

(No Model.)

4 Sheets—Sheet 1.

J. McCLELLAN.
BOOKBINDING MACHINE.

No. 603,406.

Patented May 3, 1898.

Fig. 1

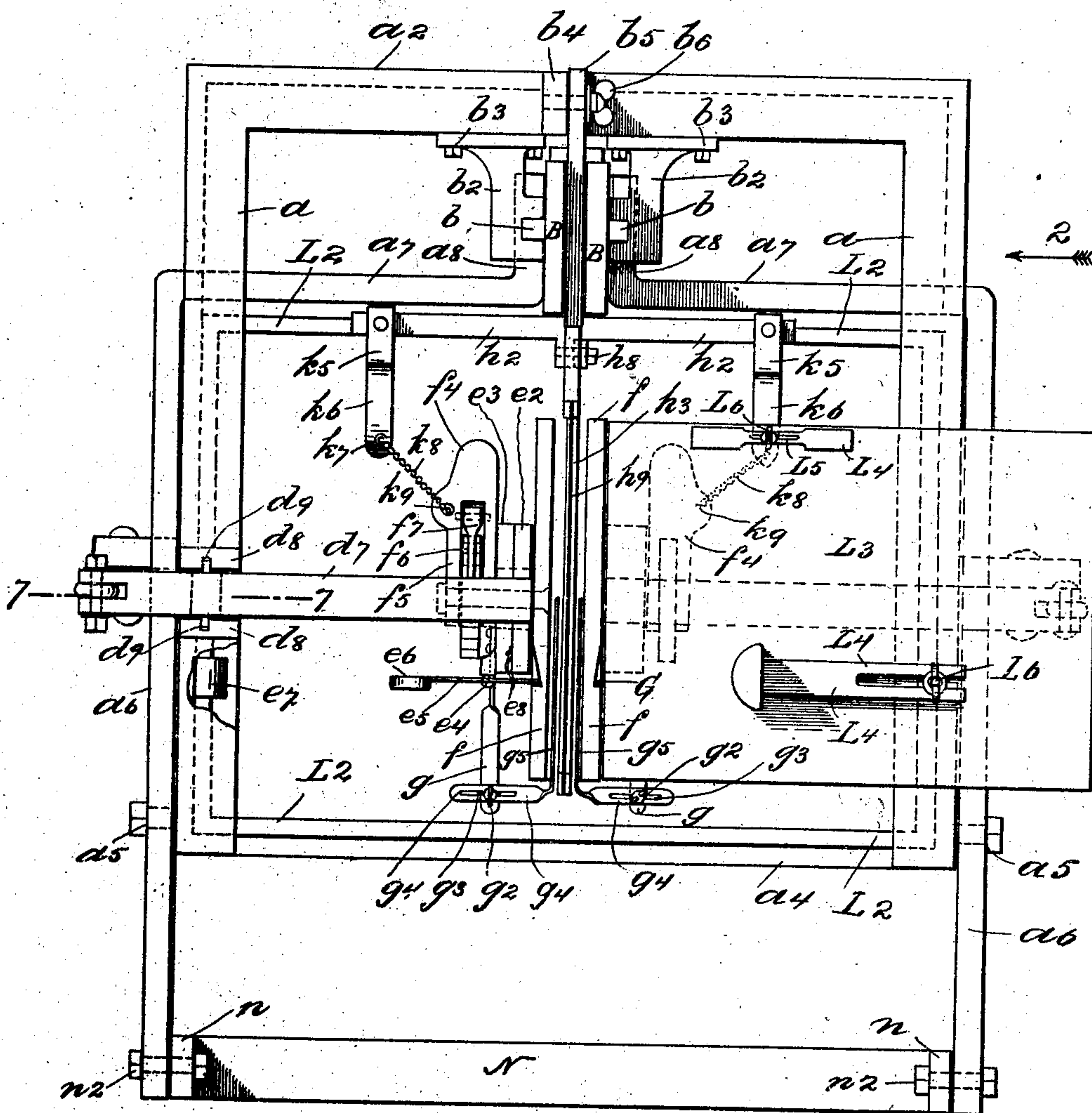


Fig. 7

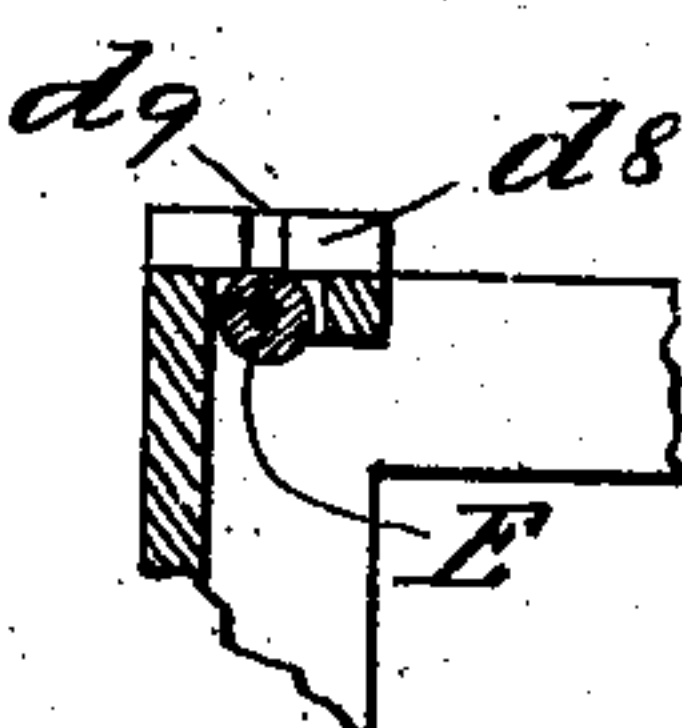
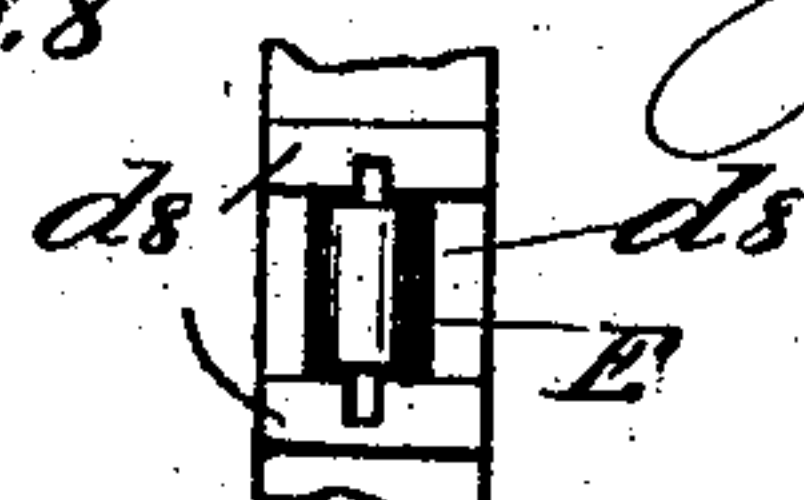


