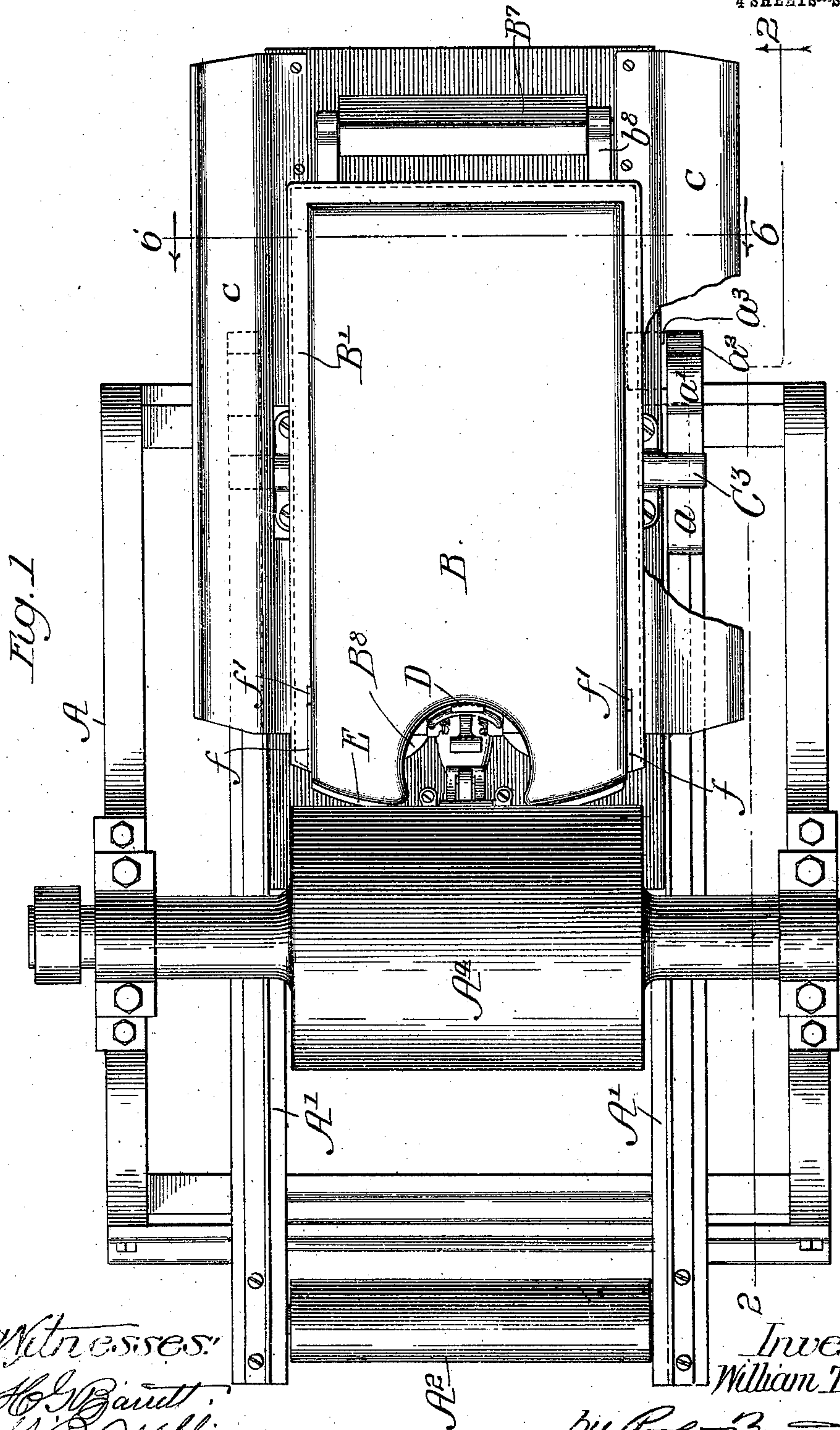


No. 847,622.

PATENTED MAR. 19. 1907.

W. THURBER.
SHIRT IRONING MACHINE.
APPLICATION FILED NOV. 19, 1904.

4 SHEETS--SHEET 1.



Witnesses:
H. G. Bant
J. R. Wilkins

Inventor:
William Thurber
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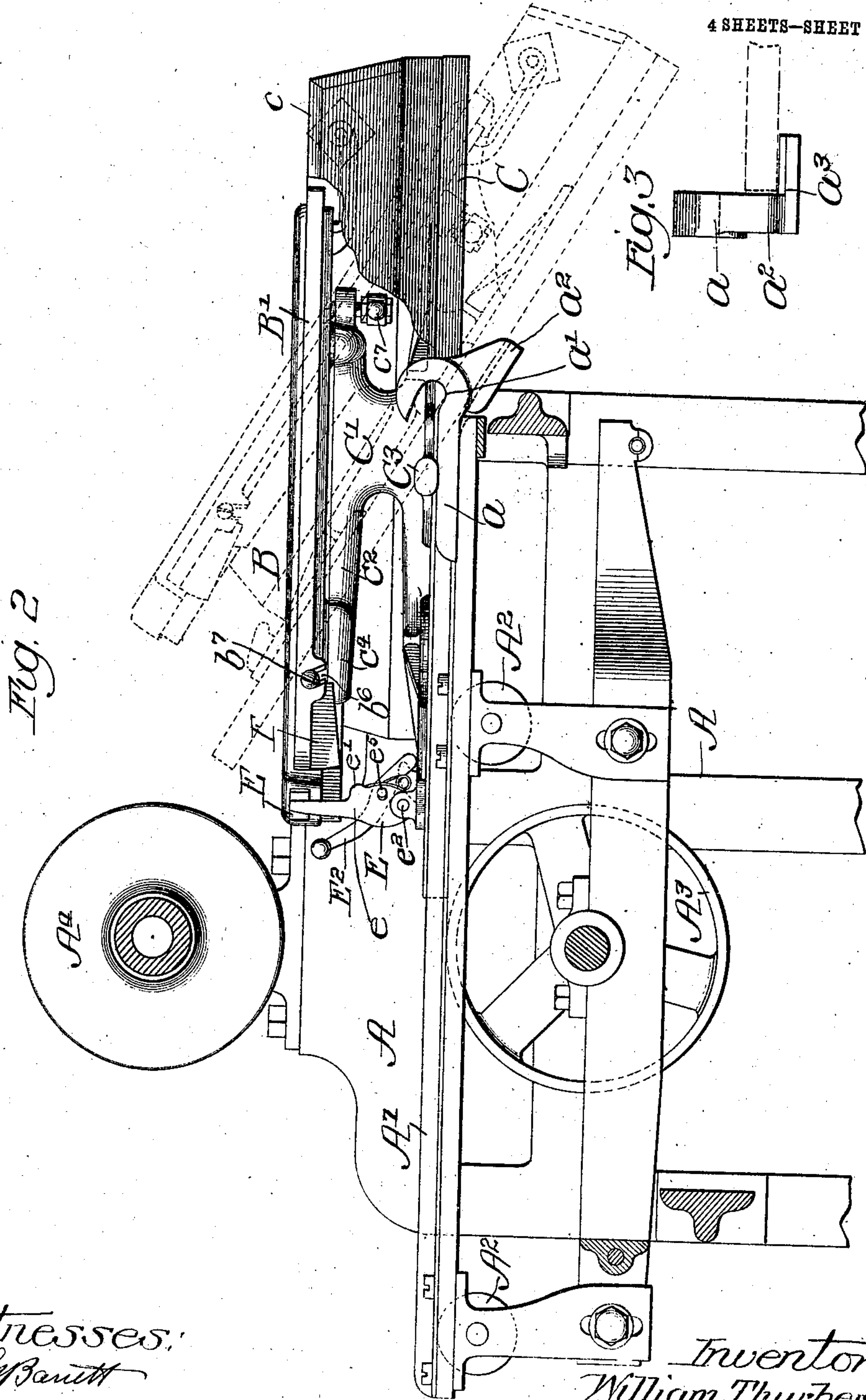
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4 SHEETS—SHEET 2.



