No. 629,940. Patented Aug. 1, 1899.

J. E. TYNAN.

FEEDING MECHANISM FOR TWISTING MACHINES.

(Application filed Mar. 23, 1898.)

(No Model.)

Fig 1:

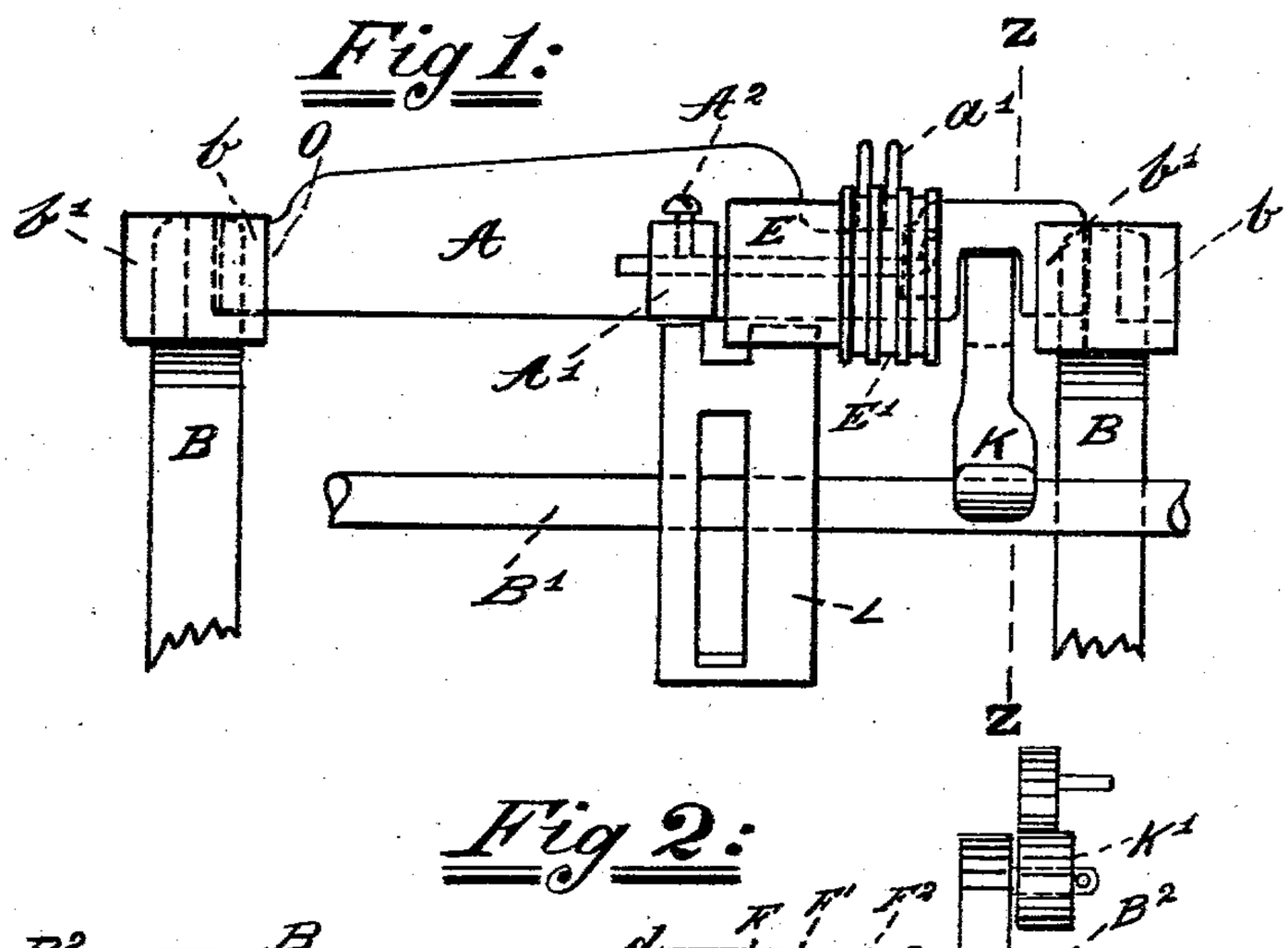

Fig 2:

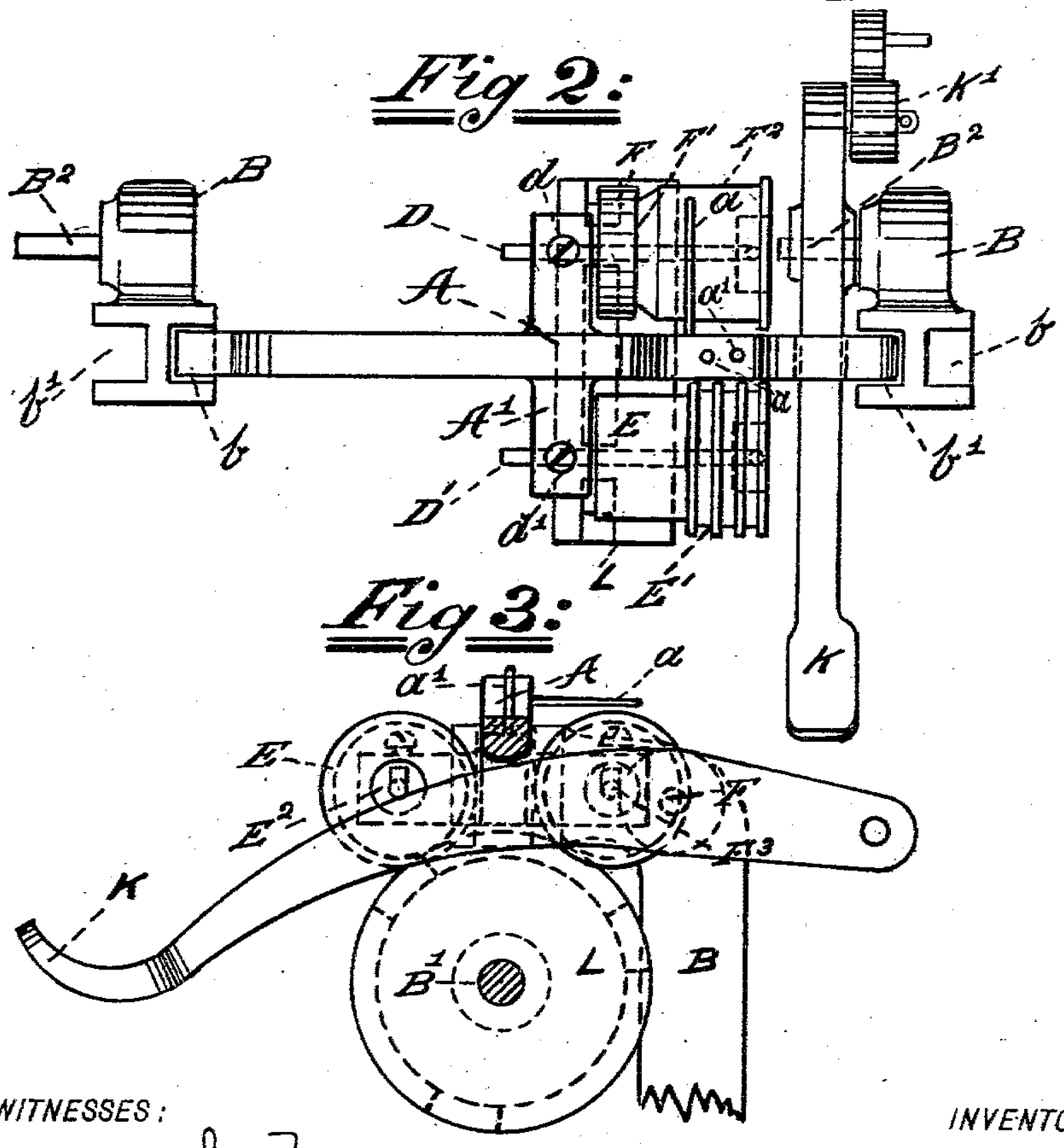

Fig 3:

WITNESSES:

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FEEDING MECHANISM FOR TWISTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 629,940, dated August 1, 1899.

Application filed March 23, 1898. Serial No. 674,877. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH E. TYNAN, a citizen of the United States, residing at Paterson, in the county of Passaic and State of New Jersey, have invented a new and useful Improvement in Feeding Mechanism for Twisting-Machines, of which the following is a specification.

My invention relates to that class of twisting-machines in which threads are fed toward the twisting-spindle and laid upon a bobbin upon the twisting-spindle by means of a ring and traveler or similar device. The general operation of such machines has been shown in former patents granted to me, particularly in a patent for machines for throwing silk, dated February 19, 1889, and numbered 398,359.

The improvement set forth in this specification relates entirely to the feeding mechanism of such machines, which guides and controls the threads and feeds them at a fixed rate toward the bobbin on the twisting-spindle.

Figure 1 is a front elevation of my invention. Fig. 2 is a plan view of the same; and Fig. 3 is a cross-section of the same, taken on the line Z Z of Fig. 1.

Throughout the drawings similar letters indicate similar parts.

The object of my invention is to provide a more certain and convenient feeding mechanism than has formerly been used.

B′ is a driving-shaft to operate the feeding and stop-motion mechanism, revolving in bearings on the machine and on which are mounted a series of rollers, one of which rollers is shown at L. Throughout this specification I call the roller L a "driving-roller."

