(No Model.) 2 Sheets—Sheet 1.

G. SEGSCHNEIDER.

MACHINE FOR CURLING HAT BRIMS.

No. 602,246. Patented Apr. 12, 1898.

Fig: 1.

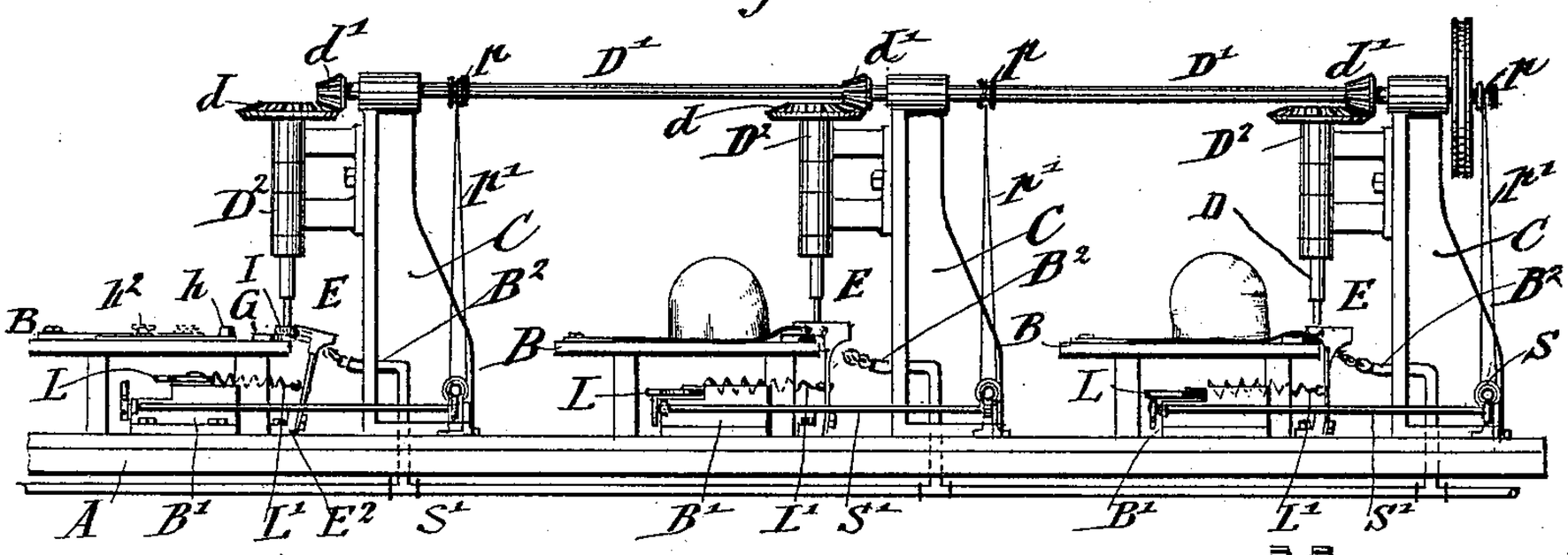

Fig: 2.