Witnesses:
H. G. Bennett
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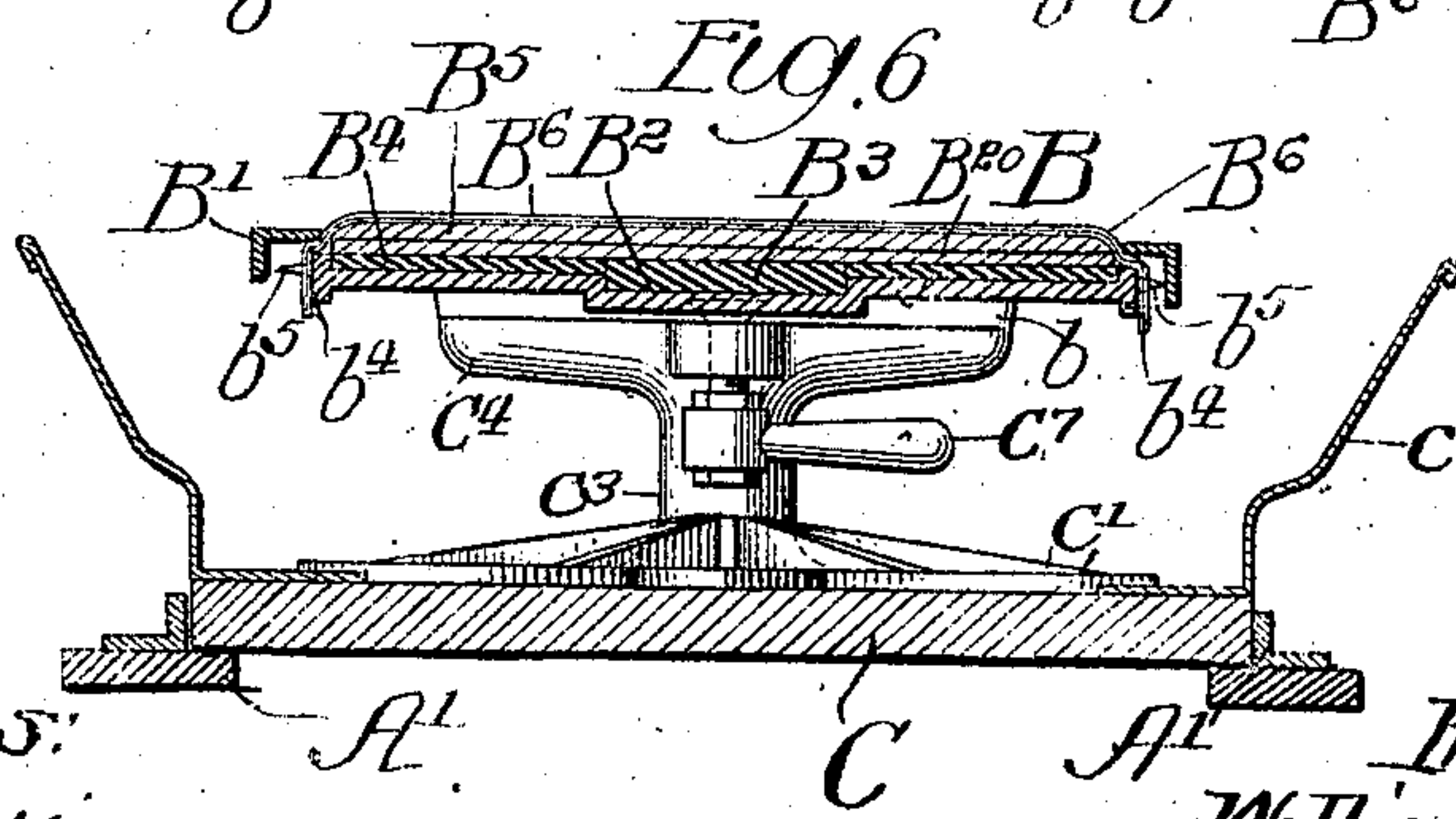
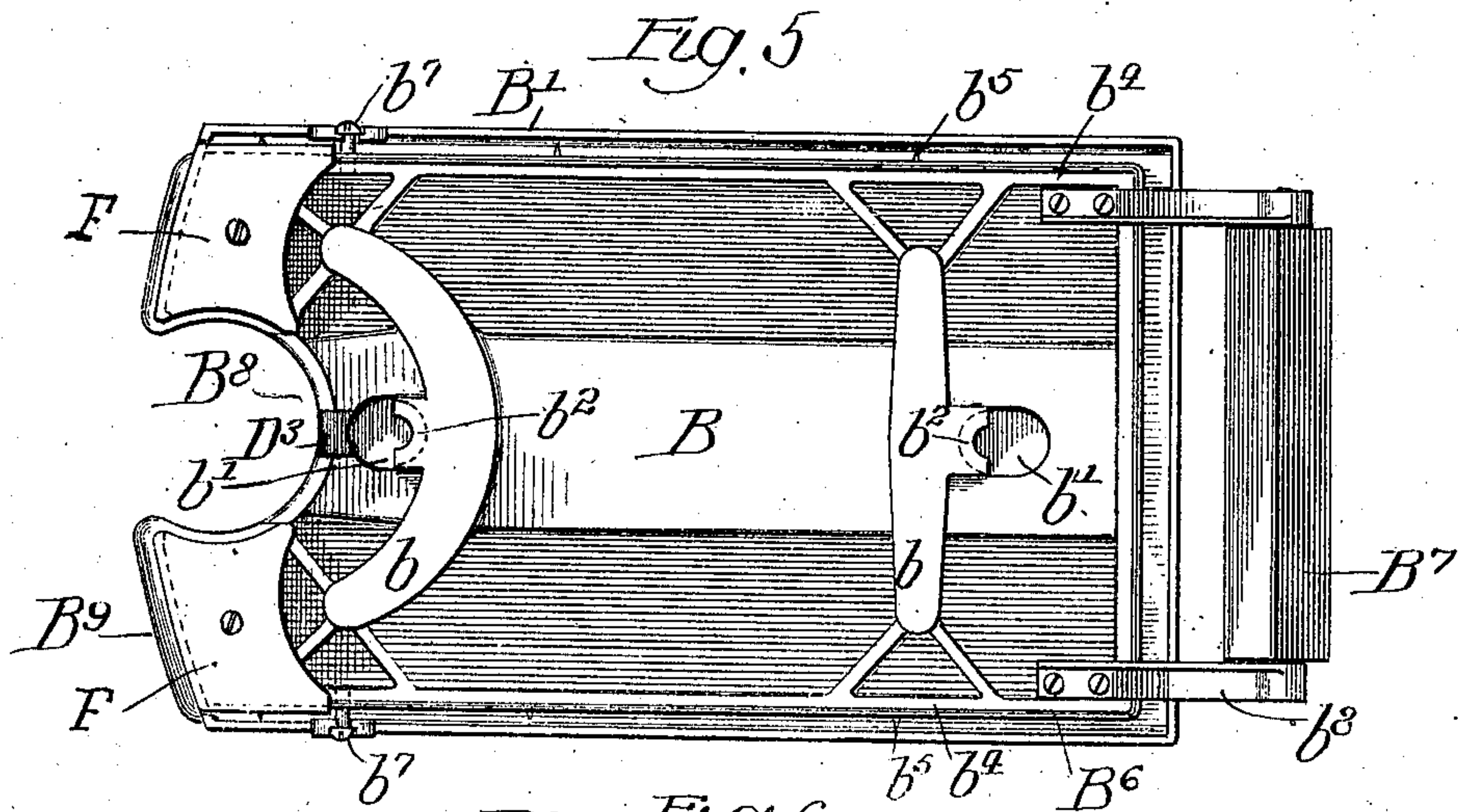
