

No. 730,680.

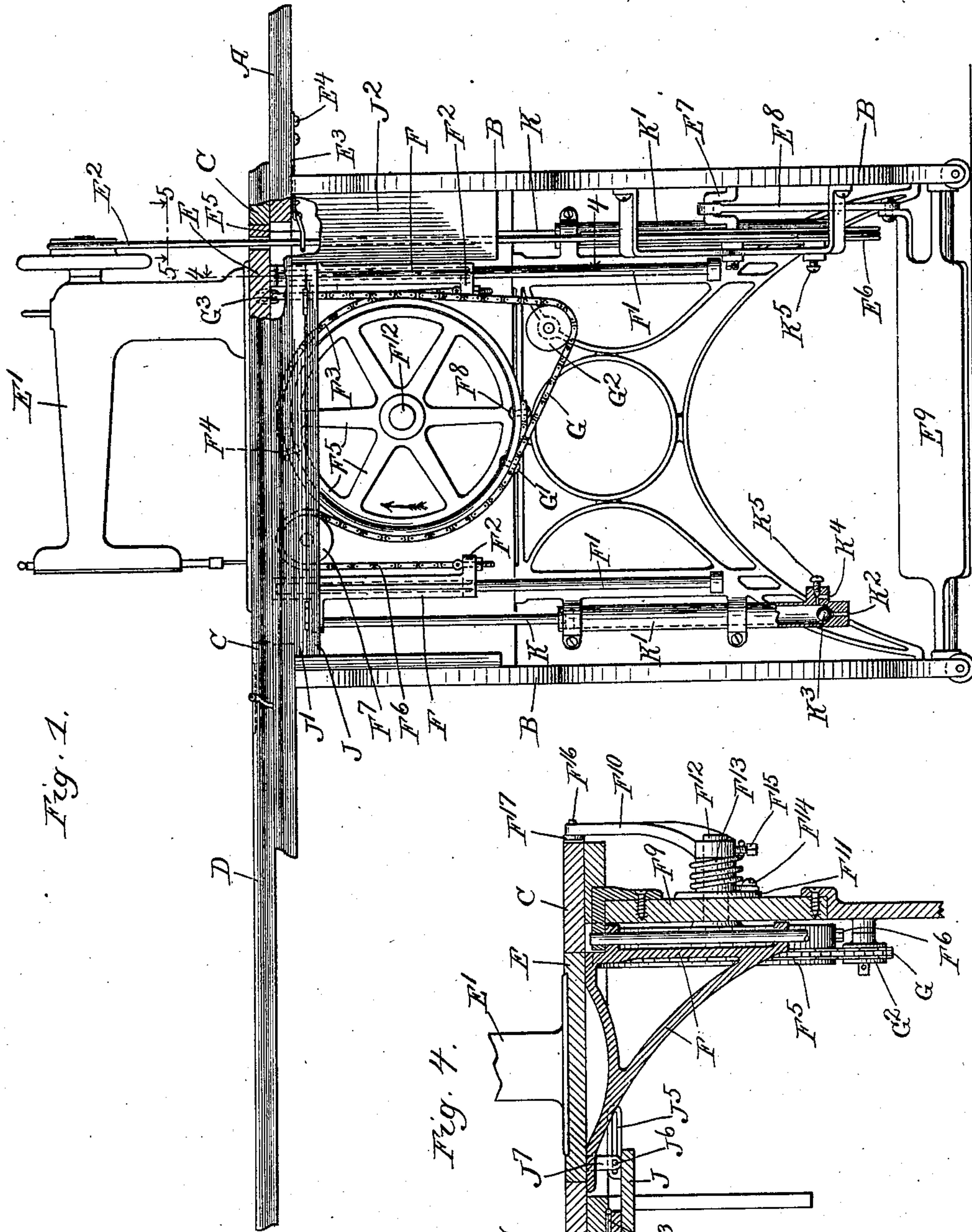
PATENTED JUNE 9, 1903.

A. MORLEY.
FOLDING SEWING MACHINE TABLE.

APPLICATION FILED FEB. 25, 1901.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses,
Edward T. Wray,
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Inventor.
Albert Morley,
by Parker Carter
his Atty's