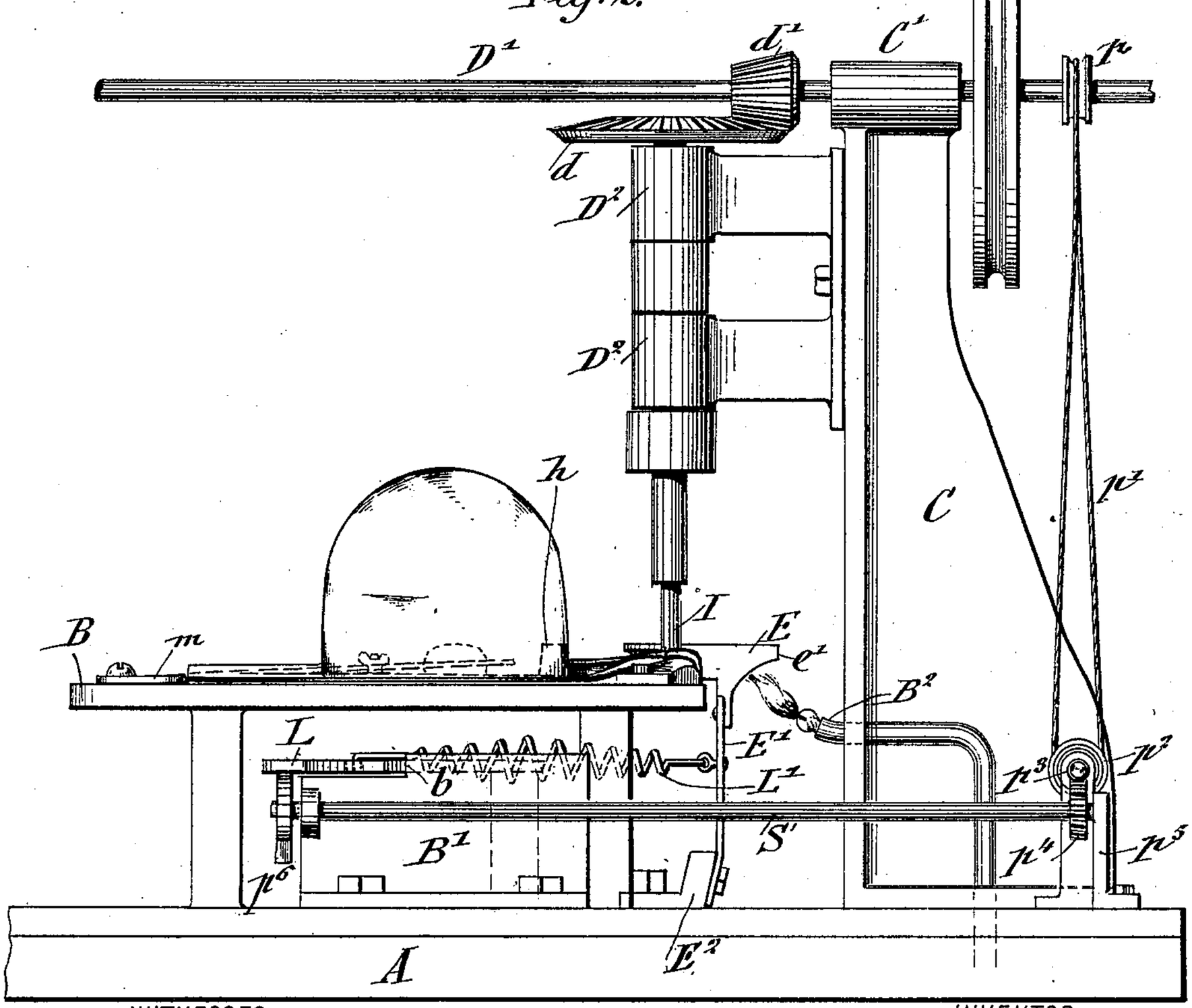

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Fig: 3.

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(No Model.) 2 Sheets—Sheet 2.

G. SEGSCHNEIDER.

MACHINE FOR CURLING HAT BRIMS.

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Fig: 4.

