

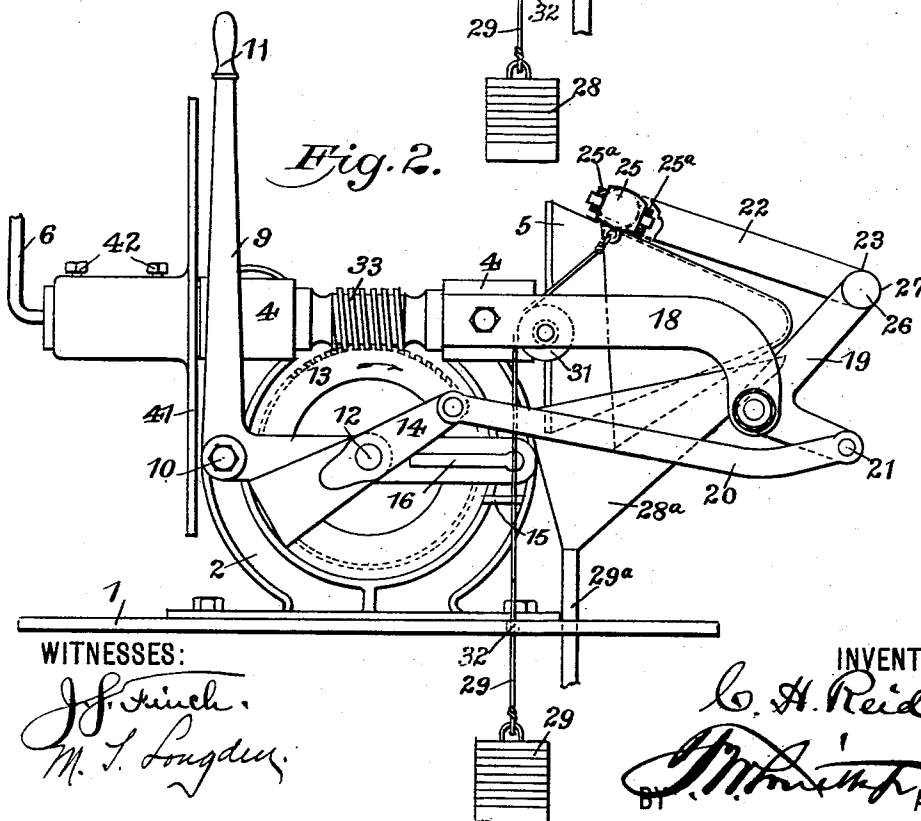
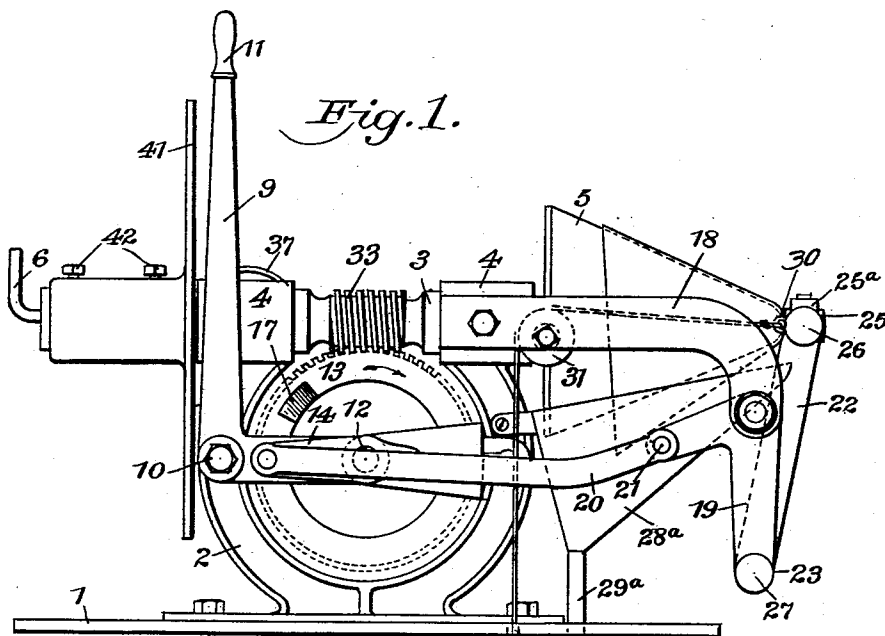
(No Model.)

