

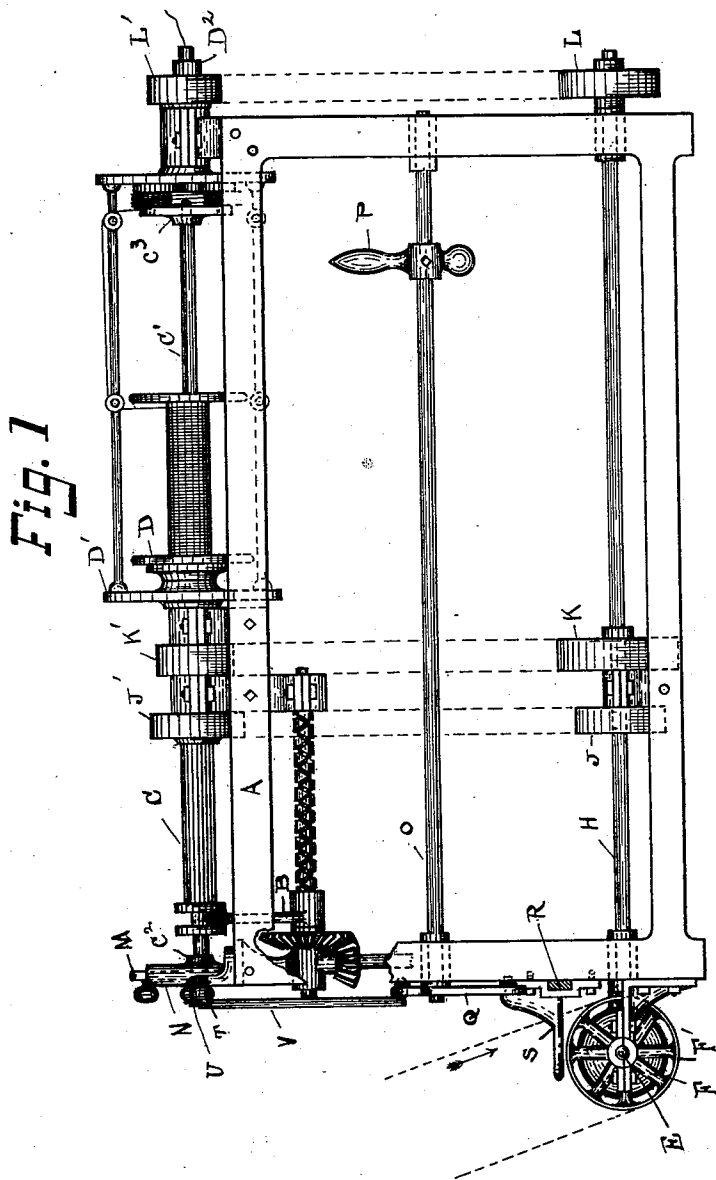
(No Model.)

2 Sheets—Sheet 1.

F. G. BECKER.
TWINE MAKING MACHINE.

No. 507,100.

Patented Oct. 24, 1893.



Witnesses
A. Keithley
C. Johnson

Inventor
Frederick G. Becker

By his Attorney *L. M. Thurbon*

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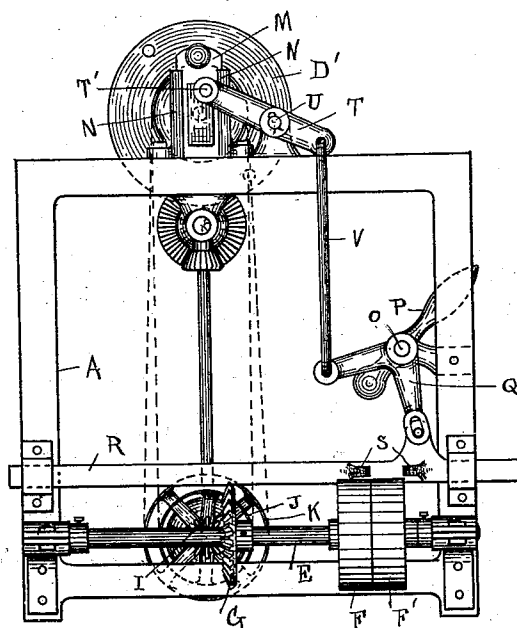