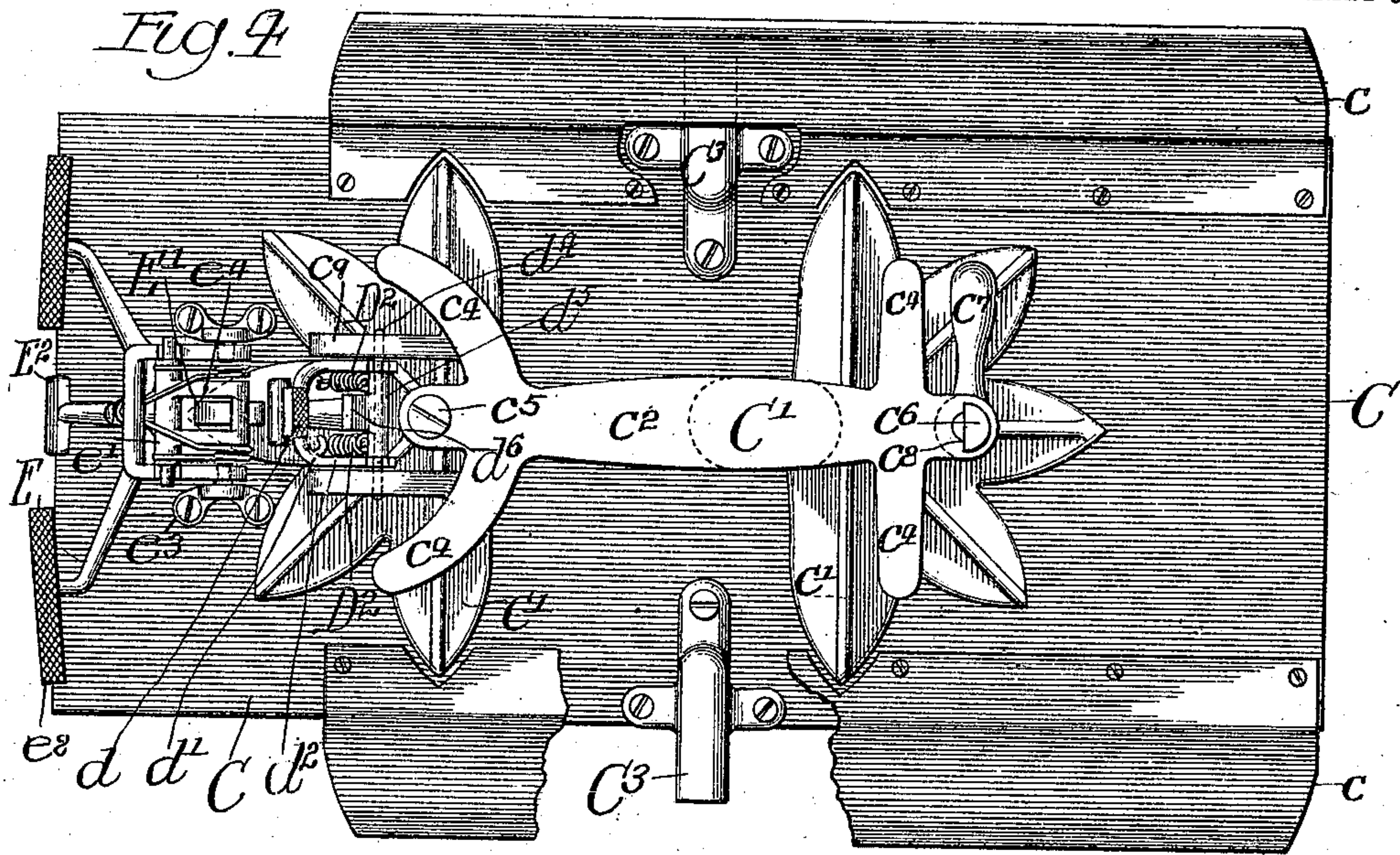
Inventor:
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4 SHEETS—SHEET 3.



