GEORGE W. WEEKS.

Improvement in Loop Banding Machines.

No. 121,031. Patented Nov. 14, 1871.

Fig. 1.

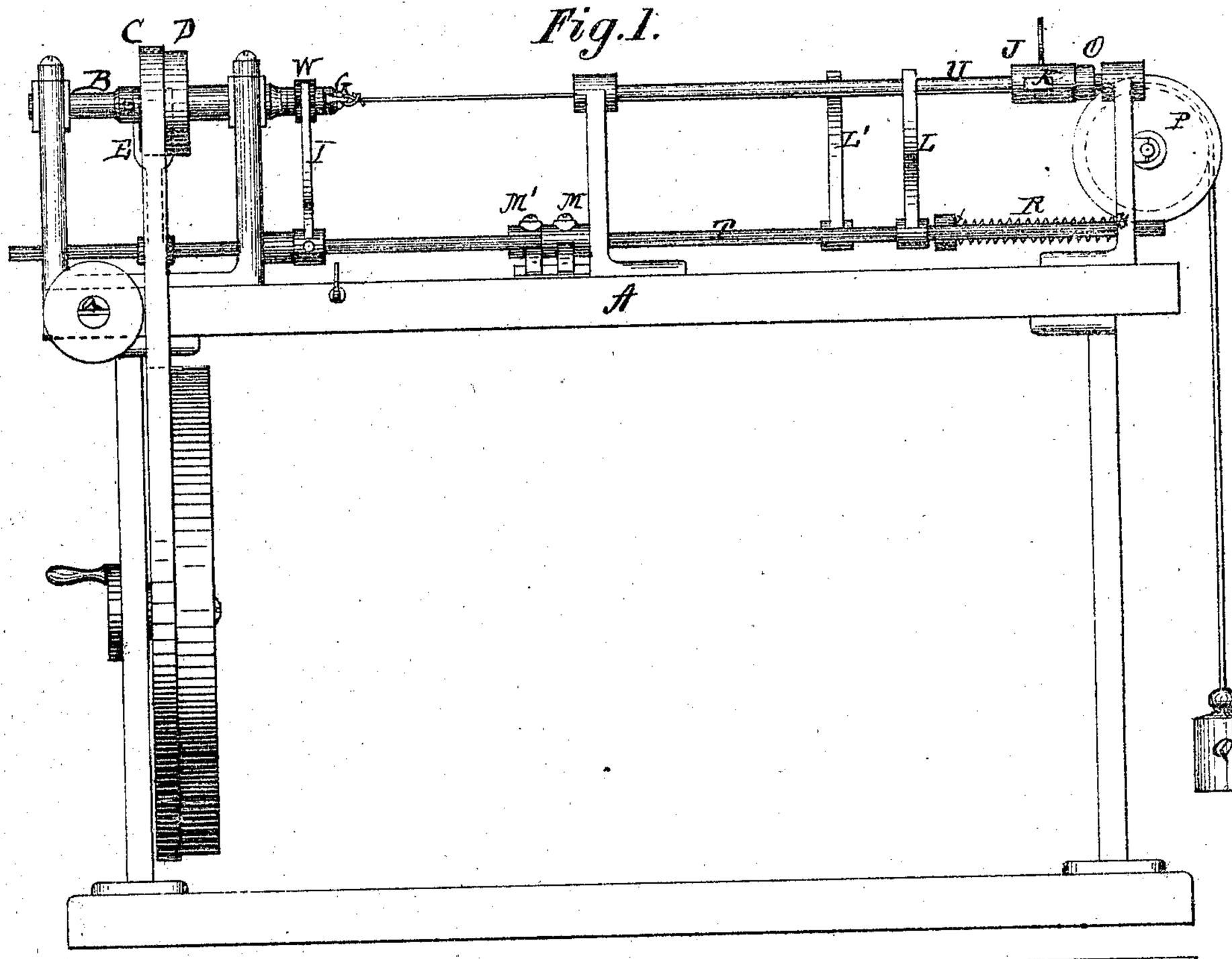
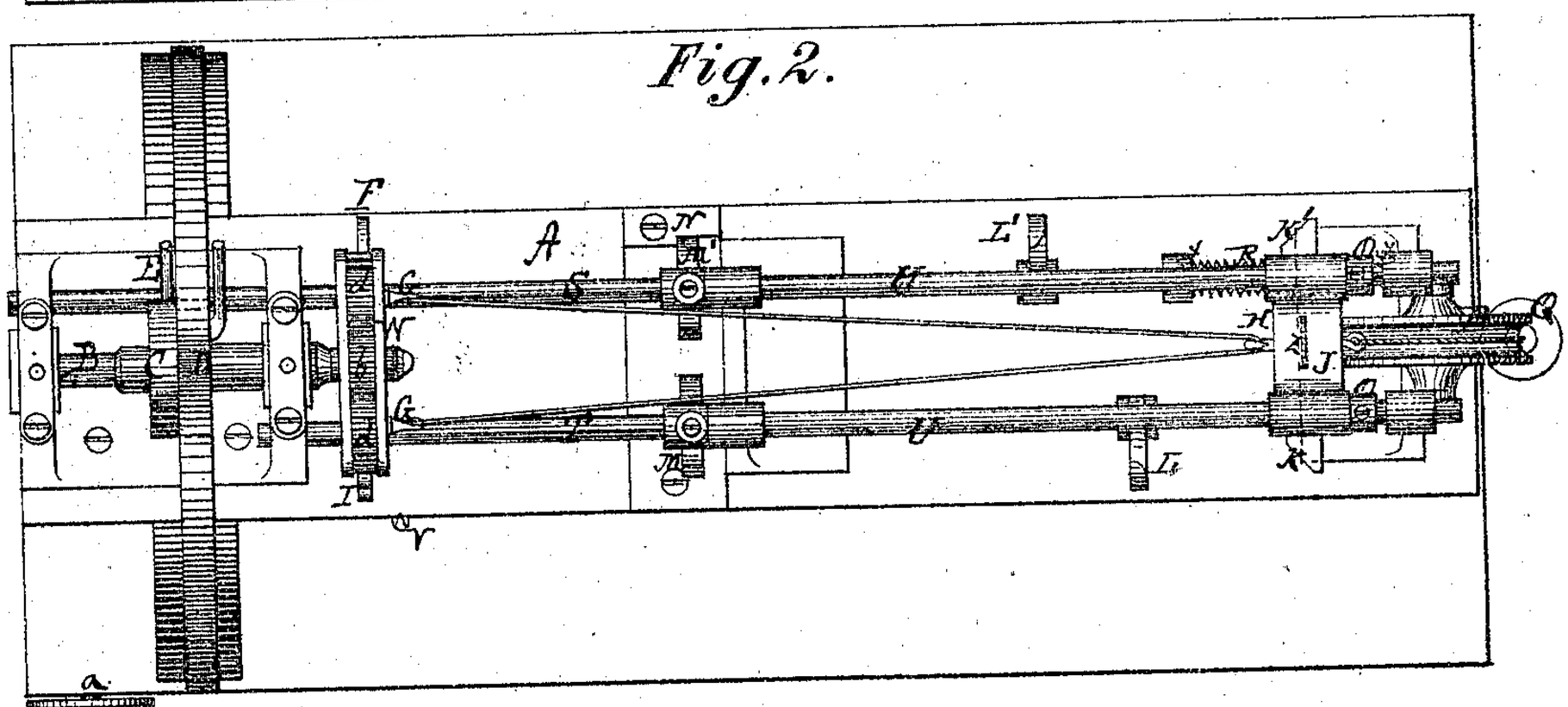


