

No. 661,209.

Patented Nov. 6, 1900.

J. DUFFY.
SILK DOUBLER.

(Application filed June 26, 1900.)

(No Model.)

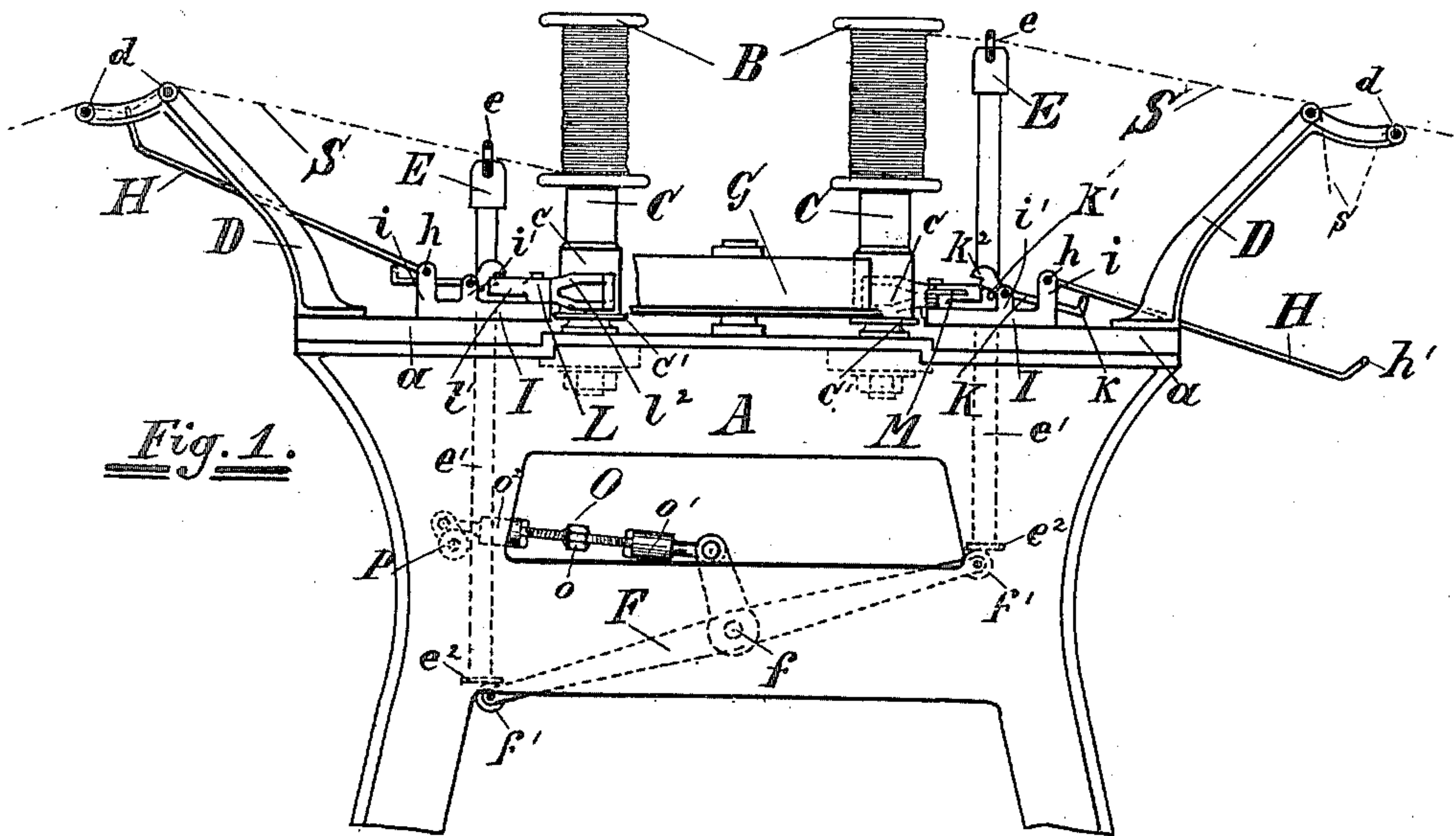


Fig. 1.

