

M. D. Whipple Fulling Machine.

N^o 21931

Patented Oct. 26, 1858

Fig. 3.

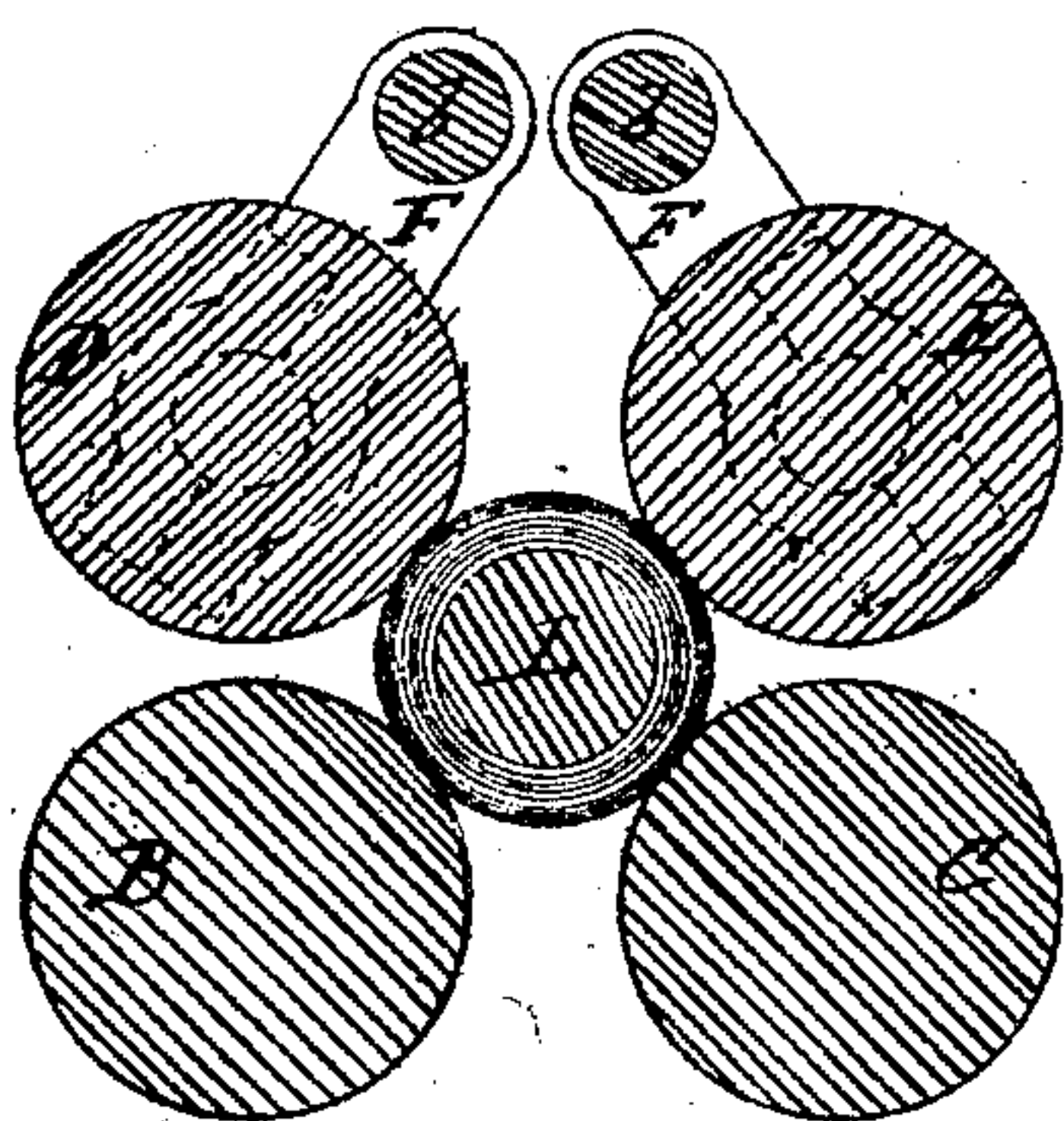


Fig. 4.

