

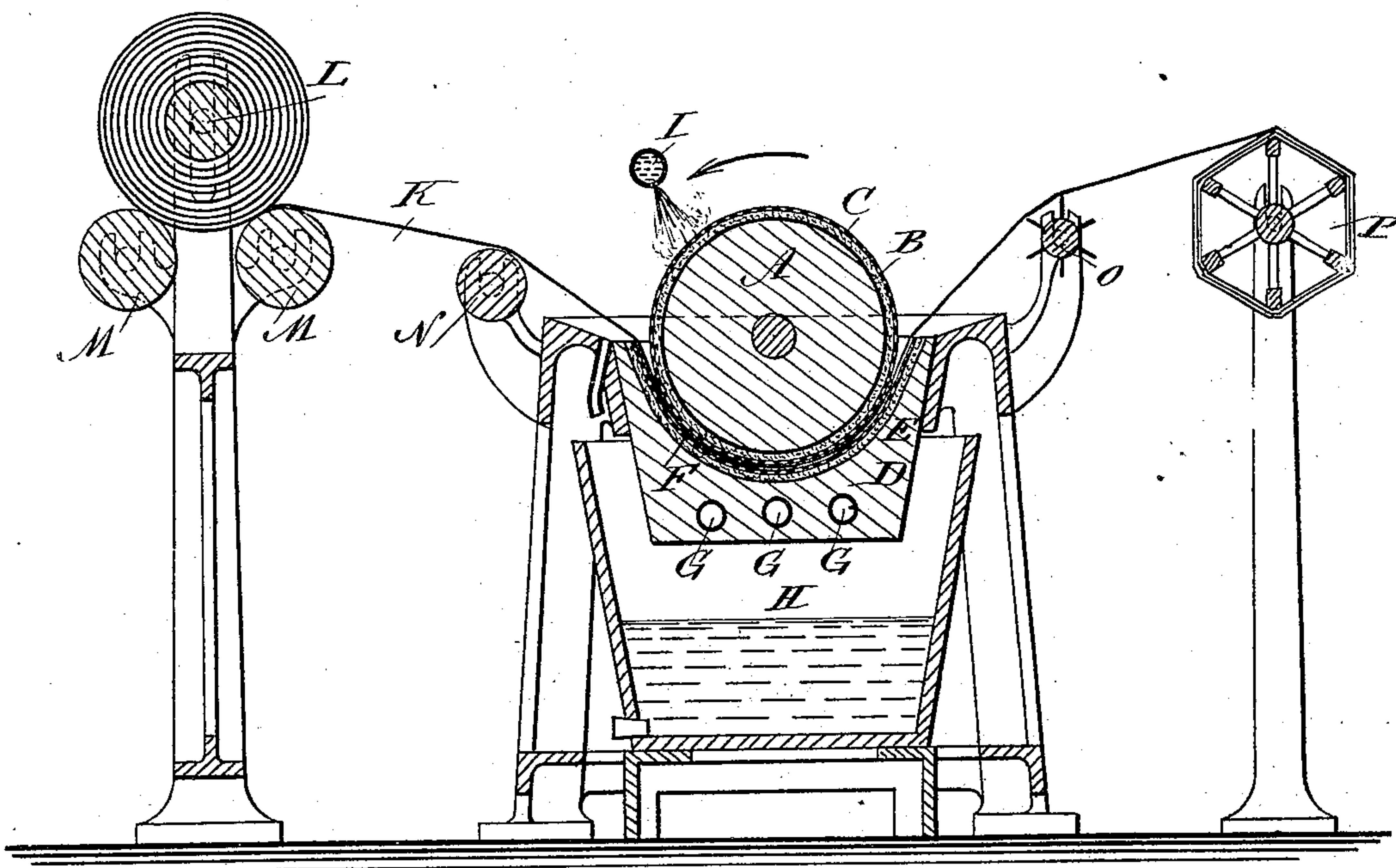
(No Model.)

