

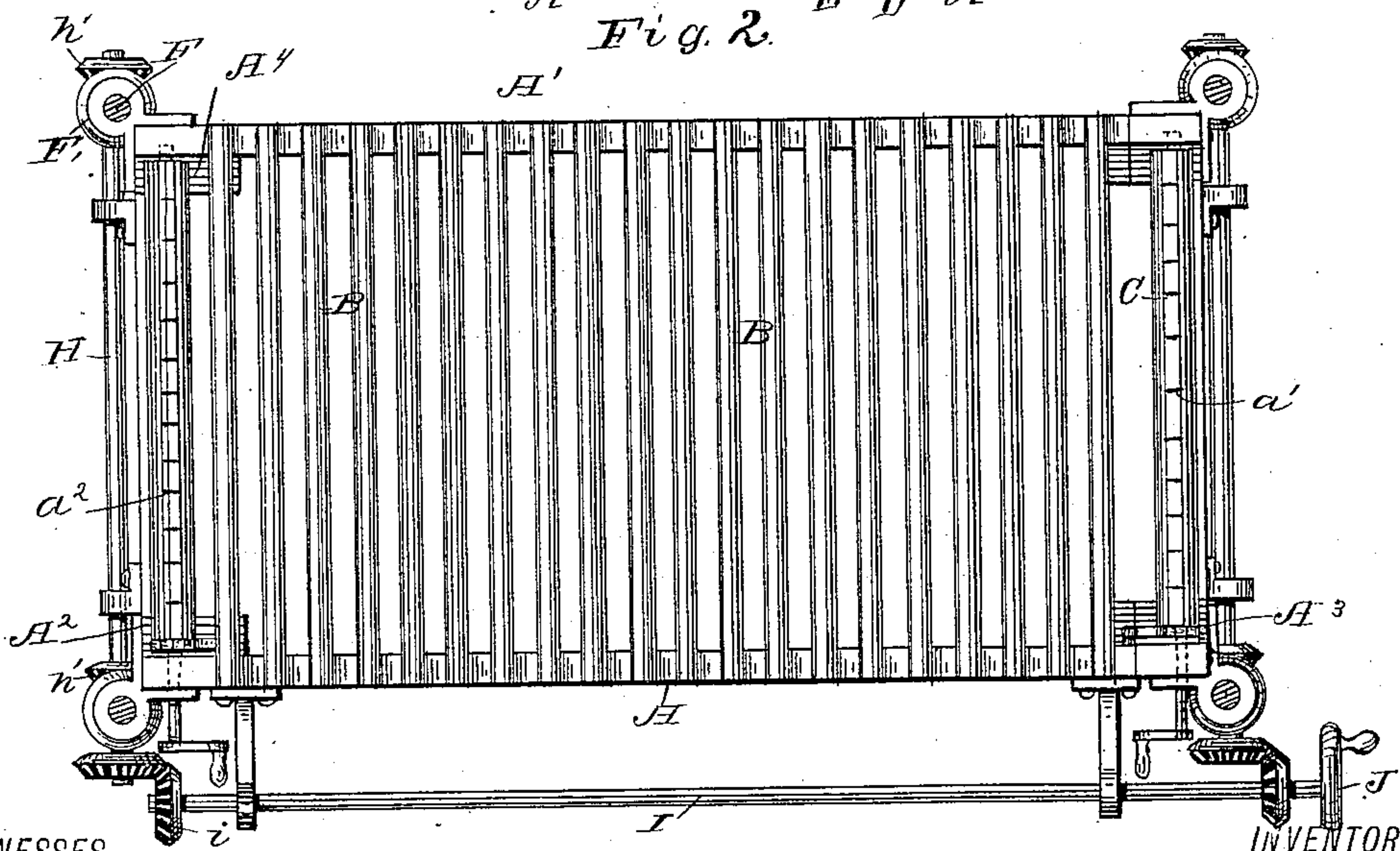
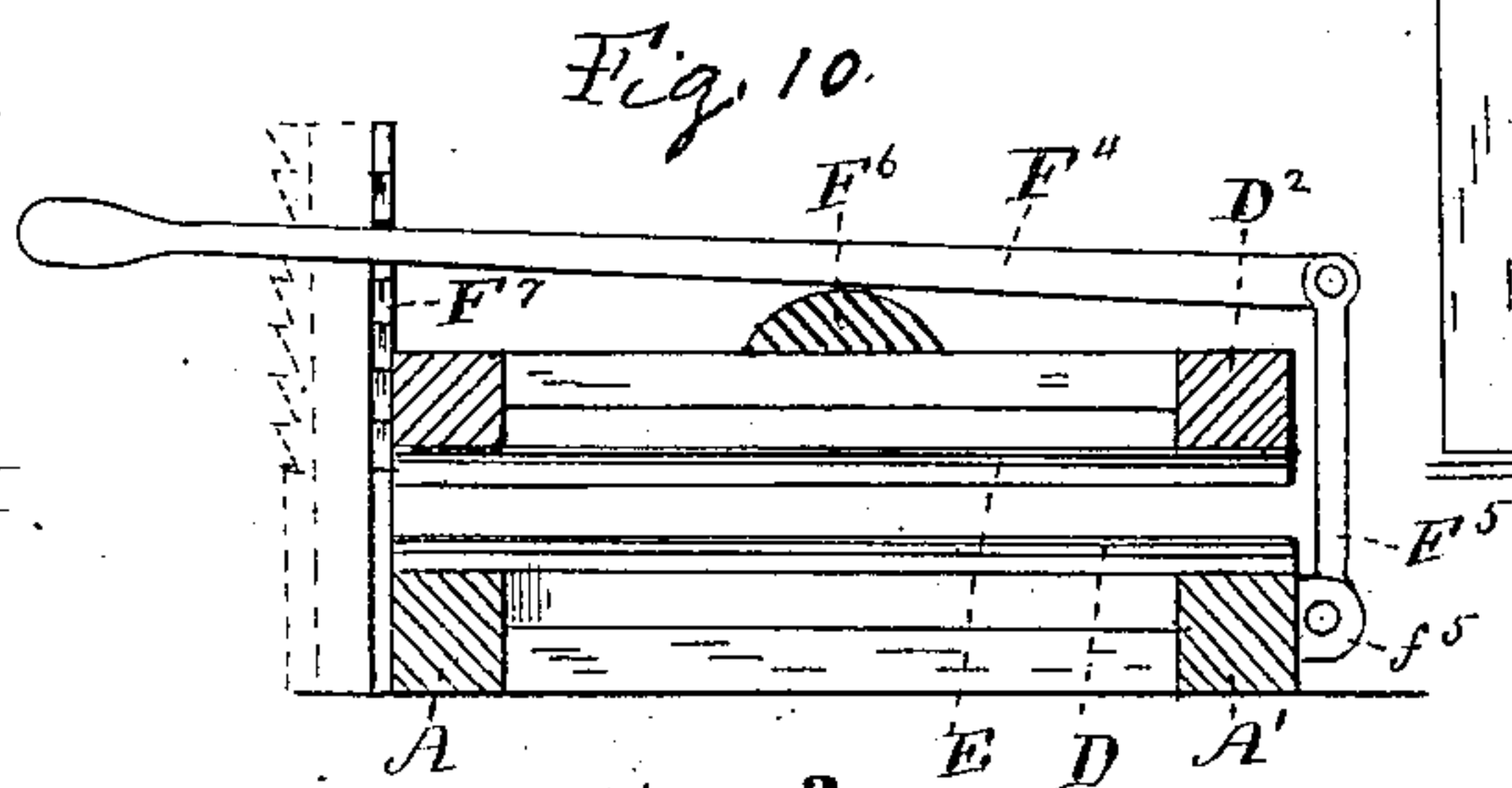
