No. 641,398. Patented Jan. 16, 1900.

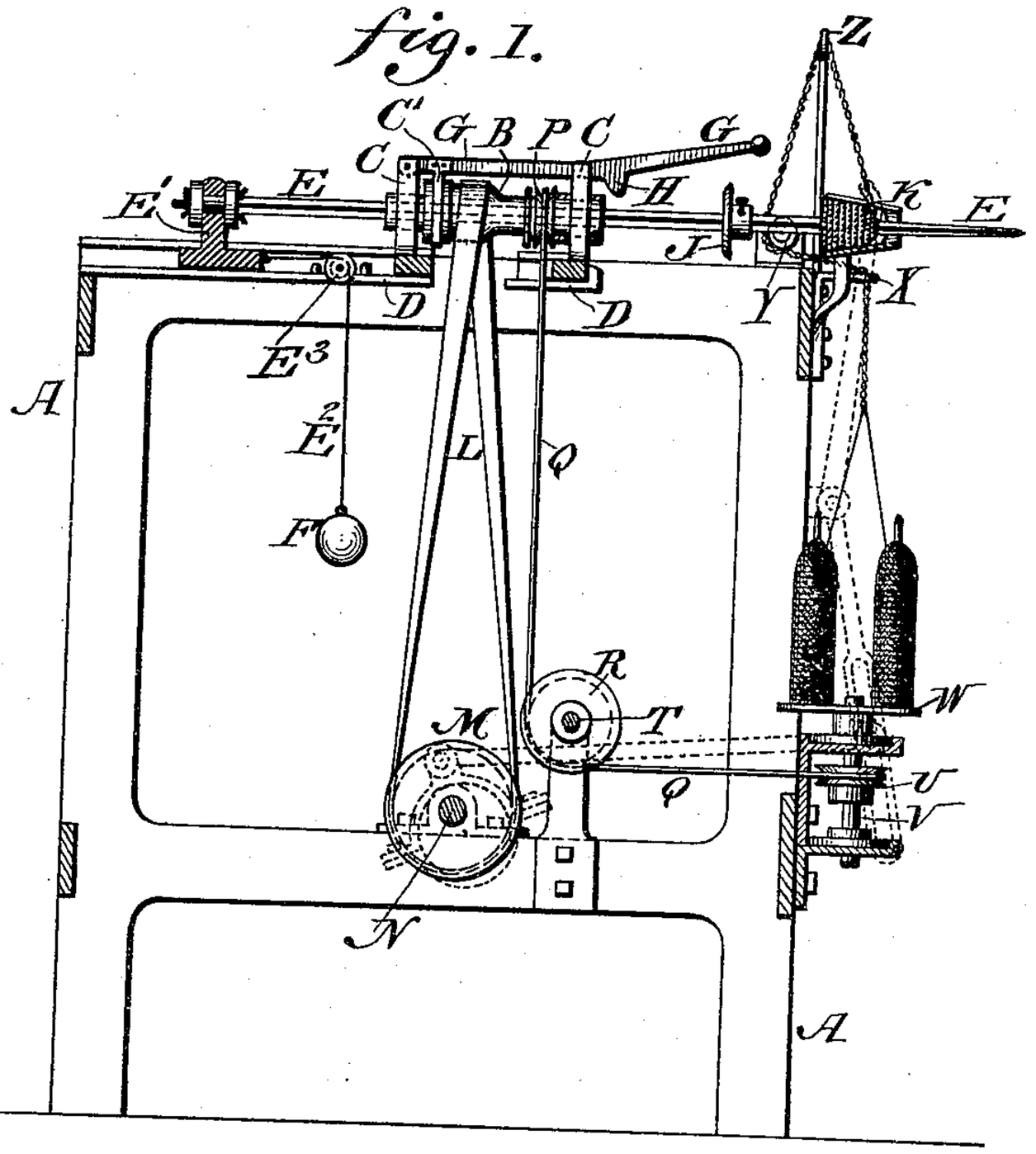
J. F. LODGE.

MACHINE FOR DOUBLING AND TWISTING YARN AND FOR COP FORMING.

(Application filed Sept. 14, 1898.)

(No Model.)

fig. 1.



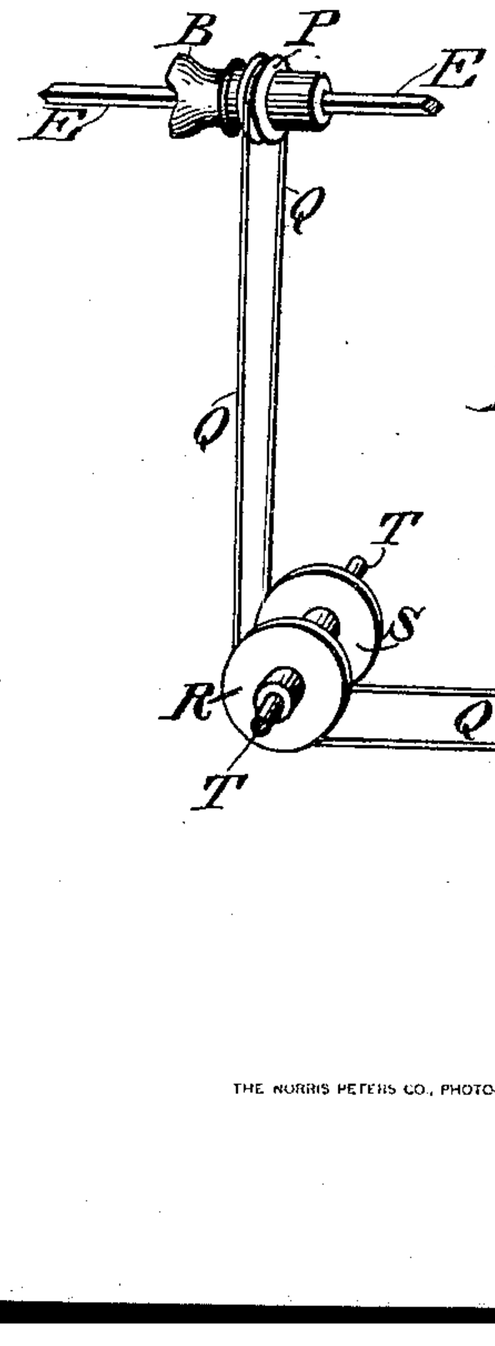


fig. 2.

