

(No Model.)

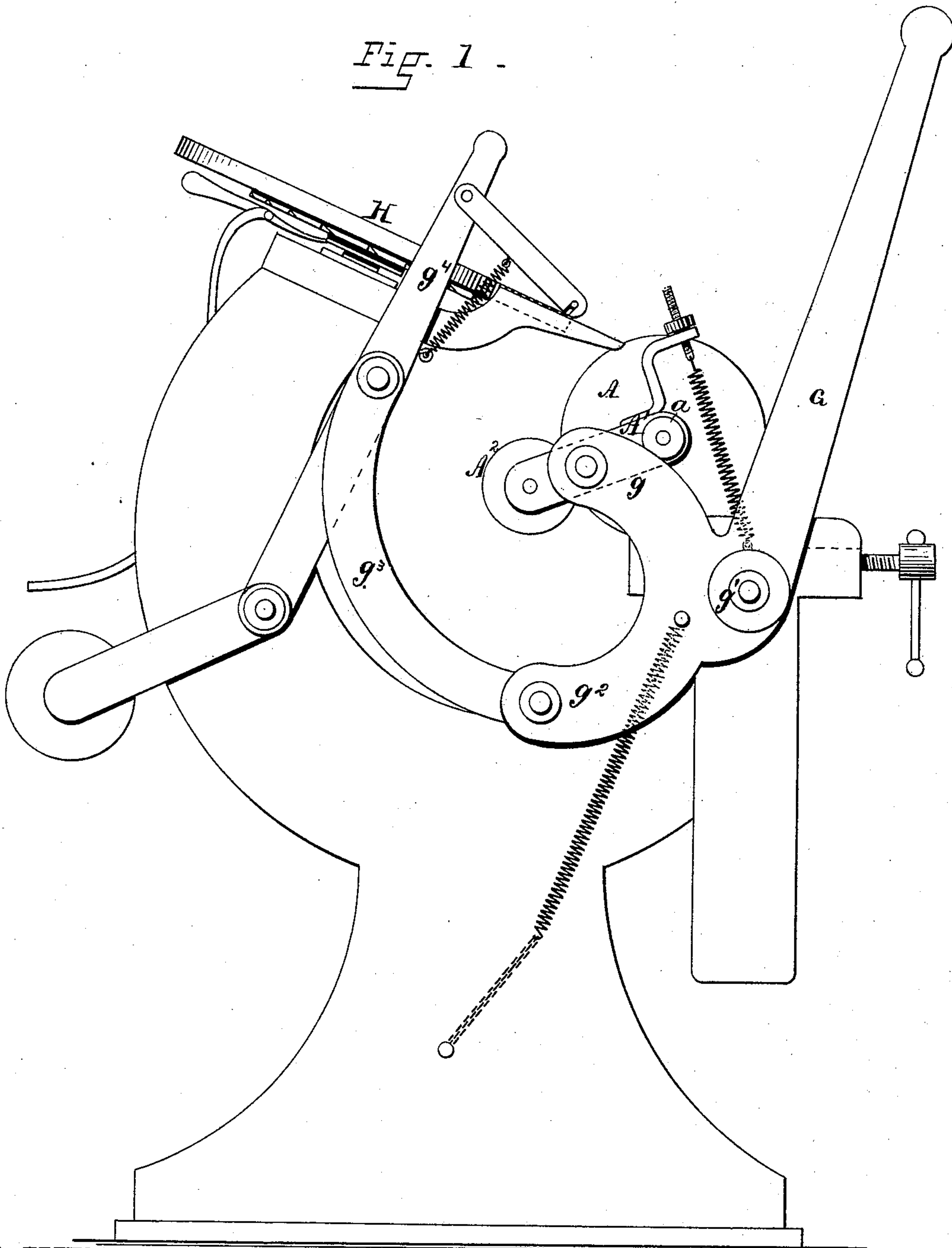
4 Sheets—Sheet 1.

F. W. DAVENPORT.  
BOOK FINISHING MACHINE.

No. 322,526.

Patented July 21, 1885.

Fig. 1.



WITNESSES:

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INVENTOR.

Frank W. Davenport  
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(No Model.)

