W. C. BOSWELL.

COMBINED BOBBIN HOLDER AND YARN CATCHER.

APPLICATION FILED JUNE 7, 1909.

964,084.

Patented July 12, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

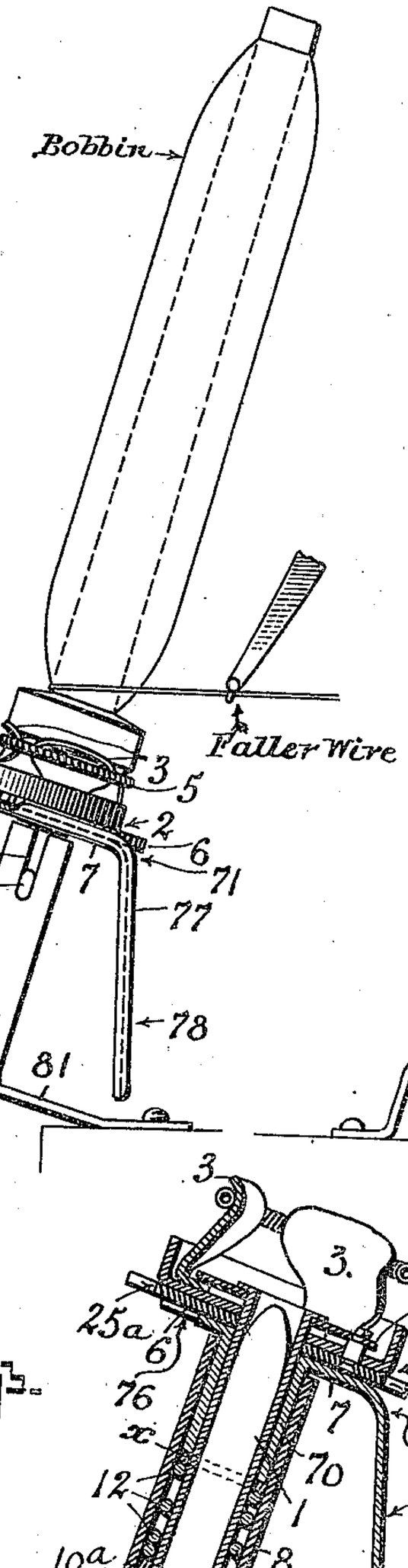

Fig. 2.

