

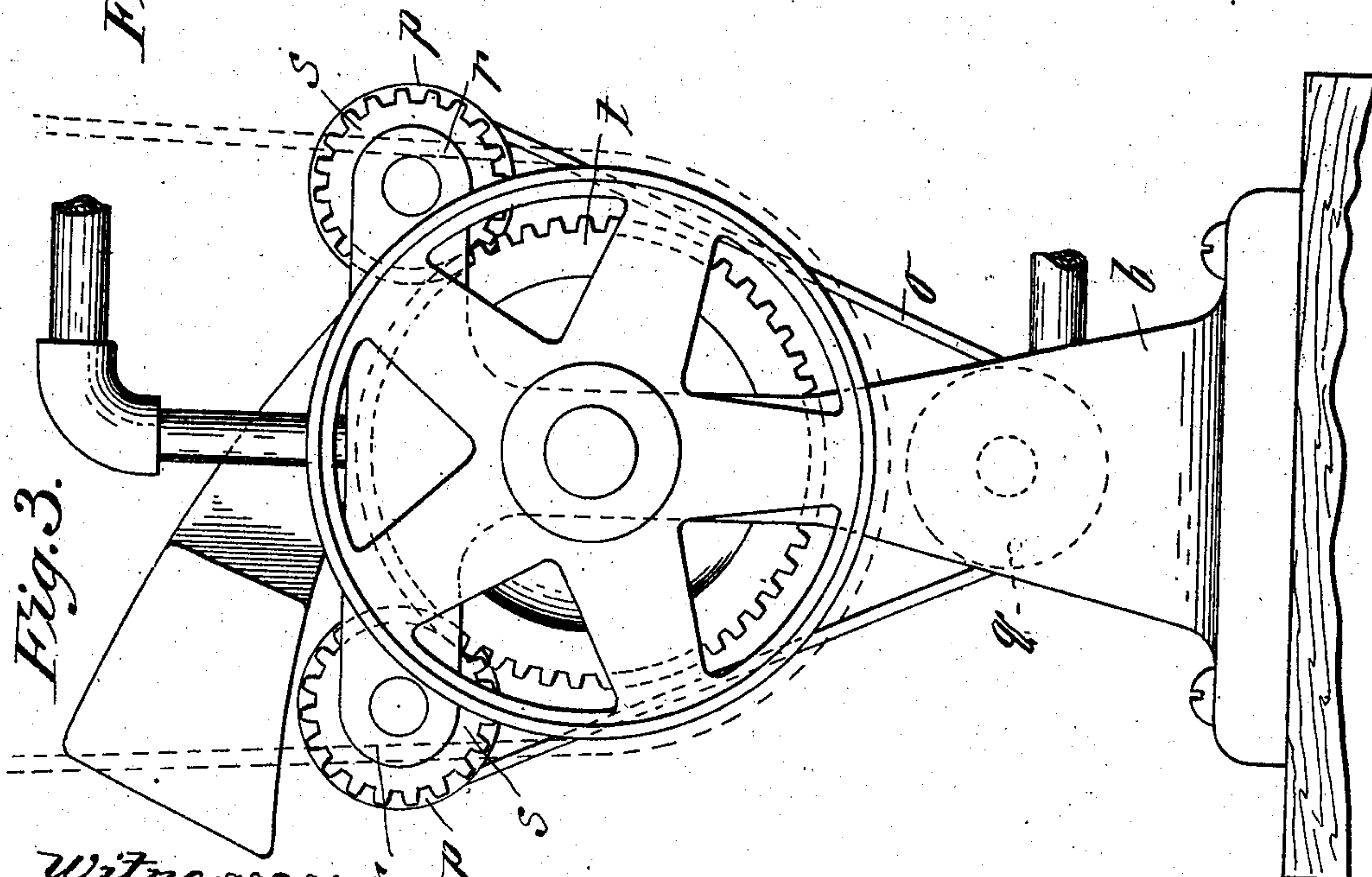
