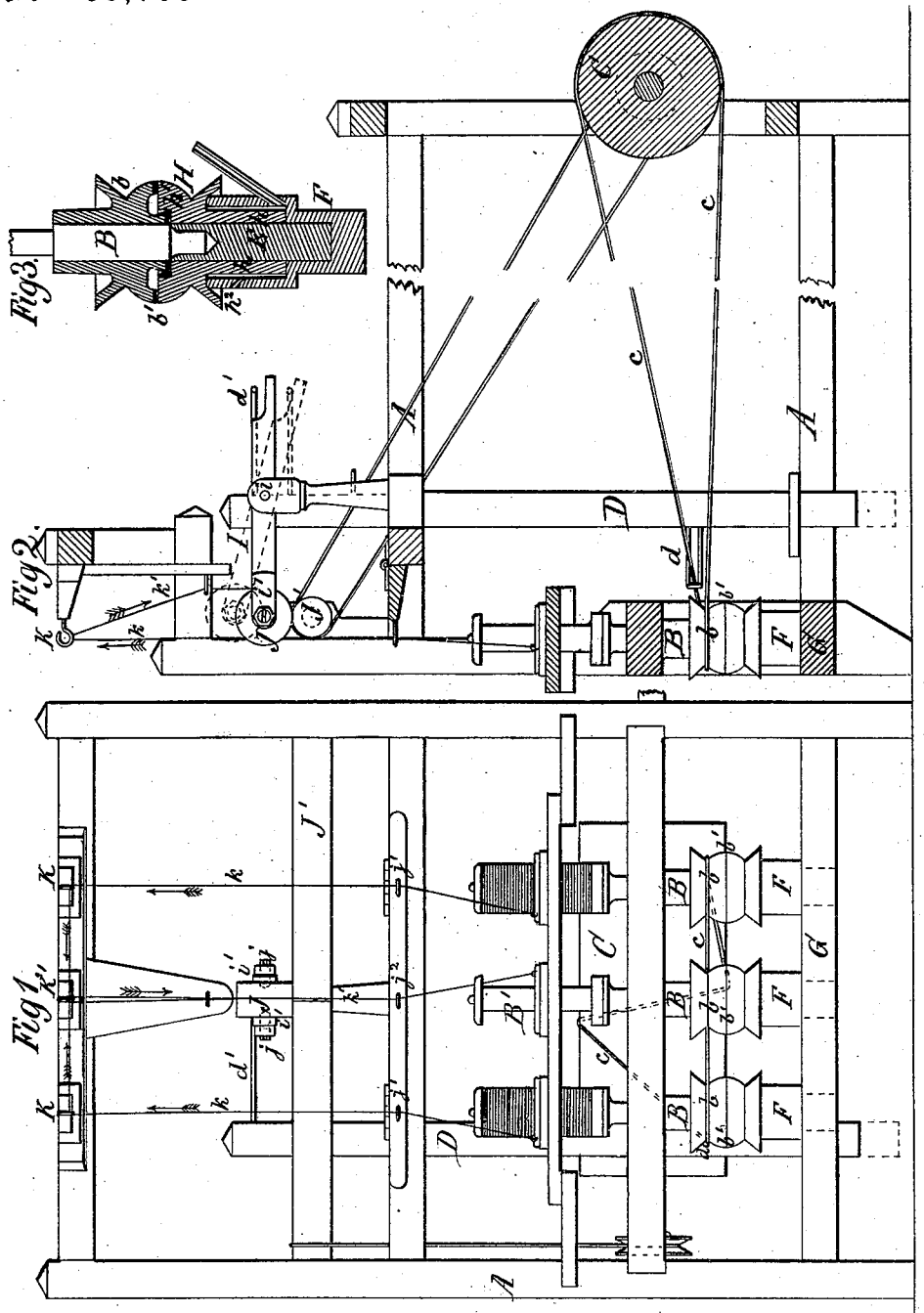
H. A. CHAPIN.

SPINNING, DOUBLING, AND TWISTING MACHINE.

No. 186,796. Patented Jan. 30, 1877.



Witnesses:
C. P. Theodore Lang
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Inventor.
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by
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UNITED STATES PATENT OFFICE.

HENRY A. CHAPIN, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR OF ONE-HALF HIS RIGHT TO CHARLES C. MOULTON, OF SAME PLACE.

IMPROVEMENT IN SPINNING, DOUBLING, AND TWISTING MACHINES.

Specification forming part of Letters Patent No. **186,796**, dated January 30, 1877; application filed March 14, 1876.

