

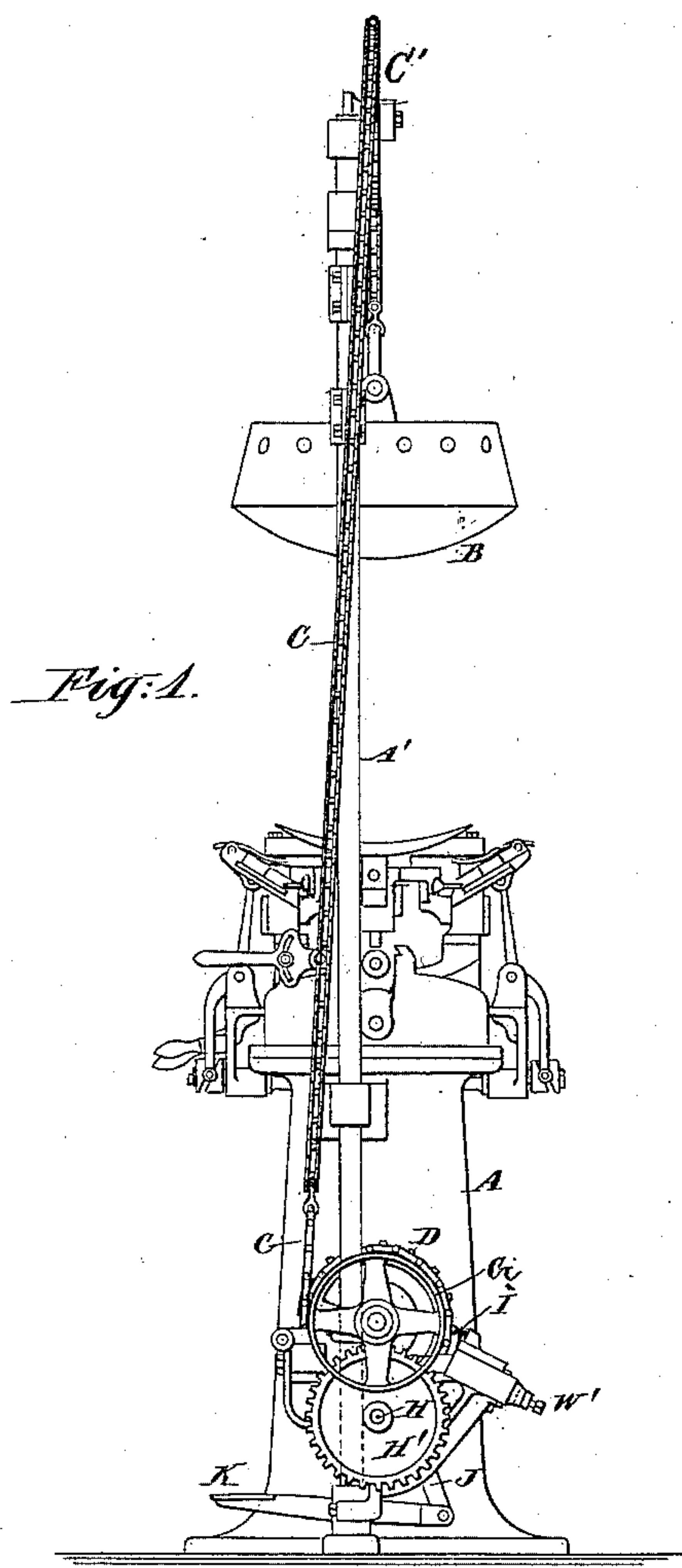
(No Model.)

2 Sheets—Sheet 1.

L. H. HOYT.
APPARATUS FOR SHAPING HAT BRIMS.

No. 431,228.

Patented July 1, 1890.



Witnesses:

Charles H. Searle.

Chas. S. Barber.

Inventor:

