

(No Model.)

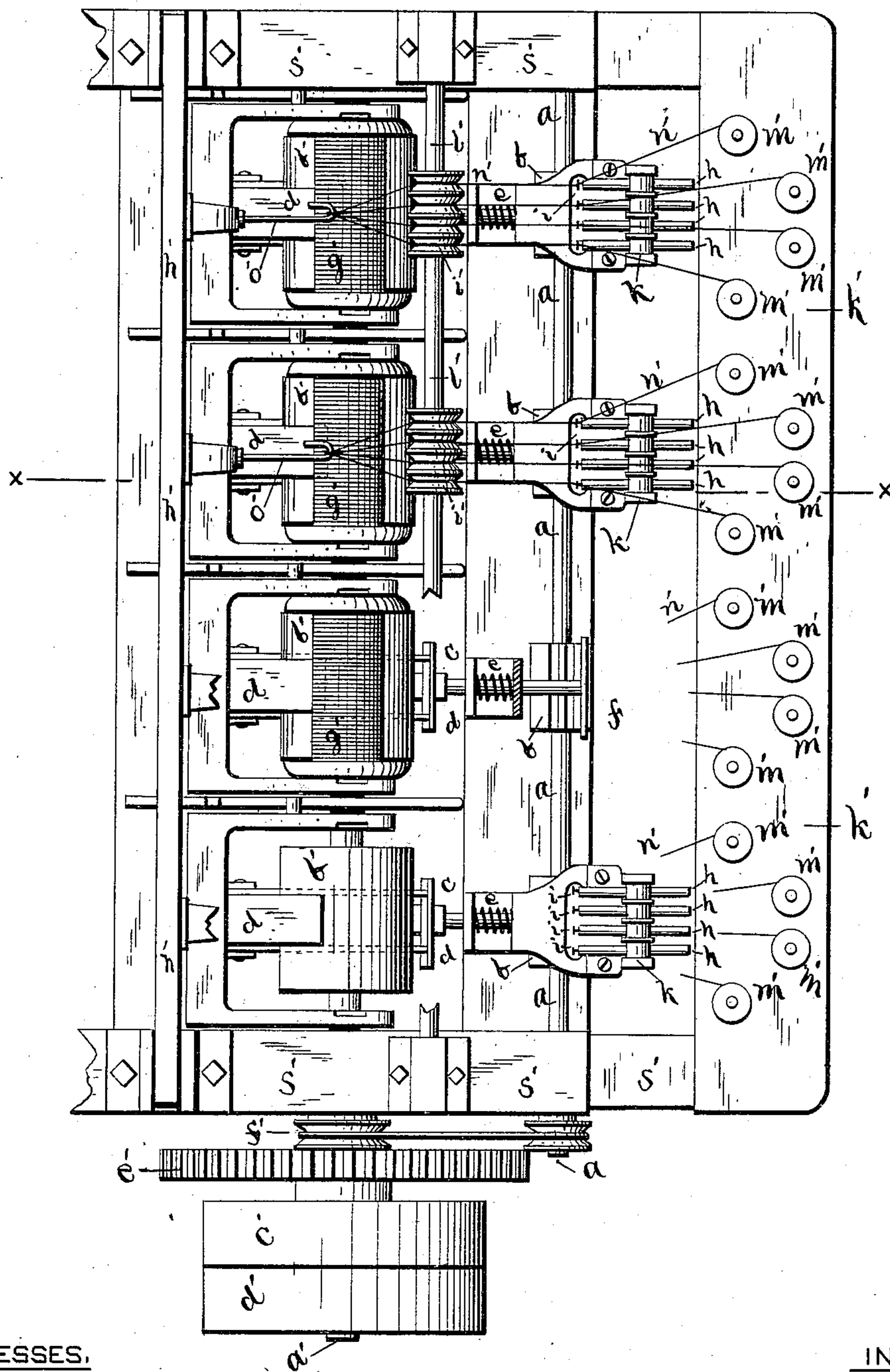
2 Sheets—Sheet 1.

W. MURRAY.

STOP MOTION MECHANISM FOR WINDING AND SPOOLING MACHINES.

No. 345,250.

Patented July 6, 1886.



WITNESSES.

INVENTOR.

Geo. A. Carpenter
George W. Barnfield

William Murray,
By his Attorney,
Thos. P. Barnfield.