3 Sheets—Sheet 1.

C. H. REID.
HAT PINNING OUT MACHINE.

No. 570,715.

Patented Nov. 3, 1896.



WITNESSES:

J. F. Kinch.
M. L. Longden.

INVENTOR

C. H. Reid
BY *[Signature]* ATTY

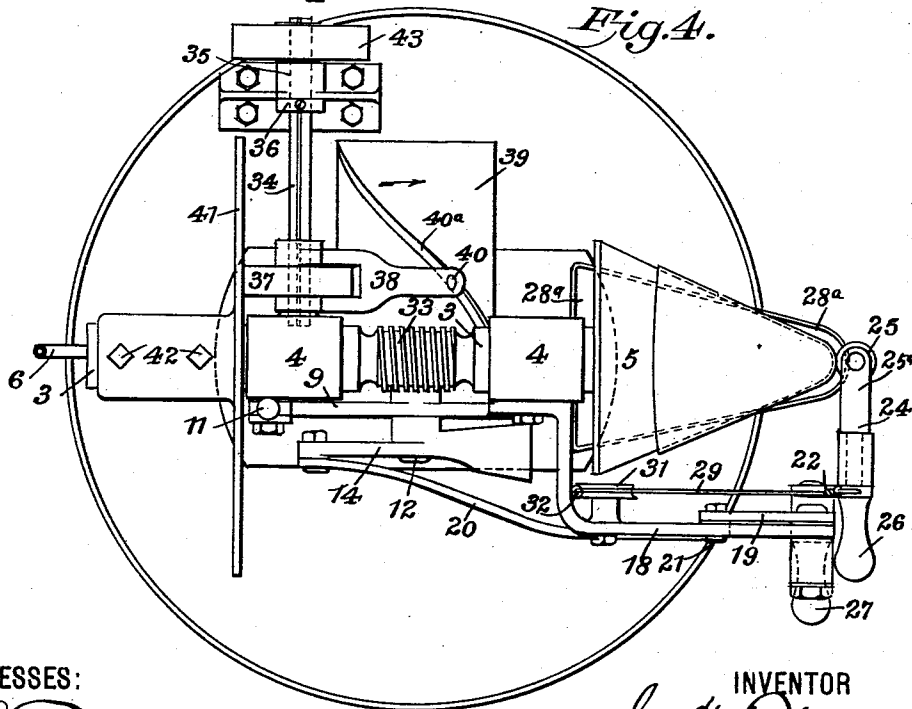
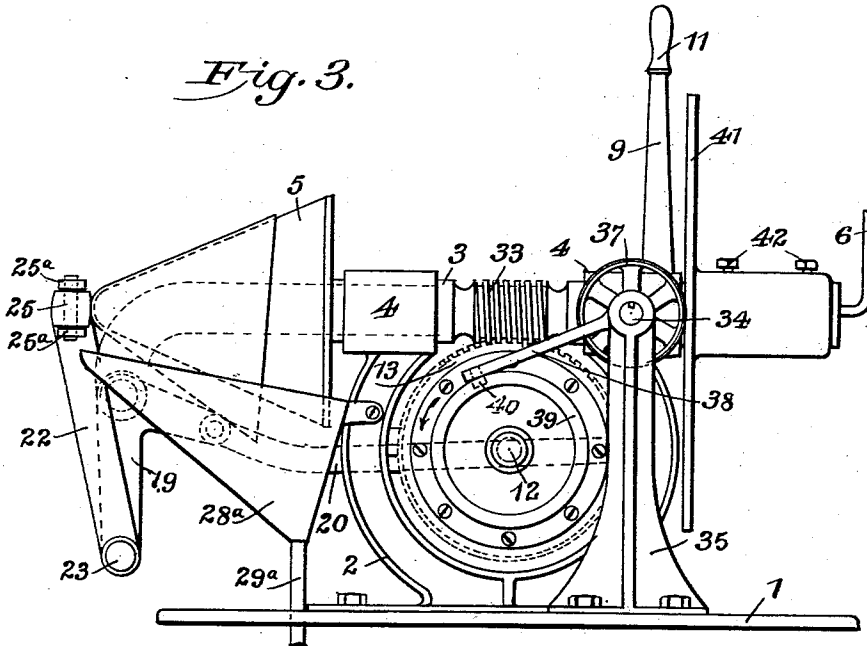
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3 Sheets—Sheet 2.