Lucius H. Hoyt

by his attorney

Thomas Drew Stetson

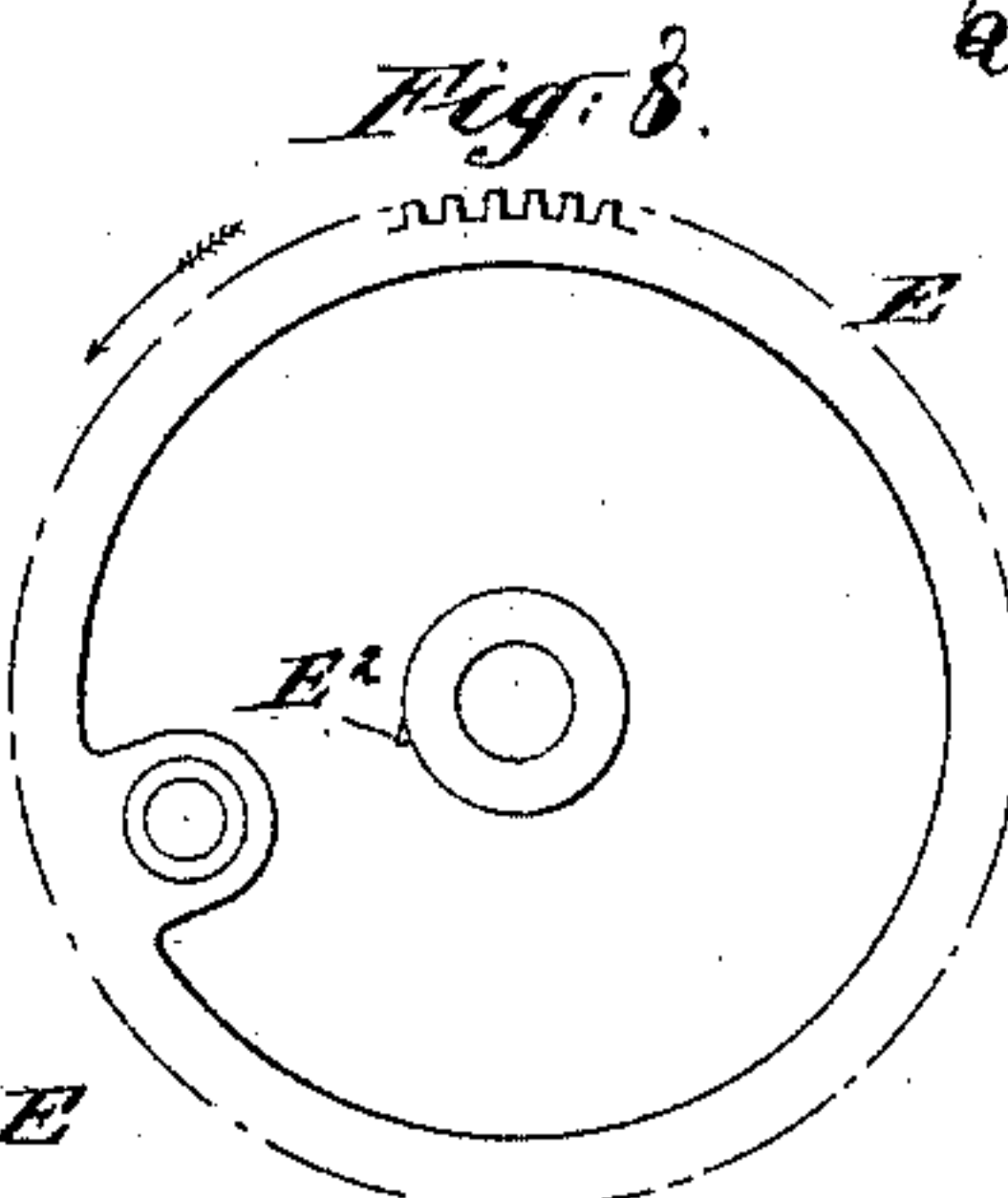
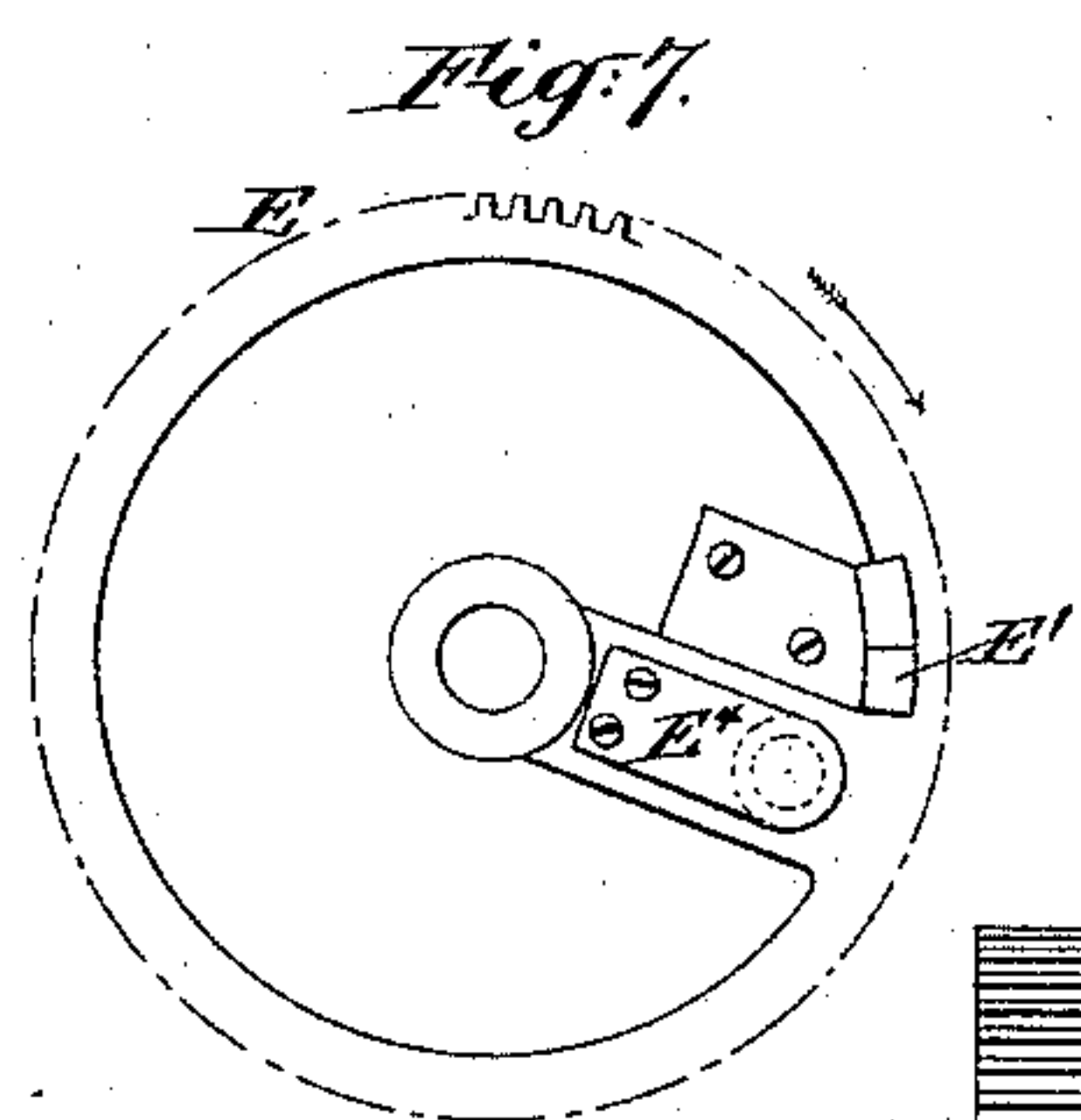