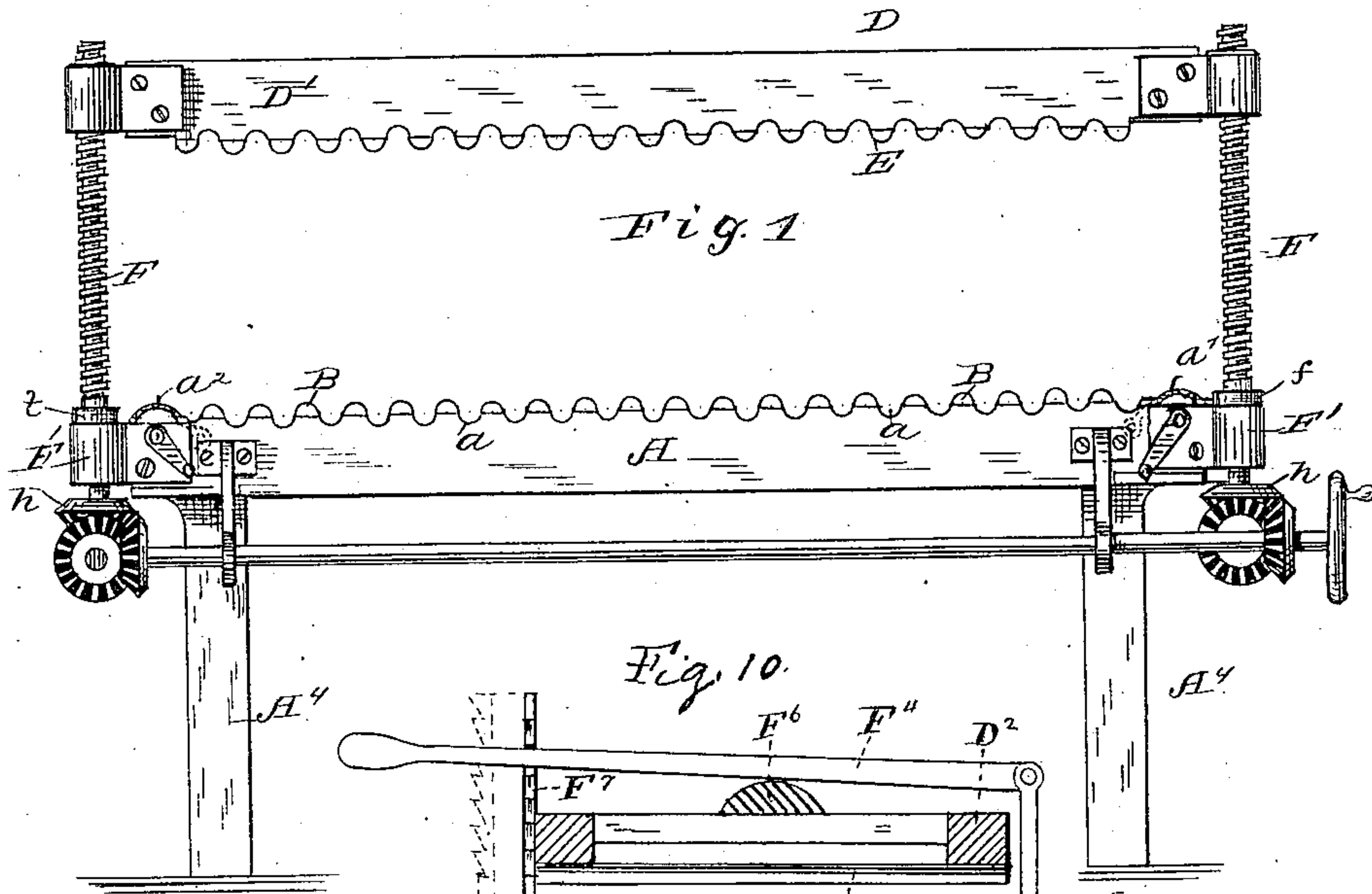
(No Model.)

