

No. 686,850.

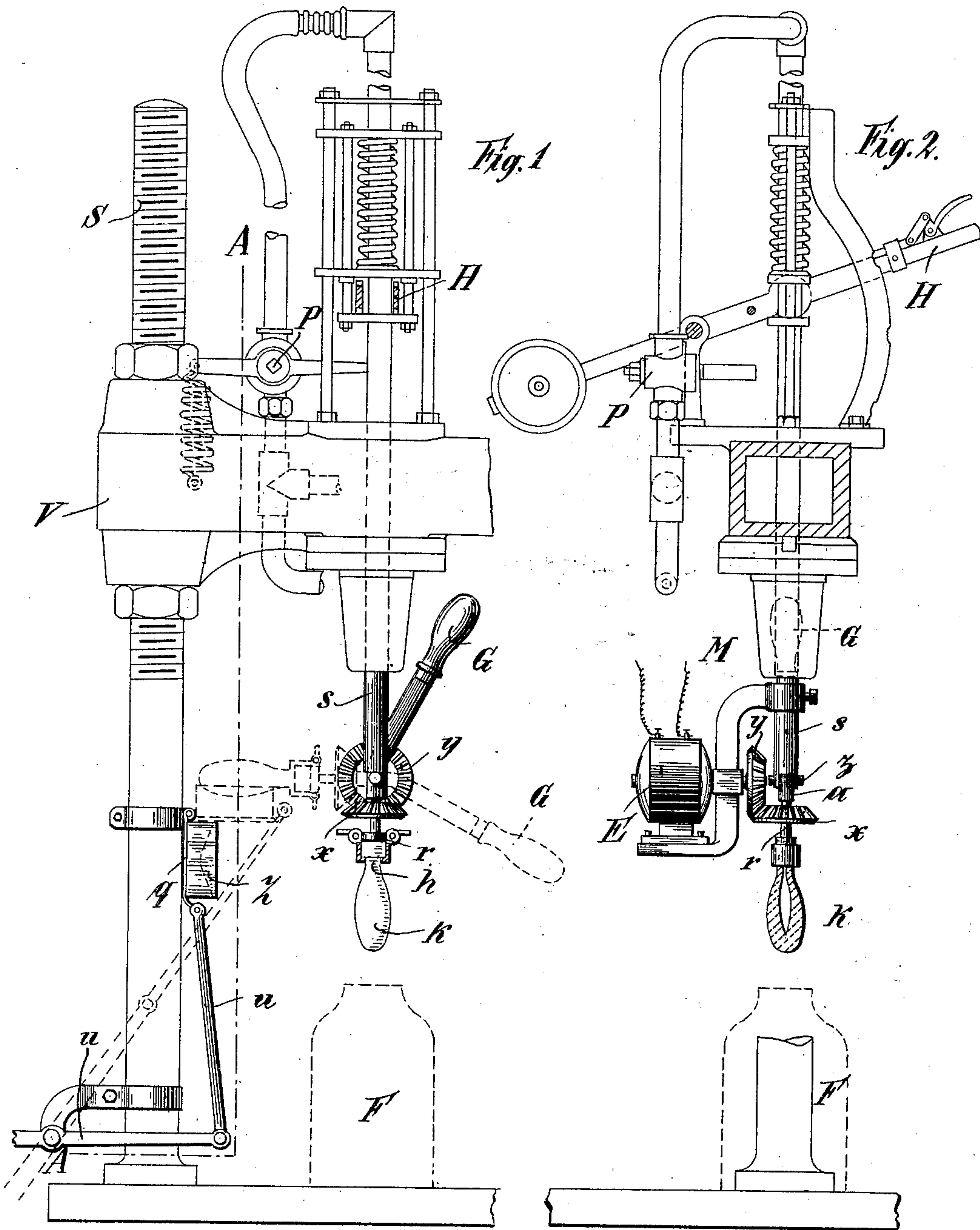
Patented Nov. 19, 1901.

H. W. HEERDT.
GLASS BLOWING MACHINE.

(Application filed Mar. 21, 1900.)

(No Model.)

2 Sheets—Sheet I.



Witnesses:
Richard Scherpe
Curt Gesell

Inventor:
Heinrich Wilhelm Heerdt
by Carl J. Heinen
Attorney.