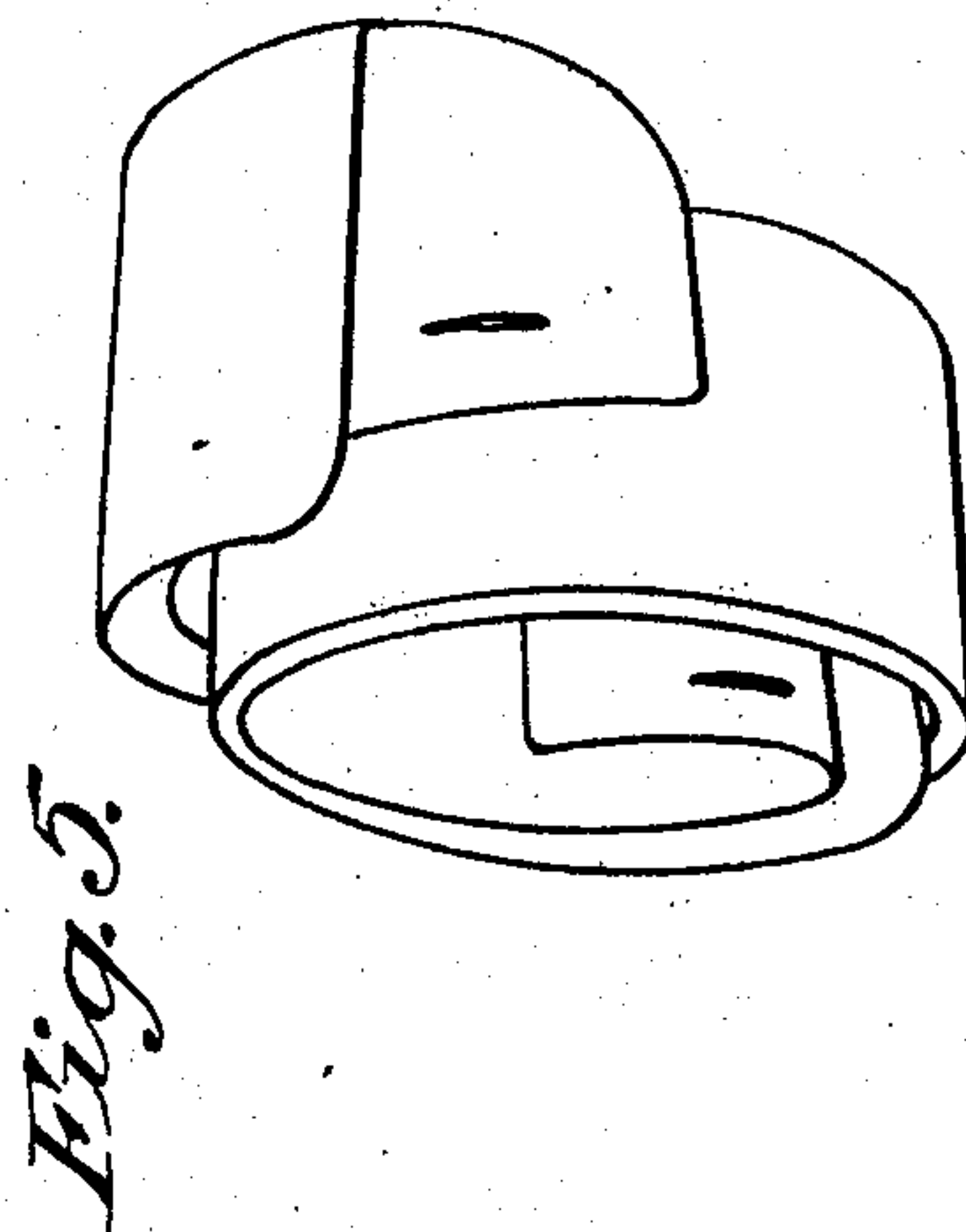
