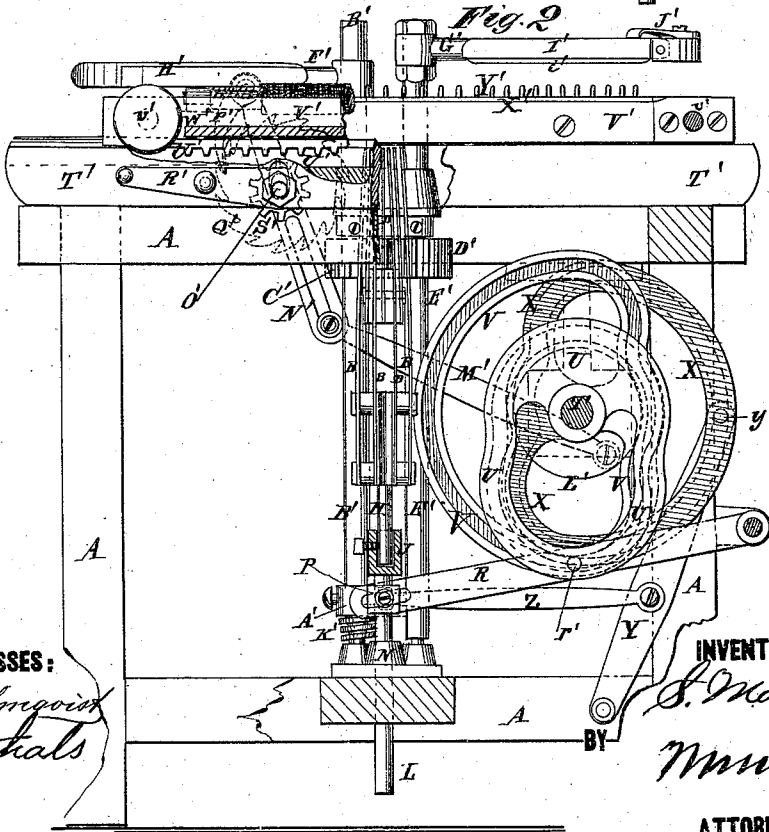
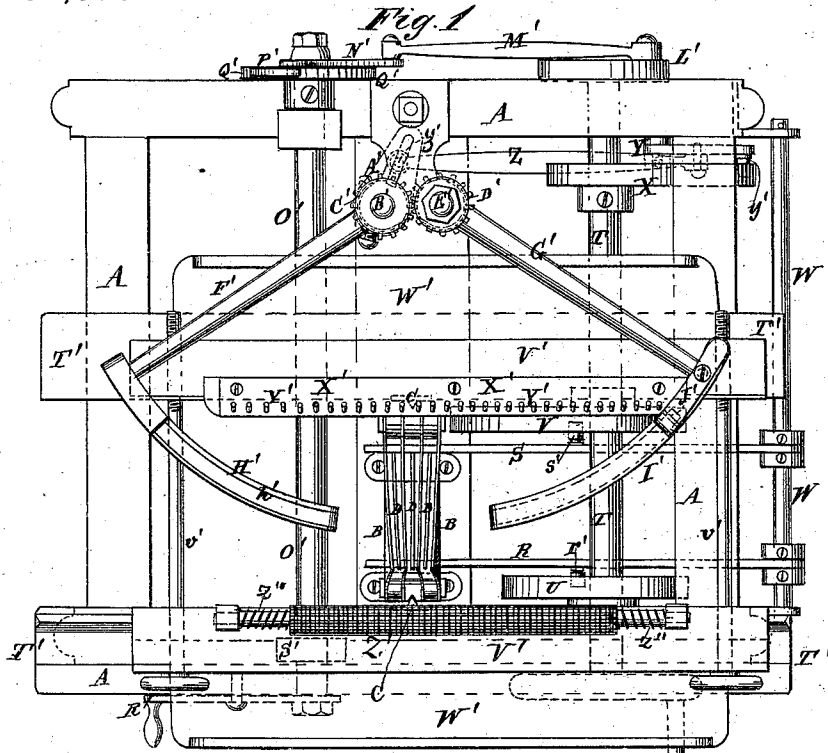


S. MORTIMER.
FRINGE TWISTING MACHINE.

No. 182,590.

Patented Sept. 26, 1876.



