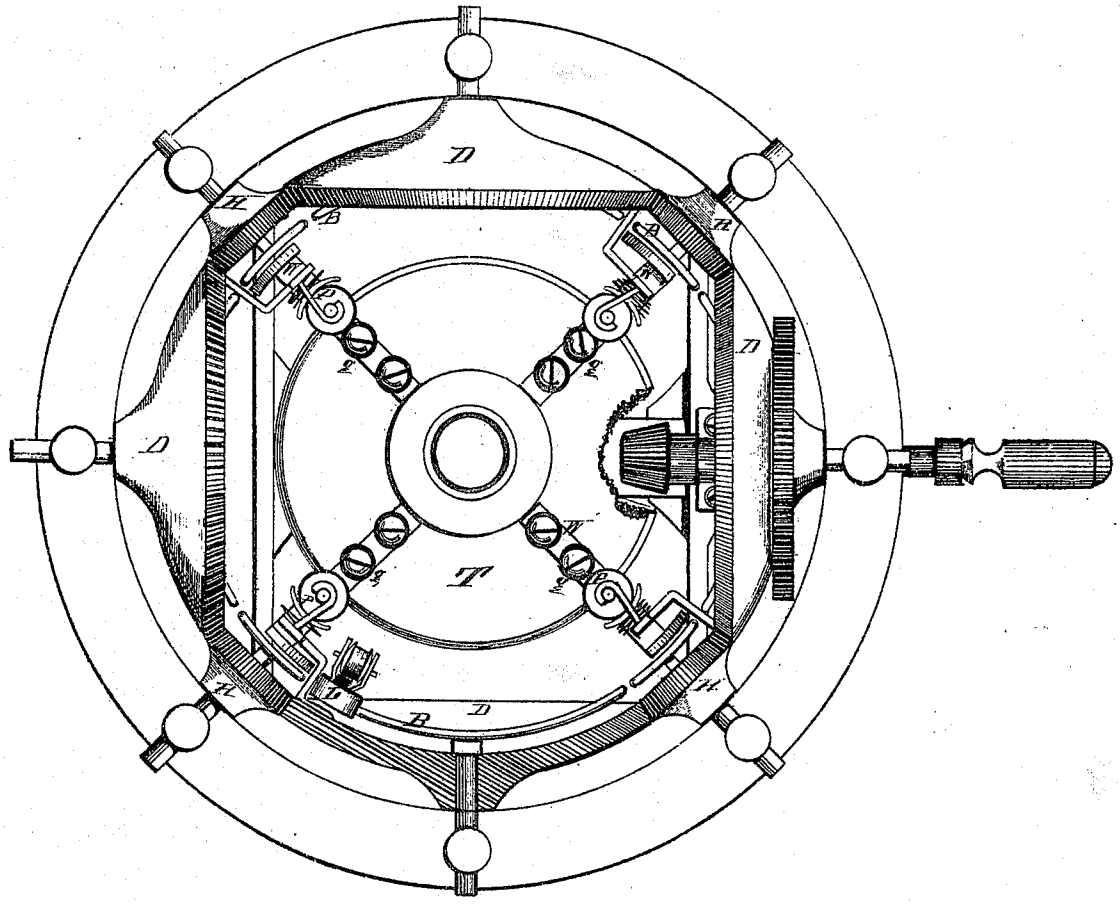
2 Sheets Sheet 1.

EMMERSON SIZER'S

Whip Handling Machine.

No. 120,782. Fig 1. Patented Nov. 7, 1871.



Witnesses

E. Dudley Chapin

Roanville Lee

Inventor

Emmerson Sizer

by his attorneys

Gardiner & Hyde

2 Sheets--Sheet 2.

EMMERSON SIZER'S

Whip Handling Machine.

No. 120,782. Patented Nov. 7, 1871.

Fig. II.

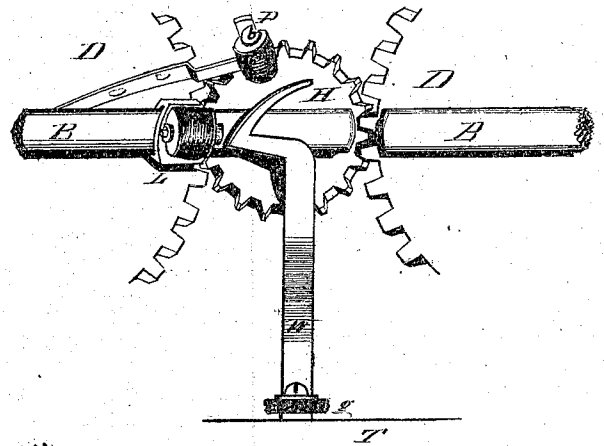
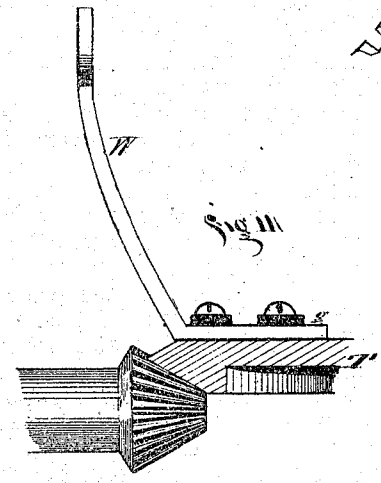


Fig. III.



