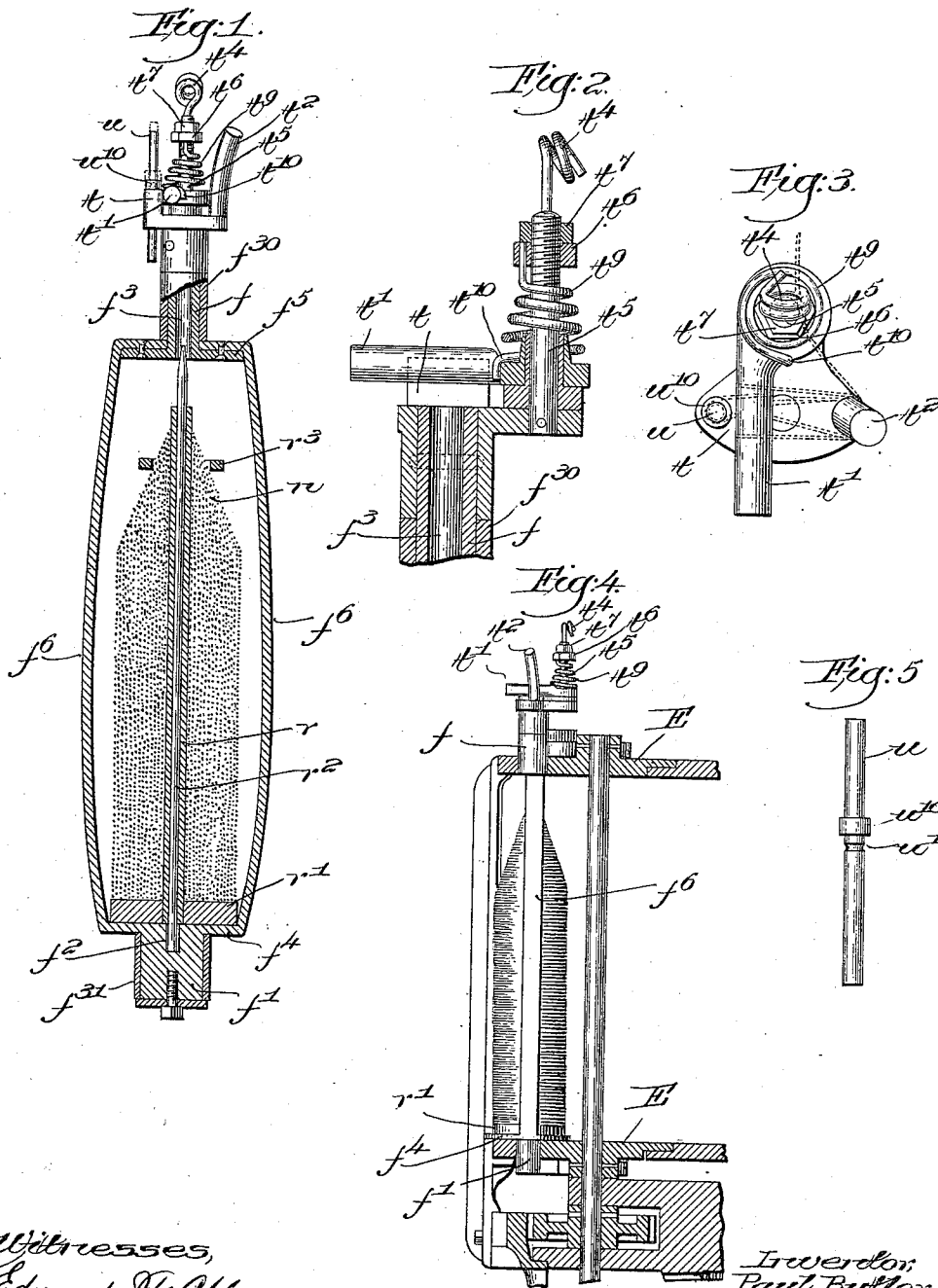


P. BUTLER.
BRAIDING CARRIER.
APPLICATION FILED APR. 29, 1910.

1,045,254.

Patented Nov. 26, 1912.



Witnesses,
Edward H. Allen,
Joseph M. Ward,

Inventor,
Paul Butler,
by
Lenny H. May,
Att'y.

UNITED STATES PATENT OFFICE.

PAUL BUTLER, OF LOWELL, MASSACHUSETTS.

BRAIDING-CARRIER.

1,045,254.

Specification of Letters Patent.

Patented Nov. 26, 1912.

Original application filed November 26, 1897, Serial No. 659,888. Divided and this application filed April 29, 1910. Serial No. 558,333.

To all whom it may concern:

Be it known that I, PAUL BUTLER, a citizen of the United States, residing at Lowell, county of Middlesex, and State of Massachusetts, have invented an Improvement in Braiding-Carriers, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention has for its object to provide a novel braiding carrier.

The features wherein my invention resides will be described in the annexed specification and will then be pointed out particularly in the claims.

This application is a division of my co-pending application Serial No. 659,888, filed November 26, 1897.

Referring now to the drawings: Figure 1 is a vertical sectional view of a braiding carrier embodying the invention. Fig. 2 is an enlarged central section through the upper end of the braiding carrier. Fig. 3 is a top plan view. Fig. 4 is a fragmentary, sectional view of a braiding machine showing the manner in which my improved braiding carrier is sustained therein. Fig. 5 is a perspective view of the stop pin used in connection with the braiding carrier.

