J. O. McKEAN.

THREAD SUPPLY DEVICE FOR BRAIDING MACHINES.

APPLICATION FILED NOV. 2, 1908.

947,416. Patented Jan. 25, 1910.

Fig. 2.

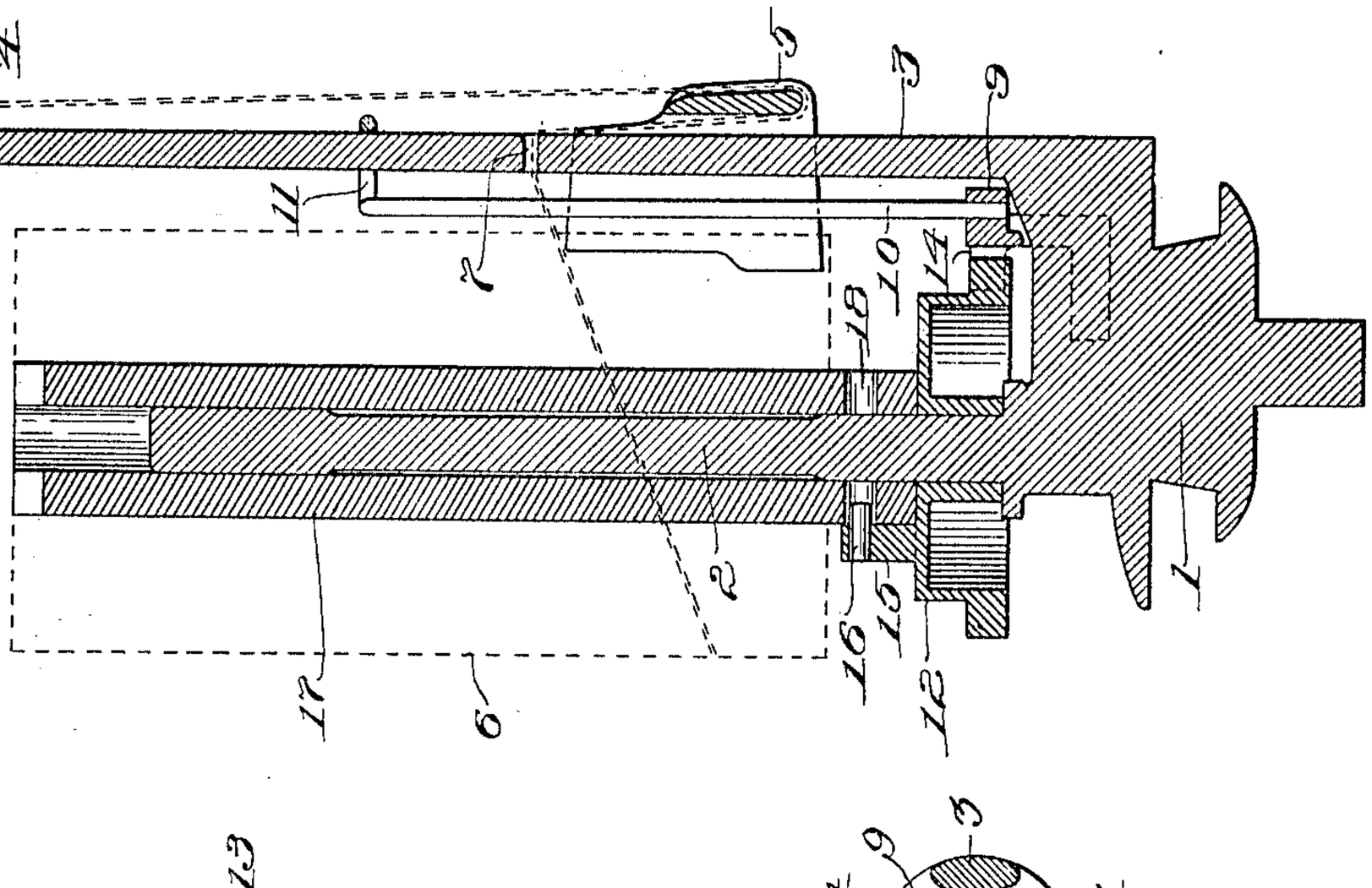


Fig. 4.

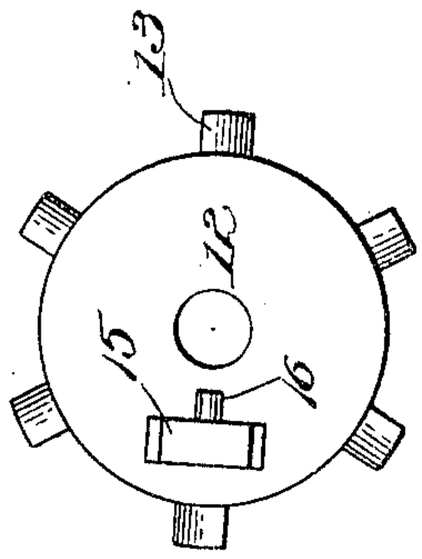


Fig. 3.