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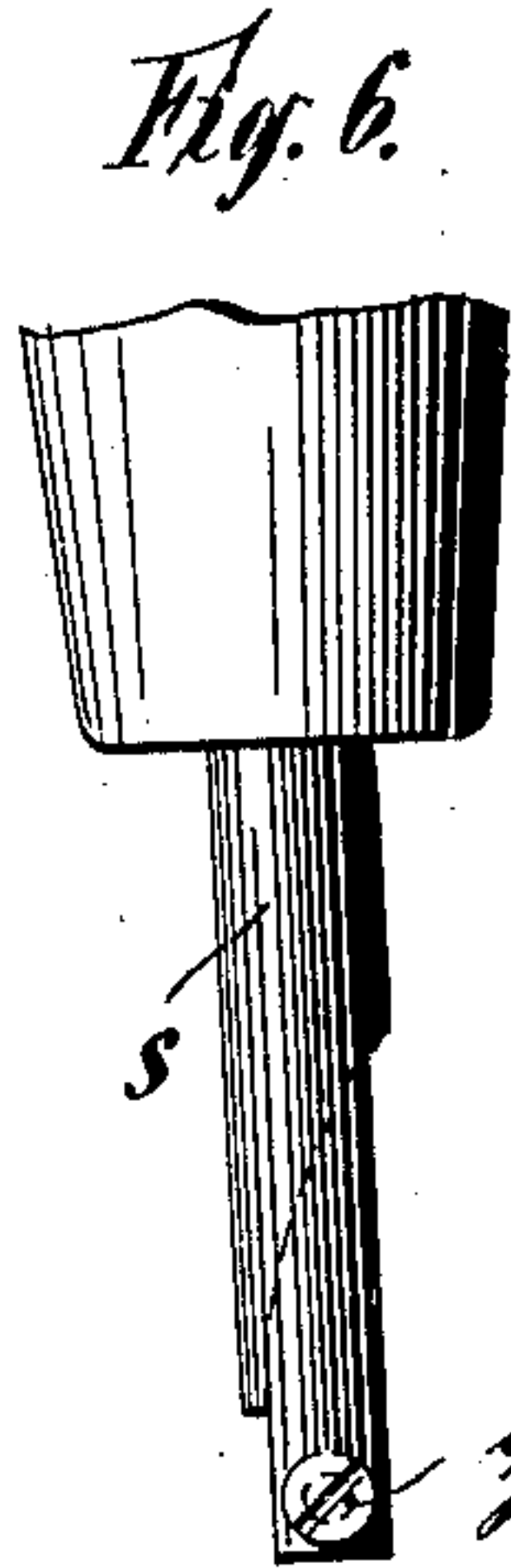
