

No. 749,787.

PATENTED JAN. 19, 1904.

W. GROTHE.
DROP TABLE FOR SEWING MACHINES.

APPLICATION FILED MAR. 8, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1,

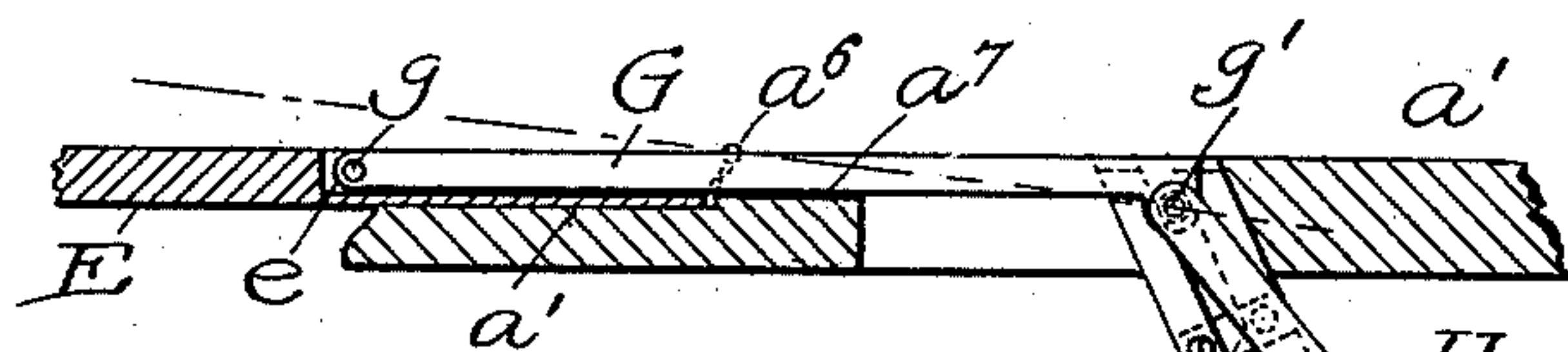
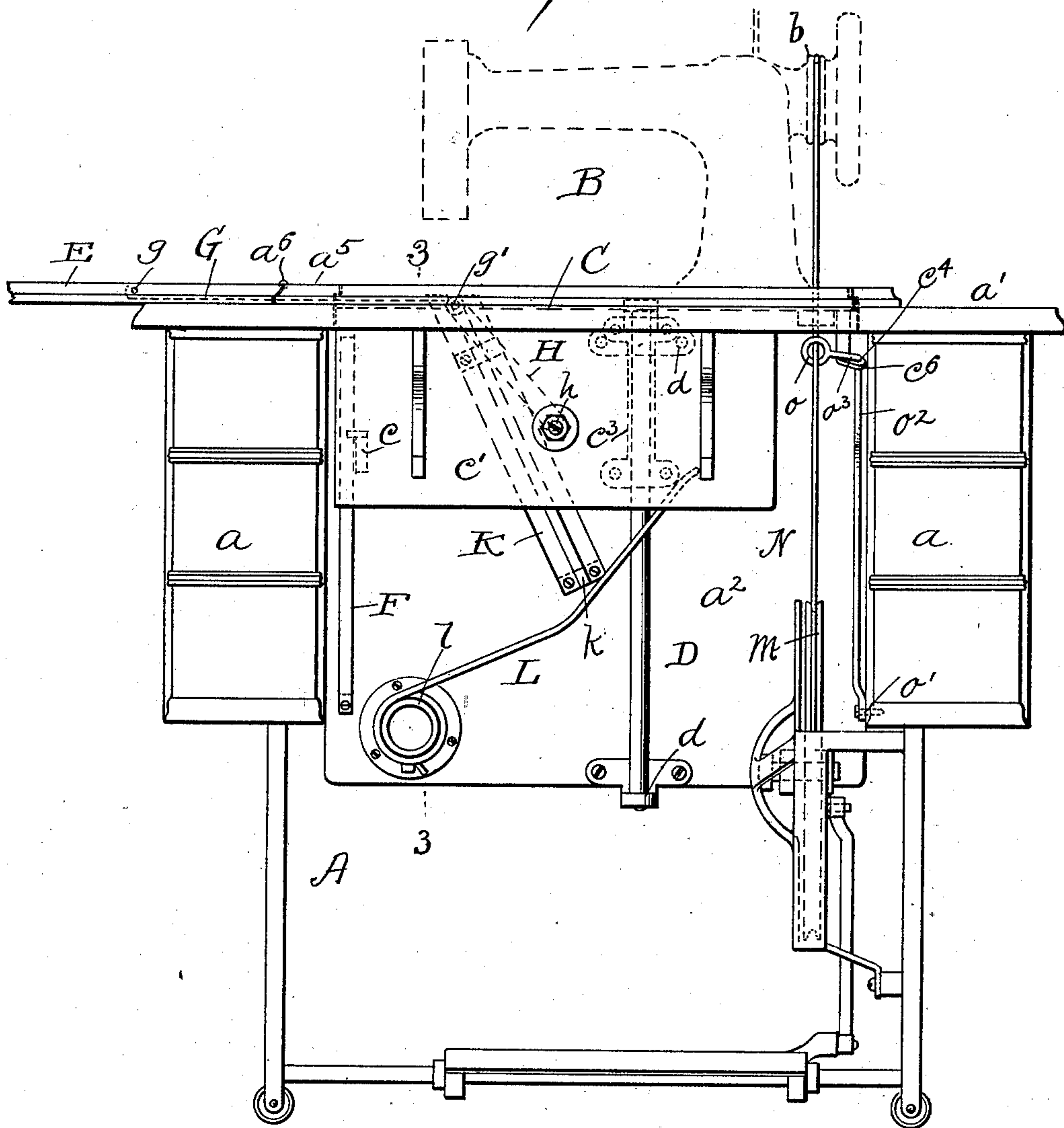