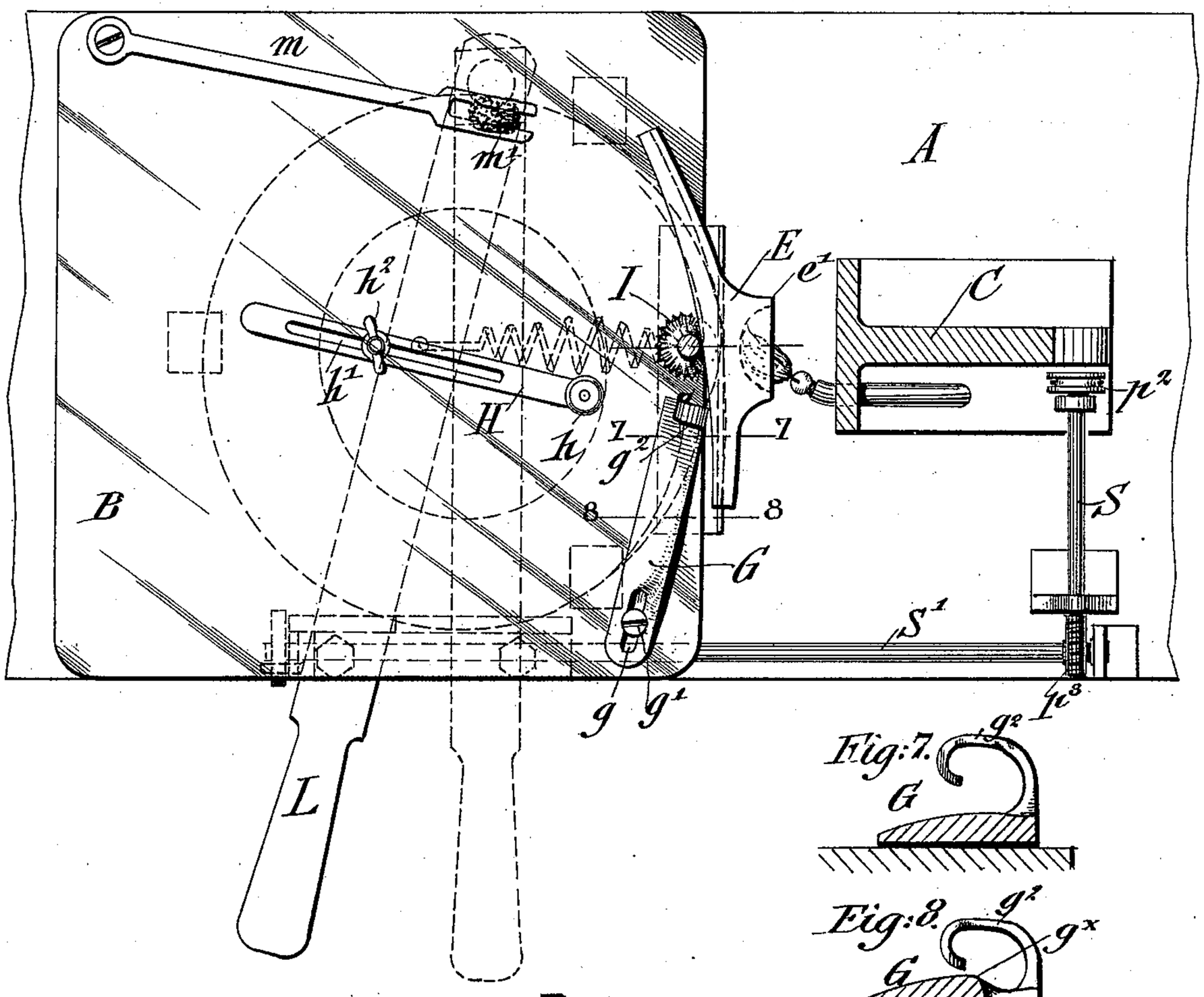


Fig: 7.

Fig: 8.

Fig: 5.