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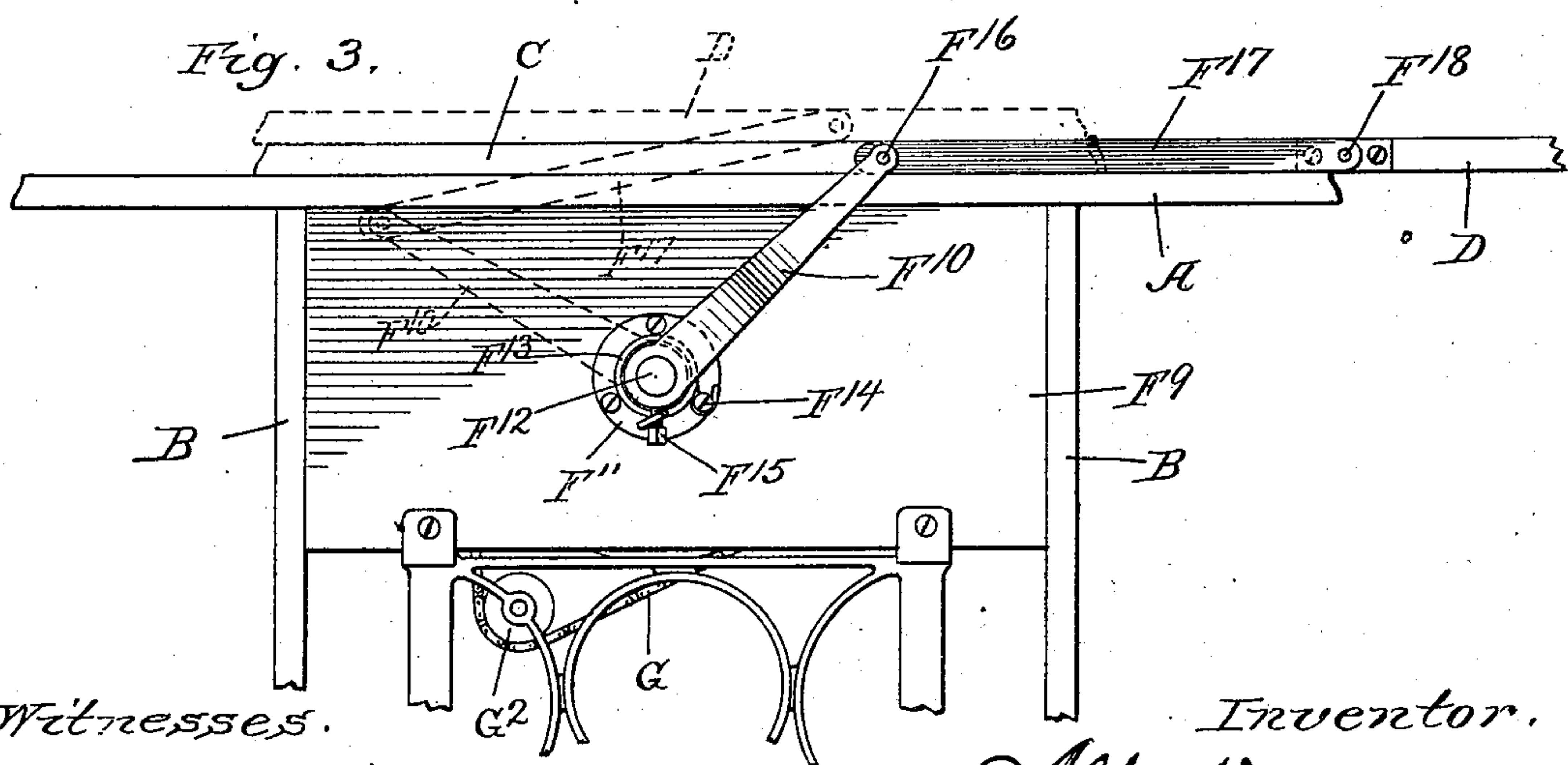
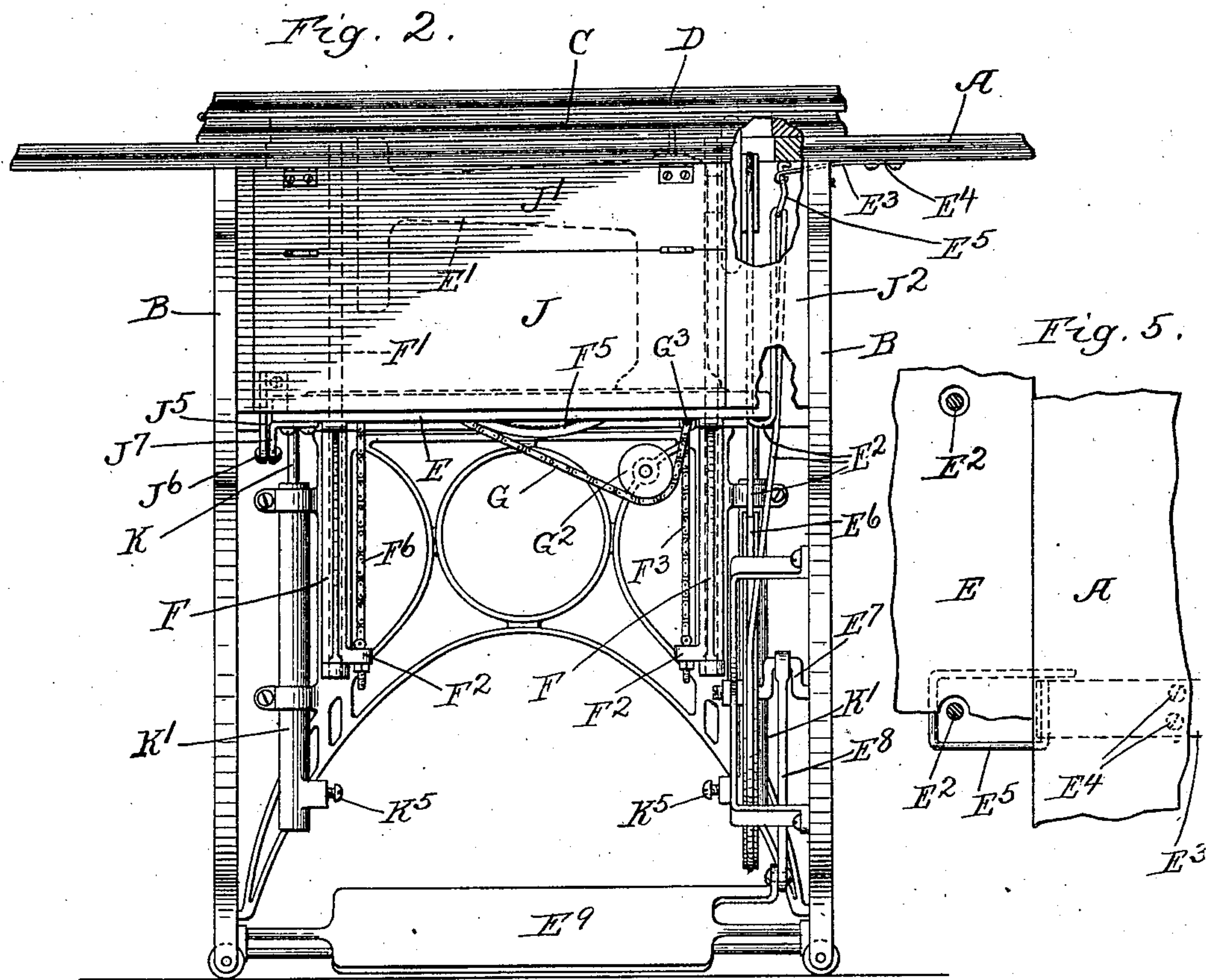
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UNITED STATES PATENT OFFICE.