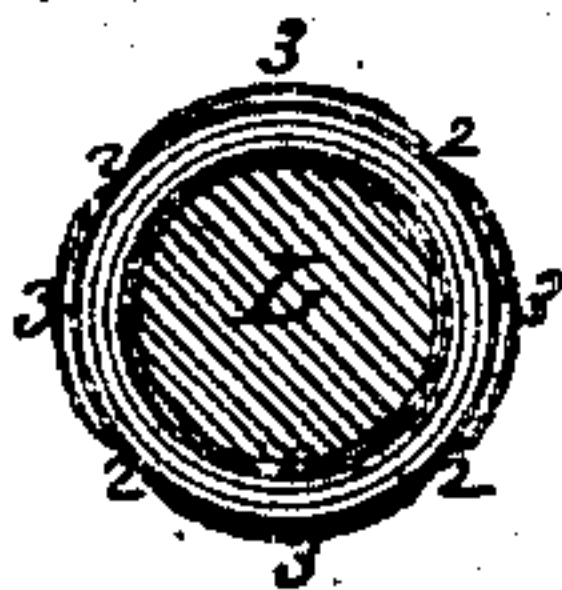


Fig. 5.

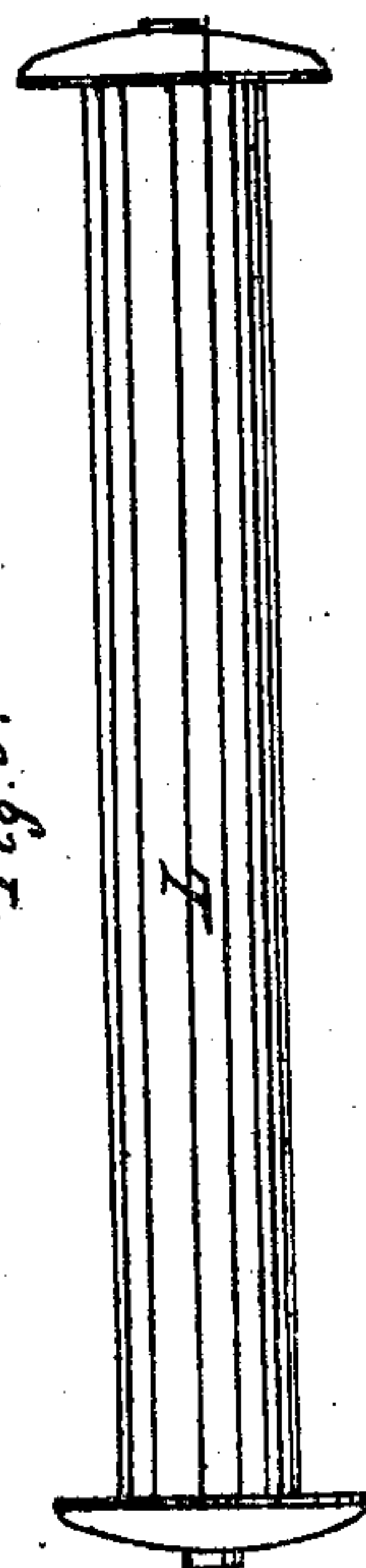


Fig. 2.