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4 SHEETS—SHEET 4.

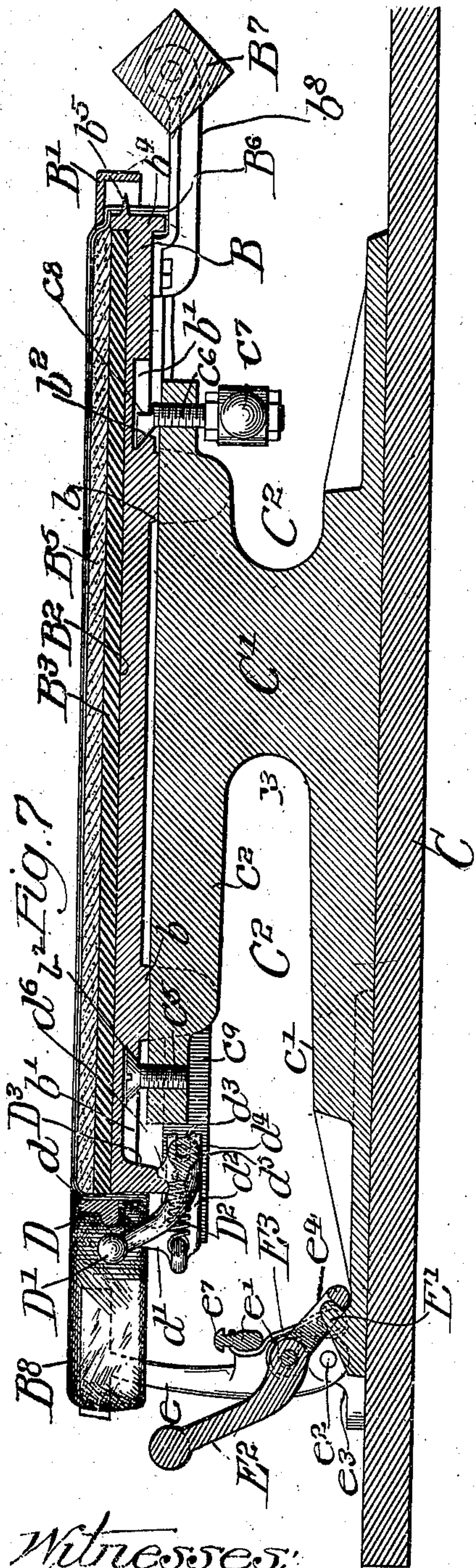


Fig. 7

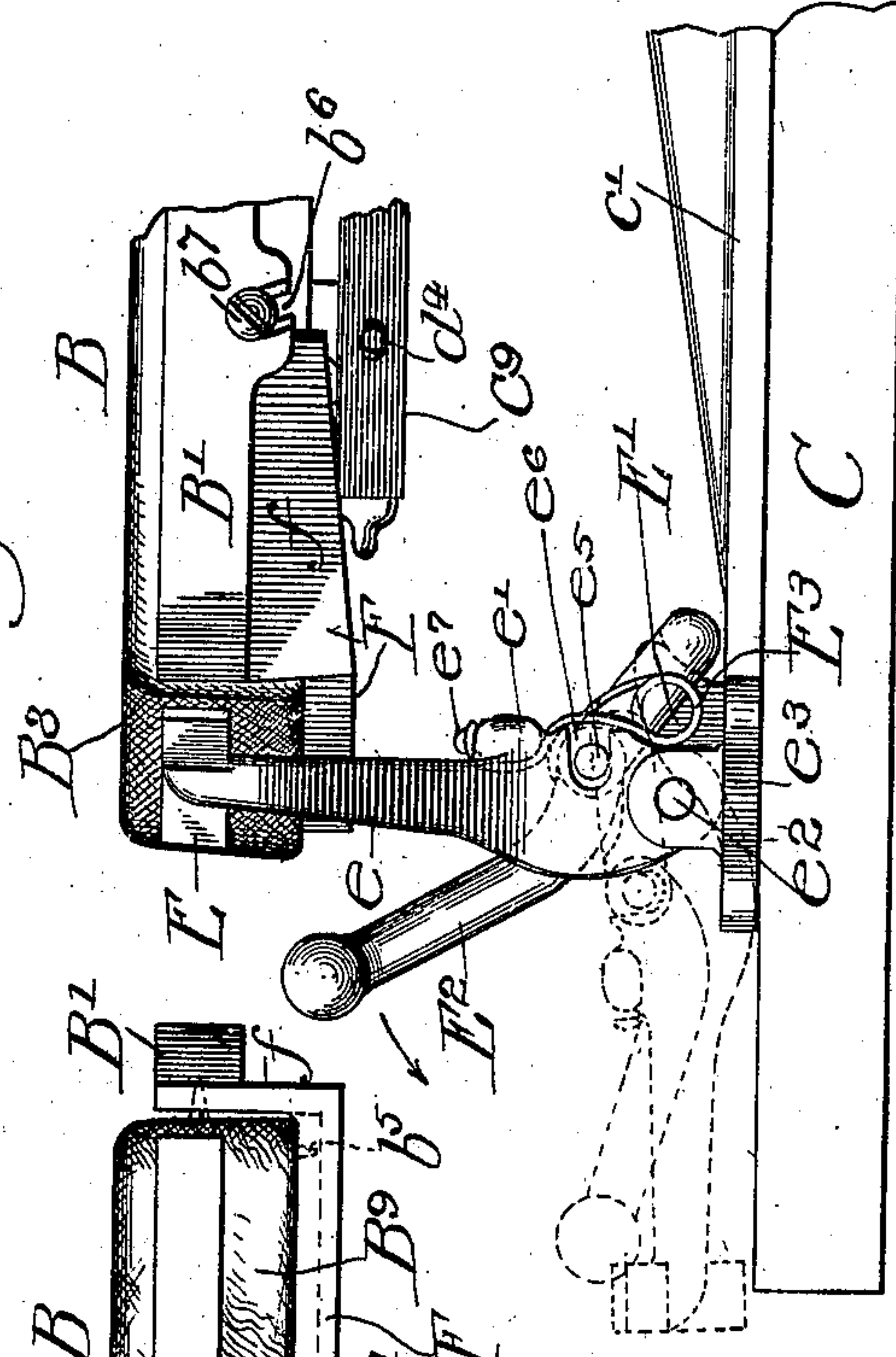
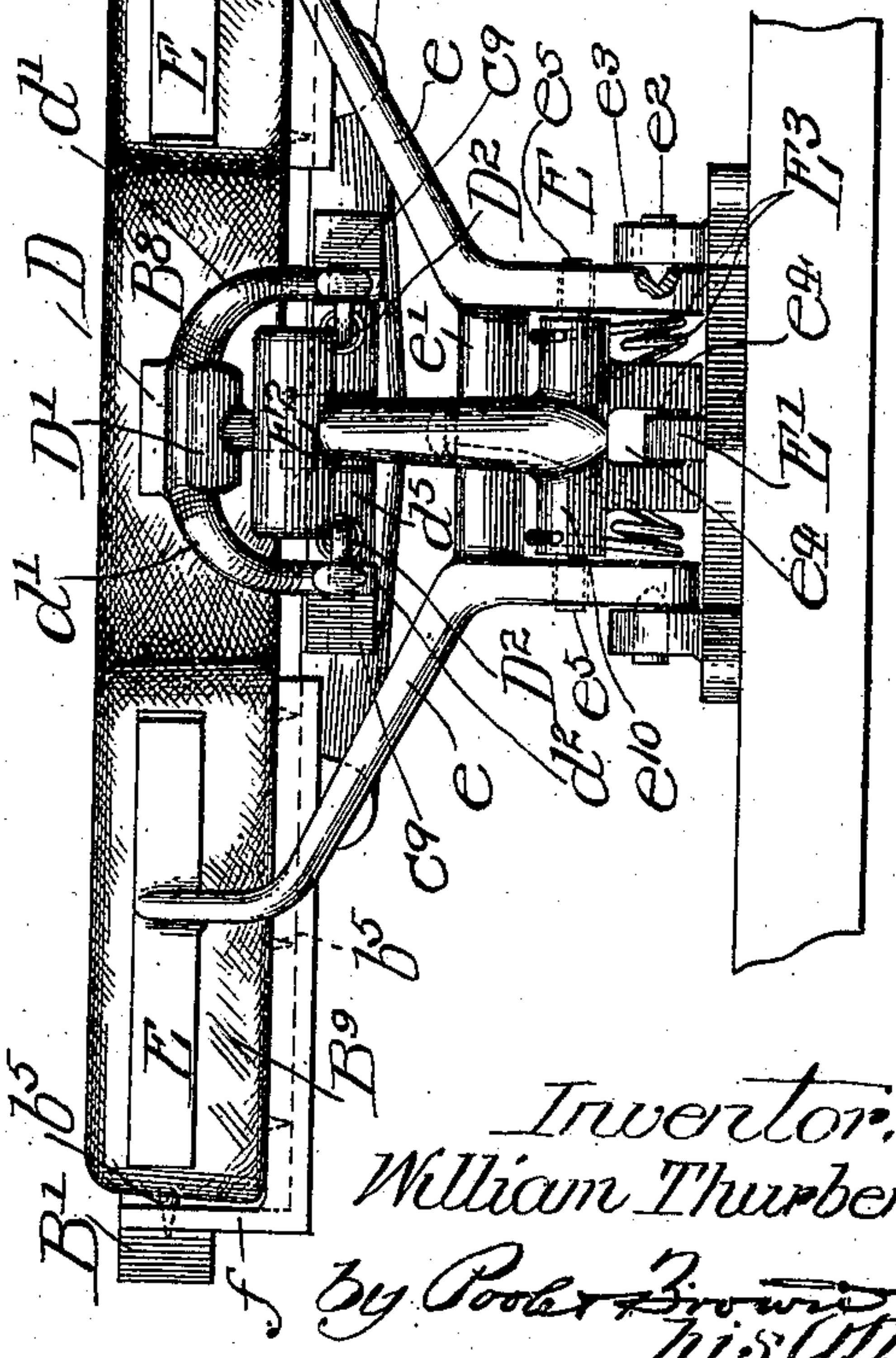