A is a metal bar having the cross-piece A′, the whole forming a frame which is supported laterally upon each end by the slots *b* and *b′* in the stands B, which latter are mounted upon the machine. The slot *b* in the stand B is closed at the bottom and bears the weight of the end O of the frame A. Upon the cross-piece A′ of the frame are the pins D and D′, secured therein by screws, as at *d* and *d′*. On the forward pin is the roller E, and on the rear pin is the roller F. These rollers are free to revolve on their respective pins. While the slot *b′* in the stand B forms a lateral support for one end of the frame A, said slot is not closed at the bottom and forms no support for the weight of the frame A. As a result, the frame A being supported on one end by the bottom of the slot *b*, but having no support on the other end, the weight of the frame A presses the rollers E and F upon the driving-roller L, by which latter roller they are revolved. The frame A is shown in the drawings of such a shape as to contain considerable weight, which weight is advantageous in pressing the rollers E and F more firmly upon the driving-roller, and so making a more certain drive. Both of the rollers extend laterally beyond the end of the driving-roller, and it is over the extended portions of the two rollers that the threads are passed. The forward roller has grooves therein, as shown at E′. The rear roller has a groove F′, which is cut below the running surface, and a cylindrical portion, as shown at F^2. The frame A has guides therein at *a* and *a′*, which serve the purpose of guides in passing the threads over the rollers, said guides *a′* also serving other purposes, hereinafter mentioned.

The operator with one hand lifts the frame from its supports and with the other hand passes the threads over the two rollers at once. The threads are thus passed around the rollers a number of times that corresponds with the number of grooves in the front roller, the threads at each wrapping being guided into a different groove in the front roller. The operator then places the frame back in the slots *b* and *b′*. The frame fits loosely in these slots, so that both of the feed-rollers can readily find a bearing upon the driving-roller. In passing around the rollers the threads pass over and under the part of the frame A that extends between the rollers.

The groove F′ in the rear roller is of use when the mechanism is stopped, as the twist in the threads that have been twisted is inclined to cause the thread at the point where it is about to leave the rollers to creep upon the surface of the rear roller, and if the thread were not checked by the shoulder it would roll at this point from the surface of the roller. As the course of the thread is from the front

roller to the rear roller, the starting of the mechanism causes the thread to come out of the groove and upon the cylindrical part of the roller, owing to the straight line in which the thread tends to run, to which straight line it is confined by the guides a'. The groove in the roller F is preferably cut so as to form a cone upon the roller, in order that the thread may more readily come out of the groove.

K is the starting-lever of the machine, mounted on a pin at B^2 and having hinged at its rear end the latch K'. These parts relate to the stop-motion mechanism, which is described at large in the patent hereinbefore referred to. I need only say here that when the stop-motion operates the latch K' falls, the rear end of the lever K, swinging on the pin B^2, goes with it and the front end of the lever K is lifted and comes in contact with the end of the frame A which rests in the slot b', lifting the same, and thereby raising the rollers E and F clear of the driving-roller L. The rollers E and F then cease to revolve and the feeding of the thread is stopped. In starting up the mechanism after the broken thread has been repaired the outer end of the lever K is pressed down, the surfaces of the two rollers come in contact with the driving roller, and the feeding of the threads is resumed.

When the lever K has been pressed down and the parts are in running position, the lever is clear of the bottom of the frame A, so that the weight of the frame A and of the feed-rollers rests upon the driving-roller.

The guides a', besides being a guide to the operator in passing the threads around the rollers, are of use when the mechanism is stopped and the operator wishes to draw twisted thread from the bobbin on the twisting-spindle to repair the threads. In drawing off threads in this way the rollers are revolved in a direction opposite to that in which they revolve in feeding the thread, and as a result, if there were nothing to prevent it, the different wrappings of the thread on the rollers would all be drawn into one of the grooves of the front roller. The guides, however, hold the threads apart while twisted thread is being drawn off in this way, and each wrapping of thread continues to be confined in its proper groove in the front roller.

In the device as shown grooves for the thread are shown upon the front feed-roller only. It is obvious that both feed-rollers could be grooved, but I find it more convenient for the operator in passing threads around the rollers to have the rear feed-roller without grooves. The grooves in the front feed-roller are all that is necessary to control the running position of the threads upon the rollers.

I am aware that grooved feed-rollers bearing upon a driving-roller have formerly been employed in twisting-machines and I do not claim, broadly, the use of such rollers. It is the particular method of applying the rollers to the machine which is the subject of my invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The non-revoluble frame, free to be lifted from the machine by the operator, and having the fixed cross-piece A', the pins D and D', and the feed-rollers mounted on the pins, in combination with the driving-roller L, the stands B B, having the slots b and b', the lever K, a pivot for the lever, and a stop-motion to operate the parts upon the breakage of a thread, substantially as and for the purpose described.

2. A frame, consisting of a bar, with a fixed arm projecting from each side, to receive the bearings for feed-rollers, in combination with the stands B B, having the slots b and b', the feed-rollers and their bearings, the driving-roller, and a stop-motion mechanism, substantially as and for the purpose described.

3. A frame, consisting of a bar, with a fixed arm projecting from each side, to receive the bearings for feed-rollers, and the guides a', in combination with the stands B B, having the slots b and b', the feed-rollers and their bearings, the driving-roller, and a stop-motion mechanism, substantially as and for the purpose described.

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