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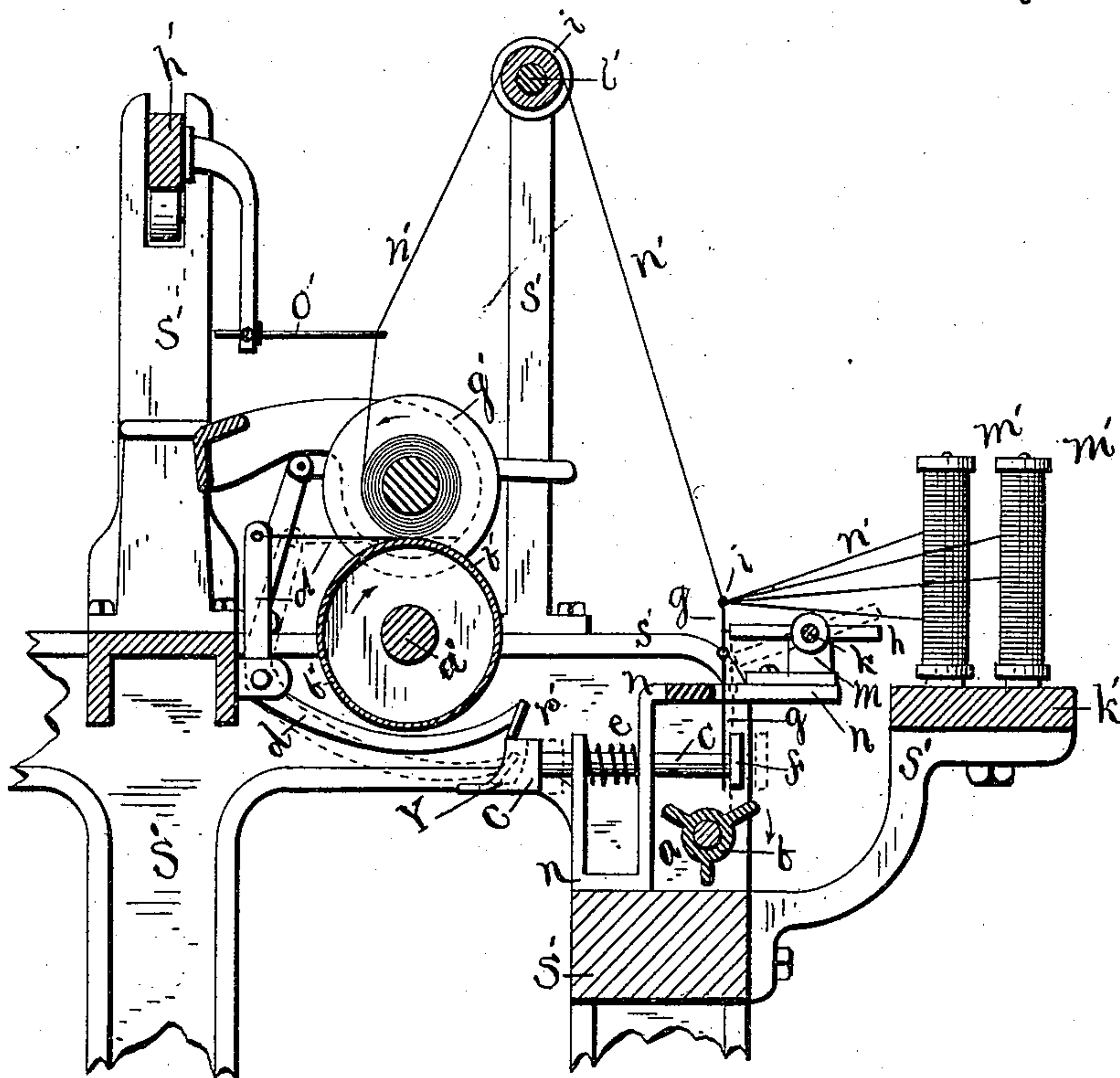


FIG. 2.