Fig. 8



WITNESSES

C. H. H. H.
C. H. H. H.

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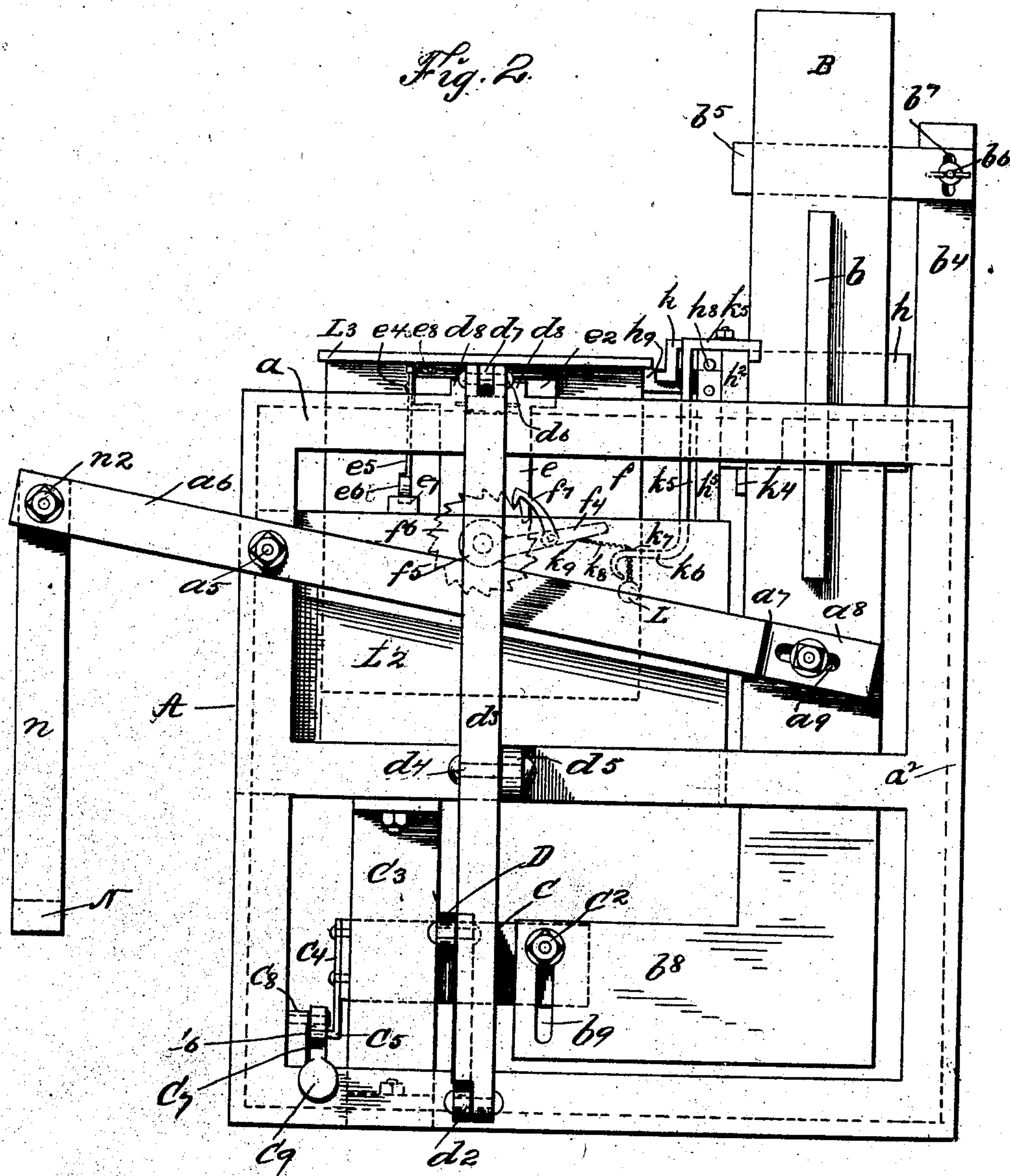
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J. McCLELLAN.
BOOKBINDING MACHINE.

No. 603,406.

Patented May 3, 1898.



