No. 713,384. Patented Nov. 11, 1902.

# D. H. BENJAMIN.

## IRONING MACHINE.

Application filed July 31, 1902.

(No Model.) 3 Sheets—Sheet 1.

*FIG. 1.*

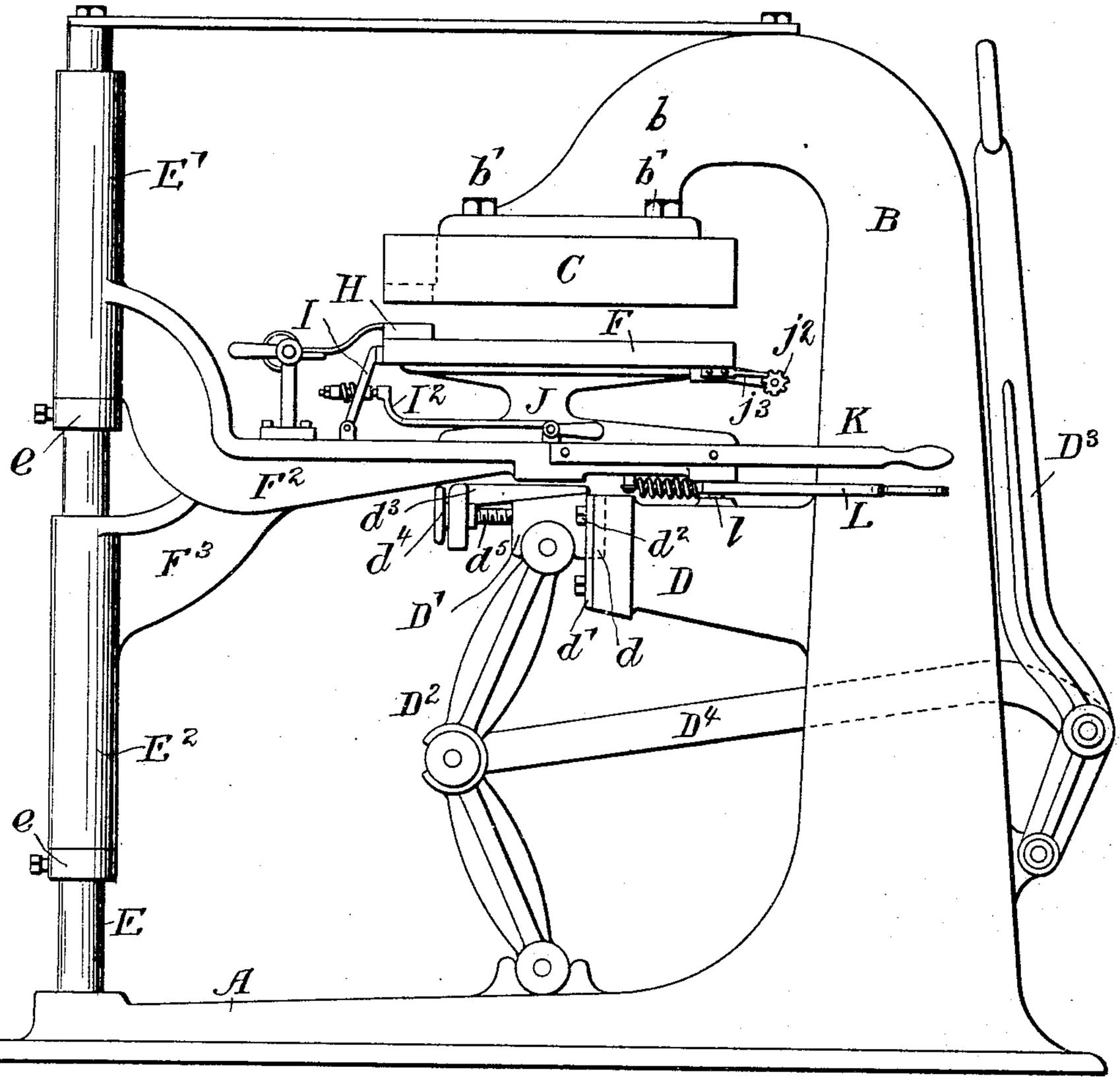
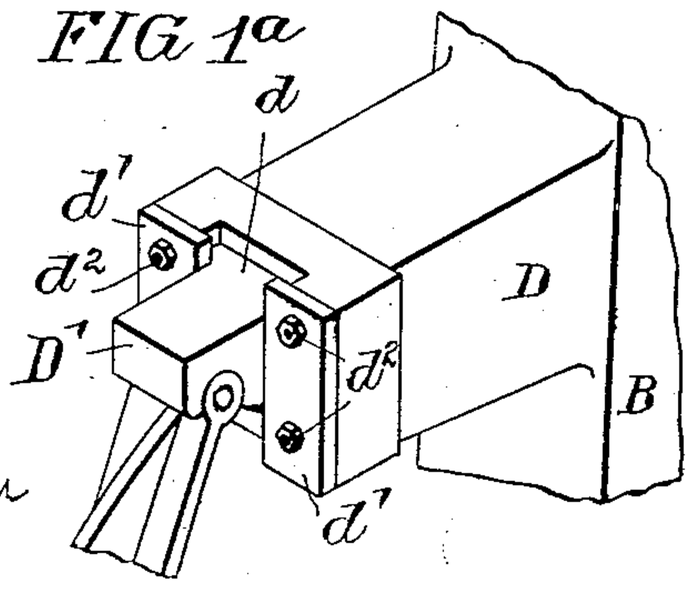