Witnesses
L. Dorville,
M. G. Lukens.

Inventor
John Friend Lodge
By Wiedersheim & Fairbank
Attorneys

UNITED STATES PATENT OFFICE.

JOHN FRIEND LODGE, OF PHILADELPHIA, PENNSYLVANIA.

MACHINE FOR DOUBLING AND TWISTING YARN AND FOR COP-FORMING.

SPECIFICATION forming part of Letters Patent No. 641,398, dated January 16, 1900.

Application filed September 14, 1898. Serial No. 690,922. (No model.)

To all whom it may concern:

Be it known that I, JOHN FRIEND LODGE, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Machines for Doubling and Twisting Yarn and for Cop-Forming, which improvement is fully set forth in the following specification and accompanying drawings.

My invention consists of means for doubling and twisting yarn and forming the same into a cop and automatically stopping the two-part mechanisms when the cop is completed, the novel features being pointed out in the claim that follows the specification.

Figure 1 represents a partial side elevation and partial vertical section of a machine for doubling and twisting yarn and forming cops thereof embodying my invention. Fig. 2 represents a perspective view of a detached portion thereof.

Similar letters of reference indicate corresponding parts in the figures.

Referring to the drawings, A designates a frame of the machine, the same being of suitable construction.

B designates a pulley having different diameters, the same being formed on a sleeve mounted on the carriage C, which is movably supported on ways D, secured to the upper part of the frame A.

E designates a spindle or skewer, a portion of which freely passes through the pulley B, the opening in which and the contiguous portion of said spindle being squared or angular, so that while said spindle may slide in said pulley the latter may impart rotary motion thereto. The rear end of said spindle is journaled on the movable bearing E′, which is supported on the frame A and has connected with it the cord E^2, which is passed around the guide-pulley E^3 on the frame A, the lower end of said cord having connected therewith the bob or weight F.

G designates a hand-lever which is connected with the carriage C and is provided with the yoke C′, which freely embraces the pulley B, said lever having near its handle end the depending shoulder H, which is adapted to be engaged at the proper time by the collar J on the spindle E.

K designates a guide of the form of a hollow cone, which is secured to the frame A and has the point portion of the spindle E passed therethrough.

L designates an endless belt which is passed around the pulley B and also around the pulley M, the latter being connected with the driving-shaft N of the machine.

On the pulley B is the pulley P, around which is passed the endless belt Q, which also passes around the pulleys R and S, whose shaft T is mounted on the frame A, said belt Q also passing around the pulley U, whose shaft V is mounted on the side of the frame A and carries the flier W, above which are supported the eye X and pulleys Y Z, the pulley Z being above the guide K.

The operation is as follows, the parts being in the position shown in Fig. 1. Power is imparted to the shaft N, whereby the belt L communicates the same to the pulley B, and consequently to the spindle E, thus rotating the latter. The pulley P also receives motion and communicates the same by means of the belt Q to the pulleys R, S, and U and shaft V to the flier W, whereby the yarn on the latter is doubled and twisted, in which condition it is directed by the eye X and pulleys Y Z to the spindle upon which it is wound and formed into a cop thereon, it being noticed that the belt L passes around the greater diameter of the pulley B and is thus held in proper taut condition to operate the same. As the cop is formed into a cone and its diameter is accordingly increased it presses against the guide K and imparts longitudinal motion to the spindle E. When the collar J reaches the shoulder H, it bears against the same and moves it and the carriage in the direction that the spindle is traversing. Now the belt L is running rapidly on the wide diameter of the pulley B and depends therefrom, it receiving power from the large pulley M below in comparatively a truly perpendicular direction. The inclined surface between the two diameters of the pulley B coming under the belt causes the latter to ride down the same, whereby it reaches the narrow portion of the pulley, when it becomes loose and the doubling and twisting and cop-forming operations cease. The cop is then removed from the spindle, and the latter, owing to the weight F, is returned to its normal position, its point

portion again entering the guide K. The carriage is now returned to the position it assumes when the machine is in operation, and the belt is caused to shift up the inclined surface of the differential pulley to the wide portion of the latter, thus again tightening the belt, where the latter imparts motion to said pulley, and consequently rotates the spindle E, while at the same time the pulley P is rotated and the flier again operated, thus continuing the doubling and twisting and cop-forming operations.

Heretofore mule-cops have been spooled and twisted on separate machines and then placed on a cop winding or forming spindle, making four separate operations; but in my case the yarn of the mule-cops which are placed on the flier W are doubled and twisted and formed into a shuttle-cop on the same machine at practically one operation.

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

In a cop forming and shaping machine, the combination with the cop-shaping device, the spindle, the sleeve through which said spindle is adapted to slide and the differential pulley on said sleeve, of a supplemental pulley on said sleeve, a guide-pulley on the frame of said machine, a flier on said frame having a driving-pulley, an endless belt extending from said supplemental pulley around said guide-pulley to said driving-pulley, and a guide interposed between said flier and cop-shaping device.

JOHN FRIEND LODGE.

Witnesses:
JOHN A. WIEDERSHEIM,
WM. C. WIEDERSHEIM.