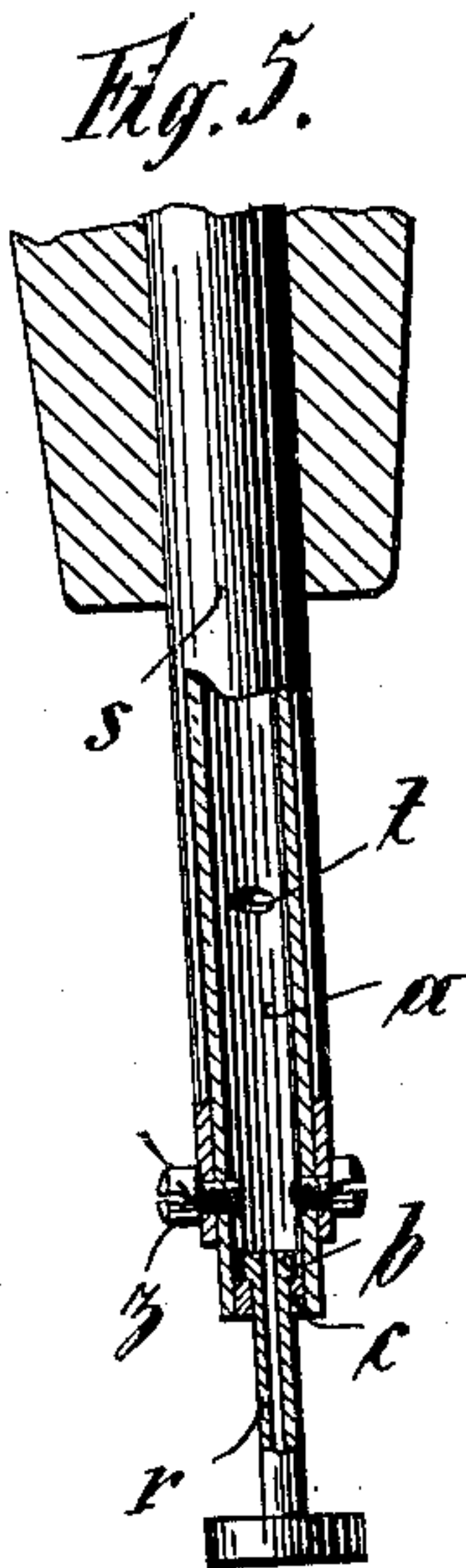
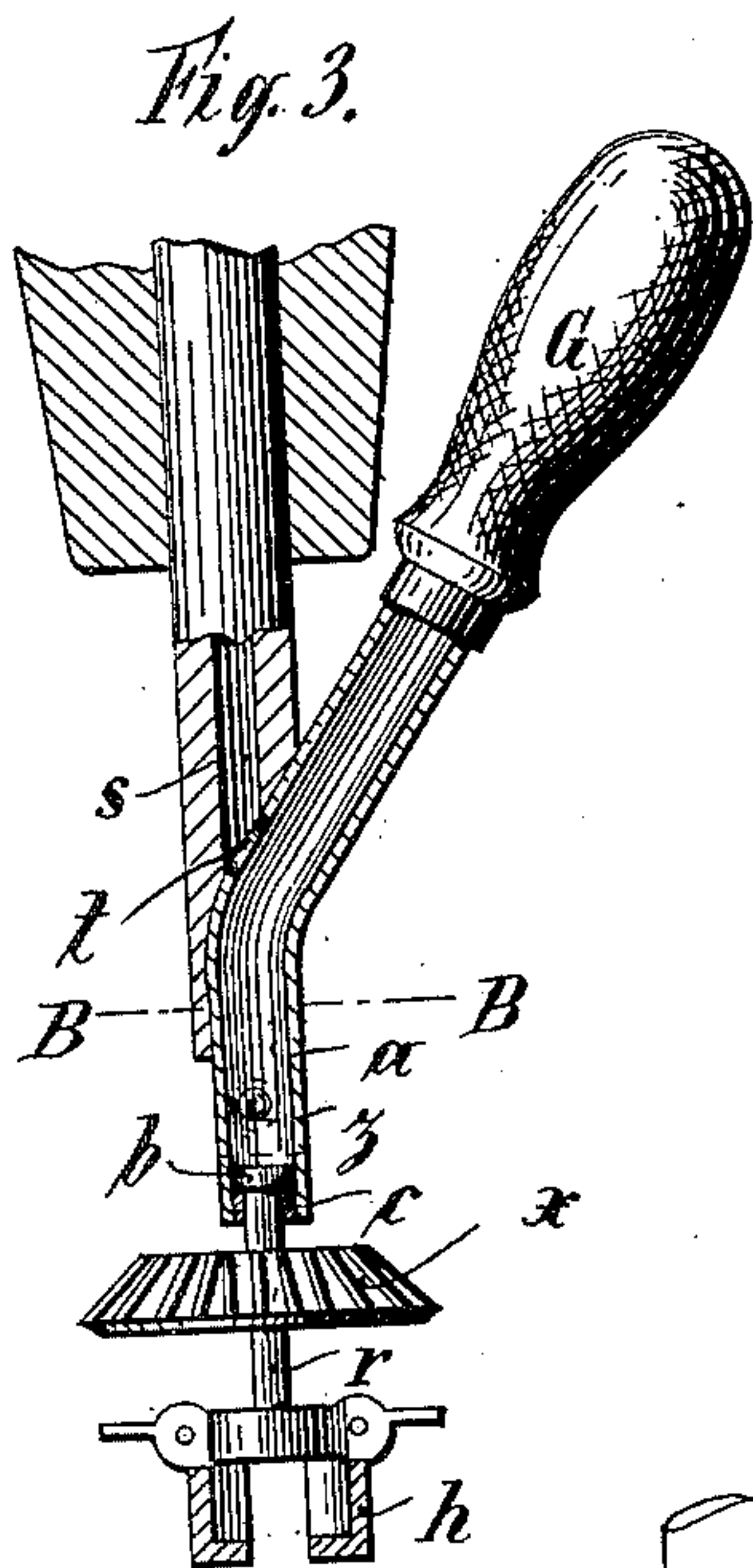


