(No Model.) 2 Sheets—Sheet 1.

G. YULE.

HAT MACHINE CLUTCH.

No. 315,207. Patented Apr. 7, 1885.

Fig. 1.

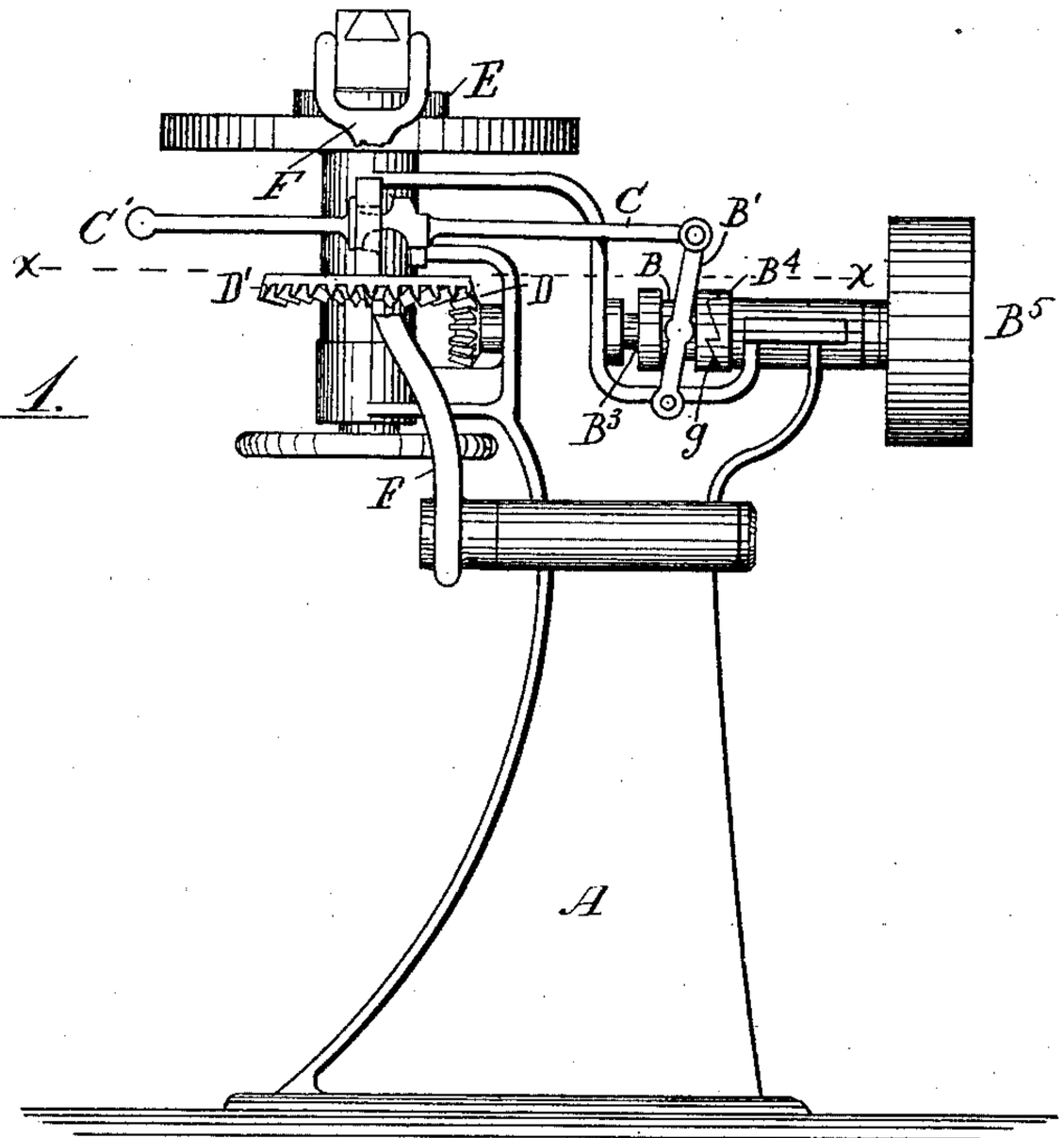
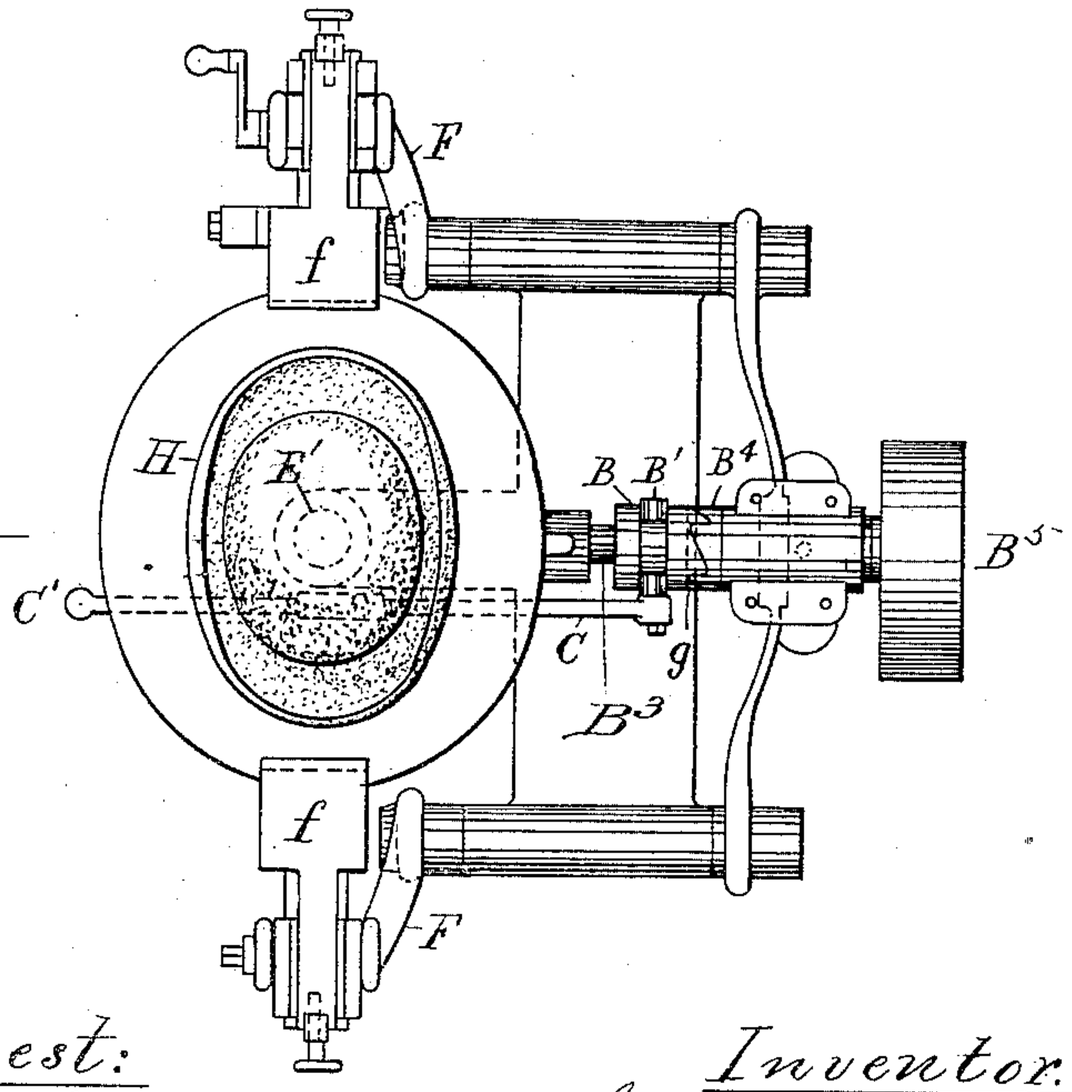