3 Sheets—Sheet 1.

R. S. JENNINGS.  
LEATHER STRETCHING MACHINE.

No. 308,170.

Patented Nov. 18, 1884.



WITNESSES

J. Curtis Turner  
N. L. White.

INVENTOR

Ralph S. Jennings  
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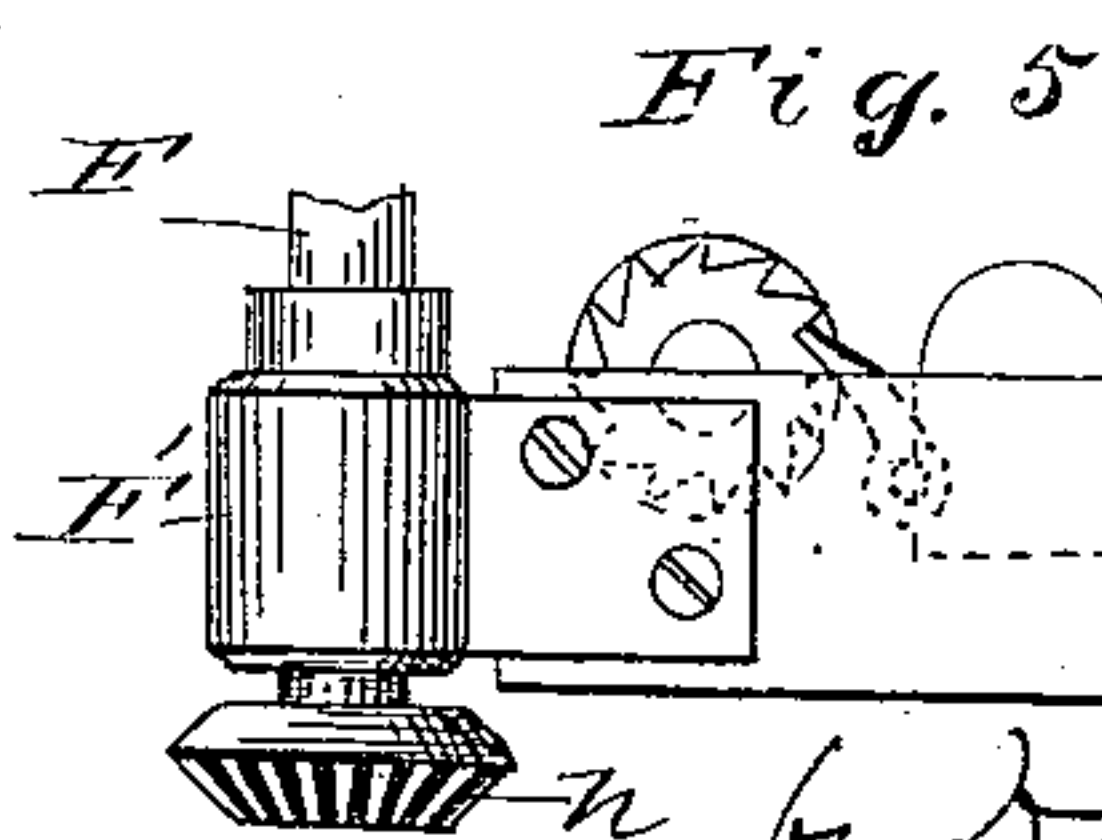
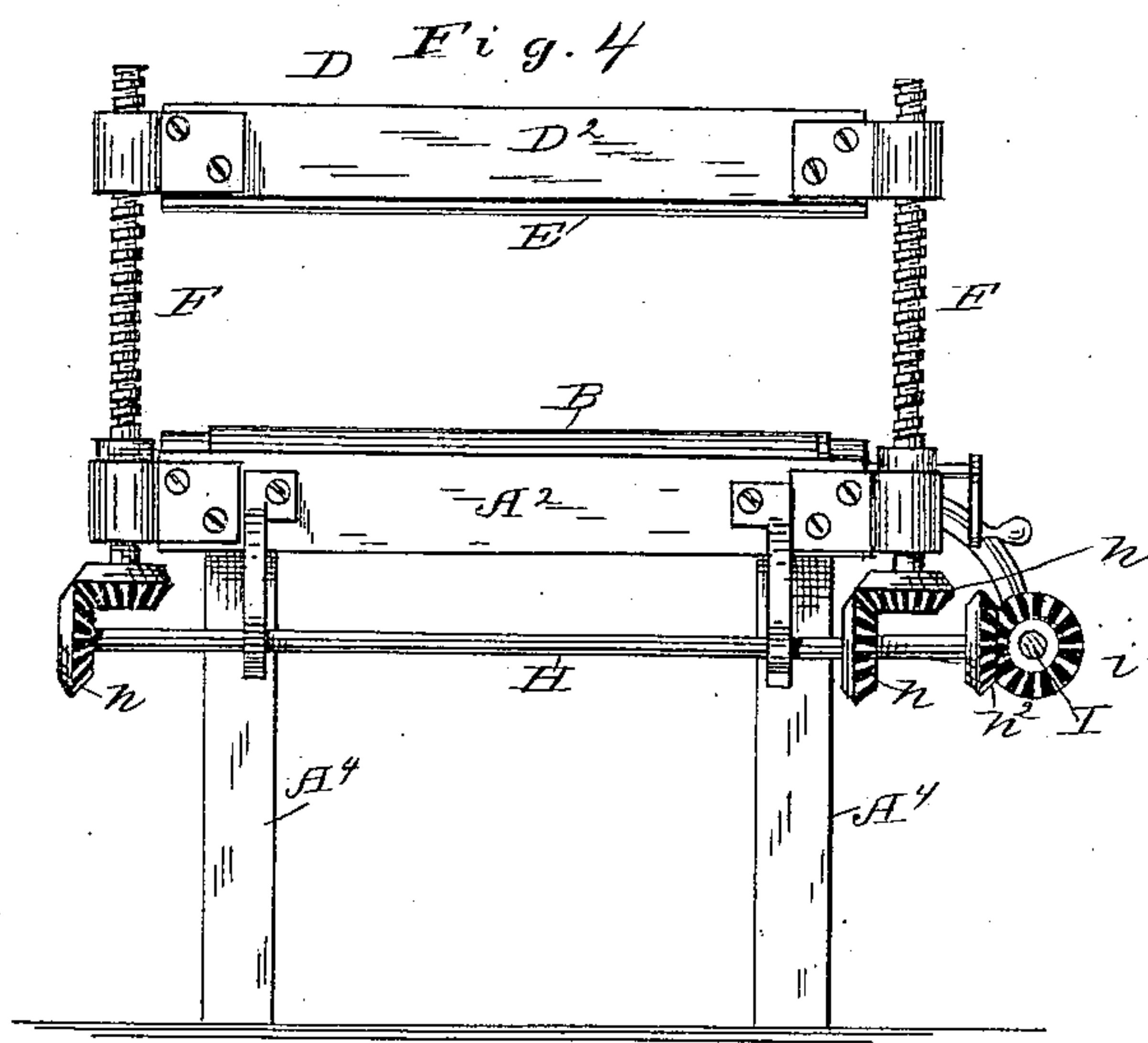
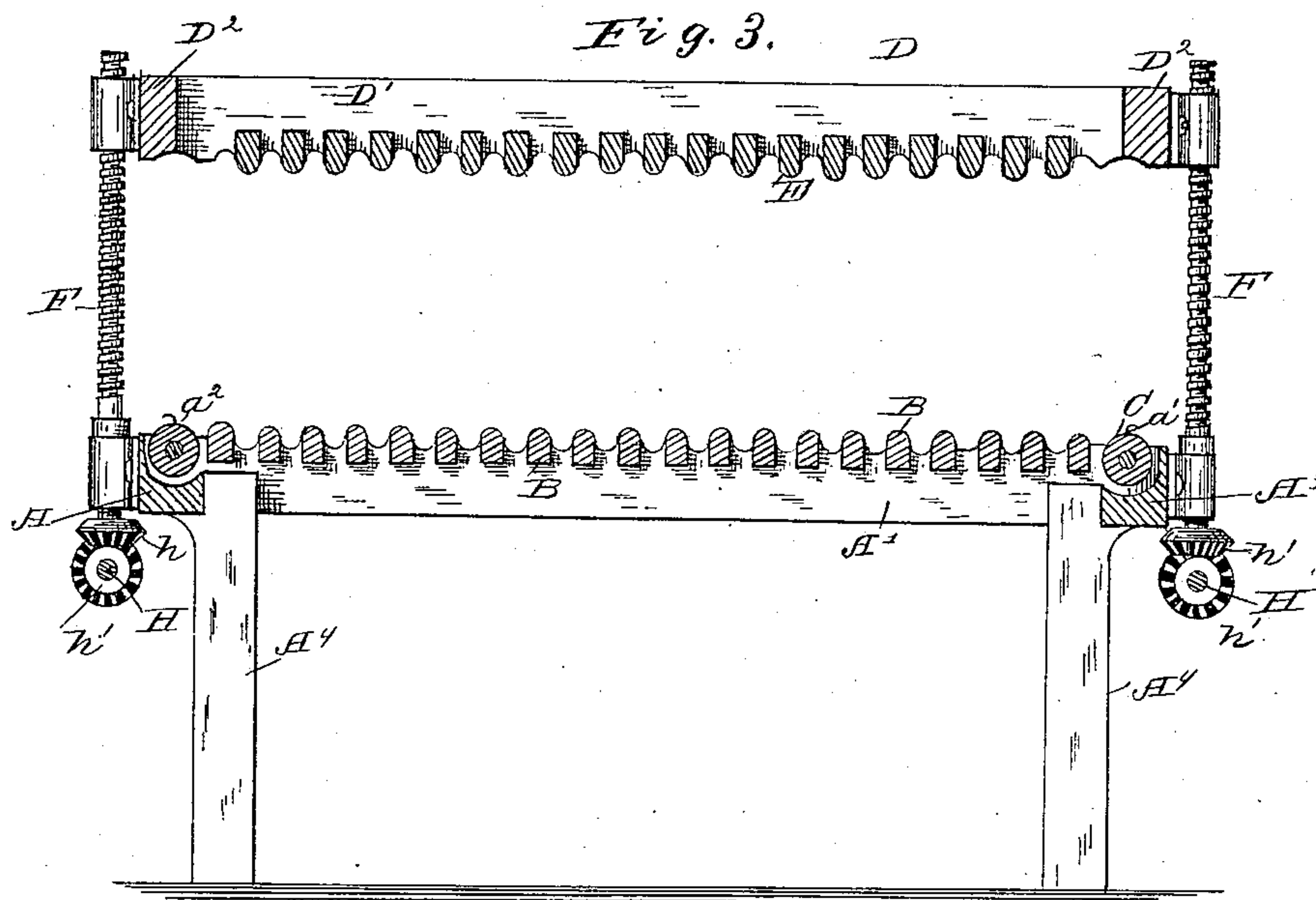
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INVENTOR

