

(No Model.)

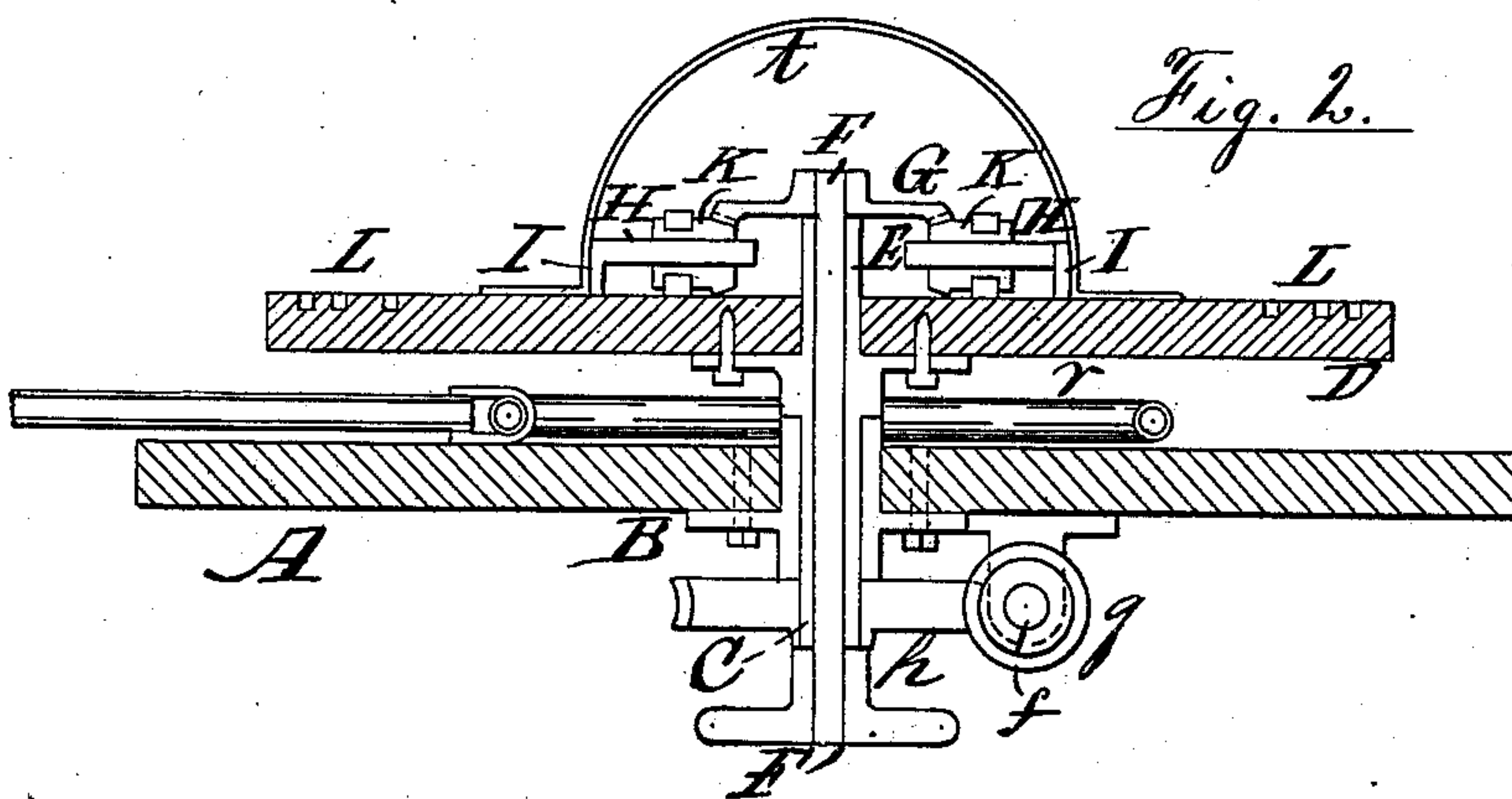
