

(No Model.)

2 Sheets—Sheet 1.

J. STARK.
SELF ACTING SPINNING MULE.

No. 486,945.

Patented Nov. 29, 1892.

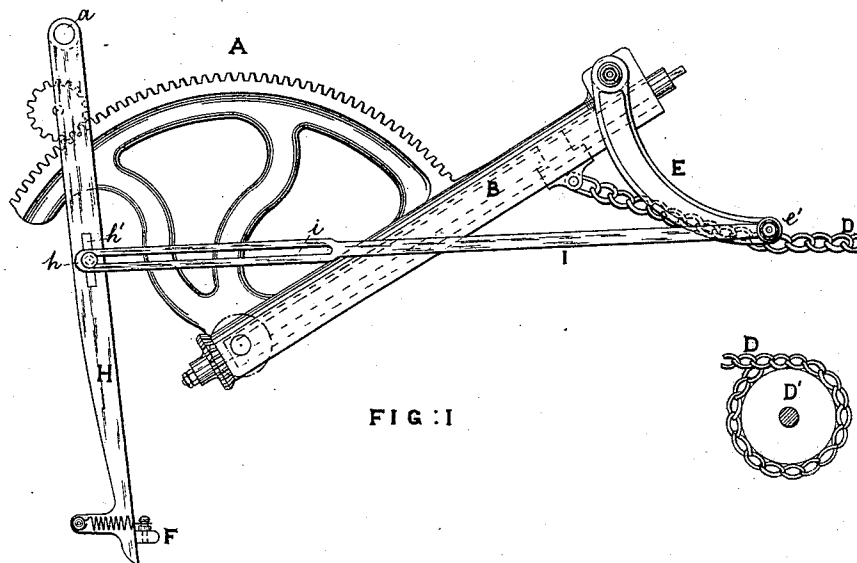


FIG. 1

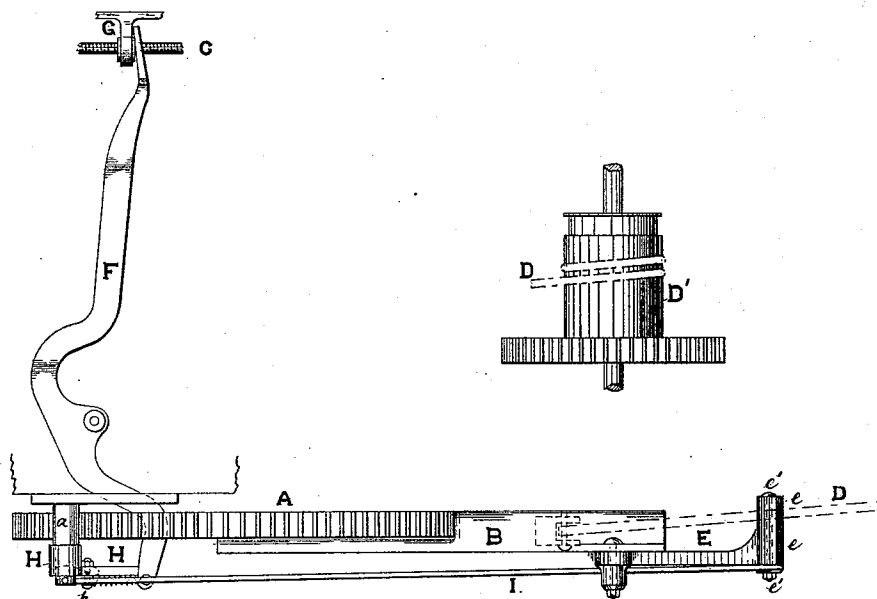


FIG. 2

WITNESSES

Chas. Wendale.

F. Survey.

INVENTOR

John Stark
by W. P. Thompson Co.
attys.

(No Model.)