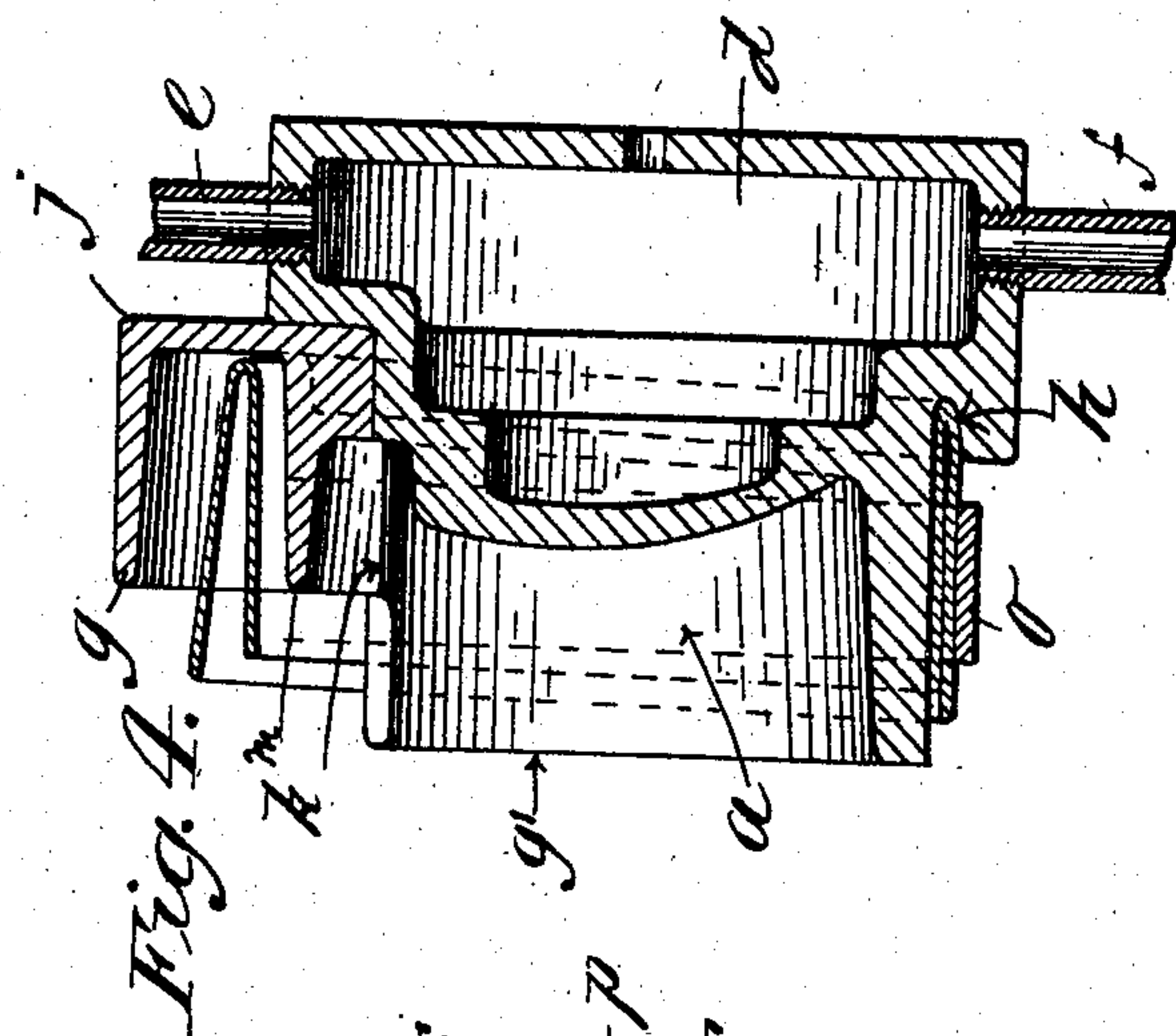
No. 827,253.