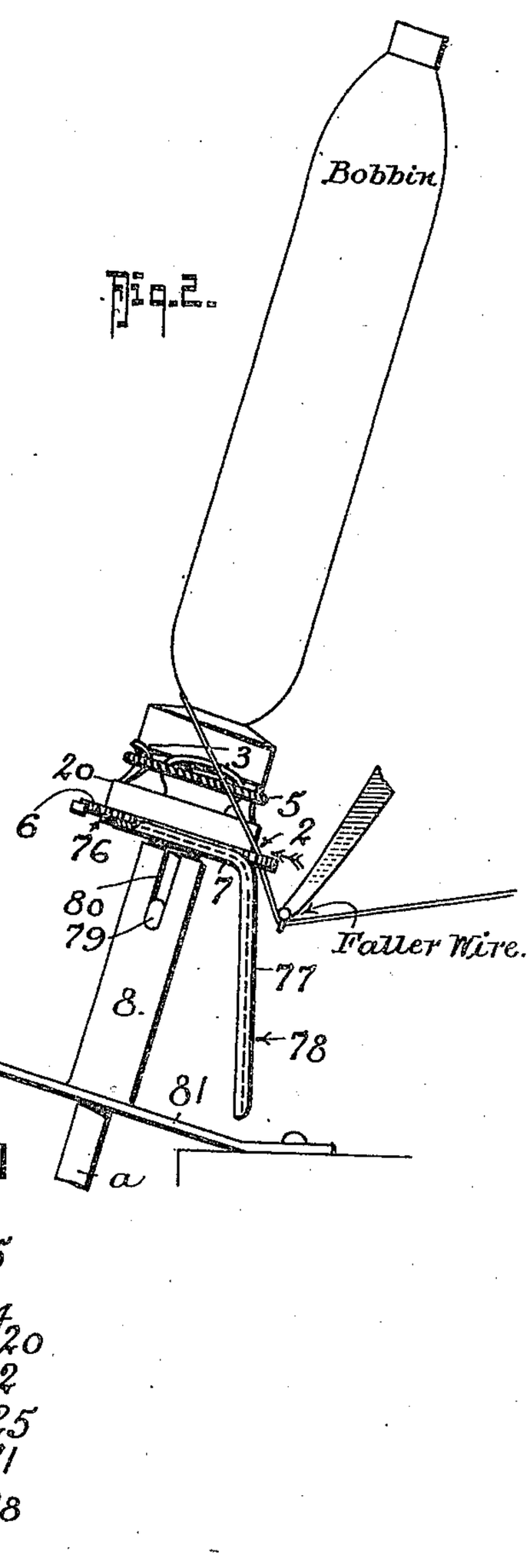

Fig. 3.

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2 SHEETS—SHEET 2.

Fig. 4.

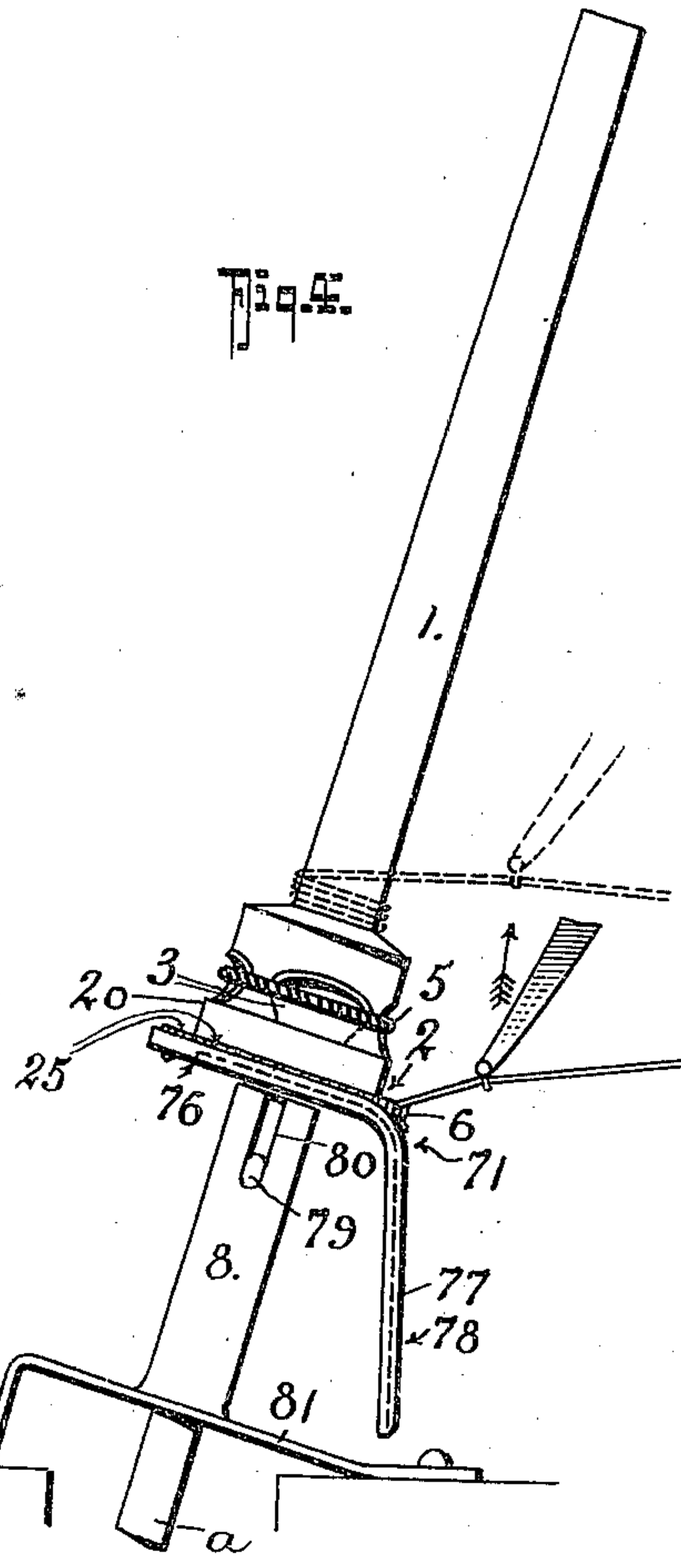


Fig. 5.

