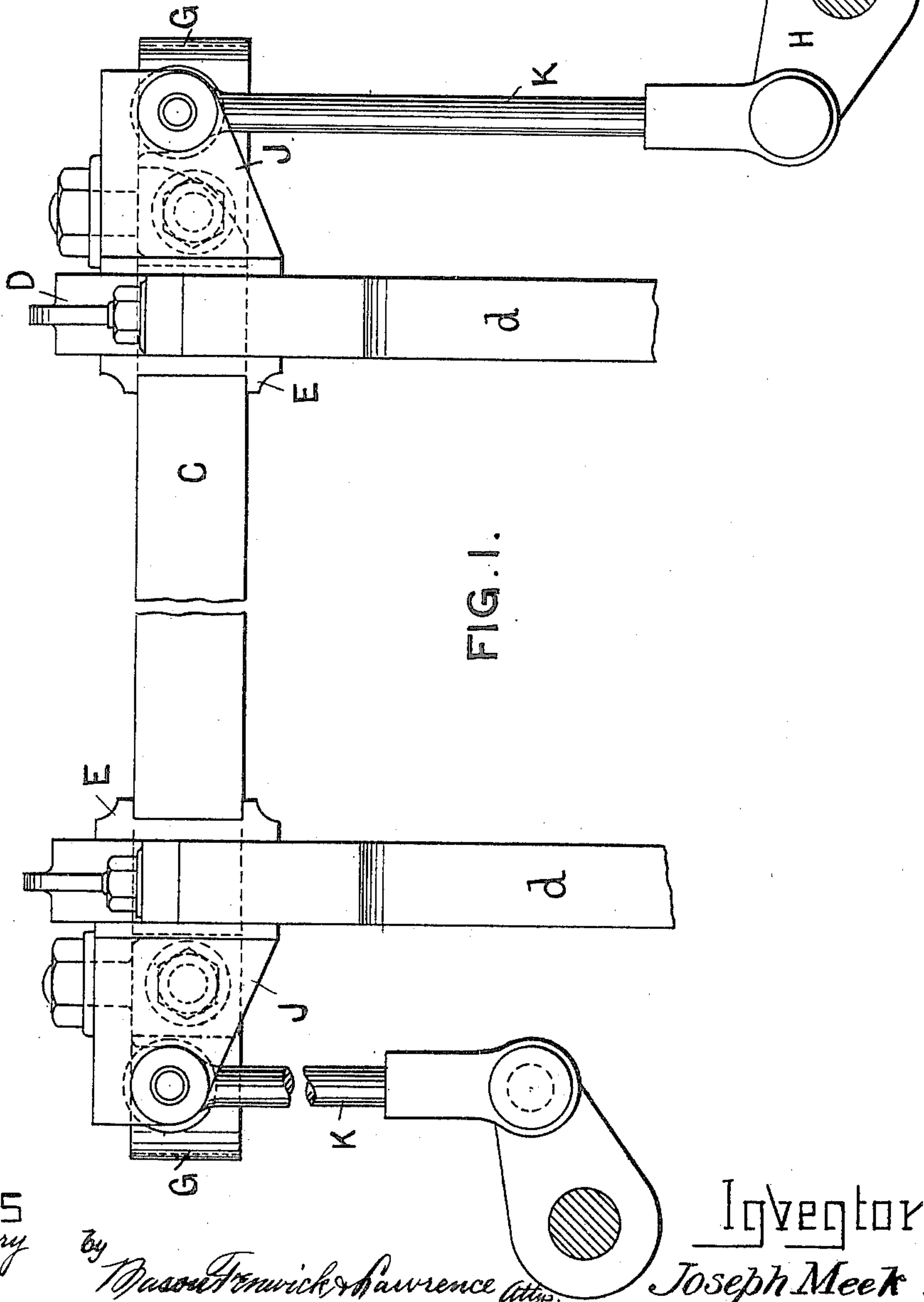


FIG. 1.



