

No. 865,977.

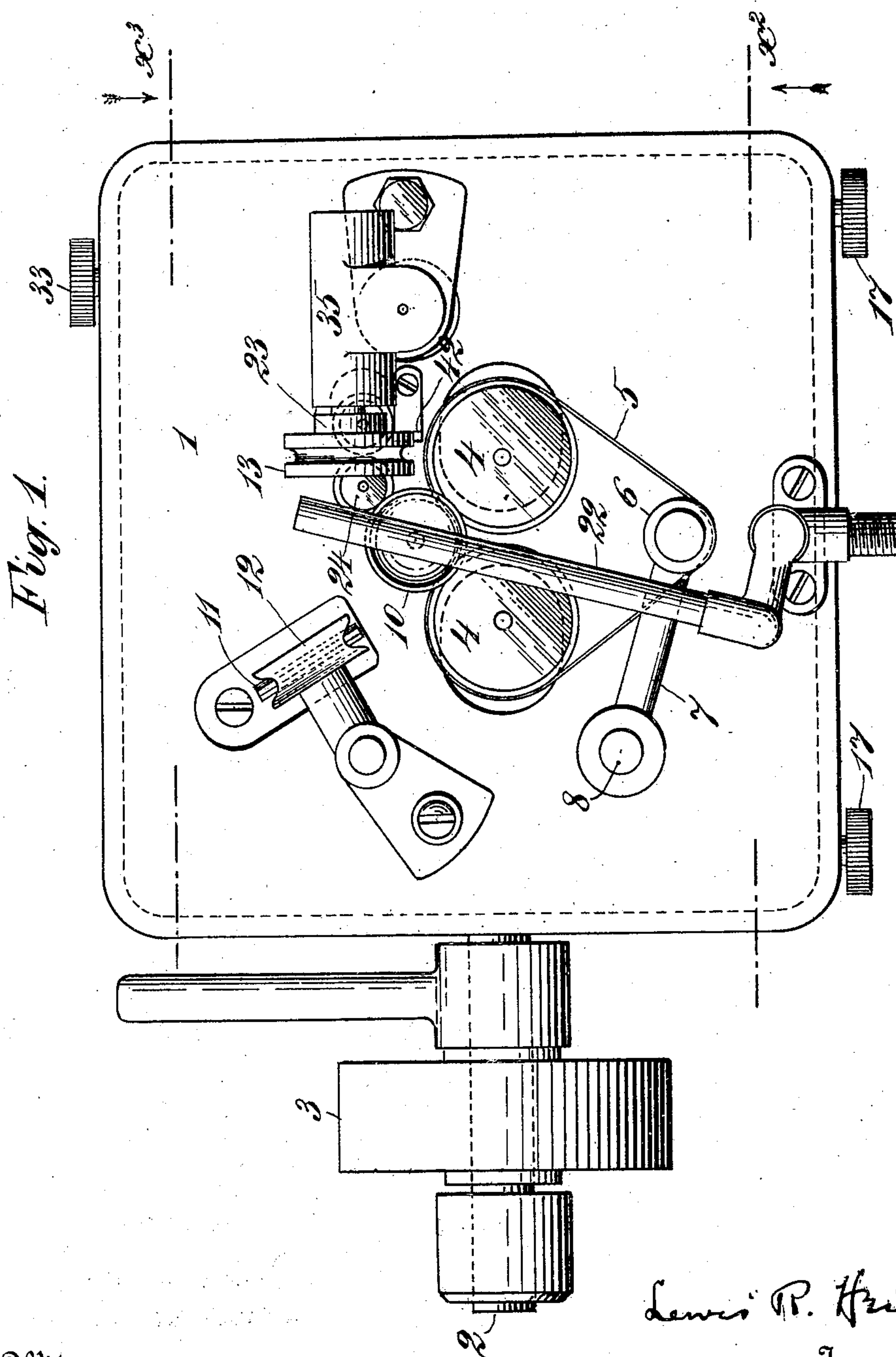
PATENTED SEPT. 10, 1907.

L. R. HEIM.

MACHINE FOR IRONING FOLD COLLARS.

APPLICATION FILED JUNE 8, 1906.

