

(No Model.)

3 Sheets—Sheet 1.

J. BOLTON.

SEWING MACHINE STAND.

No. 380,171.

Patented Mar. 27, 1888.

FIG. 4^a.

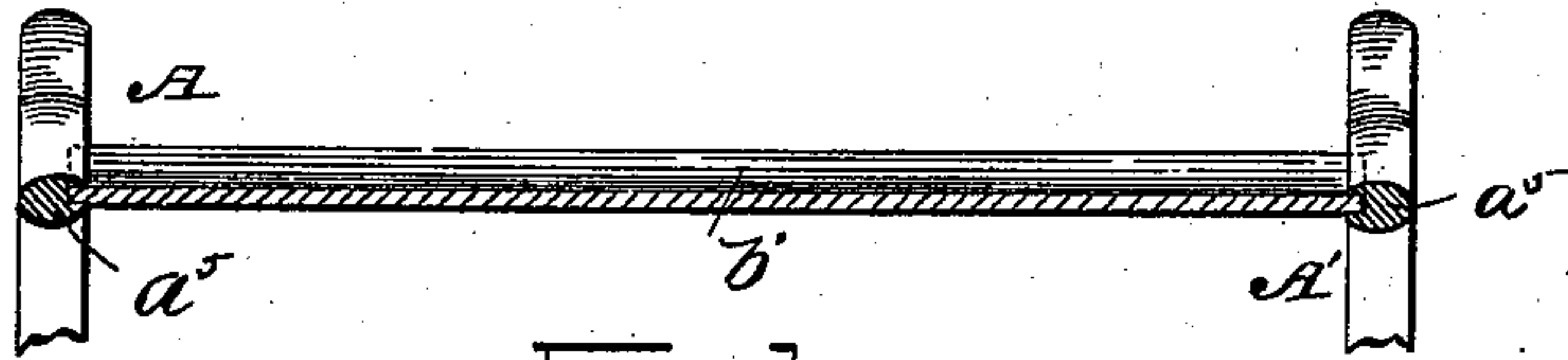


FIG. 1.

B'

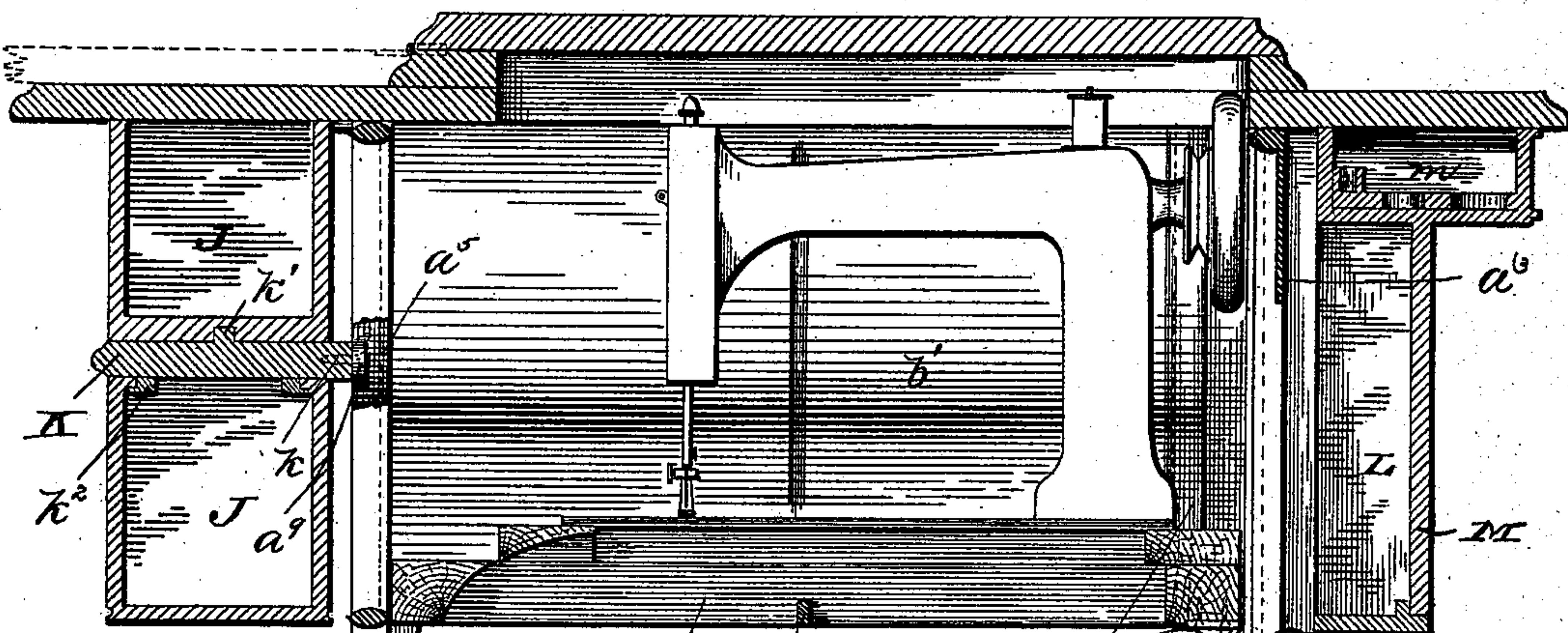


FIG. 3.