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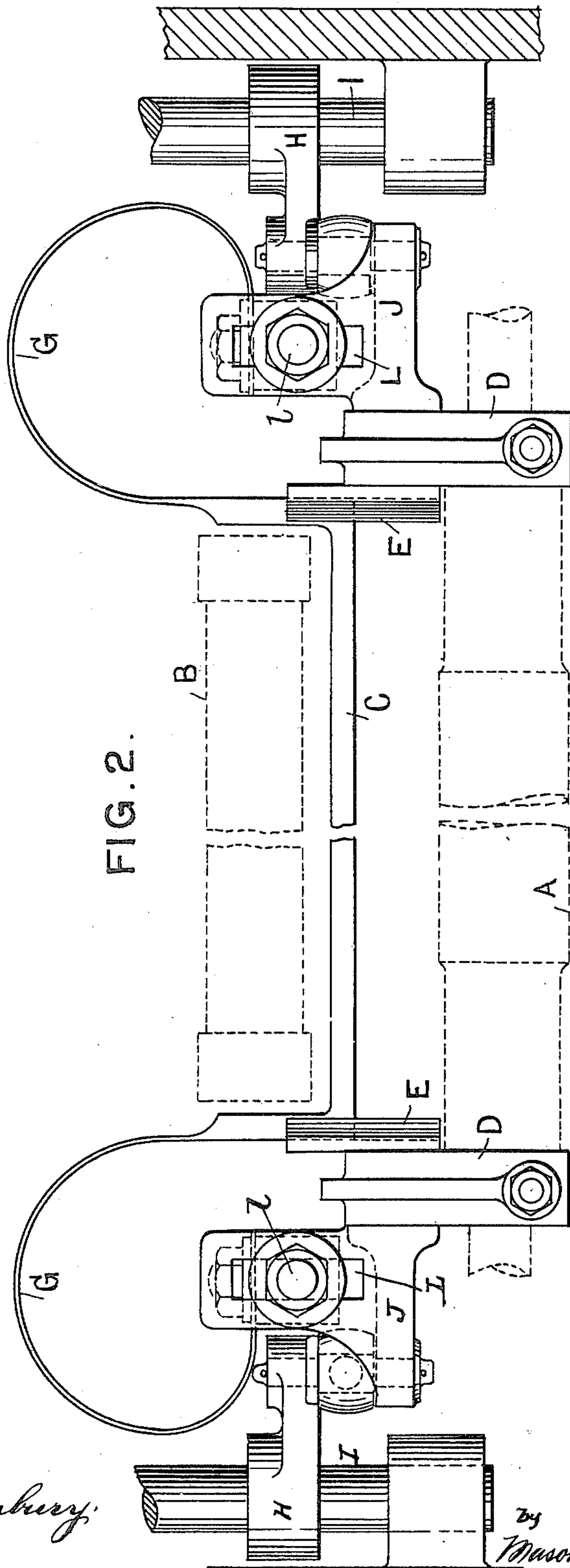
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MACHINE FOR ROUNDING AND BACKING BOOKS.

(Application filed Oct. 13, 1900.)

(No Model.)

4 Sheets—Sheet 2.



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4 Sheets—Sheet 3.

Fig. 4.