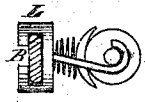


Fig. IV.

Witnesses

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UNITED STATES PATENT OFFICE.

EMERSON SIZER, OF WESTFIELD, MASSACHUSETTS.

IMPROVEMENT IN WHIP-BRAIDING MACHINES.

Specification forming part of Letters Patent No. 120,782, dated November 7, 1871.

To all whom it may concern:

Be it known that I, EMERSON SIZER, of Westfield, Hampden county, Commonwealth of Massachusetts, have invented certain Improvements in Whip-Braiding Machines, of which the following is a specification:

This invention relates to that class of whip-braiding machine known as the globe; and by my devices and arrangement of mechanism I succeed in making a stitch that has heretofore only been made by hand, in which, while the racers carrying the thread constituting the ground-work of the plait pass entirely around the whip, a racer carrying the working cord passes down behind and up before each thread of the ground-work, while the racer carrying the ground-thread is moving on its track before the wheel carrying the working cord, and while each of the latter is moving a distance about equal to the diameter of the wheel which it is opposite, thus forming a stitch known as the hand-stitch, in which each thread of the ground-work of the whip is wrapped by the cord worked in to hold such threads together. The mechanism of my invention is entirely within the circle formed by the gearing, so that the machinery is protected in a great measure from derangement, and a shorter length of thread is extended from the racers to the whip, thereby admitting greater tension to be applied to the cords.

In the drawing, Figure I is a plan view of my machine, with one of the wheels shown in section to expose the way or track. Fig. II is a partial view, showing the working racer at the point of passing behind the one carrying the ground-thread. Fig. III is a partial section view of the horizontal wheel carrying the driving-arms, with pinion actuating it; and Fig. IV shows the ground-thread races upon its track.

Upon a horizontal plane at the center of the wheels, and inside of them, I place a section way or track, B, for the racers L L, &c., to travel on that carry the ground-work threads, which have to pass entirely around the whip, being wound or braided in the center of the machine. In order to propel these racers L L, &c., around the section-way B I have beneath the wheels D D, &c., carrying the working cords, a wheel, T, with a flat horizontal surface, with a hole through its center, through which the stock of the whip passes while being plaited. To the outer circumference of this wheel I attach arms W W, &c., that rise from it to the rear of the racers L L, &c., on the section-way, one arm to each racer, and the revolution of this wheel in the same plane, and having the same center as the section-way, drives by its arms the racers. This wheel is moved by the same power that revolves the wheels D D, &c., carrying the working cords, which, by intermediate gearing H H, &c., are made to revolve the same way. Upon the circumference of each wheel is fastened one of the racers P P, &c., for carrying the working cords, which racers project on an arm having a turn to enable the racers upon their ends to describe a larger revolution than the wheel, to clear the racer carrying the ground-thread. Now, it is evident that were the section-way carried entirely around without break, so as to form a continuous track, the racers P P, &c., projecting toward the center of the machine, and for carrying the working cord, could not revolve with their wheels, for the reason that they could not get by the inner track. This was one of the principal difficulties to be overcome, and I have successfully done this by making breaks at intervals in the track to let the shanks of the racers P P, &c., through, thus enabling an inner track to be used; but as it is necessary to also make the racers P P, &c., pass close behind the ones L L, &c., in order to clear them while revolving, it was needful to make the shanks of racers P P, &c., pass between the driving-arm and the racer driven; and in order to do this the wheels are so geared in connection with the one, T, carrying the driving-arms W W, &c., that the shanks of the revolving racers pass through the gaps in the section-way at the same time that they pass between the driving-arms and the driven racers; and, in order to insure their always easily passing, I bevel away the corners of the driving-arms and of the parts of the racers that would otherwise present a corner or shoulder; and I, furthermore, by the use of thick rubber or other equivalent spring-washers, *g g*, &c., under the screws fastening the arms to the plate-wheel beneath, allow the shanks of the racers to pass through and the springs carrying the arms to immediately resume their places in contact with the rear of racers L L, &c. By these means I am enabled to construct a machine capable of making one of the strongest and most durable of stitches, and one

that has hitherto defied all attempts at formation, except by hand.

I claim—

1. The construction, upon the inside of a globe-machine, of the track B, formed in pieces or sections, for the purpose of enabling one racer to revolve around another traveling upon said section-way, substantially as set forth.

2. The arrangement upon the inner surface of wheels D D, &c., of the racers P P, &c., carrying the working cords, substantially as shown and described.

3. In combination with section-way B and the racers thereon, and the wheels D D, &c., with their racers, the wheel T with its arms W W, &c., with spring-washers *g g*, &c., at their points of attachment to wheel T, the parts being all constructed and arranged substantially in the manner and for the purpose shown and described.

EMERSON SIZER.

Witnesses:
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WILBERT R. LOOMIS. (72)