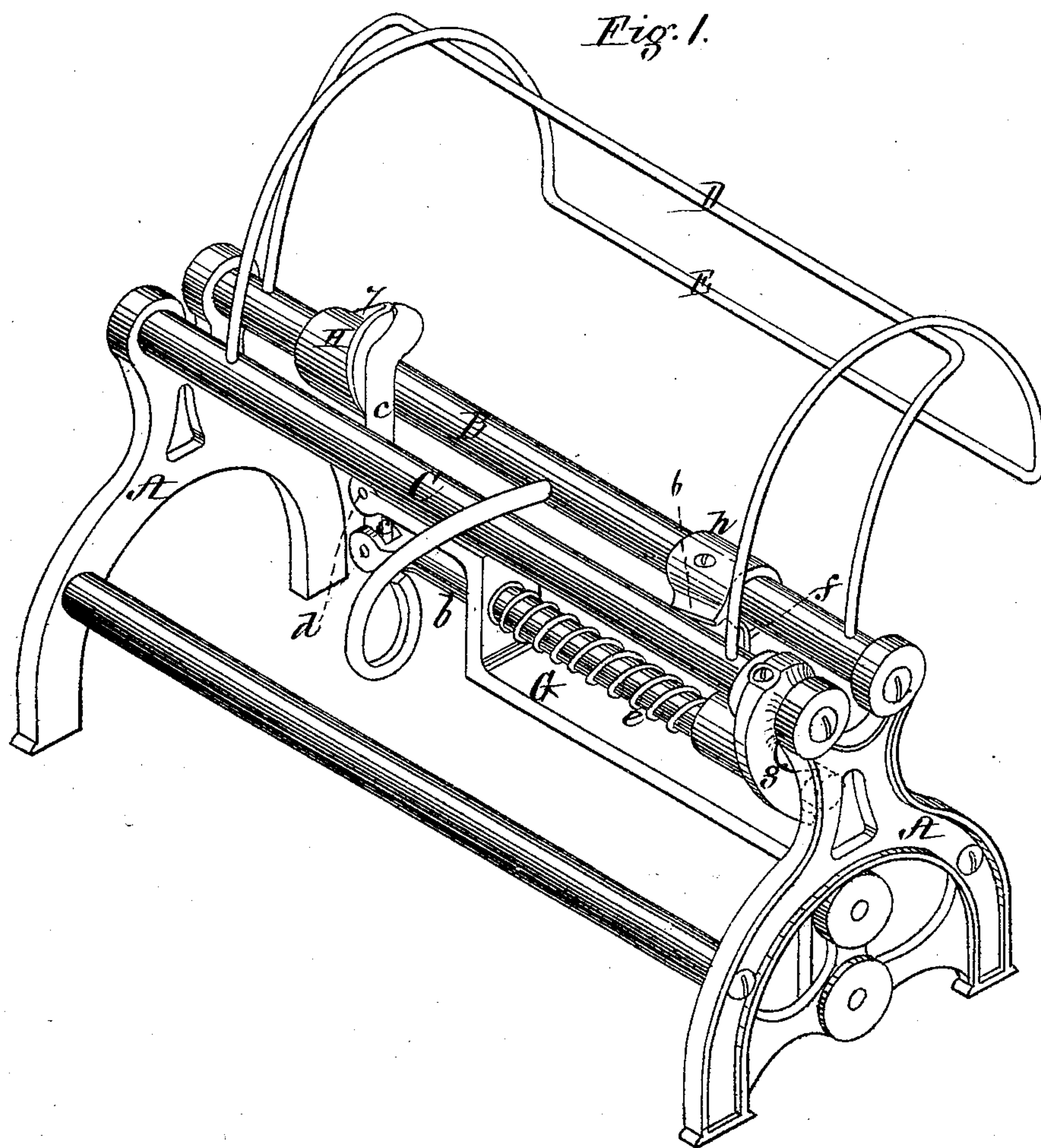


**M. MOFFATT.**  
**Spinning Mules.**

No. 140,587.

Patented July 8, 1873.



Witnesses,  
*J. E. Teschemacher*  
*N. W. Stearns.*

Inventor,  
*Michael Moffatt*

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Fig. 2.

