

(Model.)

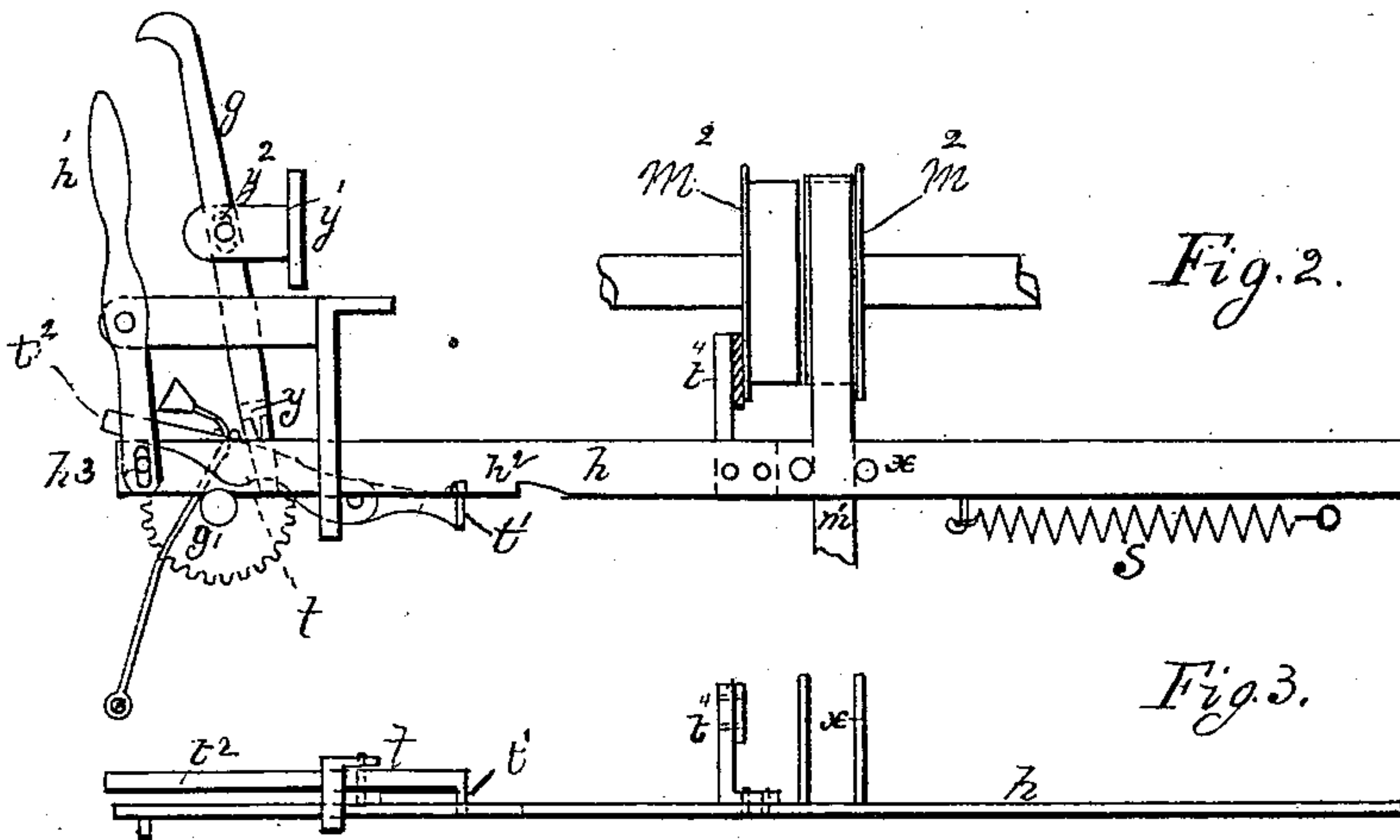