*FIG 1a*




Witnesses:
M. F. Ellis
G. D. Hutton

Inventor:
Dana H Benjamin
by
Harding & Harding
attys

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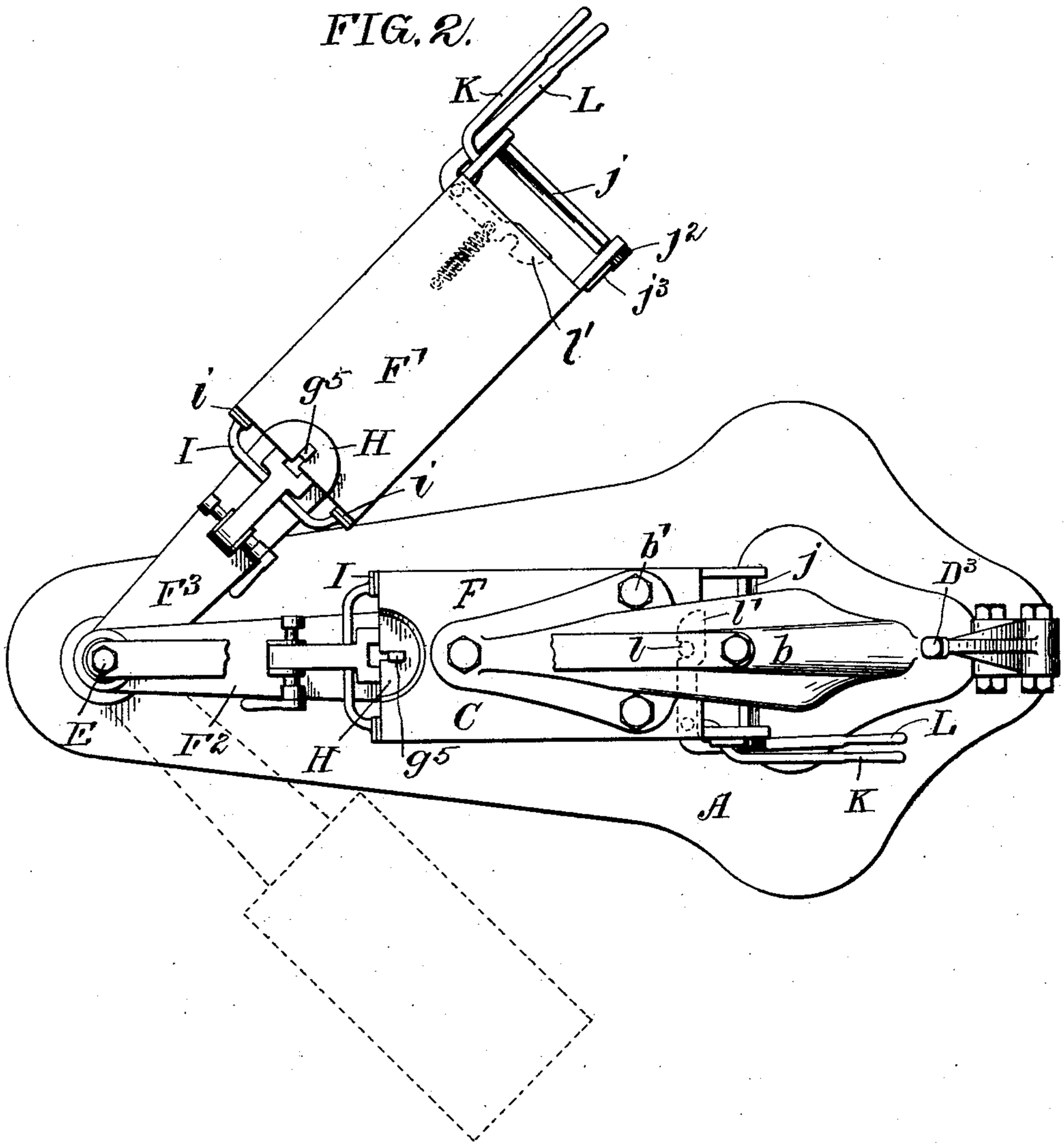
## IRONING MACHINE.