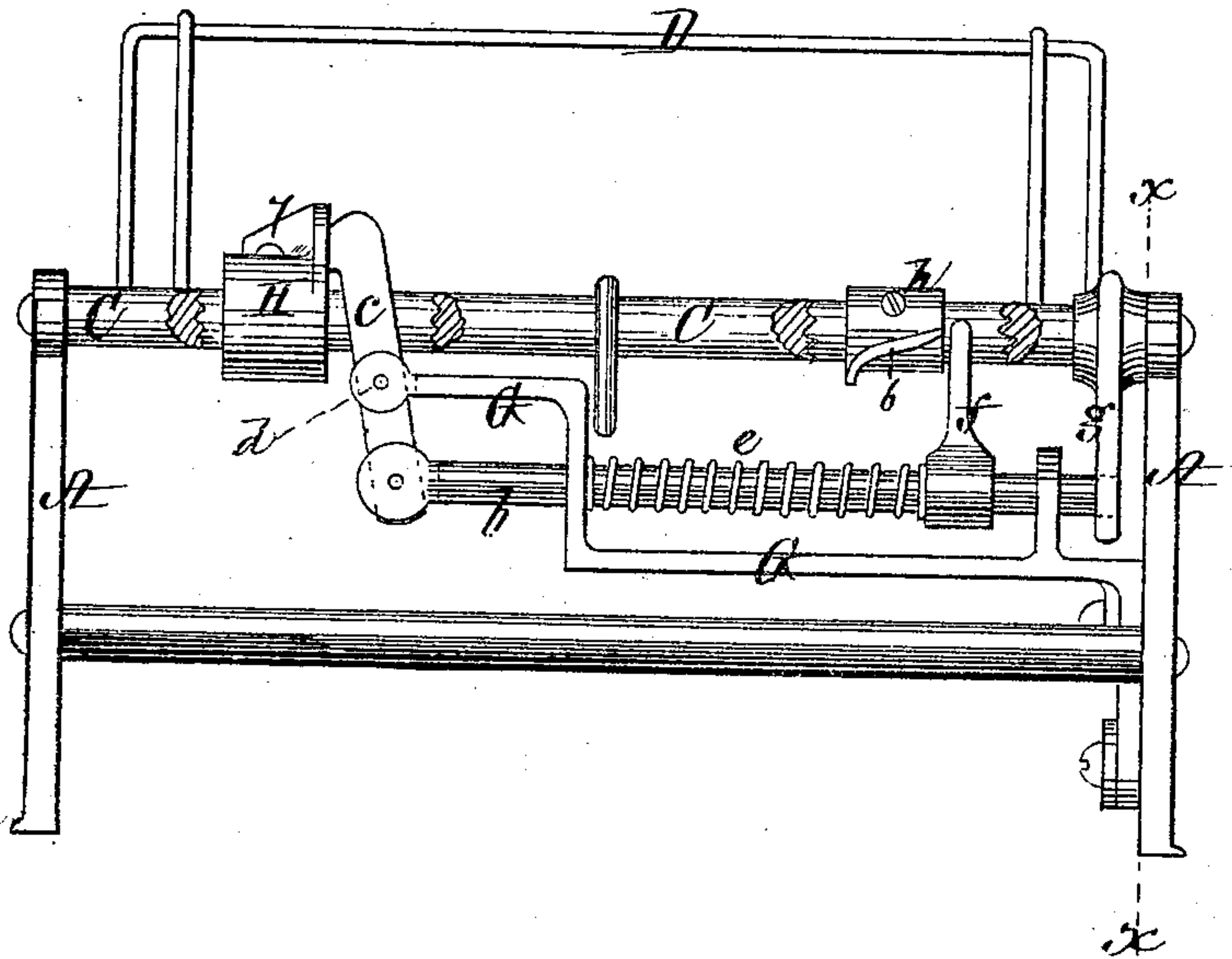