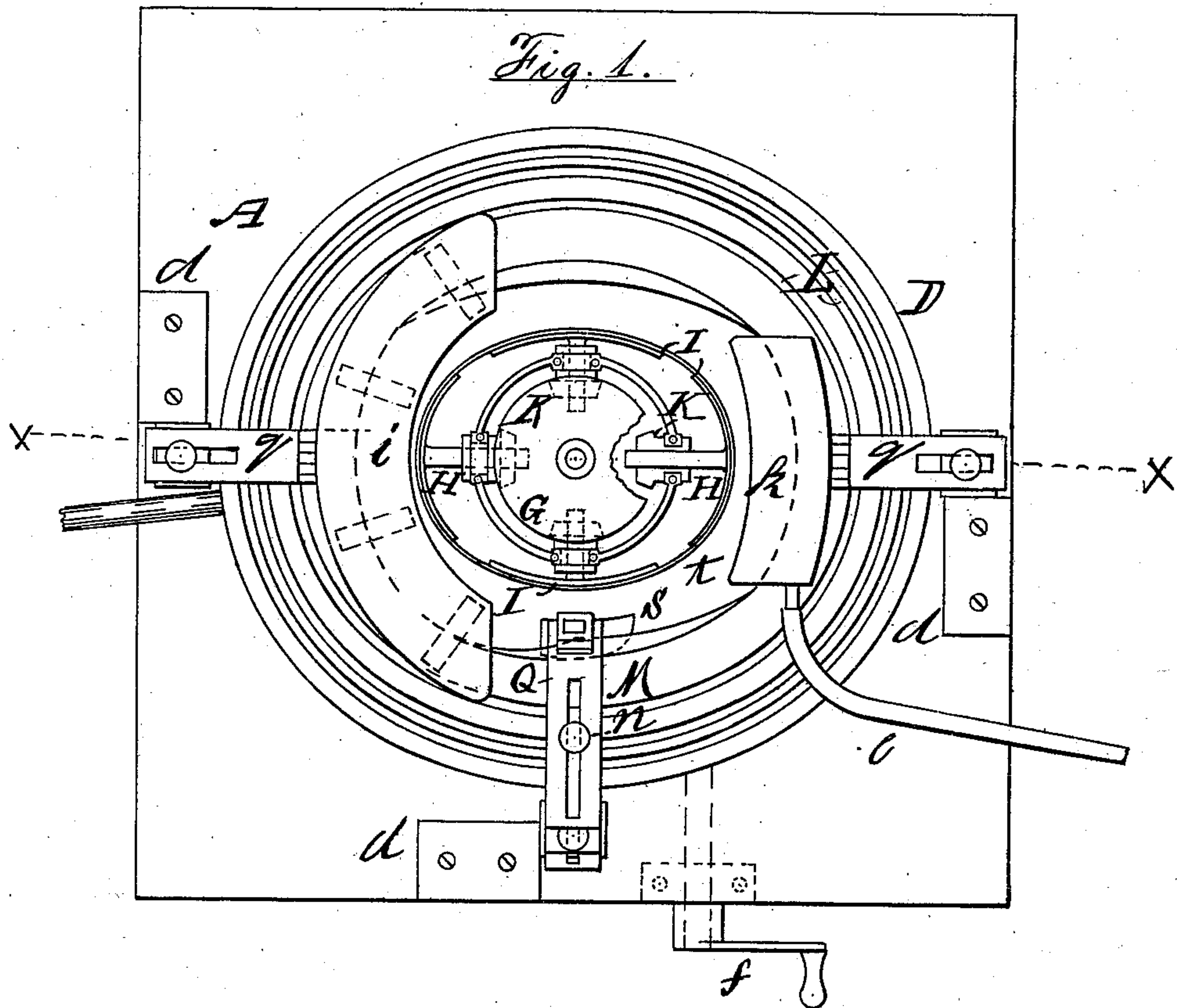
2 Sheets—Sheet 1.