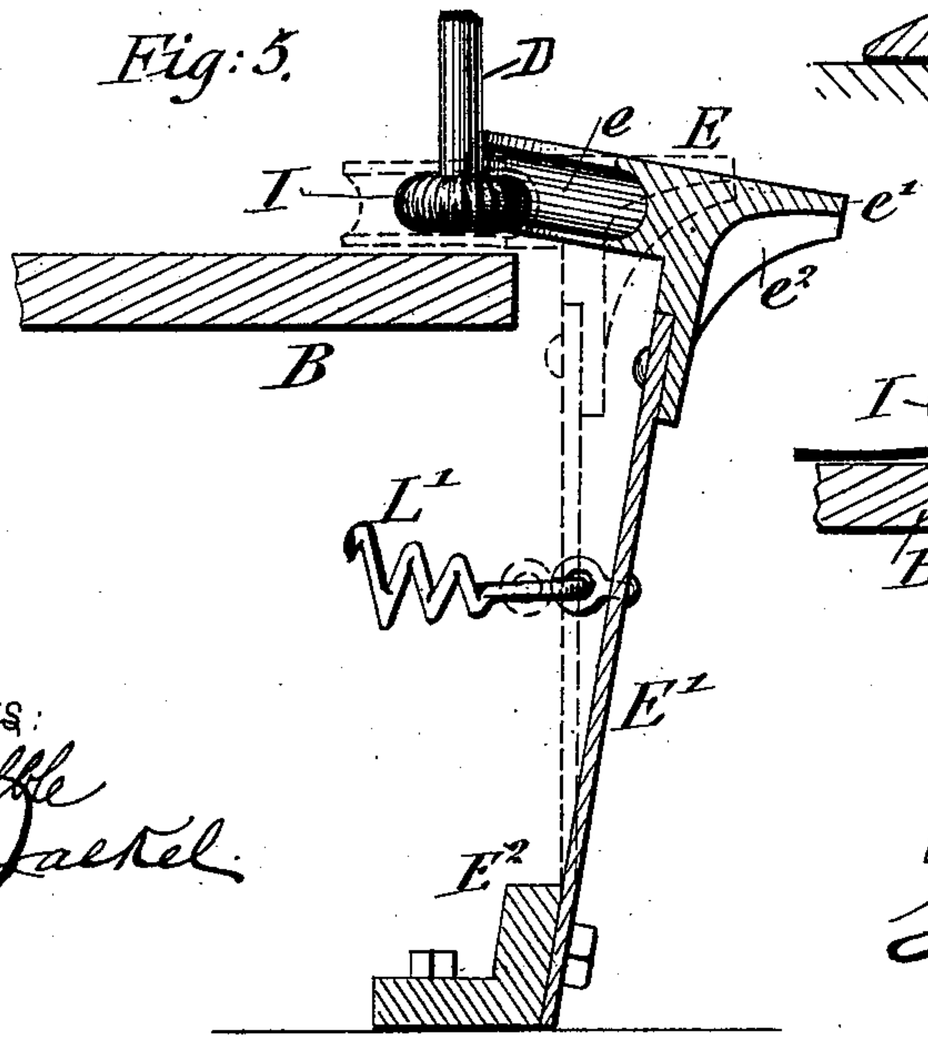
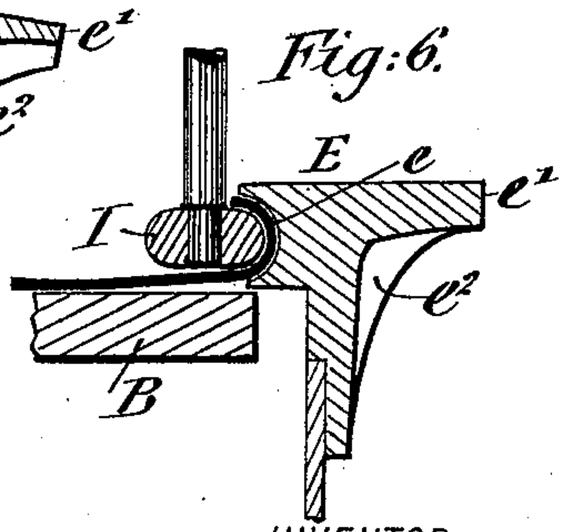


Fig: 6.



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MACHINE FOR CURLING HAT-BRIMS.

SPECIFICATION forming part of Letters Patent No. 602,246, dated April 12, 1898.

Application filed October 15, 1897. Serial No. 655,249. (No model.)

To all whom it may concern:

Be it known that I, GUSTAV SEGSCHNEIDER, a citizen of the United States, residing in the city of Yonkers, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Machines for Curling Hat-Brims, of which the following is a specification.

In practical tests made with the machine for curling hat-brims for which Letters Patent were granted to me on August 10, 1897, No. 588,020, it was found that the reciprocating motion that had to be imparted to the curling-tool was objectionable for the reason that its motion was not automatic and required the continuous presence of the attendant in operating the machine. Several other objections were discovered, such as the heating of the ironing-tool and the tilting of the table on which the hat was supported so as to be introduced to or moved from the curling-tools.

The object of this invention is to furnish an improved machine for curling hat-brims by which the objections to my former machine are obviated, the continuous presence of the attendant dispensed with, the curling-tool heated instead of the rotary ironing-tool, and in which the table supporting the hat is made stationary and the curling-tool rendered movable toward and away from the ironing-tool, so that after the brim of the hat is once introduced between the curling-tools the curling of the brims is automatically accomplished, so that one attendant can supervise several curling-machines, while the curling of the brims is accomplished in as equally effective and satisfactory manner as with the machine heretofore patented by me.