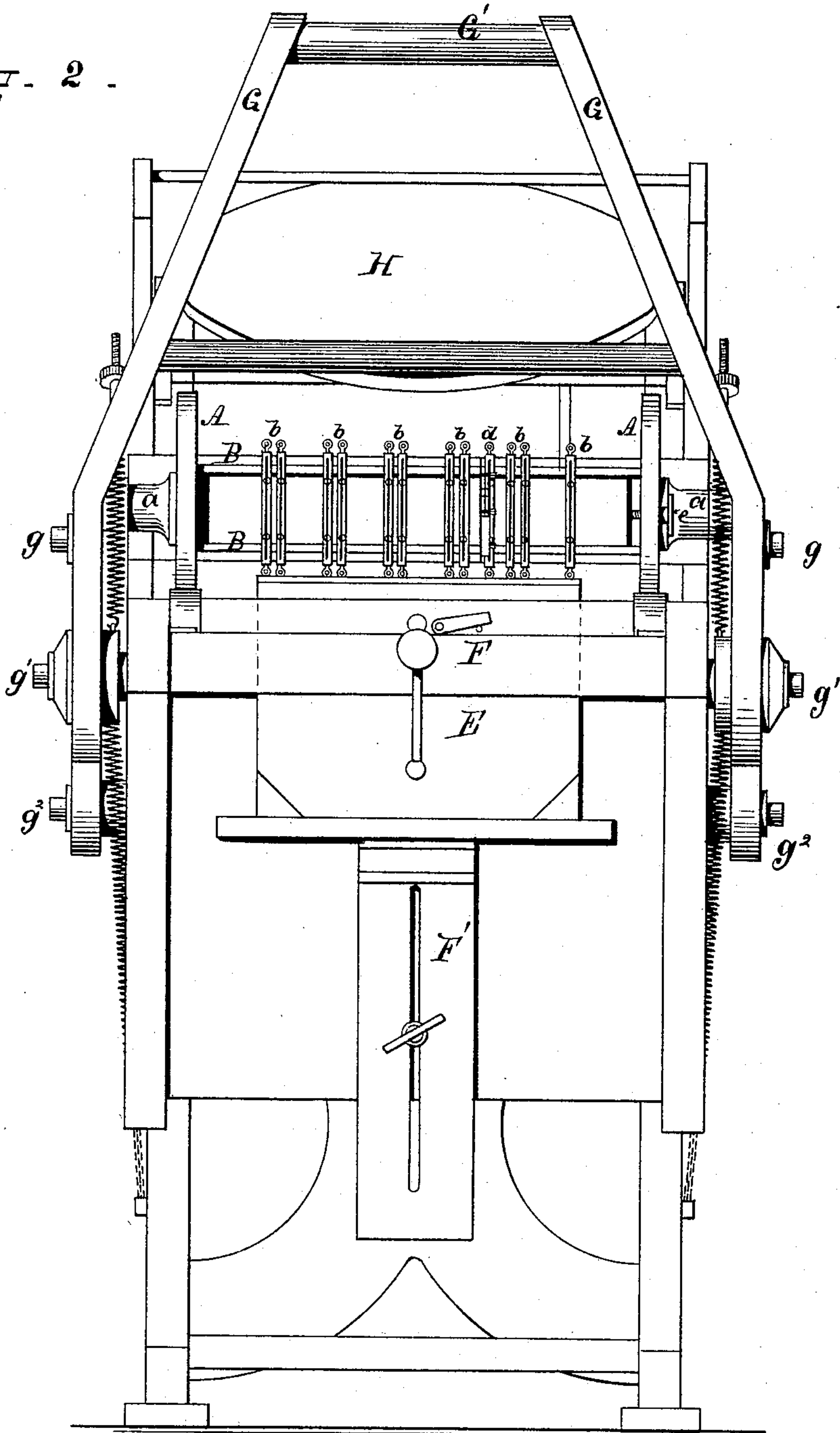
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BOOK FINISHING MACHINE.

No. 322,526.

Patented July 21, 1885.

Fig. 2



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Fig. 3 .

