

(No Model.)

3 Sheets—Sheet 1.

A. R. GUSTAFSON.
IRONING MACHINE.

No. 485,465.

Patented Nov. 1, 1892.

Fig. 1.

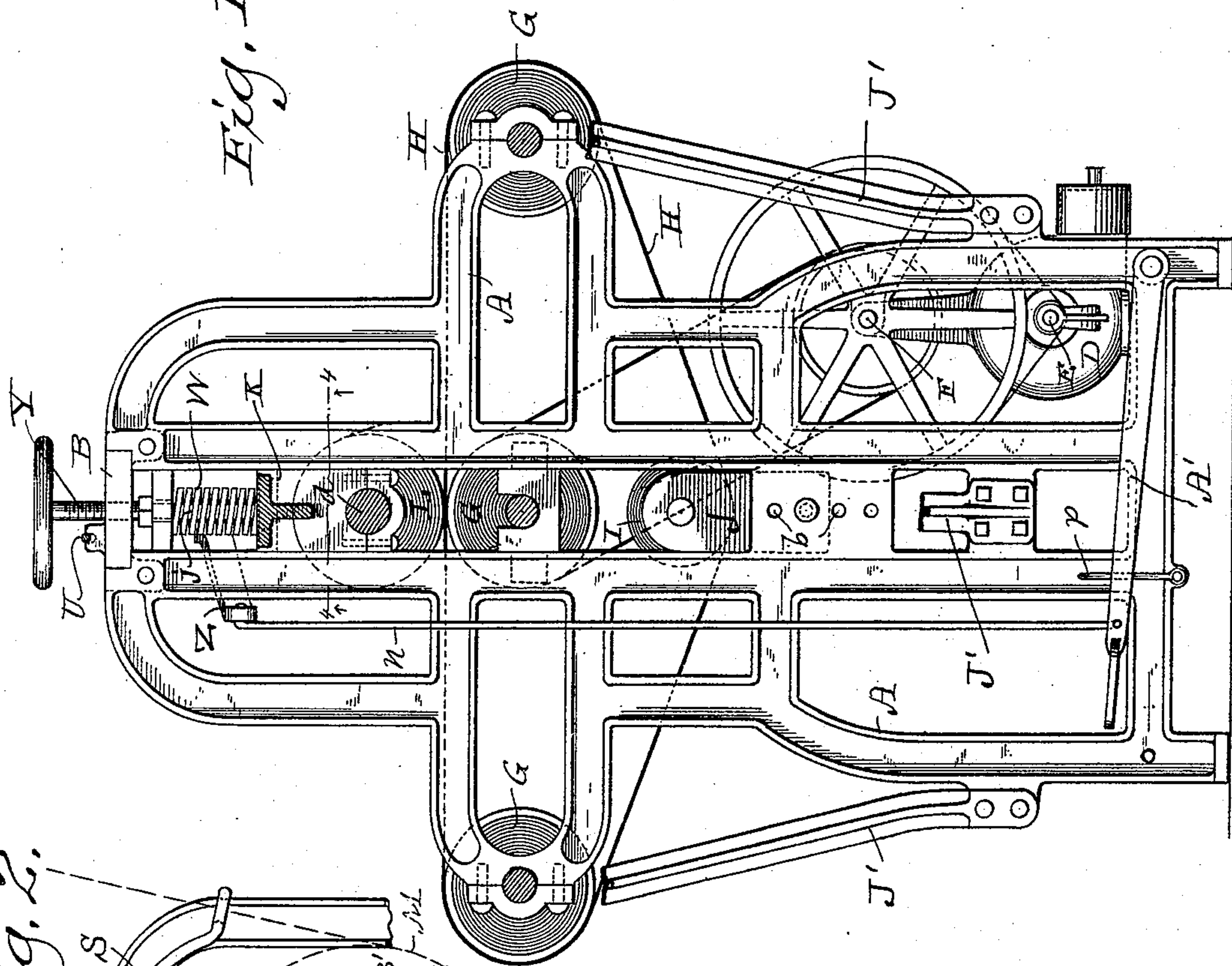
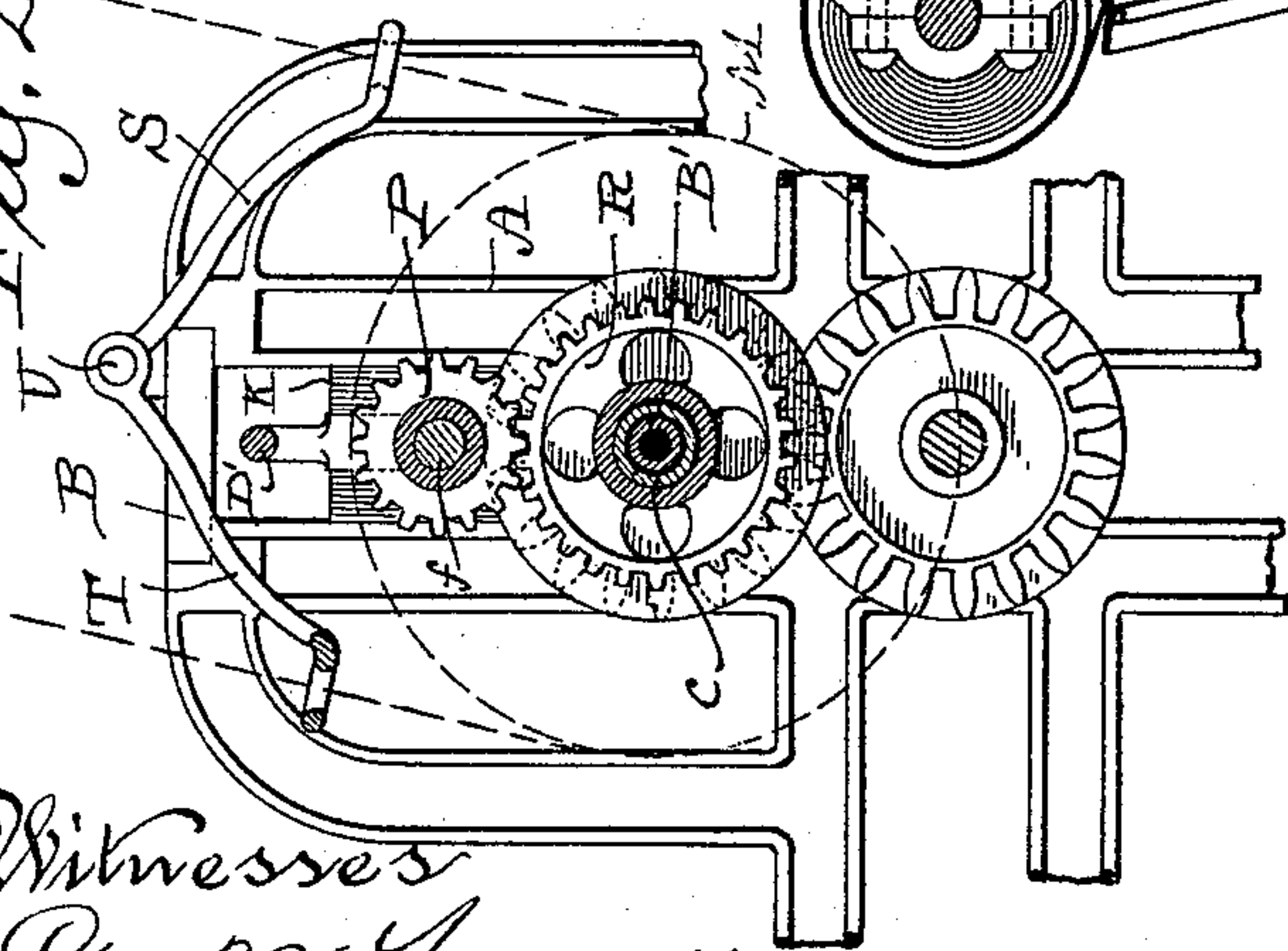


Fig. 2.



