

O. M. Inman.
Braiding Mach.

N^o 52,573.

Patented Feb. 13, 1866.

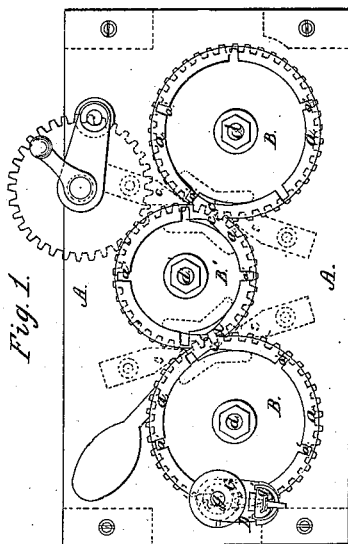


Fig. 1.

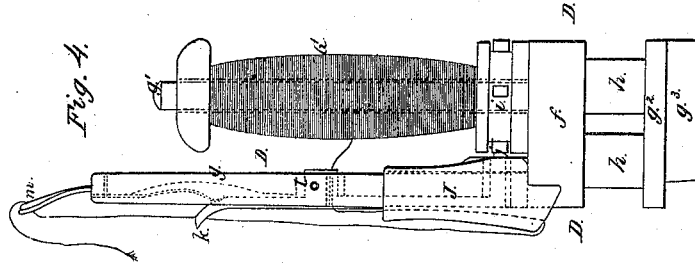


Fig. 4.

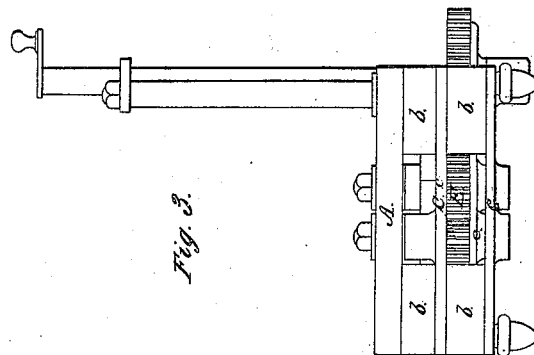


Fig. 3.

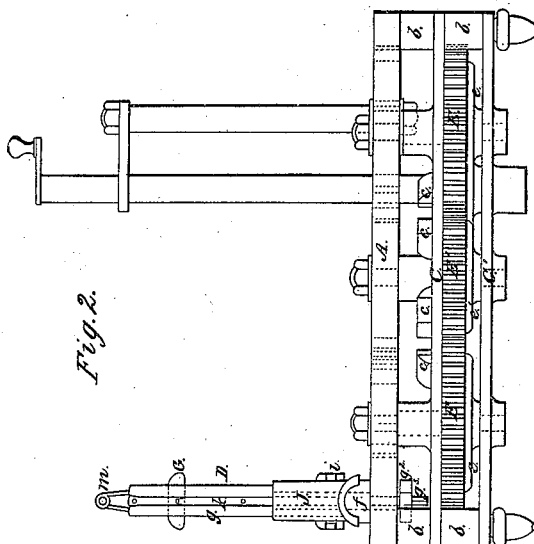


Fig. 2.