Fig. 2,

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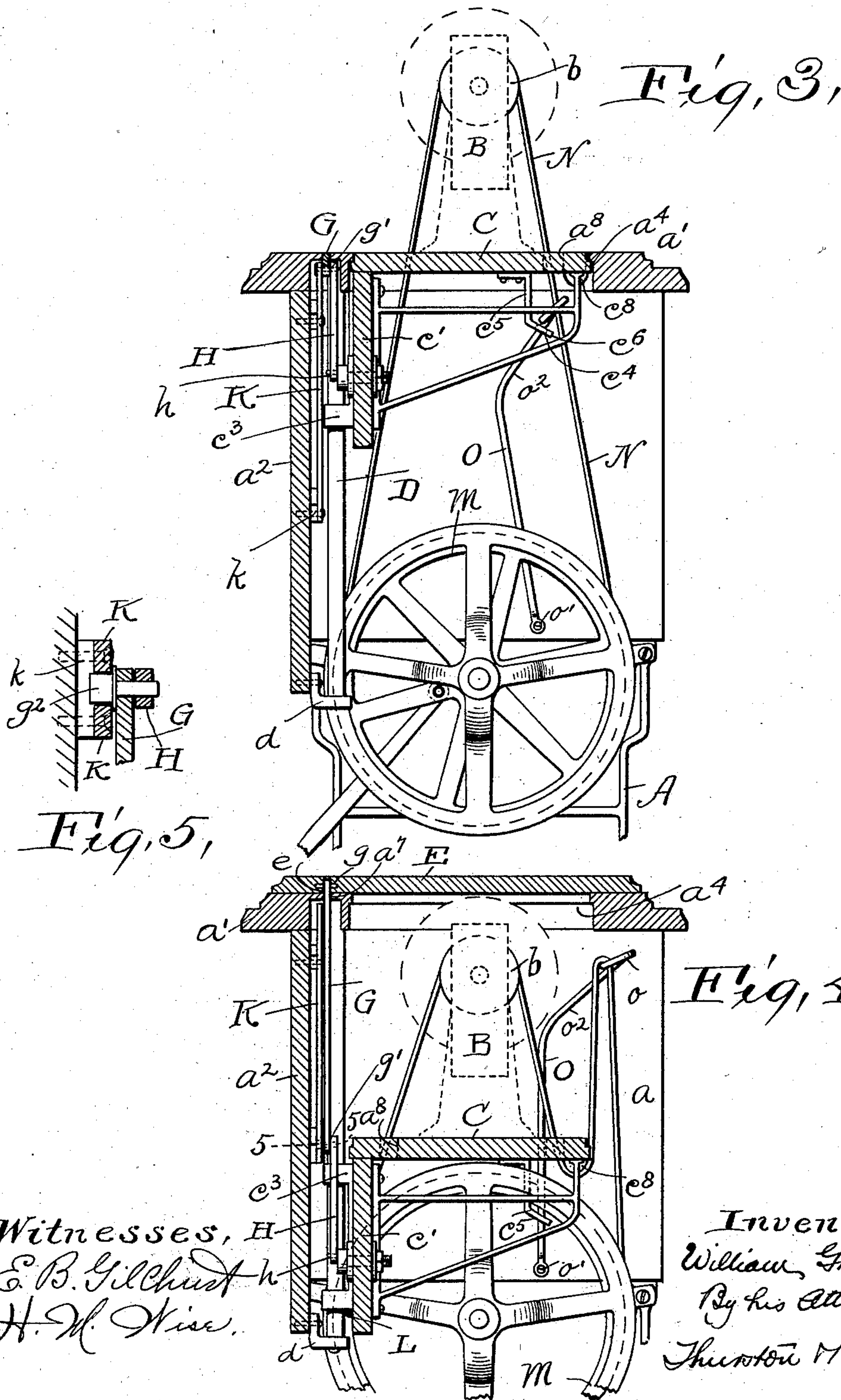
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Witnesses, H.
E. B. Gilchrist
H. M. Wise.

