



# United States Patent Office.

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## IMPROVEMENT IN MACHINE FOR MAKING CLOUDED YARN.

The Schedule referred to in these Letters Patent and making part of the same.

### KNOW ALL MEN BY THESE PRESENTS:

That I, JOSEPH CHASE, of the city and county of Worcester, and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Machines for Making Clouded Yarn; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a side view of my improved machine, and

Figure 2 represents a longitudinal central section.

To enable those skilled in the art to which my invention belongs to make and use the same, I will proceed to describe it in detail.

In the drawings, A A represent the main frame of the machine; B the main driving-shaft or cylinder, from which motion is communicated, by means of bands C, to the spindles D, which are arranged in proper bearings at the front of the frame. Only one spindle, whirl, ring, and traveller are shown in the drawings, as they are sufficient to illustrate my invention, which relates to a different part of the machine. In proper bearings upon the top of the machine, and near the front thereof, are arranged the feed-rolls F F', and just back of them another set of feed-rolls G G'. Above the feed-rolls, and about midway between the two sets of rolls, is arranged the thread-guide H, as indicated in the drawings. I is a spool of wool roving or roping, and J a spool of double woollen yarn ready to be twisted. Both of these spools turn in proper bearings. The feed-rolls F F' have a continuous motion imparted to them by means of a belt, K, which runs from a pulley on the end of the cylinder-shaft B to the pulley L, fast on the bottom roll F', while the feed-rolls G G' have an intermittent motion imparted to them by means of the pulley M acting upon the pulley N, fast upon the journal of the lower feed-roll G'. Pulley M has an enlargement, *a*, on a part of its periphery, which runs in line with the periphery of pulley N, so that at each revolution of pulley M the part *a* will come in contact with the periphery of pulley N, when, as the result of the friction of the two surfaces, motion will be imparted to pulley N, and consequently to the feed-rolls G G', so long as the enlarged or projecting part *a* remains in contact with the periphery of pulley N. In this instance the pulley N is covered with a rubber band, *b*, and the projecting part *a* is also rubber, but any other desirable mode of giving an intermittent motion to the feed-rolls G G' may be employed.

The operation is as follows: Motion being imparted to the cylinder B in any well-known manner, the feed-rolls F F' are set in motion, when the thread or threads from the spool J will be drawn through guide H by the feed-rolls F F', and delivered to the winding and twisting device, which in this instance consists of the spindle D, whirl E, ring *c*, and the traveller *d*, which are put in motion by the band C, as before described. The yarn is wound upon the bobbin O as fast as it is delivered by feed-rolls F and F'. The ring *c* is attached to rail P, which is to have a traverse motion imparted to it in the ordinary manner. The twisting and winding device, above described, is well known in the art of spinning cotton yarn, as "ring spinning," and therefore does not require any further description. While, however, the thread or threads *e* are passing forward, as above described, from spool J, and through feed-rolls F and F', to the bobbin O, the roving *f* is fed forward at regular intervals by the feed-rolls G G', and being on a line with the threads *e* it passes through feed-rolls F F', and is twisted in with the threads *e*, giving to the thread, after it has been twisted, the clouded appearance shown at *g g*, fig. 2 of the drawings. As soon as the feed-rolls G G' stop the roving *f* is drawn apart between the two sets of feed-rolls, and the end of the roving remains extended, as represented at *h*, in close proximity to the threads *e* and rolls F F', so that it is always sure to enter between the latter, with the former, whenever the feed-rolls G G' feed it forward. The roving may be of any desired color, and two or more different-colored strands of roving may be fed in at the same time to be combined together in the same thread.

I have shown one mode in which my invention may be carried out, but it is evident that the mechanism can be varied in a great many ways. Fluted feed-rolls may be used, and one or both sets may be driven by gearing, if preferred. The machine, too, may be built so as to cloud any desired number of threads at the same time.

Having described my improved machine for clouding yarn, what I claim therein as new and of my invention, and desire to secure by Letters Patent, is—

1. The combination, in a machine as described, with the yarn-feed rolls of the roving-feed rolls, or their equivalents, in such manner that while the yarn or main thread is fed forward, with a continuous motion, the feed of the roving to the said thread shall be intermittent, as and for the purposes specified.

2. The combination of the yarn-feed rolls with the rolls for producing the intermittent feed of the roving, arranged and mounted in the machine relatively to the said yarn-feed rolls, as and for the purposes herein described.

3. The combination, with the feed-rolls G G' and F F', of the yarn-guide H, whereby the yarn is fed down upon the back of the roll F, while the end of the roving is left in close proximity to the latter, as shown and described.

4. The combination, with a machine for winding and twisting threads of yarn, of an intermittent roving feeding mechanism for clouding the yarn, substantially as set forth.

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Witnesses:

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D. L. MILLER.