

No. 872,123.

PATENTED NOV. 26, 1907.

A. R. GUSTAFSON.
IRONING MACHINE.

APPLICATION FILED APR. 20, 1906.

3 SHEETS—SHEET 1.

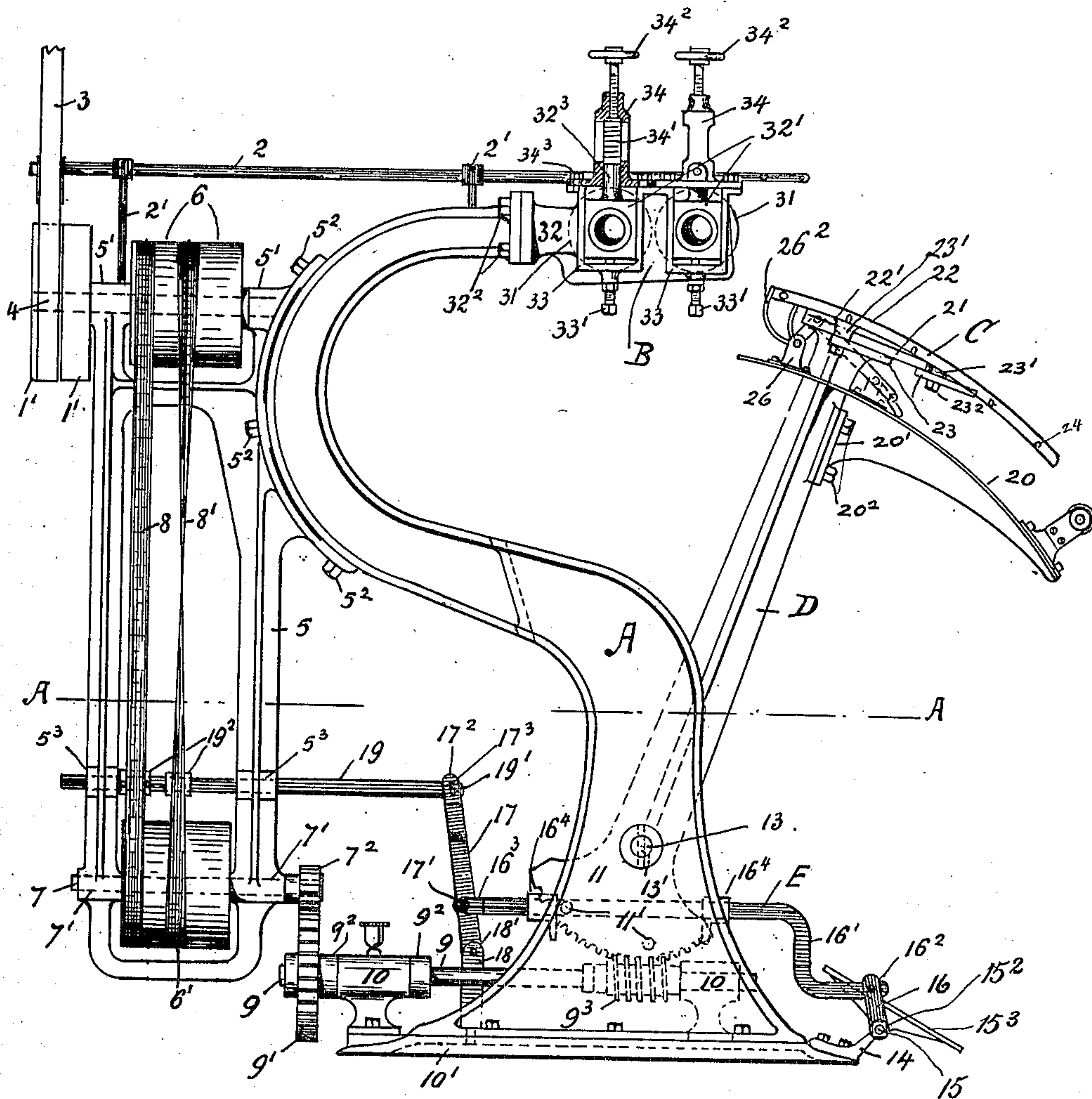
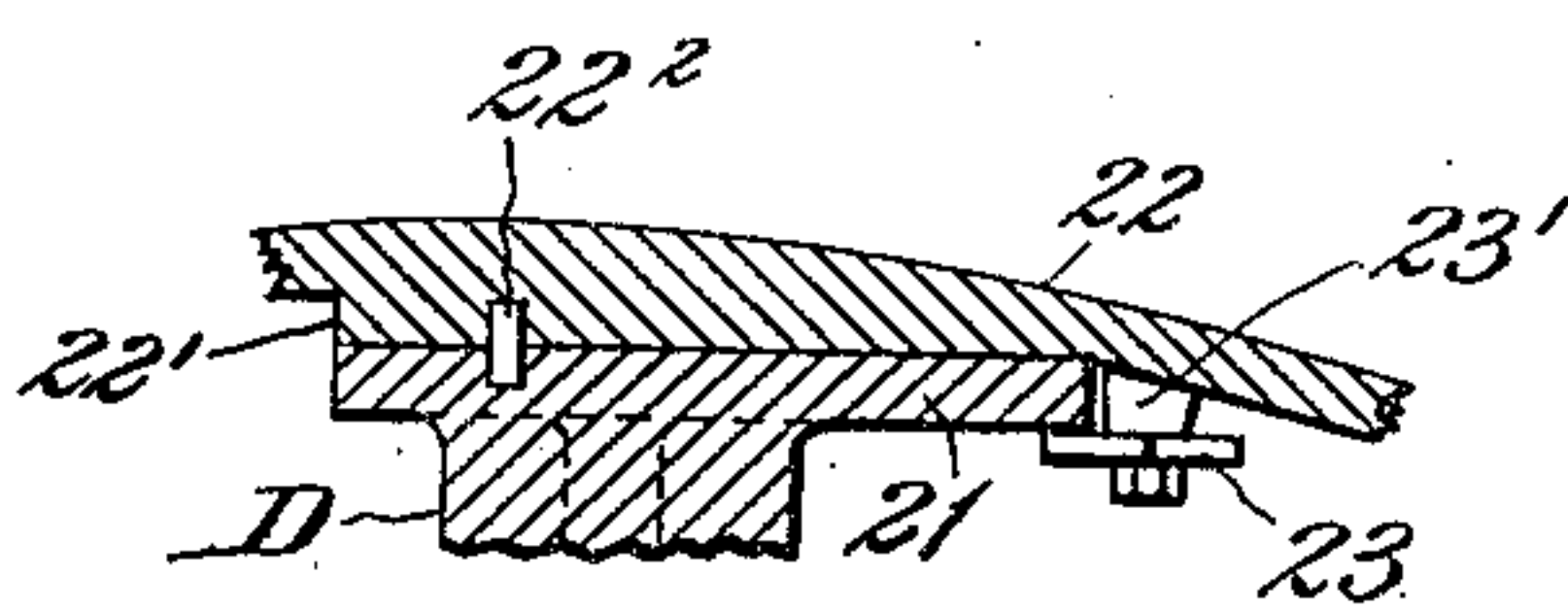


