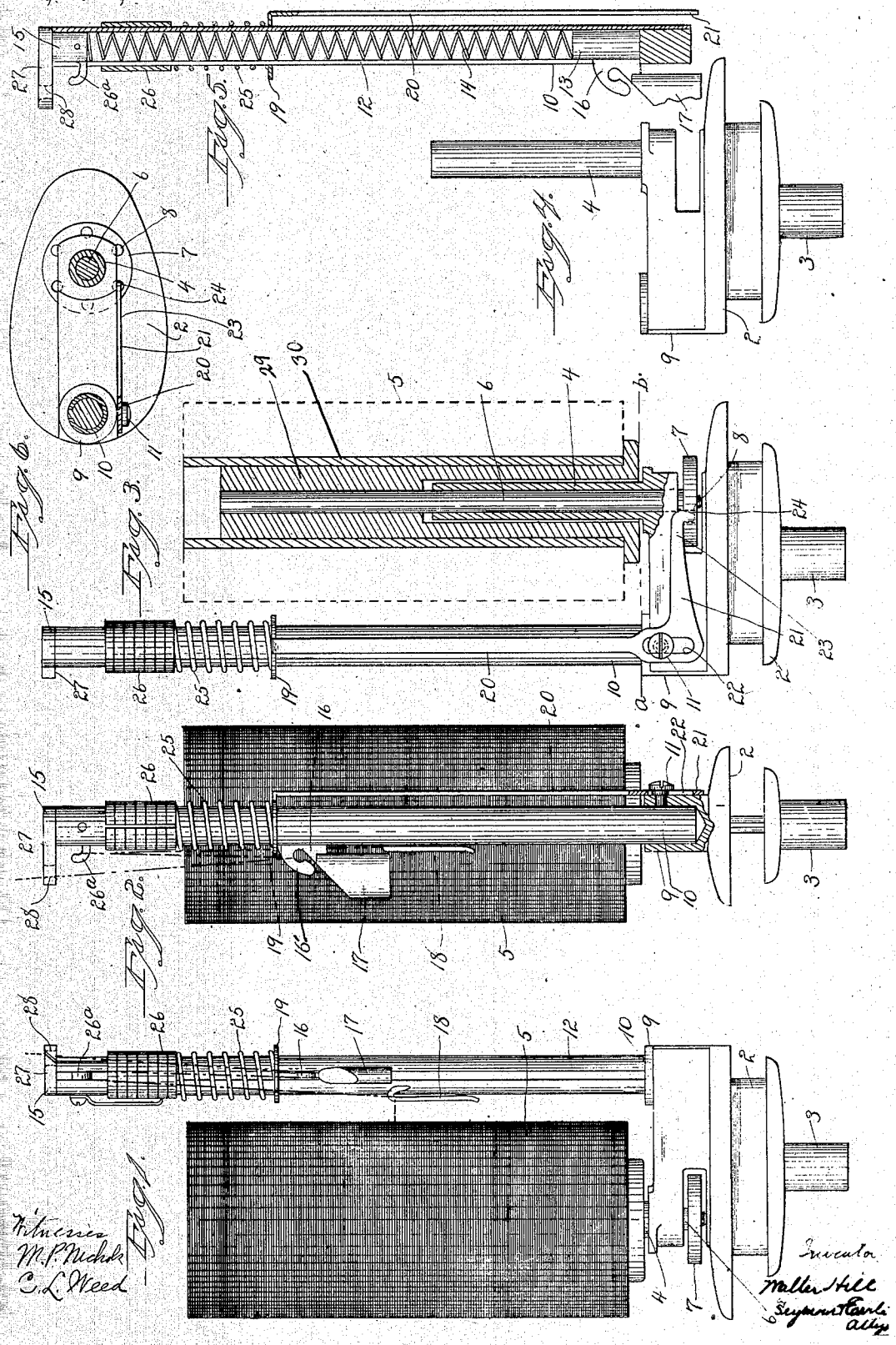
W. HILL.

CARRIER FOR BRAIDING MACHINES.

APPLICATION FILED JAN. 15, 1915.

1,174,500. Patented Mar. 7, 1916.



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CARRIER FOR BRAIDING-MACHINES

1,174,500. Specification of Letters Patent. Patented Mar. 7, 1916.

Application filed January 15, 1915. Serial No. 2,298.

To all whom it may concern:

Be it known that I, WALTER HILL, a citizen of the United States, residing at Short Beach, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Carriers for Braiding-Machines; and I do hereby declare the following, when taken in connection with the accompanying drawings and the characters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this application, and represent, in—

Figure 1 a side view of a thread-carrier constructed in accordance with my invention. Fig. 2 a rear view partly in section of the same. Fig. 3 a side view partly in section, the reverse of Fig. 1. Fig. 4 a side view of the foot portion detached. Fig. 5 a view in vertical section of the tension device, detached. Fig. 6 a sectional view on the line *a*—*b* of Fig. 3.

This invention relates to an improved carrier for braiding machines. These carriers usually comprise a flanged foot, commonly called a racer, on which a spool or reel spindle is rigidly mounted, and formed integral with this foot is a standard carrying the tension device. In the use of carriers in braiding machines, these feet or racers are first to wear out necessitating the destroying not only of the foot with the thread-carrier, but also the tension device and the parts organized with it. When spools are used this necessitates all spools to have ratchets cut on them, and as thousands are very often used by one party, the ratchet cutting is an expensive item. In my device the rotating detachable yarn spindle is so constructed that plain spools, ratcheted spools or tubes can be used. Also there are no catches or top-weights to remove when a fresh supply of yarn is needed. On carriers with rigid yarn spindles the spools revolve on the spindle and in a short time the hole in the spool is worn in such a manner as to cause so great a friction that the yarn continually breaks. Such spools must be thrown away.