Fig. 2.



Attest:
L. Lee.
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George Yule per
Thos. S. Crane, Atty.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

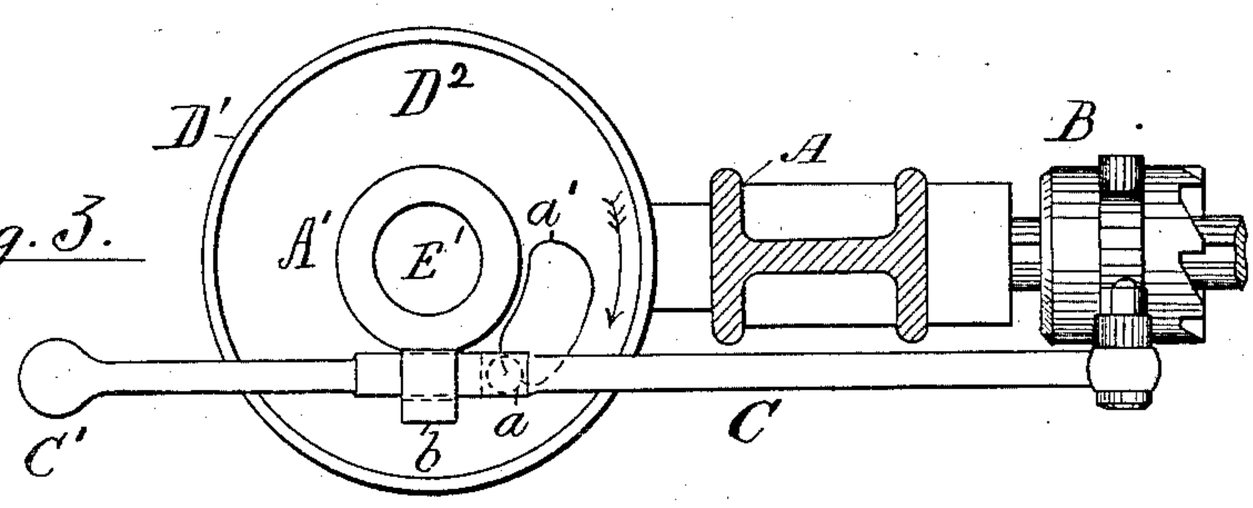


Fig. 6.

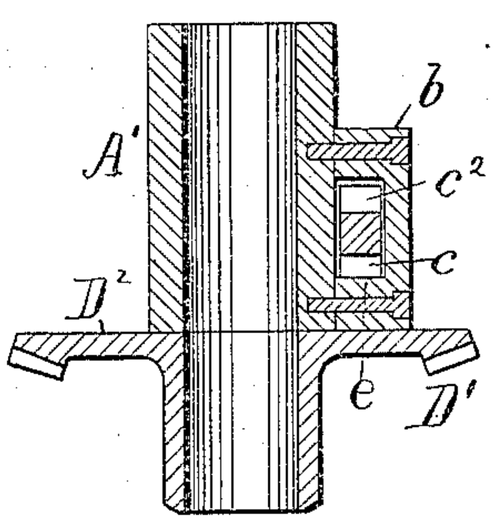


Fig. 4.

