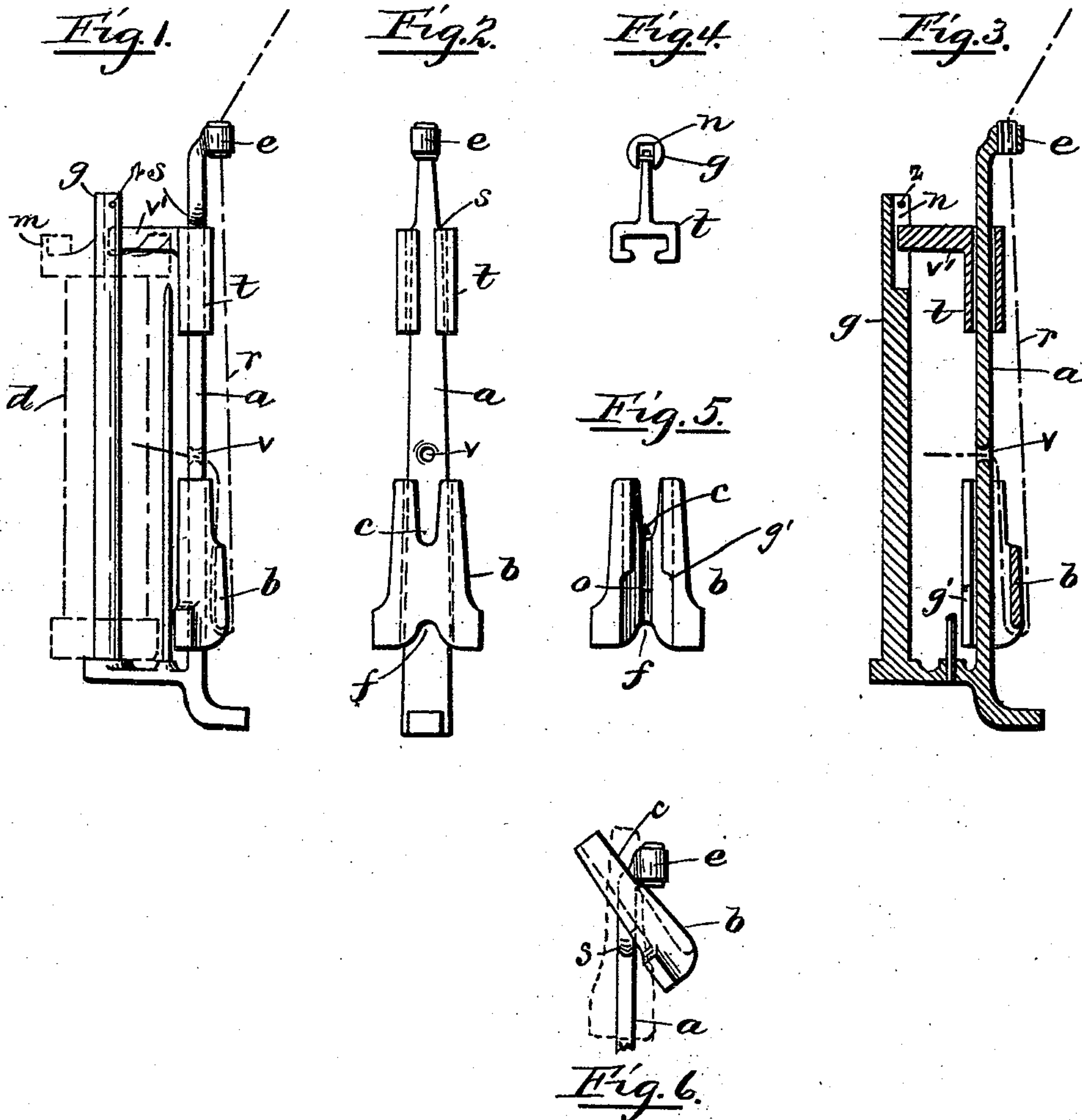


(Model.)

J. McCAHEY.
BRAIDING MACHINE CARRIER.

No. 494,380.

Patented Mar. 28, 1893.



Witnesses.

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UNITED STATES PATENT OFFICE.

JOHN MCCAHEY, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO THE NEW ENGLAND BUTT COMPANY, OF SAME PLACE.

BRAIDING-MACHINE CARRIER.

SPECIFICATION forming part of Letters Patent No. 494,380, dated March 28, 1893.

Application filed May 31, 1892. Serial No. 434,930. (Model.)

To all whom it may concern.

Be it known that I, JOHN MCCAHEY, of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Braiding-Machine Carriers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention is an improvement in carriers for braiding machines, and has special reference to the manner of constructing the thread guide and the weight that is used to take up the slack in the thread, and the drop pawl that controls the turning of the thread spool. It is illustrated in the accompanying drawings.