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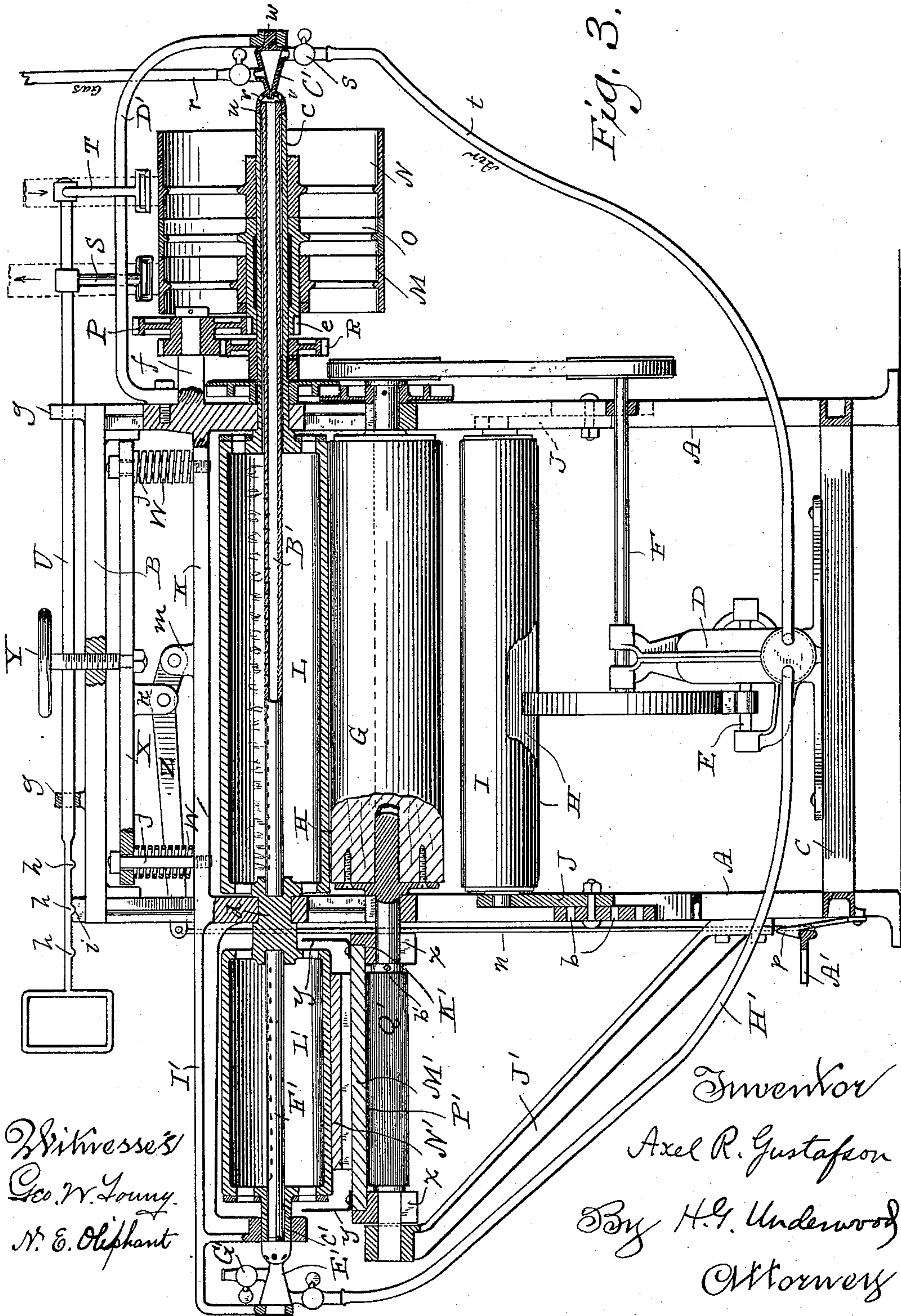
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3 Sheets—Sheet 2.