(Application filed July 31, 1902.)

(No Model.) 3 Sheets—Sheet 2.

FIG. 2.




Witnesses:
M. F. Ellis
G. D. Hutton

Inventor:
Dana H. Benjamin
by Fairbanks & Harding
attorneys

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## IRONING MACHINE.

(Application filed July 31, 1902.)

(No Model.) 3 Sheets—Sheet 3.

FIG. 3.

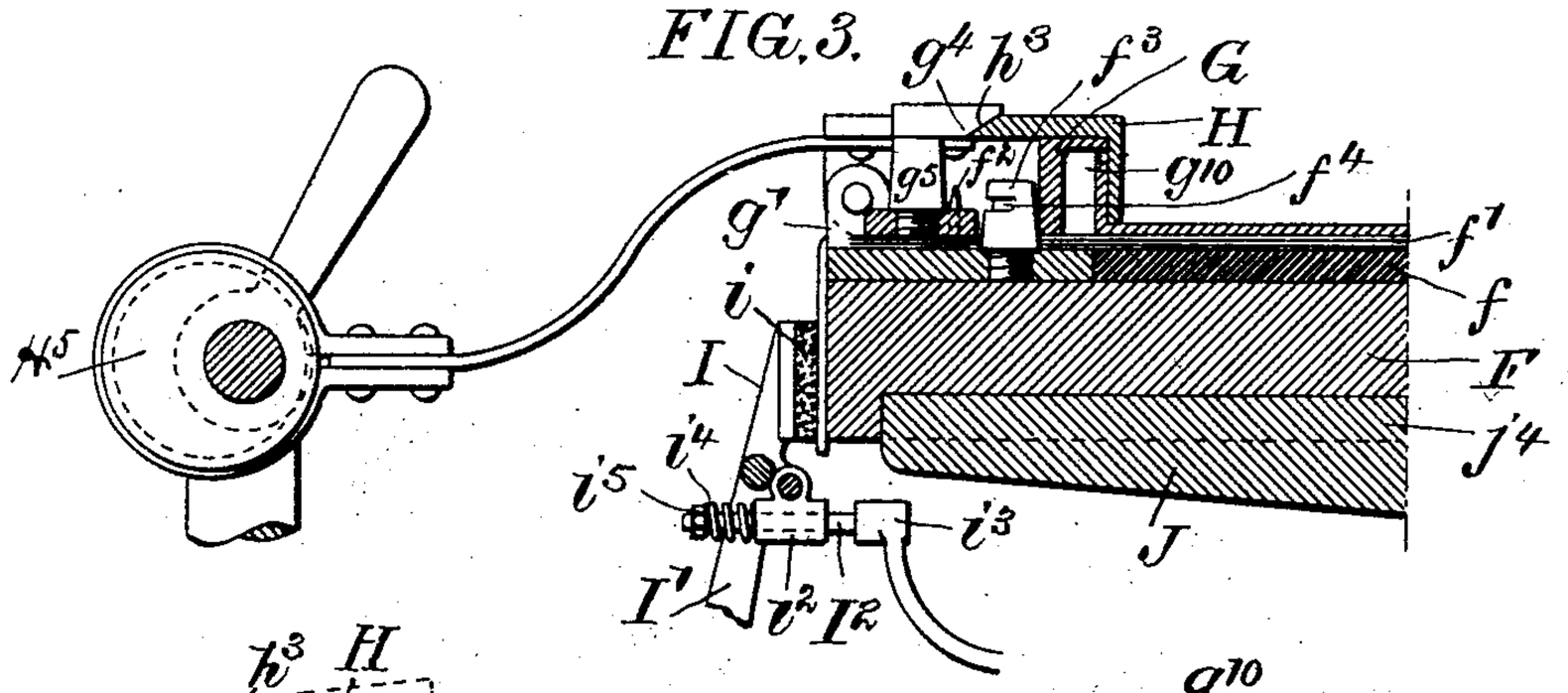
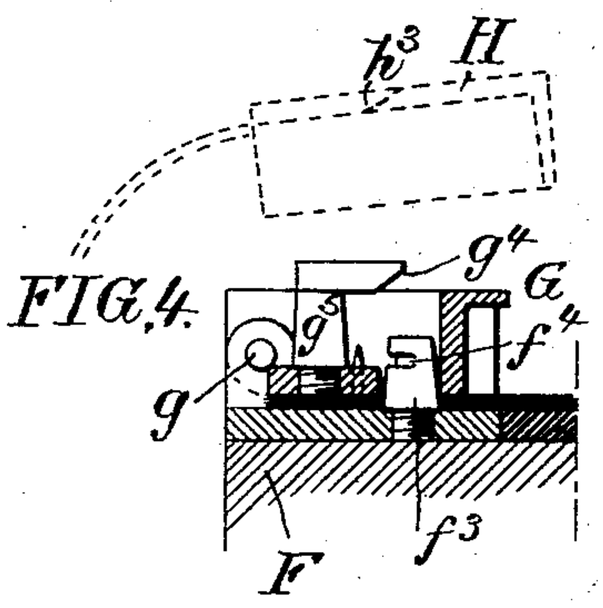



FIG. 4.