*Ralph S. Jennings*

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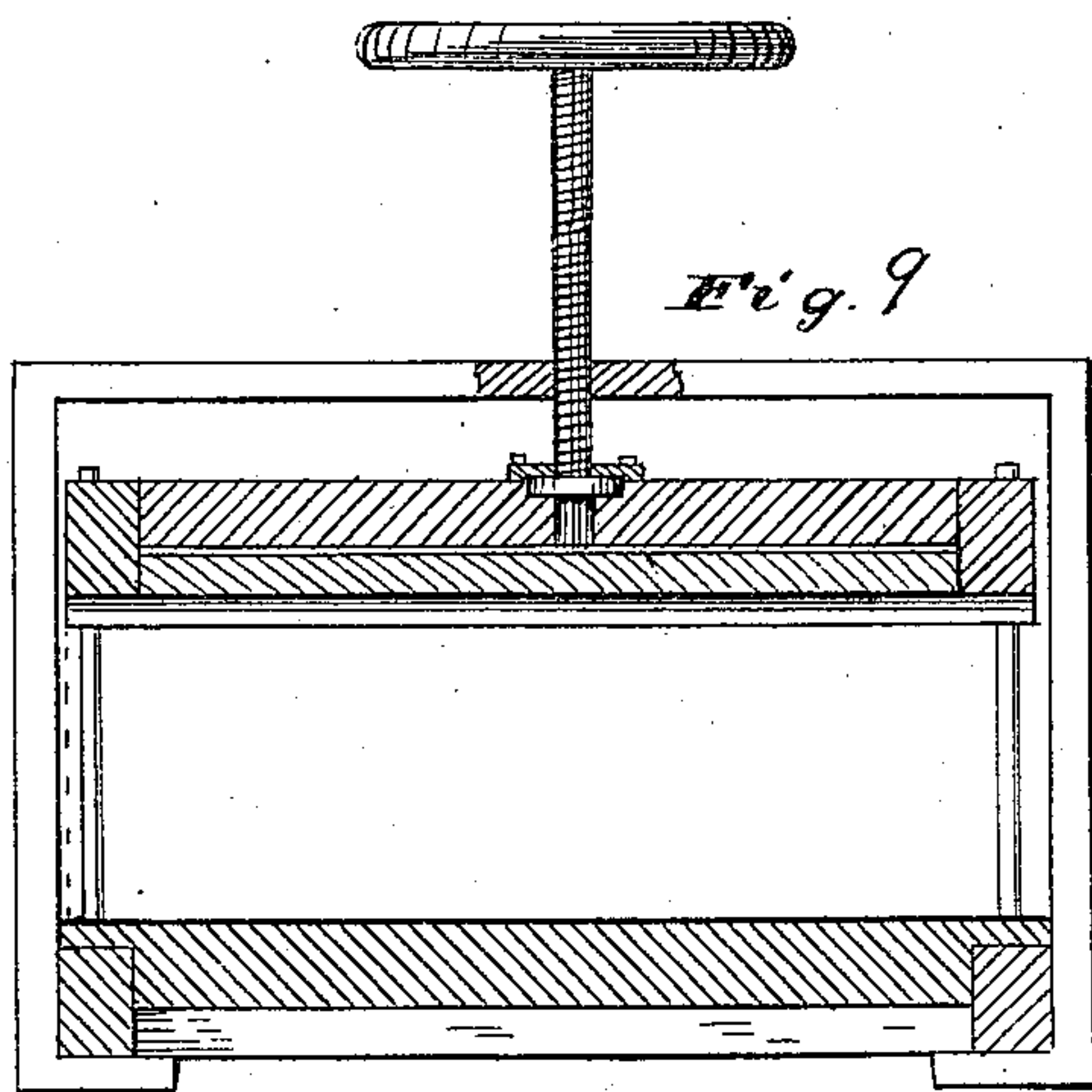
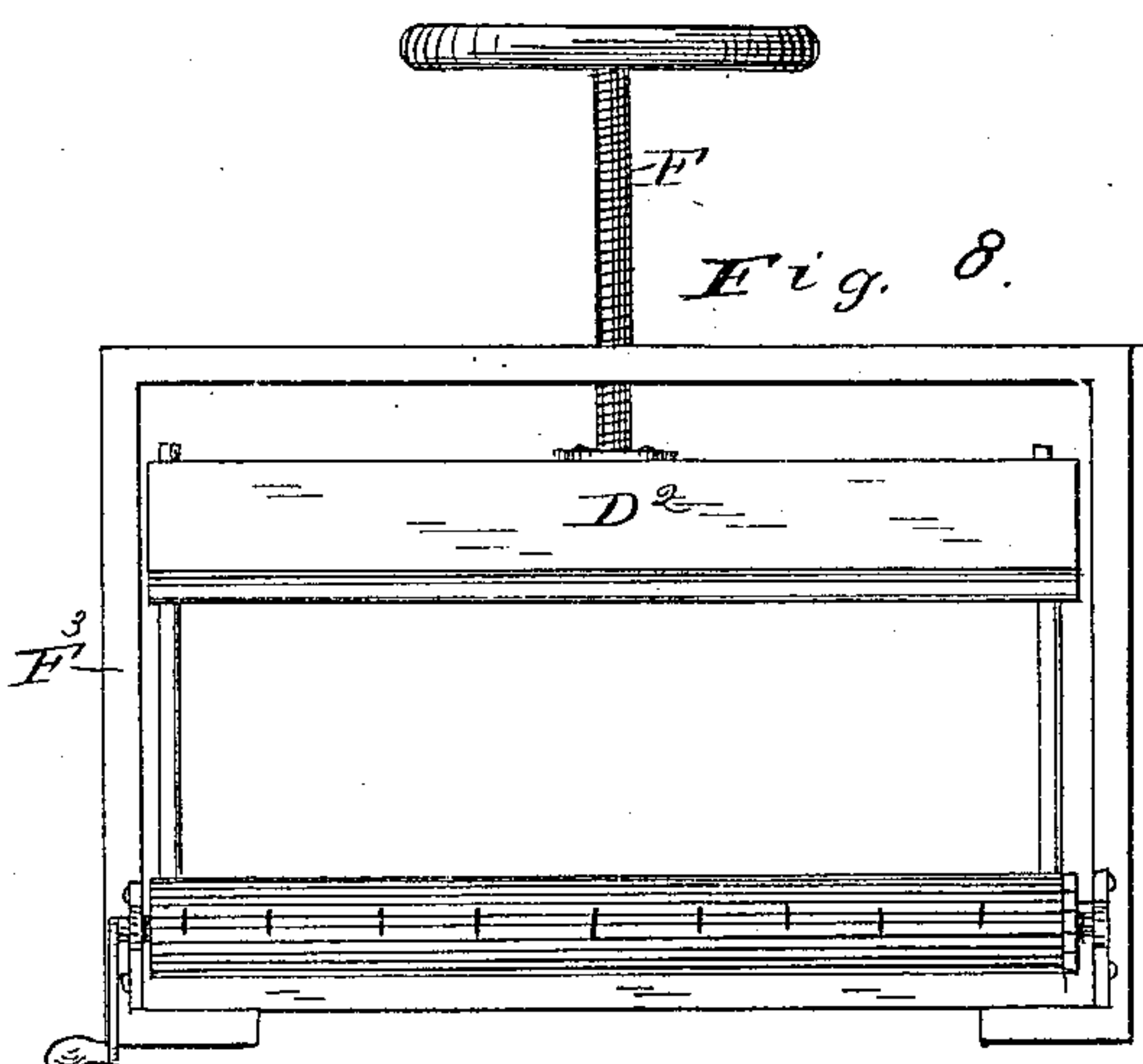