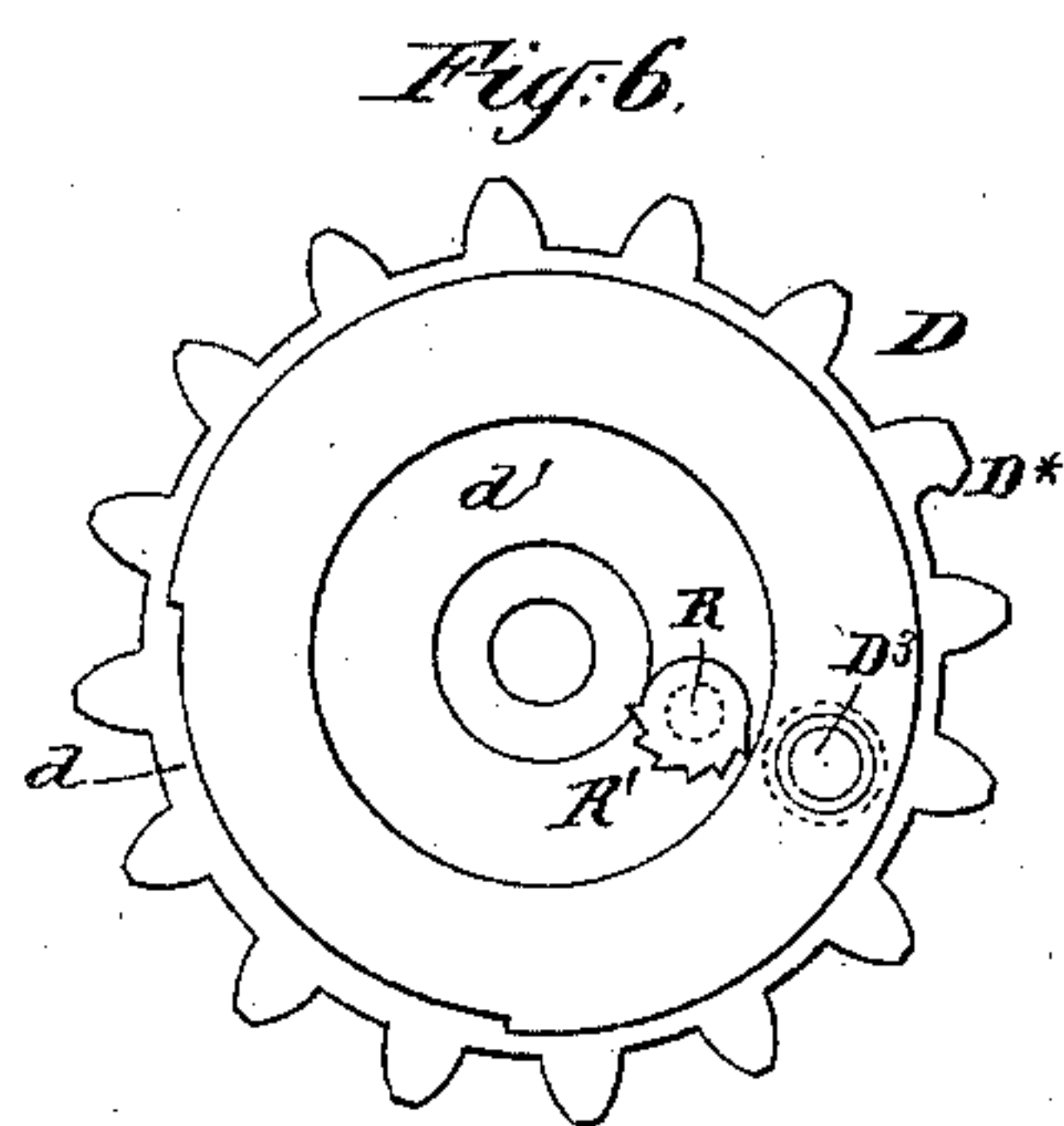
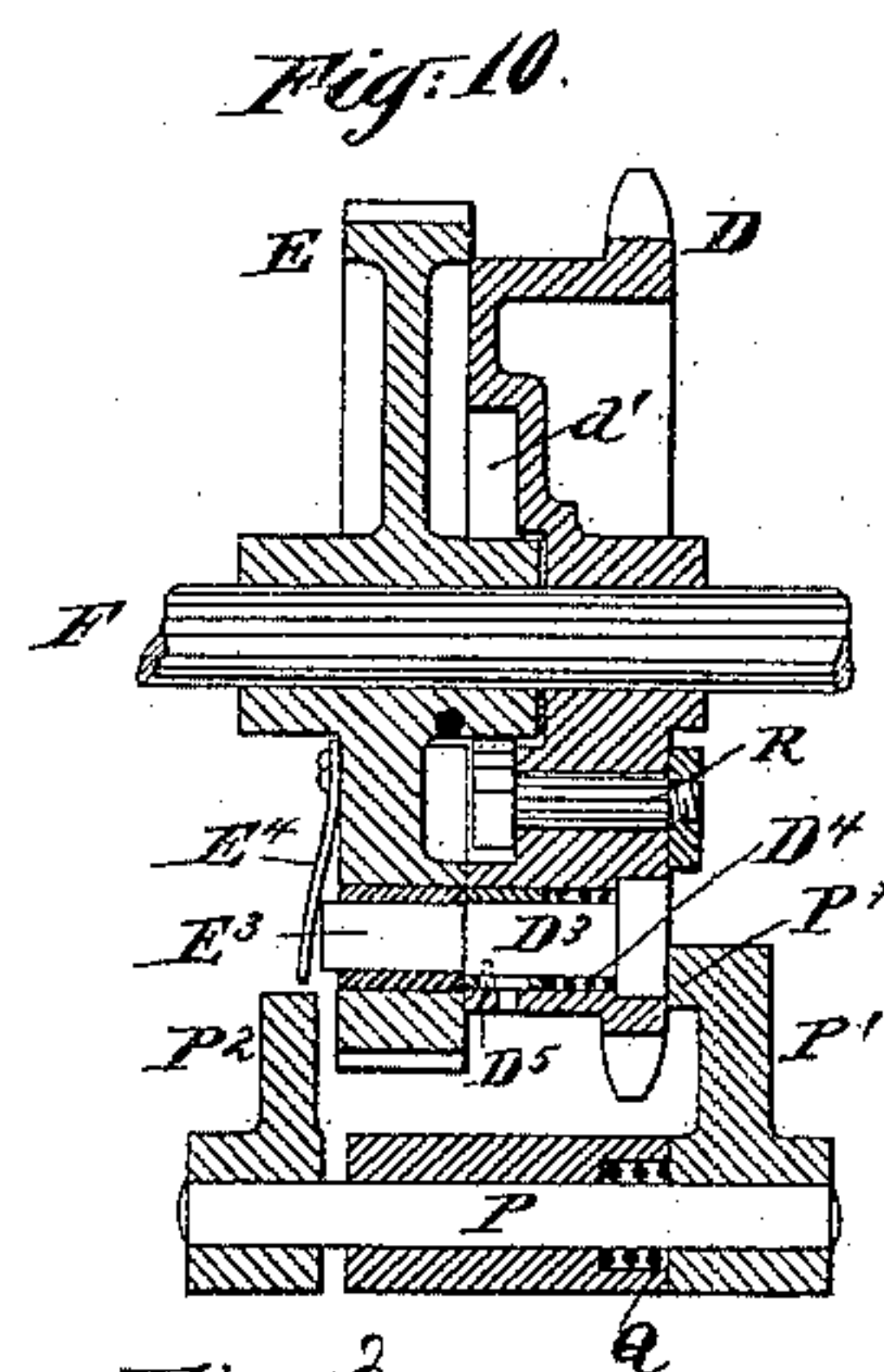
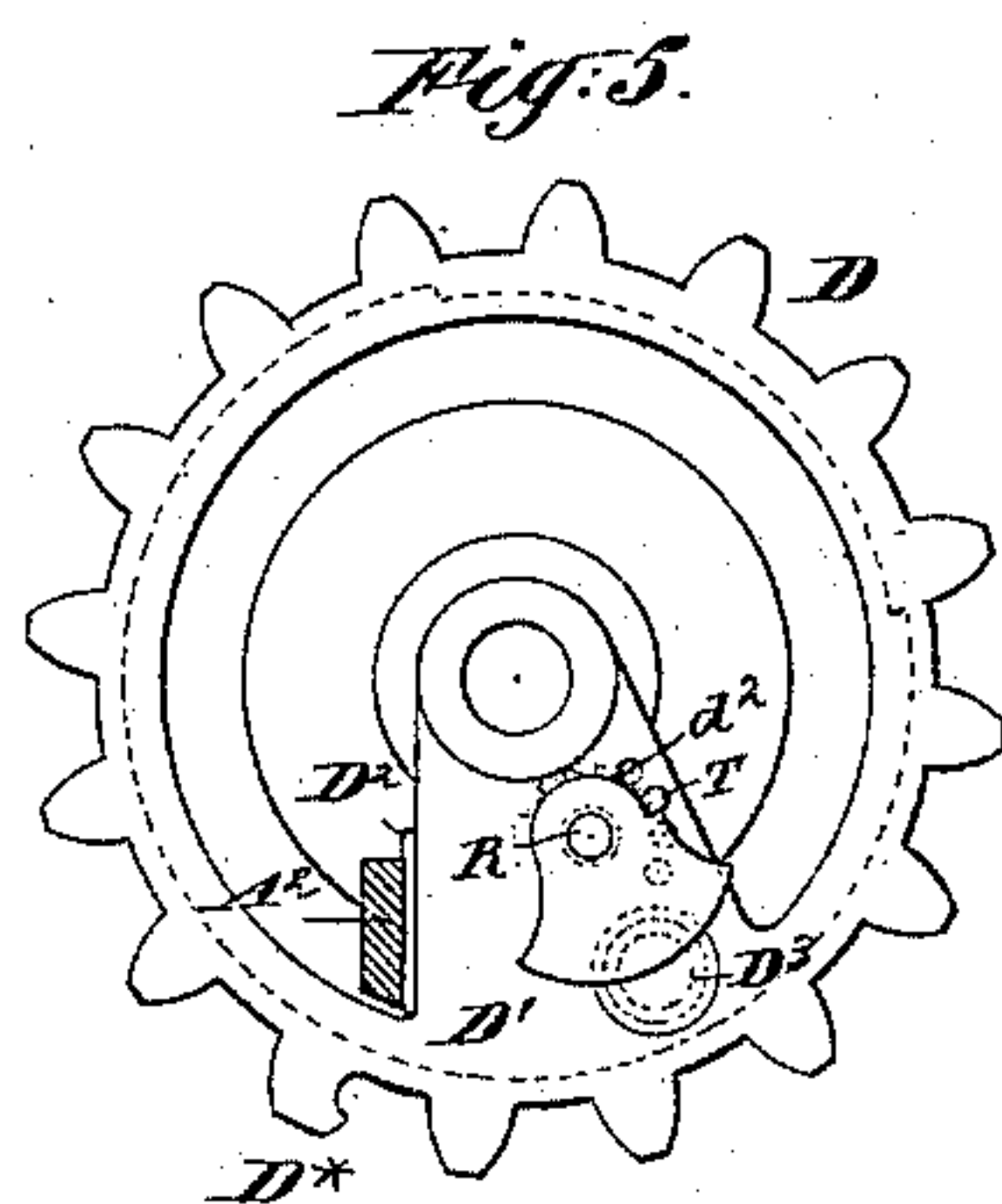