W. T. SMITH & C. R. HALL.

HAT CURLING MACHINE.

No. 256,398.

Patented Apr. 11, 1882.



Attest:

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W. T. SMITH & C. R. HALL.

HAT CURLING MACHINE.

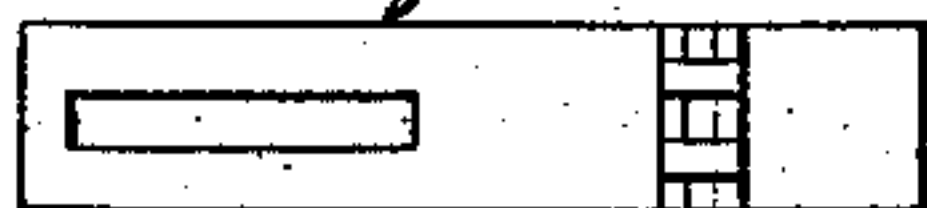
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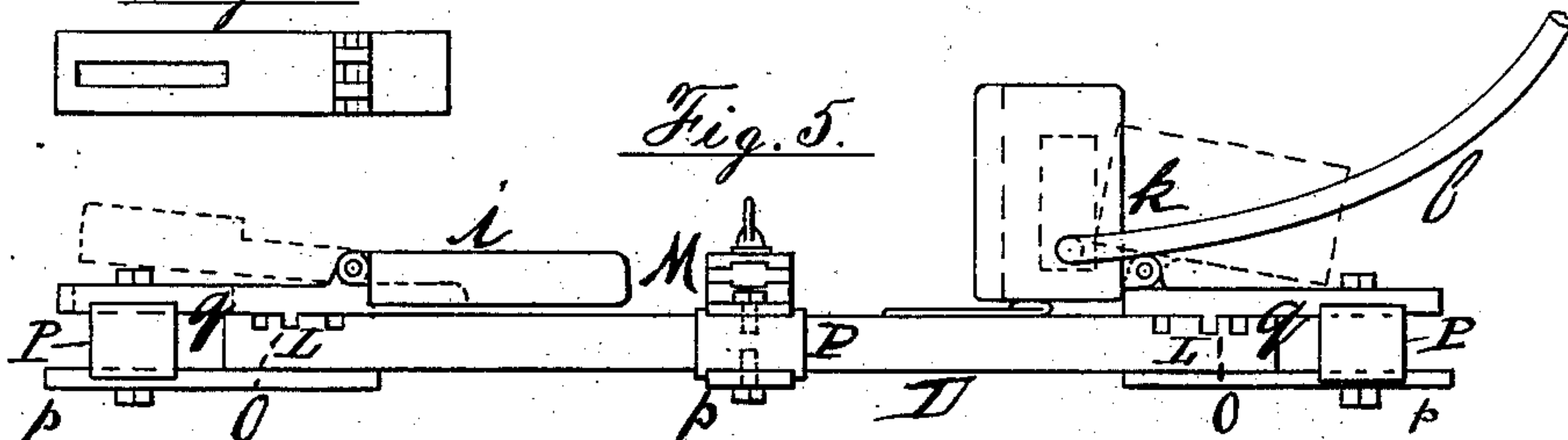
*Fig. 3.*