Fig. 4.

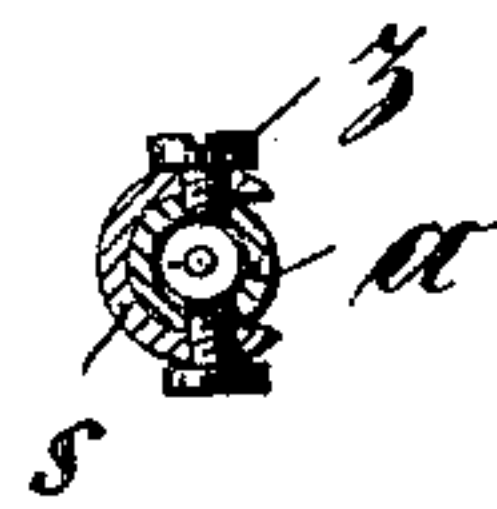


Fig. 7.

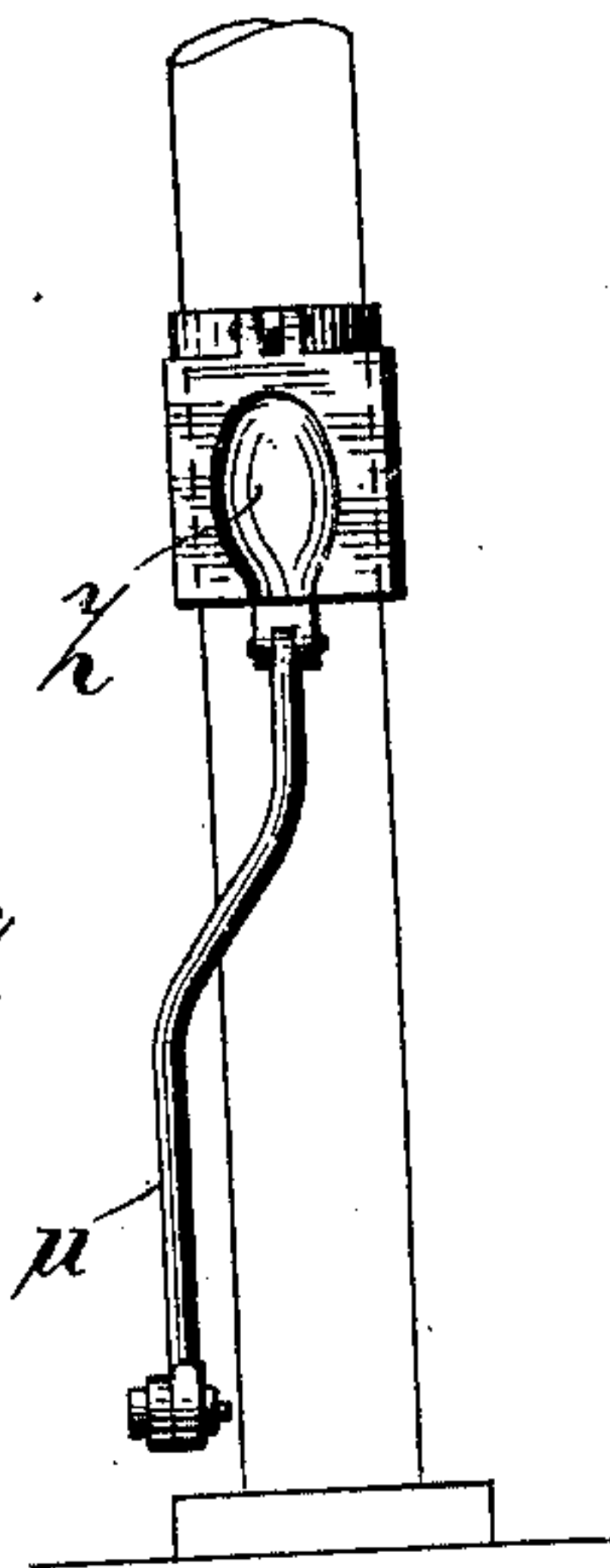


Fig. 9.