PATENTED JULY 31, 1906.

H. W. MESSER & G. B. JOSLYN.
MACHINE FOR FOLDING TURNOVER COLLARS.

APPLICATION FILED JUNE 14, 1904.

2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR FOLDING TURNOVER COLLARS.

No. 827,253.

Specification of Letters Patent.

Patented July 31, 1906.

Application filed June 14, 1904. Serial No. 212,484.

To all whom it may concern:

Be it known that we, HORACE W. MESSER and GEORGE B. JOSLYN, citizens of the United States of America, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Machines for Folding Turnover Collars, of which the following is a specification.

This invention relates to laundry machinery, and specifically to machines for folding "turnover" collars, as they are called, after they have been ironed flat, the object of the invention being to provide a machine whereby the collars of the type referred to may be folded without cracking the folding edge, the machine being so organized as to make the fold without applying direct pressure to the folded edge of the collar.

A further object of the invention is to provide means in a machine of this type whereby the collar may be rolled up and partially ejected from the machine in its rolled condition, whereby it may be easily removed by the operator to make room for the succeeding collar.

The invention is clearly illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a machine in which this invention has been embodied. Fig. 2 is an end elevation of the same. Fig. 3 is an elevation of the end opposite to that shown in Fig. 2. Fig. 4 is a sectional view through the center of the folding-drum on line 4-4, Fig. 2. Fig. 5 is a perspective view of the collar as it issues from the machine after folding.

Referring now to the drawings, the folding-drum (indicated as a whole by *a*) is mounted on a suitable standard *b*, being secured thereto by screws *c*, one of which shows in Fig. 1 partly in full lines and both screws showing in dotted lines in Fig. 2.

The drum *a*, which is the most essential feature of the invention, will first be described, and it consists, as shown in Fig. 4, of means to heat the drum, comprising in this instance a steam-chamber *d*, having the inlet and outlet pipes *e* and *f* to provide for the proper circulation of the steam, the latter serving to keep the drum at the required

temperature. Steam heat, of course, is not essential to the proper operation of this device, and some other agent may be employed, if desired.

The back side of the drum is entered by the aforesaid screws *c*, whereby it is secured to the frame or standard *b*, and on the opposite side of the drum parallel with the axis of the latter is a spirally-disposed flange *g*, the innermost convolution *g'* of which is wider than the other portions thereof, and at the base of the outside surface of the flange is a groove *h*, which is made wide enough to receive the folded edge of the collar, as shown in Fig. 4. It has been deemed necessary to refer to the spirally-arranged flange in the plural, as it is made up of several portions each bearing separate letters of reference; but the flange or flanges as a whole relate to the parts *g* and *g'*, arranged to guide the collar spirally around the axis of the drum. As this groove is followed around to the left it is seen that it terminates in a flaring mouthpiece *j*, this being made as a separate piece for convenience of manufacture, although it is, in effect, a part of the drum, and from the open end thereof to the point *k*, where it joins the flange *g*, the throat thereof tapers down to register with the end of the groove *h*.

At the point *m* of the under side of the mouthpiece *j* the latter is widened out to project more or less over the innermost convolution *g'*, the under portion thereof being curved to conform to the inner surface of said convolution, constituting practically an extension of the latter, which serves to turn the end of the collar into the central circular chamber, of which the convolution *g'* is the boundary. The inner end of this central chamber is not disposed at right angles to the axis of the drum; but, as shown in Figs. 2 and 4, said end extends conically toward the open end of the said circular chamber, the spiral direction of the groove *h* following around said cone-shaped end to a point where as the groove gradually diminishing in depth merges into the surface of the end of the drum.

The surfaces of the flanges *g g'*, against which a collar will bear when subjected to the action of the machine, are all machined

off smooth and polished to the end that the collar may slide freely therearound, the drum and said flanges all remaining stationary.