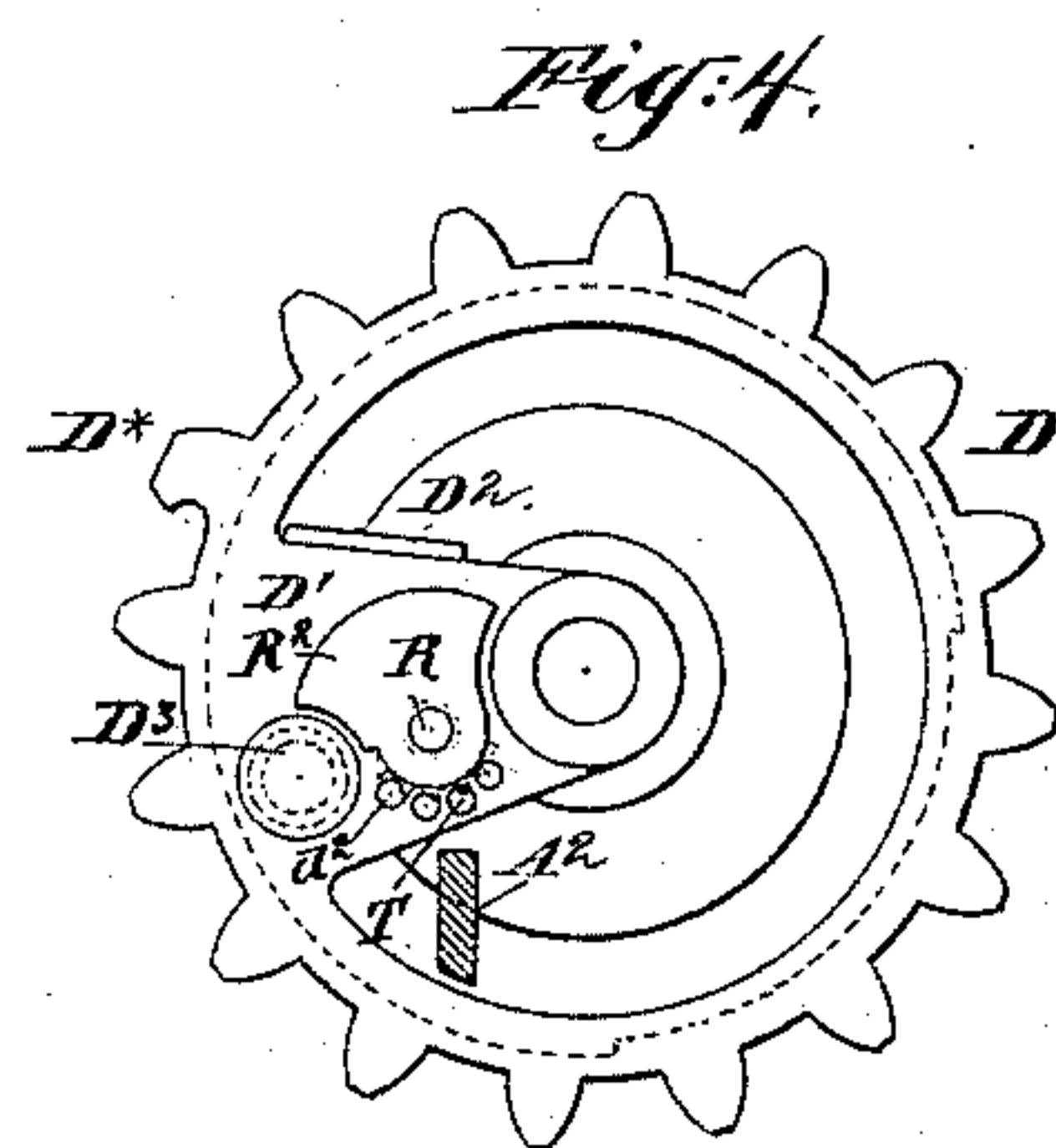
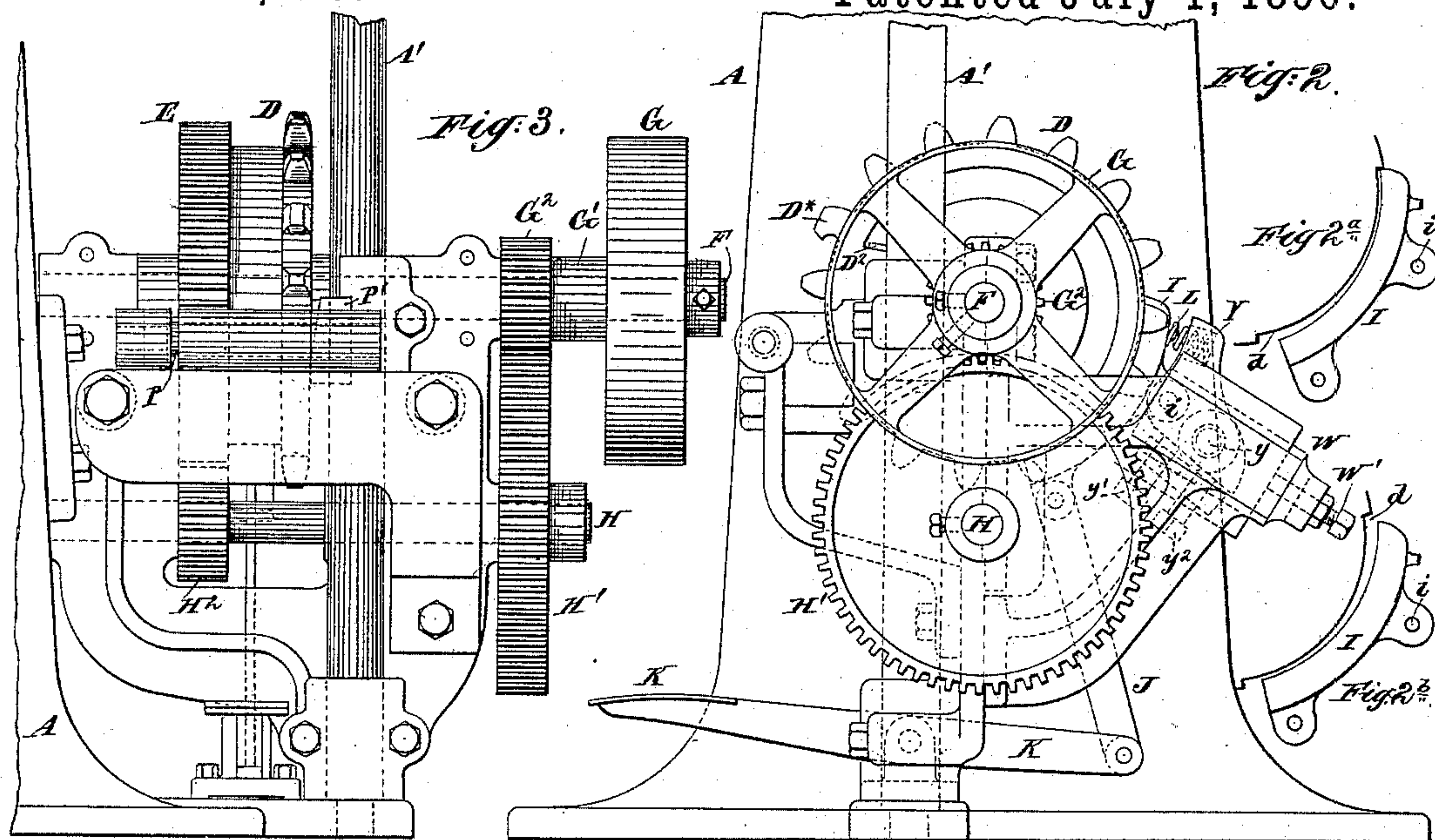
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2 Sheets—Sheet 2.