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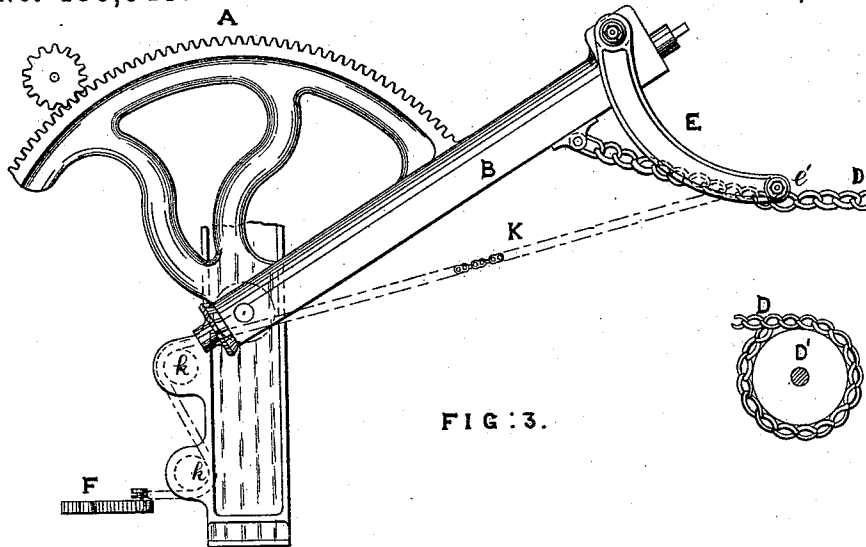


FIG. 3.

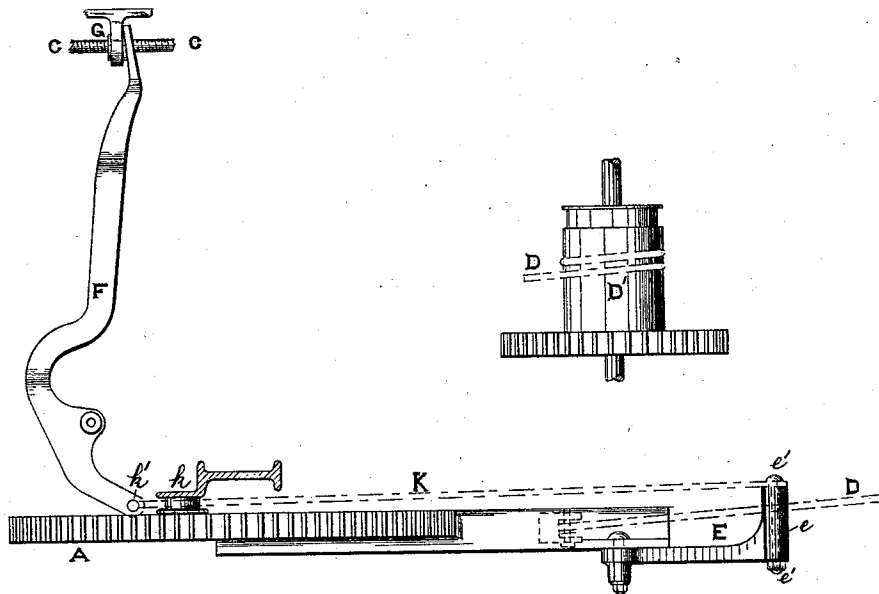


FIG. 4.

WITNESSES

Chas. Orendale.

J. Harvey.

INVENTOR

John Stark
By Wm. P. Thompson
att'y.

UNITED STATES PATENT OFFICE,

JOHN STARK, OF DROYLSDEN, ASSIGNOR TO ASA LEES & CO., LIMITED, OF
OLDHAM, ENGLAND.

SELF-ACTING SPINNING-MULE.

SPECIFICATION forming part of Letters Patent No. 486,945, dated November 29, 1892.

Application filed February 16, 1892. Serial No. 421,741. (No model.)

To all whom it may concern:

Be it known that I, JOHN STARK, overlooker, a subject of the Queen of Great Britain, and residing at Droylsden, in the county of Lancaster, England, have invented new and useful Improvements in Self-Acting Spinning-Mules, of which the following is a specification.

This invention is designed with the object of providing an improved automatic nosing-motion for self-acting mules, by which the required movement at each successive draw of the carriage to give the desired amount of tension to the quadrant-chain is imparted by the shaper-screw.

It consists, essentially, in connecting a pivoted bracket or lever on the upper end of the quadrant-stock, which bears upon the quadrant-chain with the shaper-screw by means of a series of specially-arranged levers with connecting-rods or chain, whereby at each movement of the shaper-screw the pivoted bracket or lever on the quadrant-stock is drawn down to increase the tension of the winding-chain. It will be fully described with reference to the accompanying drawings.