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UNITED STATES PATENT OFFICE.

WILLIAM GROTHE, OF CLEVELAND, OHIO, ASSIGNOR TO THE WHITE SEWING MACHINE COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

DROP-TABLE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 749,787, dated January 19, 1904.

Application filed March 8, 1902. Serial No. 97,237. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM GROTHE, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Drop-Tables for Sewing-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

The invention relates to so-called "drop-tables" for sewing-machines—that is to say, tables by which the machine-head may be firmly supported in operative position at the level of the table-top or may be lowered through the table-top to a position below the same and the hole in the table-top covered.

The object of the invention is to provide a drop-table which may be easily operated to move mechanism into either of these two positions it is intended to occupy and in which said mechanism will be firmly held against accidental displacement in its raised position; and another object of the invention is to maintain an operative connection of the driving-belt with the two sheaves which it connects during said movements of the head.

The invention consists in a certain construction and combination of parts to be more fully described hereinafter and definitely set forth in the claims.

In the drawings, which fully illustrate my invention, Figure 1 represents in front elevation a machine embodying my invention. Fig. 2 represents a vertical longitudinal section of a portion of the table-top and hinged cover, showing portions of the mechanism for raising and lowering the head which will be more fully referred to hereinafter. Fig. 3 is a transverse vertical section on line 3 3 of Fig. 1. In this figure and in Fig. 1 the parts are represented in the position which they assume when the sewing-machine is ready to be used. Fig. 4 represents a vertical section similar to Fig. 3, but showing the parts in the relation which they assume when the mechanism has been de-

pressed; and Fig. 5 represents a detail section, on an enlarged scale, taken on the line 5 5 of Fig. 4.

Referring to the parts by letters, A represents a sewing-machine frame of common construction supporting the usual cases *a* for drawers and surmounted, as shown, by a table or rigid top *a'*. This top is provided with an opening *a''*, in which a drop-shelf C may fit, and this shelf constitutes a support for the machine-head B. A vertical guide-post D, preferably secured to a backboard *a''*, which is a rigid part of the frame, by brackets *d*, affords means for guiding the shelf C in its vertical movements, a cooperating guide-sleeve *c'* being fastened to the rigid back *c'* of the shelf for this purpose, as indicated. A vertical guide-strip F is also provided, which may also be secured at the backboard *a''*, and a finger *e*, secured to the back *c'*, engages the same, as shown, and thereby the guide-sleeve *c'* is prevented from turning on the post D. A cover E is hinged at *a''* to the elevated edge *a''* of the table-top *a'*, which top projects well beyond this point, so as to form a substantial support for this cover when open. Near the rear edge of the hinged cover E a link G is pivoted, as at *g*. The cover E and the table-top may be recessed, as at *e* and *a''*, as shown, so that the top surface link may not project above their upper surfaces. This link G is pivoted at *g'* to another link H, which is pivoted, as shown, at *h*, to the rigid back *c'* of the aforesaid shelf C. The pivot *g'*, already referred to as connecting the links G and H, projects beyond the link G and may be provided with a friction-roller *g''*, which lies between fixed guide-strips K. These guide-strips are inclined and are preferably secured to the aforesaid back *a''*, as clearly shown in detail in Figs. 2 and 5. Now when the cover E is moved about its hinge-joint from the position shown in Fig. 1 the link G is moved so that its inner extremity is guided downwardly by the guide-strips K, between which the small roller *g''* slides. As this move-

ment takes place, however, the link H will be itself pushed downwardly and will operate to depress the shelf C to the position substantially as shown in Fig. 4. A suitable spring L, whose inner end is coiled spirally about a suitable base-plate I, is adapted to engage with the aforesaid guide c^3 , wherefore the shelf and all the parts supported upon the same are constrained with greater or less force toward the position shown in Figs. 1 and 3, and of course when the shelf is depressed the spring is put under considerable tension and exerts its greatest effect in initiating the upward movement of said support C. This spring is not shown in Figs. 3 and 4 for the sake of clearness.