Fig. 1



WITNESSES

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Fig. 7.

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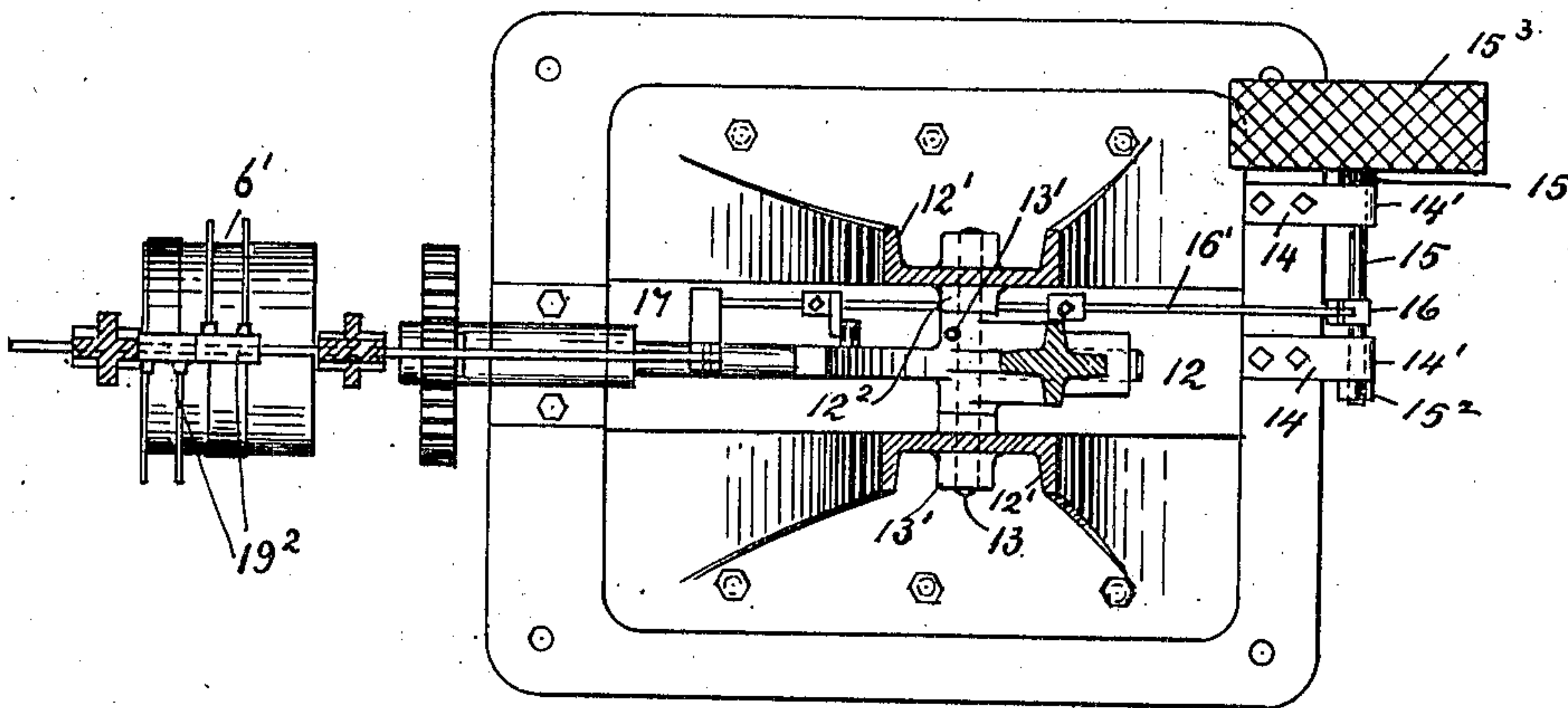
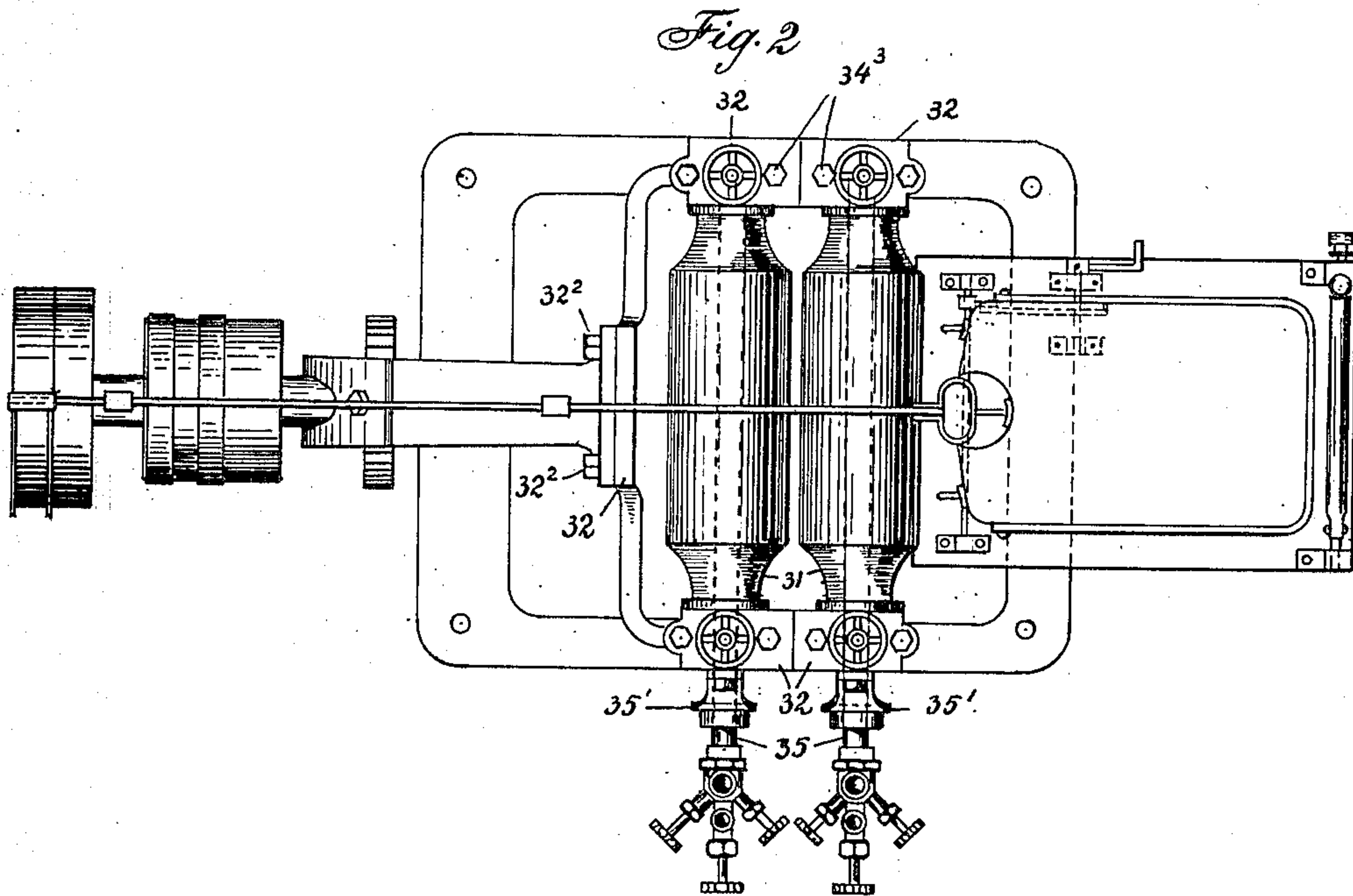


