

F. J. MUHLFELD.
 PROCESS OF NAPPING HAT BODIES JOINTLY.
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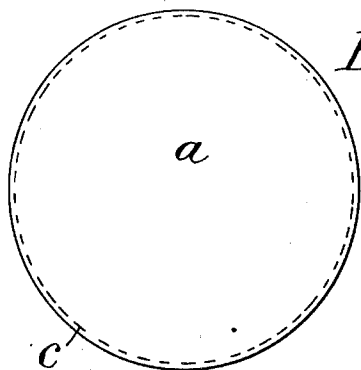


Fig. 1.

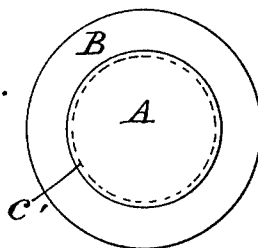


Fig. 1a.

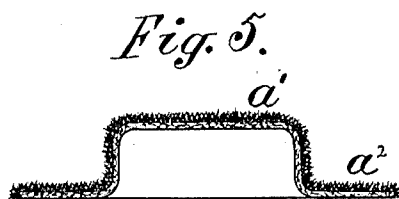


Fig. 5.



Fig. 2.

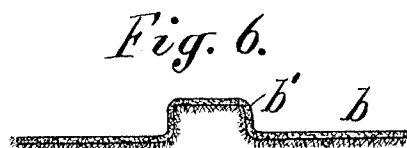


Fig. 6.

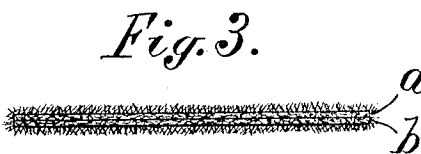


Fig. 3.

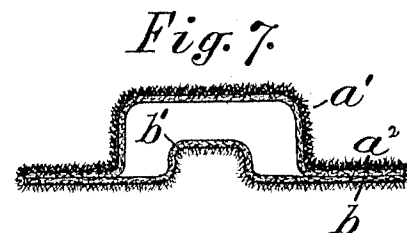


Fig. 7.

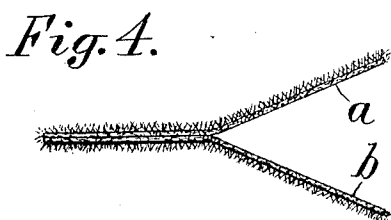


Fig. 4.

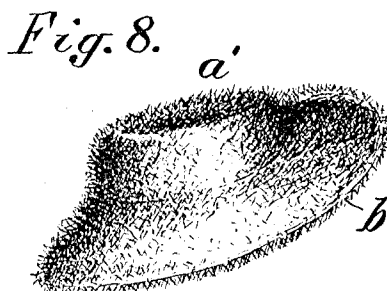


Fig. 8.

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PROCESS OF NAPPING HAT-BODIES JOINTLY.

1,001,296.

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To all whom it may concern:

Be it known that I, FRANK J. MUHLFELD, a citizen of the United States, residing at New York, county of New York, and State of New York, have invented certain new and useful Improvements in Processes of Napping Hat-Bodies Jointly, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to the manufacture of felted hat-bodies having a flowing nap or fur upon the surface by applying a nap-bat of fur fibers thereto, and rooting such fibers in the felted body by a napping process which involves the rolling, rubbing and kneading of the body with hot water. To work the root of each fiber into the felted body is a tedious and laborious operation, but produces when finished, a perfect imitation of the same fur from which the napping fibers were derived.

The object of the invention is to improve the quality and at the same time reduce the cost of hat-bodies which are napped upon one side only, and this object is attained by securing opposed sides of two hat-bodies together temporarily, and then napping the exposed surfaces, or any part thereof, by the usual napping operations, and finally separating the napped bodies and using them in any desired manner.

It will be understood that the invention does not produce a finished hat, as it does not relate to the blocking or other required treatment of the hat to fit it for the head of a wearer, but simply furnishes a napped hat-body of duplex character, which comprises two bodies napped each on one side, and adapted when blocked to form two hats napped on one side only, or to form a single hat if the two parts be blocked to form the upper and lower sides respectively of a two-piece-hat.

The invention is practiced by uniting together two previously felted hat-bodies, and while the bodies are temporarily joined, subjecting them jointly to the operations of sticking nap-bats thereto and then scalding and beating up the fur.