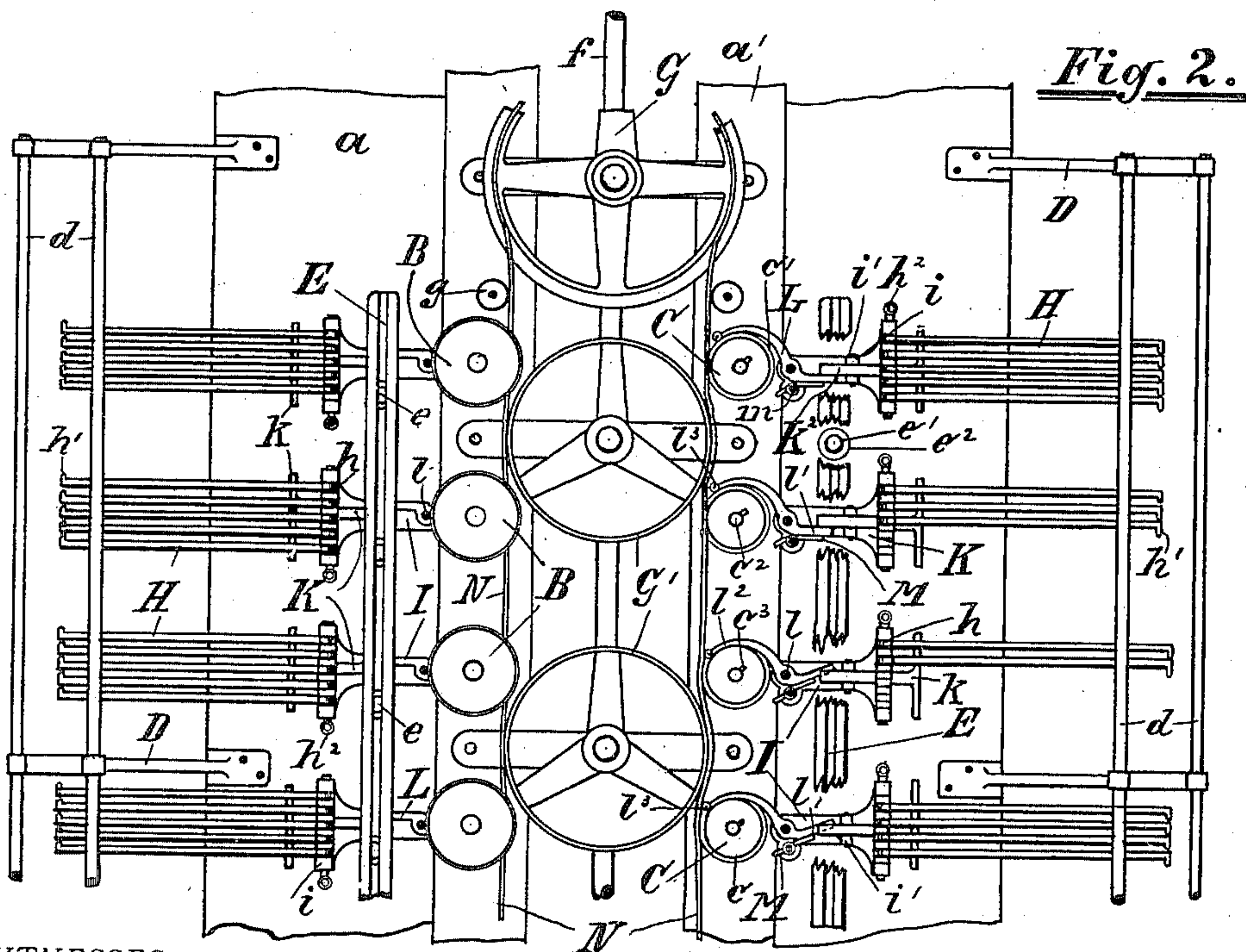


Fig. 2.

WITNESSES:

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SILK-DOUBLER.

SPECIFICATION forming part of Letters Patent No. 661,209, dated November 6, 1900.

Application filed June 26, 1900. Serial No. 21,625. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH DUFFY, a citizen of the United States, residing at No. 48 Wayne avenue, in the city of Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Silk-Doublers, of which the following is a specification, reference being had therein to the accompanying drawings.

The object of my invention is to increase the capacity of a silk-doubler by operating more spindles on a machine of a given size than is done by the machines as now constructed and in common use and by the new arrangement, construction, and combination of parts to produce a machine that will double the production without increasing the power, that will save time in the starting up and doffing, that will work a saving of fifty per cent. in floor-space, and that will by reason of its peculiar stop-motion and means for adjusting and regulating the traverse as required greatly facilitate the process of doubling in the manufacture of silk.