The invention consists of a machine for curling hat-brims which comprises a heated rotary ironing-tool having grooves or knurls, means for rotating said ironing-tool, a grooved segmental brim-curling tool, means for heating the curling-tool, means for applying the same to the hat-brim after the same is introduced between the grooved curling-iron and the curling-tool, a table for supporting the hat to be curled, and an adjustable guide-piece arranged alongside of the curling-tool for introducing the brim of the hat to the curling-tools.

The invention consists, further, of the peculiar construction of the curling-tools, of the guide-piece by which the hat-brim is guided to the curling-tools, and of several minor features, as will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation showing several of my improved curling-machines arranged in line with each other and driven by the same shaft, two machines being shown in the act of curling hat-brims, while another machine is thrown out of curling action ready for introducing a new hat to the same. Fig. 2 is a side elevation of my improved hat-brim-curling machine drawn on a larger scale. Fig. 3 is a perspective view of the guide-piece for raising the edge of the hat-brim and conducting it to the curling-tools. Fig. 4 is a plan view of the same, partly in horizontal section. Figs. 5 and 6 are vertical detail sections, partly in elevation, through the table, ironing-tool, and curling-tool, respectively, showing the latter before and after it is applied to the hat-brim; and Figs. 7 and 8 are detail vertical transverse sections of the brim-guiding piece respectively on lines 7 7 and 8 8, Fig. 4.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the supporting-plate of my improved machine for curling hat-brims. On the supporting-plate A is supported the table B, on which the hat is supported during the curling of its brim. On the supporting-plate A is further supported an upright standard C, that is provided at its upper end with a journal-bearing for a suitable driving-shaft D′ and with bracket-bearings D^2 for a vertical shaft D, to the lower end of which the rotary ironing-tool I is applied. At the upper end of the shaft D is applied a bevel-wheel *d*, which meshes with a bevel-pinion *d′* on the driving-shaft D′, to which rotary motion is imparted by a belt-and-pulley transmission from a suitable power-shaft. The driving-shaft D′ is so arranged that it can supply power to several hat-brim-curling machines, which are arranged alongside of each other on the supporting-plate A, as shown in Fig. 1. The rotary ironing-tool I is arranged in proximity

to the edge of the table B, it being grooved or knurled at its circumference for the purpose of accomplishing not only its function as an ironing-tool, but also the function of feeding the hat-brims through and between the curling devices without requiring the forward feeding of the same by the hand of the operator, as was required heretofore in hat-brim-curling machines.

The hat-supporting table is supported in stationary position on the table, a block B′ being arranged below the same, on which is arranged a pivoted lever L, that extends beyond the edge of the table, so as to be readily taken hold of by the operator. The middle portion of the pivoted lever L is connected by a strong helical spring L′ with a spring-shank E′ of the curling-tool E, which is attached to the upper end of the spring-shank and made in segmental shape, with a groove *e* in its face of somewhat greater width than the thickness of the rotary ironing-tool and with a laterally-projecting heel *e′* at its rear part above a curved and concaved depression e^2, as shown in Figs. 4, 5, and 6, into which the heating-flame impinges for heating the curling-tool. The heating-flame is preferably a gas-jet which is supplied by a gas-burner B^2, arranged in proximity to the middle portion or heel of the curling-tool, said gas-burner being supplied with gas from a suitable gas-supply pipe, as shown in Figs. 1 and 2. The lower end of the spring-shank E′ of the curling-tool E is attached to a stationary angle-iron E^2, that is attached to the supporting-plate A, said angle-iron being provided with an inclined face, so that the spring-shank assumes an inclined position when not in position for use, as shown in Fig. 5. When it is desired to apply the curling-iron, the actuating-lever L is moved sidewise, so that the tension of the spring L′ moves the shank of the curling-iron into the position shown in dotted lines in Fig. 6, so that the grooved face *e* of the curling-iron is applied to the edge of the brim, so as to hold it in position for the curling action exerted by the rotary ironing-tool.

