Nov. 18, 1924. 1,516,198

J. F. MADDEN

NONFRICTION BRAIDER BUTTON

Filed April 16, 1923

Fig. 1

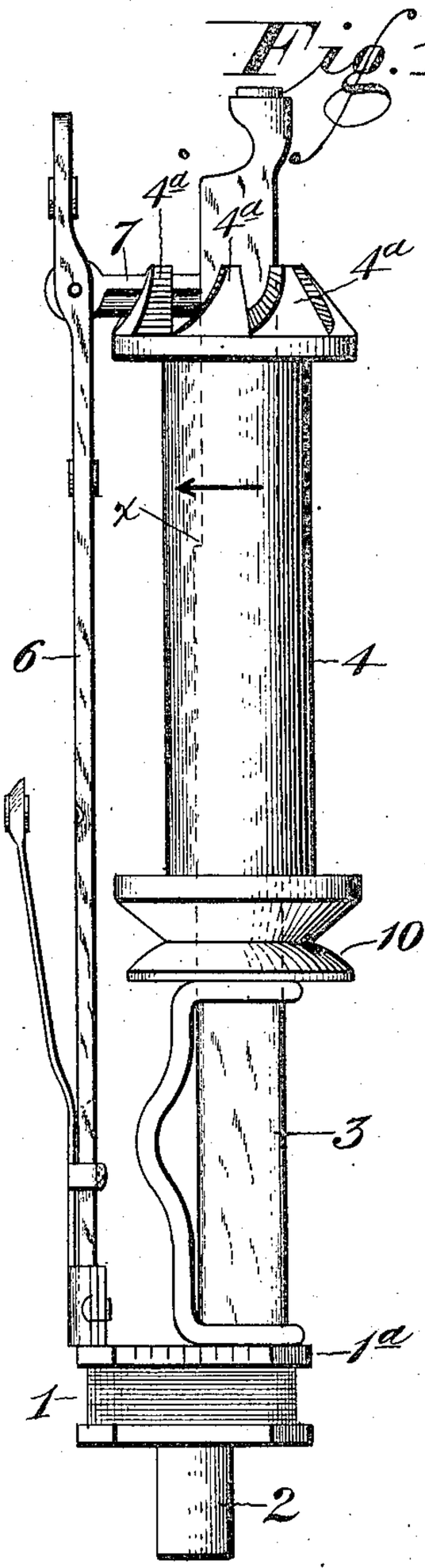


Fig. 2

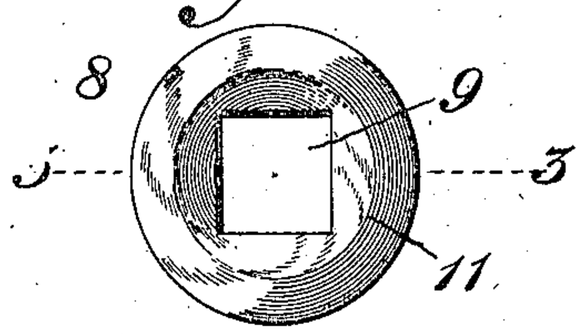


Fig. 3

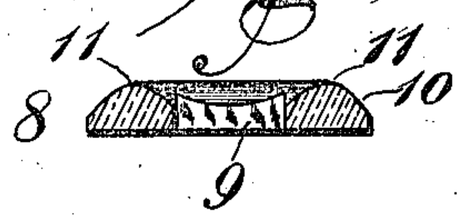


Fig. 5

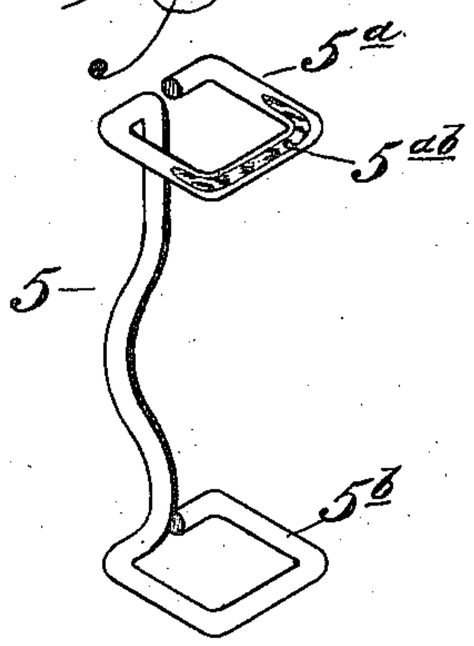
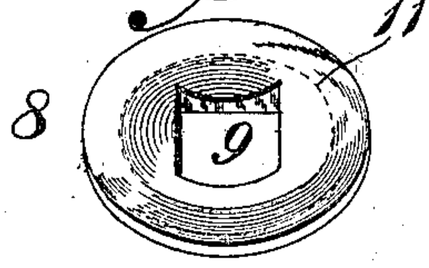


Fig. 4



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UNITED STATES PATENT OFFICE.

JESSE F. MADDEN, OF BROOKLYN, NEW YORK.

NONFRICTION BRAIDER BUTTON.

Application filed April 16, 1923. Serial No. 632,564.

To all whom it may concern:

Be it known that I, JESSE F. MADDEN, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Nonfriction Braider Buttons, of which the following is a specification.

My invention relates to metal carriers for braiding machines, and more particularly to a non-friction button or bearing for the spool used with the carrier to rotate upon.

My object is to provide a device which will reduce to a minimum the friction caused by the rotation of the spool on the carrier, as the thread is fed to the work, thereby eliminating the jerking and the occasional breaking of the thread as it is unwound from the spool; the ultimate result of which is the saving of time and labor and annoyance, and the production of a more even weave of braid (resulting from the more even tension of the thread), together with the possibility of running the machine faster, and thereby speeding up production.

The invention consists in the novel construction and arrangement of my non-friction button relative to the spool-holding and manipulating parts of the carrier, reference being had to the accompanying drawings, in which;—