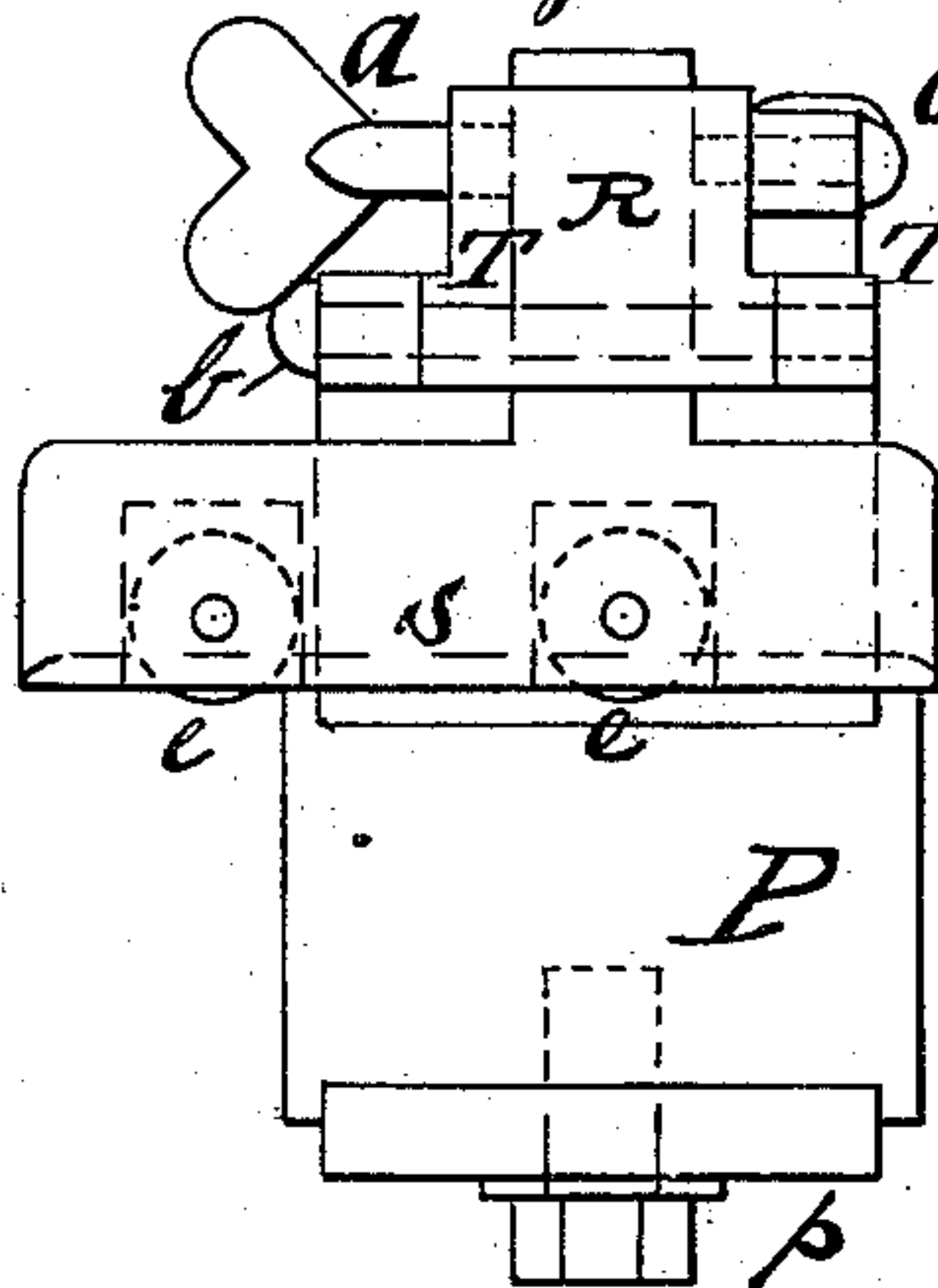
*Fig. 4.*