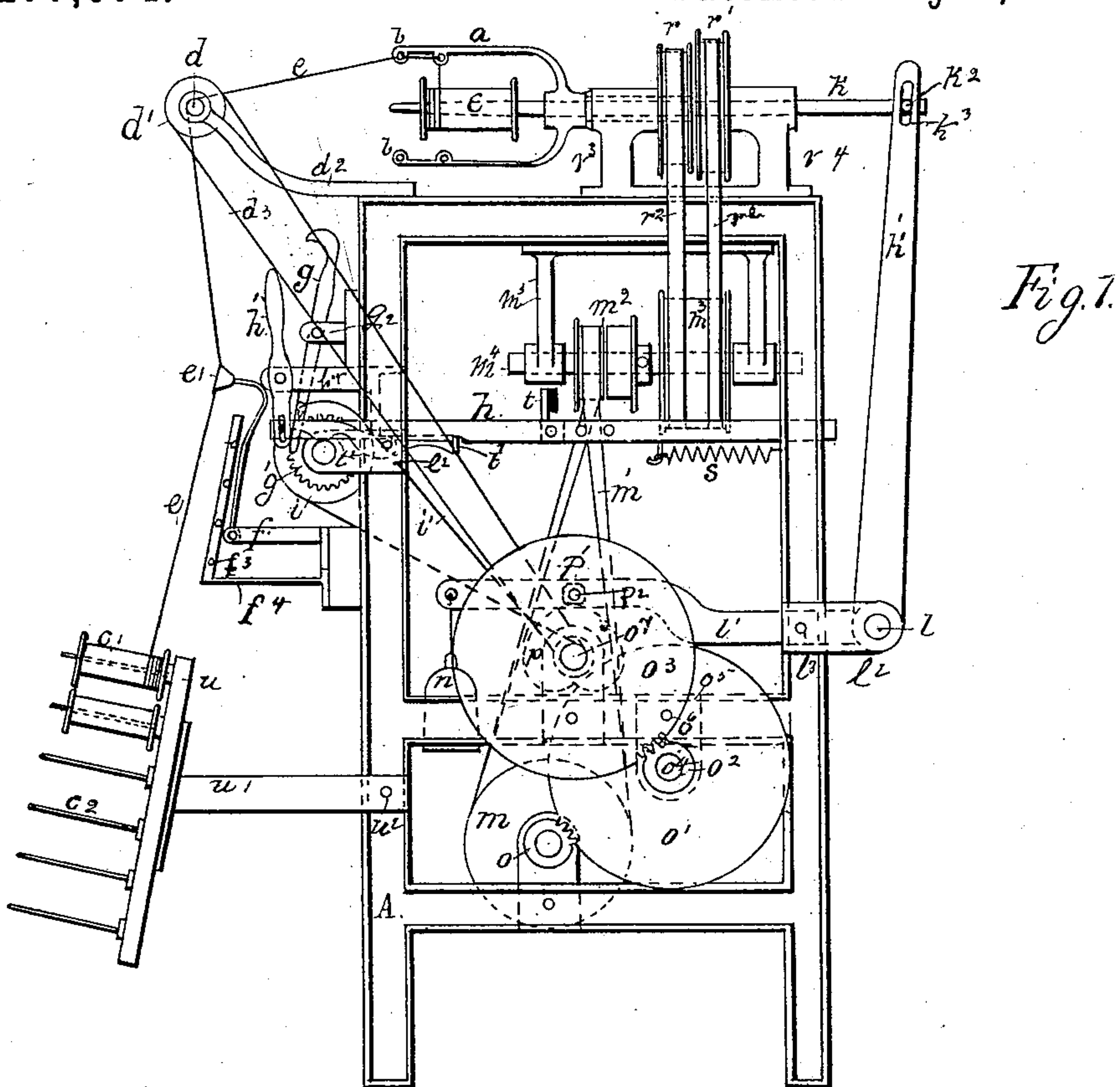
2 Sheets—Sheet 1.