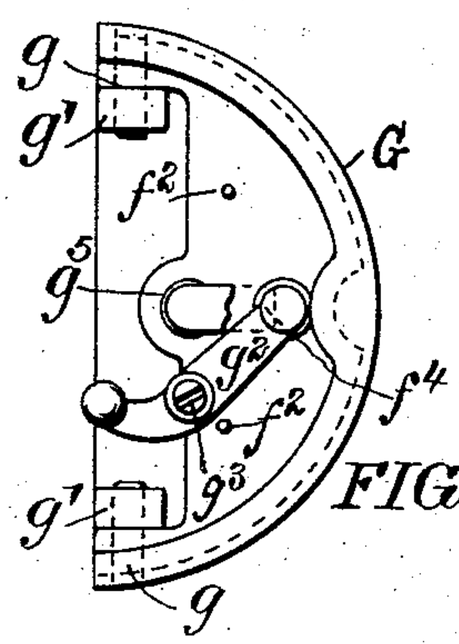




FIG. 5.

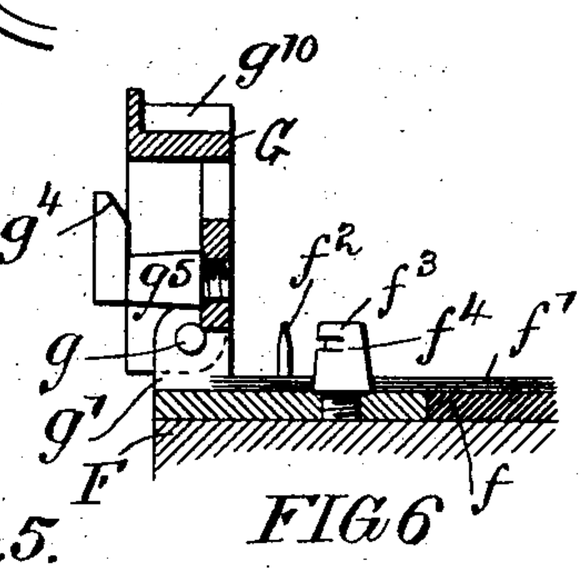



FIG 6

FIG. 7.

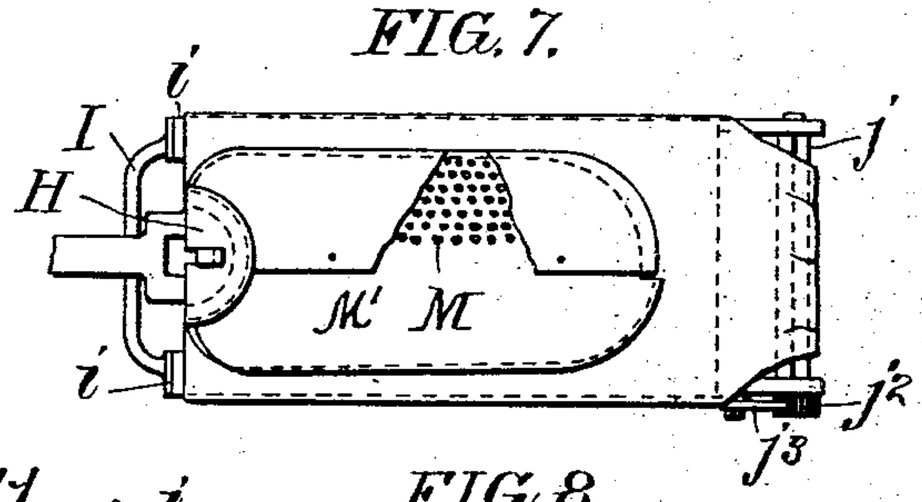



FIG. 10.



FIG. 11.