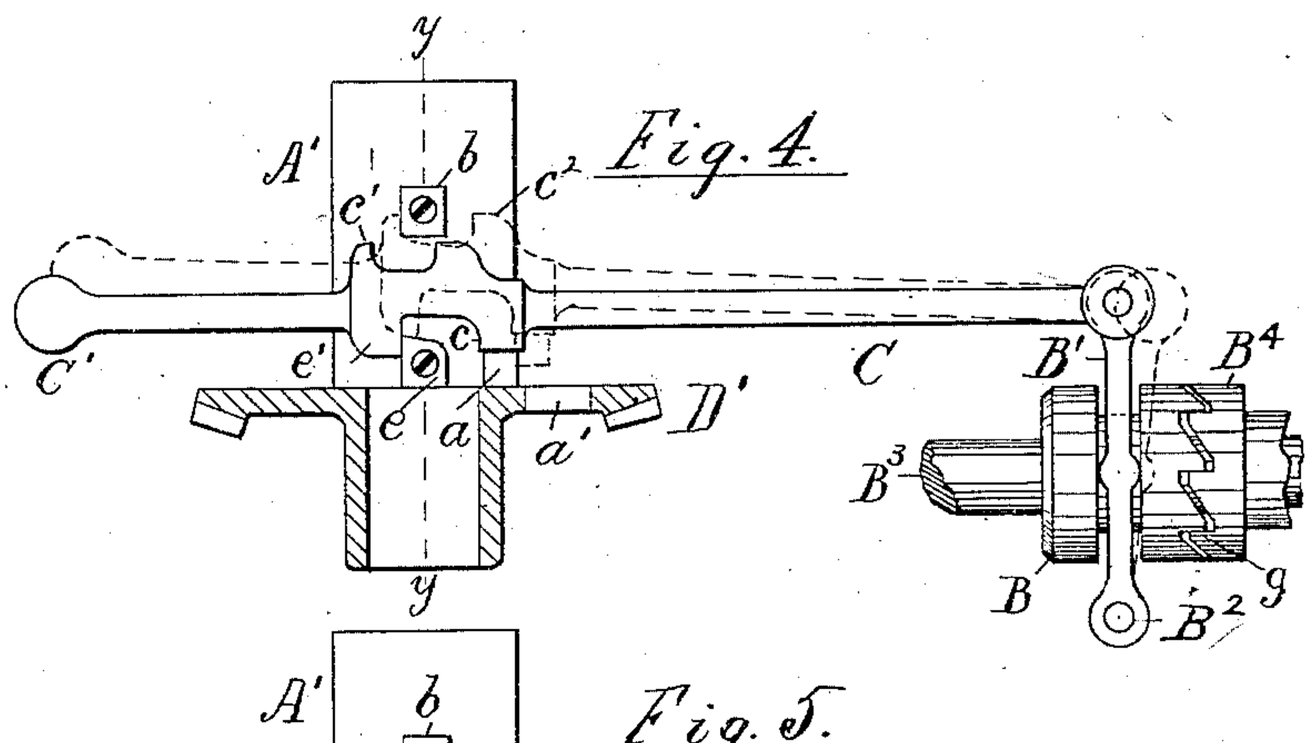


Fig. 7.

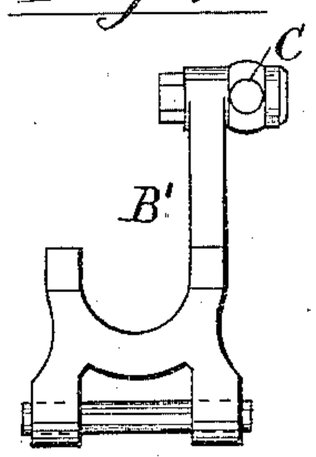


Fig. 5.

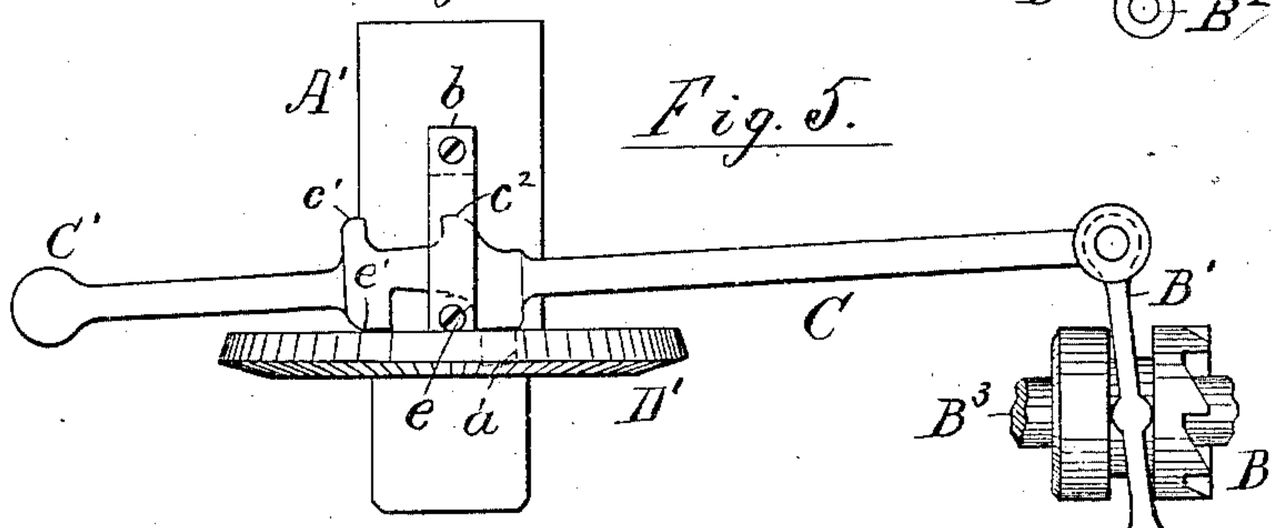


Fig. 9.

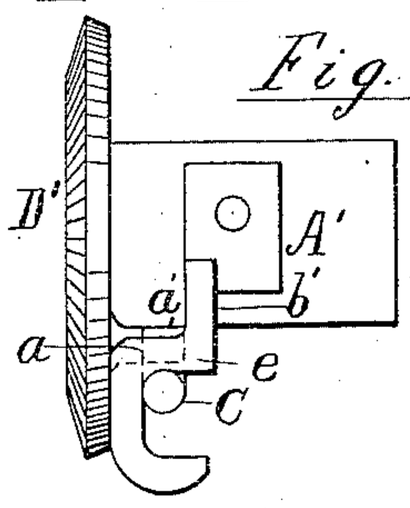
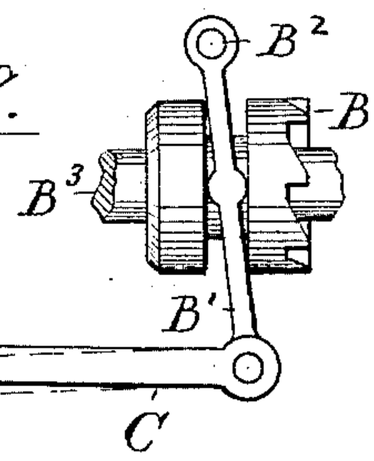


Fig. 8.



