F. STOFFEL.

PROCESS AND APPARATUS FOR RAPIDLY SHAPING HATS.

APPLICATION FILED SEPT. 25, 1912.

1,080,731.

Patented Dec. 9, 1913.

2 SHEETS—SHEET 1.

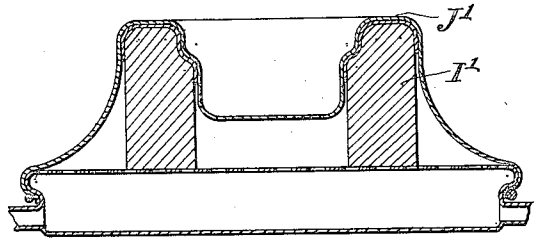


Fig. 5.

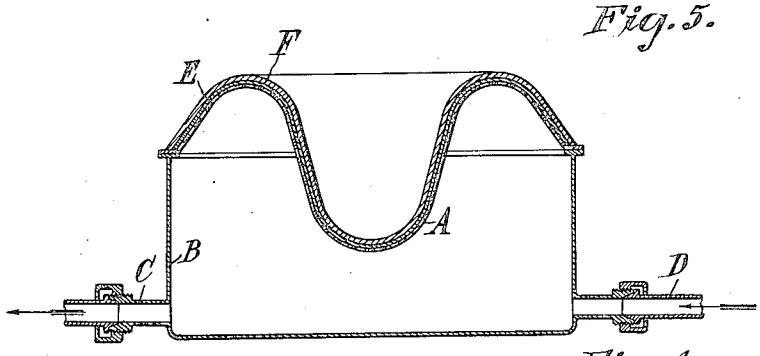
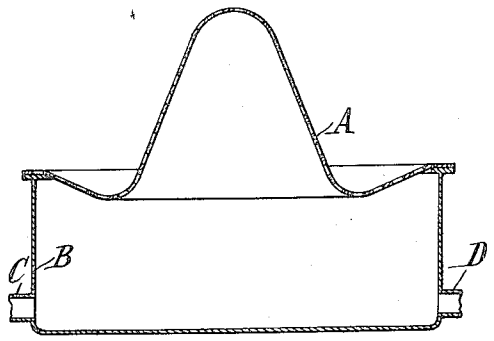


Fig. 1.

Fig. 2.



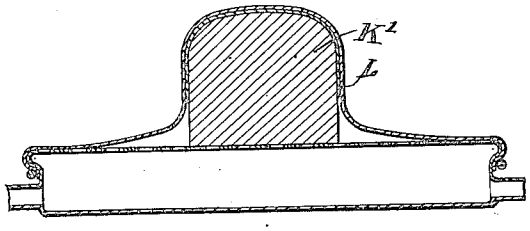


Fig. 6.

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2 SHEETS—SHEET 2.

Fig. 3.

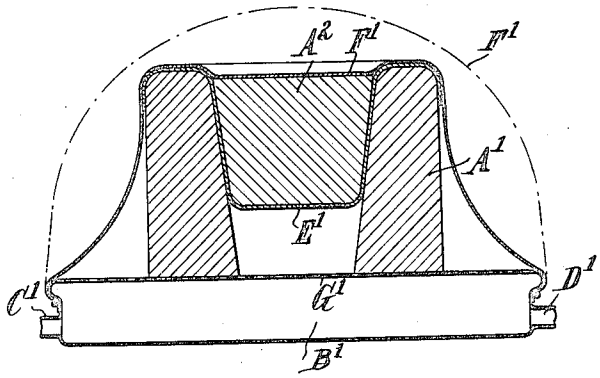
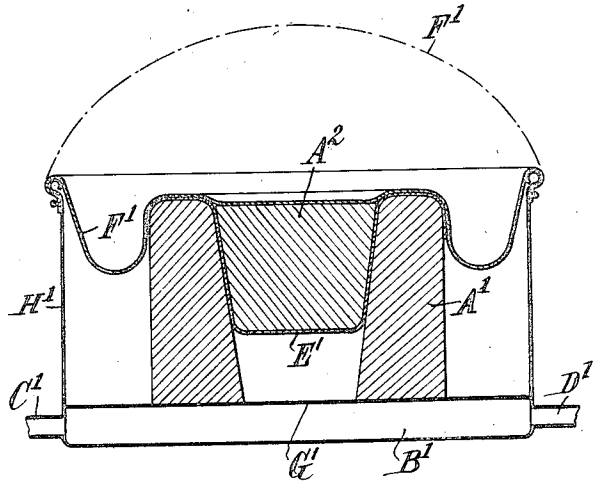


Fig. 4.