C. H. REID.
HAT PINNING OUT MACHINE.

No. 570,715.

Patented Nov. 3, 1896.



WITNESSES:

J. H. Smith.
M. L. Longden

INVENTOR

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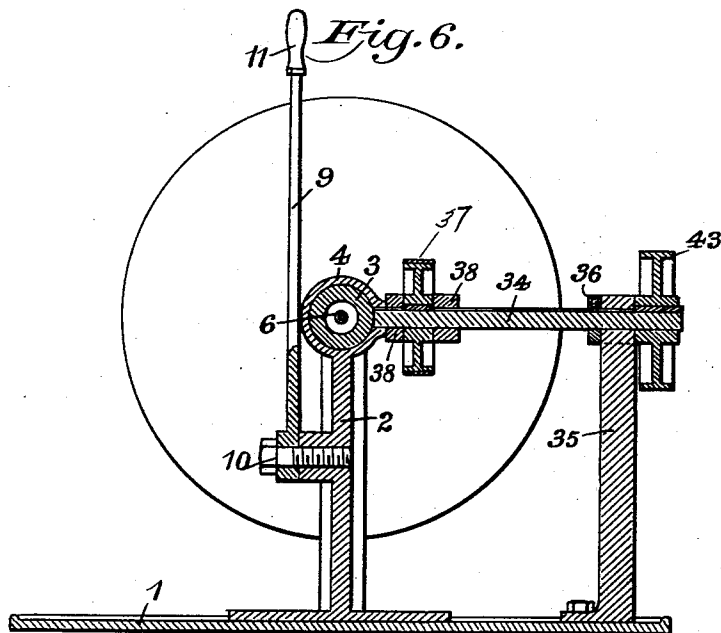
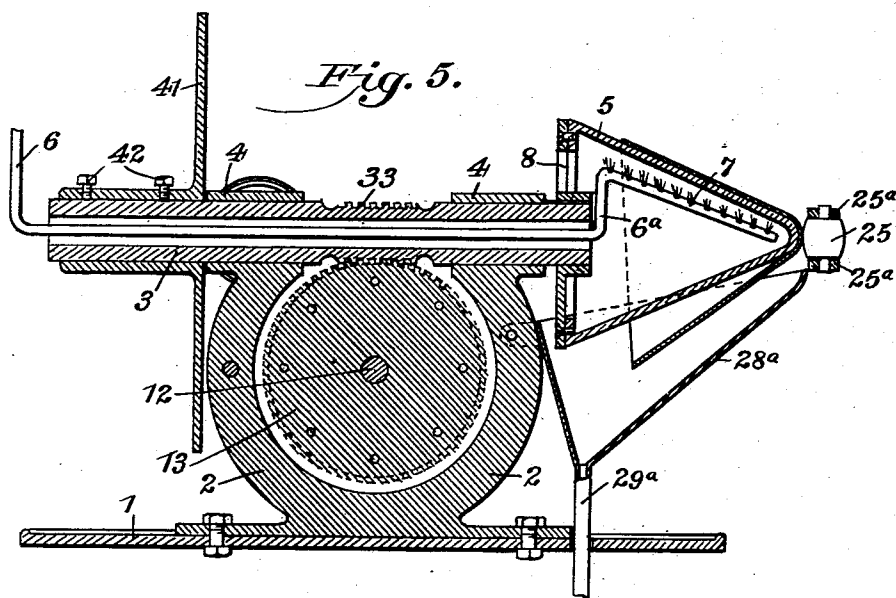
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3 Sheets—Sheet 3.

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WITNESSES:

J. J. Smith
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UNITED STATES PATENT OFFICE.

CHARLES H. REID, OF DANBURY, CONNECTICUT.

HAT-PINNING-OUT MACHINE.

SPECIFICATION forming part of Letters Patent No. 570,715, dated November 3, 1896.

Application filed January 15, 1896. Serial No. 575,576. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. REID, a citizen of the United States, residing at Danbury, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Hat-Pinning-Out Machines; and I do hereby 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 new and useful improvements in machines for pinning out or smoothing out the creases in hat-bodies occasioned by the felting or sizing operation, and also for wringing the water out of said hat-bodies and drying the same.