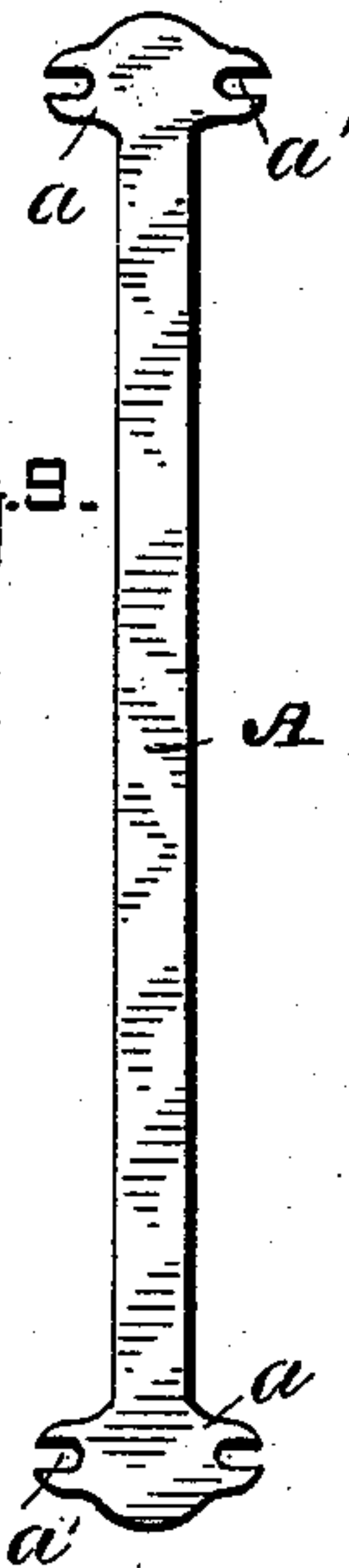


FIG. 4.