4 SHEETS—SHEET 1.



Witnesses

E. G. Alvord

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By his Attorney Henry Connell

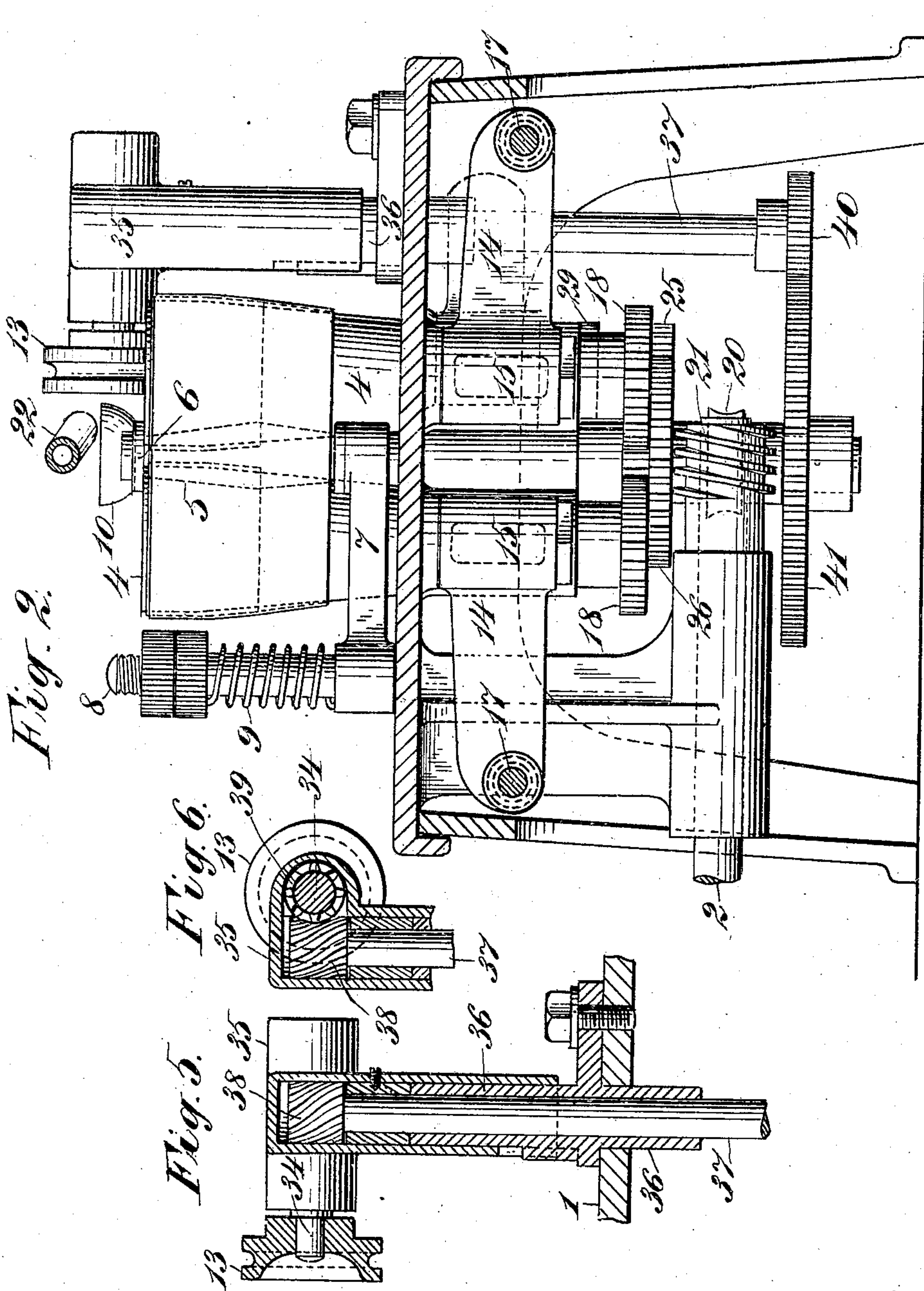
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Witnesses
J. H. H. H. H. H.
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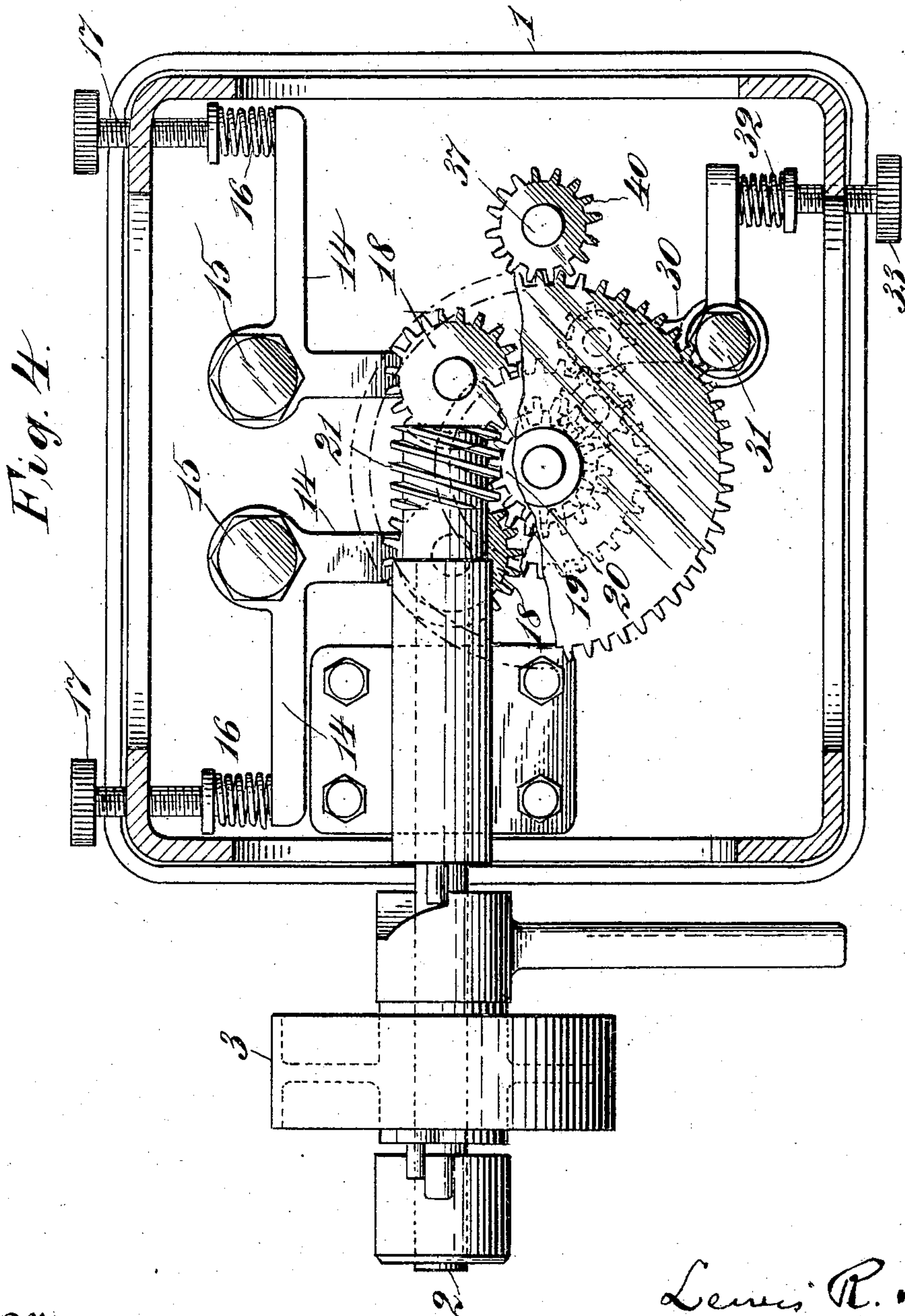
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4 SHEETS—SHEET 4.