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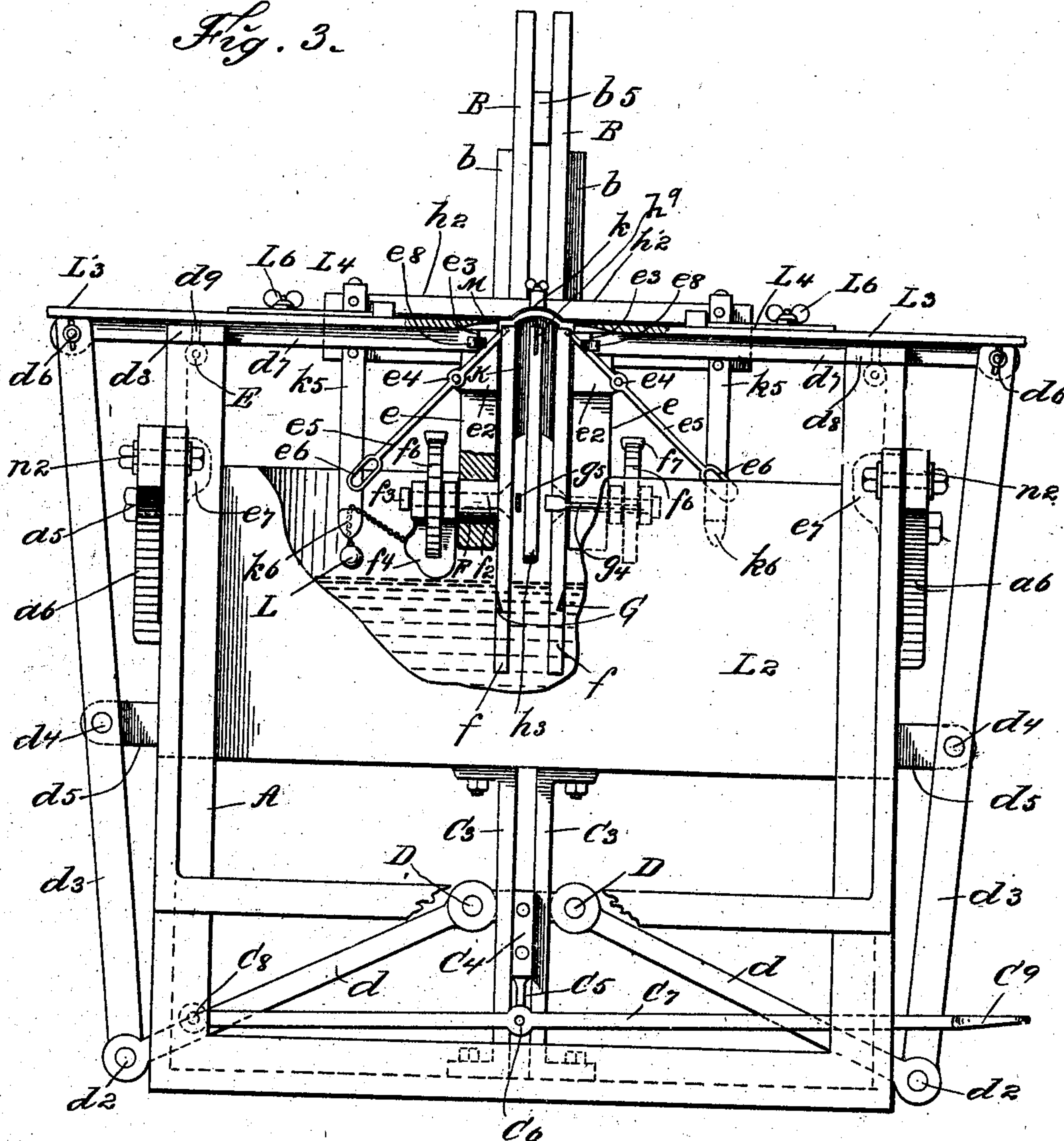
4 Sheets—Sheet 3

J. McCLELLAN.
BOOKBINDING MACHINE.

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Patented May 3, 1898.

Fig. 3.



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(No Model.)

4 Sheets—Sheet 4.

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Fig. 4.

