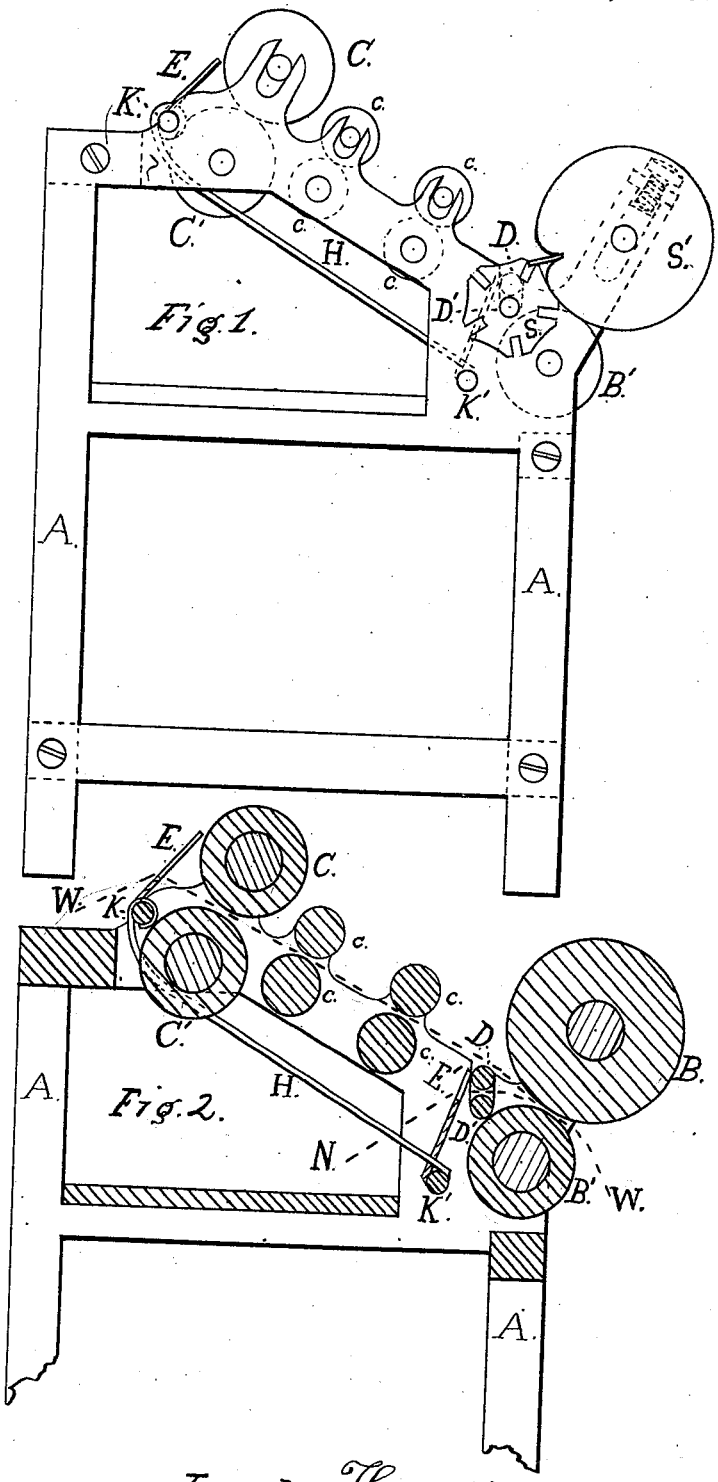
H. N. CRAVEN.

Worsted Roving Frame.

No. 196,787. Patented Nov. 6, 1877.



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UNITED STATES PATENT OFFICE.

HORATIO N. CRAVEN, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN WORSTED-ROVING FRAMES.

Specification forming part of Letters Patent No. **196,787**, dated November 6, 1877; application filed August 20, 1877.

To all whom it may concern:

Be it known that I, HORATIO N. CRAVEN, of the city of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Worsted-Roving Frames, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is an end view of such parts of a roving-frame as is required to show my improvement. Figure 2 is a sectional view of the same, taken on a line with the passage of the worsted slivers between the drawing-rolls.

Similar letters of reference in the drawings refer to like parts.