The object of my invention is to provide a machine of this description which shall be automatic in its operation and to greatly improve the character of the work done thereon.

In the accompanying drawings, which form a part of this specification, Figure 1 is a front elevation of my improved machine with the parts in the position they occupy when the smoothing or wringing roll is operating upon the tip of the hat-body; Fig. 2, a similar view, but showing the parts in the position they occupy when said roll is operating upon the base of the hat-body; Fig. 3, a rear elevation with the parts in the same position as described with respect to Fig. 1; Fig. 4, a plan view; Fig. 5, a central vertical longitudinal section taken through the shaft which carries the hat-support, and Fig. 6 a vertical cross-section taken axially through the power-shaft.

Similar numbers of reference denote like parts in the several figures of the drawings.

1 is a table upon which is mounted the frame 2. Said table may be supported by any suitable structure. (Not shown.)

3 is a horizontal hollow shaft journaled in bearings 4 in the frame.

5 is a hollow cone-shaped block rigidly mounted on the forward end of the shaft 3, and 6 is an ordinary gas-pipe which passes through the hollow shaft 3 and enters the block 5. At the point where this pipe enters the block an offset 6^a is made, and the pipe is then extended at an angle to the offset portion and parallel with the wall of the cone, as

shown at 7, this extension being perforated to constitute a burner, so that gas introduced within the pipe may be lighted to afford a heating agent for the cone. 8 is an opening in the rear vertical wall of said block, through which access may be had to said burner to ignite the gas. (See Fig. 5.)

The gas-pipe above referred to is supported in any desirable way, as, for instance, by the ceiling of the room from which it depends.

9 is an L-lever pivoted at the heel to the frame, as seen at 10, the upper end of said lever being provided with any suitable handle 11. 12 is a short shaft journaled within the lower arm of said lever.

13 is a worm-wheel tightly mounted on the inner end of the shaft 12, and 14 is a crank rigid with the outer end of this shaft.

15 is a lug formed on the frame which acts as a support for the lower arm of the lever 9 when the latter is dropped.

16 is a spring-actuated dog pivoted within the lower arm of the lever 9. I have not shown the construction of this dog, since in all respects it is identical with a corresponding dog shown and described in my Letters Patent, hereinafter to be referred to. When the lever 9 is operated to lift the lower arm thereof, the said dog will, when said arm is in its highest position, spring into a recess or notch (not shown) in the frame after the manner of an ordinary spring-catch and retain said lever in its elevated position. 17 is a beveled trip secured on the side of the wheel 13 and adapted, when said wheel revolves, to lift said dog 16 out of the notch, thereby causing the arm to drop and rest against the lug 15.

18 is a bracket extending from the frame 2, and 19 is a bell-crank pivoted to the outer extremity of said bracket.

20 is a connecting-rod which is pivoted at one end to the crank 14, while the other end is pivoted to the bell-crank 19 at 21.

22 is a lever which is pivoted at 23 to the bell-crank 19, and swiveled to the upper end of said lever is a roller-carriage 24.

25 is a roller which is pivoted between ears 25^a, formed on the carriage 24.

26 is a handle secured to the upper end of the lever 22, and 27 is also a handle secured to the bell-crank 19.

28 is a weight suspended by a cord 29, which is attached to the lever 22 at 30. The cord 29 passes over a pulley 31, supported on the bracket 18, and through a hole 32 in the table 1. The function of the weight 28 is to keep the wringing-roller 25 pressed against the tip of the hat and to also increase the pressure of said roller on the hat when operating upon the other portions of the same.

28^a is a drip-pan secured in any desirable way beneath the block 5, so as to catch the drippings from the hat, and 29^a is a waste-pipe leading from the bottom of said pan to any convenient point.

33 is a worm formed on the shaft 3, which is adapted to engage the teeth of the worm-wheel 13 and revolve the latter. When the worm-wheel 13 has been raised to engage the teeth of the worm 33, which is of course effected by the L-lever 9, and motion is imparted to the shaft 3, as will be hereinafter described, the crank 14 will cause the roller 25, through the medium of the bell-crank 19, lever 22, and connecting-rod 20, to gradually traverse the entire outer surface of the hat-body, it being borne in mind that while said roller is advancing along the incline of the cone-block said block is kept revolving, carrying with it the hat-body, which is placed thereon, so that it will be understood that any wrinkles or creases in said hat-body will be ironed out and at the same time the water will be pressed out of said hat-body and be received within the drip-pan.