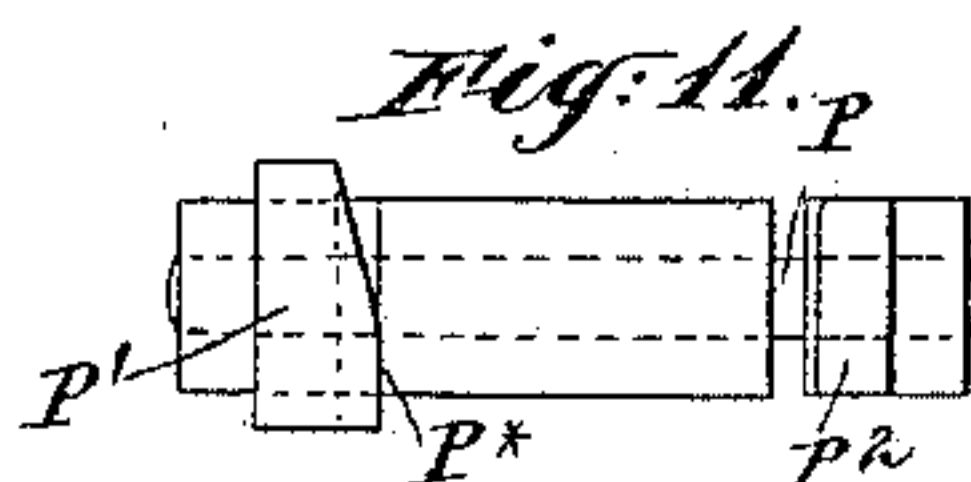
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UNITED STATES PATENT OFFICE.