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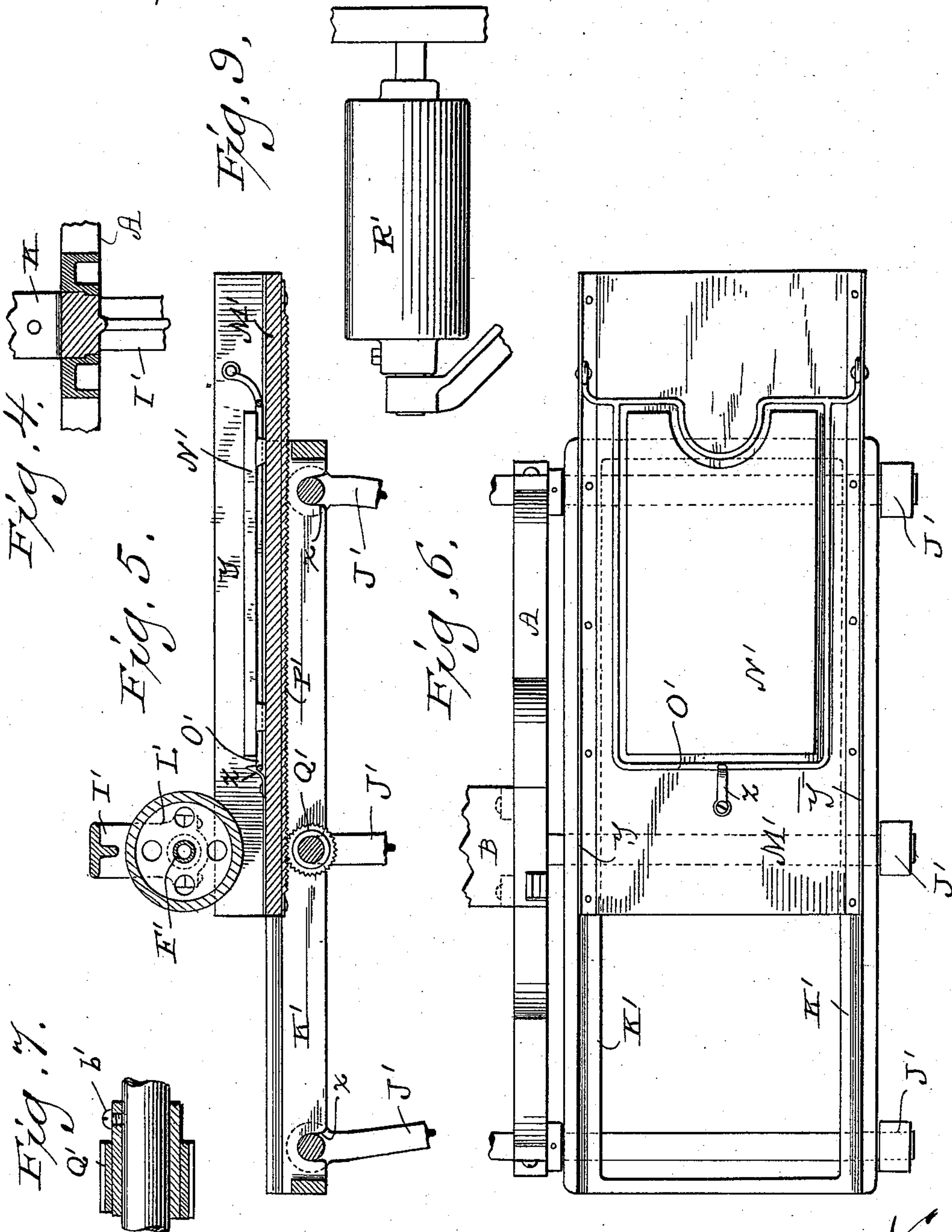
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3 Sheets—Sheet 3.