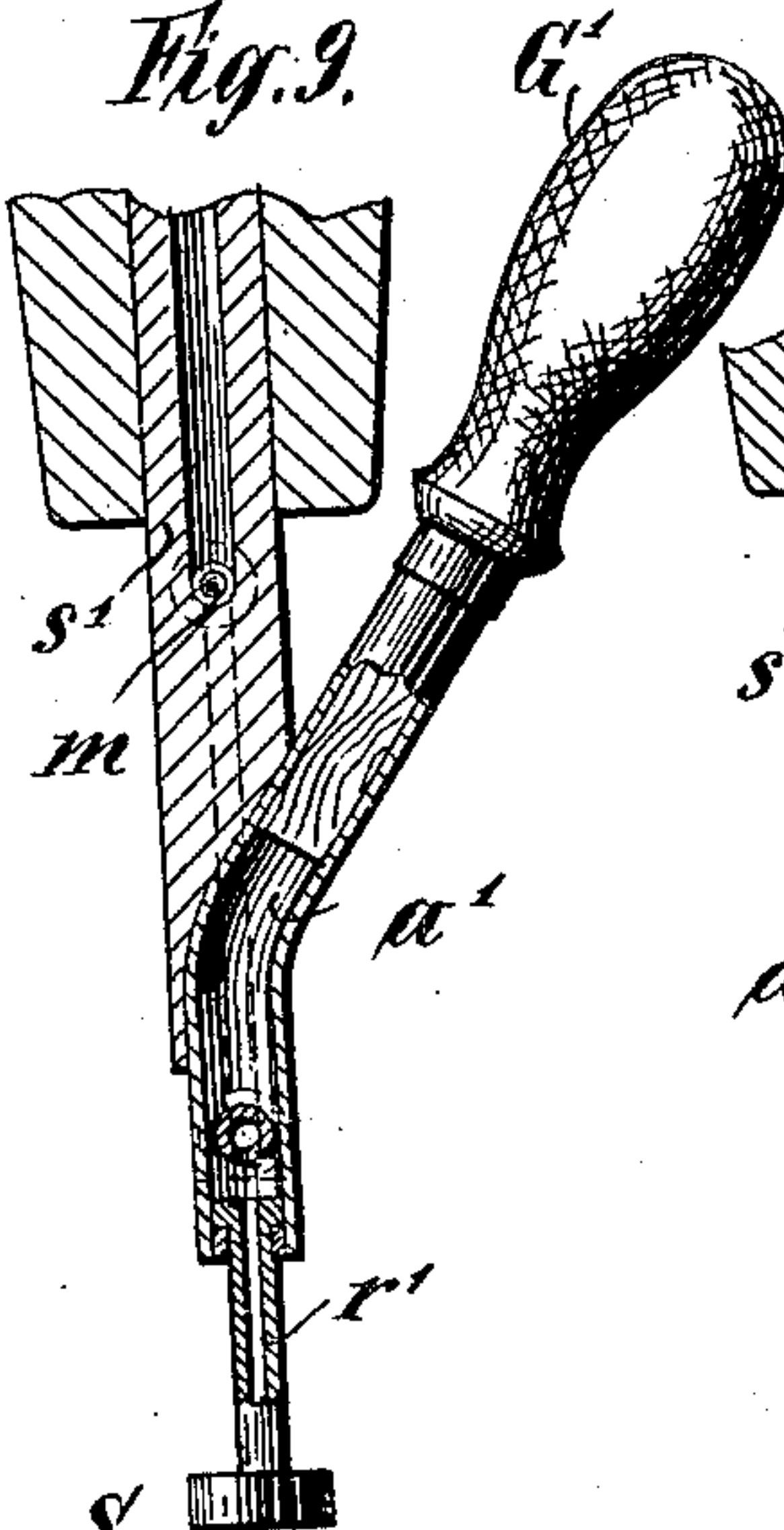


Fig. 10.

