J. H. STARR.

NAP REGULATING ATTACHMENT FOR CLIPPING MACHINES.

APPLICATION FILED MAR 5, 1909.

952,475.

Patented Mar. 22, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

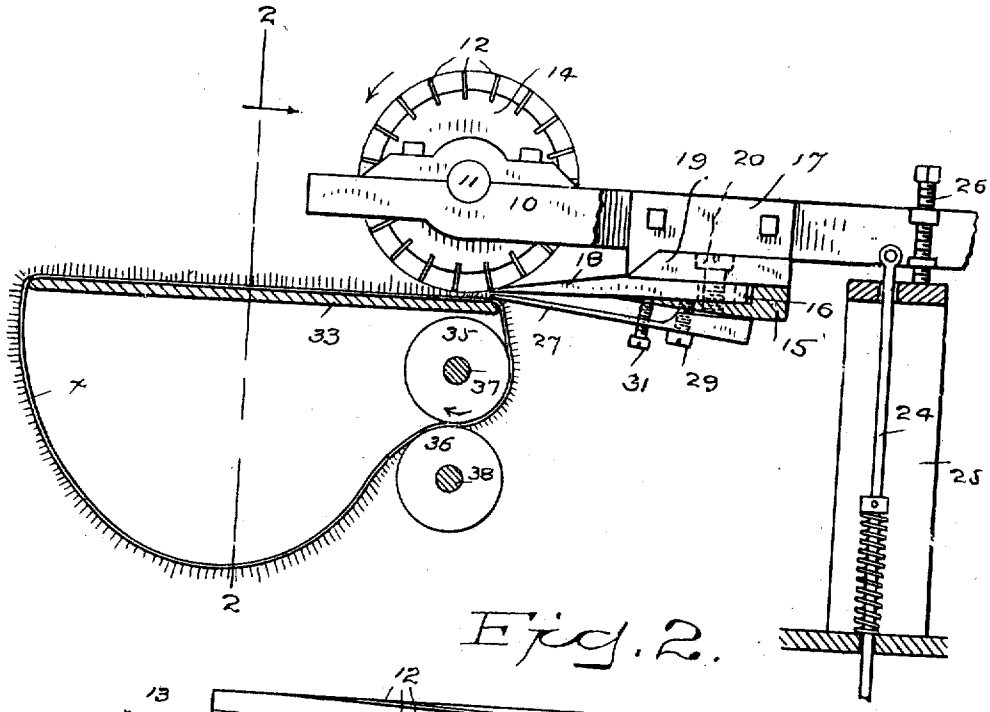
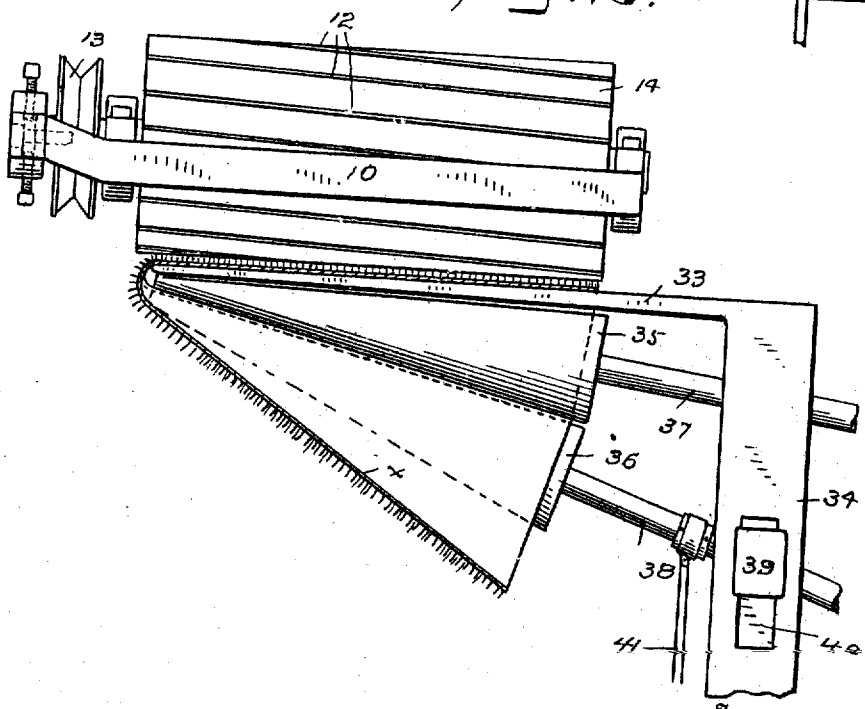