Fig. 1 is a side elevation of a spool carrier for a braiding machine, with my improvement in operative position thereon. Fig. 2 is a top plan view of my attachment. Fig. 3 is a vertical section taken on the line 3—3 of Fig. 2. Fig. 4 is a perspective view of my attachment; and, Fig. 5 is a perspective of the bent wire support upon which the lower end of the spool rests and revolves.

The base portion 1 of the carrier has a rigid downwardly extending projection 2 on its under side adapted to be engaged by means for suitably supporting the carrier in a vertical position on the machine. Rigidly mounted on the top plate 1^a of the base is a vertical tubular standard 3 upon which the wooden spool 4 is received, and upon which it is designed to freely rotate. The bent wire member 5 is received onto the lower end of the vertical standard 3, and is designed to support the weight of the spool as it rotates on said standard. This standard is square in cross-section, and the member 5 is provided at its upper and lower ends with the horizontally disposed square sections 5^a and 5^b respectively which snugly surround the standard 3, but cannot be rotated thereupon. The spool 4 has ratchet teeth 4^a at its upper end; and on the front side of the base plate 1^a is erected a slender standard 6 which pivotally supports a tensioning pawl 7 near its upper end. The tubular standard 3 has its front side cut away (indicated in the drawings from the point x upward,) so that said tubular standard at its upper portion presents an open side into which the inner end of the tensioning device is easily received. As the spool rotates in the direction of the arrow, the tensioning ratchet 7 offers a limited frictional resistance to its rotation as the teeth 4^a successively engage it and have to lift it in order to pass under it. This frictional resistance is sufficient to keep the spool from running by momentum and thereby unwinding too fast at times, especially after a sudden jerk on the thread.