Fig. 8



UNITED STATES PATENT OFFICE.

WILLIAM THURBER, OF CHICAGO, ILLINOIS, ASSIGNOR TO SINCLAIR
LAUNDRY MACHINERY CO., OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

SHIRT-IRONING MACHINE.

No. 847,622

Specification of Letters Patent.

Patented March 19, 1907.

Application filed November 19, 1904. Serial No. 233,434.

To all whom it may concern:

Be it known that I, WILLIAM THURBER, a citizen of the United States, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Shirt-Ironing Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to machines for ironing garments, such as shirt-bosoms, of that kind embracing a rotative ironing-roll and a reciprocating ironing-board which travels thereunder for carrying the garment beneath the ironing-roller.

One of the features of improvement embraced in the machine herein shown comprises a straight reciprocating ironing or bosom board (a term hereinafter employed to designate the composite structure over which the garment is drawn and on which it is ironed or pressed) which reciprocates in a straight path beneath the pressing-roll and which when in its retracted position is adapted to be tilted into a downwardly and outwardly inclined position, whereby the operator may more conveniently place the garment to be ironed upon the board and adjust it or remove it therefrom without liability of injuring the hands by the contact with the heated roller and with great ease and facility.

Another feature of the invention consists in the construction and arrangement of the clamping devices by which the garments are held in engagement with the forward end of the ironing-board.

A still further feature of the invention comprises the construction of the support for the ironing-board, which permits the parts of the garment not to be ironed on the machine to be properly placed so as not to be in the way of the operator and which also permits proper adjustment of the garment on the board.

The invention relates, further, to other novel features of construction and arrangement hereinafter to be described.

In the drawings my invention is illustrated in connection with one form of machines with which it coöperates; but it is to be un-

derstood that it may be employed with other forms of machines, and the invention is capable of modifications within the scope thereof, as will hereinafter more fully appear.

In said drawings, Figure 1 illustrates in plan view a typical ironing-machine, showing my invention thereto applied. Fig. 2 is a sectional view taken upon line 2 2 of Fig. 1, with the ironing-board and reciprocating carriage by which it is supported shown in full lines in little less than their full retracted position and in dotted lines showing the carriage and ironing-board in readiness to apply a shirt thereto or remove it therefrom. Fig. 3 is a detail view of one of the inclined supports for the carriage. Fig. 4 is a top plan view of the ironing-board-supporting carriage with the ironing-board removed and a portion of one of the side guards broken away to show more clearly one of the bearing-trunnions of the carriage. Fig. 5 is a bottom plan view of the ironing-board. Fig. 6 is a transverse view of the ironing-board and carriage and a portion of the machine-frame, taken upon line 6 6 of Fig. 1 looking in the direction indicated by the arrow. Fig. 7 is an enlarged longitudinal vertical sectional view of the ironing-board and its support. Fig. 8 is an enlarged inner end elevation of the ironing-board, showing the shoulder and neck-clamps. Fig. 9 is an enlarged fragmentary elevation of the board, showing in full and in dotted lines the locking and the retracted positions, respectively, of the shoulder-clamp.