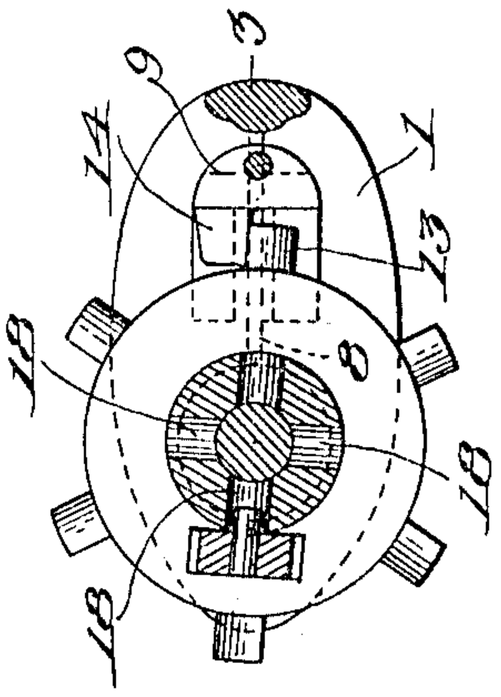
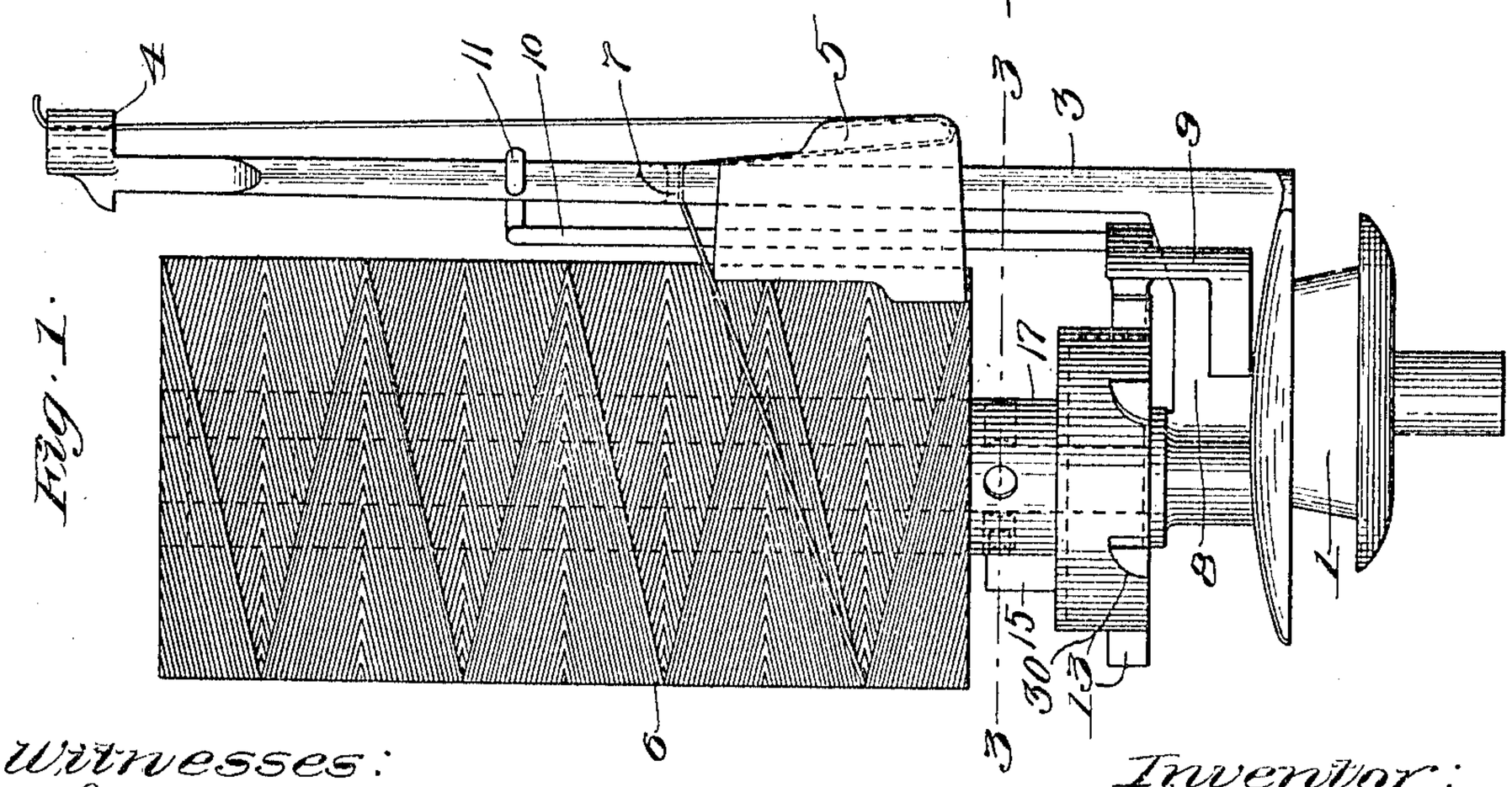