Means are provided to slide the collar
5 around the flanges and in contact therewith, with the folded edge in the groove *h*, and for this purpose I prefer to use an endless belt *o*, which passes over the grooved pulleys *p* and under the idler-pulley *q*. The pulleys *p* are
10 mounted on shafts which are rotatably supported in bearings *r* on the standard *b*, each of these shafts having a gear *s* fixed thereon, which meshes with another gear *t*, supported on the driving-shaft *u*, on which is
15 a belt-driven pulley *v* or other equivalent means for rotating the shaft. The belt *o* is so disposed that it will run under and partially around the flange *g'* in its passage from one pulley *p* to the other and as shown in
20 Fig. 4. At that point *k* where the mouthpiece *j* joins the flanges *g g'* the pulley *p* is located in such position that the belt *o* will receive between it and the outer surface of the flange *g'* that part of the collar which extends
25 beyond the edge of the flange *g*. The idler-pulley *q* is supported on the shaft *w*, having the posts *x* thereon extending downwardly into the socketed standards *y*, said posts being provided with spiral springs *z*, whereby
30 suitable tension may be maintained on the belt *o*. Preferably the socketed standards *y* are made adjustable, as shown in Fig. 1, whereby the tension of the springs *z* may be regulated to compensate for any stretching of the belt
35 which may occur. The mode of effecting this adjustment of the standards is as follows: The posts *x* extend downward through the standards *y*, which are threaded on the supports *y'*, the parts *y* being counterbored from
40 the lower end to provide space for the springs *z* between the top of the standards *y* and the enlarged heads *x'* on the lower end of the posts *x*. When the standards *y* are screwed downward onto the supports *y'* the springs *z*
45 will be compressed and the tension varied on the belt *o*, which passes around the pulley *q*. While this construction is thought to be best suited for the purpose as a means to slide the
50 collar around the flanges of the drum *a*, other means may be employed in place thereof, if desired. It has been found advantageous, however, to hold the collar close to the flange and slide it therearound by means of the pressure applied by a belt.

55 In operating this machine a flat collar as it issues from the ordinary ironing-rolls is taken by the operator, and the folding-line through the center thereof is passed over the end of a
60 pipe from which issues a jet of steam under low pressure, whereby the starch along this line may be softened. The sides of the collar at one end thereof are then folded together,

and this end is introduced into the open end of the mouthpiece *j*, the folding edge of the collar being pressed back against the rear wall
65 of the mouthpiece and the collar being pushed forward meanwhile toward the point where the belt *o* runs onto the flange *g'*, and the forward end of the collar being caught in said
70 belt the collar is quickly slid around the flange *g'*, the belt pressing the two sides together and continuing the folding operation, the moistened folded edge of the collar being crowded
75 into the groove *h*, and by the time the rear end of the collar passes out from under the delivery end of the belt *o* the forward end of the collar has been rolled up within the chamber inclosed by the flange *g'*. The collar,
80 owing to the formation of the end wall of said chamber and the general spiral direction it has followed in the groove *h*, will be wound in helical form, as shown in Fig. 5, and may be grasped by the operator as soon
85 as released by the belt and withdrawn from said central chamber of the drum. All of the surfaces over which the collar has passed being heated by means of the steam-chamber
90 *d* or other suitable means, the moistened starch along the folded edge thereof will have become set again, when the rolling operation is finished. The collar therefore in
95 issuing from the machine is ready for packing, and at no point during the operation has the folding-line of the collar been subjected to any direct pressure. This, it is believed, is an entirely novel feature.

Having thus described our invention, what we claim, and desire to secure by Letters Patent of the United States, is—

1. In a collar-folding machine, a stationary
100 helically-disposed drum and a flexible device to slide the collar around and in contact with the drum, and means to heat the latter.
2. In a collar-folding machine, a helically-disposed stationary drum, and flexible means
105 to slide the collar therearound, there being a groove at the base of said drum to receive the folded edge of the collar, and means to heat the drum.
3. In a collar-folding machine, a helically-
110 arranged stationary flange around which the collar is wound, there being a groove at the base of said flange to receive the folded edge of the collar, together with means bearing on the collar outside the folded edge thereof to
115 slide said collar circumferentially around the flange.
4. In a collar-folding machine, a stationary drum comprising a steam-chamber and a
120 flange helically disposed on one side thereof, there being a groove at the base of said flange decreasing in depth from the inlet to the outlet end thereof.
5. In a collar-folding machine, a station-

ary flange spirally disposed in a plane at right angles to its axis, and in the direction of its axis, and an endless belt extending around a portion of said flange in contact therewith, to bear on the collar outside of the folded edge of the latter, and means to move said belt.

6. In a collar-folding machine, a stationary helically-disposed flange, a belt passing around a portion of said flange and engaging

a portion of the collar back from the folded edge thereof, and means for heating said flange.

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