In said drawings, A designates the frame of an ironing-machine provided on its upper sides with parallel guide-bars A', by which the reciprocating carriage C, constituting the support for the ironing-board B, is guided in its reciprocating movement beneath the heated ironing-roller A⁴. The carriage travels on supporting-rollers A² and is advanced and retracted upon said rollers A² beneath the ironing or pressing roller by means of a roller A³, located vertically beneath the ironing-roller A⁴, said roller A³ and ironing-roller being reversed at proper intervals through the medium of the usual reversing mechanism (not shown) to effect the reversal of the movement of the carriage and ironing-board beneath the ironing-roller.

The ironing-board B is supported on the carriage by means of a cast-metal frame or

spider, (designated as a whole by C'.) Said frame or spider comprises a base c' , resting directly upon and fixed to the upper surface of the carriage C, and an upper horizontal portion c^2 , on which the board B is supported. Said upper and lower parts are joined by a narrow web or neck portion c^3 . Said web is located intermediate the ends of the part c^2 , whereby both ends of the part c^2 have an overhanging relation to the associated parts, affording spaces beneath the same, (designated by the reference-letters C² C².) At the forward and rear ends of the upper portion c^2 of said frame are provided lateral extensions c^4 to afford ample bearing for the ironing-board on the frame, and therefore give stability to said parts when the ironing-board is fastened in place.

Means are employed for detachably affixing the ironing-board to the frame C', whereby the board may be readily exchanged for another of different size or shape. The detachable connection for this purpose is made as follows: Projecting upwardly from a rearwardly-extending lug at the inner end of the part c^2 of the frame C' is a screw-stud c^5 , preferably having a head beveled on its lower side. c^6 designates a screw which extends upwardly through a similar lug at the outer end of said part c^2 . Said screw c^6 extends below its lug and to its lower end is attached a handle c^7 . The head of the screw c^5 is adapted to engage an undercut notch b^2 , Fig. 7, on the under face of the ironing-board, and the under beveled head of the screw c^6 is adapted to engage a similar undercut notch b^2 on the under face of said board. Recesses b' are formed on the lower face of the ironing-board adjacent to the notches to permit the heads of the studs c^5 c^6 to properly engage the undercut notches. One-half or other sufficient portion of the flaring head of the stud c^6 is cut away, leaving a straight vertical portion c^8 . When the board is to be fitted to the frame C', the head of the stud c^5 enters the adjacent recess b' in rear of the inclined socket of said recess. At this time the rotative screw-stud c^6 is turned to direct the straight part of its head rearwardly, so that when the outer end of the board is lowered, the head of the bolt passes freely into its recess b' in front of the inclined socket therein. The ironing-board is provided on its lower face with transverse ribs b , which rest on the extension parts c^4 of said frame when the board is supported thereby. After the board has been placed on said frame with the heads of the studs c^5 c^6 in the recesses b' thereof the screw-stud c^6 is turned so as to bring its inclined head (which constitute a cam) in engagement with the adjacent inclined notch, which has the effect of forcing the board inwardly to engage the flaring or inclined head of the screw-stud c^5 with its notch, and thereby by press the board firmly in place. The

screw-stud or clamp-bolt c^6 is turned in this manner through the medium of its handle c^7 . In order to remove the board, the clamping device is released by turning the screw-stud c^6 in a reversed direction. It will of course be understood that boards of different sizes and shapes will have the sockets and recesses made identical, so as to be properly engaged by the one set of clamping-studs.

The carriage is provided at its side margins with upwardly-flaring shields or guards c to prevent contact of the garment on the board with the parts of the machine laterally outside of the carriage.

Referring now to the means for tilting the carriage and ironing-board at the outer extremity of their movement, as indicated in dotted lines in Fig. 2, and holding said parts in such inclined position to permit a garment to be placed on or removed from said board, said means are made as follows: Said carriage is provided at the sides thereof and above the level of the guides A' with laterally-directed bearing-trunnions C³, which are adapted to engage, when the carriage is at the extreme limit of its outer movement, bearings on the machine-frame in such manner to enable the outer ends of the carriage and board to be tilted downwardly and the inner ends thereof tilted upwardly. The bearings referred to consist of two hooked-shaped parts having shanks a , located in position to permit the trunnions C³ to pass thereon, as shown in Fig. 2, and hooked ends a' , in which are formed sockets to receive said trunnions. Said sockets of the hooks a' are downwardly and outwardly inclined. The trunnions C³ are oval in cross-section, the upper and lower faces being substantially parallel. The upper and lower inclined walls of the sockets of the hooks a' are similarly inclined and receive with a close fit said trunnions when the carriage is moved to its outer extremity. When said carriage reaches the limit of its outer movement, the overbalance of its outer end or a slight pressure thereon will force the carriage and parts carried thereby into the tilted position. Preferably inclined supporting-brackets a^2 are provided beneath the level of the hooks and in rear of the same to receive and support the carriage when the trunnions occupy the hooks a' . Said brackets are shown as made integral with the hooks a' . The presence of said bracket prevents the weight of the carriage and board from bringing undue torsional stress upon the hooks in a manner tending to break the same.

The inclined position of the board described permits the ready adjustment of a garment to and its removal from the board and without likelihood of injuring the hands of the operator of the machine by contact with the heated ironing-roller. When the machine is employed for ironing men's shirts, the garment is drawn rearwardly over the

forward end of the board with the bosom thereof lying flat on the ironing-surface of the board. Suitable shoulder and neck clamps are employed at the forward end of the board to clamp the shoulder and neck parts of the garment in place. The shirt is stretched to adjust the bosom to the ironing-surface by winding the skirt portion of the shirt around an angular roller B^7 at the rear end of the board and journaled in arms b^8 , directed rearwardly from said board. The space C^2 beneath the overhanging portion of the part c^2 of the frame at the front end of said frame is adapted to receive the rear part of the skirt of a closed shirt or one which is not opened throughout its front. The base or foundation of said ironing-board consists of a generally flat metal plate B^{20} , on which are formed the ribs b and the recesses and sockets b' b^2 and upon the upper face of which is built the parts constituting the yielding ironing-surface.