Fig. 1.



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UNITED STATES PATENT OFFICE.

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THREAD-SUPPLY DEVICE FOR BRAIDING-MACHINES.

947,416. Specification of Letters Patent. **Patented Jan. 25, 1910.**

Application filed November 2, 1908. Serial No. 460,734.

To all whom it may concern:

Be it known that I, JOHN O. McKEAN, a citizen of the United States, residing at Westfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Thread-Supply Devices for Braiding-Machines, of which the following is a specification.

My invention relates to thread supply devices for braiding machines and the like and has for its object to provide an improved device of this kind.

Heretofore cops for braiding machines have been made by winding the thread upon a wooden quill or tube having at one end an integral toothed enlargement or ratchet flange coöperating with "let-off" means on the body of the "racer" or traveling thread carrier to control the rotation of the cop on the usual spindle of the latter. Quills of the construction referred to were objectionable because of the labor required and amount of stock wasted, in turning down the body of the quill in order to produce the ratchet flange at the lower end thereof, and also because the flange was frequently broken in handling the cop or while in use. Also with light wooden quills of the construction described the removal of the thread from the quill during the braiding operation so reduced the weight of the cop that it sometimes happened that the cop would be lifted by the draft on the thread thereby interfering with the proper operation of the "let-off" devices. Furthermore the large toothed head or flange at the end of the quill occupied considerable space which was objectionable in packing or storing the cops.

My invention aims to obviate the above noted objections and it consists of a thread supply device or carrier comprising a body, which may be the racer of a braiding machine, a spindle projecting from said body; a wheel loosely mounted on the spindle and adapted to be detachably coupled to the end of a tubular quill and means on the body cooperating with the wheel to control the rotation of the wheel and quill. This construction permits of making the quills plain tubes without flanges much lighter, smaller and cheaper to make than the old form of wooden quill.

In the best form of my invention the quill which holds the thread or yarn has its end made with one or more sockets to be engaged with a hook provided on the wheel to couple the latter to the quill, the hook and socket being so constructed and arranged that when the wheel and quill are mounted on the spindle the hook is locked in the socket of the quill by said spindle.

Other features of my invention are hereinafter pointed out.

In the accompanying drawings: Figure 1 is a side elevation of a braiding machine racer embodying one form of my invention; Fig. 2 is a central vertical sectional view of the racer shown in Fig. 1; Fig. 3 is a section on line 3—3 of Fig. 1; and Fig. 4 is a plan view of the ratchet wheel hereinafter referred to.

Having reference to the drawings wherein I have shown my invention embodied in a racer or traveling cop holder for a braiding machine, 1 represents the body of the racer, made with a cop-supporting spindle 2 and post 3 as usual, the latter provided at its upper end with a thread eye 4. On the post 3 is loosely mounted the usual vertically movable weight 5, the thread from the cop 6 extending through a perforation 7 in post 3 under said weight 5 and thence upwardly through thread eye 4 to the point where the braiding is effected. The body 1 on its top side is made with a thin rib 8 extending from post 3 to spindle 2 which is embraced by a forked latch 9 provided with an upwardly extending stem 10 made at its upper end with a loop 11 encircling post 3 above weight 5.

Loosely mounted on spindle 2 is a metal ratchet wheel 12 whose teeth 13 coöperate with a projection 14 on latch 9. On its upper face ratchet wheel 12 is made with a lug 15 provided with a laterally projecting pin 16, said lug and pin constituting the hook above referred to. The quill 17 which holds the thread or yarn is a plain tube of wood or the like whose lower end projects slightly beyond the winding of the cop and is made with a series of perforations or sockets 18 to receive the pin 16.

If desired the quill 17 may be a permanent though removable part of the racer in which case the cops 6 will be prepared so as to be forced down onto quill 17, the same quill 17 serving for all of the cops, but I prefer to

wind each cop 6 on a quill 17 of its own. In the latter case, when a cop is depleted, the quill 17 and ratchet wheel 12 are lifted off from spindle 2 and as soon as they are clear of the latter the hook 15—16 can be disengaged from the old quill and inserted in one of the sockets 18 of the quill of a fresh cop. Then the ratchet and quill are slipped onto the spindle 2 thus locking the ratchet and quill together.