The carrier as thus far described, is the one commonly used on all braiding machines. The spool 4 rests directly on the square upper section 5^a of the member 5. As thus far described the device has the following objectionable features:—As the thread is drawn from the spool, especially from the upper end thereof, the spool is pulled or rocked forwardly on the square standard 3, and when the tension on the thread is momentarily relieved, the weight of the tensioning pawl 7 on the ratchet teeth 4^a will rock the top of the spool inwardly again; and then when the thread is being unwound from the lower end portion of the spool, the combined effect of the outward pull of the thread and the inward push of the pawl is different from when the thread is being unwound from the upper end of the spool, or, in other words, these combined forces are constantly varying, so that the spool, though mounted for easy rotation on the standard 3, is constantly rocking out of a true vertical position which occasions a slight binding between the corners of the standard and the upper and lower ends of the central opening through the spool. This constant rocking keeps the lower end of the spool from resting in a true horizontal position on the face of the horizontal section 5^a at the upper end of the member 5. A careful examination of a used carrier shows that the upper section 5^a of the member 5 is worn so as to form a

flat bright surface on the top of the inner side of the section, as indicated at 5^{ab} in Fig. 5 of the drawings; and the lower section 5^{b} is of course, similarly worn on its inner under side, so that these faces wear out of true and make conditions worse instead of better as time goes on. The result of all this is that these carriers, as thus far described, give all sorts of trouble to the mills and operators, due to the spools catching and not unwinding evenly, causing the threads to jerk more or less irregularly during the weaving process, thereby occasioning breakage of the thread or uneven weaving.

I now call special attention to my improvement which provides very simple and very effective means for overcoming these difficulties, and consists of a round button 8, formed preferably of porcelain glazed on top making it smooth and provided with a square hole 9 in its centre of a size to permit the button to pass down over the square spool-supporting standard 3 and rest on top of the member 5. The lower side of this button is flat to permit it to rest evenly on the member 5, and on its upper side it is rounded off around its margin, as indicated at 10, and is centrally countersunk around the opening 9, whereby to form a circular ridge 11 on the top side of the button around said square opening and spaced therefrom. The upper side of this porcelain button is well glazed, especially the ridge 11, so that it presents a smooth, even, glossy surface upon which the lower end of the spool rests and revolves. By this arrangement the spool is so evenly supported on the button 8, and the friction between the button and the spool is so slight that the spool revolves easily as the thread is being gradually unwound therefrom, with the result that the freedom from jerking and irregularity of rotation, gives an even tension on the thread, and this in turn results in the production of a better piece of braid, because the weave is more even. It also permits the machine to be run faster, which speeds up production, and that is of itself an additional advantage not to be overlooked.

Having now described my invention, what I claim as new and desire to protect by Letters Patent is:—

1. In a device of the character described, a spool-supporting standard square in cross section; a bent wire member for supporting the weight of the spool on the standard, said bent member being received on the lower end of said standard and having a square upper end to fit around the same, the diagonal of said square upper end being less than the diameter of the lower end of the spool; a removable friction member interposed on said standard between the square upper end of said bent wire member and the spool, said friction member being provided on its upper side with a smooth annular track for the spool to revolve upon, said track being held concentric with the vertical central line of said supporting standard and in a plane at right angles thereto, and being of a diameter greater than the diagonal of the square upper end of the bent member upon which it rests.

2. In a device of the character described, the combination with a spool-supporting standard, of a member surrounding the lower portion of the standard for supporting on its upper end the weight of the spool, the greatest transverse measurement of said upper supporting end being less than the diameter of the lower end of the spool; a removable friction member interposed on said standard between said supporting end and the spool, and provided on its upper side with a smooth annular track for the spool to revolve upon, said track being held concentric with the central vertical line of the supporting standard in a plane at right angles to said line, and being of a diameter greater than that of the upper supporting end of the member upon which the circular friction member rests.

In testimony whereof I affix my signature.

JESSE F. MADDEN.