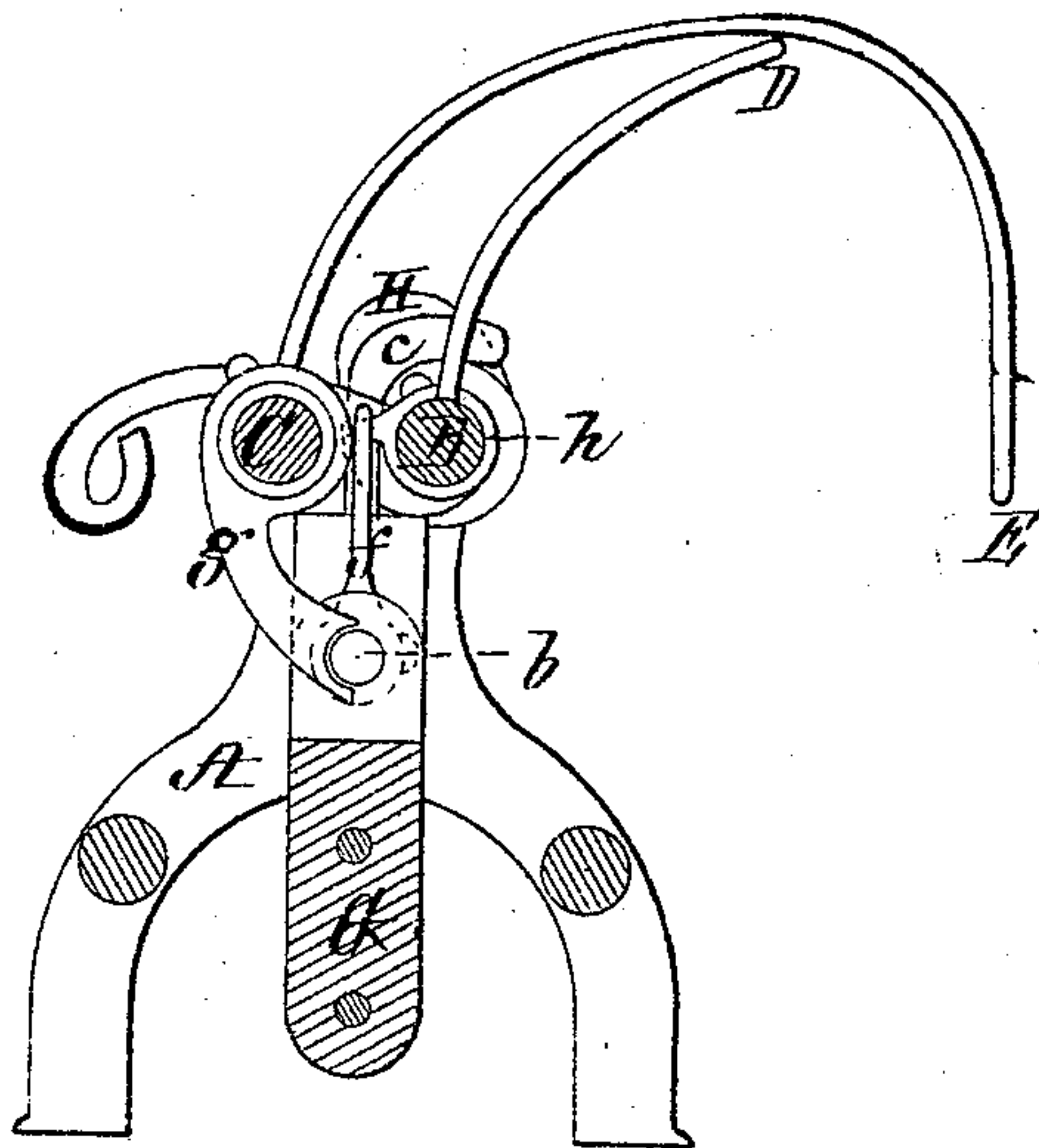