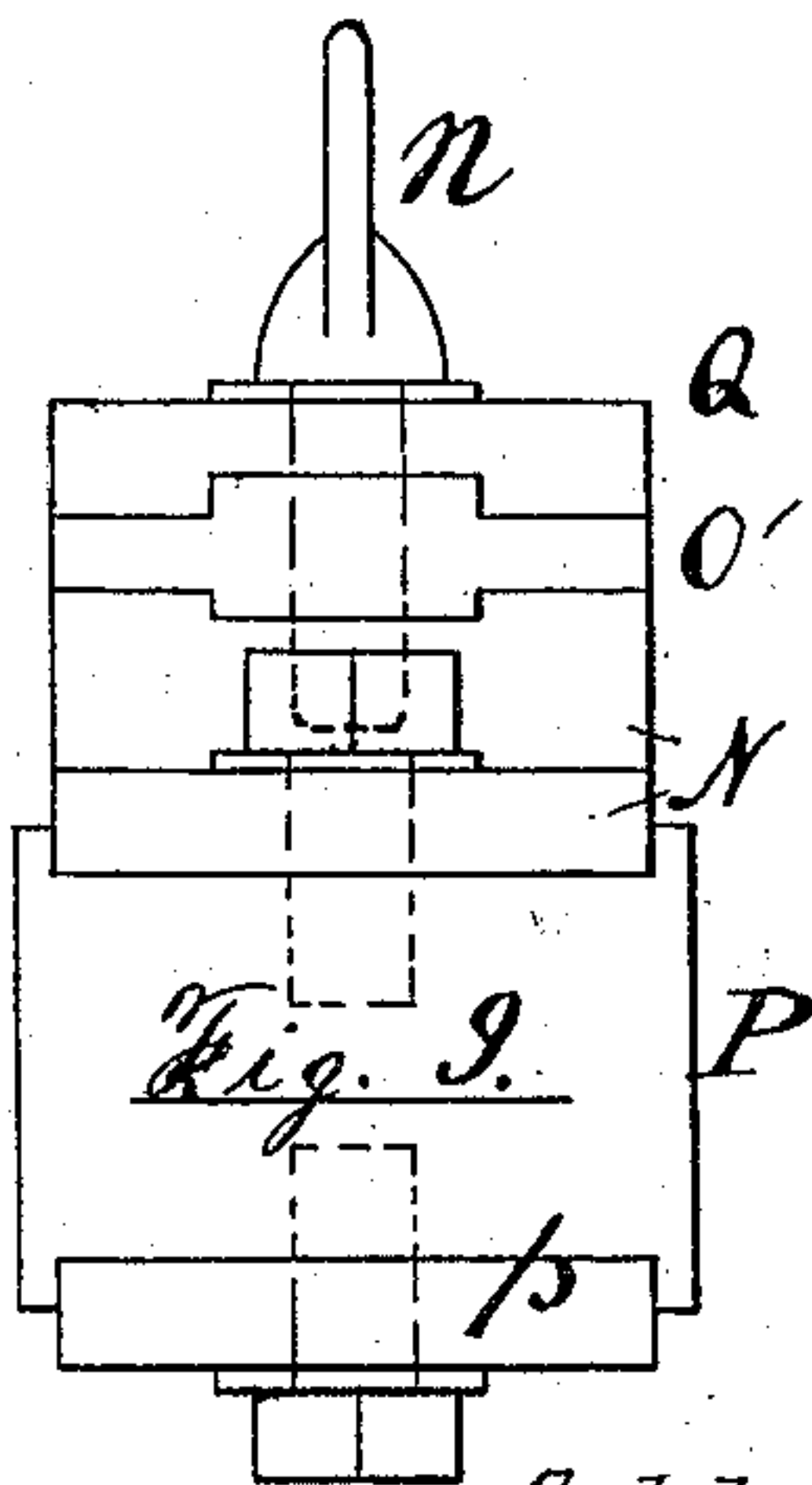