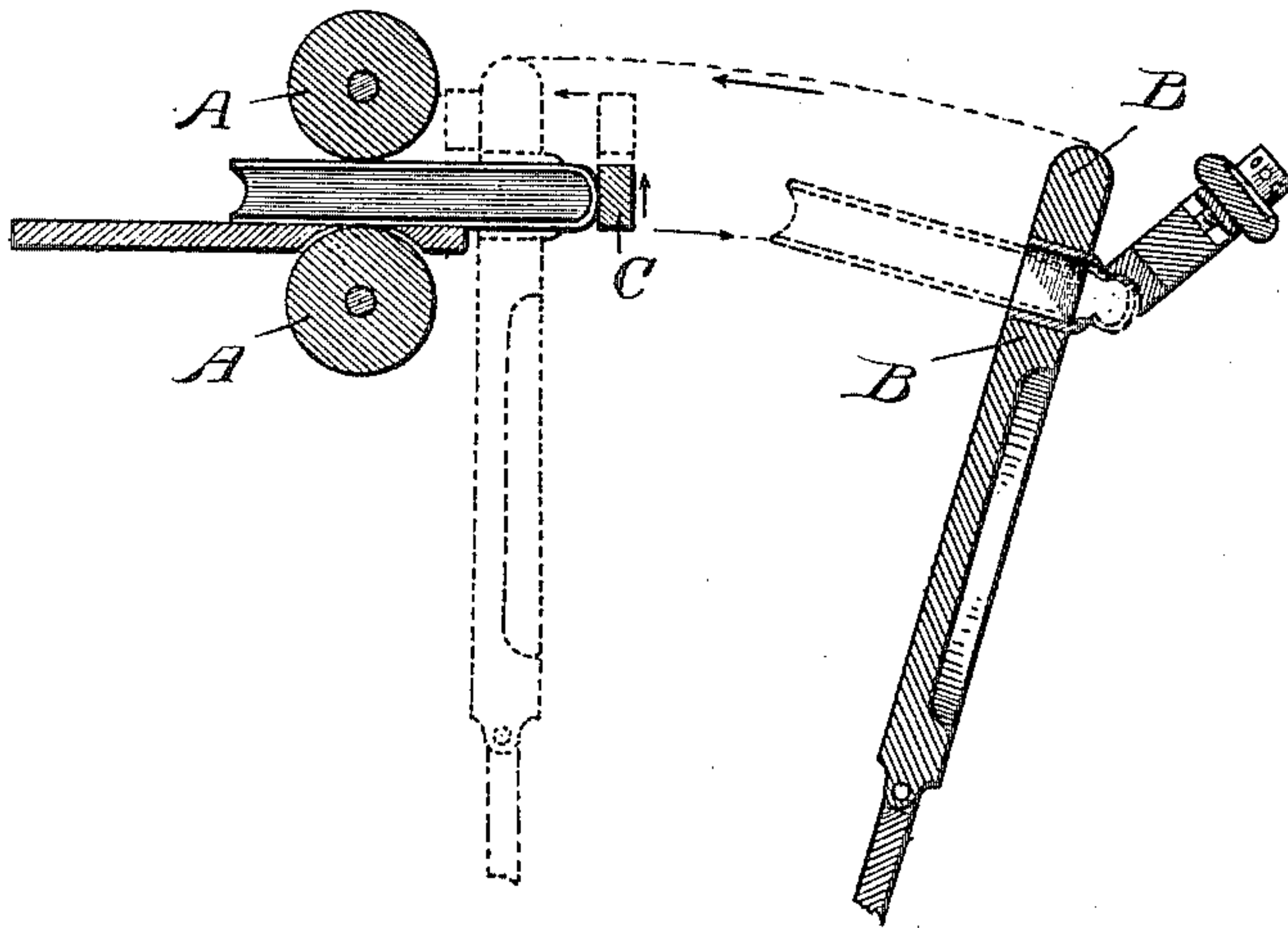
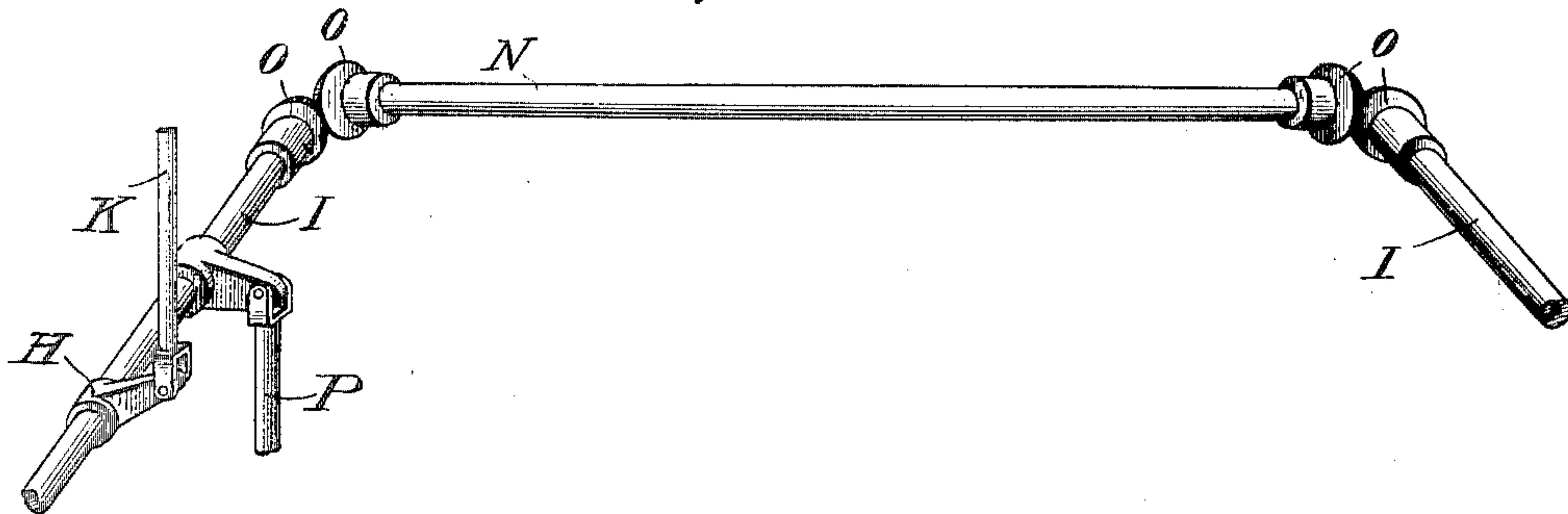