Owing to the fact that the block 5 is kept heated, all moisture that may remain in the hat-body after the roller 25 has gone over the same will be dried out by the heat of said block, and the removing of the creases or wrinkles from said hat-body and the drying of the same will be accomplished in one operation.

When the roller 25 has traversed the entire outer surface of the hat-body, the trip 17, carried by the worm-wheel 13, will engage the spring-actuated dog 16 to push said dog out of the notch in the frame and permit the L-lever 9 to drop against the lug 15, thus disengaging said worm-wheel from the worm 33.

It is obvious that in treating hat-bodies upon my machine I may start said machine with the roller 25 pressing against the tip of the hat-body, or I may start said machine with said roller pressing against the base of said body, and therefore I do not wish to be limited in this respect, since by changing the location of the trip 17 with respect to the spring-actuated dog 16 either of these ways of starting the machine may be effected.

The horizontal shaft which carries the worm, the worm-wheel engaged by the latter, the L-shaped lever, the means for throwing said worm-wheel into and out of engagement with the worm, and the system of levers for causing the roller to travel along the hat are substantially the same both as to their con-

struction and operation as the corresponding parts shown and described in Letters Patent No. 420,961, issued to me February 11, 1890, and I therefore do not wish to be understood as claiming any such construction in the present instance. Moreover, the means for causing the roller to automatically travel along the hat is a secondary feature, the gist of my invention resting in the provision of mechanism for imparting to the hollow cone a variable speed, so that all portions of a hat throughout its circumferential area travel beneath the roller at the same rate of speed, which latter mechanism I will now describe.

As a preliminary to this description, I would say that in hat-pinning-out machines as heretofore constructed the speed of various portions of the hat beneath the pinning-out tool is not the same at any two points throughout the cross-diameter of the hat, since the base of the hat in such machines revolves faster than the tip. The consequence has been that the base of the hat does not get the same benefit from the pinning-out tool as does the tip, and, moreover, said tool drags along the tip to the extent that the latter is frequently distorted. It is the chief aim of my improvement to obviate this disadvantage, as will be readily understood from the following description.

When the roller 25 is operating on the tip of the hat-body, a faster speed is employed than when said roller is operating upon the base of said hat-body, and said speed is automatically and gradually changed from the faster speed to the slower speed in order to economize time in treating a hat, and the mechanism for effecting this change of speed I will now describe.

Referring particularly to Figs. 3, 4, and 6, 34 is a horizontal shaft at right angles to the shaft 3, one end of said shaft 34 being journaled in the side of one of the bearings 4, while the other end of said shaft is journaled in and supported by a standard 35, bolted to the table 1, and 36 is a collar tight on said shaft, which prevents any lengthwise movement of the latter.

37 is a friction-wheel splined on the shaft 34 in such manner as to be capable of freely sliding lengthwise thereon, but held rigidly with said shaft as regards any rotary movement. (See Figs. 4 and 6.)

38 is a lever swung around the shaft 34, the upper end of said lever being bifurcated in such manner as to straddle and embrace each side of the friction-wheel 37, so that when said lever is moved bodily back and forth on the shaft 34 said friction-wheel will be carried with it.

39 is a cam carried by the worm-wheel 13 and preferably screwed thereto, as shown at Fig. 3.

40 is an antifriction-roller which tracks within the groove 40^a, formed in the periphery of the cam 39, so that it will be seen that

as said cam revolves the lever 38 will be caused to slide along the shaft 34, carrying with it the friction-wheel 37.

41 is a friction-disk secured rigidly to the shaft 3 by set-screws 42 and extending in a plane at right angles to that of the wheel.

The circumference of the wheel 37 is at all times in frictional contact with the face of the disk 41, and when said wheel is revolved it will therefore cause the disk and consequently the shaft 3 and parts carried thereby to also revolve. It will of course be obvious that the nearer the wheel is to the axis of the disk the greater will be the speed imparted to the latter, and as the wheel is moved outwardly toward the circumference of the disk the speed of the latter will decrease.

43 is a power-pulley secured rigidly upon the outer end of the shaft 34, from which motion is communicated to the various parts of the machine.