Normally the lug 14 of latch 9 stands in the path of teeth 13 and thereby locks the ratchet and quill against rotation. Continued draft on the thread however, raises weight 5 and said weight by engaging loop 11 lifts latch 9 so as to free ratchet 12 from lug 14 and permit cop 6 to rotate as the thread is drawn off. Whenever the thread slackens sufficiently to lower the weight 5 latch 9 falls with the weight into the path of teeth 13 and stops rotation of cop 6. The teeth 13 of wheel 12 are ratchet teeth, that is they are beveled as at 30 so that they can be forced past lug 14 to re-wind slack yarn or thread upon the cop. As the thread unwinds from cop 6 the point of departure of the thread from said cop shifts back and forth between a point well above perforation 7 to a point well below perforation 7 so that for a considerable part of the time there is an upward pull on the cop which, with the old form of quill acted to lift the cop when the weight of the latter was reduced through the drawing off of the thread. With my new thread support the ratchet wheel 12 being made of metal serves to hold the cop and quill down and prevent their being lifted in this fashion regardless of the weight of the cop 6 so that wheel 12 cannot be displaced relatively to the "let-off" latch.

The quills 17 are much cheaper and lighter than the old form of quill referred to above, they do not occupy as much space and are not liable to be injured.

My new thread supply device is simple and cheap in construction and can be manipulated with ease and despatch to remove a depleted cop and substitute a fresh cop since, the mere removal of the quill and ratchet wheel from the spindle unlocks those parts while by simply inserting the pin 16 in one of the sockets 18 and sliding the quill and wheel onto the spindle the quill and wheel are locked together against separation and against relative rotary movement on the spindle, all being accomplished without the use of complicated or expensive fastening devices.

What I claim is:

1. A thread supply device of the character described, comprising a body; a spindle projecting from said body and adapted to carry a quill; a wheel loosely mounted upon the spindle and means connected with the wheel to positively lock the wheel to the quill against movement in relation to the wheel in any direction when said quill is mounted upon the spindle.

2. A thread supply device of the character described, comprising a body, a spindle projecting from said body and adapted to carry a quill; a wheel loosely mounted upon the spindle; means connected with the wheel to positively lock the wheel to the quill against movement in relation to the wheel in any direction and means on the body cooperating with the wheel to control the rotation of the connected wheel and quill.

3. A thread supply device of the character described comprising a body; a spindle projecting from said body; a ratchet wheel and a quill loosely mounted on the spindle, said wheel being provided with a hook engaging with said quill and held locked thereto by the spindle, and means on the body coöperating with the ratchet wheel to control the rotation of the latter.

4. A thread supply device of the character described comprising a body; a spindle projecting from the body; a ratchet wheel loosely mounted on the spindle and provided with a quill engaging hook; a quill on said spindle made with one or more sockets to receive the hook within which the hook is held locked by the spindle, and means on the body coöperating with the ratchet wheel to control the rotation of the ratchet wheel and quill.

5. In combination the body 1 provided with the spindle 2; the ratchet wheel 12 provided with the quill engaging hook, the quill 17 provided with sockets 18 located below the thread carrying portion thereof, and means on body 1 coöperating with ratchet wheel 12 to control the rotation of said wheel and quill.

6. A racer for braiding machines comprising a body; a spindle projecting from said body; a ratchet wheel loosely mounted on the spindle and provided with a hook; a quill loosely mounted on the spindle made with one or more sockets to receive the hook on the ratchet wheel, and let-off devices on the body coöperating with the ratchet wheel, the hook of the ratchet wheel being held locked in the socket of the quill by the spindle.

7. A thread supply device of the character described comprising a body; a spindle projecting from said body; a ratchet wheel and a quill loosely mounted on the spindle; integral means carried by the ratchet wheel for locking said wheel to the quill against movement in relation to the wheel in any direction, and means on the body coöperating with the ratchet wheel to control the rotation of the latter.

8. A thread supply device of the character described comprising a body; a spindle projecting from said body; a ratchet wheel and

a quill loosely mounted on the spindle; means for preventing the longitudinal movement of the quill on the spindle without effecting a corresponding movement of the ratchet wheel, and means on the body cooperating with the ratchet wheel to control the rotation of the latter.

Signed by me at Westfield, Mass., this twenty fourth day of October, 1908.

JOHN O. McKEAN.

Witnesses:
E. T. Fowler,
Lester Campbell.