Fig. 5.



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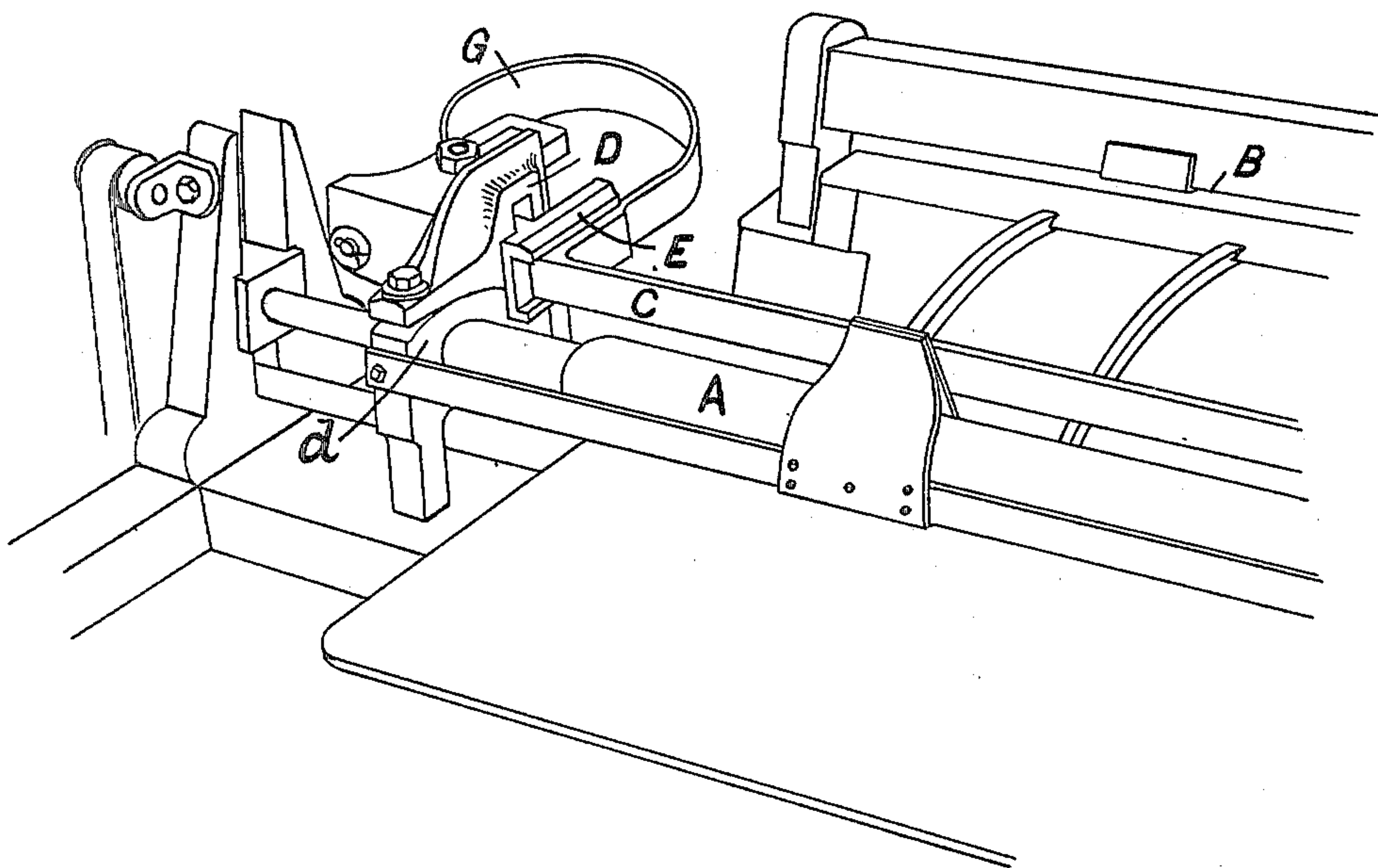
MACHINE FOR ROUNDING AND BACKING BOOKS.

