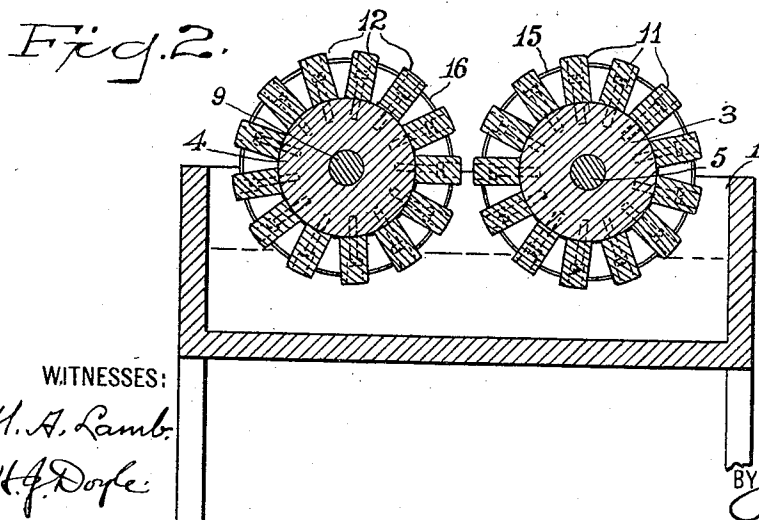
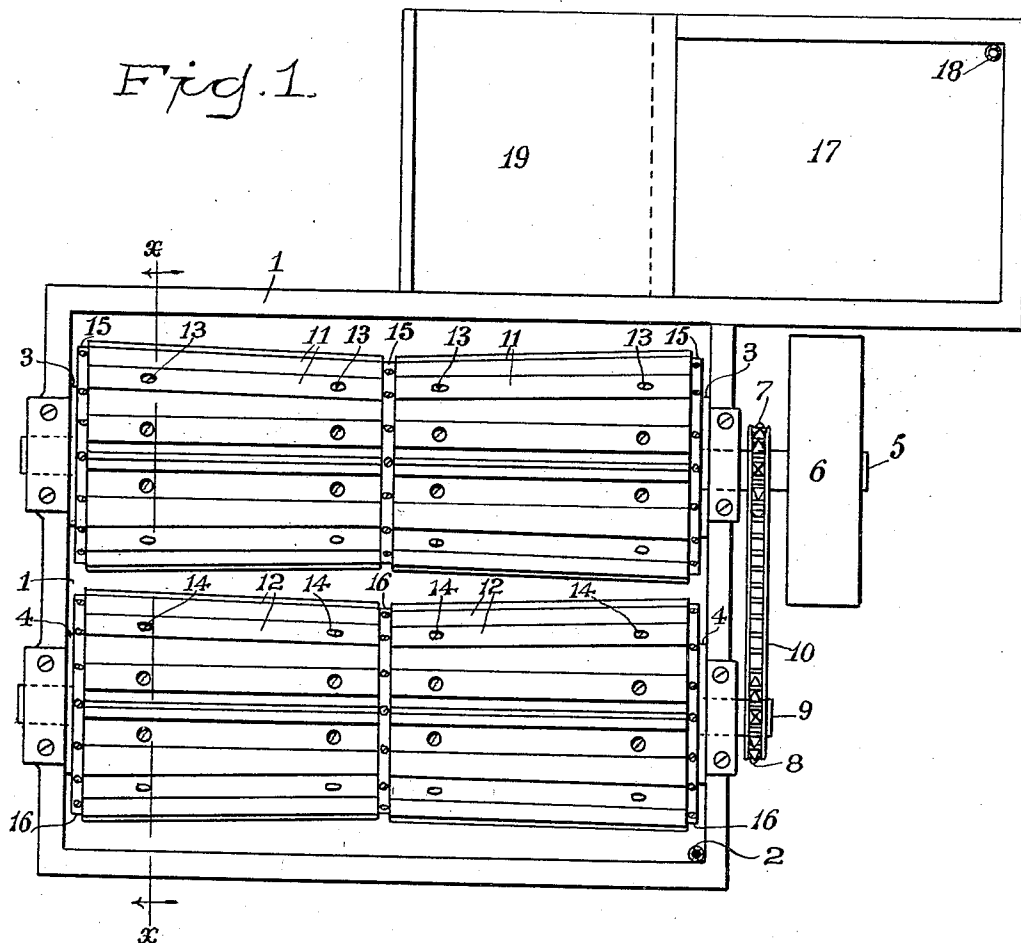


H. W. BATES.
METHOD OF MAKING NAPPED HATS IN THE ROUGH.
APPLICATION FILED JULY 9, 1912.

1,064,427.

Patented June 10, 1913.