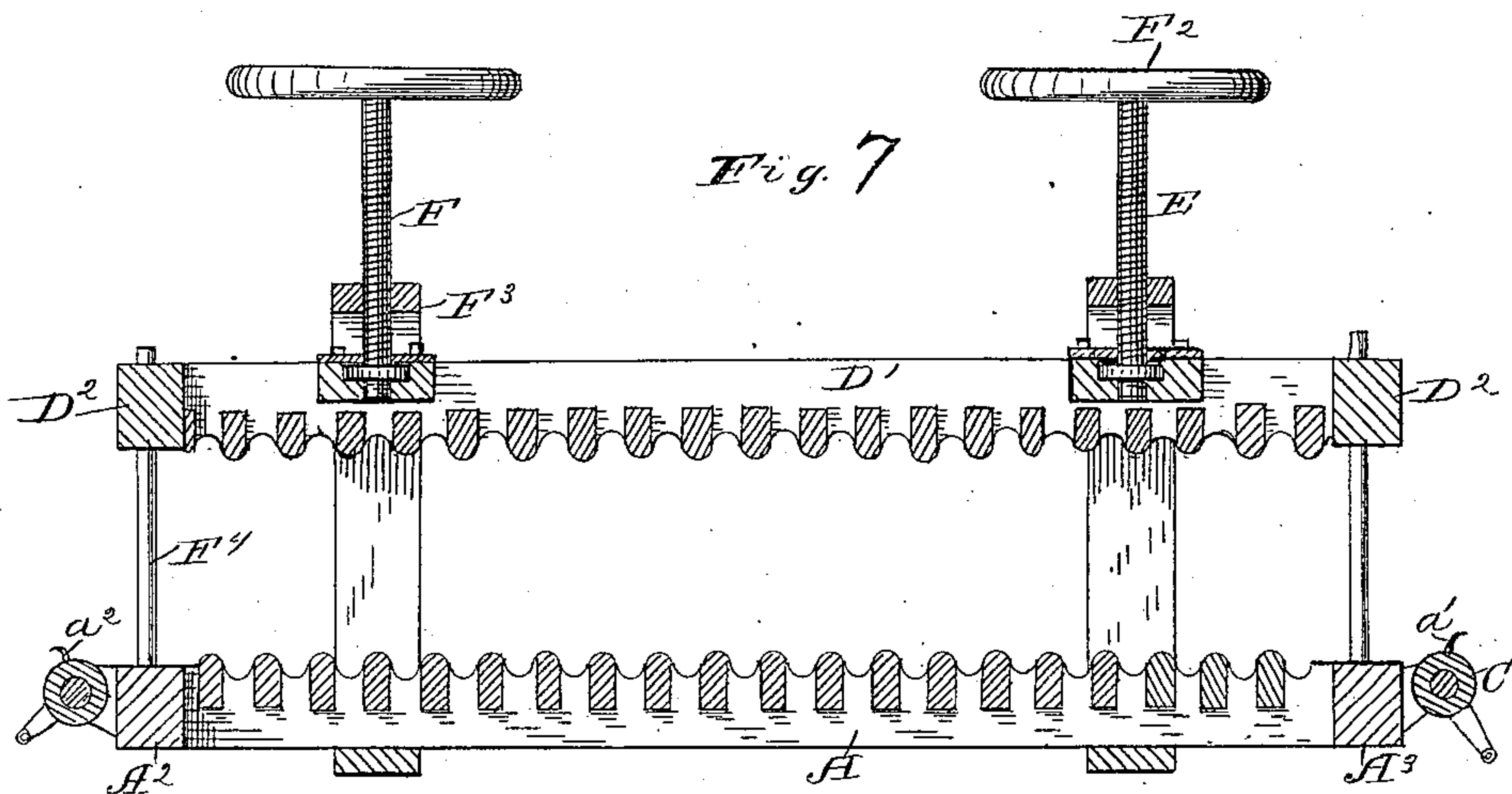
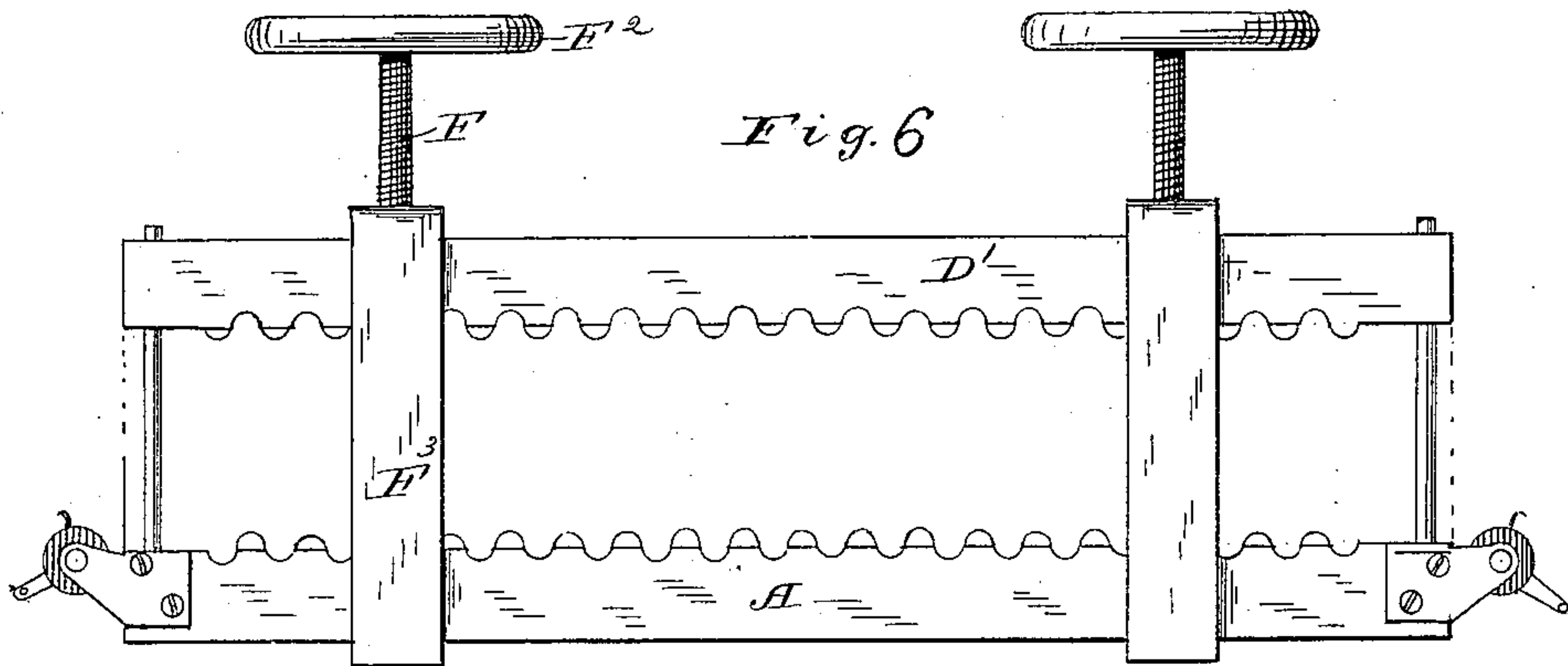
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WITNESSES