(No Model.)

(Application filed Oct. 13, 1900.)

4 Sheets—Sheet 4.

FIG. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

JOSEPH MEEK, OF PORT SUNLIGHT, ENGLAND.

MACHINE FOR ROUNDING AND BACKING BOOKS.

SPECIFICATION forming part of Letters Patent No. 668,148, dated February 12, 1901.

Application filed October 13, 1900. Serial No. 32,988. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH MEEK, a subject of the Queen of Great Britain, residing in Port Sunlight, in the county of Chester, England, have invented certain new and useful Improvements in Machines for Rounding and Backing Books, (for which application for patent has been made in Great Britain, No. 22,892, dated November 16, 1899,) of which the following is a specification.

This invention has for its object improvements in bookbinding, whereby the process is considerably cheapened, and also improvements in apparatus for effecting these improvements in the process.

In bookbinding as at present carried on by that class of machines of which the subject-matter of United States Patent No. 372,128, to E. Crawley, dated October 25, 1887, is an instance the book without the cover is rounded and the groove pressed in by machinery. The back is now attached and the book is again passed through the machine. Now I have found that if the back be attached to the book in its unrounded and unbound state and it is then passed through the machine it rounds and grooves the entire book and so perfectly that it is practically impossible to ascertain from inspection of a book whether it has been done at two operations or at one. Hitherto it had been supposed to be quite impossible to do the operation in this way, as the binding would crack. I find, however, that the pressure exerted in the machine appears to condense the book to almost exactly the same extent that the surface is extended by rounding. Consequently there is no strain on the back of the book. The book is therefore first covered with its cloth cover or case, and instead of pressing this book in a separate machine I use the rounding and backing machine for pressing it at the same time as the books are rounded and backed. By the present invention, therefore, one single machine is enabled to do the work of several.