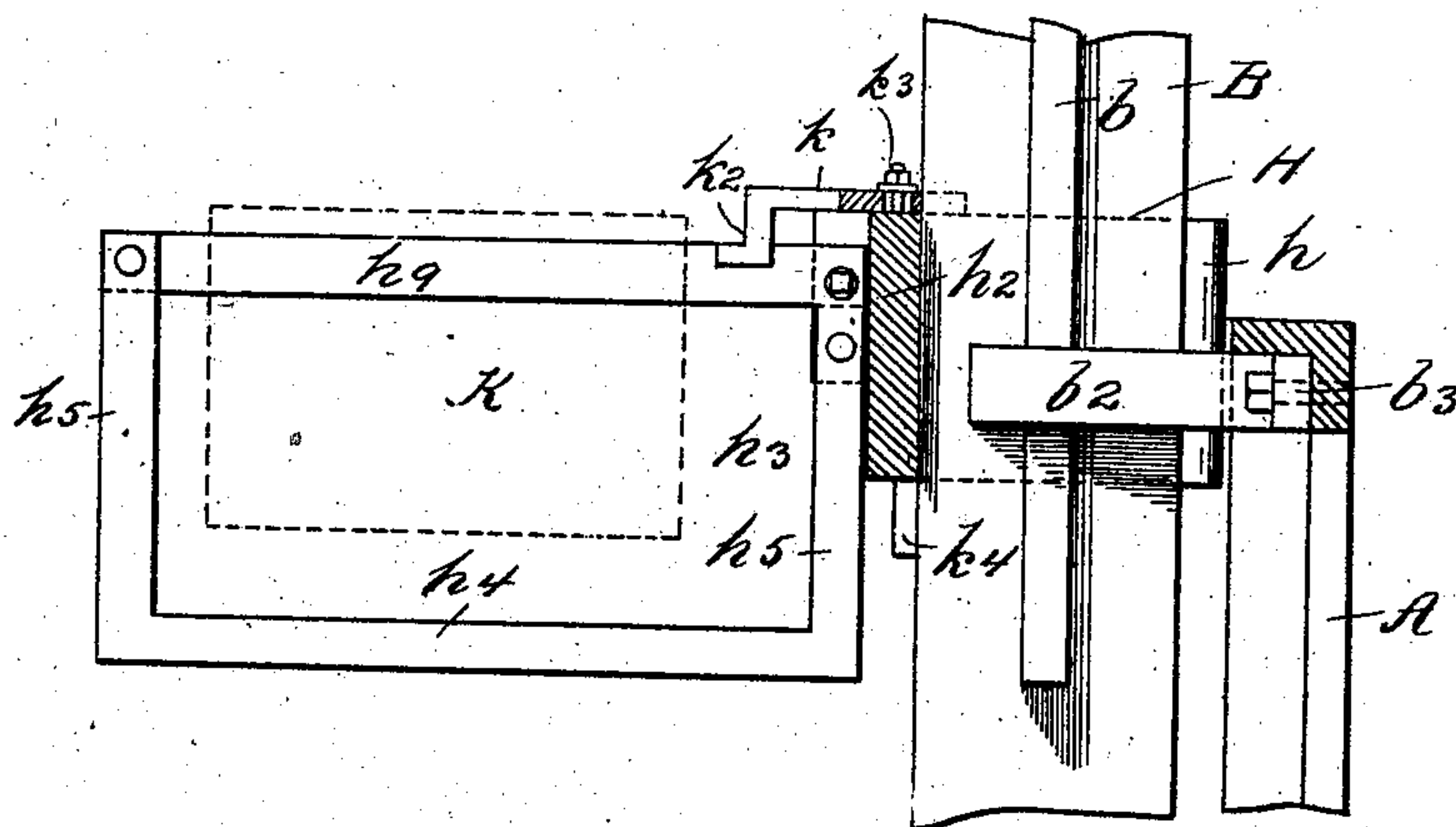


Fig. 5.

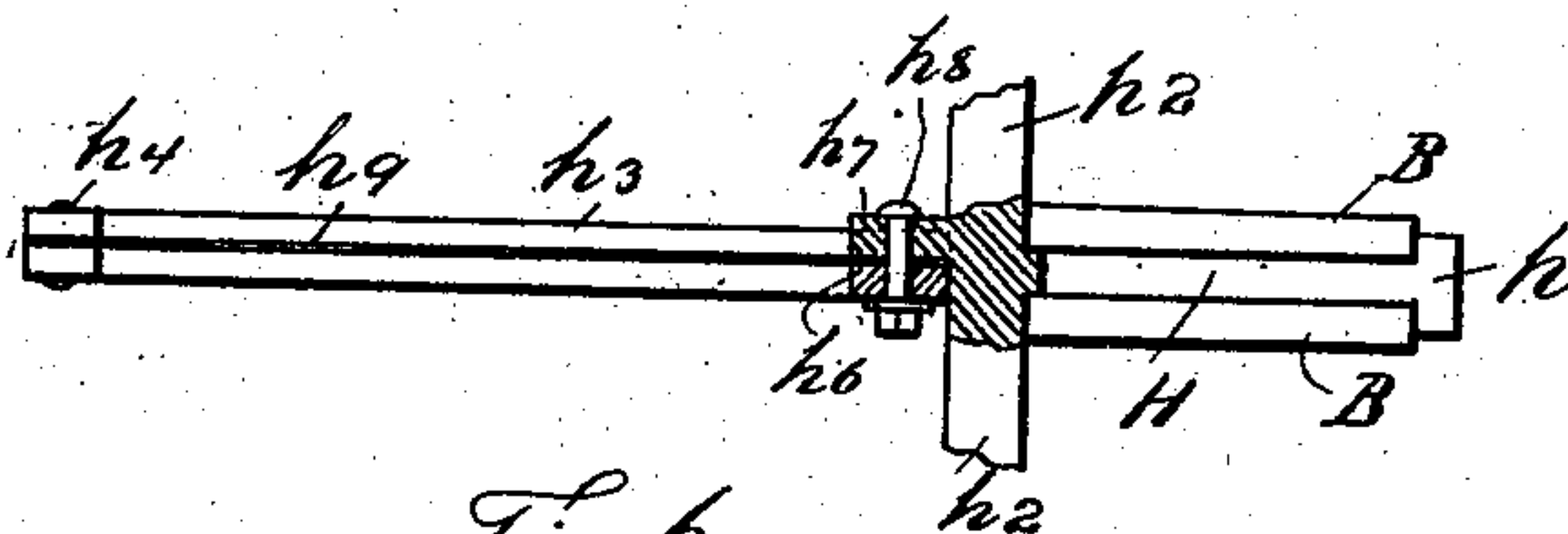
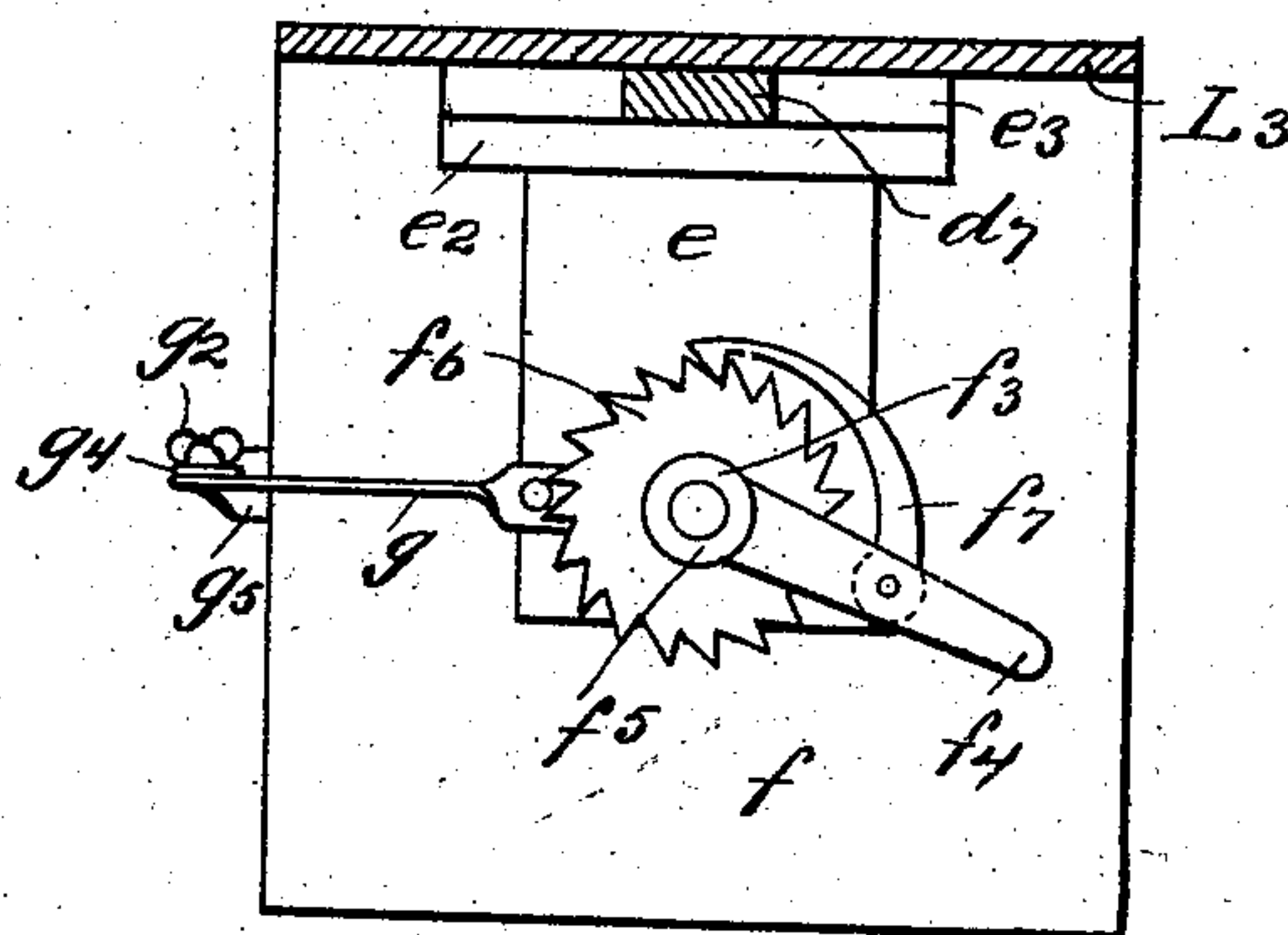