L. BOURAU.  
Machine for Felting Yarn.

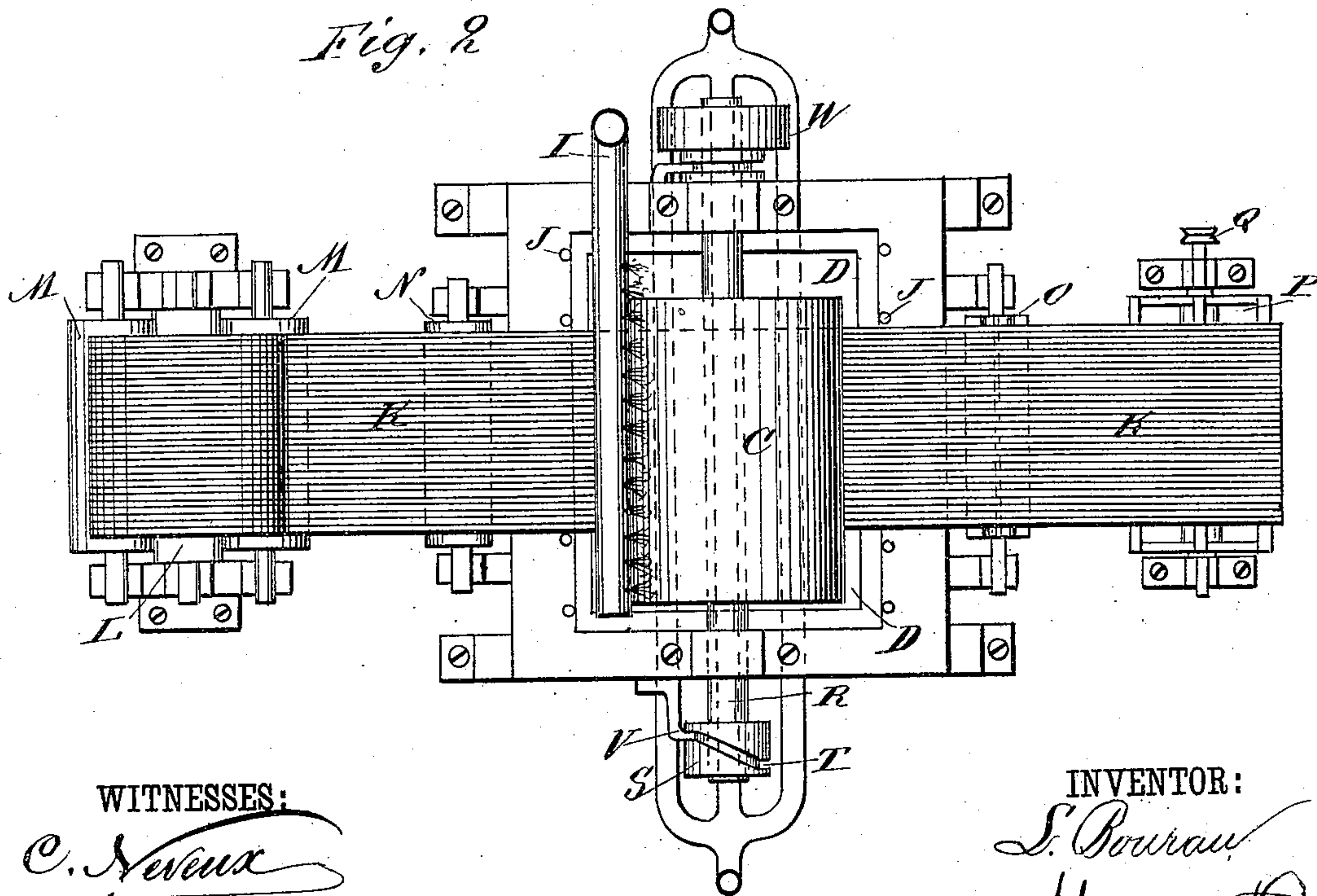
No. 240,954.

Patented May 3, 1881.

*Fig. 1*



*Fig. 2*



WITNESSES:

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# UNITED STATES PATENT OFFICE.

LOUIS BOURAU, OF PARIS, FRANCE.

## MACHINE FOR FELTING YARN.

SPECIFICATION forming part of Letters Patent No. 240,954, dated May 3, 1881.

Application filed December 31, 1880. (No model.) Patented in France October 27, 1880.