Fig. 3

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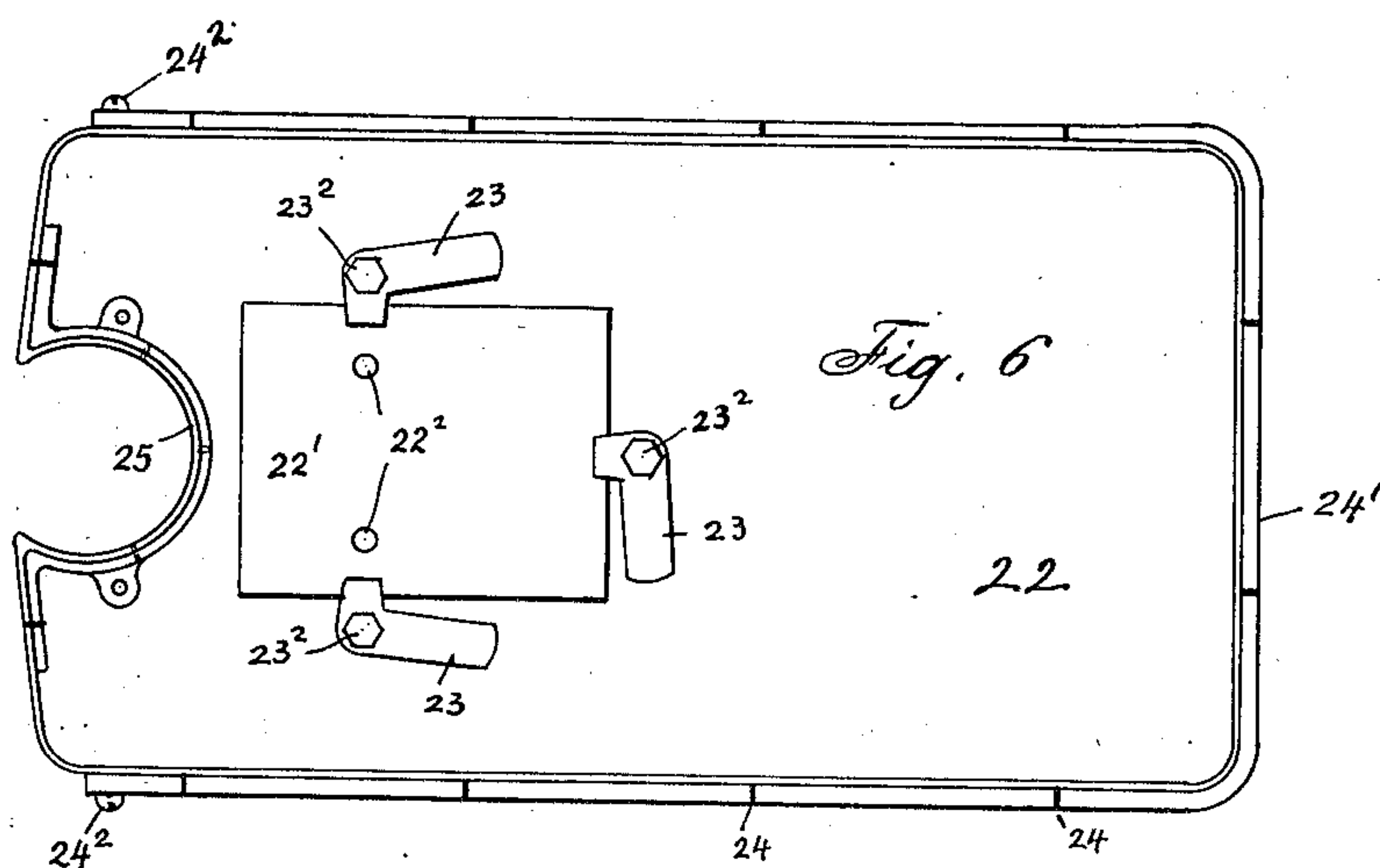