Fig. 6.



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UNITED STATES PATENT OFFICE.

JACKSON McCLELLAN, OF BROOKLYN, NEW YORK, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO HIMSELF, GEORGE HENRY McCLELLAN, OF ARLINGTON, NEW JERSEY, AND GILBERT HUNT McKIBBIN AND BOYD EVERETT, OF NEW YORK, N. Y.

BOOKBINDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 603,406, dated May 3, 1898.

Application filed July 3, 1897. Serial No. 643,333. (No model.)

To all whom it may concern:

Be it known that I, JACKSON McCLELLAN, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Machines for Binding Books, of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to machines for binding books; and the object thereof is to provide an improved machine for this purpose whereby means are provided for covering the sides of the book with glue and whereby means are also provided to hold the cover of said book while the sides thereof are being glued and for placing the same upon the sides after the same are glued.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which—

Figure 1 is a plan view of my improved machine; Fig. 2, a side view thereof looking in the direction of the arrow 2 in Fig. 1; Fig. 3, a front view looking in the direction of the arrow 3 in Fig. 1, part of the construction being broken away and part thereof shown in section; Fig. 4, a side view of a detail of the construction, showing the book-carrying frame and its supports, part thereof being shown in section; Fig. 5, a plan view of a part of the book-carrying frame with part of the construction in section; Fig. 6, a side view of another detail of the construction; Fig. 7, a partial section on the line 7-7 of Fig. 1, and Fig. 8 a plan view of the construction shown in Fig. 7.

In the drawings forming part of this specification the separate parts of my improvement are designated by the same letters of reference in each of the views, and in the practice of my invention I provide a main frame A, which is preferably rectangular in form, or substantially so, and the top of which consists of side pieces a^1 , a back piece a^2 , and the front of which is open, said frame being also provided at the bottom of the front thereof with a cross-piece a^4 .

Pivotaly connected with each side of the main frame at a^5 is a supplemental frame consisting of the side levers a^6 , which are provided at their rear ends with transversely and inwardly directed arms a^7 , which are provided with backwardly-directed extensions a^8 , which are provided with longitudinal slots a^9 , and mounted between the backwardly-directed extensions a^8 and connected with each of said extensions are vertical plates or supports B, which are provided above their pivotal connection with the arms a^6 with vertical side ribs b^1 , which move in corresponding grooves formed in angular brackets b^2 , secured to the main frame at b^3 , and secured to the main frame rearwardly of the plates B is an upwardly-directed standard b^4 , to which is secured a forwardly-directed arm b^5 , which passes forwardly between the plates B, this connection being made by means of a set-screw b^6 , which passes through a vertical slot b^7 in said arm b^5 .