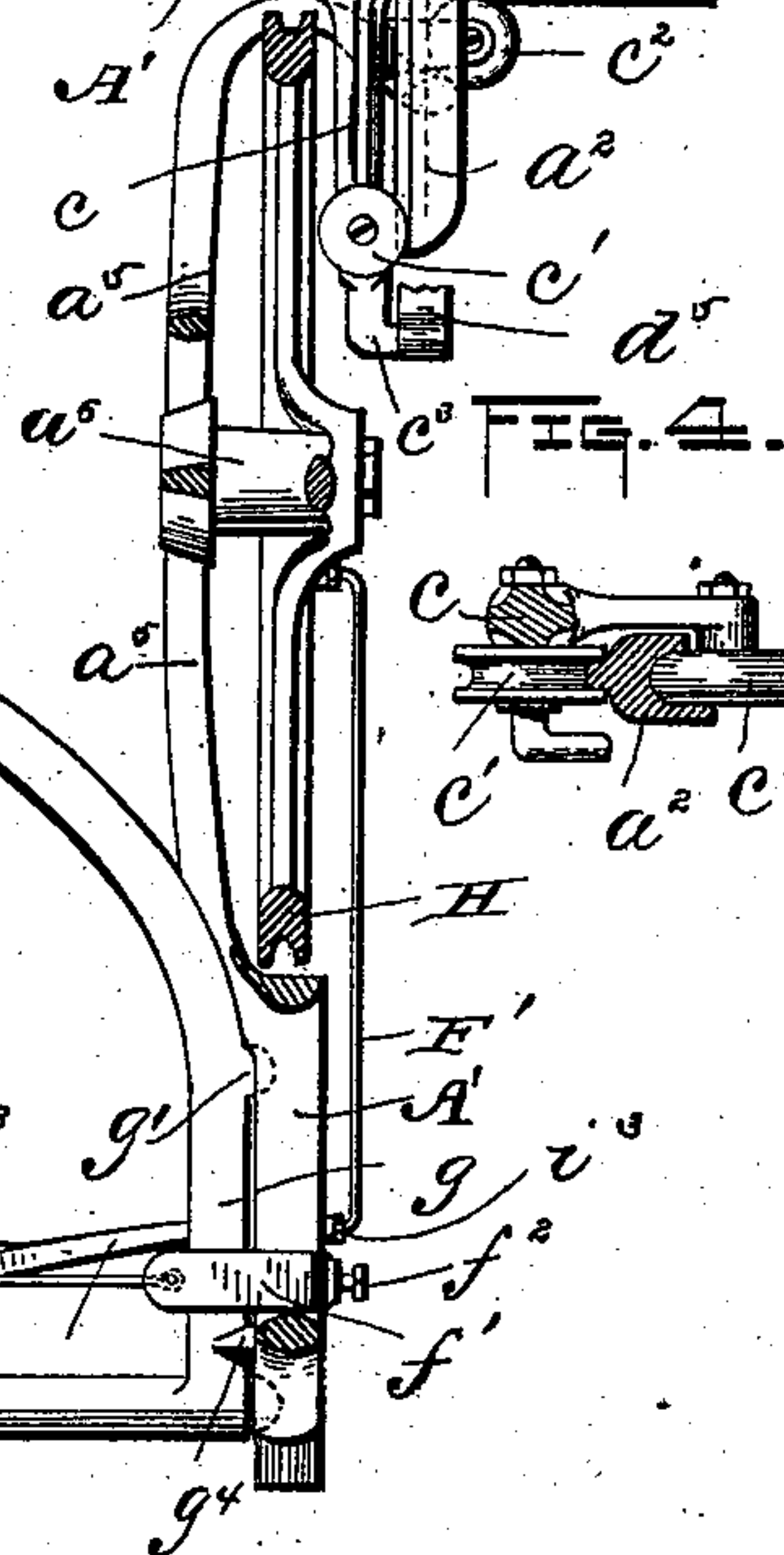
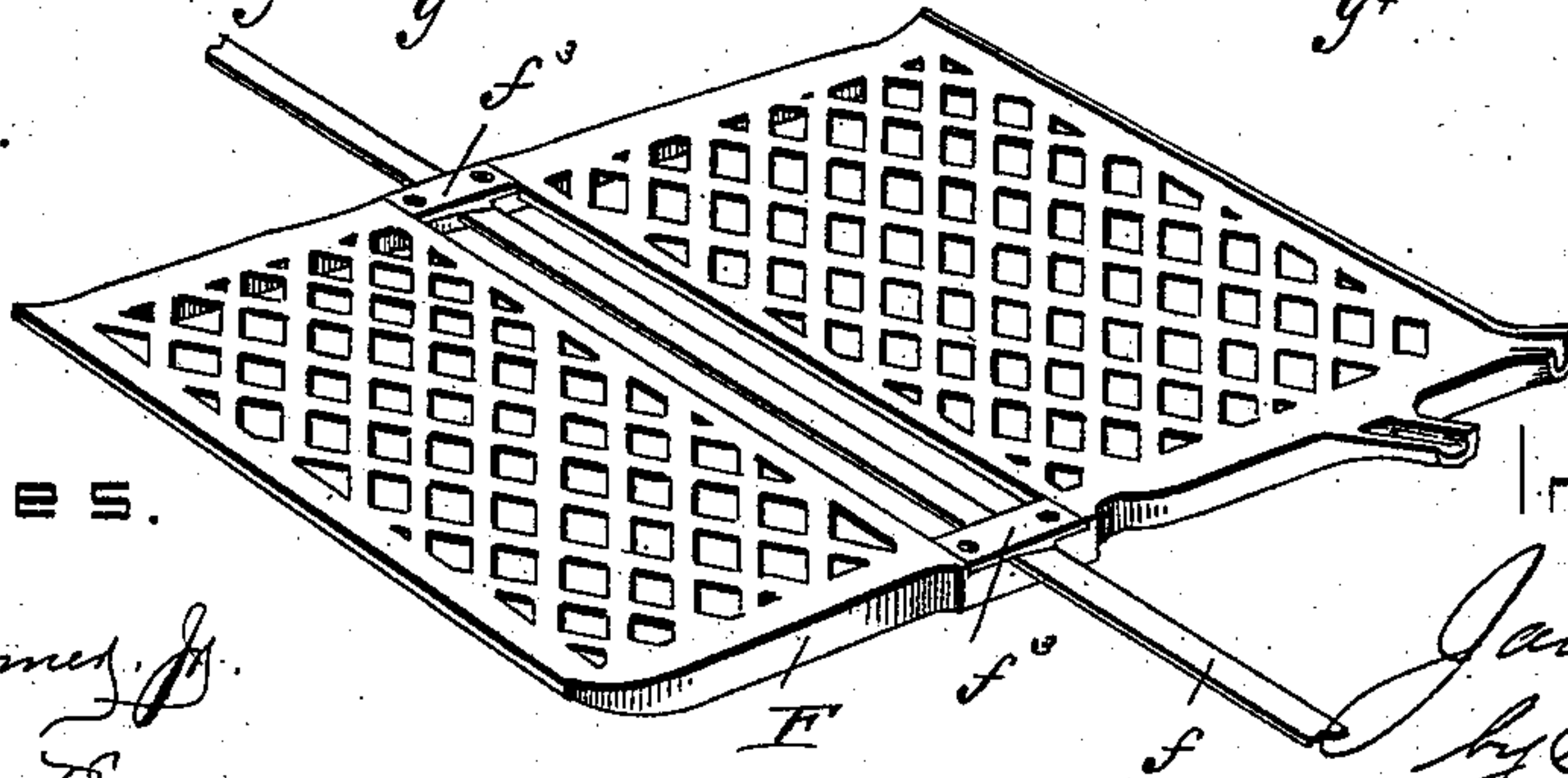


FIG. 5.



Witnesses.

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Inventor

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(No Model.)