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UNITED STATES PATENT OFFICE.

FERNAND STOFFEL, OF PARIS, FRANCE, ASSIGNOR, BY MESNE ASSIGNMENTS, TO VACUUM HAND BLOCKING CO., INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

PROCESS AND APPARATUS FOR RAPIDLY SHAPING HATS.

1,080,731. Specification of Letters Patent. Patented Dec. 9, 1913.

Application filed September 25, 1912. Serial No. 722,227.

To all whom it may concern:

Be it known that I, FERNAND STOFFEL, a citizen of the Republic of France, and a resident of Paris, France, have invented a new and useful Process and Apparatus for Rapidly Shaping Hats, of which the following is a description.

This invention relates to a process and apparatus for carrying out the same, allowing of shaping hats of straw, felt, or other material by steam and vacuum combined acting successively, in such a manner as to replace the work of shaping or putting on the block and passing over the shape again with a smooth iron by hand, as practised in this industry.

The following description with reference to the accompanying drawing, will enable the manner in which this invention is carried into effect to be well understood.

Figure 1 is a vertical section of one form of the apparatus employed. Fig. 2 is a corresponding view of a modification of the apparatus. Figs. 3 and 4 represent in vertical section, another form of the apparatus in two modifications allowing the employment of ordinary blocks or molds of wood or other suitable material. Figs. 5 and 6 are vertical sections showing the apparatus used in cases where the hat is manufactured in two parts.

This process for rapidly shaping hats consists in first softening the hat impregnated with size by the usual process, for example, by means of steam and then pressing it by means of a vacuum, and an elastic and impermeable membrane onto a perforated mold for putting it into shape and drying it (Figs. 1 and 2) or onto an ordinary block or mold in one or more parts resting upon a perforated metal case, (Figs. 3 and 4.)

The apparatus (Figs. 1 and 2) for carrying out this process consists of a metal mold A of copper for example, having exactly the shape which it is required to give to the hat to be made; this mold, according to the circumstances, may be recessed as is shown in Fig. 1, or in relief as shown in Fig. 2, and the mold, in both cases, constitutes the cover of an air tight metal case B, in which steam can be admitted through the tube C, and a vacuum be created through the tube D in succession. The first operation consists in covering the metal mold, which is made with a large number of small holes, with the hat E to be shaped, and in admitting to the interior the steam which will heat the mold, and at the same time, as it issues through the holes, will spread over the surface of the hat, thus softening the size with which it is impregnated. The said size, when dry, is designed to keep the hat in shape. The shaping is then proceeded with, by covering the mold A and the hat E with an elastic and impervious membrane F and creating the vacuum in the interior of the mold. This membrane which, for example, may be of felt coated with india-rubber and which has, itself, been previously shaped upon the mold will therefore be firmly applied against the hat, forcing it to assume the shape of every part of the mold. This mold having been heated by the preceding operation of admitting steam, the hat is sufficiently softened; the vacuum, at the same time that it closely applied the said hat to its mold, materially assists its drying by rapidly absorbing its moisture. In this manner, a dry straw hat can be produced in less than one minute, and a felt hat in two or three minutes, thus effecting a great saving in hand labor and time. It will be understood that the softening of the hats can be previously effected outside the mold, and that only the operation of shaping would then take place on the mold.

The apparatus represented in Fig. 3 has the great advantage that it enables perforated molds to be dispensed with and allows the employment of ordinary molds already existing in the hat industry. It consists, mainly, of a case B′ provided with two tubes, as before, one of the said tubes D′ serving for the admission of the steam and the other tube C′ for the vacuum. The said case is provided with a flat perforated top G′ upon which is placed the hat mold or block for example in two parts A′, A². In

this case the hat E′ is placed upon the part A′ of the mold or block before placing the second part A² in position. The flexible and impervious membrane F′ can be fixed either to the case as shown in Fig. 3 or to the upper end of a vertical circular wall H′, situated above the case and forming part thereof, as shown in Fig. 4. The operation of shaping is effected exactly in the same manner as before described; it is commenced by introducing the steam into the case B′ and which as it issues through the holes in the perforated top G′ moistens and softens the size in the hat E′. This having been done the steam tube D′ is closed and the vacuum tube C′ opened so that the membrane F′ is hermetically applied to the edges of the hat carried by the part A′ of the mold and against the part A² of the mold in such a manner as to properly shape the hat.