A. R. GUSTAFSON.
IRONING MACHINE.

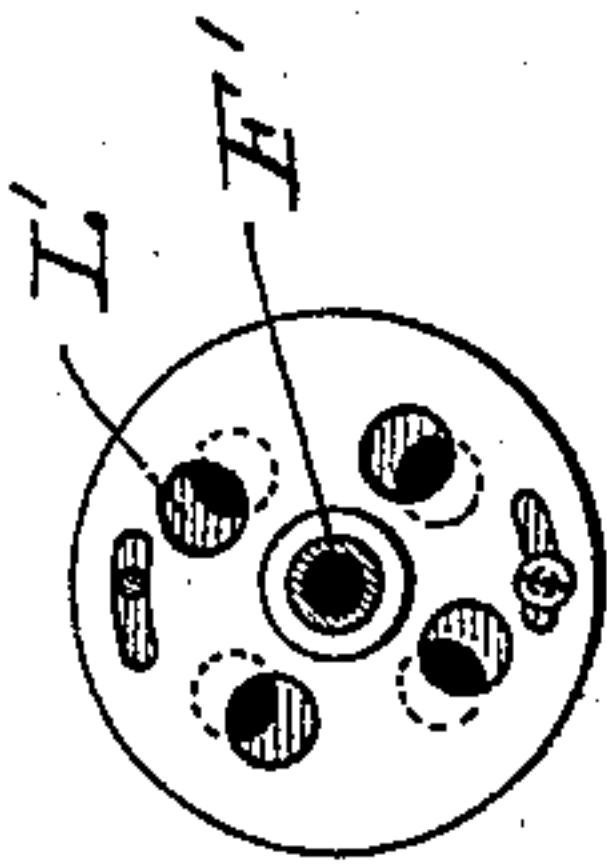
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Fig. 8.



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UNITED STATES PATENT OFFICE.

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IRONING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 485,465, dated November 1, 1892.

Application filed December 18, 1891. Serial No. 415,460. (No model.)

To all whom it may concern:

Be it known that I, AXEL R. GUSTAFSON, a citizen of the United States, and a resident of Chicago, in the county of Cook, and in the State of Illinois, have invented certain new and useful Improvements in Ironing-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention has for its object to assemble in one machine various apparatus necessary in a first-class laundry, whereby I economize in the matter of expense and space and facilitate the work.

To this end the said invention consists in certain peculiarities of construction and combination of parts to be hereinafter described with reference to the accompanying drawings and subsequently claimed.

In the drawings, Figure 1 represents an end elevation of my machine, omitting certain parts of the mechanism shown at the left of Fig. 3 for the purpose of better illustration; Fig. 2, a detail elevation of gearing that forms part of the machine; Fig. 3, a side elevation of said machine, partly in section; Fig. 4, a detail horizontal section taken on line 4 4 of Fig. 1; Fig. 5, a vertical longitudinal section illustrating that portion of said machine employed for ironing shirt-bosoms; Fig. 6, a plan view of certain of the parts shown in the preceding figure; Fig. 7, a detail sectional view of pinion-roller employed in connection with the sliding bosom-board shown in Figs. 5 and 6; Fig. 8, a detail end elevation of a hollow roller forming part of the aforesaid machine, and Fig. 9 a detail elevation of a roller that is substituted at times for said bosom-board and its pinion-roller.

Referring by letter to the drawings, A A represents two skeleton standards united by top and bottom cross-braces B C to form the main frame of my machine. The bottom brace C serves as a support for a blower D, that has its fan-shaft E belt-gearred to a counter-shaft F, arranged in bearings on the blower and adjacent frame-standard, this counter-shaft being also belt-gearred to the central one of a series of three rollers G, that are journaled in the main-frame standards on the same horizontal plane. An endless apron

H is arranged on the rollers G and kept sufficiently taut by means of a suitable tightener, the latter being shown as a roller I, journaled in plates J, that are bolted to the main-frame standards, each of these standards being provided with a series of bolt-holes *b* in vertical arrangement, whereby said plates may be adjusted as to elevation to thereby take up slack in said apron. The rollers G are preferably of wood, and the center one in the series is spur-gearred to an end journal of the ironing device of my machine, this device consisting of two cylindrical sections having perforated ends, preferably in one piece with hollow end journals *c c'*, and an intermediate solid journal *d*, that have their bearings in an auxiliary frame K, said cylindrical sections being hereinafter referred to as rollers L L' for the sake of convenience in description.