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# UNITED STATES PATENT OFFICE.

RALPH S. JENNINGS, OF BOSTON, MASSACHUSETTS.

## LEATHER-STRETCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 308,170, dated November 18, 1884.

Application filed June 20, 1883. Renewed April 23, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, RALPH S. JENNINGS, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Leather-Stretching Machines and Method, of which the following is a specification, reference being had therein to the accompanying drawings.

Figure 1 is a side elevation of a machine embodying my improvements. Fig. 2 is a top plan view of the lower part of the machine. Fig. 3 is a longitudinal section. Fig. 4 is an end elevation. Fig. 5 shows a portion of the machine on a larger scale. Figs. 6, 7, 8, and 9 are respectively a side elevation, a longitudinal section and end view, and a cross-section of another form of machine. Fig. 10 is a cross-section of still another modified form.

In the drawings, A A' represent the side pieces, A<sup>2</sup> A<sup>3</sup> the end pieces, and A<sup>4</sup> A<sup>4</sup> the legs of the frame upon which the other parts of the mechanism are supported. Upon the frame thus provided are placed the stretching-bars B B. These are preferably made of wood, semi-circular in cross-section, being about one inch in radius, though of course they can be more or less modified in these respects. These are arranged parallel, and at their ends are secured to the top of the frame. If necessary, an intermediate sill or supporting-bar may be secured centrally to the frame to support the central parts of the stretching-bars B B. They are placed at a sufficient distance apart to permit the leather to be carried down somewhat between them during the operation of stretching, and the top surface of the frame-pieces A A' is recessed somewhat, as shown at *a a*.

C represents a roller mounted across the machine at one end. It is provided with tenter-hooks *a'* or other devices for engaging with the leather and holding it securely while being stretched. At the other end of the frame there are similar hooks or fastening devices, *a''*. These may be, if desired, attached also to a roller. The slack produced in stretching the leather can be readily taken up by means of the roller or rollers, and with the latter should be combined ratchets or other securing devices, so that when they have been turned

more or less they can be securely fastened in any desired position.