To all whom it may concern:

Be it known that I, HENRY A. CHAPIN, of Springfield, in the county of Hampden and State of Massachusetts, have invented a new and useful Improvement in Combined Spinning, Doubling, and Twisting Machines, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a front view of my improved machine, and Fig. 2 a part section of the same, giving a full view in a side elevation of its working parts. Fig. 3 is a detailed sectional view of one pair of the tight and loose whirls or pulleys on the spindles.

My invention relates to machinery in which a number of spindles are used to twist and unwind the yarn of their respective bobbins preparatory to the uniting of the said yarns into one cord, and the winding up of the same on the bobbin of another spindle.

The nature of my invention consists in certain constructions, combinations, and arrangements of parts, as hereinafter described and specifically claimed, whereby an improved stop-motion for a spinning, twisting, or doubling machine is obtained.

To enable others skilled in the art to understand my invention, I will proceed to describe it.

In the accompanying drawings, A represents the frame of a doubling-machine, with three spindles, B, which are driven by a band, *c*, from a drum, C, at the rear part of the said frame. The band *c* is passed through a guide-arm, *d*, of a movable shipper rod or lever, D, and around the tight pulleys or whirls *b* of the spindles B. The spindles B are, as usual, supported by steps E, Fig. 3, and the steps are inserted into oil-cups F in the step-rail G. Each step E serves as a shaft of the hub *h* of a loose pulley, H. The said loose pulley H is provided at the top with a depression, h^1, which serves as a reservoir for the oil drawn up from the oil-cup, whereby the step E and the foot of the spindle are lubricated. The hub of the tight pulley *b* is partly inserted into the said depression, and serves as a lid or cover, preventing the overflow of the oil while at rest, and keeping up the necessary supply by suction or rarefaction of air when moving. The grooved base h^2 of the loose pulley H bears on the rim of the oil-cup, to prevent the escape of oil which might work up on the outside of the hub *h*. The loose pulley H is kept out of contact with the tight pulley *b* and the spindle B, as seen plainly in Fig. 3, so that it cannot impart the slightest motion to the spindle. The contiguous rims of the tight and loose pulleys are rounded off, as at *b'*, to facilitate the shipping of the band from one to the other. The shipper rod or lever D has an arm, *d'*, by which the free end of a lever, I, carrying a pressure-roller, J, is depressed to return its roller from contact with the feed-roller J'. The lever I has a stationary fulcrum at *i*, and a forked end, *i'*, between which the pressure-roller J is fastened by means of adjustable center-screws *j*. The yarns or strands *k* from the two extreme spindles are twisted and passed up through eyes K to the eye K', from which they both pass down, being twisted in a direction opposite to the former twist, and united into one cord, *k'*, by the middle spindle B, and wound up on its bobbin B'.

The shipper-rod D may be moved by a treadle or a hand-lever, or by other means, mechanical or galvanic, or both, and in connection with a motion derived from the breaking of a strand. The twisting of the strands or yarns is effected either by rings and travelers, as shown in the drawings, or by fliers, or by other known means.

Operation: The extreme spindles B are supplied with full bobbins, and the middle one with an empty bobbin, B'. The strands of the extreme spindles are passed through their respective travelers or fliers up and through the eyes j^1 and K; thence through the eye K', which keeps them separate between the eyes K, and down over and around the feed-roller J', through the eye j^2 and the traveler of the middle spindle B, and are then fastened to its bobbin. The machine is now adjusted for starting by moving up the shipper-rod D, and commences its operation as soon as the belt *c* ships from the loose to the fast pulleys. The feed-roller, assisted by the pressure-roller, unwinds the strands from the full bobbins of the extreme spindles, which, through the motion

of the said spindles, become twisted, and so pass through the eye K′, over the feed-roller, and down toward the middle spindle, which twists the two strands together in a direction opposite to the former twist, and winds them up as one finished cord. When the machine is to be stopped the shipper-rod is moved down, thereby lifting the pressure-roller J off the feed-roller J′, and causing the band *c* to leave the tight pulleys *b*, and pass down to and revolve the loose pulleys H.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination of a ring and traveler and the three spindles grouped together, as specified, with the drop-roller, feed-shaft, and shipper-rod, substantially as and for the purpose set forth.

2. A spindle-step surrounded with an oil-reservoir, around which a loose pulley revolves, with its long hub projecting down into the oil, substantially in the manner and for the purpose herein described.

Witness my hand in the matter of my application for patent for an improved combined spinning, doubling, and twisting machine this 27th day of January, A. D. 1876.

HENRY AUGUSTUS CHAPIN.

Witnesses:

CHAS. R. LADD,

S. T. STEVENS.