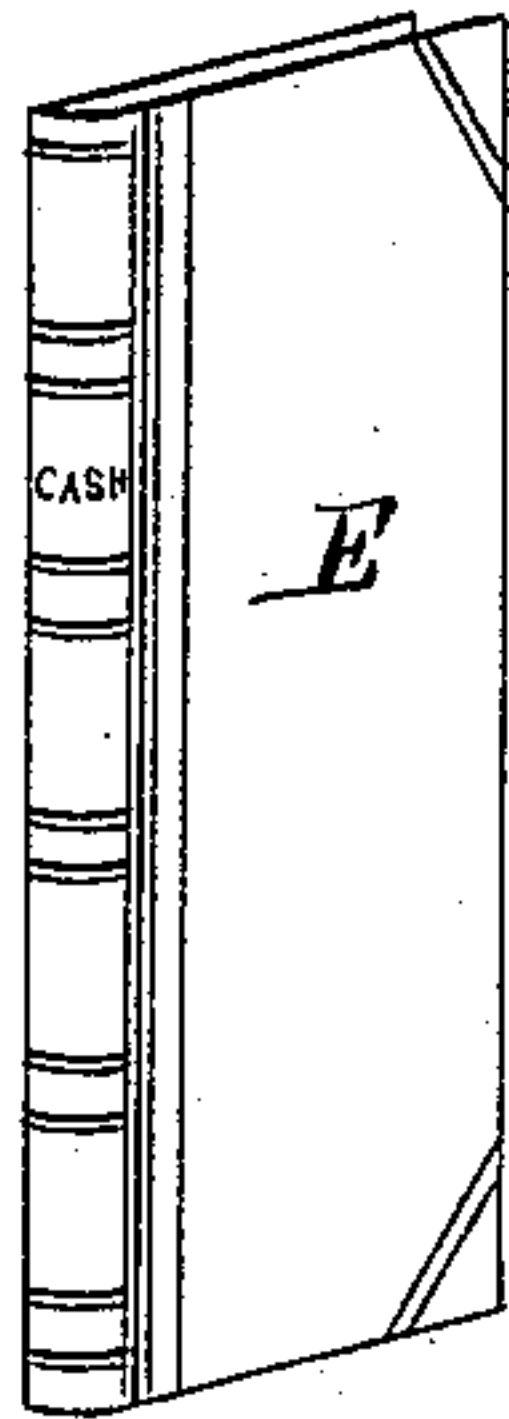
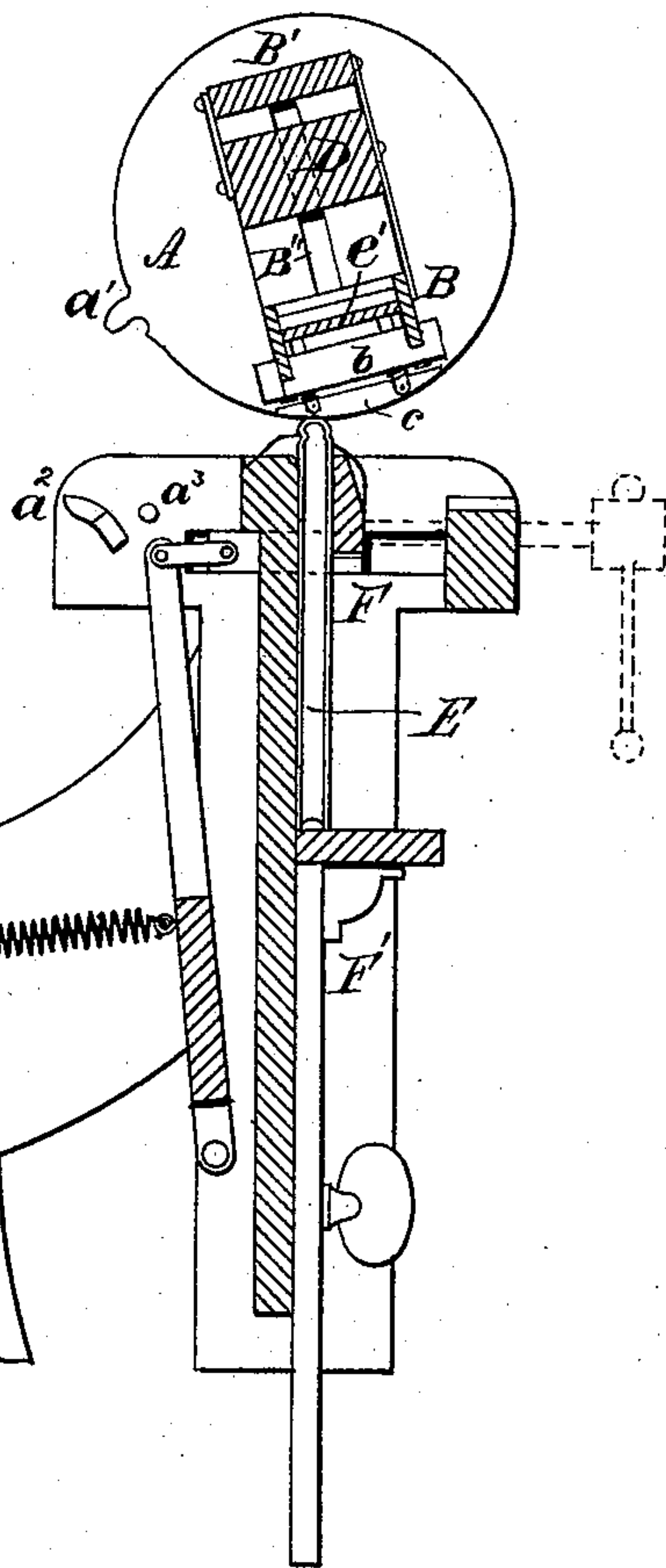
