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Patented July 30, 1901.

H. W. BLOEMKER.
MACHINE FOR MAKING PAPER TUBES.

(Application filed Sept. 14, 1900.)

(No Model.)

2 Sheets—Sheet 2.

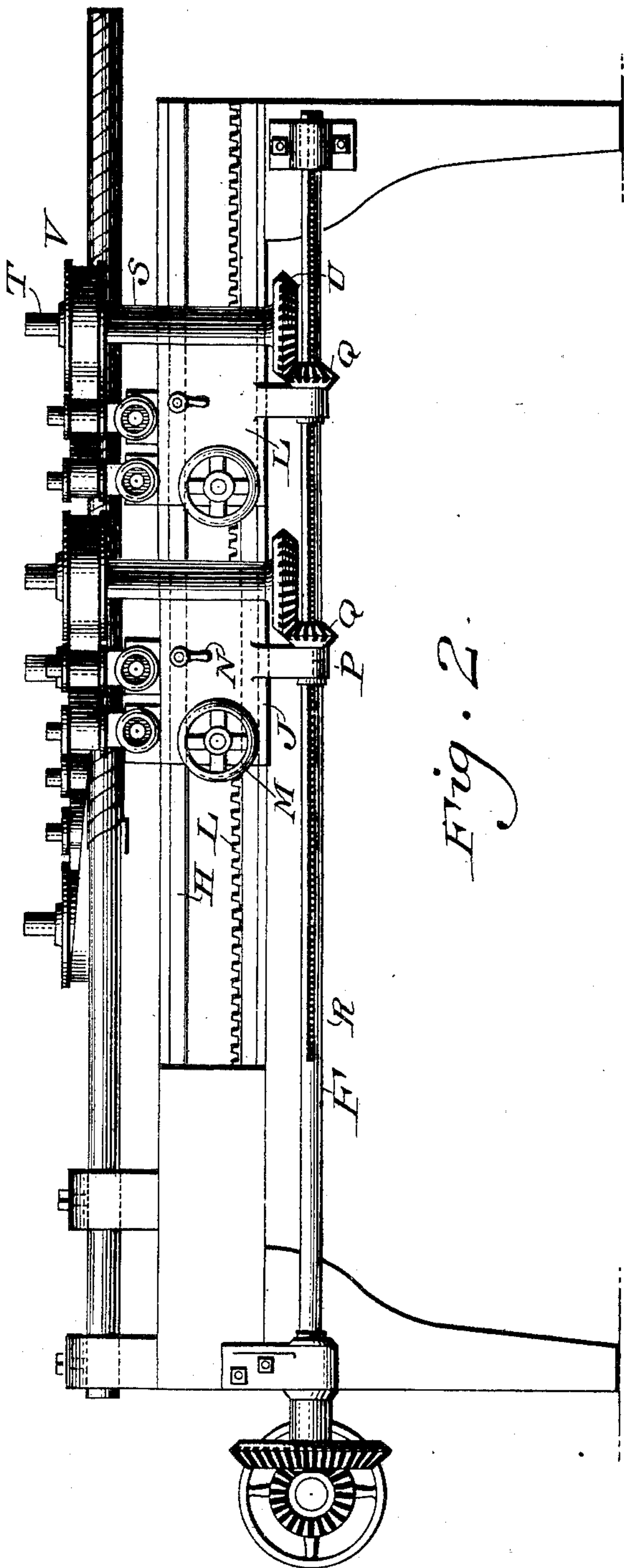


Fig. 2.

Witnesses

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MACHINE FOR MAKING PAPER TUBES.

SPECIFICATION forming part of Letters Patent No. 679,594, dated July 30, 1901.

Application filed September 14, 1900. Serial No. 30,019. (No model.)

To all whom it may concern:

Be it known that I, HENRY W. BLOEMKER, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Machines for Making Paper Tubes, of which the following is a specification.

My invention consists of an improved construction in a machine for making paper tubes by successively coiling strips of paper spirally one upon the other and securing the same together, spirally-arranged endless belts serving to give the desired pressure to secure said strips together as they are wound upon a suitable mandrel, as will be hereinafter fully described and claimed.

Figure 1 represents a plan view of a paper-tube machine embodying my invention. Fig. 2 represents a side elevation thereof.

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

Referring to the drawings, A designates a suitable framework having sockets B firmly supporting the mandrel C in the desired position. At one end of the frame A is the power-shaft D, having fast and loose pulleys E, said shaft D being geared to the longitudinally-extending shafts F, supported in suitable bearings G at the sides of the frame.