WITNESSES:

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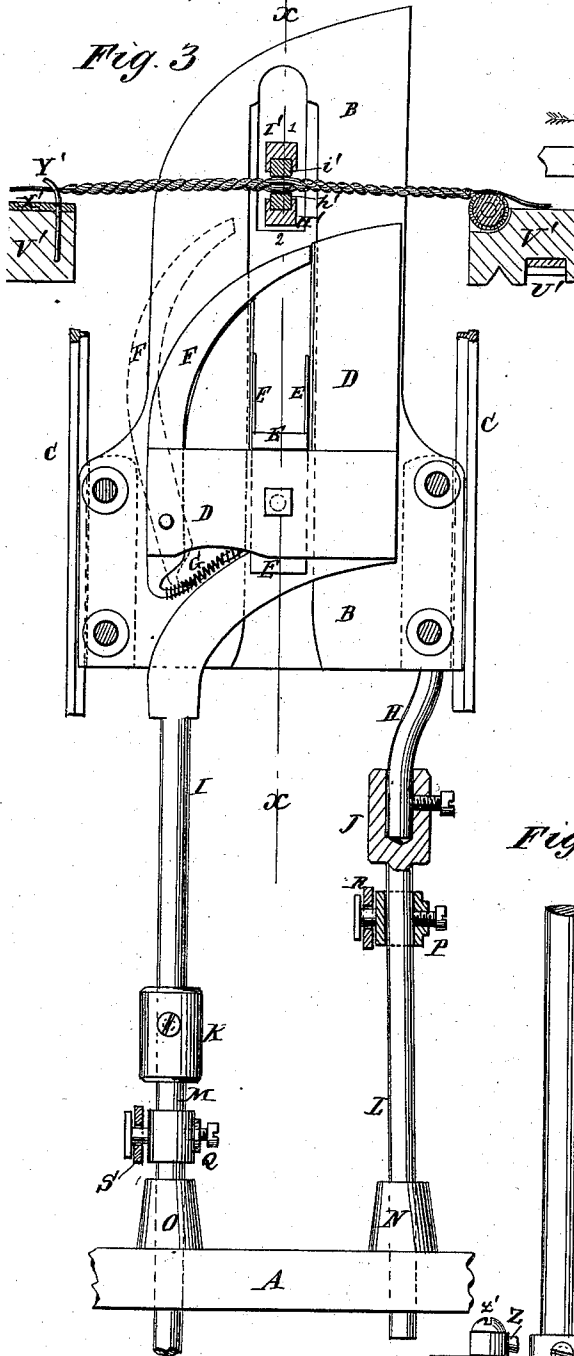


Fig. 3

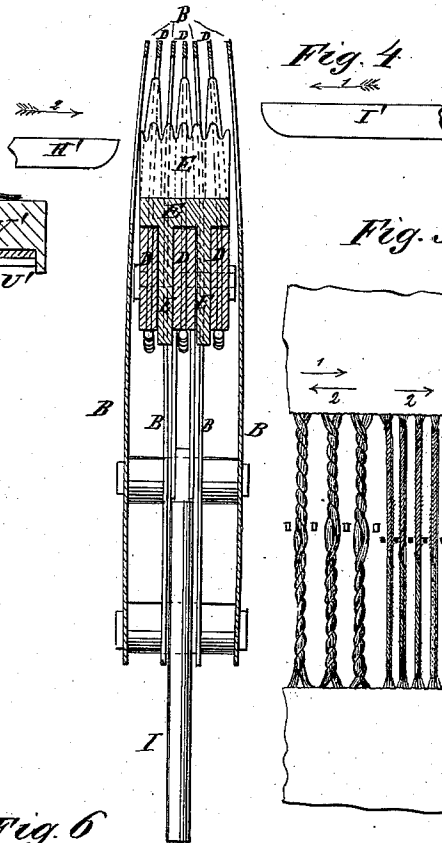


Fig. 4

Fig. 5

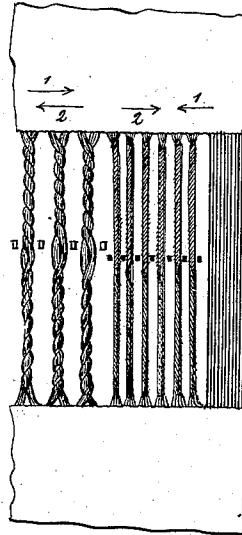


Fig. 6

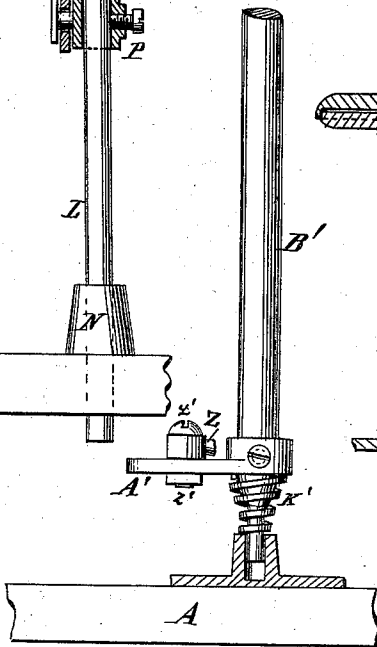


Fig. 7

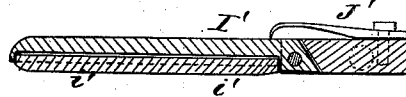
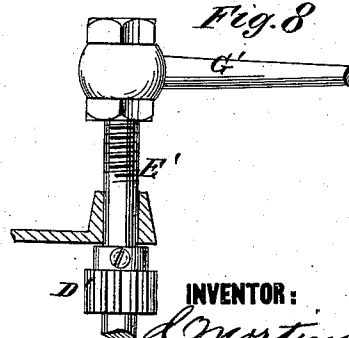