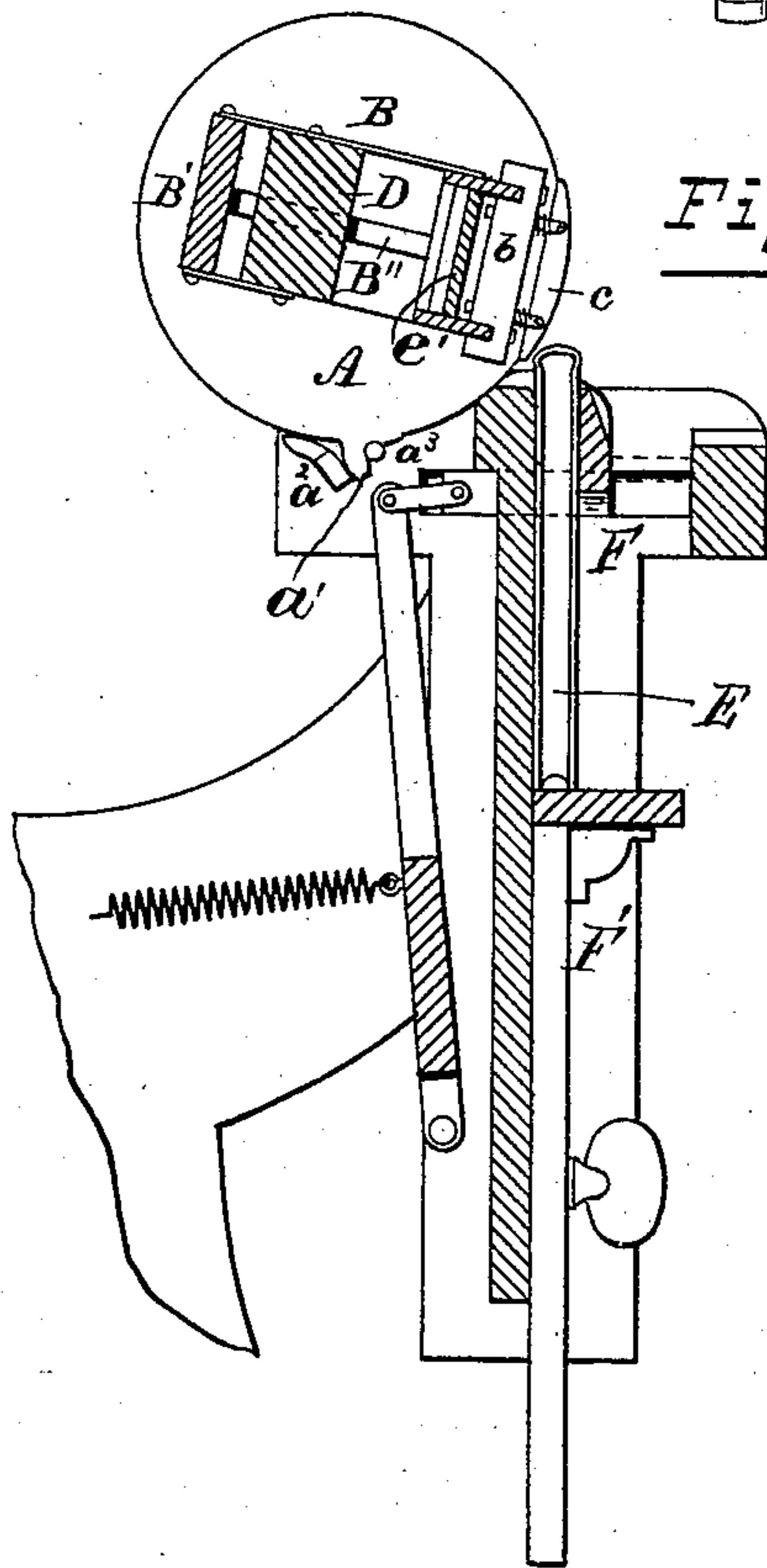