LUCIUS H. HOYT, OF DANBURY, CONNECTICUT, ASSIGNOR TO THE HOYT
BRIM SHAPING COMPANY, OF SAME PLACE.

APPARATUS FOR SHAPING HAT-BRIMS.

SPECIFICATION forming part of Letters Patent No. 431,228, dated July 1, 1890.

Application filed February 14, 1890. Serial No. 340,395. (No model.)

To all whom it may concern:

Be it known that I, LUCIUS H. HOYT, a citizen of the United States, residing at Danbury, in the county of Fairfield, in the State of Connecticut, have invented a certain new and useful Improvement in Apparatus for Shaping Hat-Brims, of which the following is a specification.

I have devised means whereby the sand-pan after being lowered at will and allowed to rest fairly upon the heated and softened hat-brim, so as to perform its usual functions of holding the brim firmly upon the proper shaping-surfaces and cooling it, so as to harden the brim in the correct position, is automatically lifted again to the properly-elevated position.

The invention relieves the attendant from care with regard to the period that the sand-pan shall be allowed to rest on the hat-brim. The period having been properly determined by trial, the machine automatically allows the cool sand-pan to rest on the softened hat-brim for a sufficient period and then lifts it, allowing the attendant to remove the hat and replace another, and by giving a proper movement and lowering the sand-pan again to repeat the operation. The machine, being belted from a line-shaft, which has a practically uniform rotation, performs its revolutions in practically uniform periods, and the time during which the sand-pan rests on the hat-brim is determined by the number of revolutions of the machine. It is practically a uniform period.

I provide for varying at will the number of revolutions of the machine, and consequently the length of the predetermined period during which the sand-pan shall rest on the hat-brim.

The following is a description of what I consider the best means of carrying out the invention.

The accompanying drawings form a part of this specification.

Figure 1 is a side elevation showing the entire machine with sand-pan raised and held suspended. The remaining figures are on a larger scale. Fig. 2 is an elevation corresponding to Fig. 1, showing lower portion of the mechanism. The chain by which this

mechanism operates the sand-pan is omitted. Fig. 3 is an elevation at right angles to the last. The view is from the left side of Fig. 2. The remaining figures show parts detached. They are on the same scale as Figs. 2 and 3. Fig. 4 is a side view of the loose sprocket-wheel. It is the right side in Fig. 3. It shows the wheel in the position it maintains while holding the sand-pan raised. Fig. 5 shows the same side of the same wheel in the position it occupies when the sand-pan has been let down. Fig. 6 shows the opposite side of the same wheel with the sand-pan raised. Fig. 7 shows another wheel detached. It is the left side in Fig. 3. Fig. 8 represents the same wheel, showing the side which is on the right in Fig. 3. Fig. 9 is an edge view of the same wheel. Fig. 10 is a central horizontal section showing the two wheels combined. Fig. 11 is an elevation of the cam as seen from the right in Fig. 2. Fig. 2^a is an elevation corresponding to Fig. 2, showing the dog engaged to hold up the sand-pan; and Fig. 2^b is a similar elevation showing the dog detached to allow the sand-pan to descend.