The base-plate of the ironing-board is provided with a marginal rim b^4 , from which projects short pins b^5 , which are adapted to engage and hold a piece of cloth B^6 , constituting the ironing-surface of the composite board. Surrounding the end and side margins of the board is a guard-frame B' , herein shown as made of angle-bars. Said guard is supported in partially-overlapping relation on the margins of the ironing-surface and is held from endwise movement by means of bolts or studs b^7 engaging inclined notches b^6 in the forward ends of the side parts of the said guard-frame. Said guard-frame covers the pins b^5 and prevents injury to the garment or to the hands of the operator when the garment is being drawn over or removed from the board. The said ironing-surface cloth B^6 is drawn around the forward or inner end of the board and attached to the pins b^5 , extending downwardly from the board, as shown in dotted lines in Fig. 8, and said pins are covered by guard-plates F , which are fastened to the lower face of the board in any suitable manner. The said guard-plates F are provided on their outer side margins with upwardly-directed flanges f , which extend upwardly between the rear ends of the arms of the guard-frame B' and the sides of the board, the horizontal parts of said guard-frame arms being recessed at f' , Fig. 1, to receive said flanges. The rear ends of the arms of said guard-frame are closed, as indicated in Figs. 5 and 8. The construction described avoids sharp projecting parts at the inner end of the board, the presence of which are objectionable.

The upper face of the base or foundation plate B^{20} is provided with a longitudinal depression B^3 , in which is placed a strip of yielding material, such as soft rubber B^3 , of such thickness as to project some distance above the upper surface of the plate. Resting

upon said upper surface of the plate and on either side of the yielding strip B^3 are wider sections of harder rubber B^4 of such thickness that the upper surfaces thereof are flush with the upper surface of said strip B^3 . Overlying said strips or sections of rubber B^3 B^4 is a soft yielding layer B^5 of some thickness and consisting of cotton-flannel or like material. Over said layer B^5 is the cloth constituting the ironing-surface B^6 , the same being secured in place at its end and sides by the pins b^5 referred to. The location of the central strip within the depression B^2 is favored for the reason that it is thereby held more firmly in place. The side strips or sections B^4 are also held in place by engagement at their outer margins with the rims b^4 of the base-plate and the engagement of their inner side margins with the central strip B^3 .

The neckband-clamping device D is attached to the board or its support in such manner as to present no obstruction to the ready adjustment of a shirt to or its removal from the board. It may be further preliminarily stated that the shoulder-clamp is attached to the carriage C in such manner that when swung away from the board, as shown in dotted lines in Fig. 9, it permits free access to the board. The forward or inner end of the ironing-board is provided with a deep central recess or space B^8 , adapted to receive the neckband of a shirt, and with sloping side parts B^9 , over which the shoulders of the shirt is adapted to fit. A clamping device D is employed to clamp the neck of the shirt to the recessed part of the board, and a clamping device is employed provided with laterally-separated clamping members E , adapted to clamp the shirt to the sloping shoulder parts of the board. Both of the shoulder-clamping members are herein shown locked and released by a single lever, and while this is a convenient arrangement it is to be understood that my invention is not limited to the structure shown.

The neck-clamp D is roughened upon its clamping-face, as indicated at d , Fig. 4, and is provided with two downwardly-extended arms d' , each of which is provided with a rearwardly-extending part d^2 , Figs. 4 and 7, the ends of which are provided with bearing-notches which engage a horizontal pivot-pin d^4 , extending between and mounted at its ends in forwardly-directed arms c^9 of the board-supporting frame C' . D' is a locking and releasing lever having at its forward end a sleeve d^5 , mounted on said pin d^4 between the rearward extensions d^2 of the arms d' . Spiral springs D^2 are secured at their rear ends to the sleeve d^5 and at their forward ends to hooks projecting inwardly from the lower ends of the arms d' , thus yieldingly uniting the arms and the releasing-lever and causing the proper tension to be given to the

neck-clamp D. It is convenient to use two of such springs, as shown. Projecting downwardly from the forward end margin of the base-plate B²⁰ at the inner part of the recess B⁸ thereof is a lug D³, which is adapted to be engaged by an upwardly-directed locking finger or lug d⁶, formed, as herein shown, on the sleeve of the locking-lever D'. The relation of the parts described is such that when the locking-lever is in the position shown in Fig. 7 the parts are firmly locked in position and the springs are exerting their tension upon the clamping-bar D, and when the lever D' is moved downwardly the lug d⁶ is disengaged from the locking-shoulder D³, (permitted by reason of a slotted connection of the pivot-pin d⁴ with the arms c⁹, and the clamp-bar D may then be swung downwardly away from the recessed end of the board to permit a shirt to be removed from or applied to the board. The engagement of the lug d⁶ of the locking-lever with the complementary lug D³ of the base-plate holds said neck-clamping device in its clamping position, and the springs permit the parts to yield to accommodate the device to neckbands of varying thickness. It will thus be seen that the neckband-clamping device described is in a position not to obstruct the ready application of the shirt to or its removal from the ironing-board. The neck-clamping bar D is in practice made either relatively short or is curved to correspond with the curvature of the bottom of the recess B⁸ of the ironing-board.

Next describing the shoulder-clamping device, said device is made as follows: The clamping-bars E are roughened on their engaging faces and are horizontally oblique to fit the sloping shoulder portions of the ironing-board. Said bars E are formed on the upper ends of arms e e, that are united by a connecting-bar e'. The lower ends of the arms e are hinged to upright lugs e³ by means of bearing-studs e², fixed in the lugs and bearing at their pointed inner ends in tapered sockets in the lateral faces of the lower ends of said arms. Such pivotal arrangement permits the clamp-bars to swing toward and away from the sloping parts of the board. E² designates a locking-lever which is located between the clamping-bar-carrying arms e and provided near its lower end with a sleeve e¹⁰ and is pivoted to the lower straight parallel portions of the arms e by means of trunnions e⁵, which have bearing in rearwardly-opening notches e⁶ in said straight parallel portions of the arms e. Said locking-lever is provided at its lower end with an aperture e⁴, adapted to receive a locking-lug E', located in rear of and between the lugs e³, as shown in Figs. 7 and 8. A spring E³ is employed to hold the locking-lever pivots engaged with the bearing-notches e⁶, while permitting sufficient relative move-

ment of the parts to allow the locking-lug E' to readily enter the opening e⁴ of the locking-lever. The closed portion of said spring is engaged with an upwardly-extending stud e⁷ on the connecting-bar e', while the ends of said spring are hooked over the sleeve e¹⁰ of the locking-lever. Preferably the spring is formed on each side between its closed central part and its ends with spirals to increase the resiliency of the springs. Said spring permits relative movement of the lever and clamping-bar arms, so as to adapt the shoulder-clamping device to garments of various thicknesses, while reliably clamping the garment. The spring also permits the apertured lower end of the locking-lever to slip over the locking-lug E' and holds said parts properly related after such locking takes place. The said locking-lug is of undercut construction to hold the locking-lever properly engaged therewith until intentionally released. A light spring is sufficient to hold said parts properly locked, inasmuch as the pivotal stress of said lever is not brought upon the spring. To remove the clamp members E from the shoulders B⁹, the locking-lever E² is swung in the direction indicated by the arrow in Fig. 9, thereby releasing said lever from the stud E' against the action of the spring E³. When the parts are so released, the entire device may be swung freely backwardly into the position shown in dotted lines in Fig. 9. When the clamping device is to be again thrown into its clamping position, the spring E³ acts to hold the parts in proper relation, with the trunnions e⁵ engaged with the bearing-notches e⁶ and the movability of said trunnions in said bearing-notches, combined with the spring E³, permits the notched lower end of the locking-lever to snap in locking engagement with the stud E', whereby the parts are locked in the clamping position.