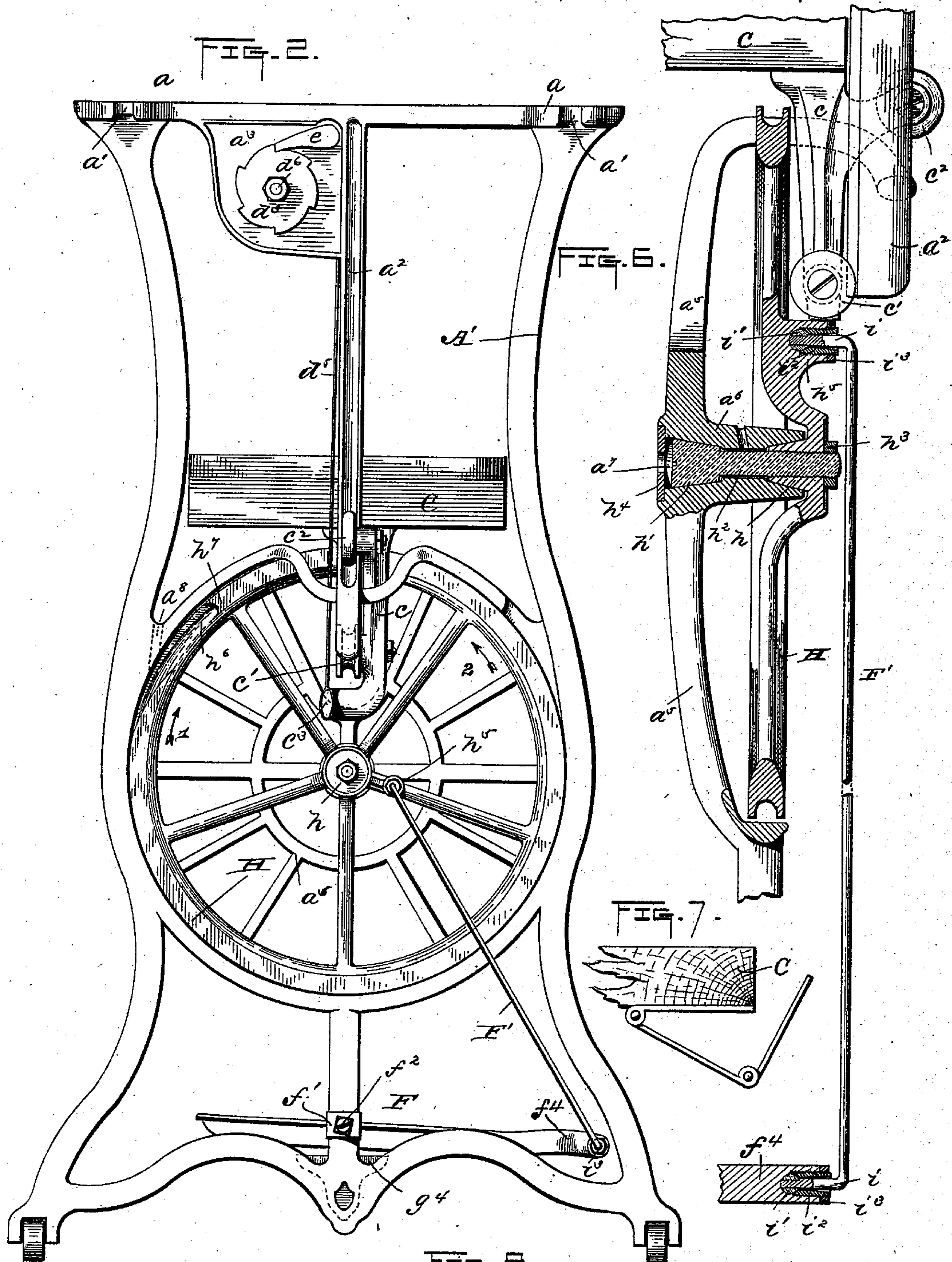
3 Sheets—Sheet 2.

J. BOLTON.

SEWING MACHINE STAND.