My invention relates only to the machine known as the "doubler," the machine to which the bobbins containing the yarn without any twist come from the first winder in single strands, there to be laid together, two or more, as the case may call for, before going to the spinning-machine to be spun. For the past sixty years the machines used for this purpose have had the bobbins lying horizontally six and one-half inches apart, while I mount the bobbins on vertical spindles about three and one-half inches apart and have adapted a novel construction and arrangement of the various other parts of the driving and automatic stop mechanisms, which I claim produces a new and useful "silk-doubler." My machine neither spins nor twists, being a plain silk-doubler, and does not belong to the class of machines that have spinning and twisting devices and which cannot fill the place of a doubler pure and simple. The doubler stands in the order of manufacture between the winder and spinner for tram and between the spinner and the twister for organzine.

The invention consists of a frame on which the spindles are operated in a vertical position, which permits of a closer arrangement

thereof, means for driving and stopping the spindles, a vertical traverse device for distributing the thread, and means for adjusting and regulating the traverse, all of which will be more fully described hereinafter and claimed.

In the drawings, in which similar letters of reference indicate like parts, Figure 1 is a side view of my vertical doubler, showing one side of the frame in working order and on the other side the operation of various parts caused by the breaking of one or more threads, and also showing the device for adjusting and regulating the traverse. Fig. 2 is a top view of part of doubler, one side of frame being in working order, the other side showing the fallers and stopping devices.

In the drawings, A is the frame of the doubler; B, the bobbins; S, the threads, and C the spindles. A bracket D is secured to the table-board *a* on each side of the frame A and carries the bars *d d*, over which the threads pass to be wound upon the bobbins, the distribution of the thread being regulated by the traverse-bars E E, one of which is situated on each side of the frame. The traverse-bars E are provided with a longitudinal groove, in which are suitably secured thread-guides *e*, of porcelain or other proper material, and are lifted by the rocker F, which is located on the rocker-shaft *f*, and the oscillation of which is governed by the adjustable connecting-rod O, having the parts *o*, *o'*, and *o''* to regulate the traverse. Each end of the rocker F is provided with a roller *f'*. The dotted lines (indicated by a small letter *s*) represent a broken thread. The spindle C has a lower portion *c*, on which is a shoulder *c'*, and an upper portion, in which is located a spring *c''*.

The spindles are mounted in the rail *a'* and are operated by the belt N and the friction-pulleys G', the said belt passing around the end pulleys G and the friction-pulleys G', but one friction-pulley being required for every four spindles. To insure more friction, idlers *g* may be employed, as required. The stopping device L is pivoted on the pin *l* and has a straight end *l'* and the curved end *l''*, which is provided with a roller *l'''*, the spiral spring M pressing against the straight end *l'*, thereby causing the curved end *l''* to go between the

belt and the spindle, thus stopping the spindle whenever a thread breaks. On the stand I are two uprights i and i' , in which are respectively pivoted the lever K and the fallers H. The fallers have an eye h and a hooked end h' . A pin h^2 passes through the eye h and through the stand i to secure the fallers in place. The lever K, which is pivoted in the upright i' , has an upturned end k , a nose k' , and a straight portion k^2 . The hooked ends of the fallers H rest on the threads S when the machine is in operation, and the spiral spring M presses the straight end k' of the stopper L against the end k^2 of the lever K, and when the thread breaks the faller drops on the upturned end of the lever K, which releases the lever from engagement with the end of the stopper L, and it is forced laterally, throwing the curved end of the stopper L between the belt and the spindle, thus stopping the revolution of the spindle.

In doublers now in use the spindles are mounted in a horizontal position on the frame and are usually six and one-half inches apart, whereas by having them in a vertical position I can have them three and one-half inches apart, so that the saving in floor-space and the increase in the capacity of the machine are obvious. As is shown in the drawings, any number of fallers may be used. At the speed these spindles are run I can use good wrought-iron, the feet being hardened

in potash and brine. The shortness of the spindle and the spring attachment make it handy for mounting and doffing the bobbins. The spindles running in a vertical position require less power than if running in a horizontal position.

In Fig. 2 of the drawings, e' is a lifting-bar having a shoulder e^2 .

With this description of my invention, what I claim is—

In a silk-doubler, the vertically-mounted spindles and the belt and pulleys for driving the same, in combination with a stop-lever, a spring adapted to press against the outer end of the lever causing the inner end to pass between the belt and spindle, a vertically-tilting lever the inner end of which is adapted to engage the spring-actuated end of the stop-lever, and fallers pivotally mounted above said vertically-tilting lever and adapted to fall upon the outer end thereof, if unsupported, thereby causing the inner end to be raised and permitting the spring-actuated end of the stop-lever to be pressed laterally forcing the inner end of the same between the belt and the spindle, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH DUFFY.

Witnesses:

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JOHN F. KERR.