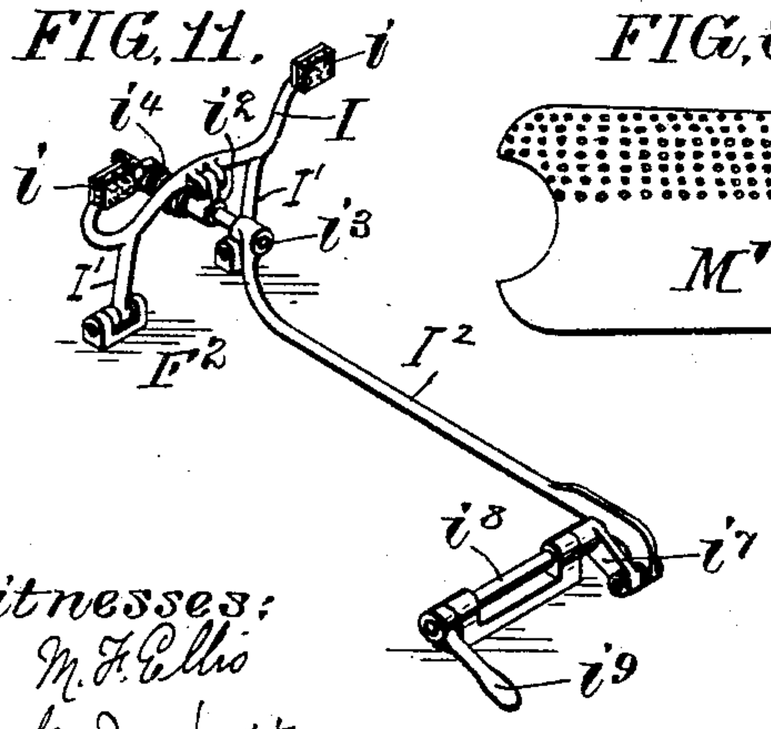
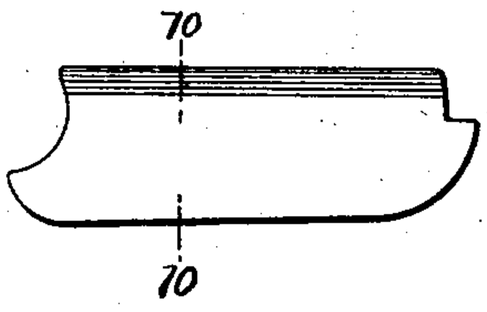



FIG. 8.




FIG. 9.




Witnesses:
M. F. Ellis
G. D. Hutton

Inventor:
Dana H. Benjamin
by
Manning & Harding
attys

# UNITED STATES PATENT OFFICE.

DANA H. BENJAMIN, OF LEBANON, PENNSYLVANIA, ASSIGNOR TO BARNES AND ERB COMPANY, A CORPORATION OF WEST VIRGINIA.

## IRONING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 713,384, dated November 11, 1902.

Application filed July 31, 1902. Serial No. 117,752. (No model.)

*To all whom it may concern:*

Be it known that I, DANA H. BENJAMIN, a citizen of the United States, residing at Lebanon, county of Lebanon, and State of Pennsylvania, have invented a new and useful Improvement in Ironing-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to that class of ironing-machines in which the garment to be ironed is placed upon a bed or table which is brought in line with and elevated into contact with a heated plate.

My present invention has for its object certain improvements in that class of machines.

Speaking generally, my invention consists in the following improvements upon such machines: First, providing a plurality of ironing tables or beds, each independently sleeved upon a standard, so that they may be brought independently in line with the heated plate and independently elevated into contact with said plate; also, as subsidiary to the foregoing, that the table or bed when brought in line with the heated plate is locked from movement away from such alinement; second, providing the surface of the ironing bed or table with a rubber backing surmounted with absorptive paper, and, as subsidiary to the foregoing, providing clamping devices which will hold the paper in proper position and enable it to be removed and replaced; third, providing clamps for the collar-band and yoke portions when a shirt is the garment placed on the ironing bed or table; fourth, providing a plate which is placed between overlapping portions of a garment to be ironed upon the table—as, for instance, the overlapping portion of the bosom of an open shirt. This plate preferably extends above and across the entire lower layer of the bosom of the shirt. It also extends beyond the overlap and beneath the bosom, either a short distance or the entire width of the bosom. In the former case the plate should be made tapering to a point to avoid making a mark on the bosom. In the latter case the plate should preferably be perforated to carry off the moisture. This plate, while particularly useful with this class of ironing-machines, is useful and effective with any character of ironing-machines or even hand-ironing, the purpose being to properly iron the lower layer of an open-front shirt when it comes under the upper layer.

I will first describe the embodiment of my invention illustrated in the accompanying drawings, and then specifically point out the invention in the claims.

In the drawings, Figure 1 is a side elevation of an ironing-machine embodying my invention. Fig. 1ª is a perspective view of projection from upright, showing guide for lifting-plate. Fig. 2 is a plan view of said machine. Fig. 3 is a sectional detail view of devices for clamping paper on bed and also clamping shirt at neckband. Fig. 4 is a view similar to Fig. 3 with neckband-clamp removed. Fig. 5 is a plan view of Fig. 4. Fig. 6 is a view similar to Fig. 4, showing paper-clamp elevated. Fig. 7 is a plan view of table with shirt and plate thereon. Fig. 8 is a detail view of plate of Fig. 7. Fig. 9 is a detail view of modified form of plate. Fig. 10 is a section on the line 10 10, Fig. 9. Fig. 11 is a detail perspective view of yoke-clamp.