It will be observed that the neckband and shoulder-clamping device possess generally similar features of construction and operation in that the locking-lever of each has lost motion relative to the clamping member and the parts are held yieldingly together by a spring or springs, and, further, that said locking-lever engages an undercut stationary locking-lug, which holds the locking-lever in its locking position, said spring or springs permitting release of the lever from the locking-lugs.

The operation of the devices described is as follows: In order to place a garment on the ironing-board, the operator draws the carriage to the extremity of its rearward travel, whereupon its rear end tilts downwardly and its forward end upwardly in the manner before described. The ironing-board is now in position to receive a garment to be pressed. The neckband and shoulder-clamps are swung out of engagement with the forward end of the board. A shirt or other garment

which it is desired to iron or press may then be placed over the ironing-board, it being drawn rearwardly over the board from the front end thereof. The neckband and shoulder-clamping devices are thereafter swung into their clamping position in the manner described, and thereafter the shirt-bosom (if the garment be a man's shirt) is stretched over the ironing-surface of the board by engaging the skirt of the shirt with the angular roller B⁷ and winding the skirt thereon. The bosom of the shirt being now properly adjusted to the board, the latter and the carriage C are then swung or tilted into the horizontal position and forced forwardly under the ironing-roller A⁴ and between the same and the lower roller A³. The operation of reciprocating the ironing-board and carriage beneath the ironing or pressing roller is the same as in the ordinary ironing-machine now in common use. When the shirt-bosom has been sufficiently ironed, the carriage is drawn rearwardly and tilted downwardly, the garment is released from the clamping devices and the roller B⁷, after which the garment is removed and another is adjusted to the board.

The construction of the ironing-board *per se* is not claimed herein, but is made the subject of a separate application filed by me on the 6th day of August, 1906, Serial No. 329,437, and which is a division of this application.

While I have shown an approved form of mechanism in which my invention is embodied, I do not wish to be understood as limiting myself to the structural details shown and described except as hereinafter made the subject of specific claims.

I claim as my invention—

1. In an ironing-machine, a reciprocating ironing-board having a straight, upwardly-facing, ironing-surface, an ironing-roller above the board, ways on the machine for guiding said board in its travel and coacting means movable with the board and stationary with the machine-frame, respectively, permitting the board to be tilted downwardly about a pivotal axis located between the ends of the board.

2. In an ironing-machine, a reciprocating ironing-board having a straight, upwardly-facing, ironing-surface, an ironing-roller above the board, ways on the machine-frame for guiding said board in its travel, trunnions movable with the board and means engaged by the trunnions at the outer limit of the movement of the board for tilting the outer end of the board downwardly.

3. In an ironing-machine, a reciprocating ironing-board, laterally-extending trunnions traveling with the board, ways on the machine guiding said board in its travel, and sockets on the machine-frame located in the path of travel of said trunnions and adapted

to receive the same and support said board in a tilted or inclined position.

4. In an ironing-machine, a tilting, reciprocating ironing-board, laterally-extending trunnions traveling with the board, ways on the machine guiding said board in its travel, and stationary hooks located at the end of the path of travel of said trunnions, said hooks being designed to receive the trunnions when the board is tilted.

5. In an ironing-machine, a reciprocating ironing-board, laterally-extending trunnions traveling with the board and having generally parallel upper and lower faces, ways on the machine guiding said board in its travel, and hooks located in the path of travel of said trunnions and adapted to receive the same, said hooks having parallel, inclined upper and lower surfaces adapted to engage the parallel upper and lower faces of said trunnions.

6. In an ironing-machine, a tilting, reciprocating ironing-board, laterally-extending trunnions traveling with the board, ways on the machine-frame guiding said board in its travel, said frame being provided with sockets located at the end of the path of the travel of said trunnions and adapted to receive the same when the board is tilted, and stationary brackets or supporting-surfaces for holding the board in its tilted position.

7. In an ironing-machine, a tilting reciprocating ironing-board, laterally-extending trunnions movable with the board, ways on the machine-frame guiding said board in its travel, stationary hooks located at the end of the path of travel of said trunnions and inclined with respect to said ways; said hooks receiving said trunnions when said board is tilted and inclined supports or brackets rigid with said hooks for holding the board rigidly in its inclined position.

8. In an ironing-machine, a reciprocating ironing-board having a straight, upwardly-facing, ironing-surface, an ironing device thereover, ways on the machine for guiding said board in its travel, coacting means movable with the board and stationary with the machine-frame, respectively, permitting the board to be tilted downwardly about a pivotal axis located between the ends of the board, the forward end of said ironing-board being arranged to overhang its support to provide beneath the board a space adapted to receive a portion of the garment not to be ironed.

9. In an ironing-machine, a reciprocating ironing-board, having a straight, upwardly-facing, ironing-surface, an ironing device thereover, guides on the machine for guiding said board in its travel, means whereby said board may be tilted downwardly at the outer limit of its travel about an axis located between the ends of the board, the forward end of said board overhanging its support to

provide a forwardly-opening space between the board and support, and a clamping device coacting with the end of the board and mounted beneath the forward end of the
5 board and above said space, between which and the end of the board the garment is adapted to be clamped.

10. In an ironing-machine, a reciprocating ironing-board, having a straight, upwardly-
10 facing, ironing-surface, an ironing device thereover, guides on the machine for guiding said board in its travel, means whereby said board may be tilted downwardly at the outer
15 limit of its travel about an axis located between the ends of the board, the forward end of said board overhanging its support to provide a forwardly-opening space between the

board and support, a neckband-clamping device coacting with the forward end of the board and mounted on the overhanging part
20 of the board above said space, and a shoulder-clamping device hinged to the support for the board and arranged to swing toward and away from the forward end of said board.

In testimony that I claim the foregoing as
25 my invention I affix my signature, in presence of witnesses, this 27th day of October, A. D. 1904.

WILLIAM THURBER.

Witnesses:

HENRY H. HERR,
CONRAD STOREWING,
FRANK R. MEADOWER, Jr.,
F. H. WILDMAN.