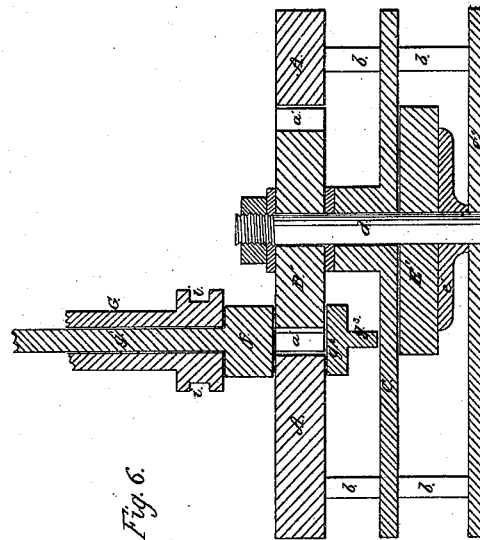
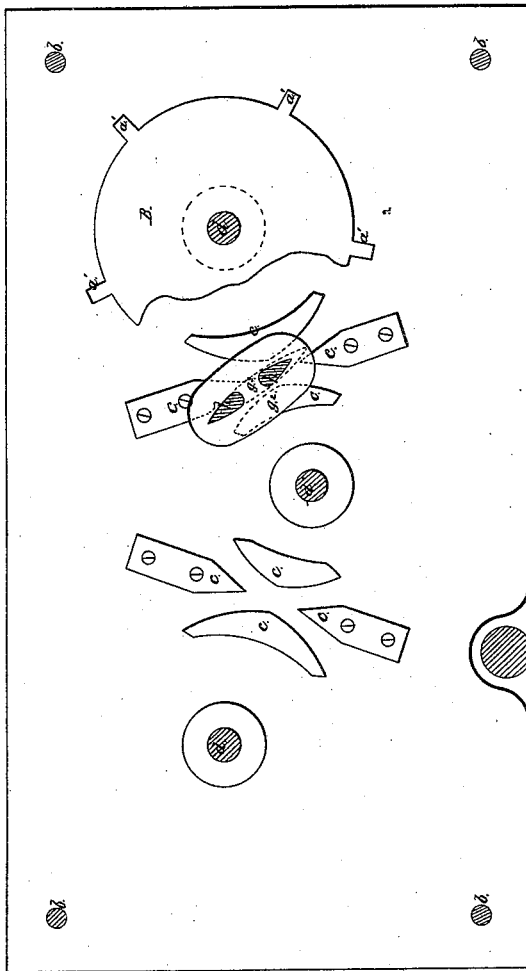
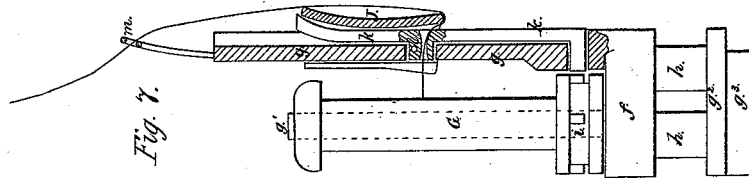
Witnesses,
A. T. Campbell
[Signature]

Inventor,
O. M. Inman
by his Atty's
Mason, Fenwick & Lamme.

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UNITED STATES PATENT OFFICE.

OTIS M. INMAN, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN BRAIDING-MACHINES.

Specification forming part of Letters Patent No. 52,573, dated February 13, 1866.

To all whom it may concern:

Be it known that I, OTIS M. INMAN, of Providence, in the county of Providence and State of Rhode Island, have invented an Improved Braiding-Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a top view of the table and one of the bobbin-carriers. Fig. 2 is an elevation of Fig. 1. Fig. 3 is an end view of the machine. Fig. 4 is a side view of the improved bobbin-carrier. Fig. 5, Sheet 2, is a top view of the plate which is beneath the table, showing the arrangement of the switches for guiding the carriers. Fig. 6 is a vertical transverse section through the machine, taken at the point indicated by red line *x x*, Fig. 1. Fig. 7 is a sectional view of the bobbin-carrier showing the manner of delivering the thread from the bobbin.

Similar letters of reference indicate corresponding parts in the several figures.

In braiding machinery which is constructed with a number of racers or bobbin-carriers traversing serpentine slots, it is very important to obtain a steady movement of the carriers and to prevent them from wearing loose and wobbling, an objection which is very serious when it is desired to make wide braid and to employ for this purpose many carriers.

One of the objects of my invention is to adapt the bobbin-carrier to receive the edges of the slotted table, and of the bladed bobbin-drivers, and also the teeth on said drivers, so that the carrier will be firmly supported and held by said parts while it is traversing the serpentine slot in said table, as will be hereinafter described.

Another object of my invention is to provide for switching the bobbin-carrier from one circular slot to another by means of a guide upon the carrier and frogs or switch-bars upon the frame of the machine, so that there will be no jarring or wobbling movement given to this carrier at such points, as will be hereinafter described.

Another object of my invention is to effect the delivery of the thread from the bobbin at suitable times by means of a gravitating weight applied to the carrier so as to operate

upon the end of a lever which engages with the bobbin at its lower end, as will be hereinafter described.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawings I have merely represented those portions of a braiding-machine which have a bearing upon my invention, for the purpose of illustrating its operation. Such parts as I have not represented may be constructed and applied in any of the well-known ways.

In the accompanying drawings, A represents the table of the machine, which has three circular openings through it that communicate with each other and receive within them three circular bobbin-drivers, B B B'. The upper surfaces as well as the lower surfaces are flush with the corresponding surfaces of the table, as shown in Fig. 6. These three drivers are of less diameter than the opening in the table in which they are arranged, and hence a serpentine slot, *a*, is formed for receiving and directing the movement of the bobbin-carriers. This slot *a* is shown in Fig. 1, wherein it will be seen that it is only interrupted by the teeth *a'* on the drivers B B B', which teeth are intended for moving the bobbin-carriers, as will be hereinafter described.