The lower ends of the plates B are provided with forwardly-directed or angular extensions b^8 , which are clearly shown in Fig. 2, and each of said forwardly-directed extensions b^8 of the plates B is provided with a vertical slot b^9 , and placed between said forwardly-directed extensions b^8 of the plates B is a supplemental plate or arm C, this connection being made by means of a bolt C^2 , which passes through said vertical slots b^9 , and by means of this construction the supplemental plate or arm C is vertically adjustable.

The supplemental plate or arm C passes between two upright guides C^3 , mounted in the main frame, and the front end of said supplemental plate or arm C is provided with a plate C^4 , which is secured therein and which is provided with a downwardly-directed arm C^5 , to which is pivoted at C^6 a treadle-lever C^7 , one end of which is pivoted at the left side of the machine, as shown at C^8 , and the opposite end of which is provided with a treadle C^9 .

Pivotaly connected with the supplemental plate or arm C at D are rods d^1 , which project outwardly through the main frame and are pivotaly connected at d^2 with upright levers d^3 , said levers being pivoted at d^4 to arms d^5 ,

which are secured to the main frame, and these levers project upwardly slightly above the top of the main frame and are pivotally connected at d^6 with sliding bars d^7 , which pass transversely and inwardly over the top of the main frame.

The sliding bars d^7 pass between the upwardly-directed shoulders or projections d^8 , secured to or formed on the upper side pieces a of the frame, and these upwardly-directed shoulders or projections are provided with vertical slots d^9 , which are designed to receive the trunnions of rollers E, which are mounted at each side of the frame and on which the sliding bars d^7 rest, and the inner ends of said sliding bars d^7 are provided with hangers e , and these hangers are provided at their upper ends with cross-heads e^2 , which are provided with rabbet-grooves e^3 on their outer sides, and pivoted to the front end of each of said cross-heads at e^4 is a locking-lever e^5 , each of which is provided at its lower end with an oblong head e^6 , which in the operation of the machine is adapted to strike against a shoulder or projection e^7 , formed on a glue or paste box mounted in the main frame, as hereinafter described, and secured to the front ends of the cross-heads e^2 of the hangers e and in the grooves e^3 are springs e^8 , which are adapted to bear on the outer side of the upper ends of the levers e^5 .

The lower ends of the hangers e are provided with transverse openings F, and mounted between each of said hangers are rectangular glue or paste plates f , which are preferably square in form, and each of said plates is provided with a hub f^2 , and passed through each of said plates and each of said hubs is a shaft f^3 , and on the outer ends of each of said shafts is mounted a ratchet-arm f^4 , which is provided with jaws f^5 , through which said shaft f^3 passes, and mounted on said shaft between said jaws is a ratchet-wheel f^6 , and pivotally connected with the ratchet-arm f^4 is a curved or segmental pawl f^7 , which operates in connection with said ratchet-wheel, as clearly shown in Figs. 1, 2, and 6.

The plates f are provided on the outer sides thereof and at a short distance from each of the corners with triangular notches or recesses G, in which the upper ends of the levers e^5 operate in the operation of the machine, as hereinafter described, and secured to the front ends of each of the cross-heads e^2 of the hangers e are arms g , which are provided at their outer ends with set-screws g^2 , as shown in Fig. 1, which pass through longitudinal slots g^3 , formed in cross-plates g^4 , which are provided with inwardly-directed arms g^5 , which constitute scrapers and which are adapted to operate upon or over the inner side or surface of the plates f .

I also provide a book-carrying frame which is connected with and supported by the vertical plates B, and this frame consists of a plate H, which fits between said vertical plates B and which is provided at its outer end with

a cross-head h and at its inner end with plates or arms h^2 , which project at right angles therefrom, and I also provide a book-carrying frame or support proper, which is designated in Fig. 1 by the reference-letter h^3 , which consists of a bottom bar h^4 , having upwardly-directed extensions h^5 at each end thereof, and the upper corner of the book-carrying frame proper is cut away, as shown at h^6 , this construction being best shown in Figs. 4 and 5, and the notch or recess formed by cutting away the corner of the said frame is adapted to receive a shoulder or projection h^7 , formed on or secured to the outer side of the cross-head formed by the arms h^2 of the plate H, and these parts are connected by a pin or bolt h^8 , and said frame is also provided across the top thereof with a narrow horizontal plate h^9 , which serves as a support for the book, and in the drawings forming part of this specification I have shown a book K as supported on said plate h^9 .

Connected with the cross-head formed by the plate H is an adjustable gage k , provided with a downwardly-directed arm k^2 , which is designed to regulate the position of the book K, and this gage may be of any desired construction and may be adjusted in any desired manner, but is preferably made adjustable by means of a set-screw k^3 , which passes through a slot formed therein.

The vertical plates B, on which the book-carrying frame moves, are provided with inwardly-directed lugs k^4 , which limit the downward movement of the book-carrying frame, this construction being shown in Figs. 2 and 4, and the outwardly-directed arms h^2 of the plate H are provided with downwardly-directed arms k^5 , which are provided at their lower ends with inwardly-directed extensions k^6 , which are provided with holes or openings k^7 , through which are passed chains k^8 , which are secured to the ratchet-arms f^4 , as shown at k^9 , and the ends of the chains k^8 , which pass through the extensions k^6 of the arms k^5 , are provided with weights L.

The glue or paste box hereinbefore referred to is shown at L^2 , which is rectangular in form and set into the main frame, and the top thereof is open, and in Fig. 3 the front side of this box is broken away to show the position of the plates f therein, and these plates extend downwardly into the glue-box, as is also clearly shown in said figure.