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

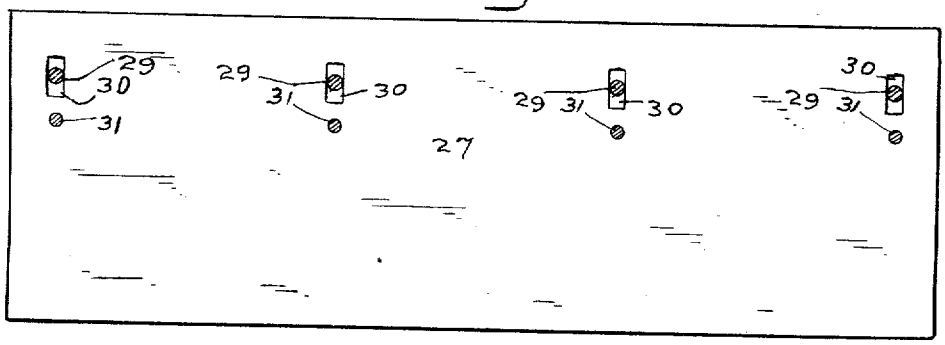

Fig. 4.

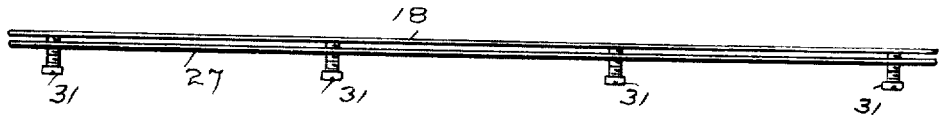

Fig. 5.

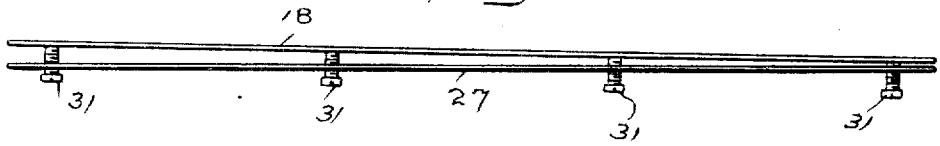

Fig. 6.

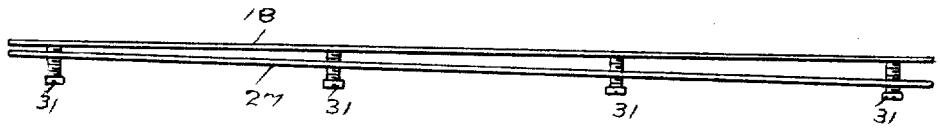

Fig. 7.

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UNITED STATES PATENT OFFICE.

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NAP-REGULATING ATTACHMENT FOR CLIPPING-MACHINES.

952,475. Specification of Letters Patent. **Patented Mar. 22, 1910.**

Application filed March 5, 1909. Serial No. 481,236.

To all whom it may concern:

Be it known that I, JOHN H. STARR, a citizen of the United States, residing at Danbury, county of Fairfield, State of Connecticut, have invented a new and useful Nap-Regulating Attachment for Clipping-Machines, of which the following is a specification.

This invention relates to machines for clipping hat bodies before stretching, that is, as the bodies come from the felting process, and has for its object to provide an attachment which may be applied to machines already in use, which may be readily adjusted to produce a nap of any desired length, will be self-regulating in use to produce the same length of nap upon thin and thick portions of irregular bodies and which may be adjusted to clip a nap of varying length from brim to tip; that is a nap longer at the tip than at the brim or longer at the brim than at the tip, or if preferred longer at the quarter than at either brim or tip.

In clipping machines as ordinarily constructed a swinging frame carries a clipping cylinder and bed knife. The frame does not however automatically rise and fall in use as the thickness of the bodies varies. These machines may be adjusted to produce a nap of any required length, but it is by an adjustment of the bed-knife and clipping cylinder relatively to the body carrying table or shoe, which adjustment does not change in use, consequently body and nap together must have the same thickness at all times. If the bodies vary in thickness some will have longer nap than others. If a body has a thick place the nap will be shorter at that place. If a body is allowed by the operator to wrinkle or fold, the nap is cut clear to the body and frequently the bodies are ruined.

My novel attachment provides an adjustable guard plate which may be attached to the bed plate of the machine, may be adjusted to any of the requirements of use, as to clip a nap longest at either brim or tip or longer at the quarter than at either brim or tip, and which will cause the swinging frame carrying the clipping cylinder and bed knife to rise and fall as the body may be thicker or thinner thereby insuring the predetermined length of nap without regard to the thickness of the body and preventing injury to the body should it become wrinkled or folded.

With these and other objects in view I have devised the novel attachment which I will now describe referring to the accompanying drawings forming a part of this specification and using reference characters to indicate the several parts.