G. SINGLETON.

MACHINE FOR DOUBLING SILKS, &c.

No. 277,074.

Patented May 8, 1883.



Witnesses
John Inglis
Thomas Wilson Scott

Inventor
George Singleton
John Inglis atty.

(Model.)

2 Sheets—Sheet 2.

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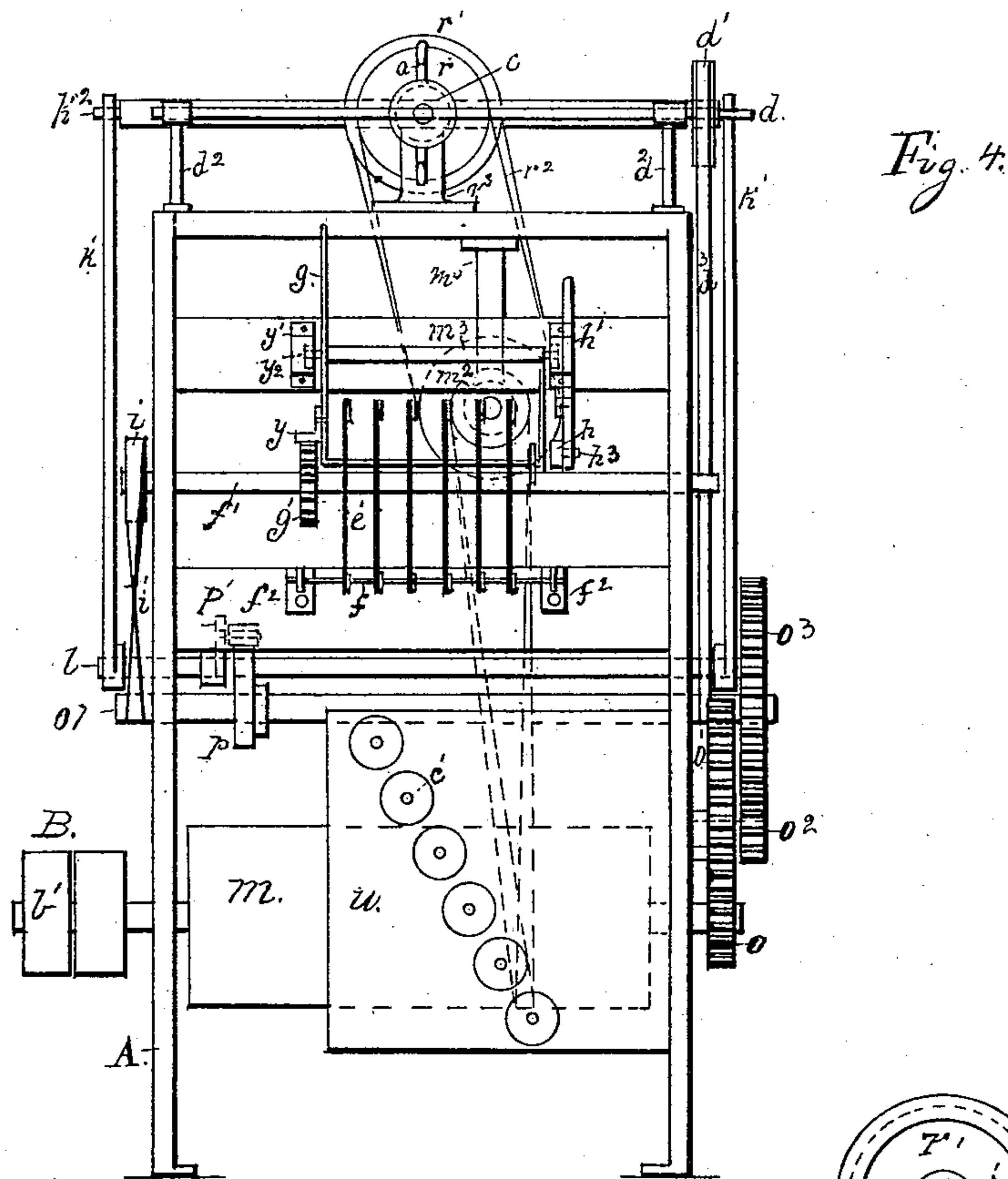


Fig. 4.