Similar letters of reference indicate corresponding parts in all the figures where they appear.

I have in previous patents, and more especially that issued to me March 23, 1886, No. 338,272, set forth an apparatus for shaping hat-brims. I will describe the present invention as applied thereto; but it will be understood that the peculiarities of that mechanism, allowing the parts to be adjusted to shape a variety of sizes and a variety of styles of hats, are not essential.

My present invention may be used with any good construction of brim-shaping parts.

I have in my said patent of 1886 shown a pulley supported at an elevated point on the machine, with a chain running over it arranged for conveniently raising and lowering the sand-pan by alternately pulling and relaxing the chain.

In my present invention I operate the sand-pan by a chain and pulley, rigged in an analogous manner; but in my experiments I have not deemed it necessary to partially rotate the pulley and its post so as to partially

turn the sand-pan around horizontally. I believe it sufficient to raise and lower by a direct motion given with proper celerity at the required periods, and without imposing on the operator any considerable labor or requiring any considerable skill or care.

I have constructed the mechanism in separate parts, adapted to be attached to a machine of the construction described in said former patent, and will describe the invention as thus carried out.

A is the cast-iron frame of the machine, and A' a fixed upright bar supporting a pulley C'. The sand-pan B is suspended by a chain C, the lower portion of which is of the character known as "pitch-chain," having its links adapted to engage with tapering projections on the periphery of a sprocket-wheel D. By turning this wheel in one direction and the other the sand-pan may be raised and lowered.

Close alongside of the sprocket-wheel D is a gear-wheel E, which is turned constantly and uniformly, the motion being received through a belt from a line-shaft (not shown) running upon a pulley G, which is fixed on a sleeve G', and through a pinion G² gives motion to a gear-wheel H', keyed on a shaft H, which communicates the motion through a pinion H². The motion of the wheel E is uniform and continuous in one direction. It is provided with a cam E' on one face and with a tooth E² on its central boss or hub, the purposes of which will appear farther on. It is mounted loosely on a shaft or arbor F, which may revolve with the sleeve G', and is so represented; but this motion is of no effect. The wheel D may be considered as composed of two parts, side by side, cast in one. One part is provided with sprocket-teeth. The other part is smooth, except for a shallow recess *d*, which is sunk in a considerable portion of its periphery. The face of the wheel which is presented toward the adjacent wheel E is recessed quite around, as indicated by *d'*. The opposite face is hollow, except at one point, which may be described as a stout bar D', cast in one with the wheel D, and extending radially from the center to the periphery. After the sand-pan is raised the holding it in the elevated position is effected by means of a dog, which engages the sprocket-wheel by the action of a spring. The lowering is effected simply by the gravity of the load when the attendant disengages the dog. The raising of the sand-pan is effected by my mechanism automatically locking the constantly-revolving wheel E to the sprocket-wheel D after a proper interval, and holding it locked and compelling it to revolve therewith for nearly one revolution. It is then automatically unlocked, leaving the sand-pan suspended by the aid of the dog.

I is the dog. It turns on a pivot *i*, and is turned in one direction by a thrusting force received from the link J, operated by the action of the attendant on a treadle K. A spring

L acts on the other extremity of the dog, forcing that end toward the wheel D. The side of the dog I which is presented toward the wheel is finished with a curve corresponding to the periphery of the wheel. The function of locking and releasing the sprocket-wheel is performed by the upper end of the dog, which is finished squarely. When the treadle is released, the dog is turned slightly on its pivot *i* by the force of the spring L, causing the upper end of the dog to engage in the shallow recess *d*, formed in the smooth part of the wheel D.

The chain C matches on the several teeth of the wheel D, and its end is secured to a hook-shaped tooth D*, Fig. 2. In that figure the chain which is omitted will be understood as extending from the hook D* once around the wheel and thence upward. (See Fig. 1.) When the attendant depresses the front end of the treadle K, lifting the link J, he tilts the dog I and disengages it. The gravity of the sand-pan carries it rapidly downward, the wheel D turning idly on its smooth shaft F. When the sand-pan has descended and rests fairly on the hat-brim, the further revolving motion of the wheel D is arrested by the contact of a buffer D², which I have in my experiments made of leather, fixed on the side of the radial bar D' against a stop A², which is a rigid arm forming a portion of the fixed framing and extending laterally into the wheel D.

The wheel E carries a pin E³, which lies parallel to the axis F, and is capable of moving endwise, subject to the action of a spring E⁴, which forces it constantly toward the wheel D. A circular path on the adjacent face of the sprocket-wheel D, which this pin E³ travels around under certain circumstances, is smooth, except at one point, where is provided a recess of the same size as the sliding pin E³ or a little larger, into which such pin is allowed at the proper period to engage. The length of time during which the sand-pan is allowed to rest on the hat-brim is determined by the movement of a pin D³, which is mounted in the wheel D at the same distance from the axis F as the pin E³, and is also free to move endwise, subject to the force of a spring D⁴, which urges it constantly away from the wheel E. This spring D⁴ will, when permitted, force the pin D³ away from the wheel E, and thus present a cavity toward the wheel E and allow the pin E³ to engage in such cavity and compel the revolution of D and the hoisting of the sand-pan; but when this pin D³ is by any sufficient means moved toward the wheel E, in opposition to the force of the spring D⁴, and is held firmly, it forbids the engagement of the pin E³ and allows the wheel E to revolve without effect. The endwise motion of the pin D⁴ is limited by a spur D⁵, set in its side and traversing a slot in the wheel D. (See Fig. 10.)