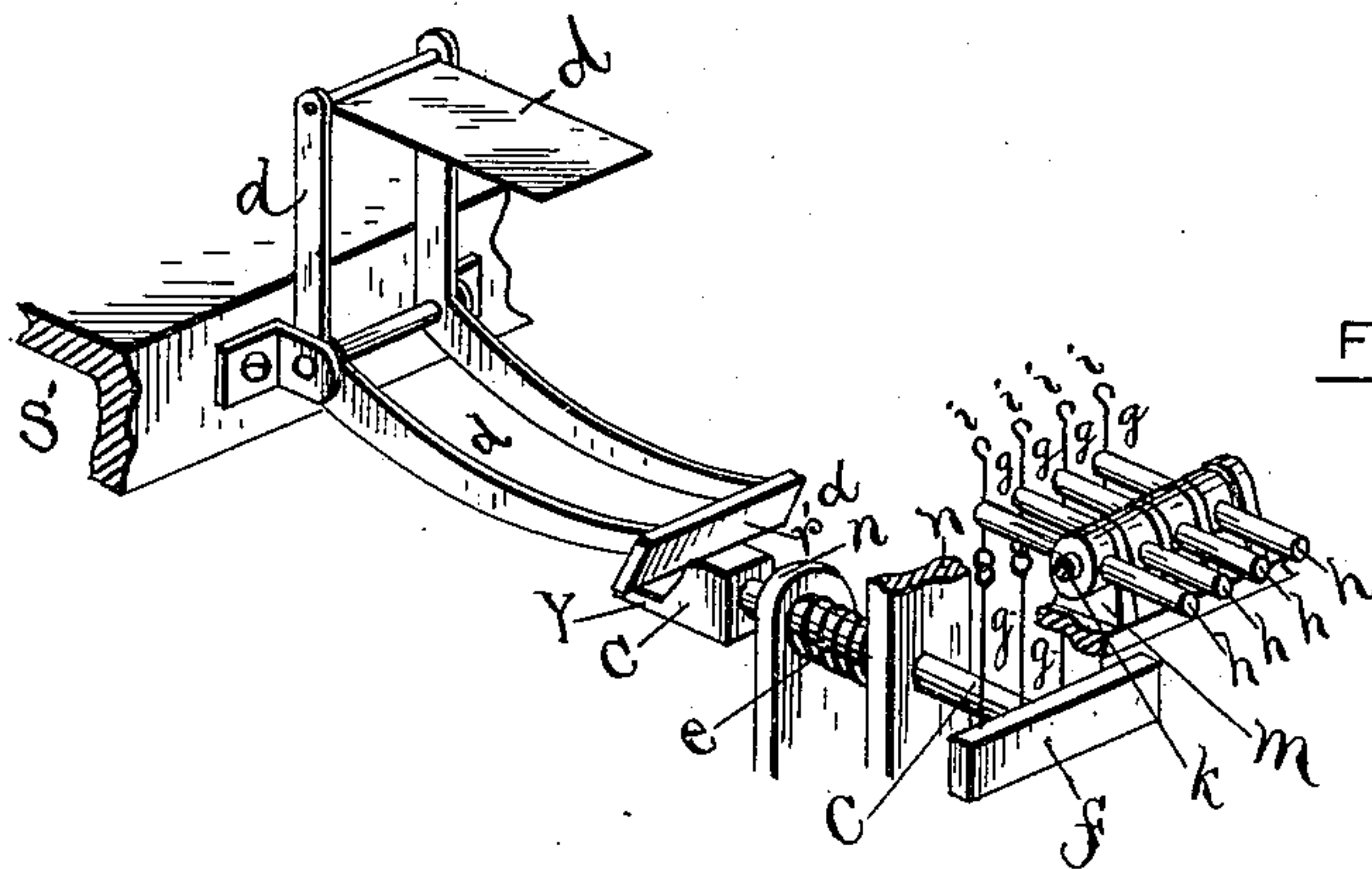


FIG. 3.

WITNESSES.

Geo. A. Carpenter
George W. Barnefield

INVENTOR.

William Murray
By his Attorney,
Thos. P. Barnefield

UNITED STATES PATENT OFFICE.

WILLIAM MURRAY, OF PROVIDENCE, ASSIGNOR OF ONE-HALF TO HENRY COLLINS AND JOSEPH W. COLLINS, OF PAWTUCKET, RHODE ISLAND.

STOP-MOTION MECHANISM FOR WINDING AND SPOOLING MACHINES.

SPECIFICATION forming part of Letters Patent No. 345,250, dated July 6, 1886.

Application filed December 21, 1885. Serial No. 186,330. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MURRAY, a subject of the Queen of England, residing at Providence, in the county of Providence and State of Rhode Island, have invented a new and useful Stop-Motion Mechanism for Winding and Spooling Machines, of which the following is a specification.

My said invention relates to a stop-motion mechanism for winding and spooling machinery, and, being described with special reference to drum-winders, consists of a sliding support for the separator which lifts the spool from the drum, said support being operated by a revolving cam coming into contact with a pin or wire, which drops between said cam and a shoulder at the end of said support whenever any breakage occurs in the thread or yarn.

The accompanying drawings are hereby made part of this specification, similar letters of reference thereon indicating corresponding parts.

Figure 1 is a top view and partial plan of a drum-winder having my stop-motion attached thereto, some of the parts being torn away to show other parts thereunder. Fig. 2 is an end sectional view of a drum-winder, and of my said invention, on line *x x* of Fig. 1. Fig. 3 is a perspective view of parts of my device, showing their relation to the separator above mentioned.