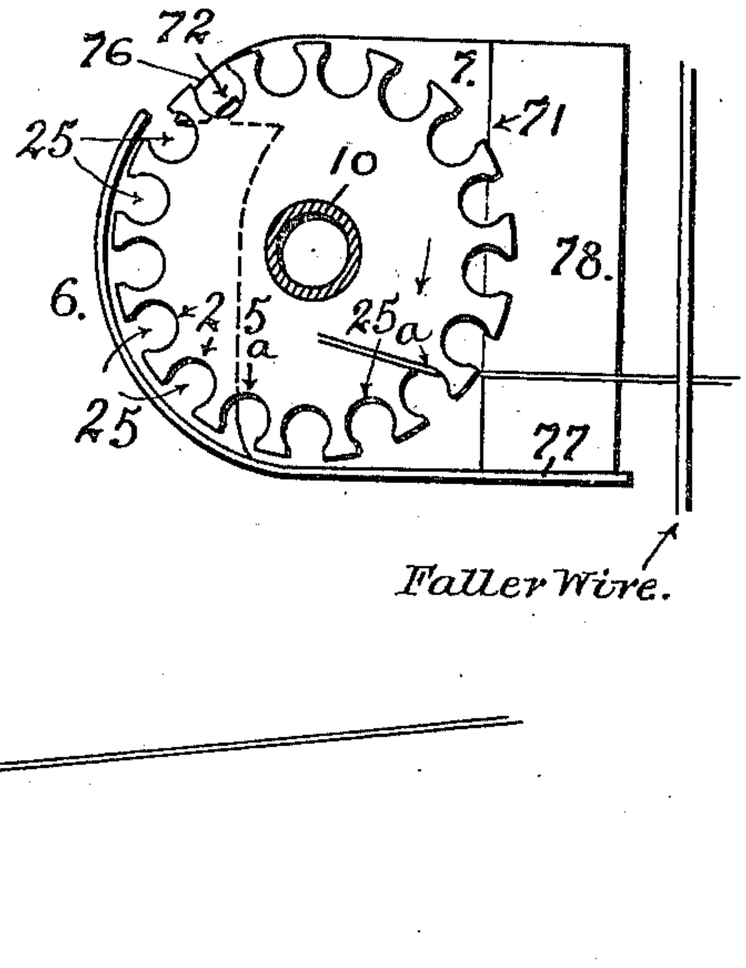


Fig. 7.

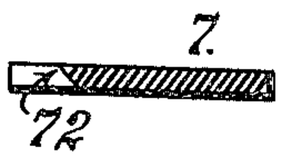
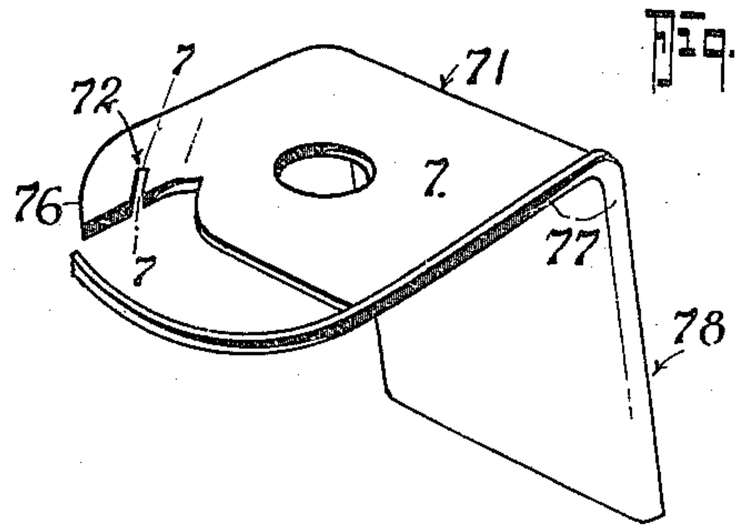


Fig. 6.



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UNITED STATES PATENT OFFICE.