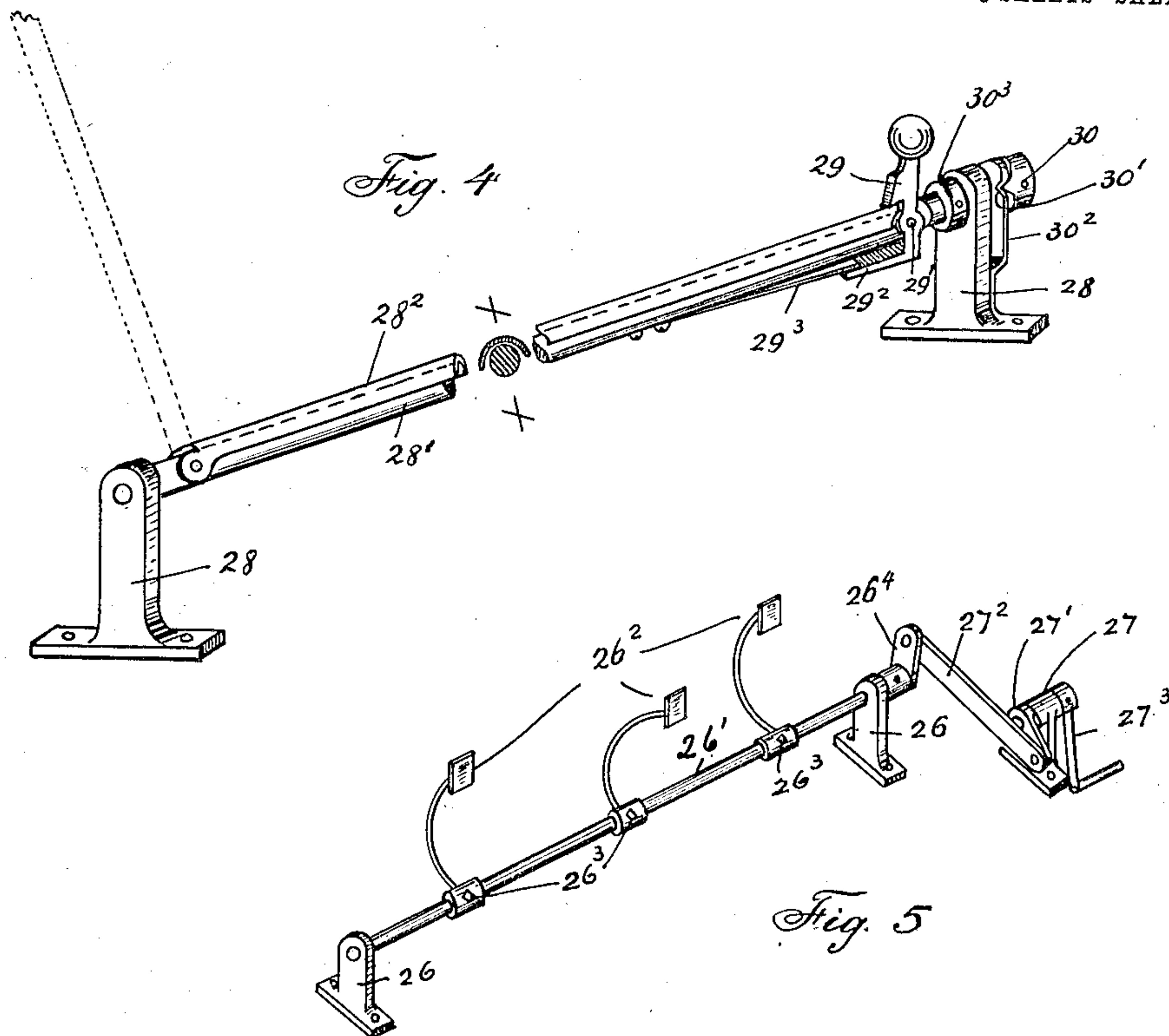
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3 SHEETS—SHEET 3.