P is a slide mounted in a portion A³ of the fixed framing with liberty to move endwise

to a slight extent. It is urged to the right in Fig. 10 by a coiled spring Q. P^* is a cam formed on an arm P' , which is fixed on this slide. An arm P^2 is fixed on the opposite end of the slide, and is struck by a cam E' , carried on the wheel E, which at each revolution of the wheel E acts through the arm P^2 , urging the slide to the left in Fig. 10, which brings the cam P^* close to the wheel D and acts on the pin D^3 , urging it home.

It will be understood that when by the rotation of the wheel D the chain C is taken up it elevates the sand-pan to the proper height, where it is held by the dog I, engaging in the recess d , the attendant having previously relaxed his pressure upon the treadle K. At the same moment the revolution of the wheel D brings the pin D^3 into engagement with the cam P^* , and the action of the cam E' moves the slide P, bringing this cam P^* firmly into position, so that the pin D^3 is forced home. This forces the pin E^3 out of the engagement which it has previously enjoyed with the wheel D and compels it to revolve idly. Now for so long a period as this condition shall obtain, the wheel D is free from the influence of the wheel E. The tension on the chain C tends to turn it backward; but this force is resisted by the action of the dog I. When the attendant trips the dog I and the wheel D turns backward, allowing the sand-pan to descend, it comes to rest in the position shown in Fig. 5. At the rate I prefer to revolve the wheel E—once in about two seconds—this position will be assumed before the wheel E has completed a revolution, and except for the further parts now to be described the pin D^3 would immediately, on its escape from the cam E' , move endwise and expose the recess ready to receive the pin E^3 on its next passage; but this would lift the sand-pan from the hat-brim too soon.

R is a shaft mounted in the wheel D and free to perform a partial revolution. One end is provided with a ratchet-wheel or partial ratchet R' , which at each revolution of the wheel E is engaged by the tooth E^2 , and thus caused to make a partial revolution step by step. The other end of the shaft R presents on the opposite face of the wheel D a segmental arm R^2 , adapted to cover and uncover the adjacent end of the pin D^3 . A stop T may be set in any one of a semicircular series of holes d^2 and arrests the revolution of this shaft, so as to leave the arm R^2 in any required position when the sand-pan is lowered. If the arm R^2 laps upon the pin D^3 but slightly, one action of the tooth E^2 suffices to turn it out of engagement. If the stop T is set in a different hole in the series, the sand-pan will remain down upon the hats until the wheel E has made two revolutions and thereby acting twice with its tooth E^2 , and if it is in the extreme position there will be four actions of the tooth E^2 before the pin D^3 will be liberated.

It being understood that the wheel D comes to rest after its lowering of the sand-pan in a position entirely clear of the cam P^* , there is nothing but the arm R^2 to restrain the movement of the pin D^3 . So soon as this arm has been turned out of engagement the pin D^3 moves endwise to the right in Fig. 10. This movement presents the proper cavity to receive the pin E^3 , and at the next passage of this pin it engages in this recess and compels the wheel D to turn and lift the sand-pan, as before described.

The pivot i , which carries the dog I, is mounted in a slide W, which may be moved in the housing to allow a slight change in the action of the dog. Its position is controlled by a screw W' . The abutment of the spring L is formed in a movable piece Y, which can be rocked on a pivot y , and may be adjusted by screws y' y^2 ; thus graduating the tension of the spring.

Modifications may be made without departing from the principle or sacrificing the advantages of the invention. I can elongate the treadle and shift the shaft F and all the associated parts farther from the operator, so as to bring the chain C into an exactly vertical position. Such would be more mechanically perfect in the traversing of the chain upon a pulley; but I have found in my experiments no difficulty with the slight degree of inclination shown.

Parts of the invention may be used without the whole. I can dispense with the adjusting of the position of the center i and of the abutment for the spring L.

I claim as my invention—

1. In mechanism for hat-brim shaping, the combination, with the sand-pan B and provisions for holding it suspended and lowering it at will, of the loose wheel D, with the constantly-revolving wheel E, and a dog E^3 , arranged to automatically engage the loose wheel and by turning it to hoist the pan after a predetermined period, as herein specified.

2. In a hat-brim-shaping machine having a sand-pan with provisions for hoisting it automatically through a constantly-revolving wheel E, and a loose wheel D, with provisions for engaging them together and disengaging them, a movable pin or dog D^3 , a spring D^4 , the shaft R, ratchet R' , and segmental arm or cover R^2 , carried in the loose wheel D, in combination with each other and with the operating-tooth E^2 , pin or dog E^3 , and spring E^4 , carried on the constantly-revolving wheel E, arranged for joint operation, as herein specified.

3. In a hat-brim-shaping machine having a sand-pan B, with provisions for automatically lifting it, the adjustable stop T, in combination with the shaft R, ratchet R' , and segmental arm or cover R^2 , and with the constantly-revolving wheel E, operating tooth E^2 , pin or dog E^3 , and spring E^4 , and with the movable pin or dog D^3 , spring D^4 , and means

for forcing the dog D^3 inward and allowing it to be engaged by the arm or cover R^2 , substantially as herein specified.

4. In a hat-brim-shaping machine, in combination with the sand-pan B and a connected wheel D, with mechanism for hoisting, the dog I, connected to the treadle K, arranged to suspend the pan and allow it to descend at will, as herein specified.

10 5. In a hat-brim-shaping machine having a sand-pan and provisions for raising it automatically after a predetermined period, the slide P, cam P^* , arm P^2 , and spring Q, in combination with each other and with the loose

wheel D, dog D^3 , shaft R, ratchet R' , and cover R^2 , and with the constantly-revolving wheel E, having a cam E' , tooth E^2 , and movable pin or dog E^3 , all arranged for joint operation, as herein specified.

In testimony whereof I have hereunto set my hand, at Danbury, Connecticut, this 6th day of February, 1890, in the presence of two subscribing witnesses.

LUCIUS H. HOYT.

Witnesses:

THOMAS E. AVERY,
CHARLES R. NORMAN.