In cases where the hat is made in two parts instead of a single piece as represented in Figs. 3 and 4, the molding or shaping of the brim of the hat and of its crown are effected separately as illustrated in Figs. 5 and 6. A mold I′ for the brim is then placed on the case, the brim J′ of the hat is placed on the said mold and the operation is proceeded with as before. Then on the same case or on another case a mandrel K′ is placed for the crown of the hat, it is covered with the crown L′, and the operation is proceeded with as before described.

Claims:

1. A process for shaping hats consisting in first softening the hat, and then pressing it by a vacuum against a perforated mold by means of an elastic and impermeable membrane, substantially as hereinbefore described.

2. An apparatus for shaping hats, comprising a perforated metal mold made of the form of a hat to be shaped, a metal case in which steam can be admitted and a vacuum created in succession, and an elastic membrane which may be placed upon the hat to be shaped when the latter is in place upon said mold and which is adapted to press said hat firmly against the mold when a vacuum is created in said case, substantially as hereinbefore described.

3. An apparatus for shaping hats comprising a metal case having a flat perforated top, a mold or block adapted to fit upon said case top, valve controlled steam and vacuum pipes, and a flexible and impervious membrane fixed upon the periphery of the case, whereby said membrane may be pressed against said mold or block on which is placed the hat during the vacuum operation, substantially as hereinbefore described.

4. A process for shaping and pressing hats, comprising placing a hat-shape between a mold or form and a flexible diaphragm, and producing a vacuum on the under side of said diaphragm to press the same against said mold and interposed hat-shape.

5. A process for shaping and pressing hats, comprising placing a hat-shape between a perforated mold or form and a flexible diaphragm, and producing a vacuum on the under side of said diaphragm to press the same against said mold and interposed hat-shape.

6. A process for shaping and pressing hats, comprising softening the size in a hat-shape, and pressing a thin flexible membrane against the hat-shape upon a mold or form by means of a vacuum.

7. A process for shaping and pressing hats, comprising placing the same upon a mold or form, softening the size in the same by means of heated vapor, and pressing a thin flexible membrane against said hat-shape by means of a vacuum.

8. A process for shaping and pressing hats, comprising placing the same between a mold or form and a thin flexible membrane, softening the size in the hat-shape by means of heated vapor, and drawing the flexible membrane against said hat-shape by means of a vacuum.

9. An apparatus for shaping and pressing hats, comprising a mold or form, a thin flexible membrane, and pneumatic means for pressing said membrane upon a hat-shape between said mold and membrane.

10. An apparatus for shaping and pressing hats, comprising a mold or form, means for introducing heated vapor to soften the size in a hat-shape upon said mold, a thin flexible membrane, and pneumatic means for pressing said membrane between said hat-shape and membrane.

11. An apparatus for shaping and pressing hats, comprising a case having a perforated top, a chamber beneath said top, steam and vacuum pipes leading to said chamber, through which steam is alternately supplied to and air evacuated from said chamber, and a thin flexible membrane adapted to be drawn upon a hat-shape upon said perforated top by the evacuation of the air from said chamber.

12. An apparatus for shaping and pressing hats, comprising a case having a perforated top with a hat form thereon, a chamber beneath said top, steam and vacuum pipes leading to said chamber, through which steam is alternately supplied to and air evacuated from said chamber, and a thin flexible membrane adapted to be drawn upon a hat-shape upon said perforated top by the evacuation of the air from said chamber.

13. An apparatus for shaping and pressing hats, comprising a case having a perforated top, said top being shaped in the form of a hat form, a chamber beneath said top,

steam and vacuum pipes leading to said chamber, through which steam is alternately supplied to and air evacuated from said chamber, and a thin flexible membrane adapted to be drawn upon a hat-shape upon said perforated top by the evacuation of the air from said chamber.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

FERNAND STOFFEL.

Witnesses:

JULES ARMENGAUD, Jeune.

GABRIEL BELLIARD.