The braiding carrier as herein shown consists of the two top and bottom ends f^4 and f^5 which are connected by the opposite arms or side pieces f^6 . The ends or cross pieces f^4 and f^5 have the hubs or journals f^7 and f^8 projecting therefrom which are adapted to be received in notches in the carrier plates E, all as shown and described in my said co-pending application. I prefer to provide the hubs f^7 with anti-friction sleeves f^{30} and f^{31} which are loosely mounted on the hubs, and which serve to reduce the friction between the hubs and the carrier plates. The yarn mass is sustained by a central spool or bobbin r having a base or head r^1 which rests on the lower cross piece or end f^4 of the bobbin carrier. This spool is held in place by a spindle r^2 , the lower end of which is received in a recess f^2 in the hub f^7 , and the upper end of which extends into an opening f^3 formed through the cross piece f^5 and extending on through the hub f^8 . It will thus be seen that the spindle r^2 is sustained at both ends but that the spindle may be lifted to project the upper end into the opening f^3

sufficiently to admit of the lower end being withdrawn from the recess f^2 . This makes the removal of the spindle or its insertion into place a very simple matter. The thread from the yarn mass is delivered through the passage f^3 , and I preferably provide a guiding r^3 which rests loosely on the cone n of the thread mass and which prevents the thread from ballooning and serves to guide it in its delivery from the cop or bobbin.

Associated with the bobbin carrier is a tension device which comprises a friction member t provided with a vertically-extending friction face 20 and a spring-pressed tension finger t^1 which is adapted to bear against said face. This friction member is rigid with the carrier and may be placed in any appropriate position. I have herein shown it as sustained by a plate 21 at the upper end of the hub f and in position so that the thread on leaving the passage f^3 may pass over the face 20 thereof.

The tension finger t^1 is mounted for turning movement upon a stud t^5 which is carried by the braiding carrier, and said finger is acted on by a suitable spring t^9 which tends to hold it against the friction member t . This spring is shown as coiled about the stud and one end t^{10} thereof is bent to engage the tension finger t^1 , while the other end is secured to a nut or collar t^6 that is screw-threaded on the end of the stud. This nut or collar t^6 is held in adjusted position by a lock nut t^7 . It will readily be seen that the tension of the spring and, consequently, the friction on the thread may be adjusted by adjusting the nut t^6 .

As the thread is delivered from the bore f^3 it passes up over the face 20 of the friction member t , thence up over the top of the tension finger t^1 and around a fixed post or finger t^2 , and thence back between the tension finger and the friction member t again if desired, and from thence directly to the cord being braided, or to a guide t^4 which may be carried by the stud t^5 and thence to the cord. The thread may be passed between the friction member t and the tension finger t^1 as many times as necessary to get the desired friction on the thread.

I have herein shown a stop pin u provided with a thread-receiving groove u^1 and with a collar u^{10} . This stop pin is received in a suitable aperture in the friction member. The thread is shown as operating the groove

u' in the stop pin, and as long as the thread remains unbroken the tension of the thread is sufficient to hold the stop pin in its elevated position. If the thread breaks, however, the pin will be permitted to drop until the collar u^{10} meets the member t which leaves the lower end of the pin in position to engage a stop device, all as more fully described in my co-pending application.

It is not essential to my invention that the tension device be situated at the upper end of the hub f as the hub might extend beyond the tension device if desired.

Having fully described my invention what I claim as new and desire to secure by Letters Patent is:

1. A braiding carrier having top and bottom cross pieces united by arms, the bottom cross piece being adapted to receive and carry a bobbin-retaining spindle and the top cross piece having a central aperture forming a thread passage and a bobbin spindle having its upper end projecting above the thread mass and into said passage the latter serving to hold said upper end in position.

2. In a braiding carrier, the combination with a frame having outwardly projecting hubs at its top and bottom ends, of anti-friction sleeves on said hubs, and a tension device carried by the carrier and comprising a friction member, a post separated therefrom, and a tension finger supported yieldingly to vibrate between said member and post and normally held under pressure against the member.

3. In a braiding carrier, the combination with a frame having outwardly projecting hubs at its top and bottom ends, of anti-friction sleeves on said hubs, and a tension device carried by the carrier and comprising a friction member, a post separated therefrom,

a tension finger supported yieldingly to vibrate between said member and post and normally held under pressure against the member, and means to vary the pressure of the tension finger against the member.

4. In a braiding carrier, the combination with a frame having hubs at its top and bottom ends and means to support a thread mass and provided at its upper end with a thread passage which extends axially through the top hub, of a tension device sustained by the frame and comprising a friction member at the terminus of said thread passage over which the thread passes, a pivoted tension finger yieldingly held against the member, and means to vary the pressure of the finger on the member.

5. In a braiding carrier, the combination with a frame having a stationary friction surface, of a post separated from said surface, a tension arm supported yieldingly by the frame to vibrate between said surface and post and normally held under pressure against the former.

6. In a braiding carrier, the combination with a frame having a stationary friction surface and a post separated therefrom, of a stud supported by the frame, a tension arm pivoted on said stud, a coil spring maintaining said arm in yielding engagement with said surface, and an eye on said stud whereby the twine may be passed between said arm and surface about said post and through said eye.

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

PAUL BUTLER.

Witnesses:

ALBERT W. DARICK,
FRANK W. S. DALY.