WITNESSES
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UNITED STATES PATENT OFFICE.

AXEL ROBERT GUSTAFSON, OF CHICAGO, ILLINOIS.

IRONING-MACHINE.

No. 872,123.

Specification of Letters Patent.

Patented Nov. 26, 1907.

Application filed April 20, 1906. Serial No. 312,845.

To all whom it may concern:

Be it known that I, AXEL ROBERT GUSTAFSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Ironing-Machine, of which the following is a clear and accurate specification.

My invention relates particularly to the class of laundry machines which are used for ironing shirt bosoms, collars, cuffs and the like and the machine which I employ differs essentially in form from those customarily used.

It is desirable in ironing machines that the construction be such that there is no danger of catching the articles operated upon in the working parts of the machine and damaging them, otherwise great care has to be taken by the operator to avoid such results. In my invention this difficulty is entirely avoided inasmuch as the operating or driving parts of the machine are placed on the opposite side of the frame or standard from the rollers and the ironing board. The roller or rollers are journaled in adjustable bearings, while the ironing board, forming the segment of a circle, is passed under the said roller or rollers, thereby revolving same. The freedom of movement is accomplished by a novel belt shifting device, whereby I am enabled to reduce the movement of the segment, which constitutes the ironing board, to a few inches, which allows me to pass it rapidly back and forth under the roller should the article to be ironed and placed upon the ironing board make such proceeding desirable. The pressure exerted by the rollers upon the article placed upon the ironing board can be increased or decreased by means of springs resting upon the bearings wherein the rollers revolve. In this way a pressure is obtained which is at the same time of a yielding nature so that no injury is done to heavy parts in the articles to be ironed.