Fig. 8



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UNITED STATES PATENT OFFICE.

SAMUEL MORTIMER, OF WEST TROY, NEW YORK.

IMPROVEMENT IN FRINGE-TWISTING MACHINES.

Specification forming part of Letters Patent No. **182,590**, dated September 26, 1876; application filed July 31, 1876.

To all whom it may concern:

Be it known that I, SAMUEL MORTIMER, of West Troy, in the county of Albany and State of New York, have invented a new and useful Improvement in Fringe-Twisting Machine, of which the following is a specification:

Figure 1, Sheet 1, is a top view of my improved machine. Fig. 2, Sheet 1, is a front view of the same, part being broken away to show the construction. Fig. 3, Sheet 2, is a detail section of the same. Fig. 4, Sheet 2, is a detail section, taken through the line *x x*, Fig. 3. Fig. 5, Sheet 2, is a view illustrating the use of the machine. Fig. 6, Sheet 2, is a detail view, showing the spring upon the lower finger-shaft. Fig. 7, Sheet 2, is a detail view, showing the spring upon the upper finger. Fig. 8, Sheet 2, is a detail view of the upper part of the upper finger-shaft.

Similar letters of reference indicate corresponding parts.

The object of this invention is to improve the construction of the machine for twisting fringes, so as to make it more convenient in use, more reliable in operation, and less liable to get out of order.

The invention consists in the sockets attached to the guide-rods to receive the stems of the shells; in the pick-up made in one piece, in combination with the shells; in the combination of the spring with the jointed upper twisting-finger; in the combination of the spiral spring with the shaft that carries the lower twisting-finger; in the combination of the toothed roller and its spiral springs with the front bar of the carriage; and in the combination of the spiral springs with the fingers of the inner shell, and with the said shell, as hereinafter fully described.

A is the frame of the machine. B is the outer shell, which is formed of four plates secured to each other near the side edges of their lower ends by bolts, and kept at the proper distance apart by washers interposed between them.

The washers between the inner plates are made long, and are grooved upon the outer side to receive the tongues of the bars C at-

tached to the frame A, and upon which the shell B slides up and down. The plates of the shell B are rounded off upon the upper end of their rear side, and are slotted for the passage of the fingers by which the twisting is done, which slots in the two inner plates are extended down to the lower ends of said plates to allow the inner shell D to be readily slipped in and out.

The inner shell D is formed of three plates, which are so placed as to alternate with and be midway between the plates of the shell B, and are bolted to the shank of the pick-up E. The upper parts of the plates of the shell D are slotted to receive the fingers that do the twisting, which slots extend up to the upper ends of the said plates.

The pick-up E is placed in the lower part of the slots of the plates of the shell D; is made solid, and consists of a block having upwardly-projecting plates or flanges upon its front and rear sides, which project up along the edges of the plates of the shells B D at the front and rear sides of their slots, and have six notches in their upper edges to receive or pick up the strands to be twisted. The rear upper parts of the plates of the inner shell D are cut away and replaced by fingers F, the upper ends of which cross the upper ends of the slots in said plates and abut against the rear edges of the forward parts of said plates. The lower parts of the shell-fingers F are pivoted to the lower parts of the plates of the shell D, and to their lower ends are attached the ends of spiral springs G, the other ends of which are attached to the plates of the said shell, so that the said springs G may hold the upper ends of the fingers F close up against the edges of the plates, against which they rest.

To the lower parts of the shells B D are attached stems H I, the lower ends of which are inserted in sockets J K, and rest upon the bottoms of said sockets, where they are secured in place by set-screws. By this arrangement, after the shells B D have been once adjusted, no further adjustment will be necessary, however often the said shells may be put in and taken out.

The sockets J K are formed upon or rigidly attached to the upper ends of the guide-rods L M, which pass down through guide-sockets N O attached to a cross-bar of the frame A.

To the rods L M, just below the sockets J K, are secured by set-screws, collars P Q, which are provided with pins that pass through short longitudinal slots in the inner ends of the levers R S, the outer ends of which are pivoted to the shaft W attached to the frame A. To the levers R S are attached pins $r' s'$ which enter the grooves of the cams U V attached to the drive-shaft T.