A is the base of the machine.

B is an upright having the overhanging portion $b$, to which is secured by bolts $b'$ the ironing-plate C, which is heated in any desired manner.

D is a projection from the upright B, having its outer face grooved to receive the flanged end $d$ of the lifting-plate D′, so that the plate can move vertically in this groove. Plates $d'$, secured by bolts $d^2$ to the projection D, holds the plate D′ in this groove. Resting upon this plate D′ is a wedge $d^3$, which is operated by the head $d^4$ of a screw $d^5$, which enters the plate D′. Connected to the lifting-plate D′ is the toggle-joint $D^2$, operated by the lever $D^3$, to which it is connected by the link $D^4$. By moving the lever $D^3$ the lifting-plate D′ may be elevated or depressed.

E is a standard secured to the base A. Upon this standard are sleeves E′ $E^2$, equal in number to the ironing-tables to be used on the machine. Two are shown in the drawings. By means of collars $e$ the sleeves E′

and $E^2$ are prevented from falling below a given point, but can be moved upward from and downward to these collars.

F F′ are the ironing-tables, connected, respectively, to sleeves E′ $E^2$ by the arms $F^2$ $F^3$, which arms are of such form as to bring the tables to the same level, and by swinging the sleeves upon the standard they may be brought above the lifting-plate D′.

The ironing-tables F and F′ are similar in construction. Each has its surface where the garment is to be acted on formed of a base of rubber *f*, overlaid with a plurality of sheets of absorbent paper or felt *f*′—such, for instance, as blotting-paper or felt. This paper is placed in position and removably secured in the following manner: Upon the upper surface of the ironing-table are pins $f^2$ and a post $f^3$, having the notch $f^4$. The paper is secured upon the pins $f^2$ and surrounds the post $f^3$.

G is the paper-clamp and one element of the neckband-clamp for a shirt. It has orifices for the reception of the pins $f^2$ and post $f^3$. This clamp G is pivoted at *g* to projections *g*′ from the table. The clamp G can swing down upon the paper or upward free from the paper.

$g^2$ is an arm pivoted to the clamp G at $g^3$ and which when the clamp is down may be turned so as to enter the notch $f^4$, and thus lock the clamp G from vertical movement.

The garment—say a shirt—is clamped at the yoke and neckband portion on the table in the following manner: It is clamped between the projection $g^{10}$ of the clamp G and the other clamping member H. This clamping member H has the cam or inclined face $h^3$, which coacts with a corresponding inclined face $g^4$ on a post $g^5$, carried by the clamp G. When the clamp G is in position holding the paper and the shirt is upon the table, the neckband is between the clamping members G and H, and by turning the eccentric $H^5$ the member H may be moved toward the clamping member G until the face $h^3$ contacts with the face $g^4$, when a further movement of the eccentric clamps the shirt at the neckband. To secure the shirt at the yoke to the edge of the ironing-table, I use the following mechanism:

I is a yoke having the downwardly-projecting portions I′ pivoted to the arms $F^2$ and $F^3$, the yoke carrying at its outer ends the pads *i i*. A rod $I^2$ passes through a hanger $i^2$, carried by the yoke, and on one side has the boss $i^3$. Beyond the yoke the rod is surrounded by the spring $i^4$, resting at one end (the outer end) against the nut $i^5$ and at the other end against the hanger $i^2$. The rod $I^2$ at the other end is connected to the crank $i^7$, connected to the rock-shaft $i^8$, operated by the handle or crank $i^9$. By turning the handle in one direction the yoke and pads are moved away from the table and the overhanging portion of the shirt placed so as to overlap the end of the table. The handle then being turned in the opposite direction first compresses the spring sufficiently to move the yoke, and then it is moved so that the pads clamp the garment against the side of the table. The purpose of the spring $i^4$ is to provide for varying thicknesses of garments and yet allow the handle to be moved downward beyond the center to lock the yoke in the clamping position. The garment is secured at the outer end of the table by means of a roller *j*, around which the lower end of the shirt is wound. This roller is turned so as to pull the garment and is prevented from turning to loosen the garment by the ratchet $j^2$ and pawl $j^3$. Beneath the table F or F′ is the bed or support J, which is secured in a cut-away portion $j^4$ on the under side of the table F or F′ and in turn is secured to the arm $F^2$ or $F^3$. The table and its corresponding arm is moved around the standard by means of the lever K and is locked from lateral movement under the ironing-plate by the following mechanism: *l* is a pin upon the projection D. *l*′ is a notched plate carried and operated by the lever L, carried by the arm of the ironing-table. When the ironing-table is beneath the ironing-plate, the lever L is operated to cause the notch in the plate *l*′ to engage the pin *l*, and thus prevent lateral movement of the table. If a shirt having an open bosom is to be ironed, if ironed directly the contact with the ironing-plate would not properly iron the underlying portion of the bosom when it comes under the upper portion of the bosom. To overcome the defect, I insert between the folds of the overlapping portion of the bosom a metal plate. The plate should also preferably extend beyond this point, on one side overlying and on the other underlying the remainder of the bosom of the shirt. This is in order to prevent showing a line at the end of the plate. I can either make the plate where it extends beyond the two layers of the bosom and lies beneath the upper layer extend to the extreme side of the bosom and make said plate perforated or I can make said plate decrease in thickness gradually to a thin edge. With this construction the plate need not extend to the extreme side of the bosom and need not necessarily be perforated.