Witnesses
A. H. H. H. H. H.
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UNITED STATES PATENT OFFICE.

LEWIS R. HEIM, OF DANBURY, CONNECTICUT.

MACHINE FOR IRONING FOLD-COLLARS.

No. 865,977.

Specification of Letters Patent.

Patented Sept. 10, 1907.

Application filed June 8, 1906. Serial No. 320,777.

To all whom it may concern:

Be it known that I, LEWIS R. HEIM, a citizen of the United States, residing in Danbury, Fairfield county, Connecticut, have invented certain new and useful

Improvements in Machines for Ironing Fold-Collars, of which the following is a specification.

This invention relates to the class of machines of which that described in my United States Patent No. 818,247, dated April 17, 1906, is a type, and wherein a machine for shaping the collars is provided with a rotating ironer for the folded edge of the collar, to operate as the latter emerges from the rolls of the machine; and the present invention may be considered as an improvement on said machine, many parts of the present machine being substantially the same as those shown in my aforesaid patent.

The purpose and objects of the present improvements will be better understood after a description of the construction and operation of the machine shall have been given.

In the accompanying drawings, which illustrate an embodiment of the invention—Figure 1 is a plan of the machine. Fig. 2 is a vertical section taken substantially at line x^2 in Fig. 1. Fig. 3 is a vertical section taken at line x^3 in Fig. 1. Fig. 4 is an underside view, with the legs in horizontal section and one of the gear-wheels broken away. The remaining views are details. Figs. 5 and 6 are section views of the mechanism for driving the rotating ironer. Figs. 7 and 8 are detail views of the rotating ironer and the supporting rollers for a collar, C shown therein.