Fig. 5 .

Fig. 4 .



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(No Model.)

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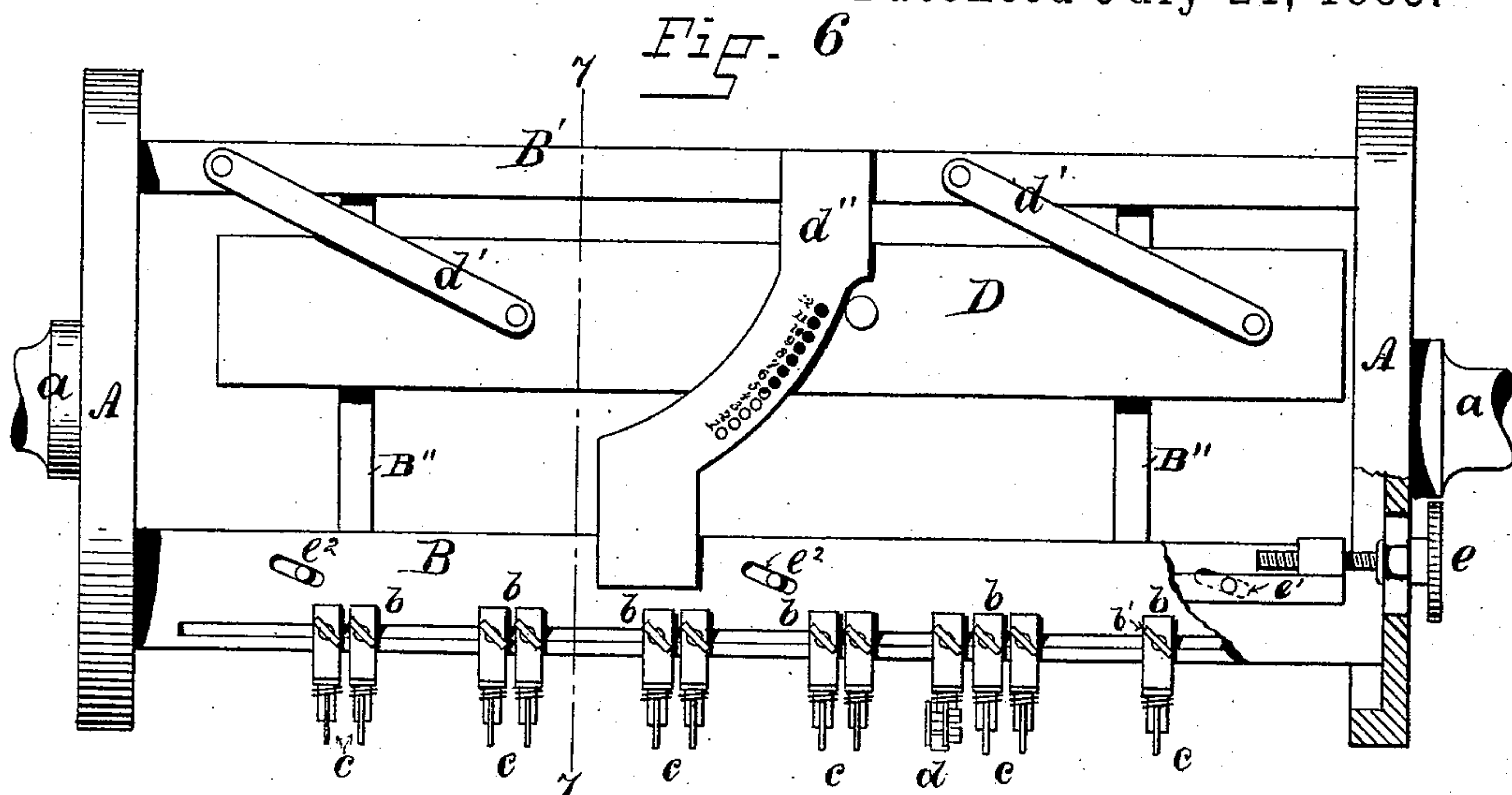


Fig. 7.