In Fig. 7 I have shown a shirt with the plate inserted. M is the perforated portion—that portion where the single layer of bosom is above the plate—and M′ that portion of the plate which overlies the bosom and lies between the two layers of the bosom. In Fig. 8 I have shown this plate free from the shirt. In Fig. 9 I have shown a modified form of this plate, which differs from that of Fig. 8 in not having perforations and in being tapered.

While having the plate perforated in part, as above described, is more advantageous than solid throughout, still the solid plate can be advantageously used. This portion of my invention is applicable for all characters of ironers where there are double thick-

nesses requiring both the upper and lower layer to be ironed. By inserting this plate between the two layers the heat and ironing effect is carried to the lower layer. The use of absorbent paper upon the ironing-table is also of great advantage, as it absorbs the moisture quickly and surely without in any way staining the garment. Moreover, the paper may be readily removed and replaced and is of but slight expense.

From the foregoing description the operation of my machine is apparent. The ironing-tables are brought one by one above the lifting-plate and locked from lateral movement and by the wedge contact therewith can be adjusted. The lifting-plates are then operated so as to elevate the ironing-table against the ironing-plate and after sufficient action withdrawn therefrom, the table unlocked and moved away from the lifting-plate, and the next ironing-table brought around into action. The mechanism for clamping the paper to the table, for clamping the neckband, the yoke, and securing end of the shirt have been, with their mode of operation, fully described.

I do not intend to limit myself to the specific details of the machine herein described except to the extent that the same may be specifically set forth in the claims.

Having now fully described my invention, what I claim, and desire to protect by Letters Patent, is—

1. In a machine of the character described, in combination with a standard, of a plurality of ironing-tables independently sleeved upon said standard, of an ironing-plate and lifting mechanism in line with said ironing-plate adapted to raise the tables against the said ironing-plate, said ironing-tables in their movement around said standard moving in line with said lifting mechanism.

2. In a machine of the character described, in combination with a standard, of a plurality of ironing-tables independently sleeved upon said standard, an ironing-plate and lifting mechanism in line with said ironing-plate adapted to raise the tables against the said ironing-plate, said ironing-tables in their movement around said standard moving in line with said lifting mechanism, and means to lock said ironing-tables from lateral movement when in line with said lifting mechanism.

3. In combination with an ironing-table provided with a projecting pin, adapted to engage and hold paper, of a hinged clamp adapted to swing down upon said paper beyond said pin, a post having a notch projecting from said table, and an arm carried by said clamp and adapted to enter the notch in the post when the clamp is down.

4. In combination, with an ironing-table, of a clamping member pivoted thereto, said clamping member carrying a projection having an inclined face, a second clamping member having an inclined face and means to move the last-mentioned clamping member toward the first-mentioned clamping member and force the inclined face of the second clamping member against the inclined face of the other clamping member.

5. In combination with an ironing-table, a clamping member pivoted thereto, said clamping member carrying a projection having an inclined face, a second clamping member having an inclined face, and an eccentric adapted to move the second clamping member to and from the first clamping member and to force the inclined face of the second clamping member against the inclined face of the first clamping member.

6. In a machine of the character described, in combination, a standard, an ironing-table sleeved upon said standard so as to move vertically and laterally in the arc of a circle, upon said standard, a stationary ironing-plate, a vertically-movable lifting-plate in line with said ironing-plate, and normally out of line with said table, said table in its rotary movement passing between said ironing-plate and lifting-plate.

7. In a machine of the character described, in combination, a standard, an ironing-table sleeved upon said standard so as to move vertically and laterally in the arc of a circle upon said standard, a stationary ironing-plate, a vertically-movable plate in line with said ironing-plate and normally out of line with said table, said table in its rotation passing between said ironing-plate and lifting-plate, and means to lock said table when in its lateral movement it is between the lifting-plate and the ironing-plate.