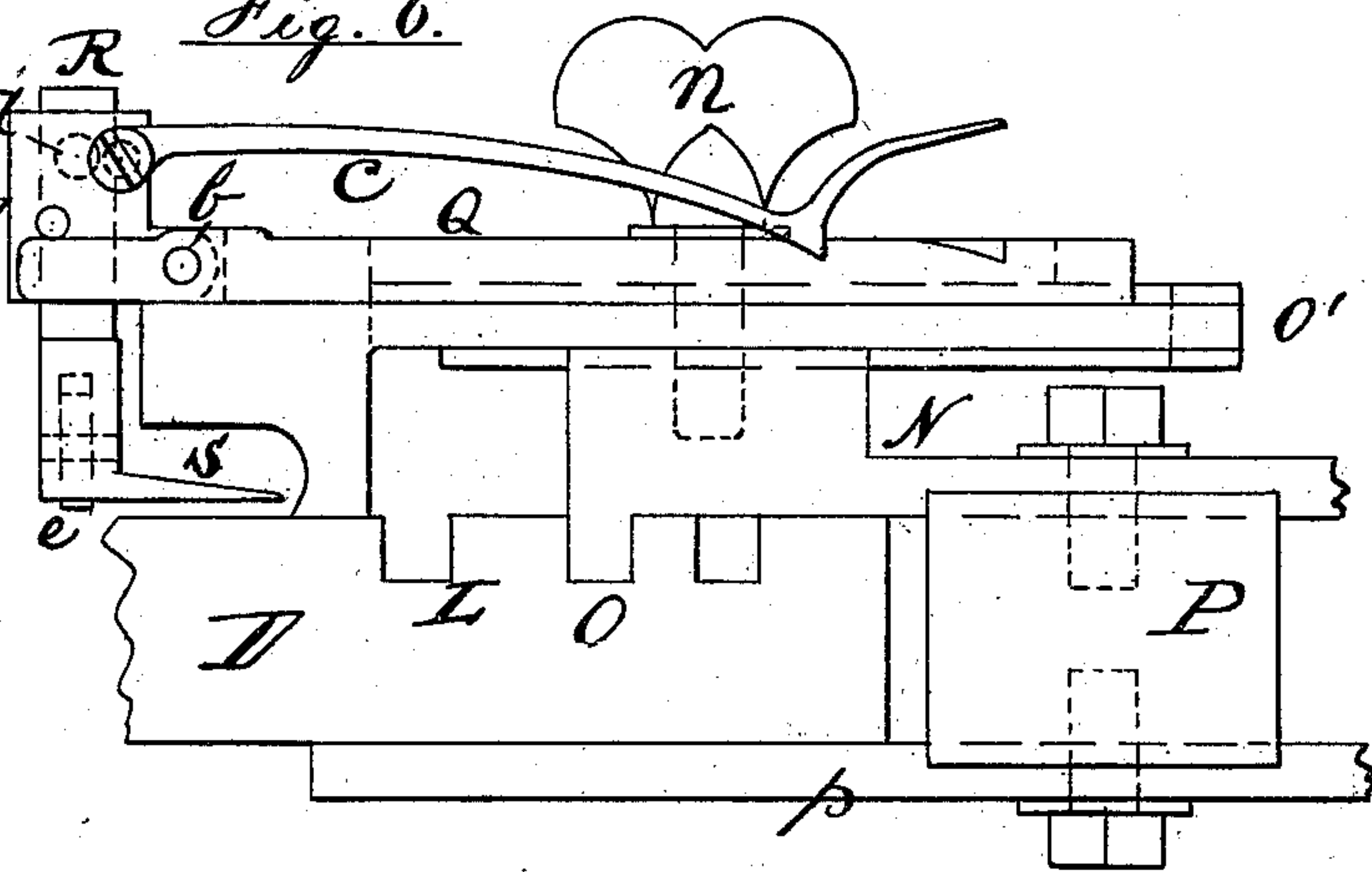
*Fig. 5.*