Figure 1 is a side elevation of the guide of the carrier, with the weight, and drop pawl, and the bobbin spindle. Fig. 2 is a back elevation of the same. Fig. 3 is a vertical cross section of the parts shown in Fig. 1. Fig. 4 is a top view of the drop pawl. Fig. 5 is a front elevation of the weight. Fig. 6 shows a part of the guide bar and manner of putting the weight on it.

In the drawings the thread guide *a*, is a flat bar made straight throughout its length except at its upper end which is carried over back and has a vertical hub shaped head *e*, with a hole made through it vertically for the passage of the thread *r*. This guide bar *a*, is narrowed in edgewise commencing just back of the head *e*, and gradually running out to full size at the point *s*, to facilitate the putting on of the weight *b*. The tension weight *b*, is made in the form of a clasp nearly surrounding the bar *a*, but open its whole length on the side that faces the spool *d*; see Fig. 5. It has a notch *c*, cut in its back at its upper end and another notch *f*, in its back at its lower end, and a small groove *o*, is made on the inside for the thread to run in. It is made broader and thicker at its lower end to give it the necessary weight. The manner of applying it to the rod *a*, is shown in Fig. 6. The weight *b*, is carried up back of the guide bar *a*, inclined with its open side toward the bar,

until the curved neck of the bar *a*, is in the notch *c*, its full depth, then the lower part of the weight is carried toward the bar into the position shown by the dotted lines the front opening in the weight being made broader at *g'*, to allow the shoulders *s*, of the bar to pass into the weight, and then it is slid down on the rod in the bight of the thread *r*, between the head *e* and the hole *v*, as seen in Figs. 1 and 3. The advantages of this form of rod and weight are, that carrying the head *e*, over and reducing the size of the bar below it enables me to make a larger head that will allow of an anti-friction bushing being inserted to favor some threads, like silk for instance, that are easily frayed by friction and the position of the head also carries the thread after leaving the lower end of the weight clear of everything and avoids unnecessary friction of the thread. It also lessens the amount of slack to be taken up by the weight, because the point at which the thread is delivered is carried in by the curved neck of the rod when the carrier is farthest from the center of the machine and is carried out when the carrier is at the inner point of its course and causes the head *e*, to go more nearly in the line of a true circle around the center of the machine where the threads are braided together. Whatever lessens the slack of the thread decreases the wear that the repeated rising and falling of the weight on it causes, and allows of an increased speed for the machine which is mainly governed by the distance the weight rises and falls and the time that must be allowed for it to do so. The drop pawl *t*, is made in the usual form excepting that the arm *v'*, is extended out longer and its end thinner to enter a groove *n*, made vertically in the side of the spool spindle *g*;— that is toward the guide bar *a*, see Fig. 3. This is for the purpose of preventing the pawl from cramping on the bar *a*, because of the pressure against it of the ratchet teeth *m*, on the top of the spool in which the arm engages. In the usual way the pressure of the teeth on the arm *v'*, acts with increased leverage to cramp the clasp of the pawl on the bar *a*, making it more difficult to raise and greatly increasing the tension on the thread

when it raises the weight high enough to lift the pawl and let off more thread. This letting off comes at intervals and when it does occur it causes an uneven place in the braid because the thread is then drawn tighter than it is at other times. The lateral support of the end of the arm in the groove keeps the pawl from binding and makes the tension more uniform. A pin z , is put through the sides of the groove n , as shown in Figs. 1 and 3, to prevent the arm v' , from rising out of the groove when the machine is in operation, for when the thread is drawing from the bottom coil on the spool, it necessarily draws in a direction nearly parallel to the sides of the spool, and is liable to catch on the next coil above, and lift the spool suddenly so as to throw the arm v' , entirely out of the groove. This liability increases with the increase in speed of the carriers, and for this reason, puts a limit to the speed and productiveness of the machine. When it is necessary to take off or put on a spool, the spindle and guide bar are sprung apart sufficiently to allow the end of the arm to be raised up by the pin, and leave free access to the spindle. The weight is usually put over the end of the guide bar, but that requires a straight bar or a bulge in the weight that takes up too much

room. This plan has all the advantages of the overhanging top as described.

Having thus described my improvements, I claim as my invention—

1. A carrier for a braiding machine having a thread guide consisting of a flat bar having its upper end narrowed in edgewise and bent over with a hub-like head with a vertical hole through it for the passage of the thread, in combination with a tension weight having a notch in its back at its upper end and a front opening cut out wider at the lower end to allow it to pass over the shoulders near the upper end of the guide bar as set forth.

2. In a braiding machine carrier, a spool spindle having a vertical groove in its side at its upper end, and having a pin extending through the sides of the groove near the top of the spindle, in combination with a guide bar and a drop pawl having an arm long enough to reach into said groove and extend under the pin, so as to be prevented from rising out of the groove when the machine is in operation, substantially as specified.

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Witnesses:

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