It is of the greatest importance that a uniform temperature in the metal of the roller is maintained during ironing, as a heated surface of unequal temperature will not do satisfactory ironing work. I attain such even temperature throughout the metallic surface of the roller by applying a flame or other source of heat internally of the roller; and by distributing the flame over the entire inner surface, I maintain a

uniform high temperature throughout the rollers.

These various objects as set forth above are accomplished by the novel construction of the machine illustrated in the accompanying drawings, in which—

Figure 1 is a complete side elevation of the machine, showing all its principal parts; Fig. 2, is a plan view in which the ironing rollers are more particularly shown; Fig. 3, is a sectional plan view at lines A—A of Fig. 1; Fig. 4, is a detail of the shirt stretcher with a sectional view of the stretcher bar; Fig. 5, is a detail of the yoke and neck band clamp; and Fig. 6, is a detail of the saddle, looking at it from below and showing the method of securing the removable ironing boards. Fig. 7 is an enlarged, fragmentary, longitudinal section of the ironing board and saddle plate therefor.

Similar letters refer to like parts throughout the several views.

The frame A, which has the shape of a goose neck, carries the ironing device indicated as a whole by B. The ironing board C is carried by a reinforced rocker arm D, which latter is pivoted in the foot of the frame A, where is also located the mechanism which moves the former. A belt shifting device E reverses the movement automatically; in addition thereto it can be reversed at will by foot power. These are the principal parts of the machine, the functions of which will now be explained in detail:—The frame A is secured to floor plate 10' which is placed upon the floor and suitable belt connections are made to tight and loose pulleys 1'. A belt shifter 2, which is supported in suitable brackets 2' is used to shift belt 3 from the loose upon the tight pulley and vice-versa. The pulleys 1' are secured to power shaft 4 in the customary manner. The latter revolves in bearings 5' which are a part of the special pulley frame 5. This frame is fitted to the goose-neck of machine frame A and secured thereto by bolts 5². Power shaft 4 carries one pulley 6 between bearings 5', which is keyed to the shaft 4. At the lower end of pulley frame 5 a driven shaft 7 is similarly located. This shaft is provided with a series of tight and loose pulleys which correspond with the pulley placed on the power shaft 4. The belt connection between the pulleys on power shaft 4 and driven shaft 7 is estab-

lished by one straight belt 8 and one twisted belt 8'. By shifting the two belts so that at one time the straight belt and at another time the twisted belt runs on the tight pulley 6' the movement of the driven shaft is reversed. This reversing movement is, as is well known, not new and reference to it is made merely for the purpose of identifying it with the novel features embodied in the shifting device E, which is located in the foot of frame A.

Driven shaft 7 is provided with a pinion 7², which is in gear connection with gear wheel 9', the latter of which is secured to operating shaft 9. This shaft is journaled in bearings 10, which are substantially bolted to floor plate 10', and its side thrust is taken up by collars 9², which latter are secured to shaft 9. The opposite end of shaft 9 is provided with worm 9³ which is in gear connection with the toothed segment 11 of rocker arm D.

Rocker arm D swings in a recess 12 in the foot of frame A, as shown in the section Fig. 3. In the legs 12' at the sides of this recess, arm D is swingingly supported by means of axle 13, which is secured to the rocker arm by pin 13'. The faced bosses 12² prevent side play during the swinging movement of arm D within the recess.

Two brackets 14 are secured to floor plate 10' in front of the machine. In the bearings 14' of these brackets rotates axle 15, being secured therein by collar 15' and nut 15². A short lever 16 is secured at one end to axle 15 and pivotal connection between the other end of this lever and the horizontal shifter arm 16' is established by means of pin 16². This shifter arm is provided with a fork 16³ on its other end, wherein is placed the upright connecting arm 17, being connected by pivot 17' therewith. The short end of connecting arm 17 is pivoted by means of pivot 18' in upright bracket 18, which latter is secured to the floor plate 10'. Connecting arm 17 is bent sidewardly toward the center of the frame where it meets the horizontal belt shifter 19, which is connected with the fork 17² by a pin 19'. A slot 17³ allows the required play for the pin 19' during the swinging movement of arm 17. Shifter arm 19 slides within apertures 5³ with which pulley frame 5 is provided and carries shifter prongs 19² in proper relation with the position of belts 8 and 8'.

The belt shifting is accomplished automatically by shifter pins 11' which are secured in their proper position in segment 11. These pins engage shifter lugs 16⁴ which are adjustably secured to shifter arm 16', during the rocking movement of arm D as will be apparent. The treadle 15³ is attached to axle 15 outwardly of bearing 14' to the right hand of the machine. By means of this treadle belts 8 and 8' can be shifted at will,

whereby the rocking movement of arm D is placed fully within the control of the operator.