The auxiliary frame K is loose in the main-frame standards, and the journal *c*, that extends from the roller L, supports two idle-pulleys M N and an intermediate driving-pulley O, the latter having one end of its hub in the form of a pinion *e*, that meshes with a double gear-wheel P, loose on a stud *f*, laterally extended from said auxiliary frame. The double gear-wheel is also in mesh with a gear-wheel R, fast on the journal *c*, that extends from the roller L, and thus motion may be transmitted from the driving-pulley O to the ironing device, endless-apron mechanism, and blower above described. The drive of the pulley O is controlled as to direction by means of suitable belts, (best illustrated in dotted lines, Figs. 2 and 3,) it being intended that one of these belts shall be what is termed a "straight belt" and the other a cross-belt, each of which is engaged by a suitable shifter. The belt-shifters S T depend from a slide-bar U, that works in guides *g* on the main frame, and is provided with depending lugs *h* for engagement with a seat *i* on said main frame, whereby said slide-bar may be held in the position to which it may be adjusted. As shown, both belts are running on the idle-pulleys and the rotative parts of the machine are at rest; but if the slide-bar be moved in either direction one or the other of the belts will be thrown on the driving-pulley to start

said rotative parts of the machine in the desired direction, a change of direction being as readily effected by a movement of said slide-bar far enough to or from the operator.

5 The depending lugs *h* on the slide-bar are three in number and at such intervals apart that if the center one thereof be in engagement with the seat *i* the rotative parts of the machine will be at rest, as above explained; 10 but if either of the other lugs be in engagement with said seat said rotative parts of the machine will be running in a direction corresponding to the drive of the belt—that is, relative to the latter lug—and consequently 15 the operator can readily and surely stop the machine or change the direction of travel of the aforesaid rotative parts. The auxiliary frame *K*, that is loose in the main-frame standards, support spirals springs *W*, arranged 20 to surround bolts *j*, connected to said frame and loosely engaging a horizontal bar *X*, and a tension-screw *Y*, connected to the center of the horizontal bar, has its bearing in the top brace *B* of the main frame.

25 Depending from the horizontal bar *X* is a fulcrum-block *k* for a lever *Z*, that has its inner end pivotally connected to an ear *m* on the auxiliary frame *K*, and the outer end of the lever has a rod connection *n* with a foot-lever *A'*, fulcrumed on one of the main-frame 30 standards, a spring-latch *p* on said standard serving to hold the latter lever in the position shown in Figs. 1 and 3, to thereby take the pressure of the roller *L* off the apron *H* and the central one of its supporting-rollers. 35

The roller *L* and the mechanism that includes the roller *G* and endless apron *H* are generally employed for ironing such plain work as sheets and table-cloths, and when the 40 machine is at work the foot-lever *A'* is released from the spring-latch *p* and the expansive force of the springs *W* force down the auxiliary frame *K* to cause the rollers carried therein to exert their pressure on the material to be ironed, the tension of said springs 45 being regulated by the adjustment of the screw *Y*, above described. Extended through its journal *c* to run the full length of the roller *L* is a pipe *B'*, that is provided with a series 50 of jet-openings within said roller, and this pipe forms a continuation of a burner that is shown as being preferably a conical shell *C'*, having an inlet *r* for connection with a source of gas-supply, another inlet *s* for connection 55 with the blower *D* by means of a tube *t*, and a communicating extension *u*, provided with openings *v*, for the admission of atmospheric air, this shell being joined to said pipe *B'*, as shown in Fig. 3. The burner is provided with 60 a stud *w*, and the latter is fitted in a bracket *D'*, that forms part of the auxiliary frame *K* and supports said burner and its connections. The supply of gas and amount of blast from the blower to the burner are regulated by suitable 65 cocks, as clearly shown in Fig. 3, and it follows that when the driving-pulley is idle the blast will be stopped; but combustion of

the gas within the roller *L* is supported by the atmospheric air admitted through the openings *v* in the extension *u* of said burner. 70 The consumption of gas under blast keeps the roller *L* hot while in operation, and by automatically cutting off the blast when said roller is stopped I economize materially in the matter of fuel without permitting the afore- 75 said roller to cool. It is also to be observed that the roller *L* may be lifted at any time by means of the foot-treadle *A'* to prevent scorching of the goods being ironed, and that the endless apron *H* forms a table on which 80 to feed said goods, either in a single direction or forward and back, accordingly as the operator may manipulate the belts above described.

