(No Model.)

R. W. PERKINS.

MANUFACTURE OF SEAMLESS FELT.

No. 268,276. Patented Nov. 28, 1882.

Fig. 1

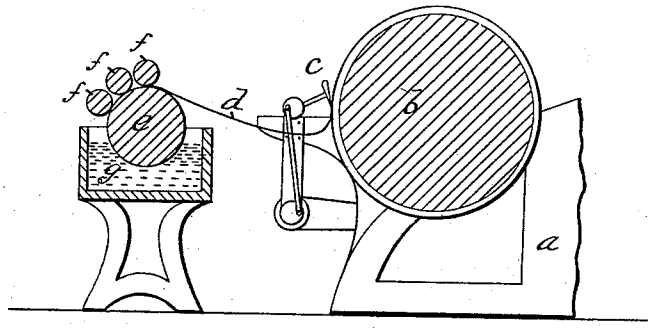


Fig. 2.

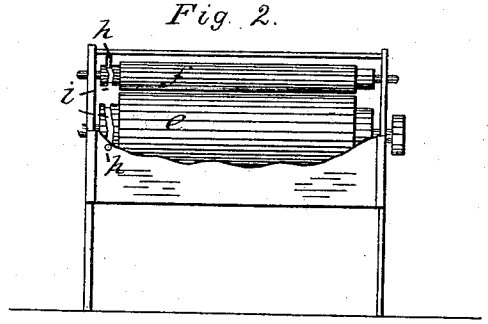


Fig. 3.

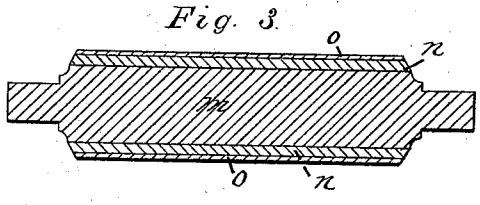
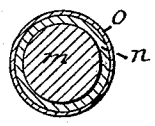


Fig. 4.



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UNITED STATES PATENT OFFICE.

RUSSELL W. PERKINS, OF HARTFORD, CONNECTICUT, ASSIGNOR OF TWO-THIRDS TO ALFRED B. PITKIN, OF SAME PLACE.

MANUFACTURE OF SEAMLESS FELT.

SPECIFICATION forming part of Letters Patent No. 268,276, dated November 28, 1882.

Application filed February 24, 1882. (No model.)

To all whom it may concern:

Be it known that I, RUSSELL W. PERKINS, of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in the Manufacture of Seamless Felt, of which the following is a description, reference being had to the accompanying drawings, where—

Figure 1 is a sectional view of my improved machine and a portion of a cylinder-card. Fig. 2 is a front view of same, with part broken away. Fig. 3 is a central longitudinal sectional view of a "top roll" covered with my improved seamless "cot." Fig. 4 is a view in cross-section of top-roll and covers.

My invention relates to the art of making felt; and it consists in devices for and the method of producing the goods of a uniform density, free from all thin spots or hard places; and it also consists in forming the felt in endless or seamless pieces of any desired size.

In the accompanying drawings, the letter *a* denotes the frame of a cylinder-card; *b*, a doffer; *c*, a comb for removing the wool and forming a lay, *d;* and *e*, a longitudinally-reciprocating rotary cylinder partially submerged in a vat, *g*, containing the hot liquid usually employed in felting.

One or more rotary cylinders, *f*, are placed around the cylinder *e*, rest against and revolve in contact with the lay *d* upon it, and are reciprocated longitudinally by any ordinary means, as by the pins *h*, secured to the frame, and taking into the cam-groove *i* in the surface of the cylinder. A similar device gives the reciprocating motion to the lower cylinder, and by varying the number of cams in the grooves the cylinders move at different rates, the outer reciprocating more rapidly than the inner or felting cylinder in each turn. I make use of an ordinary cylinder-card to prepare for felting the fibrous material or lay *d*, which is passed from the cards upon the doffer *b*, from which it is combed in the usual manner by comb *c*, is caught on the cylinder *e*, (which is of any desired size or diameter,) and envelops it under pressure, the endwise motion of the rolls causing the fibers to cross and recross, so as to evenly distribute them, and the successive layers of wool are partially felted on the cylinder by the heated liquid, motion, and pressure of the rolls. As soon as a sufficient thickness of stuff is attained the cylinder *e* is taken out, the cot (hollow cylinder of cloth or partially-felted stuff) removed, and the felting operation completed in the usual manner.

This product is especially adapted for covering "top" rolls—as drawing-rolls, spinning-rolls, speeder-rolls, &c.—which require a cover free from threads and from all irregularities of form or density.

The top rolls are ordinarily covered with flannel, which is secured by glue and finally fastened at a joint. An outer cover (generally leather) is then secured outside of this. The slivers are drawn in a drawing-frame between a longitudinally-fluted lower roll and a top roll of the kind above described, and the wear on the old rolls soon develops the warp-threads of the flannel and the hard joint formed by the glue. The roll is then useless and must be recovered to insure proper work in drawing the threads. My improved seamless cot of felt, when used as a cover, has none of these disadvantages, but produces a durable and perfect cushion of even density, free from all warp or other threads, and it is produced to fit any required size of rolls.

The flannel covers are termed "cloths" in the art to distinguish them from the outer cover, and the word "cloth" is used in the following claim in this sense.

In Figs. 3 and 4 are shown a top roll (denoted by *m*) covered by cloth *n* and outer cover, (generally leather,) *o*.

I claim as my invention—

1. As a new article of manufacture, a seamless cylinder of felt whose diameter is less than its length, all substantially as described.

2. In combination, in a felting-machine, frame *a*, doffer *b*, comb *c*, lay *d*, longitudinally-reciprocating rolls *e f*, and vat *g*, with contained liquid, all substantially as described.

3. In a drawing or spinning frame, a top roll cloth formed of a cot of seamless felt, all substantially as described.

RUSSELL W. PERKINS.

Witnesses:
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