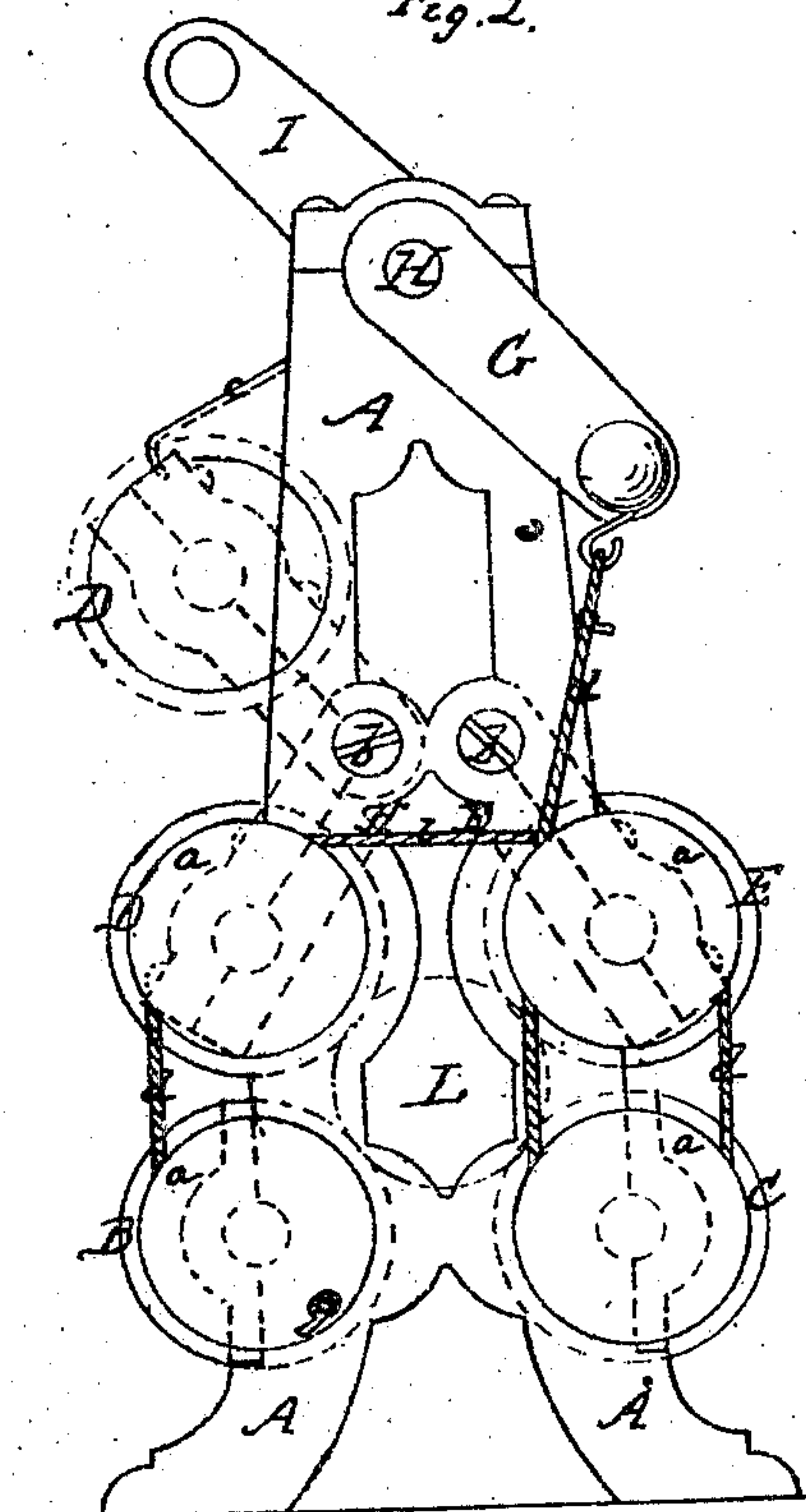