Attest:

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Inventor.

George Yule, per

Thos. S. Crane, Atty.

UNITED STATES PATENT OFFICE.

GEORGE YULE, OF NEWARK, N. J., ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE HAT CURLING MACHINE COMPANY, OF DANBURY, CONN.

HAT-MACHINE CLUTCH.

SPECIFICATION forming part of Letters Patent No. 315,207, dated April 7, 1885.

Application filed September 4, 1884. (No model.)

To all whom it may concern:

Be it known that I, GEORGE YULE, a citizen of the United States, residing in the city of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Hat-Machine Clutches, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention consists, primarily, in the combination, with a hat-clamp and a clutch for rotating such clamp, of a shifter-rod to disengage such clutch, a lug upon such shifter, and a dog revolving with the hat-clamp and adjusted to engage the lug and move the shifter in a given position of the hat-clamp.

It also consists in means for moving the shifter-lug from the path of the revolving dog, and in a stop combined with the shifter-rod to engage an abutment when the hat-clamp has reached a specific position.

The invention is shown herein as applied to a hat-curling machine, Figure 1 representing a machine of the form claimed in another patent application filed herewith, but having the tool-carrier arm F broken out where it would obscure the clutch-shifter from view. Fig. 2 is a plan of the same, showing the hat H in position for the withdrawal of the curling-tools *f*, and in which precise position my clutch mechanism is adapted to stop the hat-carrying clamp E. Fig. 3 is a plan of the clutch mechanism detached from the adjacent part, the frame A being in section on line *x x* in Fig. 1. Fig. 4 is a side view of the same parts without the frame, the shifter being shown in its neutral position in dotted lines and in a driving position (for one revolution) in full lines, the gear D′ and guide *b* both being in section. Fig. 5 is a similar view (not in section) with the shifter entirely moved and the gear locked fast. Fig. 6 is a section on line *y y* in Fig. 4. Fig. 7 is an end view of the clutch-lever; and Fig. 8 is a plan, and Fig. 9 an end view, of an alternative construction, the shifter-handle being removed in the latter view.

A is the frame of the machine; B, the clutch for driving the hat-clamp E by means of a shaft, B^3, and gears D D′. A clutch-driver, B^4, formed with teeth *g*, is attached to the shaft and rotated continuously by the pulley B^5, and the clutch-block B (shown enlarged in Fig. 5) is moved to and from the driver B^4 by the lever B′ and shifter C, the latter serving merely to move the clutch-block when shifted, and requiring further attachments to the hat-clamp to stop and lock it in a definite position. Such attachments are provided in a dog, *a′*, revolving with the hat-clamp spindle E′, a lug, *a*, upon the shifter in the path of the dog, and a stop, *c*, affixed to the shifter, to strike an abutment, *e*, when the hat-clamp has reached the desired point in its rotation.

Two illustrations of my invention are shown in the drawings, Figs. 8 and 9 exhibiting the simplest construction. The dog *a′* is projected upward from the plate D^2, which forms the back of the gear D′, and the lug *a* is formed as a projection at one side of the shifter-rod, the latter being supported just above the plate in a guide, *b′*, affixed to the bearing A′. The shifter is laid in a notch of sufficient width in the guide to be movable sidewise, as shown in the dotted outline in Fig. 8, and the lug *a* may thus be moved beyond the circle in which the dog *a′* revolves. When thus adjusted, the hat-clamp would revolve continuously; but when the shifter is moved sidewise into the position shown in the full lines the dog engages the lug *a* and draws the clutch out of gear from the teeth *g*. The shifter is also provided with a stop-ear, *c*, which then comes in contact with the abutment *e*, formed by the guide, and arrests the further rotation of the dog and hat-clamp at the precise point desired. The guide thus serves to sustain the shifter when withdrawn from the dog, and as an abutment to stop the rotation of the hat-clamp when unclutched.