Figure 1 is a front elevation of quadrant and quadrant-stock of the mule with the invention applied; Fig. 2, a plan of Fig. 1; Fig. 3, a front elevation showing modified form of the invention; Fig. 4, a plan of Fig. 3.

The quadrant A, quadrant-stock B, the shaper-screw C, the winding-chain D, the winding-drum D', the head-stock, and other parts of the mule are constructed in the usual way, and I have omitted from the drawings all parts except such as are connected with the present invention.

On the end of the quadrant-stock B is pivoted a bracket E, preferably curved or bent in front elevation with an L-shaped end *e*, which, as the head of the quadrant-stock is depressed, bears against or upon the winding or quadrant chain D. At the end of the head-stock framing to a bracket attached to the foot of the framing or to the floor I pivot a horizontal lever F, one end of which is attached or connected to a nut G on the shaper-screw C, which moves gradually forward at each movement of the screw. The end of the horizontal lever F is preferably forked to

embrace the screw and abut against the nut G. On the end of the head-stock framing, behind the quadrant A, on a fixed stud *a*, I pivot a depending arm or lever H, reaching down to the floor. The lower end of the depending lever H engages with or comes in contact with the free end of the horizontal lever F, and as the lever F is moved by the shaper-screw C the motion is transmitted to the depending lever H. The depending lever H and the bracket E are connected together by a connecting-rod or link I, which at one end is formed with a slot *i* to fit into or engage with a stud *h*, projecting from the side of the depending lever H and at the other end fits onto a stud *e'* at the end of the pivoted lever E. The position of the stud *h* may be adjusted in a slot *h'* of the lever H, and as the quadrant A is raised the rod or link I slides back over the stud *h*. This arrangement shows the connection made outside the quadrant, which is what I at present prefer.

When it is desired to place the connecting mechanism inside the quadrant A, I dispense with the depending lever H and connecting-rod or link I and connect the horizontal lever F with the bracket E of the quadrant-stock, as shown in Figs. 3 and 4, by means of a chain or rope K, passing over the guide-pulleys *k*, affixed to the head-stock foot, the chain being attached to the stud *e'* at one end and to the stud *k'* at the other end. The action of the other parts is similar to that already described. As the horizontal lever F is moved by the shaper-screw C the pivoted bracket E is drawn down upon the winding-chain D. It will also be obvious that instead of dispensing with the depending lever H the link I only may be removed and the lever H connected to the bracket E by a chain.

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

1. In a self-acting mule, the combination, with the quadrant A, quadrant-stock B, winding-chain D, and shaper-screw C, of the horizontal pivoted lever F, moved forward thereby at each turn of the screw, the tightening-lever E on the quadrant-stock provided with an L-shaped end which comes in contact with the winding-chain D, and a non-rigid connection between the lever F and the lever

E, whereby the movement of the one is transmitted to the other, substantially as described.

2. A nosing-motion for self-acting mules, comprised of a tightening lever or bracket E, 5 pivoted to the quadrant-stock and provided with an L-shaped arm to bear upon and tighten the winding-chain, a horizontal pivoted lever F, which is actuated by and transmits motion from the shaper-screw, and a depending lever H and link I, which connect 10 together the levers E and F and transmit the movement of the one to the other, in combination with the quadrant-stock B, winding-chain D, and shaper-screw C.

3. In a self-acting mule, the combination, 15 with the quadrant A, quadrant-stock B, and shaper-screw C, winding-chain D, and winding-drum D', of the lever E, pivoted to the quadrant-stock and provided at the end with a pin e', the horizontal pivoted lever F, 20 actuated by the shaper-screw, the nut G, the depending lever H, provided with a stud h,

which engages with the link I, and the link I, provided with a slot i, which connects the levers H and E, substantially as described. 25

4. In a self-acting mule, the combination, 30 with the quadrant-stock B, the winding-chain D, the pivoted bracket or lever E on the upper end of the quadrant-stock which bears upon the quadrant-chain, and the shaper-screw C, provided with a nut moving thereon, of the horizontal pivoted lever F, connected to the lever E by a non-rigid connection to move or gradually alter the position of the tightening-lever E, substantially as described. 35

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 1st day of February, 1892.

JOHN STARK.

Witnesses:

J. OWDEN O'BRIEN,
CHAS. OVENDALE.