*To all whom it may concern:*

Be it known that I, LOUIS BOURAU, of Paris, France, have invented a new and Improved Machine for Felting Yarns, of which the following is a full, clear, and exact description.

Heretofore the machines for making felted yarns have been constructed with a taut cloth or linen sheet, upon which the yarns were felted, but it was impossible to give this sheet the desired tension. The operation was very inconvenient and the yarns were stretched, thereby separating the filaments, which is just the reverse of that which is to be obtained by felting the yarns.

The object of my invention is to provide a yarn-felting machine which is simple in construction, will felt the yarns without tension, and complete the felting in a single operation.

The invention consists in a trough lined with felt and linen and provided with a series of steam-pipes for heating it, in which trough a cylinder rotates, which also has a longitudinal reciprocating movement, and is covered with felt and linen, between which cylinder and the inner surface of the trough the yarns to be felted pass, hot soap-water spouting upon the cylinder during the operation.

In the accompanying drawings, Figure 1 is a longitudinal sectional elevation of my improved machine for felting yarns. Fig. 2 is a plan view of the same.

Similar letters of reference indicate corresponding parts.

A cylinder, A, of wood or any other suitable material, is covered with a layer of felt, B, and over this a layer, C, of linen is fastened. This cylinder A fits in a semi-cylindrical trough, D, the inner surface of which is also covered with a layer of felt, E, over which a layer of linen, F, is fastened, the cylinder A being journaled so as to revolve in this trough, with the surfaces of the cylinder and trough in contact. The trough D is provided with a series of pipes, G, through which steam passes to heat the trough, which is mounted above a tank, H, containing hot soap-water. A perforated tube, I, is arranged above the cylinder A parallel to the same, and the hot soap-water that is taken from the tank H or some other suitable receptacle is forced through this tube and spouts through the openings of the same upon the

cylinder A, as shown. The trough D is provided at the upper edge with overflow-pipes J, which conduct the surplus of soap-water into the tank H.

The strands of yarn K to be felted are wound upon a cylinder, L, which rests upon two rollers, M M, arranged a short distance from, and exactly parallel with, the cylinder A. The yarn K then passes over a delivery-roller, N, from there between the cylinder A and trough D, then passes over a winged roller, O, and is wound upon a reel, P, driven by a belt passing over the pulley Q of the same.

The shaft R of the cylinder A has a belt-pulley, W, at one end, and at the other end it has a pulley, S, with angular groove T, into which a pin, V, on an arm fastened to the frame of the machine, passes. If the cylinder A is rotated it will be reciprocated longitudinally about four to six inches as the pin V remains in the grooves T and the shaft R revolves; but I do not limit myself to this peculiar method of reciprocating the cylinder A, but may use any other suitable devices for this purpose. The belt-pulley must have a peg fitting into a longitudinal groove of the shaft R or some other suitable device, to permit the shaft to slide in the eye of the pulley.

The operation is as follows: The strands of yarn pass between the cylinder A and the trough D, as is shown and as has been stated; and as this cylinder rotates, and has a reciprocating motion at the same time, it twists and felts the yarn, which is completely felted when it leaves the trough. The hot soap-water is continually spouting upon the cylinder, as it is a very important factor in this process and makes the fibers and filaments very pliable, so that the felting will take place much more readily. The strands of yarn are not stretched, the operation is simple, and the yarn need not be operated upon several times in succession, which is a great advantage, as each successive operation impairs the results obtained by the previous one.

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

1. A machine for felting yarn made as herein shown and described, and consisting of a trough and a rotating and reciprocating cylinder fit-

ting therein, between which cylinder and trough the yarn to be felted is passed, as set forth.

2. In a machine for felting yarn, the combination, with the trough D and the cylinder A fitting therein, of the layers of felt B and E, and the coverings of linen C and F, substantially as herein shown and described, and for the purpose set forth.

10 3. In a machine for felting yarn, the combination, with the cylinder A and trough D, of the perforated water-tube I, substantially as

herein shown and described, and for the purpose set forth.

4. In a machine for felting yarn, the combination, with the cylinder A and the trough D, of the tank H, the overflow-pipes J, and the perforated water-tube I, substantially as herein shown, and for the purpose set forth. 15

LOUIS BOURAU.

Witnesses:

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