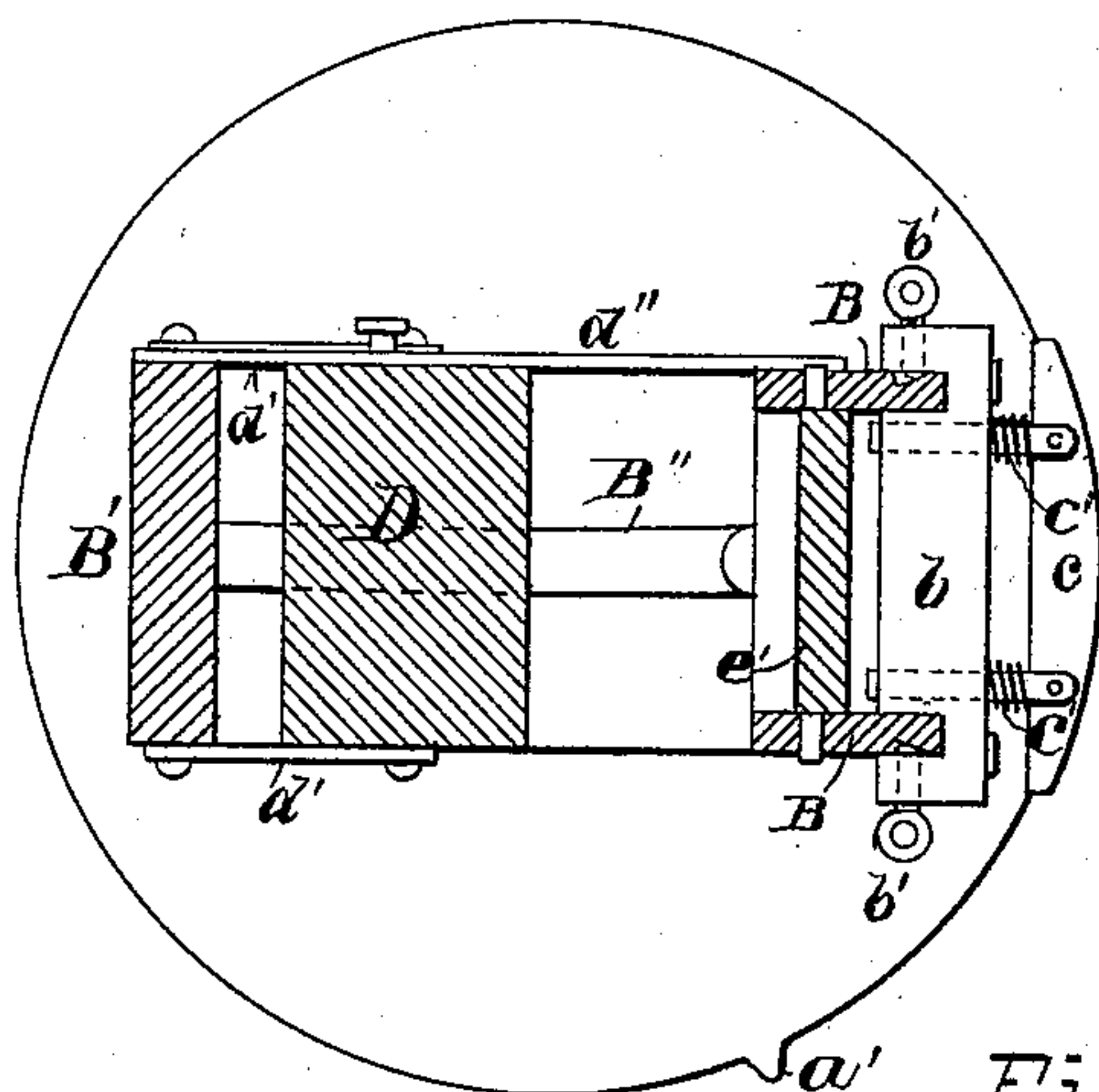


Fig. 8.

Fig. 9.

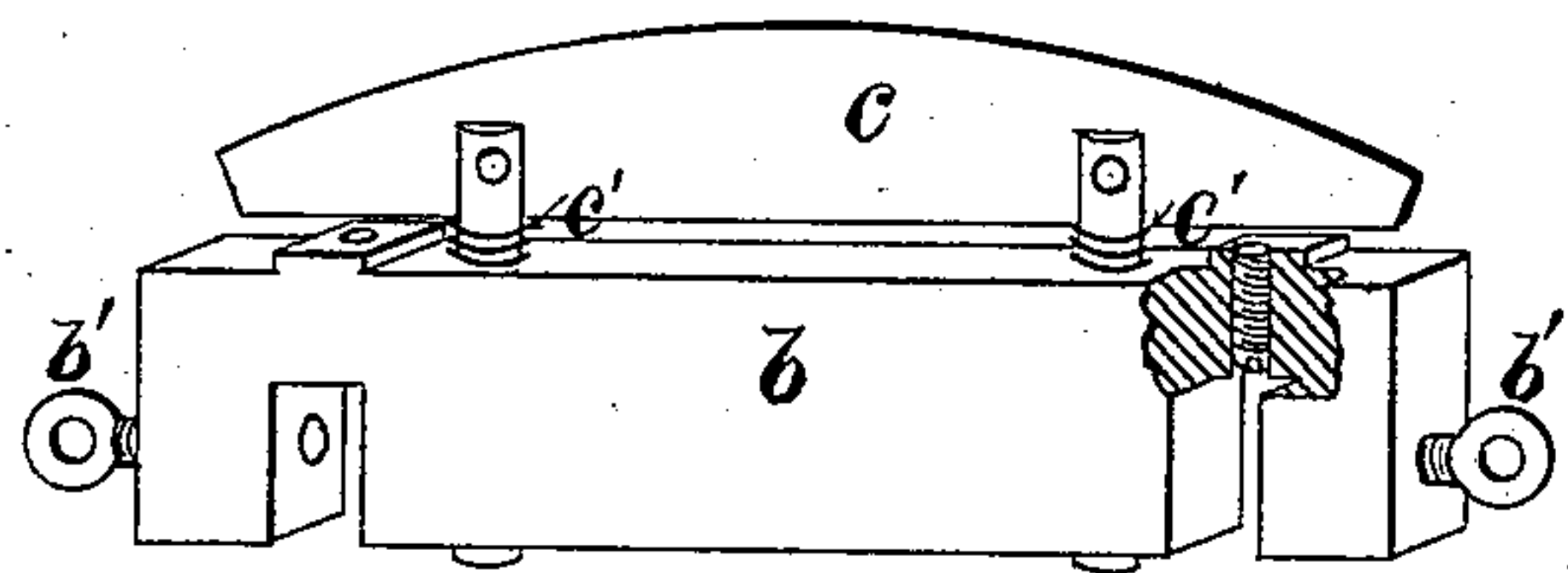
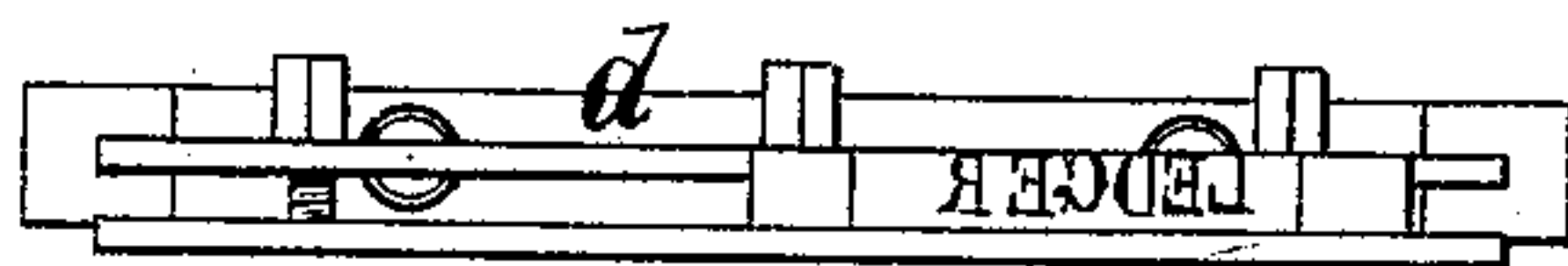


Fig. 10.