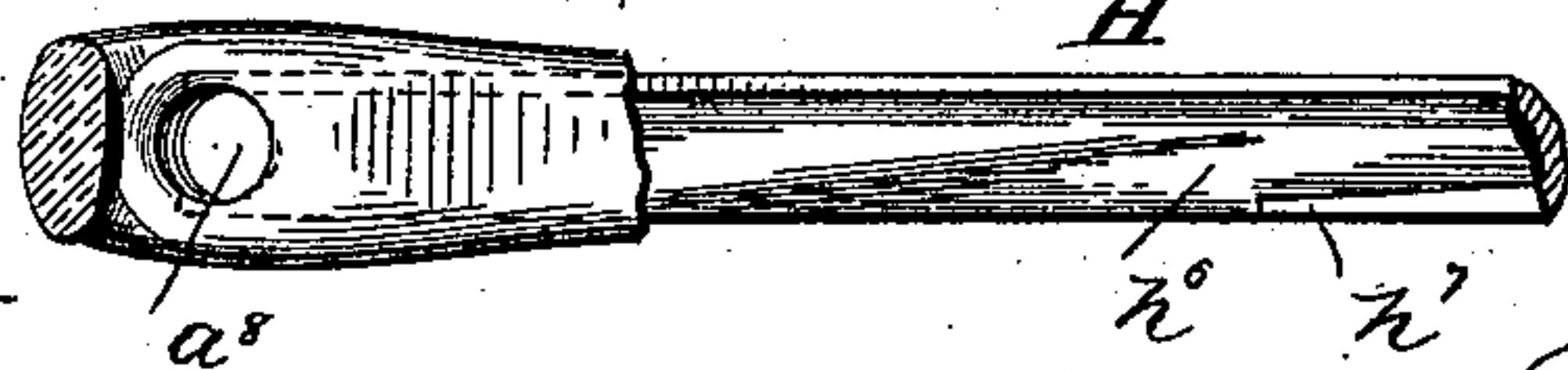
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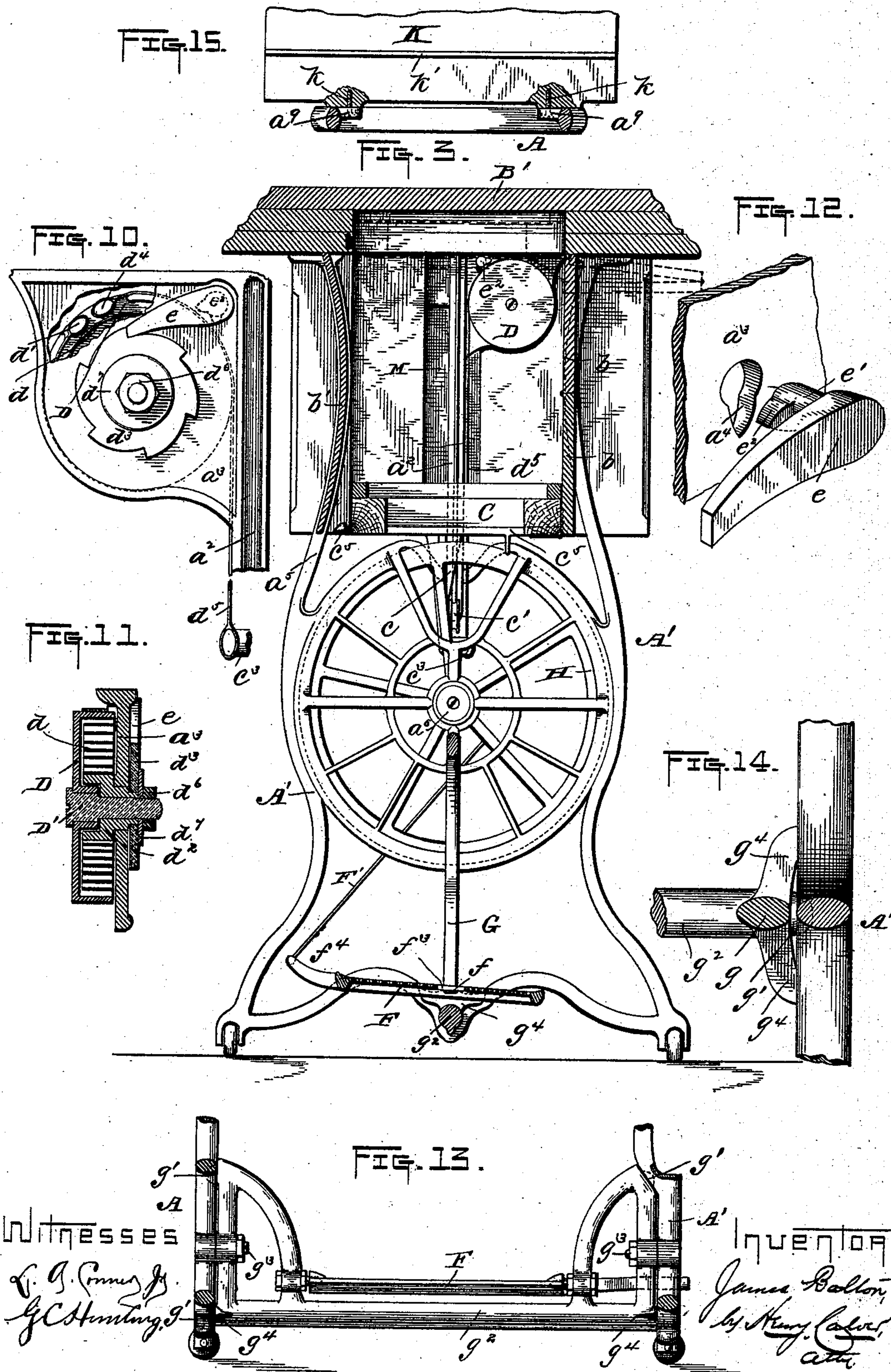
(No Model.)

3 Sheets—Sheet 3.

J. BOLTON.
SEWING MACHINE STAND.

No. 380,171.

Patented Mar. 27, 1888.



Witnesses

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UNITED STATES PATENT OFFICE.

JAMES BOLTON, OF GLEN SPEY, NEW YORK.

SEWING-MACHINE STAND.

SPECIFICATION forming part of Letters Patent No. 380,171, dated March 27, 1888.

Application filed July 1, 1887. Serial No. 243,060. (No model.)

To all whom it may concern:

Be it known that I, JAMES BOLTON, a citizen of the United States, residing at Glen Spey, in the county of Sullivan and State of New York, have invented certain new and useful Improvements in Sewing-Machine Stands, of which the following is a specification, reference being had therein to the accompanying drawings.