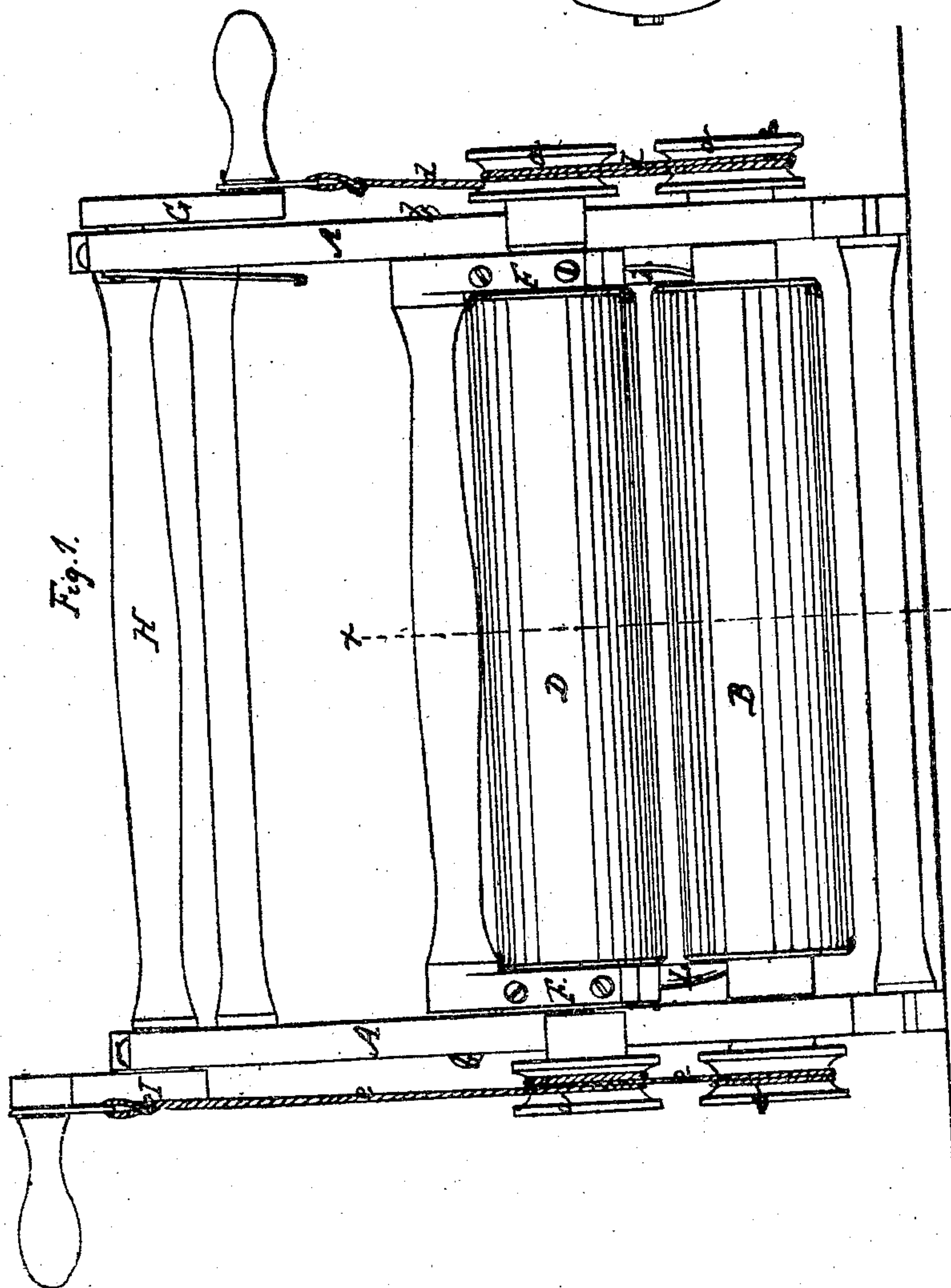