WITNESSES:

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# UNITED STATES PATENT OFFICE.

FRANK W. DAVENPORT, OF PROVIDENCE, RHODE ISLAND.

## BOOK-FINISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 322,526, dated July 21, 1885.

Application filed August 3, 1883. Renewed November 17, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK W. DAVENPORT, of the city and county of Providence, State of Rhode Island, have invented a new and  
5 useful Improvement in Book-Finishing Machines; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this spec-  
10 ification.

My invention relates to machines for finishing and imprinting the backs of books by means of stamps arranged so as to be rolled over the backs.

15 In finishing books the lines, letters, and ornaments are usually formed by heated stamps, by which the design, together with the gold leaf, is pressed into the material forming the back of the book. For the  
20 cheaper grades of books the stamps may be covered with size, and thus pressed into the back of the book, and then dusted over with gold bronze or other powder.

25 The machine herein described is intended to perform this operation; but it can be arranged to gild by having the same constructed so the stamps can be heated.

Figure 1 is a side view of the machine. Fig. 2 is a front view of the same. Fig. 3 is a perspective view of the book lined and lettered, or  
30 finished. Fig. 4 is a sectional view of the clamp for holding the book and the imprinting device at the commencement of the operation. Fig. 5 is a sectional view of the same parts as Fig. 4, showing the imprinting device partly rolled over the back of a book. Fig. 6  
35 is a view of the revolving frame, to which the stamps are attached, showing the arrangement for counterbalancing the same. Fig. 7 is an end section of the same on the line 7 7 of Fig. 6. Fig. 8 is a perspective view of a stamp or  
40 imprinting device. Fig. 9 is a view of a type-holder. Fig. 10 is a section of Fig. 9 on the line *x x*.

45 In the drawings, A A are two side pieces provided with the bearings *a a*. These two side pieces are firmly secured together by the parts B and B', so that the whole forms what will be termed a "revolving frame," turning

in the bearings *a a* as on a shaft, which frame 50 and all parts connected with it can be rolled over any surface.

*b b* are adjustable blocks, to each of which the segmental stamp *c* or the segmental type-holder *d* is secured by means of pins or studs, 55 surrounded by the spiral springs *c'*, so as to give a slight yield to the same. The blocks *b* are each provided with notches or recesses, one near each end thereof, which receive continuous extensions of that part of the revolving frame A which is marked B. Said blocks  
60 are secured to the part B by screws *b' b'*. In order to render their attachment by the screws *b'* more secure, and also to permit of the ready adjustment of said blocks, the part B is pro- 65  
vided at each side with a groove, into which the screws *b'* take. When the blocks have been thus secured to the frame A, the movements of their yielding stamps and type-holders are limited by the slide *e'*, which is operated by the  
70 screw *e*, one end of which is threaded into one end of the slide, as shown in Fig. 6.

The sides of the parts B are each provided with a series of oblique slots, *e''*, in which work a corresponding series of pins or bear- 75  
ings upon the edges of the slide *e'*. At its underside the slide is exposed to contact with the ends of the pins in the blocks *b*, as shown in Fig. 7. Owing to the action of the springs  
80 *c'*, the stamps and type-holders are held outward from the blocks; but when said stamps and type-holders are brought into contact with the back of a book they will be forced inward, those striking upon any irregularities  
85 on the back of the book being forced inward farther than the remainder, and all of them being limited in their movement by the slide *e'*, through the medium of the pins or studs, which are connected with and form part of  
90 the imprinting devices.

It is obvious there are many ways in which the movement of the stamps can be limited, and I do not confine myself to all of the details above enumerated.

It will be understood the object in making 95 the stamps yielding is to bring the whole series of them into contact with the back of the book, which could not be done with rigid



stamps if the back is otherwise than perfectly level. As it is desirable to have the stamps yield only so far as to secure a perfect impression, the slide *e'* is provided to that end.

5 To secure the accurate and easy operation of the revolving frame upon the back of the book, the counterbalance-weight *D* is provided. Said weight is secured movably to the frame, so as to have a movement to and from  
10 the stamps. In the drawings it is arranged to move on a pair of guides, *B''*, which extend each from the part *B* to the part *B'*, and through suitable slots in the weight *D*, so as to permit of its required movement. It is also  
15 guided by the pivoted links *d' d'*.