When napped, the two bodies can be pulled apart, the thread used in stitching being strong enough to hold the bodies together during the various operations, but capable of breaking when the bodies are pulled apart to separate them. If required,

the threads may be cut for separating the bodies. Either body may be napped upon a portion only of its surface, as for instance, the under brim only by using an annular bat, or the crown only by using a circular bat smaller than the body; the operation of napping being the same as with a full sized bat.

By this process it is found that with the same quantity of napping fur a nap of greater thickness can be produced upon the outer surfaces of the two bodies than can be obtained when the bodies are operated upon separately in the usual manner, and that the nap is more evenly distributed upon the surfaces of the bodies. These results are due to the fact that when two bodies are thus united each serves to reinforce the other, and each forms an elastic cushion to support the other during the napping operations, which serves to protect the bodies and their napping surfaces from the severe strains and friction to which they are subjected when operated upon singly in the usual manner. By such reinforcement or cushioning the united hat-bodies can be treated by machinery with as little injury as any other hat-bodies, and the invention thus furnishes a means of napping hat-bodies upon one side only in a most perfect manner by the ordinary machine operations and thus at a greatly reduced expense.

The invention is particularly applicable in making two-piece napped hats in which it is desired to unite two napped bodies into a single finished hat, one forming the outer crown and upper brim and the other forming the inner crown and under brim having the nap applied to the external surface of each, or to so much thereof as may be desired. In such cases, if two bodies of the usual thickness of felt are used, the result is a hat of unusual weight and clumsiness of appearance; and it is therefore desirable in such cases to use bodies of unusual thinness to carry the nap, but such bodies on account of this unusual thinness are liable to injury in the operation of napping, if performed upon each of such bodies separately. It is, therefore, found in practice that it is extremely difficult to obtain a uniform nap upon such thin bodies when napped separately. By means of this invention, however, two of these bodies of unusual thinness can be napped with as little liability to injury and with as uniform re-

sults as bodies of ordinary thickness. It is obvious that such thin bodies could not be handled and subjected to a napping operation unless they were previously felted or shrunk to the desired size, as such bodies have no tenacity and could not be handled unless they were fully felted; and it is understood that the invention is applicable only to felted hat-bodies, as it is the complete felting of the body which prevents the fur of the nap-bat from amalgamating with it, and permits only the ends or roots of the napping fibers to penetrate the felt, thus producing the projecting flowing fur that is desired. The use of bodies of such unusual thinness is especially desirable when the object is to produce a finished napped hat with a crown and upper brim having a nap of one color and an under brim having a nap of another color. By uniting two of such bodies together during the napping operation in the manner described, the whole of the exposed surface of the bodies which is to form the crown and upper brim, and so much of the surface as may be necessary of the body which is to form the under brim of the completed hat, can be napped, and the two bodies then separated in the manner described and each dyed of a different color, the bodies being then reunited in any convenient manner to form the completed hat without objectionable weight or clumsiness of appearance. By this process also a napped hat having a large outer crown and a small inner crown adapted to the head of the wearer, can be produced by blocking the two bodies after they have been separated, one upon a larger and one upon a smaller block and then reuniting the bodies. Besides the variations of color which can be obtained in a hat, various other novel combined effects can be produced by the use of this invention.

The invention will be understood by reference to the annexed drawing, which illustrates the invention diagrammatically, Figure 1 being a plan of two flat round hat-bodies secured together by stitching near the margin; Fig. 1^a is a plan of a flat duplex body; Fig. 2 is a cross section of the same with nap-bats upon their opposite sides; Fig. 3 is a cross section of the same with the nap fully finished upon such flat bodies; Fig. 4 shows the bodies partially separated by breaking the stitching; Fig. 5 shows one of the bodies blocked to form a large crown thereon; Fig. 6 shows the other body blocked to form a small crown or head-opening therein; Fig. 7 is a cross section of the two bodies secured together in a single hat; and Fig. 8 is a perspective view of the finished hat.

a designates one of the hat-bodies and *b* the other, with a row of stitching *c* connecting the same near their margin. The nap-

bats *e* and *f* are shown in Fig. 2 stuck upon opposite sides of the two bodies, and Fig. 3 shows the nap raised, as at the close of the napping operation. The two bodies joined together during the napping operation may be termed a "duplex-body", which is adapted for napping upon its outer sides, to form two single bodies napped each upon a single side.

The operation of napping the bodies jointly is the same as that of napping a single body upon both sides, the bats *e* and *f* being vibrated and scalded in the usual manner and then beaten up to produce the flowing nap as is common in this art.