Fig. 2.



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UNITED STATES PATENT OFFICE.

GEORGE W. WEEKS, OF CLINTON, MASSACHUSETTS.

IMPROVEMENT IN LOOP-BANDING MACHINES.

Specification forming part of Letters Patent No. 121,031, dated November 14, 1871.

To all whom it may concern:

Be it known that I, GEORGE W. WEEKS, of Clinton, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Loop-Banding Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon, which form a part of this specification.

The nature of my invention consists in the construction and arrangement of a banding-machine, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a side elevation, and Fig. 2 is a plan view of my machine.

A represents the bed of the machine, with suitable standards, bearings, &c., to support its various parts. B is the shaft upon which the pulleys are placed; C, loose pulley; D, tight pulley; E, belt-guide; F, shipper; G G, twisting-hooks operated through gears placed in the revolving head; H, loop-hook; I, stop to hold revolving head; J, slide; K K′, inclined planes or cams on the slide to operate the stop-motions; L L′, adjustable stop-motion arms; M M′, stops to control the oscillations of the rods S and T; N, catch to hold the shipper-rod S; O O, adjustable collars on the rods, which support the slide J, or upon which the slide moves; P, weight-pulley; Q, weight; R, spring to operate shipper-rod S; S, shipper-rod, movable in its bearings, and with shipper F, belt-guide E, stop M′, and arm L′ fastened upon it; T, rod, turning slightly in its bearings, and with I and M and arm L fastened upon it; U U, slide-rods; V, knife; W, revolving head; X and Y, holes for the ends of the spring R; Z, handle on slide J; *a*, pin for bobbin or spool of yarn; *b*, cog-wheel or pinion on end of main shaft B within revolving head W; *d d*, cog-wheels or pinions within the revolving head, gearing with pinion *b*, for operating the twisting-hooks G G.

The operation of the machine is as follows: A spool of roving or yarn, from which the band is to be made, is placed upon the pin *a*. The end of the yarn is knotted and placed in one of the twisting-hooks G, then passed around the loop-hook H and brought back to the head again, cut off on the knife V, knotted, and placed in the other twisting-hook G. The stop or arm I is then thrown up by the hand, and the revolving head W is placed level, or so that it will rest in the stop I. The shipper F is then moved so as to run the belt upon the tight pulley D. The spring R is so fastened at *x* and *y* as to throw the stop M′ into the notch in the catch N. The parts are now in position for twisting the yarn. As the yarn is twisted it contracts in length and draws up the slide J and the weight Q until sufficient twist has been put into the yarn and the inclined plane or cam K engages with the stop-motion arm L, throwing it outward, slightly turning the rod T, and throwing outward the stop I, which is fastened to the rod T, and thus releasing the revolving head W and completing the first movement. The revolving head W, on being released from the stop I, at once revolves in the direction of the central gear and driving-pulley, or in the opposite direction to that in which it has been twisting, thus doubling up the cord, forming the loop and twisting the band till the slide J is brought up to the point where the inclined plane K′ engages with the stop-motion arm L′, throwing it outward, rotating the rod S, and releasing the stop M′ from the catch N, when the spring R pushes the rod S toward the head, and, carrying the belt-guide E and belt to the loose pulley C, thus completing the second movement and stopping the machine when the band is finished. The length of the band to be made can be regulated by setting the stop-motion arms L L′ nearer to or further from the head, and the amount of twist put into the band and its hardness by the distance at which the adjustable collars O O are placed from the head and the amount of the weight Q. The relative amount of twist put in by either the first or second movement is controlled by the relative position of the stop-motion arms L L′.

The loop-band is used chiefly for driving the spindles of spinning-frames, but also for many other purposes when an endless band is required. It consists of a two-stranded cord formed with a loop at one end and the two strands at the other, so that after passing the cord around the drum and spindle of a machine one strand is passed through the loop and the two strands then tied,

thus forming in the most expeditious and convenient manner an endless band without splice and with the smallest knot.

My machine can be arranged to make cords of any length, and also with three or more strands by the addition of more gears and hooks. The revolving head obviates the necessity of stopping the machine at the end of the first movement or twisting. It is automatic in that it changes from the first to the second movement—that is, from twisting to doubling—and stops when the band is completed without any assistance from the operator.

The gears *b* and *d d* may be of any desired relative size, so as to make the second movement or doubling more or less rapid.

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

1. The revolving head W, with gears *b* and *d d* and twisting-hooks G G, constructed and arranged as shown and described, and operating in combination with the stop I, substantially as and for the purposes herein set forth.

2. The stops M M′ to control the oscillations of the rods S T, in combination with said rods and their arms, substantially as herein set forth

3. The stop-motion arms L L′, adjustable upon the rods S T, in combination with said rods, their arms, and stops, substantially as and for the purposes herein set forth.

4. The slide J, with cams or inclined planes K K′ and loop-hook H, constructed and arranged to operate substantially as and for the purposes herein set forth.

5. The adjustable collars O O, slide-rods U U, and weight Q, arranged to operate in combination with the slide J, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

GEO. W. WEEKS.

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