Mounted upon suitable guides H at the sides of the frame are carriages J and K, said carriages being adapted to be moved longitudinally upon the frame A by means of the rack L and a pinion (not shown) operated by the hand-wheel M in a familiar manner, while said carriages may be held in their adjusted position by a locking-screw (not shown) operated by the handpiece N of well-known construction. Each of the said carriages J and K are provided with depending bearings P, in which are mounted a bevel-gear pinion Q, through which the shaft G passes and which is caused to turn with said shaft by means of a suitable key (not shown) upon said pinion Q, that is situated within the groove R of said shaft F, permitting, however, relative longitudinal movement of the shaft F and pinion Q. As said carriages J and K are similar in construction, a description of one will suffice.

Mounted upon one end of the carriage is an upright bearing S, in which the shaft T is

mounted, the lower end of said shaft being provided with a bevel-gear U, meshing with the bevel-gear pinion Q of the shaft F. Upon the upper end of the shaft T and resting upon the upper end of the bearing S is a driving-pulley V. Mounted also upon the upper side of the carriage are the transverse guides W, carrying the slides X. Mounted upon the slides X are guide-pulleys Y, adjacent guide-pulleys Y being set at opposite ends of said slides X, whereby tension upon the belt may be varied and the belt adjusted for use in connection with mandrels of different sizes, as well as to compensate for the angularity of the runs of the belt. The said slides are engaged by screws Z, operated by the hand-pieces A' in an obvious manner.

One or a plurality of belts B' and C' may be employed, according to the condition and size of the tube to be manufactured, although in the drawings I have illustrated but two belts for the purpose of illustration. The said belts B' and C' are endless and are trained around the pulleys V and Y in the manner shown, one run of the belt passing between a guide-pulley Y of opposite carriages, while the other run of the belt passes between the pulleys V of opposite carriages, this latter run having the spiral turn around the mandrel to apply the pressure to the paper tubes that are made thereon and also to feed said tubes forwardly as the strips of paper are secured together.

The operation is as follows: The successive strips are fed upon the mandrel and between the same and the spiral turn of the belt in the usual manner—that is to say, adjacent strips breaking joints and the second or third strip being provided on its inner face with adhesive material by which they are secured together. The pressure exerted by the spiral turn of the belt and the manner in which the completed tube is fed forwardly upon the mandrel will be understood by those acquainted with this art.

It will be seen that all of the pulleys V are driven and also that my machine is reversible—that is to say, it can be employed for making either right or left hand tubes by reversing the position of the carriages on opposite sides of the machine. Furthermore, by means of the guide-pulleys Y, I am enabled to employ the same belt in connection with

mandrels of greatly-different diameters, as the amount of slack which may be taken up or let out is much greater than heretofore accomplished. By the use of said pulleys Y, I am also enabled to change the tension of the belt without changing its angularity, and furthermore said tension may be changed during the operation of the machine.

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

1. In a paper-tube machine, a mandrel, a carriage situated on each side thereof, each carriage being provided with pulleys, and each of said carriages being provided with independently-adjustable means for moving the same independently of each other and longitudinally relative to said mandrel, and an endless belt trained around said pulleys and said mandrel.

2. In a paper-tube machine, a mandrel, carriages situated on opposite sides thereof, said carriages being provided with independent driving and tightener pulleys, and an endless belt trained around said driving and tightener pulleys and around said mandrel.

3. In a paper-tube machine, a mandrel, independently-movable carriages situated on opposite sides thereof, each of said carriages being provided with a driving-pulley and with a plurality of tightener-pulleys, and an endless belt trained around said driving and tightener pulleys and around said mandrel.

4. In a paper-tube machine, a mandrel, in-

dependent driving and tightener pulleys situated on opposite sides thereof, and an endless belt trained around said driving and tightener pulleys and around said mandrel.

5. In a paper-tube machine, a frame, a mandrel supported thereon, driving-shafts at opposite sides of said frame, a carriage situated upon said frame on each side of said mandrel and having driving-pulleys geared to said shafts, each of said carriages being movable independently of the other and longitudinally relative to said mandrel, and an endless belt trained around said driving-pulleys and around said mandrel.

6. In a paper-tube machine, a frame, a mandrel supported thereon, driving-shafts at opposite sides of said frame, carriages mounted upon said frame and provided with driving-pulleys geared to said shafts, said carriages being independently longitudinally movable relative to the said mandrel and an endless belt trained around said driving-pulleys and said mandrel.

7. In a paper-tube machine, a mandrel, driving-pulleys situated on opposite sides thereof, adjustable tightener-pulleys situated adjacent said driving-pulleys, and an endless belt trained around said driving and tightener pulleys and around said mandrel.

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