When the shaft 34 is put in motion, the friction-wheel thereon will cause the disk 41 to revolve, carrying with it the shaft 3, and when the worm-wheel 13 is brought into engagement with the worm 33 on the shaft 3 said worm-wheel will be slowly revolved, carrying with it the cam 39. As the cam 39 revolves the friction-wheel 37 will be moved along the shaft 34 by the lever 38, which is operated by said cam, and said friction-wheel will be moved farther away from or nearer to the center of motion of said friction-disk, thus gradually decreasing or increasing the speed of the latter, as the case may be.

The relative normal positions of the friction-wheel and the friction-disk with respect to the ironing or wringing roller 25 are such that when said roller is operating upon the tip of the hat-body the friction-wheel is driving the friction-disk from a point near the center of motion of the latter, as seen in Fig. 4, and when the friction-wheel is working on the disk near the periphery of the latter the roller 25 will be operating upon the base of the hat-body. It will thus be readily understood that the roller 25 will travel from the tip to the base of the hat at a speed which slowly and gradually decreases, while the hat-body itself will at the same time be revolved at a variable speed which is directly proportionate to the variable speed at which the tool is carried along the hat. Therefore it will be clearly understood that the speed of the hat at the points operated upon by the roller is always the same, so that the result produced by the action of the roller is at all times uniform.

By securing the friction-disk 41 upon the shaft 3 by set-screws the wear of said disk and friction-wheel 37 may be compensated for by simply loosening the screws and moving the disk closer against the friction-wheel and then tightening the screws.

My improvement is of course applicable to hat-ironing, hat-pouncing, and other analogous machines where it becomes advanta-

geous to secure uniformity in the speed of the hat at all times beneath the operating-tool, and although I have illustrated my invention in connection with a hat-pinning-out machine still I do not desire to be limited in this respect.

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

1. The combination of the shaft, the hat-support carried thereby, and the tool which operates upon the hat from tip to base or from base to tip as the case may be, with means for revolving the hat-supporting shaft and for moving said tool at such relatively varying speeds that the entire surface of the hat will be passed beneath said tool always at a uniform speed, substantially as set forth.

2. The combination of the shaft carrying the conical-shaped hat-support, the power-shaft, the tool which operates upon the hat, means for carrying said tool along the surface of the hat at a speed which uniformly varies in direct proportion to the diameter of the hat, and connections between said shafts whereby the shaft which carries the hat-support is revolved at a variable speed which is directly proportionate to the variable speed at which the tool is carried along the hat, substantially as set forth.

3. The shaft carrying the hat-support, the worm and the disk, in combination with the power-shaft carrying the friction-wheel having contact with said disk and capable of adjustment along the face of the latter, the worm-wheel which engages said worm, the cam carried by the worm-wheel, connections between said friction-wheel and cam whereby the former is caused to travel along the face of said disk, the tool which operates upon the hat, and a system of lever connections between said tool and worm-wheel whereby the tool is carried automatically along the hat at a speed controlled by and directly proportionate to the variable movement of said wheel, substantially as set forth.

4. The combination of the shaft carrying the worm, the friction-disk and the hat-support, the worm-wheel which engages said worm and carries a groove-cam, the power-shaft carrying the friction-wheel whose periphery is in contact with the face of said disk, said wheel capable of a sliding movement along the power-shaft, the lever one end of which embraces the friction-wheel while the other end is provided with a roll which extends within the groove-cam, the tool which operates upon the hat, and a system of lever connections between said tool and worm-wheel whereby the tool is carried automatically along the hat at a speed controlled by and directly proportionate to the variable movements of said wheel, substantially as set forth.

5. The combination of the shaft carrying the worm, the friction-disk and the hat-support, the worm-wheel which engages said

worm and carries a groove-cam, the power-shaft carrying the friction-wheel which is capable of a sliding movement and whose periphery is in contact with the face of said disk, the lever having forks at one end which loosely extend around the power-shaft on opposite sides of the friction-wheel and having at the other end a roll which extends within the groove-cam, the tool which operates upon the hat, and connections between said tool

and worm-wheel whereby the tool is caused to travel along the hat at a speed directly proportionate to the speed of said wheel, substantially as set forth.

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

CHARLES H. REID.

Witnesses:

J. S. FINCH,

EUGENE C. DEMPSEY.