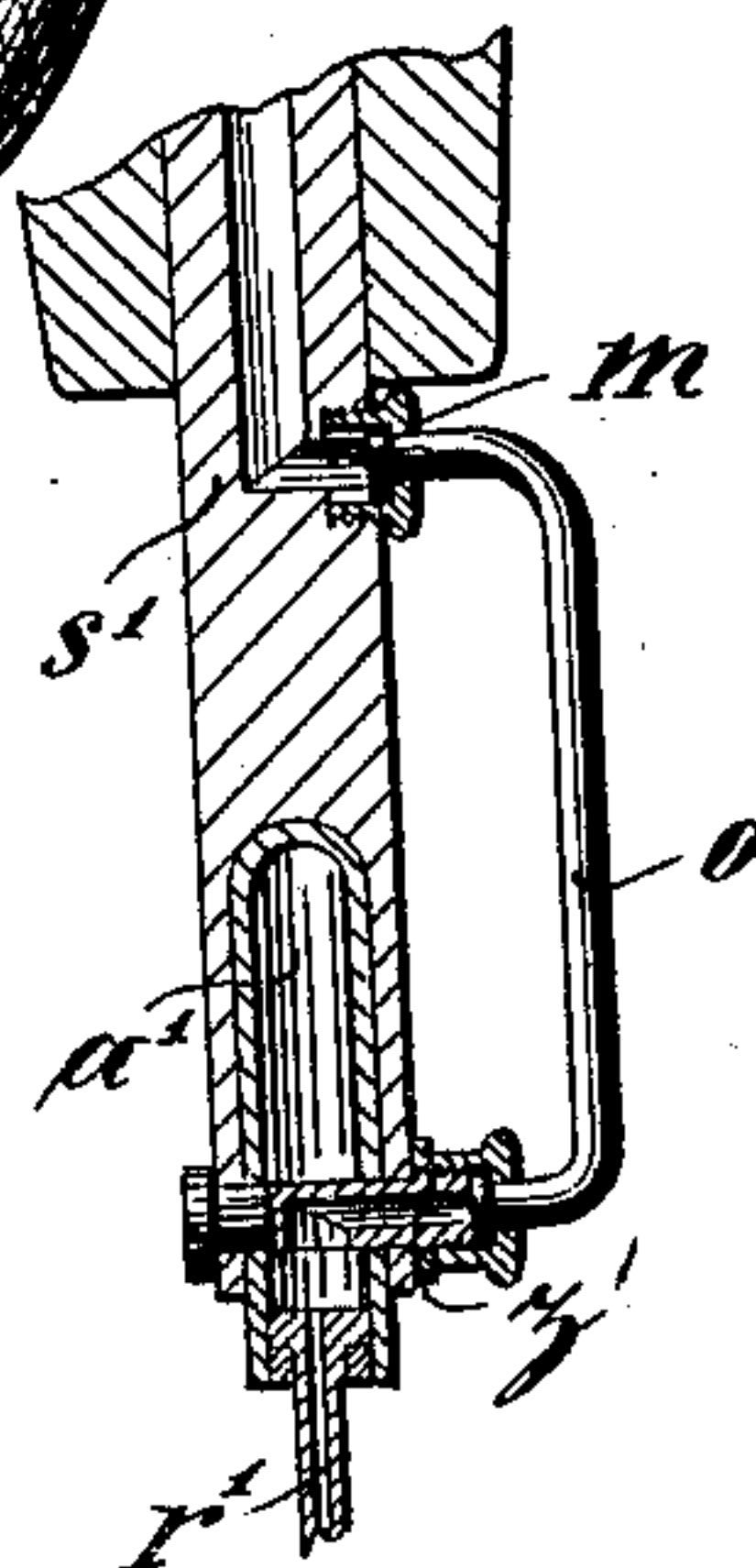
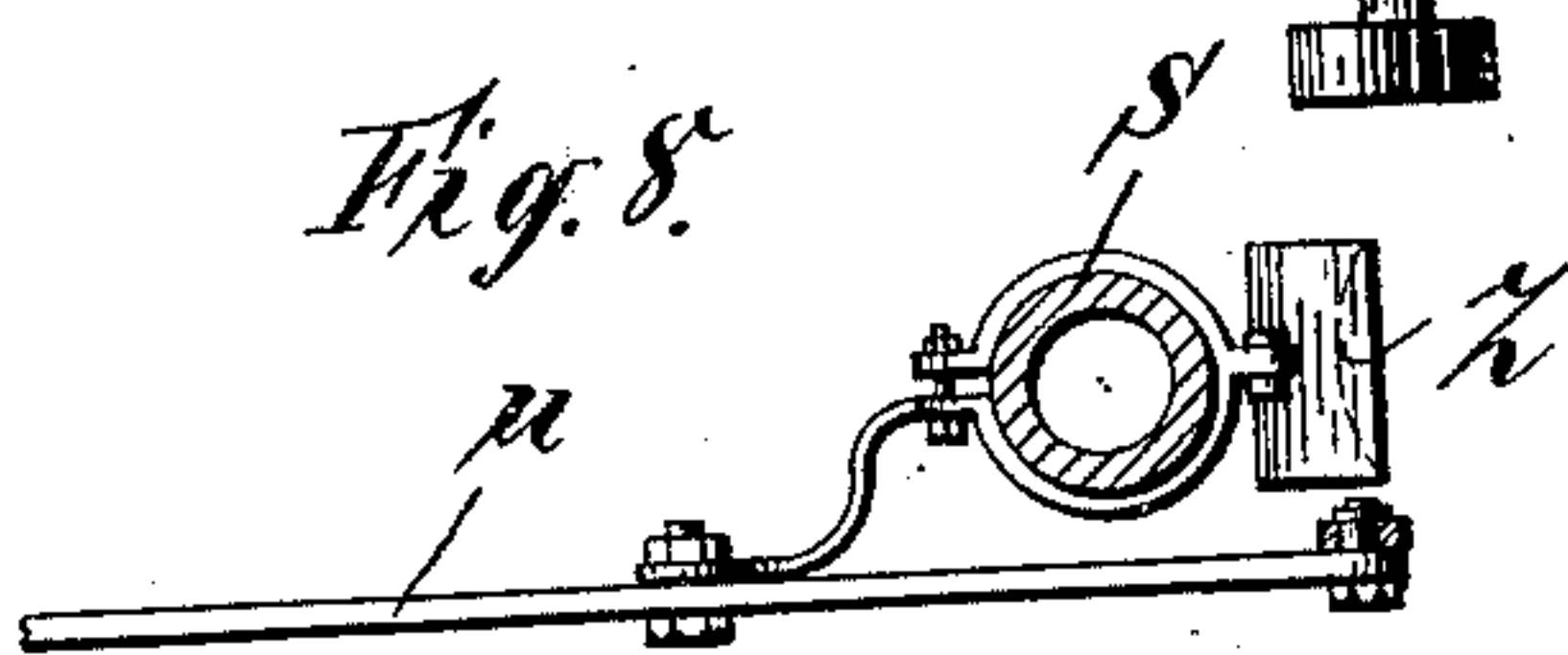