In Figs. 1 to 6 the shifter is fitted to draw back and forth (by the hand of the operator applied to a handle, C′, at its forward end) through a guide, *b*, which is formed with the abutment or stop-block *e* at its lower end.

The lug *a* consists in a pin projected from the lower side of the shifter-rod; and the stop *c*, although performing a separate office, is formed at the root of the same pin, and serves to strike the abutment when the shifter is pulled quite forward and the clutch entirely detached. A slot is cut in the plate D^2, which connects the teeth of the gear D with the spin-

dle E′, which carries the hat-clamp. This plate revolves horizontally, and the lug *a*, attached to the shifter, is intended to rest upon the plate when the machine is in operation, and to drop into the slot as the hat approaches the position for removal from the tools. The continued rotation of the gear D then brings the end of the slot into contact with the lug, and draws the shifter-rod along until the stop *c* strikes the abutment and arrests both the shifter and hat positively. The end of the slot thus serves as a dog or actuator to move the shifting-lever at the required point in a manner precisely equivalent to the dog *a′* in Figs. 8 and 9. The shifter is provided with a projection, *e′*, at the opposite side of the guide from the stop *c*, and the same is intended to be set in contact with the abutment, as in Fig. 4, when the hat-clamp is intended to perform but a single rotation and then stop, the clutch being then sufficiently engaged with the teeth *g* to rotate the hat-clamp; but when the operator desires the hat, for any reason, to be continuously rotated the shifter-lug may be removed from contact with the plate D^2, and the clutch thereby held continuously in gear by resting the projection *e′* upon the top of the abutment, as indicated in dotted lines in Fig. 4. While in such position, the operator can set the clutch-shifter to automatically stop the machine at the required point by slightly drawing the clutch out of gear, as indicated at the teeth *g* in Fig. 4, and dropping the lug *a* into contact with the plate D^2. Such dropping of the shifter obviously throws the lug into the path of the slot and dog *a′* as effectually as if the latter projected upward from the plate, as in Figs. 8 and 9, because the lug drops into the slot as the latter passes under it, and is then engaged by the dog as the plate continues to revolve. A check-stud, *c′*, upon the upper side of the shifter strikes the guide *b* as the shifter is adjusted, as shown in the dotted outline in Fig. 4, and a check-stud, c^2, serves to check the operator in withdrawing the shifter from such "continuously-operating" position into that where the lug *a* rests upon the plate, as the operator might otherwise inadvertently draw the clutch B entirely from the teeth *g* in dropping the projection *e′* from the abutment.

From the above description it will be seen that the invention is exclusively applicable to machines in which a shifter or moving rod is provided to actuate the clutch mechanism, and that the shifter acts as an intermediate agent between a fixed abutment and a dog revolving with the hat-clamp to stop the hat-clamp positively at the desired point. Such exactness in stopping the hat-clamp is rendered important by the elliptical shape of the brim and the necessity for applying the tools to or removing them from the brim at a particular point, as in brim softening, curling, and paring operations.

I am fully aware that it is not new to combine a positive stop motion with a clutch-shifting mechanism, and do not therefore claim such a combination, except when effected by the means I have herein set forth. It is obvious, however, from the drawings and illustrations made herein, that the revolving dog may be constructed in various forms, and that the lug upon the shifter may be arranged to stand within and without the path of the revolving dog by other means than those I have herein shown and described.

Having thus fully set forth my invention, I claim herein as follows:

1. The combination, with a hat-clamp and a clutch for rotating such clamp, of a shifter to disengage such clutch, a lug upon such shifter, and a dog revolving with the hat-clamp and adjusted to engage the lug and move the shifter in a given position of the hat-clamp.

2. The combination, with a hat-clamp and a clutch for rotating such clamp, of a shifter to disengage said clutch, a lug upon such shifter, a dog revolving with the hat-clamp, and means for adjusting the lug upon the shifter to or from the path of the revolving dog at the pleasure of the operator.

3. The combination, with a hat-clamp and a clutch for rotating such clamp, of a shifter to disengage such clutch, a dog revolving with said hat-clamp and adjusted to engage the shifter in a given position of the hat-clamp, a lug upon the shifter to engage the dog, and a stop for limiting the motion of the shifter when the hat-clamp is in the desired position.

4. The combination, with a hat-clamp and a clutch for rotating such clamp, of the slotted disk revolving with said clamp, the shifter provided with lug to rest upon the disk, and means for sustaining the lug above the disk at the pleasure of the operator.

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

GEORGE YULE.

Witnesses:
THOMAS E. TWEEDY,
THOS. S. CRANE.