WITNESSES:
H. A. Lamb.
H. J. Doyle

INVENTOR
H. W. Bates

BY *H. W. Bates*
ATTORNEY

UNITED STATES PATENT OFFICE.

HURLAND W. BATES, OF BETHEL, CONNECTICUT.

METHOD OF MAKING NAPPED HATS IN THE ROUGH.

1,064,427.

Specification of Letters Patent.

Patented June 10, 1913.

Application filed July 9, 1912. Serial No. 708,498.

To all whom it may concern:

Be it known that I, HURLAND W. BATES, a citizen of the United States, residing in the town of Bethel, county of Fairfield, and State of Connecticut, have invented certain new and useful Improvements in Methods of Making Napped Hats in the Rough; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain improvements in the method of making napped hats in the rough, and has for its object to unite fur fibers to disks or bodies previously formed by the well known felting operation; and with this end in view my invention consists in the operations and methods herein-
after fully described and then particularly pointed out in the claims which conclude this description.

In the accompanying drawing Figure 1 is a plan view of a machine such as I prefer to use in carrying out my improved method, and Fig. 2 a section at the line *x, x*, of Fig. 1.

Similar numerals of reference denote like parts in the several figures of the drawing.
My invention aims to produce hats in the rough in which the surface of the body is composed of fibers of fur or wool, according to the material used, so related to the body that in the finished product a raised nap or velure appearance may be had, and my process will be best understood from the following description.

In carrying out my improvement I prefer to use an apparatus like that shown in the accompanying drawing which I will now describe.

1 is a tank which is partially filled with water to which vitriol is added in the proportion of about one ounce of vitriol to one gallon of water, and 2 is a steam pipe whereby steam may be introduced within the water to heat the same. Journaled within this tank are two rotary drums 3, 4, and to the shaft 5 of the drum 3 is secured the power pulley 6, while sprocket wheels 7, 8, secured to the shafts 5, 9, of these drums 3, 4, are connected by a sprocket chain 10 whereby rotary movement will be communicated to the drum 4 from the drum 3. 11, 12, are lags which are secured to these drums by means of countersunk screws 13, 14, and

also by means of copper bands 15, 16, which encircle the lags at the extremities and their middle portions, copper being employed in this instance on account of the presence of vitriol in the tank 1, the water in this tank being at such a level that, as the drums revolve, these lags will be submerged. The lags of each drum taper from the ends of the drums toward the central portions thereof, so that the distance between the lags of each drum constantly increases from the ends toward the center.

Adjacent the tank 1 is a scalding tub 17 which contains water that is heated by means of steam entering through the pipe 18, and adjoining this tub is a table 19.

In carrying out my process I take a flat body of wool or fur which has been formed by the usual well known felting operations, and scald the same within the tub 17 and the sprinkle on both sides of this body the required amount of wool or fur and work the same slightly so that such wool or fur will primarily stick or felt to the body; I then roll this body within a suitable cloth and place it between the lag carrying drums 3, 4, which tumble the roll and constantly saturate it with the vitriolized hot water, meanwhile working such roll toward the center of the drums by a squeezing action due to the gradually increasing space between the drums as heretofore described; I then remove the roll spreading the body out flat and again dipping the same within the hot water in the tub 17; I then again roll this body within the cloth and subject it to the action of the drums 3, 4, and the vitriolized hot water, this process being repeated until the operator determines that the loose fur or wool fibers have been sufficiently felted to the body. The vitriol not only kills any animal grease on the fur or wool, but I have discovered that it excites the fibers so that they will readily shrink or knit to the disks, without the necessity of employing cotton fibers as an agent to accomplish this result. I prefer to treat five or six or more bodies at the same time, these bodies being constantly separated after they have been removed from the drums 3, 4, so as to keep them from felting or sticking together, and also to change the surfaces, if necessary, so that they will all get the same working. A bundle of bodies treated in this manner is constantly subjected to squeezing and inwardly contracting actions

by means of the lag carrying drums 3, 4, and such bundle is constantly being saturated by the vitriolized hot water, so that the felting process is continuous.

5 Of course my process may be carried out by hand, although the work is thus performed very slowly and, moreover, lacks that uniformity given by a machine such as I have herein illustrated.

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

1. The method of making napped hats comprising covering the surfaces of felted
15 disks or bodies with loose fur fibers, and subjecting said fur-covered disks or bodies to a squeezing and contracting process to

cause said fibers to engage and adhere to said disks or bodies.

2. The method of making napped hats 20 comprising saturating felted disks in hot water to soften them, covering the faces of the softened disks with loose fur fibers, and subjecting said fur-covered disks to a squeezing and contracting process to cause 25 said fibers to engage and adhere to said disks or bodies.

In testimony whereof I affix my signature in presence of two witnesses.

HURLAND W. BATES.

Witnesses:

WILLIAM P. BAILEY,
WILLIAM P. ENGLISH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