Fig. 1.



UNITED STATES PATENT OFFICE.

MILTON D. WHIPPLE, OF CHARLESTOWN, MASSACHUSETTS, ASSIGNOR TO ALFRED B. ELY,
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MACHINERY FOR FULLING CLOTH IN THE PIECE.

Specification of Letters Patent No. 21,931, dated October 26, 1858.

To all whom it may concern:

Be it known that I, MILTON D. WHIPPLE, of Charlestown, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Machines for Fulling or Felting Cloth, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a front elevation of a fulling machine; Fig. 2 an end view of the same; Fig. 3 a transverse section through the rolls on the line x, x , of Fig. 1; Figs. 4 and 5 are details to be referred to.

In the customary process of fulling or felting, after the bat has received its preliminary hardening in the hardening machine, and while it is still very tender, it is placed in the fulling mill to be fullled into cloth; the action of this mill is such that the bat has to be made quite thick to withstand it, and even then it is sometimes dragged or stretched into thin places or even into holes, much to the detriment of the cloth, while it is found impracticable to make a thin cloth in this way. One reason for this is that the bat is felted in a bundle or mass and as the blow of the felter is brought to bear upon it, its outside layers are strained and pulled, and those layers nearest the center of the mass are compressed.

The object of my present invention is to avoid this partial pulling and strain upon any portion of the cloth, and consists in so manipulating it during the felting process that it shall at no time be subjected to strain but only to compression.

That others skilled in the art may understand and use my invention I will proceed to describe the manner in which I have carried out the same.

In the drawings A is the frame of the machine, in suitable bearings in which are hung the rolls B and C having at each end pulleys a . These rolls are of a proper diameter for the work required of them, and of a length sufficient to accommodate the greatest width of bat. Two similar rolls D and E are hung immediately over the rolls B and C, but instead of having their bearings in the frame of the machine, are hung in the short arms F which are pivoted at b to the frame A at each end of it; this allows either of the rolls D and E to be raised up

into the position in which the roll D is shown in red in Fig. 2 where it is held by a hook c attached to the frame. This is necessary for the convenience of introducing the roll of bat, as will be presently explained.

The rolls B, C, D, and E, are alternately revolved in one direction and then in the other. This may be accomplished in any of the well known ways of changing motion. In the drawings I have shown them operated by cords passing over the pulleys a at the ends of the rolls; the cord d is wound on the pulleys at one end in one direction and is then attached to the crank G on the end of the shaft H supported on the top of the frame; the cord e is wound on the set of pulleys at the opposite end in a contrary direction and is attached to the crank I which is fastened on the other end of the shaft H at right angles to the crank G. Thus as the shaft H is revolved the rolls will be revolved a short distance first in one direction and then in the other. A spool L (shown in Fig. 5) of a length corresponding to the length of the rolls receives the hardened bat, and is then placed between the rolls as in Figs. 2 and 3 (one of the rolls being raised as shown in red Fig. 2 to admit it).

Operation: The hardened or compressed bat is taken from the ordinary "hardening machine," and is then moistened and wound loosely on the spool L. To accomplish this a strip may be laid on each fold until the next one is wound over it, and then be withdrawn. It is then covered with a canvas or other stout cloth for protection, and the spool is then placed between the rolls B, C, D and E as in the drawings, and the rolls are revolved alternately in one direction and the other. This action of the rolls compresses the roll of bat on the spool, as shown at 2 in Fig. 4, and as they revolve move the distended portions or bulges 3 first in one direction and then in the other around the axis of the spool, thus working and kneading the layers one on the other throughout the mass and fulling the cloth, which may be kept moistened in any convenient way as the operation proceeds. This alternate rolling motion works the fibers first in one way and then in the contrary one, interlacing and compacting them most effectually, without any pulling or stretching of the cloth while it is in a tender state. For the

purpose of making the cloth more uniform throughout its length, when the pulling is partially completed, the cloth may be reversed, or taken off the spool and be wound
5 on again the other end first.

In the above described machine I have spoken of four rolls, but I do not confine myself to this number as three or more may be used.

10 I am aware that continuously revolving rolls have been employed in machines for felting hat bodies and other simple articles, but such rolls would manifestly not answer in machines for felting a continuous piece of
15 cloth, for if the latter were run through lengthwise as in some fulling machines an even cloth could not be made, and if the goods were wound upon a beam or roll, and

submitted to the action of such revolving rolls, it would either be wound tight upon 20 the roll or else entirely unwound therefrom, and in either case the felting would be impracticable. I do not therefore claim such continuously revolving rolls; but

What I claim as my invention and desire 25 to secure by Letters Patent is—

Fulling or felting cloth in the piece by the action of rollers revolved alternately in one direction and the other, when the cloth is wound loosely on a spool, in the manner 30 substantially as herein set forth.

MILTON D. WHIPPLE.

Witnesses:

THOS. R. ROACH,
THOS. L. GLOVER.