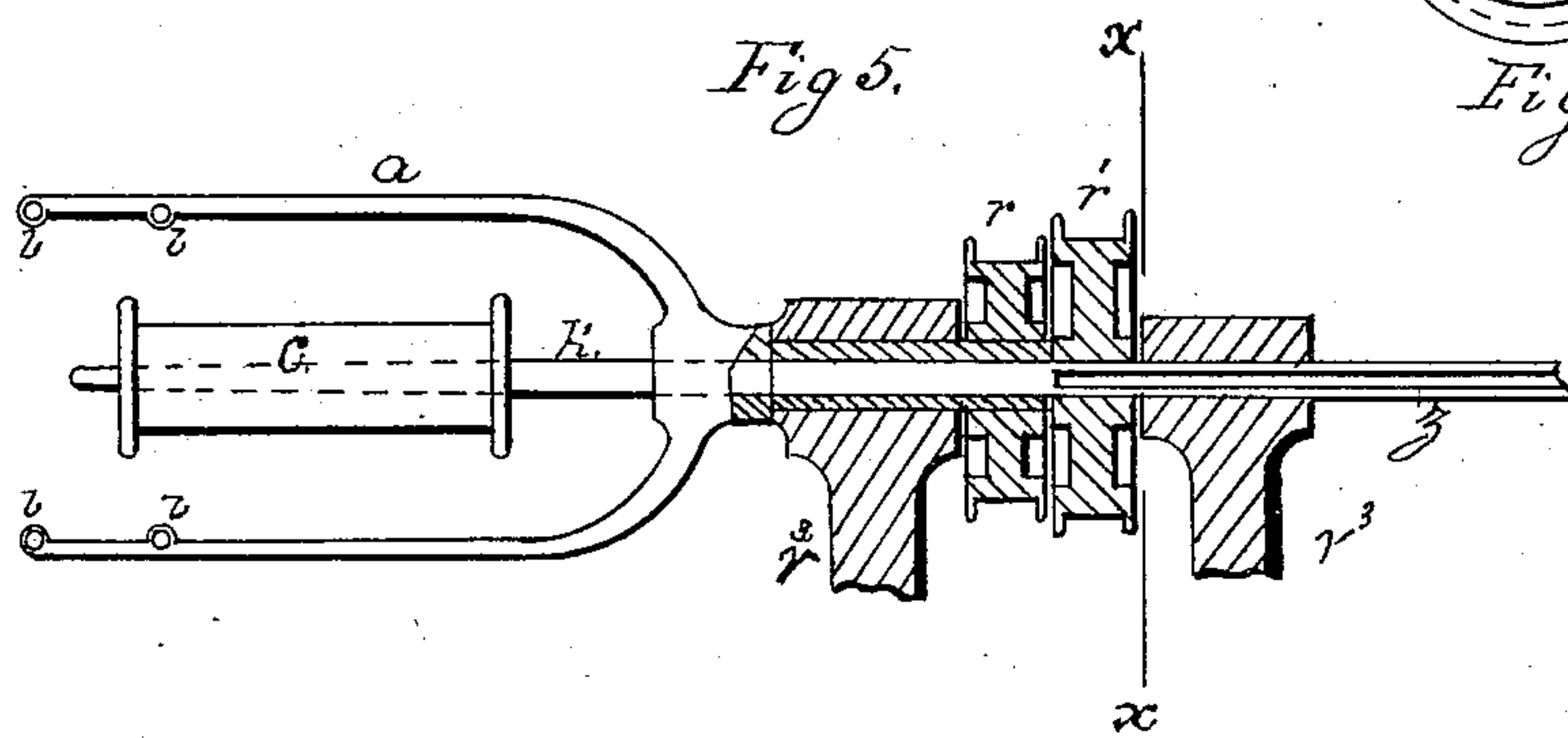


Fig. 5.

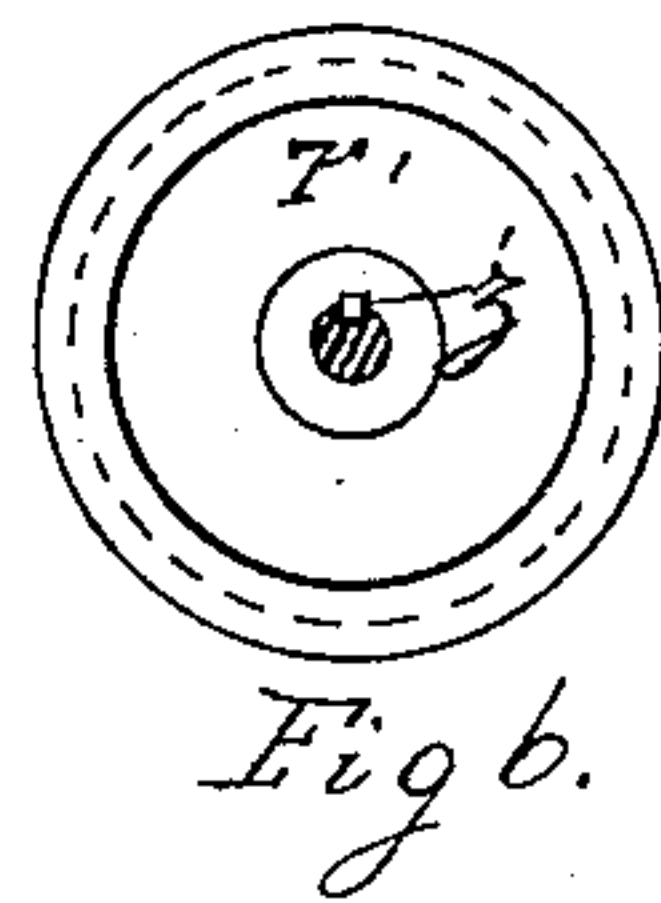


Fig. 6.