Motion is transmitted from the treadle-driven sheave M to the sheave b of the head by a belt N. The lowering of the head loosens this belt, which would thereupon be liable to disengage one or both of said sheaves. To prevent this and to maintain the operative connection, so that when the head is raised the machine may be used without having to replace the belt, suitable mechanism is provided, which will now be explained. The two legs of the belt pass through holes in the shelf C. At a point just beneath the shelf this belt N passes through the eye o in the upper end of a lever O, the lower extremity of which is pivoted at o' to the case a . The body of this lever lies beyond the edge of the shelf C, so as not to obstruct its descent; but its upper portion is bent forward, as at o^2 . The extreme upper end of this lever is bent laterally inward, as at o^3 , so that the eye o at the upper end of said lever is in such position, as shown, that one leg of the belt passes through it. A bracket c^5 is attached, as shown in Fig. 3, to the lower side of the shelf C, and its lower extremity is offset, as shown at c^6 , and provided with an eye c^4 , through which the aforesaid lever O passes. Now when the shelf C is lowered this guide-bracket c^5 moves downwardly along the portion o^2 of the lever and swings the lever O forwardly out of the path of said shelf. As this takes place, however, the belt which passes, it will be remembered, through the eye o is carried forwardly, thereby forming a loop, the lower portion of which is engaged by a curved block c^8 on the under side of the shelf C, and thereby drawn downward, while the upper end of said loop is held up by the lever O. This action holds the belt sufficiently taut and takes up the slack incident to lowering the head to an extent sufficient to prevent the belt from disengaging either sheave. This condition of the belt is maintained when the shelf C is moving upward and the lever O is drawn backward to its original position by the guide-bracket c^5 and the belt is in operative position for transmitting motion from sheave M to sheave b . The position of the belt when the head is lowered is shown in Fig. 4.

The cover E will when closed lie directly over the opening a^4 in the table-top, covering the same. It will also be observed that when the cover is open the hinge-axis is above a line joining the axis of the pivots g and g' , wherefore any downward pressure on the shelf C exerts a force tending to draw the cover more closely against the extension of the table-top. The shelf C is therefore locked against depression except by the positive turning of the cover on its hinge.

What I claim is—

1. In a sewing-machine, in combination, a table having an opening therein, a shelf adapted to form a support for the head, and adapted also to lie within said opening, a cover hinged to the top and adapted to fold over said opening, said table extending outwardly beyond the inner edge of said cover, wherefore it forms a support for said cover when the same is open, a link pivoted to said cover, another link pivoted to said first-named link, and pivotally connected with the said shelf, the hinge of the cover being placed substantially as described above the pivots at the ends of the first-named link when the cover is open, means for guiding said links at their point of connection, and means for guiding said shelf vertically up and down, substantially as and for the purpose specified.

2. In a sewing-machine, in combination, a table having an opening through its top, a shelf adapted to close said opening when in its most elevated position, a vertical cylindrical guide-post, a vertical guide-bar, a sleeve secured to the said shelf and sliding upon said post, a finger secured to the shelf and engaging said guide-bar, a hinged cover, a link pivoted thereto at its outer end, another link pivoted to said shelf and to the inner end of the first-named link, and inclined guide-strips between which the last-named pivot slides, substantially as and for the purpose specified.

3. In a sewing-machine, in combination, a table having an opening therein, a vertically-movable support for the head, a hinged cover which may close said opening, means connecting said cover and support whereby said support is raised and lowered by the movement of said cover, a bent pivoted lever having in its upper end an eye which normally lies beneath said support, and through which the belt passes, and a bracket secured to the support and having an eye through which said bent lever passes, substantially as and for the purpose specified.

4. In a sewing-machine, in combination, a movable support for the head thereof, a driving-belt, means for depressing said support, a pivoted bent member, the body whereof lies outside of the path of said support, said member having an extremity which projects beneath said support and is adapted to engage

said belt adjacent thereto, means carried by
said support for engaging with said member,
said member being bent in the plane in which
it is pivoted wherefore it is moved when said
5 support descends so that its extremity passes
out of the path of said support, substantially
as and for the purpose specified.

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

WILLIAM GROTHE.

Witnesses:

E. B. GILCHRIST,
E. L. THURSTON.