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COMBINED BOBBIN-HOLDER AND YARN-CATCHER.

964,084. Specification of Letters Patent. **Patented July 12, 1910.**

Application filed June 7, 1909. Serial No. 500,620.

To all whom it may concern:

Be it known that I, WILLIAM C. BOSWELL, residing at Rossville, in the county of Walker and State of Georgia, have invented a new and Improved Combined Bobbin-Holder and Yarn-Catcher, of which the following is a specification.

My invention relates to combined bobbin holder and yarn catcher for spinning mules, and it has for its object to provide an improved construction of such an attachment, especially designed to facilitate the removal of the full and the application of empty bobbins without the waste of yarn, annoyance and loss of time in adjusting the bobbins, incident in the use of the common type of bobbin holders.

With the above and other objects in view that will hereinafter appear, my invention consists in a combined bobbin and yarn holder that embodies the peculiar arrangement and combination of parts hereinafter fully explained, specifically pointed out in the appended claims and illustrated in the accompanying drawings, in which:—

Figure 1, is a side elevation of a portion of a spinning mule, a spindle equipped with an automatic locking holder and with my improvements applied, the parts being in the normal or running position. Fig. 2, is a similar view showing the faller wire as pressing the thread down in position to be conveyed to the cutting device. Fig. 3, is a vertical section of the combined bobbin and yarn holder, the parts being in position as in Fig. 1. Fig. 4, illustrates a new or empty bobbin on the holder, and the yarn as being guided by the faller arm to wind thereon. Fig. 5, shows the spring held yarn clamp and the cutter device. Fig. 6, is a detail view of the combined guide plate and cutting device hereinafter referred to. Fig. 7, is a detail section on the line 7—7 of Fig. 6.

In carrying out my invention I prefer to combine the same with any of the conventional types of bobbin holders, preferably, for example, the form shown in the drawings, which comprises a tubular shank 1 that fits on the spindle *a* to turn therewith, the said shank being tapering so as to bind on the tapering spindle when forced tightly down thereon. The upper end of the shank carries a cup shaped head 2, the flange 20 of which surrounds and forms a stop for the lower or neck ends of the spring clamp fingers 3 that are held down on the head 2 by a disk 4 that is riveted to the head, the upper ends of the said fingers 3 being held pressed radially inward under spring tension, by a coil spring 5 that winds around the said fingers 3, the latter forming a spring or yieldable socket for receiving the lower end of the bobbin as is clearly shown in Figs. 1 and 2.

6 designates a combined clamp and feed wheel or disk since it has two functions, first, it assists in clamping or holding the broken end of the yarn after it has been severed from the fully wound bobbin and the latter has been removed, and for feeding or conveying the yarn when it is pressed down by the faller device hereinafter again referred to, to the guide plate and cutting mechanism. Member 6, which is riveted to the head 2 to turn therewith, is of a diameter somewhat greater than that of the head 2 and has its peripheral edges formed with equi-spaced radial notches 25, and it is held in a tight vertical contact with a plate 7 formed with a pendent tubular shank 70 in which the tubular shank 10 rotates. Plate 7, the construction of which is best shown in Fig. 6, comprises an upper or head portion having a curved edge 71 that aids the notched wheel 6 in guiding the yarn to a cut notch 72 in the said plate 7 that is so arranged with respect to the notched wheel that the thread is first forced in the base 25^a of the notches or necks in the wheel before it is drawn into the cut notch 72, the latter and the base of the notches 25 registering when the notches 25 rotate over the notch 72, and to provide for a positive action of the several co-acting members, the nose end 76 of the plate 7 is curved up to lie in a tight vertical engagement with the notched wheel and thereby prevent the thread from pulling out between the plate and the wheel. To further provide for the positive bringing of the thread into position to be severed from the full spool that is to be removed, plate 7 has its front portion inclined as at 78 and the said portion has one edge turned up at right angles to form a guide flange 77 which

causes the yarn to remain on the plate and pull directly toward the cutting device so soon as it is caught by the notched wheel, after it (the yarn) has been properly depressed by the faller device. To hold the plate 7 normally against the notched wheel a stout coil spring 12 is mounted on the shank 1 that seats between the shoulder 10ª on the lower end of the said shank 1 and the lower end of the tubular shank 70 and the latter, while vertically slidable on the shank 10, is held from rotation by reason of the lateral ribs 79 thereon that slidably engage the vertically elongated slots 80 in the tubular support 8 which forms a fixed part of and extends from the holder plate 81 which, in practice, is attached to set at an angle on the frame of the spinning mule.

x—*x'* are washers that engage the upper and lower ends of the spring 12 to reduce friction and wear on the contacting parts.