D represents a platen or moving table, it also carrying stretching ribs or bars E E, the frame of the table or platen consisting, preferably, of sills D' D' and cross-pieces D<sup>2</sup>. The bars or ribs E E are secured to the under sides of the platen or table, and are situated in vertical planes alternating with the planes of the lower bars or ribs, B B, so that when the platen is lowered the bars E E can pass more or less down below the tops of the bars B B, and thus exert a stretching strain upon the leather. The movements of the platen or table can be effected in any desired way.

I have shown in the drawings devices by means of which great power can be exerted, and which at the same time will permit the movements of the parts to be delicately adjusted.

F F are the screw-rods, there being preferably one at each corner of the table. Each is shown as being mounted on the lower frame in a sleeve, F', wherein it can be held by means of collars *f* or otherwise, so as to rotate but not move longitudinally. Each screw engages with a nut on the movable frame or platen, and when the rods are rotated the platen will be carried up or down.

Any of the well-known mechanisms can be used to cause a simultaneous rotation of all the screw-rods. That shown consists of a series of bevel-wheels, *h*, on the screw-rods, bevel-wheels *h'* and *h''*, carried by cross-shafts H H, and bevel-wheels *i* carried by a side shaft, I. When the crank J on the latter shaft is turned in one direction, the platen will be carried up, and when turned in the opposite direction the platen will be moved downward.

When it is desired to put the machine into operation, the platen is first drawn up far enough to allow the necessary manipulations below it. Then a hide is placed upon the lower frame, the ends of which are secured to the tenter-hooks or fastening devices at the ends. Then the roller or rollers are turned sufficiently to take up the slack, and after that the platen is lowered by turning the crank J. This brings down the stretching-bars E E,



which press upon the leather, compelling the latter to lie in a zigzag path or plane, it bearing on the lower side against the bars B B and on the upper against the bars E. After the leather has been subjected to a sufficient strain, it is allowed to remain until the slack has been taken out as far as can be, after which the platen can be drawn up and the slack can be wound upon the roller or rollers at the end of the frame. Then the platen may be lowered again and a pressure exerted upon the leather anew. These operations can be continued until the leather has been stretched as much as it can be safely. During the operations of stretching the leather it is also being dried. I prefer to dry it by the application of air treated in the manner which is made the subject-matter of other applications of mine; but this is not essential, as the present invention can be carried out under any of the ordinary modes for drying leather.

It will be seen that the devices which I have shown and above described can be more or less modified without departing from the characteristics of the invention.

In Figs. 8, 9, 10, and 11 there is shown a modified form of the devices which support the stretching means. In this case the stretcher occupies but a small amount of room vertically, and therefore a large number of the stretching-racks can be packed or stored in a small space while drying. The movable frame is operated by means of one or more screw-rods, F, having hand-wheels F<sup>2</sup>, the threads engaging with a nut formed in the brace or tie-piece F<sup>3</sup>, secured to the lower frame. Any suitable guide can be employed, the one shown consisting of pins or rods F<sup>4</sup> passing through apertures in the movable frame.

What I claim is—

1. The improvement in the art of stretching leather, which consists in placing the leather under tension upon a series of supports arranged transversely thereto and separated by intervening spaces, then forcing the leather by suitable means down between the supports into said spaces, substantially as set forth.

2. The improvement in the art of stretching leather, which consists in placing the leather under tension upon a series of supports arranged transversely thereto and separated by intervening spaces, then forcing the leather by suitable means down between the supports into said spaces, then, after the stretching has been more or less effected, relieving the leather of the downwardly-forcing action and subjecting it to tension to take up the slack which has been produced in stretching, substantially as set forth.

3. In a device for stretching leather, the combination of a series of transverse bars arranged, substantially as set forth, to have the leather bear upon them simultaneously on lines transverse to the leather, and a second series of transverse bars or ribs arranged, substantially as set forth, to bear simultaneously upon the opposite side of the leather, and means for moving all of the bars of the second series simultaneously toward the bars of the first series, whereby the leather can be stretched uniformly throughout while being held stationary relatively to the aforesaid bars.

4. In a mechanism for stretching leather, the combination of a frame-work, a series of bars on transverse lines across the frame, with spaces or depressions between the upper edges of the same, a second frame-work having a series of bars secured thereto on transverse lines, and means for causing the second frame to move toward the first aforesaid frame and carry all of the bars simultaneously, whereby when a hide is between the two sets of bars it can be stretched throughout while held stationary relatively to the bars, substantially as set forth.

5. The combination of the frame A A' A<sup>2</sup> A<sup>3</sup> A<sup>4</sup>, the take-up roller C, the ribs or projections on said frame extending transversely across the frame, the frame D, the guides which regulate the positions of the frames relatively to each other, and the ribs or projections on the second frame, arranged alternately to the ribs or projections on the first aforesaid frame, the whole being arranged to exert a stretching action from one end of the leather to the other while held stationary, substantially as set forth.

6. In a leather-stretching machine, the combination of a frame, a series of transverse bars supported upon said frame, an opposing movable series of bars adapted to press or crowd the leather into the spaces between the aforesaid bars, means at one end of said frame for securing rigidly the end of the leather, a roller at the other end of said frame for taking up the slack produced in stretching, and devices which positively lock said roller and prevent its retracting when the second aforesaid series of bars are being forced toward and between the first aforesaid bars, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

RALPH S. JENNINGS.

Witnesses:

W. F. COLLINS,  
HENRY H. PAGE.