Fig. 2

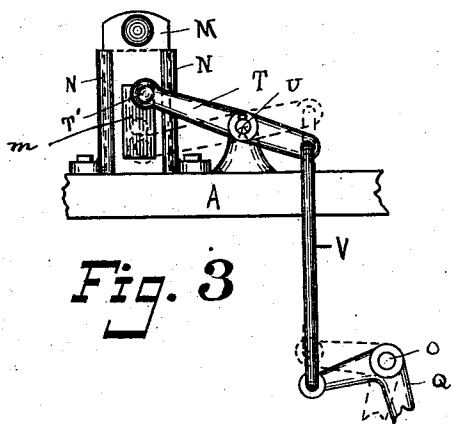


Fig. 3

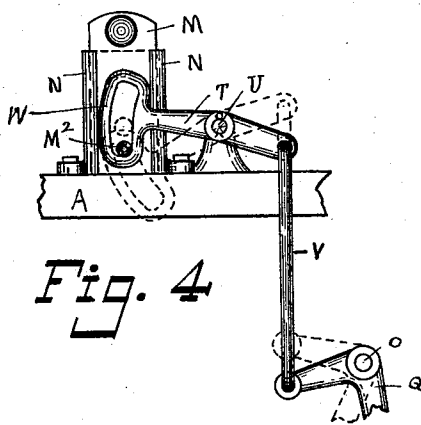


Fig. 4

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UNITED STATES PATENT OFFICE.

FREDERICK GEORGE BECKER, OF PEORIA, ILLINOIS.

TWINE-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 507,100, dated October 24, 1893.

Application filed March 17, 1893. Serial No. 466,556. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK GEORGE BECKER, a citizen of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Twine-Making Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in twine making machines, in which the spindle shaft carrying the spool or bobbin may be readily removed or displaced to allow a full spool to be removed and an empty one substituted therefor, and wherein the spindle shaft is prevented from leaving the machine by accident or carelessness after the machine has been started up. The machine thus has safety devices to prevent harm either to itself or to the operator thereof.

Another object of the invention is to provide improved means for permitting the raising of the latch which is usually employed to prevent the withdrawal of the spooling spindle. These objects are attained by means of the mechanism shown in the drawings presented herewith and in which—

Figure 1 is a front elevation of a twine making machine with my improvement attached thereto. Fig. 2 is an end elevation thereof. Fig. 3 is a detail view showing the slotted latch mounted in vertical ways on the frame of the machine. Fig. 4 is a modified form of my invention showing a pivoted arm or lever mounted on the machine frame and having a curved slot or link made in or on one end thereof.

In the drawings A represents the frame of a machine, a portion of which is broken away in Fig. 1 to show gearing which drives the double-threaded screw-shaft, which combined with a shifting arm B gives to the spindle C a reciprocating motion, and the said spindle propels the spool or bobbin D.

A driving shaft E is mounted at one end of the frame of the machine in bearings secured to said frame and two belt wheels F and F' are mounted thereon, one fixed and the other loose. When the machine is at rest the driving belt runs on the loose pulley F'.

Mounted on the shaft E, is a gear wheel G which drives the counter shaft H by means of the pinion I. Upon the said counter shaft H are mounted pulleys J, K and L which drive the pulleys J', K' and L' respectively by belt connection, and these pulleys drive the different parts as follows: The pulley J' drives the spooling spindle C', pulley K' the flier D', and pulley L' the draft rollers D².

The twine flier D' is mounted in bearings at its ends as shown in Fig. 1. One of the bearing ends of said spindle is made hollow for the reception of the draft rollers D² and the other for the reciprocating spooling spindle C. This spindle C is made hollow also and through it passes the spool supporting shaft C' and this shaft is mounted in bearings C² and C³.

A latch M mounted to slide up and down in vertical ways N at one end of the frame A is designed to secure the shaft C' in place and prevent said shaft from having an end movement when said latch is down; but when raised the shaft is allowed an end movement in order that it may be withdrawn from the machine.

A rock shaft O, provided with a handle P, has bearings on the frame A and carries a bell-crank Q at the end near the driving pulleys. The lower arm of this bell-crank operates a belt shifter R mounted on the end of the machine and said shifter is provided with the usual shifting fingers S for throwing the belt from the fixed to the loose pulley and vice versa.