From the foregoing, taken in connection with the accompanying drawings, the complete construction, the manner in which my invention operates and its advantages, it is believed, will be readily apparent to those skilled in the art to which the invention relates.

By reason of the arrangement of the several parts as shown and described, the operator, when the bobbin is fully wound, presses down the faller wire until the yarn is below and slipped into one of the radial notches in the wheel that turns with the bobbin head, when the wheel carries the yarn between itself and the plate 7, the said two parts firmly clamping the yarn while it is being turned into the knife recess to be severed. The end of the thread that is held fast under the notched wheel will be reeled off and fall out when the mule is started up since the back part of the clamp plate under the wheel is cut away and the knife edge keeps it from continuing around. The clamp plate also keeps the severed thread from coming in contact with the spindle. After a new bobbin is placed in position, the faller wire is raised and the yarn end started on the new bobbin in the usual manner.

I am aware that yarn holders have heretofore been provided for coacting with the bobbin holders, but so far as I know, the clamping of the loose or broken yarn end has been effected by manually controlled clamping means, that is to say, the operation of shifting the clamp device to grip the yarn has not been automatically accomplished.

In my construction, the releasing of the yarn is manually controlled, while the gripping of the loose end is automatic and the advantages of this will be apparent, when it is considered that the operation of gripping the yarn when the faller wire is lowered must be quick and positive to insure the most effective results.

To protect the operator from injury, should his hand come in contact with the catcher while in operation, the flange 77 is extended over the edge of the catcher as clearly shown in Fig. 5.

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

1. The combination with the spindle, of a bobbin carrier adapted to fit on and rotate with the spindle, a yarn catcher on the carrier that rotates therewith, means for severing the yarn that coacts with the catcher and a clamping means for frictionally holding the severed end of the yarn.

2. The combination with a spindle on a spinning mule, a bobbin carrier having a tubular shank to fit on and rotate with the spindle, a radially notched disk mounted on the lower end of the carrier to rotate therewith, a clamp plate spring pressed against the wheel, said plate having a cutting notch that coöperates with the notched disk, and means for supporting the clamp plate spring pressed against the notched disk.

3. A combined bobbin holder and yarn clamp for spinning mules, comprising a base member including an upwardly projected tubular post, a plate having a tubular shank slidable in the tubular post, the latter being adapted to receive a spindle, said plate having a cutting edge, a bobbin holder including a tubular stem that fits into the other tubular members and onto the spindle, a radially notched member on the holder and rotatable therewith and adapted to engage with the yarn when it is depressed and convey it against the cutting edge of the plate and means for holding the plate under spring pressure against the notched member to clamp the severed end of the yarn.

4. The combination of the base member having a vertically projected tubular shank adapted to fit over a spindle, a plate having a pendent forwardly inclined yarn guide portion and a horizontal or head portion, one edge of which is curved and formed with a yarn cutting notch, a tubular shank that extends through the horizontal portion of the plate, means between the said shank and the post for holding the plate spring pressed upwardly, a bobbin holder having a tubular pendent shank for fitting on the spindle and a radially notched member fixedly held on the bottom of the holder and adapted to carry the yarn when depressed into engagement with the cutting edge on the adjacent plate.

5. A bobbin and yarn holder for spinning mules, comprising a bobbin holder adapted to be applied to a spindle, a yarn catcher rotatable with the holder, manually actuated

means for bringing the yarn into contact with the catcher, means for cutting the yarn as it is carried around by the catcher and other means for clamping the severed end of the yarn.

6. The combination with the spindle, of a bobbin carrier adapted to fit on and rotate with the spindle, a yarn catcher on the carrier and rotatable therewith, automatic mechanically operated means for cutting the yarn that coacts with the catcher and a clamping means for frictionally holding the severed end of the yarn.

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