The object of my invention is to provide a sewing-machine stand or table which, while inexpensive to make, will be stiff, strong, durable, and convenient, and may also have the advantages of the more costly "drop cabinet-tables."

In the drawings, Figure 1 is a sectional side view of my improved stand or table. Fig. 2 is an end view, and Fig. 3 a cross-section, of the same. Fig. 4 is a detail view of the guide-rollers for the movable support for the machine, showing also the vertical guide-bar in section. Fig. 4^a is a horizontal section of the back panel and the grooved bars of the side frames of the stand by which the side panel is held. Fig. 5 is a perspective view of the treadle and the torsion-spring by which it is supported. Fig. 6 is a detail sectional view of the driving-wheel and adjacent parts. Fig. 7 is a detail view showing one of the hinges connecting the lower folding leaf to the movable machine-support. Fig. 8 is a detail view showing the switch-groove in the driving-wheel and the belt-guide in the side frame of the stand. Fig. 9 is a top view of one of the legs or side frames. Figs. 10 and 11 are detail views of the balancing-spring and co-operating parts. Fig. 12 is a detail perspective view to show the holding-pawl for the balancing-spring and its retaining-plate. Fig. 13 shows a modified form of the base of the stand, and Fig. 14 is a detail horizontal section near the base of one of the legs.

A and A' denote the iron legs or side frames of the stand, and B the table. The tops of the said legs are provided with ears *a*, in which are cast open notches *a'*, for the reception of the screws by which the table and legs are secured together.

C is a vertically-movable support for the "head" or sewing-machine proper. The support C, which is preferably of wood, is provided with a metallic bracket, *c*, having two

guide-rollers, *c'* and *c''*, in different horizontal planes, the said rollers engaging opposite sides of a vertical supporting-bar, *a''*, preferably cast integral with the leg or side frame A'. To economize space and to steady the guide-rollers *c'* and *c''* as strongly as possible, I prefer to form the said bar *a''* with a groove on one side and with a rib on the other side, one of the said rollers fitting in the said groove and the other being grooved to embrace the said rib, as shown in Fig. 4. By placing the guide-rollers one above the other they are better able to resist the side strain incidental to sustaining the movable support C and the machine thereon entirely at one end.

The support C and the machine resting thereon are balanced by a volute spring, *d*, within a rotary box, D, turning on the pin D', passing through a plate, *a''*, cast integral with the leg A', one end of the spring being attached to a lug, *d'*, on the said box and the other end thereof to the stationary hub *d''*, which is squared for the reception of a ratchet-wheel, *d'''*, engaged by a holding-pawl, *e*, to prevent the spring *d* from unwinding. The pivot-pin *e'* is preferably cast integral with the pawl and is provided at its end with a lug, *e''*. The plate *a''* is provided with a notched hole, *a'''*, (see Fig. 12,) the notch of the said hole permitting the lug *e''* to pass through the said plate. When the pawl is in operative position, as shown in Fig. 10, the lug is turned upward away from the notch of the hole *a'''*, and thus serves to retain the pawl in place. As the notched hole *a'''* is formed in casting, it will be apparent that the pawl is ready for use as it comes from the foundry without fitting or without drilling the plate *a''* for its reception.

The pin D' is held in place by a nut, *d''*, between which and the end of the hub *d''* is interposed a washer, *d'''*. When the said nut has been tightened against the washer, the said hub *d''* may be turned to increase the stress of the spring *d* by means of a wrench applied to the said nut, and the stress of the said spring may be lessened by disengaging the pawl *e* from the ratchet-wheel *d'''* and permitting the spring to partially rotate the hub in which the said wheel is mounted and to which said spring is attached.

The box D has a lug, *d''*, to which is attached one end of a steel ribbon or strap, *d'''*, connected

at its other end to a lug, c^3 , on the bracket c , and thus the force of the spring d is communicated to the said bracket and to the machine-support C, to which the said bracket is attached. The strap d^5 runs on the periphery of the rotary box D, which is preferably large enough so that its circumference is equal to or greater than the distance which the machine support or platform C will be raised and lowered in housing the machine below the table of the stand or lifting it to its operative position, so that only a single revolution (or somewhat less) of the said box will be made in raising or lowering the machine. The volute spring d is long enough to have a large number of convolutions within the box D, so that the force or tension of the said spring will not be appreciably changed by but a single revolution of the said box, and thus the machine-support and machine, whatever may be their horizontal positions, will always be evenly balanced by the said spring when the latter has once been adjusted so as to have a proper tension for this purpose. Thus, as but a single revolution (or less) of the box D will be made in raising or lowering the machine, and as the force or tension of the spring is not appreciably changed by the comparatively slight winding or unwinding of the spring incidental to this single revolution of the said box, the strap d^5 may be run on the periphery of the latter, and a scroll or conical drum, such as is shown by my patent, No. 298,277, for the strap or connecting cord or chain to run on will not be required. In the device shown by my said patent the rotary box in which the volute spring was contained made several revolutions in raising or lowering the machine, and the scroll or conical drum was required to compensate in leverage for the great variation in the tension of the spring. The said scroll or conical drum is objectionable, for the reason that it occupies too much room and is not neat and compact like my present device, and also owing to the fact that the strap or cord in winding or unwinding has a lateral traverse, which requires considerable room, and these objections are avoided by my present invention, in which the spring-containing box has but a single revolution, (or less,) and in which the strap runs on the periphery of the box, thus affording a compact arrangement of parts.