I also provide table-plates L^3 , which are mounted on and secured to the sliding bars d^7 , and only one of these table-plates is shown in Fig. 1, the other being removed so as to better show the construction. Each of these table-plates, however, is clearly shown in Fig. 3, and these plates are also each provided on its upper surface with two longitudinally-adjustable gages L^4 , each of which is provided with a longitudinal slot L^5 , through which pass set-screws L^6 , and these gages are intended to properly regulate the position of the cover of the book, which is shown at M

in Fig. 3. The cover M is laid loosely on the table-plates L³ when the parts of the apparatus are in the position shown in Fig. 3.

The arms a⁶ of the supplemental frame are provided with a treadle which consists of a cross-plate N, which is provided at each end with an upwardly-directed extension n, and these upwardly-directed extensions n are pivotally connected at n² with the said arms a⁶. The operation of this apparatus will be readily understood from the foregoing description when taken in connection with the accompanying drawings and the following statement thereof.

The supplemental frame, consisting of the levers a⁶, the vertically-movable plates or supports B, and parts connected therewith, fall in the operation of the device herein described by gravity; but if at any time or for any reason the downward movement of these parts is not far enough or quick enough they may be drawn downwardly by the lever C⁷, as will be readily understood.

Supposing the parts of the machine to be in the position shown in Figs. 1, 2, and 3, which is the normal position of said parts when the machine is not in operation, it being understood that the book K is not in position, the treadle N is first depressed by the foot, and this operation results in raising the vertical plates B, which support the book-carrying frame, and in the first part of this movement the said vertical plates move upwardly independently of the supplemental plate or arm C and carry with them the book-carrying frame by means of the lugs or projections k⁴, the extent of this movement of the plates B being sufficient to enable the book K to be suspended from or connected with the plate h⁹ in the book-carrying frame proper, as shown in dotted lines in Fig. 4. The extent of this movement is also determined by the length of the slots b⁹ in the extensions b⁸ at the bottom of the plates B, and when the pivot pin or bolt C² reaches the bottom of the said slots b⁹ the treadle N is further depressed, and this operation raises the plates B higher, and also the book-carrying frame, until the plate H of said book-carrying frame strikes the arm or plate b⁵, and the same movement also raises the supplemental plate or arm C, and this operation draws the inner ends of the rods d inwardly and upwardly and draws the lower ends of the levers d³ inwardly and throws the upper ends thereof outwardly, and the table-plates L³ are drawn outwardly, said table-plates being connected with the sliding bars d⁷, which are pivotally connected with the upper ends of the levers d³, and in this operation the hangers e are also drawn outwardly, together with the levers e⁵, which are pivotally connected therewith, and the outer ends of said levers strike the lugs or projections e⁷ and are disconnected from the plates f, and during this operation the ratchet-arms f⁴ are also raised by means of the arms h² of the book-carrying frame and the downwardly-di-

rected arms k⁵, secured thereto, and the pawl f⁷ passes partially over the wheel f⁶. The foot is then removed from the treadle N, and the weight of the plates B and their connected parts is sufficient to cause the same to drop slowly into the position shown in Figs. 2 and 3, and during this operation the ratchet-wheels f⁶ are turned one-quarter of a revolution and with them the plates f. In this operation the glue or paste is applied to the sides of the book by the plates f, and it will be understood that said plates cannot revolve until the locking-levers e⁵ are disconnected therefrom, and said locking-levers are intended to regulate the movement of said plates or prevent them from turning except at the proper time. In the foregoing operation the book K descends into the position shown in Fig. 3, in which it is between the plates f, and said plates come together into the position shown in Fig. 3, and the glue or paste is applied to the sides of the book, as will be readily understood, by said plates. At the same time the table-plates L³ have assumed the position shown in Fig. 3, the cover M of the book is placed in position thereon, as is also shown in the said figure. The treadle N is again depressed in the same manner as hereinbefore described, and the book-carrying frame, together with the plates B, is raised, and the book is drawn out from between the plates f until it clears the table-plates L³, and in this operation the sides of the cover drop downwardly over the sides of the book, and when the book-carrying frame is raised high enough for the book to clear the table-plates L³ the cover and book are removed together, and the cover may be pressed to the sides of the book in any desired manner or by any desired means.

The word "glue" as herein used is intended to indicate any suitable paste used in bookbinding, and it will be understood that the operation may be repeated as often as desired, and it will be apparent that many changes in and modifications of the construction of my improved machine may be made without departing from the spirit of my invention or sacrificing its advantages.

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

1. A machine for binding books, comprising an upright main frame, levers pivotally connected with the sides of the main frame, and projecting in front thereof, plates or supports connected with the rear ends of said levers and adapted to move vertically in the main frame, a glue-box mounted in said main frame, a book-carrying frame connected with said vertically-movable plates or supports, and suspended over said glue-box; transversely-movable table-plates mounted on the main frame and in operative connection with said vertically-movable plates or supports, hangers connected with said transversely-movable table-plates, revoluble plates mount-

ed in said hangers and adapted to turn in the glue-box, and means for operating said parts, substantially as shown and described.