According to the present invention, 1 designates the bed or support, mounted on or provided with suitable legs.

2 is the driving-shaft, mounted rotatively in bearings below the bed. 3 is the driving pulley on said shaft.

4, 4, are two upright rollers, adapted to be driven from the main shaft 2 through means to be hereinafter described. About the rollers 4, 4, is a belt, band or apron 5, which takes about an upright tightening roller 6, mounted on an arm 7, which swings about a post 8 on the bed and has a torsion spring 9, which tends to swing the arm and roller outward in a manner to tighten the belt 5.

10 is an upright non-yielding roller which holds the belt 5 up to the rollers 4, 4, as seen in Fig. 1.

A standard 11, mounted on the base, receives the folded collar, which passes under a grooved wheel or roller 12, and thence to the rollers 4, 4, and 10. A grooved wheel, or roller 13 disposed adjacent to the point where the collar emerges, rolls upon and irons the fold of the collar.

So far as above described the elementary features are the same as those illustrated in my aforesaid patent.

The features wherein the constructive differences reside, will now be described.

In the present construction the upright rollers 4, 4, are rotatively mounted each by a journal at its lower end, in one arm of an elbow-lever 14, fulcrumed at 15 on the underside of the machine bed; and the other arm of said lever is cushioned against a spring 16 (Fig. 4) backed by a tension-regulating screw 17. The function of the springs 16 is to keep the rollers 4 pressed in toward each other yieldingly, the degrees of pressure being regulated by the screws 17. The upright pressure roller 10 is rotatable in a long bearing on the underside of the bed and it has no other motion. On the lower ends of the respective rollers 4, 4, are secured gear-wheels 18, and these gear with a wheel 19 on the long, pendent journal of the pressure roller 10; and this roller is driven through the medium of a worm-wheel 20 on the journal of the roller 10, which gears with a screw 21 on the main shaft 2.

In my former patent the roller corresponding to the saddle-roller 12 herein, is positively driven, but in the present case it is not.

A gas-pipe 22 serves to heat the roller 10, and wheel 13. Broadly such heating devices and features are not new.

An important novel feature of the invention will now be described. Disposed adjacent to the outlet where the collar emerges from the rollers 4, 4, are two upright supporting rollers 23 and 24 (Fig. 3). Both of these rollers are slightly coned or tapered at the top, the tapered portion extending down for about five-eighths of an inch on the full-sized machine; the body of the roller 23 tapers downward and the body of the roller 24 is cylindrical. The roller 23 is driven through gear-wheels 25 and 26, respectively, on the lower end of the journal of said roller 23 and on the journal of the roller 10. The roller 23 drives the roller 24 through gear-wheels 29. The function of these rollers is to support the collar while its folded edge is being pressed upon and ironed by the grooved wheel 13, and in order that the rollers may nip the folded collar at a point a little way below its fold and thus avoid cracking or breaking the material of the collar at the fold, the rollers are coned or tapered a little at the top. The roller 23 is tapered below in order to make room for the flare of the outer fold of the collar, the inner fold of the latter being upright, the roller 24 is made cylindrical and forms a guide for the collar as it emerges. The rollers 23 and 24 will have a peripheral speed equal to or a very little less than the surface speed of the belt or apron 5, so as not to destroy the shape given the collar by the rollers 4, 4 and 10.

In order to cause the rollers 23 and 24 to grip the collar with a yielding pressure, and to provide for vary-

ing this pressure, the roller 23 (see Fig. 4) is carried by one arm of an elbow-lever 30, fulcrumed at 31, so that the said roller may have a little movement laterally toward and from the roller 24; and the other arm of said
5 carrying lever is backed by a spring 32, which is in turn backed by a tension-regulating screw 33.

The wheel 13 (see Figs. 5 and 6) is fixed on a horizontal shaft 34, rotatively mounted in a bearing-piece 35, which is provided with a sleeve that slips down
10 over an upright, bearing-piece 36, mounted on the machine-bed. An upright shaft 37 extends up through the bearing-piece 36, and on the upper end of this shaft is a spiral gear 38, which engages, for driving, a gear 39 on the horizontal shaft 34. On the lower end of the
15 shaft 37 is a pinion or gear-wheel 40 (Fig. 2) which gears with a spur wheel 41 on the journal of the roller 10. It is necessary that the grooved ironing-wheel 13 shall press with some force on the collar, and it is found that the rollers 4, 4, and 10 cannot always be re-
20 lied on to so support the emerging collar as to resist this pressure; and moreover, when the last end of the collar fold emerges from the bite of the rollers 4, 4 and 10, its support therefrom is lost just at the time when the ironer 13 is most needed to iron that part of the
25 folded edge near the tab of the collar. The rollers 23 and 24 supply this support. By observation of Figs. 2 and 7, it will be seen that a vertical plane passing through the axes of the rollers 23 and 24 is somewhat nearer the rollers 4, 4 than is a vertical plane passing
30 through the axis of the wheel 13.