The roller *L'* is provided with a burner *E'*, 85 having a pipe continuation *F'*, provided with jet-openings and extended into said roller through the journal *c'*, that projects therefrom, and as this latter burner is a duplicate of the one previously described it has a connection *G'* with a source of gas-supply and a 90 tube connection *H'* with the blower, a bracket *I'*, forming part of the auxiliary frame *K*, being utilized as a support for said latter burner. Both of the rollers *L L'* are preferably provided with a series of openings in each end 95 in order to obtain a circulation of air in said rollers for the purpose of supporting combustion, and this circulation may be readily regulated by a damper on each roller. 100

Supported by braces *J'*, connected to one of the main-frame standards, are continuations of the shafts of the apron-rollers *G*, that are designed to loosely engage recesses *x* in the side bars of a track-frame *K'* for a board 105 *M'*, that is preferably provided with side shields *y* and has a removable raised portion *N'*, surrounded by a clamping-frame *O'*, that is shown pivoted to said side shields and held 110 down by means of a latch *z*, said raised portion of the board being designed as a surface on which to iron shirt-bosoms, the shirt being locked in place by said clamping-frame and latch.

The board *M'* is shown as having its under 115 side provided with a rack *P'* for engagement with a pinion *Q'* on the continuation of the shaft of the center one of the apron-rollers *G*, the rack being preferably a corrugated plate of rubber, and the pinion a corrugated tube of 120 like material fast on a sleeve that is detachably secured to said shaft continuation by a set-screw *b'* or other suitable means. A shirt being positioned on the raised or removable portion *N'* of the board *M'*, the latter is 125 pushed up under the roller *L'*, and the pressure and rotation of the latter causes said board to feed forward by means of the rack-and-pinion gear, and by a proper manipulation of the belt-shifting mechanism the board 130 may be indefinitely reciprocated. The pressure of the roller *L'* is controlled by the springs *W* and foot-lever *A'*, the same as the roller *L*, and while the raised portion of the board *M'*

is especially designed as a base for shirts various other goods may be ironed thereon.

For collars, skirt-borders, and various other goods I employ the roller R', (shown in Fig. 9 as a supporting-surface,) this roller being detachably secured to the shaft continuation of the central apron-roller in place of the pinion Q', above described, the track-frame being also removed from the machine when said roller R' is in its working position beneath the pressure or ironing roller L', above described.

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

1. The combination of a main frame, an auxiliary frame loose in the main one, a pressure-roller journaled in the auxiliary frame, spiral springs opposed to this latter frame, bolts extended through the springs, a bar loose on the bolts in opposition to said springs, a tension-screw having its bearings in the main frame and connected to the bar, a block depending from said bar, a lever fulcrumed to the block and connected to said auxiliary frame, a treadle connected to the lever, and a supporting-surface opposed to said pressure-roller, substantially as set forth.

2. The combination of a main frame, supports extended laterally from the same, a track-frame arranged on the supports, a press-board reciprocative on the track-frame and

having a removable raised portion, a clamping-frame surrounding the raised portion of the press-board, and a pressure-roller in position to said press-board, substantially as set forth.

3. The combination of a main frame, a spring-and-treadle-controlled auxiliary frame loosely arranged in the main one, a hollow pressure-roller journaled in the auxiliary frame, gas-burners provided with atmospheric inlets and having jet-pipe continuations extended into opposite ends of the pressure-roller, a blower supported on the main frame, air-conveyers connecting the blower and gas-burners, an endless apron arranged beneath a portion of the pressure-roller, a track-frame arranged on supports that are laterally extended from said main frame, a press-board reciprocative on the track-frame beneath another portion of said pressure-roller, and suitable means for simultaneously actuating the pressure-roller, endless apron, and blower in either direction, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, at Chicago, in the county of Cook and State of Illinois, in the presence of two witnesses.

AXEL R. GUSTAFSON.

Witnesses:

AMASA F. RAYMER,
ALBERT H. BALDWIN.