Fig. 8.



Witnesses:

Richard Scherpe
Curt Gesell

Inventor:
Heinrich Wilhelm Heerdt.
by Carl Meichner
Attorney.

UNITED STATES PATENT OFFICE.

HEINRICH WILHELM HEERDT, OF AUSSIG, AUSTRIA-HUNGARY.

GLASS-BLOWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 686,850, dated November 19, 1901.

Application filed March 21, 1900. Serial No. 9,624. (No model.)

To all whom it may concern:

Be it known that I, HEINRICH WILHELM HEERDT, a citizen of the Empire of Austria-Hungary, and a resident of Aussig, Austria-Hungary, (whose post-office address is Prod-
litzerstrasse No. 911, Aussig,) have invented certain new and useful Improvements in Glass-Blowing Machines, of which the follow-
ing is a specification.

10 The object of the present invention is a device for glass-blowing machines by means of which the treatment of the ball in the motz is effected mechanically in exactly the same manner as hitherto by hand.

15 In the annexed drawings the device is represented in connection with a bottle-blowing machine. The device comes into operation when the ball is ready to be blown in the finishing-mold.

20 Figure 1 is a front view; Fig. 2, a side view on section line A A, Fig. 1, of that part of the machine which produces the finished bottle. Figs. 3, 4, 5, and 6 show details of the moving and rotating devices for the pipe. Figs. 7
25 and 8 show a device for moving the motz in and out of position. Figs. 9 and 10 show another form of the devices shown in Figs. 3 to 6, which permits of compressed air being introduced into the ball while the latter is be-
30 ing treated in the motz.

The hollow blowing-tube *s* has bearing in the cross-piece *V*, supported by the posts *S* on the table *T*. The blowing-tube *s* can be moved down to the finishing-mold *F* by means
35 of the lever *H*, which also operates the compressed-air tap. The rotating ball of glass *k* is then enveloped by the mold in which the bottle is to be blown out. The following device enables the ball revolving around its
40 own axis, but in a horizontal position, to be subjected to treatment in a motz before the final operation. The grips *h*, holding the ball *k*, are not fixed to the blowing-tube *s* itself, but to a short tube *r*, Fig. 3. The
45 tube *r* revolves around its longitudinal axis and is inserted in a bent pipe *a*, in which it is held by the flange *b* at its upper end and the collar *c* at the lower end of the pipe *a*. The pipe *a* moves on a pivot *z*, fixed to the
50 blowing-tube *s*. By drawing down the handle *G* at the upper end of the pipe *a* the latter can be brought into a position at an an-