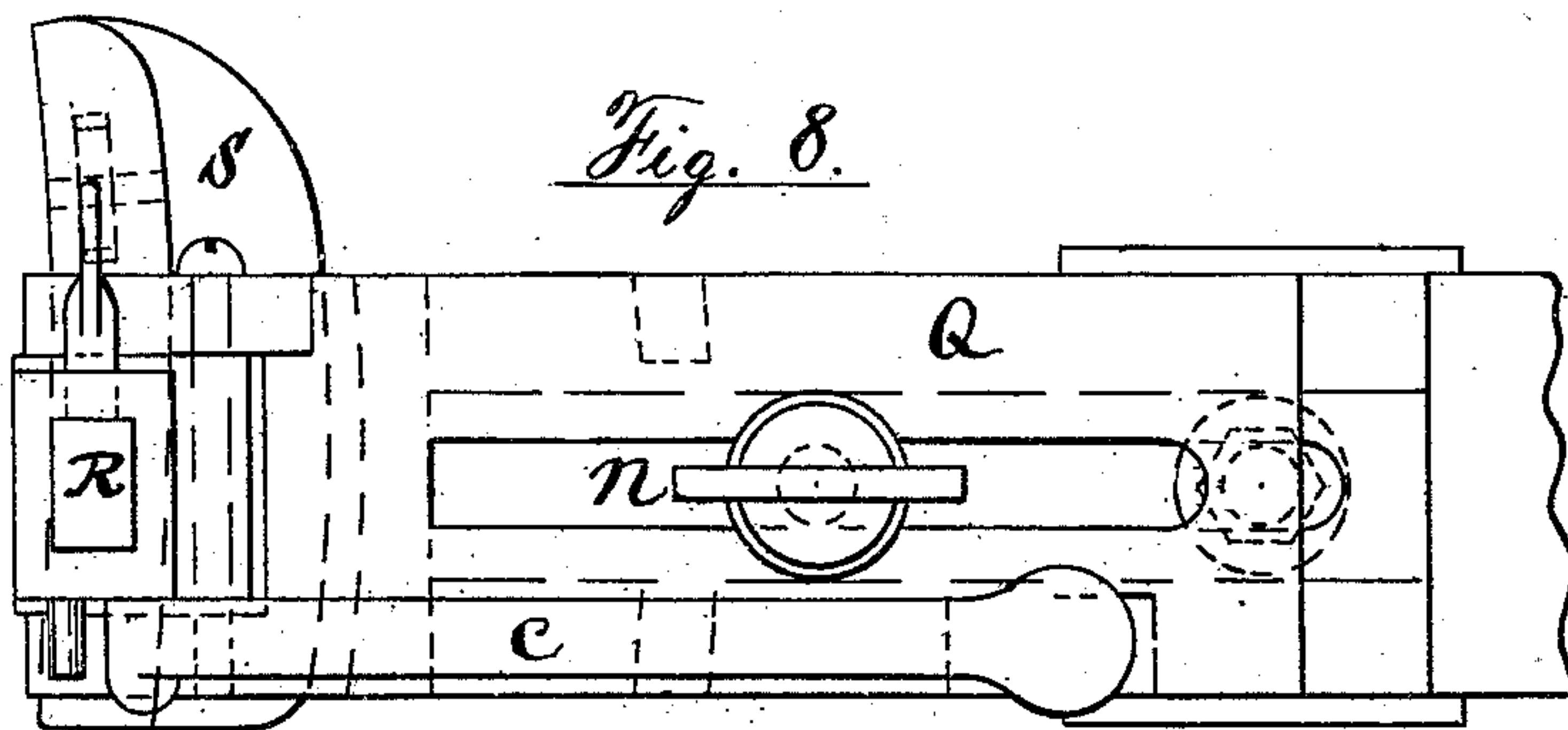
*Fig. 7.*



*Fig. 6.*



*Fig. 8.*



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# UNITED STATES PATENT OFFICE.

WILLIAM T. SMITH AND CHARLES R. HALL, OF BLOOMFIELD, NEW JERSEY.

## HAT-CURLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 256,398, dated April 11, 1882.

Application filed December 3, 1881. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM T. SMITH and CHARLES R. HALL, residing in Bloomfield, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Hat-Curling Machines, as fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

Our invention relates to a hat-curling machine wherein we adjust the mechanism to any size or shape of brim and put in the curl as perfectly as by hand at a great saving of time and expense; and it consists in the mechanism substantially as herein set forth.

Figure 1 is a plan. Fig. 2 is a sectional elevation of Fig. 1 on a line of  $x x$ , showing part of the mechanism and a hat in position. Fig. 3 is an edge view of a pressing attachment, looking from the left-hand side of Fig. 1. Fig. 4 is a detail. Fig. 5 is a sectional elevation of the revolving plate on a line of  $e$  on Fig. 1, showing some of the attachments. Fig. 6 is a side elevation of the curling mechanism as attached to one side of the revolving plate. Fig. 7 is a left-hand end view of the same. Fig. 8 is a plan of the same, and Fig. 9 is a right-hand end view of it.

In our construction, A is the top of a table, through which we put and to which we secure the hollow collar B, and through the collar we carry the hollow shaft C, to the upper end of which is secured the revolving plate D, on and above which is arranged the curling mechanism.

E is an extended end of the hollow shaft C, passing through and above the plate D, to form an upper end bearing for the shaft F, which shaft carries on the top of it the cap bevel-gear G. At the lower end of this shaft is a hand-wheel, F', for turning it.

On the plate D, in proper bearings, are hung four adjustable screw-rods, H, having secured to each, at the outer end, a section of a band, I. The inner end of the rods is screw-threaded, and carries the nut bevel-pinion K, working in the bevel-gear G. The hat  $t$  to be curled is laid, rim down, on the plate, (see Fig. 2,) the band-sections I being inside of the hat. The wheel F' is then turned, and it revolves the pinions K, which, not moving longitudinally,

drive the rods H, with the bands I, out against the inside of the hat, and hold it firm to be worked. The surface of the plate D is cut with three grooves, L, (there may be more or less,) provided as gages for hats of different width of brims. (See Figs. 1, 5, and 6.) To one side of the plate is attached the curling mechanism M, having the slide-strip N, with a tongue, O, to work in a groove, L. The outer end of the strip N is made fast to a block, P. On the lower side of said block is a strip,  $p$ , secured to pass in on the under side of the plate and hold the strip N in position on the top of the plate. This strip will have the tongue O resting in the groove that corresponds with the width of the brim to be curled.