I have also improved the rounding and backing machine itself, so as to enable me to round and back two at one operation, thus (in the case of two books) doubling the capacity of the machine without increasing its size, and by doing away with the radial gage-bar greatly lessen the danger to the attend-

ant in removing the books. My improvements are also applicable to single rounding and backing machines. The rounding and backing machine is fed with two books of, say, crown octavo size at each operation instead of one only, as heretofore and at present generally adopted. It is primarily to the application of this principle of rounding and backing two or even more books at the one operation by the same machine that my said invention more particularly relates, and what I have found to be an advantageous method is to make the grip-plates and rounding-bar of an increased length to those in an ordinary machine to enable it to take in the two books, as the case may be, lengthwise with their edges abutting against each other.

The invention will be more particularly understood from the following description, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation of a gage-bar and actuating-gear; Fig. 2, a plan thereof; Fig. 3, an end view of Fig. 1. Fig. 4 is a view in vertical section of the roller gage-bar, feed-rolls, and vise, showing one position of the gage-bar, feed-rolls, and vise in full lines and another position in dotted lines. Fig. 5 shows the means for connecting the rods which operate the gage-bar to insure their simultaneous movement. Fig. 6 is a view in perspective seen from the side, also illustrating the position of the gage-bar and showing its connections.

The rounding and backing machine shown in the drawings is constructed on somewhat similar lines to previous machines, but with the following exceptions:

In the case of a machine capable of operating on two books simultaneously it is necessary to make the rounding-bar and the vise or grip-plates B of increased length to those of ordinary machines, so as to enable them to take in the two books placed end to end lengthwise, with their edges abutting against each other.

In order to facilitate the gaging and fitting of the book or books into proper position, the usual oscillating gage-arm, as used in the patent before referred to, is dispensed with and is substituted by a horizontal gage-bar C, mounted in the guides D, having a vertical

motion imparted to it by means of a suitable
 arrangement of shafts, levers, and gearing
 or combination thereof, which motion is de-
 rived from a rocking shaft, to which I do not
 5 confine myself. The gage-bar C, while capa-
 ble of this vertical movement, is also adjust-
 ably mounted in the guides E, so as to be
 capable of a horizontal adjustment toward
 or away from the feed-rolls A. The guide-
 10 frames D, which guide the gage-bar C in its
 vertical movement, can be mounted on the
 frames d, carrying the feed-rolls A, said frames
 being arranged to admit of the free rise and
 fall of the upper feed-roller, as well as the
 15 independent rising and falling of the gage-
 bar. The mechanism for imparting to the
 gage-bar its vertical movement is so arranged
 as to raise the bar as the book-vise comes for-
 ward to grip the books and to lower it as the
 20 said vise recedes. The gage-bar is made
 rigid, but is provided at the ends with a bow
 or volute G or other form of spring connec-
 tion, (or it may be by weights,) so that the
 book-vise during its forward oscillatory travel
 25 to take one or a pair of books will collide with
 the flexibly-connected gage-bar when in its
 raised position and will gently move the same
 out of the position which it previously occu-
 pied to a position above the books, and thus
 30 enable the book-vise to come forward for the
 purpose of seizing the books and carrying
 them to the rounding and backing device,
 the rounding and backing being done in the
 ordinary way. The intermittently-rotating
 35 feed-rolls are preferably arranged to simul-
 taneously feed forward the books into the vise,
 so that they can be seized thereby at the mo-
 ment when the said vise comes forward. On
 the completion of the operation the gage-bar
 40 instantly springs back to its normal position
 and also is lowered vertically, so as to again act
 as a stop or gage for the next set of books fed
 in by the operator, the feed-rolls separating to
 allow them to be fed in. The operation is
 45 successively repeated for the rounding and
 backing of each pair of books, or singly, as
 the case may be. The book-vise B is shown in
 dotted lines in Fig. 2 and in Fig. 4 in full
 lines in its farthest extended position and in
 50 dotted lines grasping a book, the normal po-
 sition of the gage-bar C being shown in said
 Fig. 4 in full lines and its two raised posi-
 tions, one before and the other after its dis-
 placement by the advance of the book-vise
 55 in dotted lines. The gage-bar in the ar-
 rangement shown in the drawings derives its
 motion from cranks H, mounted on rocking
 shafts I and connected by connecting-rods
 K to the blocks J, to which the volutes at
 60 ends of gage-bar are attached. One of the
 shafts I, as in Crawley's machine, Patent No.
 372,128, dated October 25, 1887, is driven from
 a cam on the main shaft of the machine
 through the rod P, which imparts an inter-
 mittent oscillating movement to this shaft I.
 65 This shaft I is connected to the other shaft I
 by means of a transverse shaft N at the back