The drive-shaft T works in bearings attached to the frame A, and may receive its motion from any convenient power.

The cams U V are so formed as to raise the two shells together and hold them raised until the fingers have twisted the strands, as shown in the middle part of Fig. 5. The cam V then draws the inner shell D downward, the shell-fingers F yielding to the twisting-fingers. The shells then remain stationary, leaving the twisted strands in pairs, which pairs are twisted together by the outer or return movement of the twisting-fingers. The outer shell B is then drawn downward, and the two shells are again raised together at the proper time.

To the drive-shaft T is attached a cam, X, in the groove of which works a pin, y' , attached to the upper end of the lever Y, the lower end of which is pivoted to the frame A. To the middle part of the lever Y is pivoted the end of a connecting-rod, Z, the forward end of which has a hole formed through it to receive the bolt z' , by which it is adjusted and secured in the slot of the crank-arm A', adjustably secured to the vertical shaft B'.

To the shaft B' is attached a gear-wheel, c' , the teeth of which mesh into the teeth of a gear-wheel, D', attached to the vertical shaft E'. The shafts D' E' revolve in bearings attached to the frame A, and to their upper ends are adjustably secured by set-screws or nuts the inner ends of the arms F' G'.

To the outer ends of the arm F' is rigidly attached a curved finger, H', the upper side of which is faced with rubber h' .

To the outer end of the arm G' is attached a jointed finger, I', the lower side of which is faced with rubber i' . The jointed part of the finger I' is held down by a spring, J', attached to the rigid part of said finger, so as to hold its jointed part down upon the finger H' with sufficient force to twist the fringe.

The lower finger H' is held up with a yielding pressure by a spiral spring, K', placed upon the lower end of the shaft B', and resting upon the bearing in which said end revolves.

To the rear end of the drive-shaft T is attached a crank or crank-wheel, L', to the crank-pin of which is pivoted the end of a

connecting-rod, M'. The other end of the connecting-rod M' is pivoted to a pin, which is secured adjustably in a slot in the lower arm of a lever, N'.

The lever N' is pivoted to the end of a shaft, O', and to its upper end is pivoted a pawl, P', which engages with the teeth of the ratchet-wheel Q', attached to the shaft O'. The rear end of the shaft O' revolves in bearings attached to the frame A, and its forward end revolves in bearings in the end of a lever, R', which is pivoted to the frame A, and has a handle attached to its free end for convenience in operating it. To the forward end of the shaft O' is attached a gear-wheel, S', which projects up through a groove in the forward bar T', attached to the top of the frame A, so as to mesh into the rack-bar U', attached to the front bar of the carriage V'. The side bars of the carriage V' slide longitudinally upon the bars T', and are kept from lateral movement by a tongue formed upon the forward bar T', and which enters a groove in the forward bar V'. The adjacent faces of the rear bars T' V' are made smooth, so that the carriage can be made narrower or shorter, according to the length of the fringe-threads to be operated upon. The side bars of the carriage V' are connected by screw-rods v' , so that they can be moved from or toward each other, as may be required. To the outer sides of the side bars of the carriage V' are attached aprons or troughs W', to receive the fabric the fringe of which is to be twisted.

To the forward part of the top of the rear bar V' of the carriage is attached a plate, X', which is made in sections of convenient length, and through which, and into the said bar, are driven bent or hook pins Y', to hold the fabric at one end of the threads that are to be twisted to form the fringe. To the inner part of the forward bar of the carriage V' is pivoted a toothed roller, Z', to hold the fabric at the other ends of the threads that are to be twisted to form the fringe.

The journals of the toothed roller Z' are made long, and upon them are placed spiral springs z'' , one end of which is attached to said roller, and their other ends are attached to the bearings in which the said roller revolves. The springs z'' allow the roller to yield as the threads are shortened by being twisted, and, at the same time, keep the said threads at the proper tension. The fabric is held down upon the roller Z by the attendant.

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

1. The sockets J K, attached to the guide-rods L M, in combination with the stems H I of the shells B D, substantially as herein shown and described.

2. The pick-up E, made in one piece, in

combination with the shells B D, substantially as herein shown and described.

3. The combination of the spring J' with the jointed upper finger I', substantially as herein shown and described.

4. The combination of the spring K' with the shaft B', that carries the lower finger H', substantially as herein shown and described.

5. The combination of the toothed roller Z and its spiral springs z'' with the front bar V'

of the carriage, substantially as herein shown and described.

6. The combination of the spiral springs G with the shell-fingers F and the shell D, substantially as herein shown and described.

SAMUEL MORTIMER.

Witnesses:

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