gle to the blowing-tube *s*, when the tube *r*, with the ball *k*, will be in a horizontal position. A bevel-toothed wheel *x* on the tube *r* 55 is engaged and caused to revolve by a bevel-toothed wheel *y*, the axis of which is at right angles to that of the beveled wheel *x* and which is driven by some suitable means. In the present drawings the driving power is 60 an electromotor *E*, to the axle of which the beveled wheel *y* is fixed, and which is supported by an arm *M*, fixed to the blowing-tube *s*, so that it moves up and down with the latter. As the beveled wheels *x* and *y* 65 always remain engaged, whether the tube *r* and the ball *k* are in a horizontal or perpendicular position, the latter can be caused to revolve at any time. Compressed air reaches the ball *k* through the blowing-tube *s* and the 70 tube *r*. These are separated by the bent pipe *a*, in which there is a hole *t* at the place which touches the lower end of the blowing-tube *s*, so that when the ball *k* is hanging in a perpendicular position (to be blown in the 75 finishing-mold *F*) the compressed air passes from the blowing-tube *s* through the tubes *a* and *r* into the ball *k*. When the latter, however, is in a horizontal position during the treatment in the motz, the air-passage is in- 80 terrupted between *s* and *a*.

The device shown in Figs. 9 and 10 enables compressed air to be introduced into the ball *k* during the treatment of the latter in the motz. In this case compressed air passes in 85 considerable quantities out of the blowing-tube *s* through the opening *m* into a connecting-pipe *a*, which is hermetically connected with the hollow pivot *z*' of the bent pipe *a*'. The pipe *a*' and the tube *r*', with the ball, 90 may then be in any position without the passage of air being interrupted.

The motz *Z* is fixed to a plate *q*, lying against the post *S*. The plate *q* can be elevated to a horizontal position by means of 95 the bar and hand-lever *u*.

The parts described above act together as follows: After the preliminary treatment the ball is hung by its finished neck in the clip *a*. The handle *G* is then drawn down and the ball 100 is thereby swung out into a horizontal position. At the same time the current of the motor *e* is switched on and the latter caused to rotate. By pressing down the lever *u* the motz

Z is brought underneath the ball, (see Fig. 1 in dotted lines,) so that the latter revolves lying in the hollow of the motz. By lifting and lowering levers H and u the operator can bring different parts of the ball into contact with the motz, and thus exactly imitate the process followed by glass-blowers. If the device shown in Figs. 9 and 10 or a similar compressed-air-conducting device is provided, the volume of the ball may be increased during the treatment in the motz. By lifting the lever G the still revolving ball is brought back into a vertical position, and by pushing down the hand-lever H the blowing-tube, the motor, and the ball are caused to descend until the latter is inclosed in the mold. The lever H simultaneously operates the compressed-air tap P, and the still revolving ball is blown out in the mold. The bottle thus produced is seamless and its sides are of uniform thickness; but, if desired, as in the case of some hollow glass articles, the sides can by suitable treatment in the motz be made of unequal thickness.

The apparatus herein described is only one form of construction of an apparatus for treating a revolving ball in a horizontal position in a movable motz attached to the machine and then blowing the ball still revolving but in a vertical position in the mold.

The apparatus may be entirely or partially adapted to any mechanical process of producing hollow glassware.

What I claim is—

1. The combination with the glass-blowing tube of a bent pipe, a pivot fixed to the blowing-tube, a short pipe movably fastened in said bent pipe and means for rotating the short pipe, substantially as shown and described.

2. The combination with a glass-blowing tube of a pivot fixed to the blowing-tube, a bent pipe oscillating on said pivot, the interior of the blowing-tube communicating with the interior of said bent pipe by means of a hole in the wall of the bent pipe, substantially as shown and described.

3. The combination with a glass-blowing tube of a hollow pivot fixed to the blowing-tube, a bent pipe oscillating on said pivot, a separate air-pipe connecting the interior of the blowing-tube with the interior of the hollow pivot, substantially as shown and described.

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

HEINRICH WILHELM HEERDT.

Witnesses:

BERTHOLD EISNER,
ADOLPH FISCHER.