of the machine, gearing with the two shafts
 I by means of miter-segments O, so that the
 two shafts I oscillate simultaneously and to 70
 the same extent in opposite directions, so
 that the gage-bar c is raised evenly at both
 ends when necessary in order to allow the
 vise to seize the books. The block J and hori- 75
 zontal guides E are attached together and
 slide in the guide-frames D. I would have
 it understood, however, that the gage-bar is
 capable of adjustment in order that the ma-
 chine can be adapted to admit of books of
 varying thicknesses being operated upon. 80
 This is effected by a slot L being provided in
 each block J and attaching the ends of
 springs G to a slide mounted in each of these
 slots. The slides can be locked by tighten-
 ing up the nuts l. By slackening the nuts 85
 the gage-bar can be adjusted into the re-
 quired position, according to the size of the
 book required, and then locked by tighten-
 ing up the nuts again.

The operation of the machine is as follows: 90
 The gage-bar being in position behind the
 feed-rollers these latter rise and one or more
 books are placed by hand between the rollers
 A, with their backs in contact with the gage-
 bar C. The top roller A then falls and holds 95
 the books. The gage-bar rises above the
 books, the vise B comes forward, pushes the
 gage-bar over the books, and seizes the books
 and carries them back to the rounding-bar Q,
 by which they are rounded in the usual man- 100
 ner. When this operation is completed, the
 vise relaxes and the books may be removed by
 hand. During the time occupied in rounding
 the books the operator inserts another pair of
 books in the feed-rollers, so that immediately 105
 the books which have been rounded are re-
 moved the vise is at liberty and comes for-
 ward and seizes the next pair of books, &c.

I would also have it understood that I do
 not confine myself to the precise details de- 110
 scribed and shown herein for carrying this
 invention into effect, as various mechanical
 constructions or alterations may occur or sug-
 gest themselves to an intelligent mind with-
 out departing from the nature of the inven- 115
 tion.

It will be seen from the foregoing descrip-
 tion that by the present invention the round-
 ing, backing, and pressing the books is ef- 120
 fected at one operation instead of two, as here-
 tofore. The machine is arranged so that it
 can operate on two books simultaneously in-
 stead of only one, as formerly. The capacity
 of the machine is (in the case of two books)
 doubled without increasing its size. There 125
 is a freedom of danger to the attendant on
 removing the books. Notwithstanding the
 adaptability of the machine for operating on
 two or more books simultaneously, yet it is
 capable of operating also on single books. 130

I declare that what I claim is—

1. In apparatus for rounding and backing
 books, guides, a rigid gage-bar mounted there-
 in and movable vertically and horizontally

and spring-supports at its ends, in combination with the book-vise, means for moving the vise and means raising the bar whereby when the vise collides with the spring-supported gage-bar, it will gently move the same out of the position which it previously occupied, and thus enable the book-vise to seize the books and carry them to the rounding and backing appliance, after which the gage-bar instantly springs back to its normal position, substantially as described.

2. In a rounding and backing machine, the combination with intermittently-rotating

feed rolls and guides allowing of a rise and fall of the upper feed-roll, of a horizontal gage-bar behind said rolls, mounted to move to and from said rolls, and guides to allow of the independent rising and falling of the gage-bar, substantially as described.

In witness whereof I have hereunto signed my name this 24th day of September, 1900, in the presence of two subscribing witnesses.

JOSEPH MEEK.

Witnesses:

CLARENCE H. WIMSHURST,
FRANCIS HAROLD EDWARDS.