Fig. 3.



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# UNITED STATES PATENT OFFICE.

MICHAEL MOFFATT, OF WATERTOWN, MASSACHUSETTS.

## IMPROVEMENT IN SPINNING-MULES.

Specification forming part of Letters Patent No. **140,587**, dated July 8, 1873; application filed April 28, 1873.

*To all whom it may concern:*

Be it known that I, MICHAEL MOFFATT, of Watertown, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Self-Acting Mules and Jacks for Spinning, 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 perspective view of part of the carriage of a self-acting mule having my improvement applied thereto. Fig. 2 is a front elevation of the same, portions of the horizontal shaft in front being broken away to show the parts in the rear. Fig. 3 is a vertical section on the line *xx* of Fig. 2.

In spinning with an ordinary self-acting mule, when the operator is paid for the quantity of yarn produced, he often, as the carriage is running out, raises by hand the "counter-faller" or wire running across the machine to regulate the tension upon the yarns or threads and take up their slack, in order to prevent the breaking of yarns which have been previously broken and pieced, or which he deems liable to break at points where they are thin and weak. This raising of the counter-faller elevates all of the yarns at once into such a position that they will unwind from their bobbins instead of being drawn out or stretched, as desired, by the movement of the carriage; and during all of the time that the counter-faller is raised every yarn in the mule is being unwound from its bobbin instead of being drawn out, and consequently, in order to avoid the breaking of a few yarns, the spinner causes thick and uneven places to be left in all of them to the great disadvantage of the manufacturer.

My invention has for its object to prevent the spinner from thus willfully injuring the quality of the yarn; and consists in locking devices, constructed and applied as hereinafter described, and so as to prevent the counter-faller from being raised until the "faller-wire" is depressed, and as the depression of the faller-wire during the running out of the carriage would instantly cause the breakage of all the yarns, the spinner is not likely to attempt it, and consequently the yarn is drawn out uniformly and evenly, as required.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings, A represents part of the carriage of a self-acting mule, which is intended to run in and out on wheels (not shown) in the ordinary manner. In suitable bearings in the top of the carriage are supported two horizontal rock-shafts, B C, to one, B, of which is secured the faller-wire D, and to the other, C, the counter-faller E. The faller-wire, when carried down by the rocking of the shaft B, serves to depress all of the yarns from the points of the spindles to bring them to a level with the bottoms of the bobbins in the act of "winding on," and as the faller-wire is gradually raised the yarn is duly distributed upon the bobbins. The counter-faller E, which extends under the yarns, is employed to take up the slack and produce the required tension. The shafts B C are rocked at the required times by automatic mechanism (not shown;) but as the functions of the faller-wire and counter-faller, as well as the manner in which they are operated, are well known, they will not be further described. Secured to one side of the carriage A is a frame, G, in which slides a horizontal shaft or bolt, *b*, to one end of which is pivoted a lever, *c*, pivoted at *d* to the frame G. The upper end of this lever *c* extends up over the shaft B, and is bent into the form seen in Fig. 1. *e* is a spiral spring, which surrounds the bolt *b* between the end of the frame G and an adjustable arm, *f*, and serves to retain the bolt in the position seen in Figs. 1 and 2, in which position its outer end projects into the path of a curved arm, *g*, secured to the shaft C, and thus prevents the spinner from raising the counter-faller by hand when the carriage is running out to avoid the breakage of some of the yarns, and which would cause all of the yarns to unwind from the bobbins instead of being drawn out or stretched, as required, thus producing thick and uneven portions, which it is of great importance to avoid. To the shaft B is secured an adjustable collar, *h*, an inclined projection, *6*, on one side of which extends into the path of the vertical arm *f*, when the parts are in the position seen in Figs. 1 and 2, and thus



prevents the spinner from sliding the bolt *b* back by hand to enable him to raise the counter-faller.

When the carriage has completed its running-out motion, and just previous to the commencement of the operation of winding the yarn onto the bobbins, the shaft B is automatically rocked by mechanism (not shown) connected therewith, so as to depress the faller-wire D to bring the yarns down to the bottoms of the bobbins. This rocking of the shaft B causes the inclined portion 7 of a cam, H, secured thereto, to bear against the upper bent portion of the lever *e*, and vibrate it sufficiently to withdraw the end of the bolt *b* out of the path of the curved arm *g* against the resistance of the spring *e*, the inclined projection 6 of the collar *h* being simultaneously moved out of the path of the arm *f*. The bolt *b* having been withdrawn, the counter-faller is free to be raised by its mechanism, as required, to give the desired tension to the yarns. After the carriage has been run in and the winding on has been completed, the faller-wire is raised into the position seen in Fig. 1, when the bolt

*b* is shot forward by the spring *e*, which serves to lock the counter-faller and prevents the spinner from raising it without first depressing the faller-wire. This he is not likely to attempt, as the depression of the faller-wire, while the carriage is running out and the bobbins are whirling at a high speed, would instantly cause every yarn in the mule to be broken, and consequently the faithful performance of the work is insured.

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

The faller-shaft B bearing the cam H and collar *h*, in combination with the counter-faller shaft C carrying the curved arm *g*, and the frame G carrying the spring-bolt *b*, the lever *e*, and arm *f*, substantially as and for the purpose set forth.

Witness my hand this 17th day of April, A. D. 1873.

MICHAEL MOFFATT.

In presence of—

P. E. TESCHEMACHER,  
N. W. STEARNS.