Sliding in a groove on the top of the strip N is a strip, O', adapted to be adjusted to gage the portion of the brim to be curled. Above this strip is the sliding strip Q, carrying the shaft R and the curling-foot S. This shaft is held in the bearing T and adjusted higher or lower, according to the thickness of hat-brims, or in putting in and taking out hats, by the set-screw  $a$ ; or, in addition, the shaft is jointed by pin  $b$  to the strip Q, and for putting in and taking out hats it, with the foot, is turned out of the way by the lever  $c$ . The strips O' and Q are held in position by the set-screw  $n$ .

The curling mechanism is so loosely attached to the plate that the latter may revolve between the strips N and  $p$ , and in action the parts M will strike against the stop  $d$ , fixed on the table A.

To curl a hat, it is laid on the plate and secured on the bands I, as above named, and the foot is set down, having the rollers  $e$  (see Fig. 7) to work on the top of the brim and keep it smooth. Then revolving motion is given to the plate by the crank and shaft  $f$ , carrying the worm  $g$ , working in the worm-wheel  $h$ , fixed on the shaft C. As the plate revolves, it being in oval form, and the grooves being the same, the edge of the hat coming against the end of the gage-strip O' will be turned up and over the end of the foot S, whatever width is required for the sides or ends of the hat. After the edge of the brim leaves the curler it passes under the hinged weight  $i$ , which presses the turned-over edge of the brim down closely upon the brim. Sometimes



it may be found that in curling and under the press the edge will become a little gathered, and to provide for fulling in any such gathers, if they appear, we place on the opposite side of the plate the iron *k*, to be heated by steam from the pipe *l*, and this iron effectually reduces all fullness to a plain surface.

The weight *i* and iron *k* are jointed, so that they may be turned over out of the way, to a frame, *q*, secured to the plate the same as the parts *M*, and have each the tongue *O* to work in the grooves *L*, and strike the stops *d*. The plate is warmed by means of a heated coil, *r*, receiving steam under it, or by some other suitable method; and the edge of the brim so far as it is to be turned over is heated in some suitable manner before it is laid on the plate.

Some other means for turning the plate may be used and the same result be secured, also the bevel-gears.

We are aware of the patents of Parker and Nichols, No. 233,543; T. Lees, No. 201,351; Carington and Tipping, No. 240,231; J. P. Marlot, No. 99,458; and J. Parker, No. 242,686, and we do not claim the features set forth in those patents; but

What we claim is—

1. In a hat-curling machine, the revolving plate *D*, having in its face the grooves *L*, substantially as described, and carrying a curling mechanism, in combination with means for revolving said plate, substantially as and for the purposes specified.

2. The plate *D*, substantially as above described, in combination with central mechanism for holding a hat, substantially as set forth.

3. The combination of plate *D*, substantially as set forth, the mechanism for holding hats, and the crank *f* and screw-wheel connection for turning said plate, substantially as set forth.

4. The plate *D*, substantially as set forth,

fixed on the hollow shaft *C*, the hand-wheel *F'*, and shaft *F*, carrying the bevel-gear *G*, in combination with pinion *K*, rods *H*, and band-sections *I*, substantially as and for the purpose specified.

5. The bevel-gears *G* and *K*, the adjustable screw-rods *H*, and sections *I*, in combination with mechanism for revolving said gears, substantially as and for the purpose set forth.

6. The combination of the plate *D*, curling mechanism *M*, arranged to and operating on the face of the plate, with the device for attaching it, and the stops *p*, substantially as named.

7. The curling mechanism *M*, embracing the strip *N*, having the tongue *O*, the strip *O'*, strip *Q*, carrying the shaft *R*, and foot *S*, in combination with plate *D*, substantially as and for the purpose specified.

8. The foot *S*, with the shaft *R* hung to the pin *b*, and the lever *c*, substantially as and for the purpose named.

9. The combination of the plate *D* and foot *S*, substantially as set forth, and rollers *e*, for the purpose specified.

10. The combination of the plate *D*, curling mechanism *M*, all substantially as set forth, and weight *i*, substantially as and for the purpose named.

11. The combination of plate *D*, curling mechanism *M*, and weight *i*, all substantially as described, and iron *k*, for the purpose set forth.

12. The combination of the plate *D* and curling mechanism *M*, substantially as described, and devices for holding a hat, substantially as specified.

WILLIAM T. SMITH.  
CHARLES R. HALL.

Witnesses:

HORACE HARRIS,  
S. P. STEADMAN.