Of the parts of said drawings which show my invention, *a* is the shaft carrying the revolving cam *b*.

c c show the sliding support of the separator *d d*, and *e* an auxiliary spring.

The separator *d d* (clearly shown in Fig. 3) consists of two bell-crank arms pivoted to the frame-work of the machine, the vertical portions of these arms carrying a horizontally-extending plate at their upper ends, the horizontal portions being provided at their outer ends with a toe, *r'*, for engagement with the sliding support *c*, as shown in Fig. 2, while the machine is in operation. The weight of the horizontal portions of the bell-crank arms and their toe is such relatively to the weight of the other portions of the separator that when the sliding support is moved outwardly

the toe will drop by gravity onto the lip *y*, and rock the arms on their pivot, thereby pushing the separator-plate between the spool and drum, and raising the former from frictional contact with the latter.

f is a shoulder at the end of the part *c c*, and *g* is a wire, one end of which projects downward from the lever *h*, the other end projecting upward from said lever and culminating in the loop *i*.

The parts shown by *k m* are respectively the fulcrum of and support for the levers *h h h*. *n n* show frame-work for the parts mentioned.

Of the parts of said drawings which show the winder, *a'* is the main shaft revolving the drums *b' b'*, and operated by power applied to the fast and loose pulleys *c' d'*, or auxiliary gearing *e'*. The belt *f'* connects with the pulley on the cam-shaft *a*.

g' g' show the spools in position over the drums *b' b'*.

l' is a shaft having the thread-grooves *i' i'*, and *h'* is a traverse-bar operated by a worm or other suitable device, and carrying the thread-guides *o' o'*, to distribute the thread evenly on the spools.

k' k' show the bolster-rail, and *m' m'* are the bobbins placed thereon.

n' n' represent the thread or yarn from the bobbin to the spool.

s' s' show the general frame-work of the winder.

The dotted lines in Fig. 2 indicate the relation of the outlined parts when thrown out of position by my stop-motion upon the breaking of a thread.

The operation of my said stop-motion will be apparent from the drawings, and is as follows: Each of the threads from the bobbins *m' m'* passes through one of the loops *i* over the thread-grooves on the shaft *l'*, and through the guide *o'* to the spool. The tension of the thread in the loop *i* lifts the connected wire high enough for the arm of the revolving cam *b* to pass without touching it. The weight of the loop and wire is so adjusted to the fulcrum of the lever *h* that when, from any cause, the thread breaks, the wire will drop between the arm of the cam and the shoulder *f*. The revolution of the cam carries its arm against said

wire and shoulder, and thus forces outward the sliding support *c*, when the separator *d* falls by its own weight, and thereby lifts the spool from the drum. The revolution of the spool being imparted to it by frictional contact with the drum, it of course ceases to revolve immediately on being separated from the drum and the winding stops. The sliding support is provided with the lip *y*, on which the toe *r'* of the separator may rest till replaced in position, and while so resting out of position its toe *r'* so lies against the end of the support *c* as to hold that part still outward until the broken thread is united. The toe *r'* is then lifted by the operative, causing the spool to descend to the drum and the winding to be resumed. The resumption of the winding lifts the wire *g*, as at first, and the tension of the spring *e* forces the sliding support back into place under the part *r'*.

My stop-motion, above described, may be applied to upright and other winders, and may be adapted to spoolers of all kinds, to twisters and other spinning machinery, if desired.

I am aware that the separator *d* in its general form has been used for some time; but such previous use of it has been in connection with a cushioned wire falling against the drum,

carried downward against the toe *r'*, and thus forcing the separator down by this direct motion. Instead of such use, I have made the arms and their terminal connection *r'* of said separator so heavy, as compared with the weight of its upper parts, that the separator cannot fail of quickly falling when its support *c* is withdrawn from under it.

I do not claim as new any specific part of the winder apart from my stop-motion; but

What I do claim, and desire to secure by Letters Patent, is—

The combination, with the winding-drum, of the lever *h*, having connected therewith the wire *g*, formed with loop *i*, the cam *b*, below said wire, the sliding support *c*, having the shoulder *f* adjacent to said wire *g*, and the lip *y*, adapted to support the end of the separator when dropped, the spring *e*, and the separator *d*, having the toe *r'*, adapted, as shown, to engage with the rear end of the sliding support and to rest on lip *y* when dropped, all substantially as and for the purposes set forth.

WILLIAM MURRAY.

Witnesses:

THOS. P. BARNEFIELD,
HENRY COLLINS.