It will be observed that the lugs d' and d^4 project laterally from the side plate of the rotary box D, and that the volute spring d and the strap or steel ribbon d^5 are both provided with loops to surround the said lugs, and thus these parts may be attached to or detached from the said box D simply by slipping the said loops on or off the said lugs, thereby avoiding the inconvenience incidental to connecting these parts by rivets, screws, or otherwise, as heretofore.

To form a housing for the machine beneath the table B, I provide on the front side of the machine (or the side thereof on which the operator sits) two leaves, $b b$, which are hinged

together, the upper one of the said leaves being also hinged to the under side of the table and the lower one thereof to the support C, the connection between the lower leaf and the said support being made by a double hinge, as shown in detail in Fig. 7. When the machine is dropped within the stand, as in Fig. 1, the leaves $b b$ are in the position shown in full lines in Fig. 3; but when the machine is raised to the top of the table for operation the said leaves fold up, as shown in dotted lines, Fig. 3, and are thus out of the way of the knees of the operator.

The back wall of the housing for the machine within the stand is preferably formed by a panel, b' , held in place by being let into grooves in the back bars, a^5 , of the legs or side frames, A and A', as shown by the sectional view, Fig. 9. As these grooves are formed in casting, it will be obvious that this construction is both cheap and convenient.

The top of the housing for the machine within the stand is formed by the hinged cover B', which, when the machine is to be raised, is folded over, as shown by dotted lines, Fig. 1, to form an extension for the table, as is usually done by an ordinary "drop-leaf."

The machine-support C is provided with an ordinary spring-latch, c^5 , to engage the table B, and thus lock the support in place when it has been raised or lifted up by the operator to bring the machine into operative position.

The sewing-machine head or machine proper is attached to the support C in any suitable manner, and to raise the machine and its attached support the operator merely takes hold of the bracket-arm of the machine and lifts gently, and as the weight of the machine and support is balanced by the spring d the machine is easily raised.

The treadle F is preferably mounted on a steel band or torsion-spring, f , connected to loops f' , embracing the central standards of the legs or side frames, A and A', said loops also surrounding the uprights g of the arched brace G, each of the said uprights having two lugs or projections, g' , (see dotted lines, Fig. 1,) which are let into recesses in the side frames, the lower projections being at the ends of the cross-bar g^2 . By this construction the spring, in addition to a support for the treadle, is also adapted to serve as a tie for the lower part of the stand, the said spring and loops being held in place by a single set-screw, f^2 , which, when properly tightened, holds the bottom of the stand securely together. As the loops f' are between the projections g' , the legs or side frames will be strongly braced, and will thus make the stand very stiff without requiring the larger cross-braces generally in use. As the recesses for the reception of the projections g' are cast in the side frames, it will be apparent this construction is cheap as well as convenient.

The treadle is preferably hung to the spring f by small plates f^3 , (see Fig. 5,) which hold the spring in recesses in the treadle. As the

treadle is rocked, the spring twists slightly, the torsional effect of the spring normally bringing the treadle to such a position that the pitman F', connecting the treadle to the driving-wheel H, will be off the dead-center, so that the machine will always be ready to be started by the treadle alone, thereby obviating the necessity of making the driving-wheel heavier on one side than the other to cause the wheel to normally assume a certain position.

In the modification shown in Fig. 13 the treadle F is hung on center screws, f^5 , passing through braces G', extending from the cross-bar g^2 to the tops of the uprights g , the said uprights being secured to the side frames by bolts g^3 between the projections g' . This construction resembles that shown by Fig. 1, in that the cross-bar is adapted to securely brace the stand by being provided with braced uprights which have two bearings at the projections g' against the central bars of the side frames, and which are connected to the said central bars between the said bearings or projections by the bolts g^3 .

The bracing effect of the uprights g is further augmented by horizontal lugs or projections g^4 , which brace the side frames or legs against a tendency to twist, these lugs being more clearly shown in the horizontal sectional detail, Fig. 14.

The side frame or leg A' is provided with a dress-guard, consisting of the inwardly-curved arms a^5 , converging to form a hub, a^6 , which serves as a bearing for the journal of the driving-wheel H. I form a compensating journal for the said wheel by providing the hub a^6 with conical recesses, in which fit a conical hub, h , of the driving-wheel and a conical head, h' , of a journal-bolt, h^2 , which is threaded at one end and attached to the said wheel by a set-nut, h^3 . The conical recess a^7 , in which the head h' fits, is preferably somewhat deeper than the said head, and is partly covered by a washer, h^4 , so as to serve as a pocket to retain the oil by which the journal-pin is lubricated, and thus keep the oil from soiling the dress of the operator.