Machinery can be used at any stage of the process to operate upon the double body the same as upon a single body, and causes no injury to the thin halves of such double body. The nap-bats are, in practice, made a little larger than the bodies so as to surely cover the same, and they thus project a little over the edge, which has the effect of rooting the napping fur into the edges of the bodies as well as into their outer sides. The joint between the two bodies is thus concealed by the fur upon the edge, but the bodies are readily separated by the fingers and the stitching broken, when the two bodies can be quickly separated.

Fig. 4 shows the separation or splitting apart of the two bodies, partially completed by breaking the stitches *c*. Fig. 5 shows the body *a* blocked to form a large crown *a'* with upper brim *a²* thereon and the nap upon the outer side of such crown and upper brim. Fig. 6 shows the body *b* blocked to form a small crown *b'* for an under brim with suitable head-opening and the nap upon its under side. Fig. 7 shows the two bodies rejoined by any suitable means, thus forming a napped hat with nap upon the upper and lower sides.

Prior to the blocking operation, the separate bodies may be dyed of different colors or otherwise treated to distinguish them from one another, so that when reunited, the upper and lower parts of the body may contrast in color or appearance.

The crown in the illustration is shown provided with the marginal flange marked *a'* which forms an upper brim to fit upon and cover the under brim formed by the margin of the body *b*, so that both bodies form a part of the hat brim, and such brim is napped upon both sides and of different colors as described. The crown may, however, be blocked without a flange and secured upon the top of the body *b* in any desired relation to the small crown *b'* which forms the head-opening or support for the hat.

The essential part of the invention is the connecting of two hat-bodies together during the napping operation in such a manner

that they may be napped jointly upon the outer sides and afterward separated, thus securing the advantage of a thick and reinforced material to work upon during the napping operation. This method of operating upon two hat-bodies not only economizes the labor but permits machinery to be used safely in different stages in the napping process, and improves the quality of the nap, as is found by repeated experiments.

The invention may, if desired, be practiced without machinery. The process can be used with similar good results either upon flat bodies or upon bodies in conical shape, and while the invention is particularly applicable to the napping of bodies of unusual thinness it is not limited in its use to such bodies, as it is very useful when applied to bodies of ordinary thickness, as it enables two of such bodies to be napped jointly upon the outer side in a single operation.

My invention is especially applicable to the napping of flat round hat-bodies as they are readily secured together and flat nap-bats readily stuck thereon, and I have therefore made especial claim herein to the use of such flat bodies in practicing my invention and to the duplex bodies consisting of two flat round hat-bodies suitably stiffened and joined detachably together.

The invention is applicable to any felted hat bodies which can be napped, whether such bodies be made of wool or fur. The method of preparing wool and fur bodies before napping is somewhat different, but it is obviously immaterial how the felted hat-body is prepared for the napping operation, as the invention relates to the napping of the felted body to form a flowing nap thereon from a fur nap-bat.

It is necessary to felt the bodies before joining them together to apply the nap, and it is also common to stiffen the bodies with the usual stiffening solution before napping.

Fig. 1^a shows a special form of the duplex body in which two flat round hat-bodies of different sizes are joined detachably together for napping, the smaller body A when secured upon the larger one B by

stitching *c'*, leaving the margin of the larger one exposed so that when the nap-bats are applied the fur may be rooted not only upon the under side of the larger body but also upon an annular portion of the upper side. This arrangement of hat bodies enables an annular nap to be formed upon the upper side of a body which is provided with a nap also upon its under side, and makes such annular nap perfectly even in its contour where it is attached to the upper side of the body. Such an even contour cannot be secured by sticking an annular bat to a hat-body, as such body possesses no gage to limit the attachment of the fur, such as is formed by the smaller body lying upon the surface of the larger one.

Having thus set forth the nature of the invention what is claimed herein is:

1. The improvement in the art of napping felt hat-bodies, which consists in securing opposed sides of two felted hat-bodies temporarily together, sticking nap-bats of animal fur upon their external surfaces, then completing the napping operation, and finally separating the napped bodies.

2. That improvement in the art of napping felt hat-bodies which consists in securing opposed sides of two felted hat-bodies temporarily by stitches, sticking nap-bats of animal fur upon their external surfaces, then completing the napping, and finally severing the stitches.

3. That improvement in the art of napping felt-bodies, which consists in securing opposed sides of two hat-bodies of unequal size temporarily together, sticking nap-bats of animal fur upon their external surfaces, then completing the napping, and finally separating the napped bodies.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

FRANK J. MUHLFELD.

Witnesses:

L. LEE,
THOMAS S. CRANE.