Adjacent to the ingoing end of the grooved curling-tool is arranged on the supporting-table B an adjustable guide-piece G, which serves for the purpose of guiding the edge of the hat-brim into the curling-tools, it being so constructed that the edge is lifted and bent up to the required degree, so as to be delivered to the curling-tools without any special manipulation. The brim-guiding device G is for this purpose constructed with a swell $g^\times$ at its middle portion and a taper from said swell toward its inner edge, as shown in Figs. 3, 7, and 8. It is made flat at its under side, so as to rest its entire surface on the hat-supporting table B. It is provided at its outer end with a slot *g*, through which passes a headed clamping-screw *g′*, by which the guide-piece G can be adjusted in its relative position to the rotary ironing-tool and curling-tool. The inner end of the guide-piece is made thinner than the middle or swelled portion and is formed with an upwardly and inwardly bent or C-shaped hook g^2, as shown in detail, Figs. 3, 7, and 8. On the stationary table B is also arranged an adjustable arm H, which carries at one end a frusto-conical roller *h*, that serves for the purpose of guiding the body of the hat placed on the table, so as to facilitate the feed motion of the brim toward and through the curling-tools. The guide-roller *h* is located approximately on a line drawn from the center of the table to the hook-shaped end of the guide-piece G. The middle portion of the arm H is provided with a longitudinal slot *h′*, through which passes a screw-stud provided with a clamping-nut h^2, by which arrangement the arm, with its guide-roller *h*, can be adjusted near to or away from the guide-piece G and the ironing and curling tools I and E, respectively, according to the width of the hat-brim. The clamping-nut and the stationary screw-stud for the same are located in such a position on the table B that the parts just described will always be located within the body of the hat the brim of which is to be curled. A second arm *m* is preferably pivoted to one of the rear corners of the stationary table B, which arm is provided with a fork *m′* or other appropriate device for holding a sponge, a piece of felt, or other absorbent material in proper position against the edge of the hat-brim, so as to moisten the same in its passage below the sponge. The sponge is supplied with the required degree of moisture from time to time and by the pivotal connection of the arm *m* with the table B can be adjusted so as to moisten the edge of a hat with larger or smaller brim, as the case may be.

From Fig. 4 it will be seen that the ingoing end of the curling-tool is approximately straight and extends at a tangent to the outgoing end of the curling-tool, while said outgoing end is curved inwardly over the table, so that the curled brim of a hat is thereby still further ironed and smoothed after leaving the rotary tool I, and whereby the brim is enabled to retain the curl better. Also by this arrangement of the outgoing end of the curling-tool the brim will have three main guide-points—namely, the guide-roller H and rotary tool I and a point on the curling-tool located beyond the tool I. This position and curve of the outgoing end of the curling-tool is also required in order to impart the proper curl to and to guide the brims of hats of various widths. The grooved faces of the ingoing and outgoing ends join each other at a point opposite the ironing-tool, so that the face of the curling-tool is continuously grooved from end to end.

For the purpose of preventing a too protracted curling action of the curling-tools on the edges of the hat-brim in case it should be delayed at one of the machines a stop-motion is arranged in connection with the lever L,

by which the curling-tool is operated. This stop-motion raises the lever L after the hat has made two full rotations on its supporting-table. The stop mechanism consists of a pulley p on the overhead shaft D′, a belt p', a pulley p^2 on a shaft S, arranged at right angles to the shaft D′ and provided with a worm p^3, that meshes with a worm-wheel p^4 on a longitudinal shaft S′, as shown in Figs. 2 and 4. The shaft S′ is supported in suitable bearings of an upright standard p^5 near the worm gear-wheel and in the bearing of the block to which the lever L is pivoted. To the outer end of the shaft S′ is keyed a cam p^6, which rotates in contact with the under side of the lever L and which is provided at one point with such a degree of eccentricity that it will gradually raise the actuating-lever L above its retaining-shoulder b on the block B′ when the largest diameter of the cam is below the lever L. As soon as the lever is lifted high enough so as to clear the stop-shoulder b of the block B′ the spring L′, which connects it with the curling-tool E, moves the lever quickly over the block and permits the curling-tool to return in its normal position of rest, as shown in Fig. 5, so that no further curling action is exerted on the edge of the hat-brim. The stop mechanism by which the curling-tool is thrown out of action is in the nature of a safeguard and of special usefulness when a plurality of curling-machines is supervised by one and the same attendant.