Beneath the table A is a horizontal plate, C, which is arranged over another horizontal plate, C', all three of the plates A, C, and C' being secured together, so as to leave spaces between them, by means of studs *b b* at their corners. The plate C has a number of elevations, *c c c c*, formed upon its upper surface directly beneath the points of intersection of the passage *a* in the table A. The object of these elevations is to form switches for guiding the bobbin-carriers and directing them from one of the spurred drivers to another in their circumfession. For this purpose a vane or tapering fin projects from the lower end of the bobbin-carrier D, which operates as a kind of rudder in passing between the elevations *c c*, and causes the carrier to be moved from one of the drivers to another without any binding or jarring motion.

Between the two plates C C' are the carrier-gears E E E', which are secured to vertical shafts *d d d'*, carrying upon their upper ends

the toothed carriers B B B'. These shafts $d d d'$ have their bearings in the two plates C C', and their respective wheels E E E' are secured to them by means of plates $e e e'$ for a purpose which will be hereinafter explained.

The bobbin-carrier D consists of an enlarged base-support, f , having a standard, g , formed on one end, a vertical stud, g' , for receiving the bobbin G, an enlarged shoe, g^2 , having the rudder g^3 projecting from its lower side, and two narrow connecting-pieces, $h h$, with a space between them for receiving the teeth a' on the three carrier-wheels or drivers B B B', as shown in Figs. 4 and 7.

The bobbin G is constructed with a spurred cylindrical enlargement, i , on its lower end, the teeth of which are caught by a nose, j , which is formed on the lower end of a curved lever, k . This lever is fitted into a vertical slot in the back of the standard g of the carrier, and it is pivoted thereto at l , so that when its upper curved end is pressed inward it will release the bobbin G and allow the thread to unwind from it, which thread passes from the bobbin through a perforation near the fulcrum of said lever, beneath a sliding weight, J, and thence through an eye, m , at the upper end of the standard g , as clearly shown in Figs. 4 and 7.

The sliding weight J, which embraces the standard g and moves freely up and down, is intended for keeping a proper tension upon the thread during the operation of braiding, and also for effecting the delivery of the thread from the bobbin by pressing against the upper end of the lever k and releasing the bobbin from the nose or catch j of this lever. As the thread is worked up into braid the weight J slowly rises until its upper end presses inward the upper end of the lever k , when this lever will instantly release the bobbin and allow it to turn freely as the weight J descends and unwinds a certain quantity of thread. When this weight releases the lever k a spring, n , will instantly cause it to catch and hold the bobbin. In this way the weight effects the delivery of the thread from the bobbin without perceptibly affecting the tension on the thread. By taking hold of the bobbin at its lower end it will run much smoother and with less liability of binding than if it was taken hold of at its upper end, as hitherto; and by employing a long lever, k , as shown in the drawings, less power will be required to release the bobbin. Consequently the braid which is produced by my machine will have an even selvage and will be very straight and smooth.

When the carrier is applied to the table A the narrow strips $h h$ are received in the slot a , so that the enlargements $f g^2$ project beyond the edges of the slot a and form supports for the carrier above as well as below the table, as shown in Fig. 6. The space between the vertical strips $h h$ receives one of the teeth a' of the carrier-wheels, and in this manner the bobbin-carrier is made to traverse its serpentine slot a , passing from the tooth on one wheel to that of another.

The arrangement of the teeth on the wheels B B B' and the speed of these wheels are so regulated that the teeth move opposite each other at the points of intersection of the passage a , at which points the rudder g^3 on the carrier is guided from the tooth of one wheel to that of another, and in this way the carrier is guided from one circular passage to another and makes a revolution around the axis of each one of the carrier-wheels.

Another part of my invention consists in constructing those parts of a braiding-machine which, when made of metal, will produce a very disagreeable noise, so that there will be neither noise nor jar. This I effect by making the table A, carrier-gears B B B', carrier D, and spur-wheels E E E' of a very hard wood, as indicated in the drawings. The plates C C' and the driving-shafts should be made of metal. Such a machine will considerably soften and reduce the sharp rattling sound produced by the machines formed altogether of metal, and so objectionable and injurious in operation, and I have found that the carriers are less liable to wobble and wear their race, as there will be very little or no vibration of the table.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. Guiding and directing the bobbin-carriers from one circular passage to another by means of projections or switches $c c$, formed on the frame-plate C, acting upon a rudder, g^3 , on the carrier, substantially as described.

2. Constructing the bobbin-carrier with shoulder-supports $f g^2$ and an intermediate recess for receiving the teeth on the carrier-wheels, substantially as described.

3. The manner, substantially as herein described, of arranging the contrivance which controls the delivery of the thread from the bobbin.

OTIS M. INMAN.

Witnesses:

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ALBERT M. HEWITT.