Witnesses

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UNITED STATES PATENT OFFICE.

GEORGE SINGLETON, OF PATERSON, NEW JERSEY.

MACHINE FOR DOUBLING SILK, &c.

SPECIFICATION forming part of Letters Patent No. 277,074, dated May 8, 1883.

Application filed December 31, 1880. (Model.)

To all whom it may concern:

Be it known that I, GEORGE SINGLETON, a citizen of the United States, residing at Paterson, Passaic county, State of New Jersey, have invented a new and useful Improvement in Machines for Doubling Silk, &c., of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof, in which—

Figure 1 is an end view of the machine, showing the general arrangement of the operating device and driving mechanism; Figs. 2 and 3, detail views of the stopping device; Fig. 4, a front view of the machine; Fig. 5, a view, partly in section, showing the flier and spindle and the pulleys thereof; and Fig. 6, a section on the line *x x* of Fig. 5.

My invention relates to machines for doubling strands of silk, &c.

Referring to the drawings, A represents a metal frame which supports the driving mechanism and the various devices for doubling, &c. A driving-shaft, B, is journaled in suitable bearings which are secured to the bottom rail of the main frame A. This shaft B is provided with the ordinary band-pulleys, *b'*, to receive a belt which passes to the main driving-wheel. A driving-cylinder, *m*, is located on the shaft B, and, by means of a suitable belt, *m'*, (passing over the pulleys *m*²), actuates a counter-shaft, *m*⁴. This shaft *m*⁴ is supported by and journaled in hangers *m*⁵, bolted to the under side of the top plate of the machine. The shaft B is also provided with a pinion, *o*, that gears with wheel *o'*, which rotates on a stud, *o*⁴, secured to a hanger, *o*⁵, fastened to the frame A by a bolt, *o*⁶. The wheel *o'* imparts motion to the cam-shaft *o*⁷ by means of pinion *o*², which engages with gear-wheel *o*³ on the cam-shaft *o*⁷. The cam-shaft *o*⁷ is journaled in suitable bearings secured to the cross-rail of the main frame, and is provided with a cam, *p*, for actuating the mechanism by means of which the spool C is traversed. Arms or brackets *l*² are secured to the standards of frame A, and have journaled in them a shaft, *l*, to which is secured by a suitable set-screw a lever, *l'*, which is provided with a roller, *P'*, mounted on a stud, *P*², secured to said lever *l'*. A reciprocating motion is given to lever *l'* and shaft *l* by means of the cam *p*, the inner end of the lever *l'* being provided with a weight,

n, which keeps said roller in constant engagement with the cam, thereby securing regularity of motion to the lever *l'* and shaft *l*.

Secured to the ends of shaft *l* by means of suitable set-screws are traverse-levers *k'*, the upper ends of which are provided with slots *k*³, through which pass pins on the ends of a traverse-bar, *k*². The bar *k*² is provided with a suitable hole in the center to receive the spindle *k*, the ends of which pass through bar *k*². The spindle *k* has a nut on the end, and a collar formed on the inside of the bar *k*², by means of which said spindle and bar are secured together. The spindle (having the channel or groove *z*) passes through the standards *r*³ *r*⁴, (secured to the top plate of the machine,) and the tube of the flier, and has mounted on it a pulley, *r'*. Said pulley has feather, *z'*, arranged therein, which engages with the channel of the spindle and causes the spindle and pulley to turn together while allowing the spindle to be traversed back and forth by means of the traversing mechanism. The tube of the flier *a*, which is journaled in the standards *r*³, is provided with a pulley, *r*, for rotating the flier, which latter has formed on each of its forks eyes *b*, through which the strands pass to the receiving-spool. The counter-shaft *m*⁴ is provided with a pulley, *m*³, to receive belts *r*², that connect with the pulleys *r* *r'*, and is also provided with the pulleys *m*², (one of which is loose,) connected by a belt, *m'*, with the driving-cylinder *m*, and the counter-shaft is actuated by said cylinder *m* through the intervention of the belt and pulleys just described. The jack-board *u*, secured to the main frame by brackets *u'*, is provided with a series of pins, *e*², upon which are placed the supply-spools *c'*.