8. In a machine of the character described, in combination with a fixed ironing-plate, a vertically-movable lifting mechanism in line therewith and a vertically-movable ironing-table supported so as to be normally out of line of action of said lifting mechanism and adapted to be moved upon its support between the ironing-plate and lifting mechanism.

9. In a machine of the character described, in combination with a fixed ironing-plate, a vertically-movable lifting mechanism in line therewith, and a laterally and vertically movable ironing-table supported so as to be adapted to be normally out of line of action of said lifting mechanism and adapted to be moved upon its support between the ironing-plate and lifting mechanism and means to lock said table from lateral movement when it is between the ironing-plate and lifting mechanism.

10. In a machine of the character described, in combination, with a fixed ironing-plate, a vertically-movable lifting-plate in line therewith, and a vertically-movable ironing-table adapted to be brought between the ironing-plate and lifting-plate, and a wedge vertically movable with and overlying said lifting-plate.

11. In a machine of the character described,

in combination with a fixed ironing-plate, a vertically-movable lifting-plate in line therewith and a vertically-movable ironing-table adapted to be brought between the ironing-plate and lifting-plate, and a wedge vertically movable with and overlying said lifting-plate, and means to move said wedge to vary the distance between said lifting-plate and the ironing-table.

12. In combination, with an ironing-table, of a plate adapted to be inserted at the overlapping portion of the bosom of an open-bosom shirt, and lie between the upper and lower portions of the bosom of said shirt.

13. In combination with an ironing-table, of a plate adapted to be inserted at the overlapping portion of the bosom of an open-bosom shirt and lie between the upper and lower portions of the bosom and extend beyond said portion and overlie the under layer of the bosom and underlie the upper layer.

14. The combination with an ironing-table, of a plate adapted to be inserted at the overlapping portion of the bosom of an open-bosom shirt and lie between the upper and lower portions of the bosom and extend beyond said portion and overlie the under layer of the bosom and underlie the upper layer, the extending portion of said plate lying beneath the upper layer being so constructed as to form no marginal line.

15. In combination, with an ironing-table, of a plate adapted to be inserted at the overlapping portion of the bosom of an open-bosom shirt and extend beyond said portion, and overlie the under layer of the bosom and underlie the upper layer, that portion of the plate being tapered to an edge.

16. As a means for ironing the under portion of the bosom of an open-bosom shirt at the portion where the two portions overlie each other, a plate adapted to be inserted between the two portions of the bosom at that point.

17. As a means for ironing the under portion of the bosom of an open-bosom shirt at the portion where the two portions overlie, a plate adapted to be inserted between the two portions of the bosom at that point and extend beyond said portion and overlie the under layer and underlie the upper layer.

18. As a means for ironing the under portion of the bosom of an open-bosom shirt at the portion where the two portions overlie, a plate adapted to be inserted between the two portions of the bosom at that point and extend beyond said portion and overlie the under layer and underlie the upper layer, the extending portion of the plate underlying the upper layer being so constructed as to leave no marginal line.

19. As a means for ironing the under portion of the bosom of an open-bosom shirt at the portion where the two portions overlie, a plate adapted to be inserted between the two portions of the bosom at that point and extend beyond said portion and overlie the under layer and underlie the upper layer, the extending portion of the plate underlying the upper layer being tapered to an edge.

20. The combination, with a plate, of a plurality of independently-sleeved ironing-tables independently movable to and from said plate and mechanism adapted to move toward such plate whichever table is in line with the same.

21. The combination, with a plate, of a plurality of tables independently movable toward and away from such plate and independently movable into and out of alinement therewith, and mechanism adapted to move toward such plate whichever table is in alinement therewith.

22. In a machine of the character described, the combination, with an ironing-table, an ironing-plate and means for moving one of the same toward or away from the other, a plate adapted to be inserted between said ironing-table and ironing-plate and between the upper and lower of the overlapping portions of an open-bosom shirt.

23. In a machine of the character described, the combination with an ironing-table and an ironing-plate and means for moving one of the same toward or away from the other, of a plate adapted to be inserted between said ironing-table and ironing-plate and between the upper and lower portions of an open-bosom shirt and to overlie the whole of the under layer of the bosom and extend beyond the underlying edge of said under layer.

24. In a machine of the character described, a plate adapted to be inserted between the layers of an open-bosom shirt and to overlie the whole of the under layer of the bosom and to extend beyond the underlying edge of said under layer.

In testimony of which invention I have hereunto set my hand, at Lebanon, Pennsylvania, this 21st day of July, 1902.

DANA H. BENJAMIN.

Witnesses:

VERNON SIEBO,

A. FRANK SELLYER.