The pitman F' has ball-and-socket connections with the driving-wheel H and the treadle F, these connections being made by providing the right-angular end portions i of the said pitman with balls i' , which are riveted to the said end portions, said balls fitting in concave sockets in the projection h^5 on the wheel and the arm f^4 on the treadle. The balls are held in their sockets by hollow screws i^2 , through which the end portions of the pitman loosely pass, the said screws being secured by set-nuts i^3 . By connecting the pitman with the driving-wheel in the manner above described side-thrust on the said wheel is largely avoided, the ball which is at the point of connection between the pitman and wheel being inside of the line of the outer end of the hub of the wheel. The compensating journal of the wheel per-

mits all wear at this point to be taken up, as will be obvious.

The wheel H is provided with an inclined cut-away portion, h^6 , (see Fig. 8,) which will permit the belt to run off from the wheel when the latter is turned backward or in the direction indicated by the arrow 1, Fig. 2, and the said wheel is also provided with a belt-replacing device, consisting in the present instance of a hook, h^7 , which does not extend beyond the circle or periphery of the wheel and is also within the vertical plane thereof, so as not to project laterally or horizontally beyond the said wheel, and which, in connection with the inclosed belt guide or hole a^8 in the side frame or leg A', will automatically take up the belt and run it on to the wheel when the latter is revolved in the direction indicated by the arrow 2, Fig. 2, the said inclosed belt guide or hole preventing the loosely-hanging belt from escaping out of the reach of the said replacing-hook.

The side drawers, J, of the stand are preferably supported by shelves, as K, attached to the legs or side frames by screws k , passing through perforated ears a^9 on the said legs into the said shelves. By providing the shelf K on its upper side with a longitudinal rib, k' , (adapted to enter a groove in the lower face of the drawer,) and with undercut ribs k^2 , to engage longitudinal overhanging lips at the top of the inside of the lower drawer, the said shelf is adapted to support and guide either one or two drawers, or two such shelves will answer for either two or three drawers. Thus by this construction an agent can at short notice equip a stand with any desired number of drawers, and thus furnish such a stand as a purchaser may wish without being obliged to carry a large stock of stands or tables of different styles, as is now customary.

My stand may be provided with side drawers at each end, if desired; but I prefer to provide the right-hand end thereof with a cupboard, L, closed by a horizontally-swinging door, M, at the top of which is a receptacle, m , for bobbins, spools of thread, &c. The cupboard L serves as a housing for the supporting-bar a^2 and the spring-containing box D, and is preferably of proper size to contain battery-cells in case it may be desired to drive the machine by an electric motor.

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

1. The combination, with a sewing-machine stand having a vertical supporting-bar, as a^2 , of a vertically-movable support for the sewing-machine, having a bracket provided with guide-rollers arranged on opposite sides of the said bar, substantially as set forth.

2. The combination, with a sewing-machine stand having a vertical supporting-bar, a^2 , of a vertically-movable support for the machine, provided with a bracket having guide-rollers arranged on opposite sides of the said bar and one above the other, substantially as set forth.

3. The combination, with the guide-bar a^2 , having a groove in one side and a rib on the other side, of the machine-support having a bracket provided with two guide-rollers, one of which is rounded to fit in said groove and the other of which is grooved to embrace said rib, substantially as set forth.

4. The combination, with the vertically-movable machine-support C, having the bracket c , of the rotary box D, having the laterally-projecting lugs d' and d^t , a stationary hub within the said box, a volute-spring attached to the said hub and having a loop to surround the said lug d' , and the strap d^b , attached to the said bracket and having a loop to surround the said lug d^t , substantially as set forth.

5. The combination, with the side frames or legs, A and A', of the braced cross-bar g^2 at the base of the stand, having uprights g , each having two bearings, as lugs or projections g' , against the said side frames, and connections between said bearings to hold the said uprights and side frames together, substantially as set forth.

6. The combination, with the side frames or legs, A and A', of the cross-bar g^2 at the base of the stand, having the uprights g , each having two projections, g' , the arched brace G, and connections between said projections to hold the said uprights to the side frames to brace the latter, substantially as set forth.

7. The combination, with the side frames, A and A', of the braced cross-bar g^2 at the base of the stand, having the uprights g , provided with the projections g' , extending into recesses in the said frames, and the horizontal bracing projections g^t , substantially as set forth.

8. The combination, with a leg or side frame

of a sewing-machine table, of a drawer-supporting shelf having a longitudinal guiding-rib on its upper side and two recessed or undercut guiding-ribs on its under side, whereby the said shelf is adapted to support and guide either one or two drawers, as desired, substantially as set forth.

9. The combination, with the leg or side frame of a sewing-machine table having perforated ears, as a^3 , of a drawer-supporting shelf attached to the said ears and having a longitudinal guiding-rib on its upper side and two undercut guiding-ribs on its under side, and two drawers, one of which has a longitudinal guiding-groove in its bottom and the other of which has at its upper side two longitudinal overhanging lips to engage said undercut ribs, substantially as set forth.

10. The combination, with the vertically-movable platform or machine-support C, of the rotary box D, having a circumference equal to or greater than the distance which the said support is to be raised and lowered, a stationary hub within the said box, a volute spring, also within the said box and attached to the latter and to the said hub, and a strap running on the periphery of the said box and connected thereto and with the said movable support, whereby only a single revolution (or less) of the said box will be required in raising or lowering the machine, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES BOLTON.

Witnesses:

HENRY CALVER,
J. S. BARKER.