Figure 1 is a view partly in elevation and partly in section illustrating so much of a clipping machine as is necessary to show the application thereto of my novel attachment; Fig. 2 an elevation as seen from the left in Fig. 1, the hat body being in section on the line 2—2 in Fig. 1, looking in the direction of the arrow; Fig. 3 is a plan view of the guard plate detached, with the screws in section; Fig. 4 a front elevation of the bed knife of the machine and the guard plate showing the latter adjusted to produce a nap of uniform length; Fig. 5 a similar view showing an adjustment of the guard plate to produce a nap longest at the tip; Fig. 6 a similar view showing an adjustment to produce a nap longest at the brim; and Fig. 7 is a similar view showing an adjustment to produce a nap longest at an intermediate point, *i. e.* at the quarter of a hat body.

10 denotes a frame which may swing vertically.

14 denotes the clipping cylinder which is provided with clipping knives 12, is carried by a shaft 11 journaled on the frame and is driven by a belt (not shown) passing over a belt pulley 13.

15 denotes the bed plate which is provided with a recess 16 to receive the bed knife 18 and at its ends with angle plates 17 (one only being shown) which are bolted to the frame to rigidly secure the bed-plate and bed knife thereto.

19 denotes a clamping plate which rests upon the rear end of the bed knife and the bed plate. The bed knife is secured to the bed plate by means of screws, indicated by 20 (see dotted lines), which pass through the clamping plate, through slots in the bed knife (leaving said knife adjustable forward and backward) and engage the bed plate. The frame may be raised and lowered by means of a rod 24 operated by a foot lever (not shown), or in any suitable manner. The downward movement of the frame is limited by means of a stop bolt 26 which engages a standard 25.

X indicates a hat body which is supported for the clipping operation by means of a table or shoe 33 extending from a standard 34, the outer end of the table or shoe being suitably shaped to enter the apex of the body. Underneath the table or shoe are tapering feed rolls 35 and 36 carried by shafts 37 and 38 respectively by which the bodies are drawn under the clipping cylinder and bed knife in use, the shafts being geared together so as to rotate the feed rolls in unison. Shaft 38 is carried by a journal box 39 which slides in a slot 40 in standard 34. A rod 41 controlled by a foot lever (not shown) or in any suitable manner separates the feed rolls to receive a body and returns them to the operative position.

27 denotes the guard plate of my novel attachment. This plate is secured to the bed plate by screws 29 which pass through slots 30 in the guard plate and engage bed plate 15, the slots permitting forward and backward adjustment of the guard plate. In practice the forward edge of the guard plate is set substantially in vertical alinement with the forward edge of the bed knife. The forward edge of the guard plate may or may not be provided with comb teeth as preferred. On some grades of bodies with extra heavy nap a toothed guard plate may be used with good results. The adjustment of the guard plate is effected by means of screws 31 which pass through the guard plate and the ends of which bear against the under side of the bed plate. The forward end of the guard plate is made thin enough in practice so that it may be sprung by inward or outward movement of screws 31 and will remain in the position to which it is adjusted by said screws.

The operation is as follows: In clipping machines, the edge of the bed knife rests lightly against clipping knives 12 on the cylinder. Where my attachment is not used the frame is set by means of stop bolt 26 to leave the desired space for the body and the nap between the bed knife and the table or shoe. For example, for bodies three thirty-seconds of an inch in thickness and upon which a nap three thirty-seconds in length is desired, the frame would be set to leave three-sixteenths space between the bed knife and the table. As already stated, however, this provides for no variations in the bodies. If the body was thicker in some places than others, the nap would be cut shorter at the thick places, and if the body became wrinkled or folded the entire nap might be cut off and the body ruined or seriously injured. This difficulty is wholly overcome by the use of my novel attachment in which the guard plate rests upon the body as clearly shown in Fig. 1. The guard plate is adjusted horizontally with its forward edge substantially in vertical alinement with the forward edge of the bed knife. This is easily effected as screws 29 by which the guard plate is secured in place pass through slots in the plate. The vertical adjustment of the forward end of the guard plate is effected by means of screws 31 which are turned in or out as may be required to give a space between the edge of the bed knife and the under side of the guard plate equal to the length of nap required. It should be understood furthermore that this length of nap will be cut upon all bodies without regard to the thickness of the bodies. The frame carrying the clipping cylinder, bed knife and guard plate is set by means of bolt 26 so as to prevent the clipping knives from coming in contact with the table or shoe. Should there be a thick place in a body or should it become folded or wrinkled, the thick portion of the body as it is drawn under the guard plate by the feed rollers will raise the guard plate, bed knife and cylinder, which will drop to their normal adjustment again as soon as the thick portion of the body has passed the guard plate. As the guard plate, bed knife and clipping cylinder all rise and fall together, there can be no change in the thickness of the nap. In the present instance, I have shown each guard plate as provided with four adjusting screws.