2. A machine for binding books, said machine consisting of a main frame, levers pivotally connected with the sides of the main frame, and projecting in front thereof, vertical plates or supports connected with the rear ends of said levers, a book-carrying frame connected with said supports, transversely-movable table-plates mounted on the main frame and in operative connection with said plates or supports, hangers connected with the inner ends of said table-plates, revoluble plates connected with said hangers, means connected with said book-carrying frame for operating said revoluble plates, and a treadle connected with the front end of said levers, substantially as shown and described.
3. A machine for binding books, comprising a main frame, a glue-box mounted therein, levers pivotally connected with the sides of the main frame, and projecting in front thereof, vertically-movable plates or supports connected with the rear ends of said levers, transversely-movable table-plates mounted on said main frame and in operative connection with the lower ends of said plates or supports, a book-carrying frame adjustably mounted in said plates or supports, and projecting forwardly over the glue-box, hangers connected with the inner ends of said transversely-movable table-plates, revoluble glue-plates connected with said hangers and suspended in the said glue-box, said glue-plates being provided with shafts which pass through said hangers, ratchet-wheels mounted on said shafts, ratchet-arms also mounted on said shafts, and provided with pawls which operate in connection with said ratchet-wheels, devices connected with the book-carrying frame for operating said ratchet-arms, and means for operating said levers, substantially as shown and described.
4. A machine for binding books, comprising a main frame, levers pivotally connected with the sides thereof, and projecting forwardly of the frame, said levers being provided at their rear ends with inwardly-directed arms or extensions, vertically-movable plates or supports connected with said arms or extensions and provided at their lower ends with forwardly-directed extensions, a book-carrying frame connected with said vertically-movable plates or supports, a glue-box mounted in the main frame below said book-carrying frame, transversely-movable table-plates mounted on the main frame, upright levers connected with the outer ends thereof, and pivotally connected with the sides of the main frame, rods pivotally connected with the lower ends of said last-named levers, and extending inwardly, and in operative connection with the inwardly-directed extensions of said plates or supports, hangers connected with the inner ends of the transversely-movable table-plates, revoluble glue-plates connected

with said hangers and devices for operating said parts, substantially as shown and described.

5. A machine for binding books, comprising a main frame, levers pivotally connected with the sides thereof, and projecting forwardly of the frame, said levers being provided at their rear ends with inwardly-directed arms or extensions, vertically-movable plates or supports connected with said arms or extensions, and provided at their lower ends with forwardly-directed extensions, a book-carrying frame connected with said vertically-movable plates or supports, a glue-box mounted in the main frame below said book-carrying frame, transversely-movable table-plates mounted on the main frame, upright levers connected with the outer ends thereof, and pivotally connected with the sides of the main frame, rods pivotally connected with the lower ends of said last-named levers, and extending inwardly, and in operative connection with the inwardly-directed extensions of said plates or supports, hangers connected with the inner ends of the transversely-movable table-plates, revoluble glue-plates connected with said hangers and devices for operating said parts, the inwardly-directed extensions at the lower ends of said vertically-movable plates or supports being provided with a supplemental plate or arm with which said upright levers are connected, and said supplemental plate or arm being also in operative connection with a treadle-lever, substantially as shown and described.

6. A machine for binding books, comprising a suitable frame, a glue or paste pot mounted therein, a book-carrying frame provided with a horizontal support which projects over the glue or paste pot, and from which the book is suspended, and operative devices for applying the glue or paste to the sides of the book, substantially as shown and described.

7. In a machine for binding books a vertically-movable book-carrying frame, and transversely-movable table-plates, said table-plates being provided at their inner ends with hangers with which are connected revoluble glue-plates, a glue-box mounted in the main frame of the machine in which said revoluble plates are suspended and means for raising and lowering said book-carrying frame and revolving said glue-plates, substantially as shown and described.

8. A machine for binding books constructed as herein described, and consisting of a main frame, a glue-box mounted therein, vertically-movable plates or supports, a vertically-movable book-carrying frame connected with said plates or supports, transversely-movable table-plates mounted on the main frame, hangers connected with said table-plates and adapted to move therewith, glue-plates revolubly connected with said hangers and suspended in said glue-box, ratchet-wheels connected with the shafts of the glue-plates, op-

erative devices connected with the vertically-movable book-carrying frame, and with said ratchet-wheels, and means for operating said vertically-movable plates or supports, and said transversely-movable table-plates, substantially as shown and described.

9. A machine for binding books constructed as herein described, consisting of a main frame, levers pivotally connected with the sides of the main frame, and projecting forwardly thereof, a treadle connected with the forward ends of said levers, vertically-movable plates or supports connected with the rear ends of said levers and provided at their lower ends with forwardly-directed extensions, transversely-movable table-plates mounted on the main frame and in operative connection with the extensions at the bottom of said vertically-movable plates or supports, a glue-box mounted in the main frame, hangers connected with the inner ends of said transversely-movable table-plates, revoluble plates connected with said hangers, a vertically-movable book-carrying frame connected with said vertical plates or supports, ratchet-wheels connected with said glue-plates and devices connected with the book-carrying frame for operating said ratchet-wheels, substantially as shown and described.

10. A machine for binding books comprising a main frame, a glue-box mounted therein, transversely-movable table-plates mounted on the main frame, and provided with

hangers at their inner ends, revoluble glue-plates connected with said hangers and suspended in the glue-box, a vertically-movable book-carrying frame supported above the main frame of the machine, and means for raising and lowering said book-carrying frame and for operating said transversely-movable table-plates and for revolving said glue-plates, substantially as shown and described.

11. A machine for binding books comprising a main frame, a glue-box mounted therein, transversely-movable table-plates mounted on the main frame over said glue-box, hangers connected with the inner ends of said table-plates, revoluble glue-plates connected with said hangers and suspended in the glue-box, a vertically-movable book-carrying frame supported above the main frame of the machine, and adapted to be lowered between said glue-plates, operative devices connecting said book-carrying frame and said glue-plates, means for operating said book-carrying frame and said transversely-movable table-plates, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 1st day of July, 1897.

JACKSON McCLELLAN.

Witnesses:

C. GERST,

A. C. VAN BLARCOM.