Rocker arm D carries on its upper end shield 20, which is secured to it by bracket 20' and bolts 20². Above the shield, the arm obtains the form of a saddle 21, upon which the removable ironing board 22 is secured. The board is provided below with a square boss 22', the surface of which is fitted to the square saddle surface 21, so that the board 22 forms the arc of a circle described on pin 13 as an axis. Lockers 23 are secured to the under side of board 22, they are provided with a boss 23', the height of which corresponds with the thickness of saddle plate 21, and swing around cap screws 23².

Dowel pins 22², which are driven into the underside of square boss 22', fit into corresponding holes in saddle plate 21, whereby the ironing board is always placed in its true position. These dowel pins may be placed in the saddle plate 21 instead of in the boss 22', in which case the latter must be provided with the corresponding holes. When the ironing board is placed upon the saddle, it is only necessary to swing lockers 23 over saddle plate 21.

The top of the ironing board 22 is padded with suitable material to form a cushion for the article to be ironed. This padding is hooked in place upon hooks 24, which are covered by a frame 24' the latter of which is secured to the board by round head screws 24².

When a shirt is placed upon the ironing board, it must be held thereto. This is done by placing the neck band of the shirt in the circular cut-out 25 of the ironing board and a special neck band clamp, of which a detail is shown in Fig. 5, is used to hold it in place. The neck band clamp is located upon the shield 20, below the circular cut-out 25, and fastened to the former by brackets 26, which serve at the same time as the bearings wherein the clamp rod 26' rotates. Clamps 26² are placed upon the rod and are secured in the desired position by set screws 26³. A crank 26⁴ is fastened to clamp rod 26' and connection between the latter and the clamping crank 27' is established by a connecting piece 27². The axle of clamp crank 27' is journaled in the bracket 27, which is also secured to shield 20, and carries on its free end the crank handle 27³. These cranks 26⁴ and 27', draw the clamps 26² against the yoke and neck band of the shirt on the ironing board and by swinging connecting piece 27² upon the dead center of clamp crank 27', secure same in that position. The shirt is now held fast to the ironing board by its yoke and neck band, it must now be stretched over the ironing board without folds or wrinkles. This is accomplished by the bosom stretcher as shown in Fig. 4. The stretcher rod 28' is journaled in brackets 28, which are also

located on the shield 20 on the lower end of the latter. A half round stretcher clamp 28² is pivoted to the rod at one end so that it may be swung up into the dotted position.

5 The clamp locker 29 is located on the other end of the rod and is movably secured thereto by pin 29'. The nose 29² of clamp locker 29 reaches under the rod 28'. A spring 29³ rests upon the nose, whereby the locking

10 hook is forced over the half-round stretcher clamp 28². The shirt is placed between rod 28' and clamp 28², the latter is pressed down and as soon as the locking end has passed the hook of locker 29, the latter engages over the

15 clamp and locks it. For the purpose of stretching the shirt, the stretcher rod 28' must be rotated in the required direction whereby the shirt is drawn tightly over the ironing board. When the shirt has been

20 stretched in this way, it is held in this condition by the sharp nose 30, which is fastened to rod 28' and which engages slot 30' of spring 30², the latter of which is fastened to bracket 28, though obviously any number of noses and corresponding slots may be

25 provided. The collar 30³ is for the purpose of adjusting the side-play of rod 28'.

When the ironing board 22 is swung under the ironing rollers 31, these rollers will be rotated in their bearing blocks 32'. The latter are located in a special bracket 32, which is rigidly bolted to the goose-neck of frame A by bolts 32². The bearing blocks 32' are fitted into the housings 33, wherein their

30 height can be regulated by adjusting screws 33' from below. The yielding pressure, which forces the rollers down upon the ironing board, is provided by a pin 32³, which pin is a part of the bearing block 32' and extends into spring bracket 34. A spring 34' is

40 housed in this bracket and rests upon the pin 32³. The pressure may be increased by hand screws 34², whereby the spring can be compressed to any desired compression. The

45 spring bracket 34 is secured to the box part 33 of bracket 32 by cap screws 34³. It will thus be seen that the rollers may be forced down upon the ironing board with more or less pressure, the degree of which can be

50 readily adjusted. The rollers 31 are hollow and the heating device 35, which is shown in Fig. 2, is inserted into same through the brackets 35' and extend throughout the entire length of the rollers. This heating device is stationary with the brackets 35' while the rollers revolve, and as the heat is produced by a mixture of gas and air, which escapes from the heating tube, a flame is produced which strikes the complete inner surface of the ironing roller, and provides thereby a uniform and high temperature throughout its ironing surface.