In Fig. 4, the guard plate is shown as adjusted parallel with the bed plate to produce a nap of uniform length throughout.

In Fig. 5 I have shown an adjustment of the guard plate relatively to the bed plate to clip a nap longest at the tip and shortest at the brim. This is effected by turning in one, two or three of the set screws 31, counting from the left, as much as may be required to lower the guard plate and produce the desired inclination relatively to the bed plate. As the space between the edge of the bed plate and the lower side of the guard plate represents the length of the nap, it will be obvious that the more one end of the guard plate is lowered relatively to the other end the greater will be the increase in the length of the nap from one end toward the other. In Fig. 6 I have shown an adjustment of the guard plate relatively to the bed plate to provide for the reverse of this condition; that is, for clipping a nap longest at the brim and shortest at the tip, the set screws 31 being turned in from the right toward the left. Should it be required to provide a lot of bodies with a nap relatively short at both brim and tip and longest at the quarter of the body, so called, one or two of the intermediate screws 31 would be turned inward, which would spring the intermediate portion of the guard plate downward, as is clearly shown in Fig. 7. The rule is simply to spring the portion of the guard plate that corresponds with the por-

tion of the bodies where the longest nap is required downward away from the bed plate as much as may be required to produce the desired result.

The putting in and taking out of the bodies and the manipulation of the feed rolls and frame is the same whether the attachment is used or not, and will therefore not be described in detail as it is common in clipping machines.

Having thus described my invention, I claim:—

1. In a machine of the character described, the combination with a bed plate, bed knife, clipping cylinder and table, of a guard plate made thin at its forward edge and lying intermediate the bed knife and the table and means for springing portions of the guard plate inward and outward relatively to the bed plate.

2. In a machine of the character described, the combination with a swinging frame, means for adjusting the frame and a bed plate, bed knife and clipping cylinder carried thereby, of a table and a guard plate secured to the bed plate and lying intermediate the bed knife and the table, means for adjusting the guard plate in a horizontal plane and means for springing portions of the guard plate inward and outward relatively to the bed plate.

3. In a machine of the character described, the combination with a bed plate, bed knife and clipping cylinder, of a guard plate secured to the bed plate and a plurality of screws passing through the guard plate and bearing on the bed plate, by which the plane of portions of the forward end of the guard plate may be adjusted relatively to the bed knife.

4. In a machine of the character described, the combination with a table over which the bodies pass, a swinging frame, a bed plate, bed knife, and clipping cylinder carried thereby and means for adjusting the frame vertically, of a guard plate lying intermediate the bed knife and the table under which the body passes and means for adjusting the guard plate relatively to the bed knife to determine the length of nap irrespective of the thickness of the bodies.

5. In a machine of the character described, the combination with a table over which a hat body may be placed, a swinging frame adjacent to the table and a clipping cylinder and bed knife carried by the frame, of a guard plate adjustably secured to the frame and adapted to bear on a hat body carried by the table.

6. In a machine of the character described, the combination with a table over which a hat body may be placed, a swinging frame adjacent to the table and a clipping cylinder and bed knife carried by the frame, of a guard plate secured to the frame and means for adjusting the distance between the edge of the bed knife and portions of the edge of the guard plate.

7. In a machine of the character described, the combination with a table over which a hat body may be placed, a swinging frame adjacent to the table and a clipping cylinder and bed knife carried by the frame, of a slotted guard plate, screws passing through said slots to adjustably retain said plate in place and other screws engaging said plate and acting to spring portions of the edge thereof, substantially as described, for the purpose specified.

8. In a machine of the character described, the combination with a bed plate, of a guard plate made thin at its forward edge, means for adjusting said plate in the horizontal plane, and means for springing the forward edge of said plate inward or outward relatively to the guard plate.

9. In a machine of the character described, the combination with a bed plate, of a guard plate adjustably secured to the bed plate and a plurality of screws passing through the guard plate and bearing on the bed plate, by which portions of the forward edge of the guard plate may be sprung inward or outward relatively to the bed plate.

10. In a machine of the character described, the combination with a bed plate, of a guard plate having slots, screws passing through said slots and adjustably securing the guard plate to the bed plate and a plurality of screws passing through the guard plate and bearing on the bed plate, by which the plane of portions of the forward edge of the guard plate may be adjusted relatively to the plane of the bed plate.

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

JOHN H. STARR.

Witnesses:
HARRY B. MALLORY,
CREED F. FUDGE.