The object of this invention is to so arrange the tension device and spool spindle that in case of wearing out or breaking of a foot the tension device and spool spindle can be removed and a new foot inserted and the tension device and spool spindle attached to the new foot.

A further object of the invention is to improve the character or mechanism of the tension and take-up device to increase its efficiency for speed and tend to avoid breaking the yarn; and the invention consists in the construction hereinafter described and particularly recited in the claims, the principal features of my invention being the rotatable detachable yarn spindle with ratchet disk, and the detachable take-up and tension device.

In carrying out my invention, I employ the usual flanged foot portion 2 with the usual depending driver stud 3. I also provide an upwardly extending hollow post 4 through which a rotatable pin 6 extends. Connected with the pin 6 is a flanged sleeve 29 on which the spool or cop 5 with the usual cop tube 30 is mounted. This rotatable pin 6 is connected at its lower end with a ratchet disk 7, the disk being provided with notches or perforations 8 for the purpose as will hereinafter appear.

Instead of forming the tension device integral with the base, the racer or foot is provided with a socket 9 to receive the lower end 10 of the tension standard which may be locked in the socket by a screw 11. This tension standard is tubular and formed with a longitudinal slot 12, and in the tube is a take-up stop-motion slide 13 forced downward by a spring 14 which has a bearing in a head 15 fixed in the upper end of the tension device. Should the yarn break, run out or unwind too fast, the stop-slide falls to the bottom of its slot where, as the carrier reaches the usual machine stop motion, it comes in contact with same and causes the machine to stop. The take-up slide is formed with an outwardly projecting fin 16 formed with a stop 17. In the fin is a thread-eye 16′. Secured to the tension device on one side and about midway of its length is a downwardly extending hook 18. The releasing device consists of a collar 19, surrounding the tension device and formed at the upper end of one arm 20 of an L-shaped slidable detent 21 which is mounted on the screw 11 and provided with a slot 22 which permits of vertical movement of the lever. The outer end 23 of this lever is provided with a point or finger 24 adapted to engage with the notches or perforations 8 in the

disk 7. The lever is normally pressed downward by means of a tension spring 25 around the tension device above the collar 19 and adapted to be adjusted by means of a vertically arranged split sleeve 26 which frictionally engages with the tension tube and may be moved up and down to regulate the pressure of the spring 25. The head 15 is provided with a yarn hook 26^a and at one side the head has a projecting arm 27 formed with an open eye 28. The tension device is fixed in the foot and a spool of yarn placed on the yarn spindle. The yarn from the spool is slipped under the hook 18, thence carried up over the yarn hook 26, down under the eye in the take-up fin 16, thence upward through the open eye 28. As draft is made upon the yarn the take-up slide 13 is raised until the fin 16 engages with the collar 19; then a continued upward movement lifts the collar 19 raising the lever 21 and lifting the point 24 out of engagement with the notches 8, thus releasing the spool. As soon as the spool is released the tension on the yarn is slackened and the take-up slide moves downward under the action of the spring 14. As soon as it starts downward the fin 16 moves out of engagement with the collar 19, allowing the collar to drop and the lever to then engage the disk, and this movement is so rapid that the disk will only move the distance from one notch to another, or from one perforation to another. By providing the guide hook 18 at about midway the height of the spool and then passing the yarn upward over the yarn hook 26 before engaging with the take-up slide, the slide can have greater movement because it can go above the hook 18 and thus avoid the common difficulty of breaking the yarn, the draft on the yarn being vertical, and also allow more length of thread between guide hook 18 and take-up and stop-motion slide 13 so that if for any reason should the lever 21 skip two or three perforations in the ratchet disk 7, the take-up and stop-motion slide 13 would still not drop far enough to unnecessarily stop the machine, which is the case with carriers where the stop weight cannot rise higher than the center of the spool or tube. With my device there is no wear on the spool as it is rigid on the rotatable spindle, all wear coming on the spindle instead of the spool. Once supplied with the proper amount of spools they will last a life-time. In case a foot breaks or wears out, it is only necessary to release the screw 11 and detach the tension device, unscrew the pin 6 from the ratchet disk 7, remove the old foot and replace it with a new one and couple the tension device and spool spindle to the new foot. The expensive part of the device is the tension mechanism and detachable spool spindle, which parts are preserved for use with any number of feet.

I claim:—

1. A yarn carrier for braiding machines comprising a foot, a take-up and tension device detachably connected with said foot, said take-up and tension device comprising a slotted tube, a slide in said tube, a stop connected with said slide, a tension spring normally tending to force the slide downward, a collar on said tube, a slidable detent connected with said collar, a rotatable spool spindle disk, and connection between said detent and disk whereby after the upward movement of the detent the disk will be released.

2. A yarn carrier for braiding machines, comprising a foot, a take-up and tension device detachably connected with said foot, said take-up and tension device comprising a slotted tube, a slide vertically movable in said tube, an eye moving with said slide, a thread hook at the upper end of said tubular portion, a downwardly extending hook secured to the tubular portion between its ends, a collar movable on said tubular member and adapted to be engaged by said slide, an L-shaped slidable detent connected with said collar, and a rotatable spool spindle disk adapted to be engaged by said detent.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

WALTER HILL.

Witnesses:
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