The object of my invention is to prepare a worsted roving, from which may be spun the yarn known to the trade as "Knickerbocker yarn;" and the invention consists, first, in the combination, with the draft and delivery rolls of a roving-frame, of a pair of feed-rolls, having either an intermittent or slow, continuous motion; second, the combination, with the traverse-guide for guiding the worsted slivers through the drawing-rolls, of a guide for guiding the tufting-slivers into and between the foundation-slivers and delivery-rolls, all as will be hereinafter described.

Referring to the drawings, A represents the end frame of a worsted-roving machine or frame; B B′, the delivery-rolls, and C C′ *c c c c* the draft-rolls; E, the traverse-guide, for traversing the worsted slivers and guiding them through the drawing-rolls. All these parts are constructed, geared, and operated as is usual in worsted-roving frames.

D D′ are a pair of feed-rolls, which are set to work below the worsted sliver W W, the bottom feed-roll D′ working close up to the bottom delivery-roller B, (see Fig. 2,) to prevent the feed-roll from lapping. These feed-rolls are geared at one end by a pair of small pinions, as is usual with feed-rolls, and on the extreme end of the bottom feed-roll D′ is a slotted star-wheel, S. (See Fig. 1.) S′ is the slotted star-wheel driver, which is fixed on the shaft of the top delivery-roll B. E′ is the guide for guiding the tufting-sliver into the worsted or ground sliver as it enters the delivery-rolls. This guide E′ is connected to the sliding bar K′, which moves parallel to and with the bar K, to which the guide B is fixed and the bars K and K′ are connected by the connecting-bars H. Only one of such connecting-bars is shown in the drawing; but it is understood that to work the bars K K′ parallel one with the other, two are required. The bar K and guide E are traversed by the usual appliance—that is, by a worm and worm-wheel, which is not shown in the drawings, as this method of operating the guide-bar is common and well known.

The worsted or ground slivers are delivered to the frame from cans, balls, or spools, and the tufting-slivers N may be delivered in the same manner. It is obvious that in carrying out my invention the tufting material may be of silk noils or any other short-fibered material, and that the same may be of such color as may be desired.

The operation is as follows: Motion is applied to the frame in the usual manner, and the worsted slivers W W are passed through the series of drawing-rolls just as it enters the delivery-rolls. The tufting fibers N are delivered, incorporated into and with the worsted sliver by the feed-rolls D D′, which receive an intermittent motion from the star-wheel S and driver S′. This intermittent movement of the feed-rolls delivers the tufting fibers N, and causes the same to be broken away from the feed-rolls in tufts, which are incorporated with the worsted sliver and delivered by the rolls B B′ to the fliers, by which the compound sliver is twisted and wound on spools, ready to be taken to the spinning-frame and spun into yarn in the usual manner.

It is understood that the feed-rolls and guide-bar K′ operate the tufting-slivers, they being so arranged as to leave one of such slivers to each spindle of the roving-frame. The feed-rolls D D′ may be operated from any suitable part of the machine, and they may be moved by any suitable means that will give an intermittent motion, such as a ratchet-wheel, a gear-wheel, or a slotted star-wheel, as shown in the drawings. In all cases, however, it is not absolutely necessary that the feed-rolls should be operated by an intermittent motion. They may be moved, and I have so operated them, by a slow and continuous motion by means of spur-wheels; but in many cases the intermit-

tent motion is preferable. The size, length, and distance apart of the tufts on the roving and yarn will be regulated by the weight of the tufting-sliver, the speed of the feed and delivery rolls, and the amount of draft employed in converting the roving into yarn, all of which will be understood by one skilled in the manufacture of worsted yarns.

I am aware that feed-rolls to which is imparted an intermittent motion have been used on what is known as a "yarn doubling and twisting frame," for producing a yarn composed of two or more spun threads, and into which is fed a spotting-sliver, making a corded or double-twisted thread. This I do not claim.

I claim—

1. The combination of draft-rolls C C′ *c c c c*, delivery-rolls B B′, feed-rolls D D′, with the mechanism for giving an intermittent or slow continuous motion to the feed-rolls D D′, for the purpose of producing a spotted or tufted roving, as shown and described.

2. The combination, with the feed-rolls D D′, delivery-rolls B B′, and draft-rolls C C′, &c., of the guides E E′ and connecting mechanism, whereby the two guides are operated in unison, and the two threads thereby delivered to the delivery-rolls at the same point, substantially as set forth.

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Witnesses:

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