Preferably there will be a guide-piece 42 disposed between the roller 4 and the adjacent roller 23, and fixed to the machine-bed. This guide-piece is merely to insure the emerging end of the collar passing in be-
35 tween the supporting rollers. The wheel 13 will have a peripheral speed slightly greater than the speed at which the collar is moving; and it may have a slight vertical adjustment, as explained in my former patent, without disengaging the driving gears. The means
40 employed herein for this purpose is substantially the same as that shown in my former patent.

It will be noted that in the present case the upright roller 10 is not movable laterally, as in my aforesaid patent, and that the lateral movement required is in
45 the rollers 4, 4. The object in this is to guide the collar properly to the bite of the rollers 23 and 24. This feature could not be attained properly if the roller 10 were laterally movable.

It may be explained with reference to the detail
50 views, Figs. 7 and 8, that they show a fold collar C gripped between the rollers 23 and 24 at the point indicated by the dotted line z.

The present invention is not restricted to means for supporting the collar under the edge-ironer, construct-
55 ed precisely as herein shown, although this construction is preferred.

Having thus described my invention, I claim—

1. A machine for the purpose specified, having a mechanism for shaping and feeding the collar, means for guiding the collar into said mechanism, an independent
60 ironer, adjacent to the outlet of said mechanism and so disposed as to iron the fold of the emerging shaped collar as it emerges from said mechanism, and means situated under the ironer for supporting the moving collar while its folded edge is being finished by said ironer. 65

2. A machine for the purpose specified, having a mechanism for shaping and feeding the collar, means for guiding the collar into said mechanism, an independent
70 ironer, adjacent to the outlet of said mechanism and so disposed as to iron the fold of the emerging shaped collar as it emerges from said mechanism, and rotating means disposed in position for gripping and supporting the moving collar while its folded edge is being finished by said ironer.

3. A machine for the purpose specified, having a mechanism for shaping and feeding the collar, means for guiding the collar into said mechanism, an independent
75 ironer, adjacent to the outlet of said mechanism and so disposed as to iron the fold of the emerging shaped collar as it emerges from said mechanism, and gripping rollers disposed and adapted to yieldingly embrace and support the moving collar while its folded edge is being finished by said ironer. 80

4. A machine for the purpose specified, having a mechanism for shaping and feeding the collar, means for guiding the collar into said mechanism, an independent
85 ironer, adjacent to the outlet of said mechanism and so disposed as to iron the fold of the emerging shaped collar as it emerges from said mechanism, and means for supporting the moving collar while its folded edge is being finished by the said ironer, said means consisting of a pair of positively driven rollers which embrace and grip the collar at a little distance below its upper edge, and at a point adjacent to the ironer. 90

5. A machine for the purpose specified, having a mechanism for shaping and feeding the collar, means for guiding the collar into said mechanism, an independent,
95 rotary ironer, adjacent to the outlet of said mechanism and so disposed as to bear upon and iron the fold of the emerging shaped collar, and supporting means for the moving collar, disposed opposite to said ironer, said means comprising an elongated, upright, positively driven roller 24, having a slightly tapered upper end, an elongated,
100 upright, positively driven roller 23, having a slightly tapered upper end and a slightly tapered body below the gripping point, and means for pressing one of said rollers up, yieldingly, toward the other. 105

6. A machine for the purpose specified, having a mechanism for shaping and feeding the collar, means for guiding the collar into said mechanism, an independent
110 ironer, adjacent to the outlet of said mechanism and so disposed as to iron the fold of the shaped collar as it emerges from said mechanism, means disposed below said ironer for supporting the moving collar while its folded edge is being finished by said ironer, and the guide-piece 42, disposed between said supporting means and said shaping and feeding mechanism. 115

In witness whereof I have hereunto signed my name this second day of June 1906, in the presence of two subscribing witnesses.

LEWIS R. HEIM.

Witnesses:

ROBERT S. ALEXANDER,
JOHN R. BOOTH.