A lever T is mounted on the end of the frame A by a fulcrum bearing U supporting the lever between its extremities and to one end of said lever is pivotally connected a pitman rod V, the lower end of said pitman being pivotally connected to the upper arm of the bell-crank.

The device described thus far is the same or substantially the same as that pointed out in my United States patent on twine making machines, filed April 12, 1890, Serial No. 347,731, and patented April 18, 1893, No. 495,469, and hence I claim nothing on the mechanism thus far described.

My present improvement then consists of the following described mechanism, two forms of which are shown, one being simply a modi-

fication of the other: In the first form, the sliding latch M is provided with an indentation or slot *m* which is cut into the metal but not entirely through it. The forward end of the lever T is provided with a pin T' which is secured at right angles thereto and enters the said indentation. It may now be seen that if the lever is raised at that end the latch may be lifted; but if it is lowered the pin T' holds the latch down by bearing upon the bottom of the slot. The modified form of this portion is shown in Fig. 4 in which the sliding latch M is provided with a pin or lug M² on its outer face and the forward end of the lever T is formed into a link W the slot of which is slightly curved to allow the lever to rock on its fulcrum without interfering with the said pin or lug M².

In either form of my device the slot is of sufficient width to permit the proper movements of the pin therein when the belt shifter is operated, as well as to permit the movement of the pin therein when the latch is raised by hand.

The operation of my device is as follows: As shown in Fig. 2 the belt shifter is in position to hold the belt on the loose pulley F' and at the same time the lever T is raised at its forward end to allow the latch to be raised by hand when desired. When it is desired to again start the machine, the handle P is moved downward, the belt shifter throws the belt onto the fast pulley F, and the lever T is moved to the dotted positions of Figs. 3 and 4, which motion thereof will cause the latch M to descend even if the operator has not previously lowered it to position. If he has, of course this movement of the lever T does nothing but lock the latch in place.

It will be plainly seen that with either device the latch cannot be lifted until the lever T is raised and when said lever is raised the machine is idle by reason of the inevitable shifting of the belt to the loose pulley F'.

The advantages of this construction over my former patent, above referred to, are: that the latch is loosely connected with the lever and does not carry it in its movements. Hence the latch may be raised and allowed to stick in place in the ways N without being automatically depressed by the weight of the lever as before; and that (with the form shown in Fig. 3) another pin T' of different size may be used, or another latch may be substituted having a longer indentation for a spooling spindle of larger diameter, or vice versa, or one in which the indentation extends completely to and out at the lower end of the latch whereby the latter will not be affected

by the movements of the lever at all. In my previous patent, to effect any change of parts the mechanism had to be disconnected down to the point of connection between the rod (corresponding with V in the present case) and the bell-crank lever (corresponding with Q) and a new rod entire substituted; whereas, in the present instance, the outer end of the lever only is moved laterally—as by springing it slightly or disengaging it from the bearing U—and a new latch only is substituted having an indentation of proper form and size. In the form shown in Fig. 4, the slot in the link W is opposite and in alignment with the spooling spindle, so that the latter can be withdrawn through said slot even if the latch has been entirely removed; and in Fig. 3, the inner end of the lever at its extremes of movement stands respectively above and below the line of said spindle for the same purpose.

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

1. In a twine making machine, the combination with the spooling spindle, a vertically movable latch for securing the same in place, and a centrally pivoted lever having one arm standing adjacent the latch, one of said adjacent parts having an upright slot in alignment with the spooling spindle and the other a laterally projecting pin extending into and of less lateral width than said slot; of a driving shaft having fast and loose pulleys, a belt shifter therefor, and connections substantially as described between the other arm of said lever and the belt shifter, as and for the purpose set forth.

2. In a twine making machine, the combination with the spooling spindle, a vertically movable latch for securing the same in place, a centrally pivoted lever having one arm standing adjacent the latch, the latter being provided with an upright indentation in its face next said arm, and a lug on the arm projecting into and of less lateral width than said indentation; of a driving shaft having fast and loose pulleys, a belt shifter therefor, and connections substantially as described between the other arm of said lever and the belt shifter for moving the lug end of the lever to points above and below the line of the spindle as the belt is shifted, as and for the purpose set forth.

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

FREDERICK GEORGE BECKER.

Witnesses:

GEORGE HARMS,
GEO. F. MEYER.