During the process of ironing the rollers may act repeatedly and in quick succession

65 upon particular plaits or folds in the shirt

bosom or other articles by the use of the foot attachment of the shifter device.

It will be seen that the construction of the machine may be altered in minor details without departure from the spirit and the scope 70 of my invention.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. An ironing machine for use in laundries, 75 comprising a curved standard, a power shaft 4, a pulley and belt device for the purpose of reversing the movement, a driven shaft 7, a pinion 7² thereon, a gear shaft 9, a gear wheel 9' secured thereto, gear connection between 80 the said pinion and the gear wheel, a worm on shaft 9, a rocker arm D, a toothed segment on the lower end of said rocker arm and gear connection between the said worm and the segment of the rocker arm, substantially as 85 described.

2. In a device of the class described the combination with a standard having its upper end curved forwardly to a horizontal position and provided with a recessed lower 90 end, driving mechanism carried on the rear side of said standard, a rocker arm pivoted at its lower end in said recess, a toothed segment on said rocker arm beneath its pivotal point, a worm shaft extending into said recess from the rear of the machine and engaging 95 said segment and adapted to move the upper end of the arm inwardly and outwardly from said standard beneath the curved end, and coacting ironing devices on 100 said curved end and rocker arm.

3. In a device of the class described the combination with a frame comprising a standard having a forwardly directed upper end, of a rocker bar pivoted adjacent its 105 lower end in a recess in said standard, a segment rack on the lower end thereof beneath its pivotal point, a worm shaft journaled in the base of the standard and protruding from the rear side thereof, a worm gear thereon 110 meshing with said rack, a drive shaft on the opposite side of the standard from said rocker bar, a shaft driven from the drive shaft, intermeshing gears on said driven shaft and worm shaft adapted to drive the 115 worm shaft and move the upper end of said bar inwardly and outwardly from said standard beneath the forwardly directed end thereof, means operated by the lower end of said bar acting to reverse the movement of 120 said bar, and ironing devices carried on the forwardly directed end of said standard.

4. A laundry machine, comprising a curved standard, a power shaft on the rear thereof, a driven shaft supported near the bottom of 125 the standard, belt and pulley connections between said shafts, a worm shaft journaled in said standard, intermeshing gears on said driven shaft and worm shaft, a rocker arm pivoted in the bottom of the standard, a seg-

ment gear on the lower end thereof adapted to mesh with the worm on the worm shaft; a pair of rollers on the upper end of said standard, adjusting screws beneath said rollers adapted to adjust them as to height, means for exerting a yielding, downward pressure on said rollers, and a removable ironing board on the top of the rocker arm.

5. In a device of the class described the combination with a curved standard, of a pair of rollers journaled on the upper end thereof, means for adjusting the rollers as to height, means for exerting a yielding pressure on the top of said rollers, a rocker arm pivoted in the bottom of said standard, a saddle plate on the upper end thereof, an ironing board, locking devices on said board adapted to lock beneath the saddle plate, a segment gear on the lower end of said rocker arm, a worm shaft and a worm thereon meshing with said gear and means for rotating said shaft alternately in opposite directions.

6. In a device of the class described the combination with a frame comprising a goose neck standard, having a recess in its bottom, of a rocker bar pivoted adjacent its lower end in said recess, a toothed segment on the lower end of said bar, a worm shaft journaled in said recess and projecting from the rear side of the standard, a worm thereon meshing with said toothed segment, a driven shaft, intermeshing gears on said driven and worm shafts, fixed and loose pulleys on said driven shaft, means operated by the rocker bar adapted to shift the belts on said pulleys to rotate said shaft alternately in opposite directions, rollers journaled on the upper end

of said standard and a removable ironing board on the upper end of said bar.

7. In a device of the class described the combination with a standard, of a pair of rollers journaled thereon, adjusting screws beneath said rollers adapted to adjust them as to height, brackets above said rollers, adjustable springs therein adapted to exert a yielding, downward pressure on said rollers, a rocker arm pivoted in the bottom of the standard, a removable ironing board thereon, a toothed segment on said arm beneath its pivotal point, a worm shaft extending into the standard beneath said segment, a worm thereon adapted to mesh with the toothed segment and means operated by said arm adapted to rotate said worm shaft alternately in opposite directions.

8. In a device of the class described the combination with a rocker arm, of a removable ironing board, lockers pivoted on the bottom of said board and adapted to lock it to said arm, a standard having a recess in its bottom in which said rocker arm is pivoted, a worm shaft journaled in said recess, a worm thereon, a segment gear on said arm adapted to mesh with said worm, means for driving said worm shaft alternately in opposite directions, and vertically adjustable, spring pressed rollers on the top of said standard.

In witness whereof I have signed my name to this specification in the presence of two subscribing witnesses.

AXEL ROBERT GUSTAFSON.

Witnesses:

J. C. GOOSMANN,
HENRY MESSMER.