*d''* designates a brace, which is secured by its ends to the parts *B B'*. This brace is provided with a series of holes, which are numbered, as shown in Fig. 6, from 1 to 12, corresponding  
20 to the largest number of stamps which it is desired to use in the machine. Of course the exact number in any given case may be more or less than 12. The weight of the weight *D* is so proportioned to the weight of the im-  
25 printing devices that the former will counterbalance or nearly counterbalance the latter, when placed in certain relation to the hole in the brace bearing the number which corresponds with the number of imprinting de-  
30 vices in use. The weight is held in such position by a pin passing through the proper hole in the brace and entering a hole in the weight.

Referring now to Figs. 4 and 5, it will be  
35 seen that the book *E* is secured in the clamp *F*, and that the revolving frame *A* is provided with the tooth or finger *a'*, which in Fig. 4 enters between the curved guide *a''* and the stop *a'''*. The object of this arrangement is to  
40 fix the starting-point of the revolving frame so that the stamps when properly adjusted will always imprint the design in the same position on the back of the book. The slide *F'* is used to give a firm support to the book.

45 Figs. 1 and 2 represent the frame *A* mounted in the machine, it being journaled in the arm *g* of the lever *G*, the weight of the frame being counterbalanced or partially counter-  
50 balanced by the weight *A''*, secured to the opposite ends of the links *A'*. The levers *G G*, one on each side of the machine, unite in the handle *G'*, so that they are operated simul-  
55 taneously. They have their fulcrum at *g'*. The arms *g''* are connected by the links *g'''*, one on each side of the machine, with the levers *g''*, by which a roller similar to the roller of a print-  
ing-press is carried over the distributing-table *H* to receive size delivered to the same, and convey the size to the stamps in the frame *A*,  
60 to be by them impressed on the back of a book.

The operation of the machine is as follows: After the stamps by which the design is im-  
printed on the book are secured to the frame  
55 *A* and properly balanced, and the slide *e'* is properly adjusted and the book is secured in

the clamp *F*, the levers *G G* are drawn for-  
ward and downward to roll the frame over the  
back of the book. The levers are then turned  
upward and backward until the distributing-  
70 roller connected with the levers *g''* has passed over the stamps and covered the same with  
size, when by again moving the levers *G G* for-  
ward and downward the frame *A*, with the  
stamps is rolled over the next book that has  
75 been inserted, and imprints the design thereon. The design so imprinted is then dusted over with gold bronze or other powder in the same manner that gold printing is done.

The size-delivering device is constructed in  
80 the same manner as the ordinary inking device of a printing-press, and the distributing-table *H* is rotated by pawl and ratchet or similar devices, all of which being well known to those skilled in the art it is deemed un-  
85 necessary to more fully describe them.

By means of this machine all the lines and  
lettering will be at right angles to the book  
and uniform, which is not often the case when  
finished by hand. A large amount of work  
90 can be quickly and neatly done, and the machine can be operated by unskilled workmen.

Although this machine is described as work-  
ing by hand, it is obvious it can be readily  
constructed so as to operate by power.  
95

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

1. In a machine for finishing the backs of  
books, the combination, substantially as here-  
100 in set forth, of a clamp for securing the book, a revolving frame provided with stamps for impressing the back of the book, and connections, substantially as described, for rolling  
105 the same over the back of a book.

2. In a machine for finishing the backs of  
books, the combination of the following in-  
strumentalities: a clamp for securing the  
book, a revolving frame provided with stamps  
for impressing the back of the book, a size-  
110 delivering device for automatically covering the stamps with size, and connections, substantially as described, for operating the machine, substantially as set forth.

3. In a machine for finishing the backs of  
115 books, the combination, with a revolving frame, of stamps constructed to be adjustably secured to said frame, and an adjustable weight arranged to counterbalance said stamps, the whole constructed to be rolled over the  
120 back of a book, substantially as set forth.

4. In a machine for finishing the backs of  
books, the combination, with the clamping  
device *F* and levers *G G*, of the revolving  
frame *A*, constructed to receive stamps for  
125 impressing the back of a book, and the weight *A''*, arranged to counterbalance or partially counterbalance the frame *A*, the whole constructed to impress the back of a book, sub-  
stantially as set forth.  
130

5. In a machine for finishing the backs of  
books, the combination, with the revolving



frame A, and the levers G G, provided with  
arms  $g^2$   $g^2$ , of the links  $g^3$ , the levers  $g^4$ , the  
arms  $g$ , the distributing-table H, and connec-  
tions, substantially as described, for supply-  
5 ing size to the stamps for impressing the back  
of a book, substantially as described.

6. In a machine for finishing the backs of  
books, the combination, substantially as here-  
in set forth, of yielding stamps for impressing  
10 the book, a suitable support, as described, in

which said stamps are mounted, and an ad-  
justable stop or stops for regulating and lim-  
iting the rearward movement of said stamps.

In witness whereof I have hereunto set my  
hand.

FRANK W. DAVENPORT.

Witnesses:

J. A. MILLER, Jr.,

M. F. BLIGH.