My improved hat-brim-curling machine is operated as follows: When the guide-piece G is adjusted in proper position relatively to the ironing-tool and the curling-tool, the hat is placed on the table and its brim slowly moved into the space between the table and the under side of the rotary ironing-tool. The edge of the brim adjacent to the ironing-tool is then placed on the tapering edge of the guide-piece and moved along the same until it passes along the hook g^2, which serves, in connection with the raised or swelled middle portion $g^\times$ of the guide-piece, to gradually lift and bend the edge of the hat-brim, so as to permit its introduction between the circumference of the rotary ironing-tool and the grooved face of the segmental curling-tool, as shown in dotted lines in Fig. 4. The grooved or knurled circumference of the ironing-tool takes hold of the bent edge of the hat-brim and produces the forward feeding of the edge of the hat-brim through the curling devices until the entire circumference of the hat-brim is curled by the action of the ironing-tool and the heated curling-tool. As soon as the hat-brim is introduced to the action of the curling-tools the turning of the hat and the curling of the brim are continued automatically by the feed action of the rotary ironing-tool, so that the operator can be placing a second or third hat on a second or third curling-machine in the proper position for the curling-tools. While the third hat is inserted, the brim of the first hat is curled and the operator returns to the first machine, replaces a new hat in position thereon, and so on successively with the remaining machines. As each machine completes the curling operation automatically without requiring special manipulation, one operator can attend to several machines, so that the curling of hat-brims is accomplished at a considerable saving in time and labor and without employment of especially skilled hands.

Having thus described my invention, what I claim is—

1. The combination, with a table, and a rotary ironing-tool above said table, of a segmental curling-tool provided with a continuously-grooved face, the ingoing end of said curling-tool being approximately straight to a point adjacent to the ironing-tool and at a tangent to the outgoing end of the curling-tool, said outgoing end projecting inwardly over the table, substantially as set forth.

2. The combination, with a table, and a rotary ironing-tool above said table, of a segmental curling-tool provided with a grooved face and having its outgoing end projecting inwardly over the table, and a guide-roller on the table arranged at a suitable distance from the ironing-tool for guiding the body of the hat as the brim is fed around, substantially as set forth.

3. The combination, with a table, and a rotary ironing-tool above said table, of a segmental ironing-tool provided with a continuously-grooved face, the ingoing end of said curling-tool extending at a tangent to the outgoing end, which latter is curved inwardly over the table, substantially as set forth.

4. The combination, with a rotary ironing-tool, of a table, an elongated segmental curling-tool provided with a grooved face which is curved toward said ironing-tool, and a laterally-extending heel located back of the grooved face at a point intermediate of the projecting ends of the curling-tool, means for applying said curling-tool to the rotary ironing-tool, and means for heating the curling-tool below said heel, substantially as set forth.

5. The combination, with a rotary ironing-tool, of a table, a curling-tool provided with a grooved face, and an edge-guiding piece having a downwardly-projecting and inturned hook, for guiding the edge of the hat-brims to the curling devices, substantially as set forth.

6. The combination with a rotary ironing-tool, of a table, a curling-tool provided with a grooved face, a guide-piece for the edge of the hat-brims provided with a raised or swelled center portion, and a curved hook at the inner end of the guide-piece adjacent to the ironing-tool and curling-tool, substantially as set forth.

7. A guide-piece for a hat-brim-curling machine, for operating on the edge of the hat-brims, said guide-piece being provided with

a raised or swelled inwardly-tapering center portion, and a curved hook at the inner end of the guide-piece, substantially as set forth.

8. The combination with a table, of curling devices for the edge of the hat-brim, a guide-piece for bending and guiding the said edge in its motion to the curling devices, an adjustable arm mounted horizontally on the table, and a guide-roller carried by said arm at a suitable distance from the curling devices for guiding the body of the hat, while the brim is fed through the curling devices, substantially as set forth.

9. The combination with a table, of curling devices, means for feeding and guiding the hat-brim to the curling devices, and a pivoted moistening device adapted to moisten the edge of the brim of different sizes of hats preparatory to curling the same, substantially as set forth.

10. The combination, with a table, and a rotary ironing-tool over the table, of a normally-retracted curling-tool, a lever, a spring connection between the curling-tool and lever, a shoulder with which said lever is engaged for holding the curling-tool against the ironing-tool, and a stop mechanism provided with a cam engaging under and releasing said actuating-lever from said shoulder so as to permit the return of the curling-tool into its normal position after a certain length of time, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

GUSTAV SEGSCHNEIDER.

Witnesses:
PAUL GOEPEL,
GEO. L. WHEELOCK.