Above the jack-board, and in front of the machine, arms *f*² are attached to the main frame to support a shaft, *f*, on which one or more fallers, *e'*, are pivoted. The strands pass through these fallers in the operation of doubling. To prevent the fallers from falling forward on the loss of a strand, wire guards *f*³, secured to suitable brackets, *f*⁴, on the main frame, are placed in front of the fallers, the strands from the supply-spools passing in front of the guards to the fallers. Brackets *e*² are secured to the main frame above the pivotal points of the fallers, and have journaled in their ends a shaft, *f'*, which carries a toothed

wheel, g' , and is rotated from the cam-shaft o^7 , the shaft f' and cam-shaft being provided with suitable pulleys and a band for that purpose.

Secured to the main frame, above the wheel g' , are brackets y' , in which a tripping-lever, g , is pivoted. This lever is provided with a catch, y , which engages with the toothed wheel g' when the lower end of said lever is swung back in contact therewith by the dropping of a faller 5 when a thread breaks or is exhausted. The rotation of said wheel, acting upon the said lever, actuates a pivotal catch, t' , which is pivoted to a hanging bracket secured to the inside of the main frame. The pivotal catch t' 15 is provided with a latch end, t^2 , in front, and is bent at right angles to the slide-bar h at the back, the bent end extending across the slide-bar to enter the notch h^2 , formed therein. The slide-bar passes through the bracket to which 20 the pivotal catch is secured, and rests in a slot formed therein. The back end of the bar h passes through and rests in brackets secured to the inside of the main frame. The front end of the slide-bar h is pivoted to an operating-handle, h' , which serves as a means for moving or adjusting the bar h . The slide-bar is provided with a suitable belt-shifter, x , for shifting the belt m' when starting or stopping the 30 flier a and spindle k . A spiral spring, s , is fastened at one end to the bar h , the opposite end being secured to the bracket that supports the end of the bar. When the bar is drawn forward this spring is distended; but when a strand breaks and the pivotal catch t' is released from engagement with the bar h , the 35 spring contracts and draws back the bar, and this action causes the belt-shifter x to shift the belt m' from the fixed to the loose pulley on shaft m^4 , thereby stopping the shaft and flier 40 a . On restoring the strand the operating-handle h' is pushed back, which action slides the bar h forward, and again places the spring s in tension, the end t^2 of the catch t falls and causes the end t' to enter the notch h^2 of the

slide-bar h , which, as it comes forward again, 45 shifts the belt m' from the loose to the fixed pulley, and sets in motion the spindle k and flier.

In operation the driving mechanism is put in motion in the manner before described. 50 The strands are taken from the supply-spools c' , up past the wire f^3 , through the fallers e' , over the shaft d , which is carried by brackets d^2 , secured to the frame of the machine, and is rotated by a belt from the cam-shaft o^7 , through 55 the eye b of the flier to the receiving-spool, where the strands are laid evenly by the traverse mechanism, and are doubled while passing on the shaft d . If a strand breaks the faller e falls back on the tripping-lever g , which 60 throws the catch y into engagement with the toothed wheel g' , and the movement of the lever g backward by the action of said wheel g' causes it to strike the end t^2 of the pivotal catch t , and raises it, which action throws out 65 the end t' from engagement with lever h , which then, through the action of spring s , causes a stoppage of the machine, as before described.

Having thus described my invention, what I claim is— 70

The combination, substantially as before set forth, with a flier, a spindle for carrying the receiving-spool, and mechanism for driving said flier and spindle independently of each 75 other, of devices for carrying the supply-bobbins, the fallers, a tripping-lever, shaft f' , toothed wheel g' , carried thereby, notched slide-bar h , pivoted catch t' , having latch t^2 , spring s , and mechanism for rotating shaft f' , and for imparting a longitudinal traverse to the receiving-spool spindle, substantially as and for 80 the purpose set forth.

GEORGE SINGLETON.

Witnesses:

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