ALBERT MORLEY, OF CHICAGO, ILLINOIS, ASSIGNOR TO STEPHEN M. SUTHERLAND, TRUSTEE, OF CHICAGO, ILLINOIS.

FOLDING SEWING-MACHINE TABLE.

SPECIFICATION forming part of Letters Patent No. 730,680, dated June 9, 1903.

Application filed February 25, 1901. Serial No. 48,672. (No model.)

To all whom it may concern:

Be it known that I, ALBERT MORLEY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Folding Sewing-Machine Tables, of which the following is a specification.

My invention relates to folding sewing-machine stands or cases or tables.

It has for its object to provide cheap, simple, convenient, and effective means for folding the parts so that the sewing-machine proper or "sewing-machine head," as I shall call it, can be lifted into position for use or depressed and folded out of sight underneath a table provided for the purpose.

My invention further relates to suitable means for inclosing such folded head between suitable front and rear table-leaves, also to suitable means for cushioning the parts as the head and movable table move downwardly, also to means for taking up the slack in the driving-belt, also to means for positively forcing the parts downwardly when the actuating folding-table is operated, and also to means for folding the forward leaf of the table so as to have it out of the way when the machine is in use.

My invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a front view of the machine ready for use with some of the parts broken away. Fig. 2 is a somewhat similar view where the machine-head is out of sight. Fig. 3 is a rear view of a portion of the device. Fig. 4 is a detail cross-section on line 4 4, Fig. 1. Fig. 5 is a detail view with parts broken away looking downwardly on line 5 5, Fig. 1.

Like parts are indicated by the same letter in all the figures.

A is a fixed table supported on the side pieces B B.

C is a fixed table above the table A, and D is a laterally-extending table hinged to the table C.

The tables A and C are provided each with a large aperture in the top to permit the movable table E to pass therethrough, such table being preferably flush with the top of the table C when the machine is in position for use.

E is the sewing-machine head on the ta-

ble E. E² is the driving-belt therefor, which passes down through holes in the table E.

E³ is a flat spring on the bottom of the table A, secured rigidly at the points E⁴ and projecting to near the edge of the table E. Here it is provided with a link E⁵, through which the belt passes in one direction.

E⁶ is the driving-wheel on the crank-shaft E⁷, from which leads the pitman E⁸ to the driving-treadle E⁹.

The parts can be so related to each other that when the head descends into the position indicated in Fig. 2 the driving-belt will catch in the link E⁵, and thus have an extra fold, which will take up the slack. Any inequalities of action will be accommodated for by the spring. The table E is supported on the brackets F, which brackets are adapted to slide vertically on the rods F'. Each bracket has an offset F², and to one of these is connected the chain F³, which is secured at F⁴ to the periphery of the wheel F⁵, while to the other offset F² is secured the chain F⁶, which passes over the idler F⁷ and thence about the wheel F⁵ to where it is finally secured at the point F⁸. This wheel and idler are both journaled in position on the permanent parts of the machine-table frame, as indicated in Fig. 4. The journal pin or shaft F¹² of the wheel F⁵ projects through the rear leaf F⁹, and to it is secured the arm F¹⁰. Attached to the rear leaf F⁹ is the collar and thimble F¹¹, through which the shaft F¹² passes and around which is coiled a spiral spring F¹³, attached rigidly at F¹⁴ to the thimble and at its other end attached by means of the set-screw F¹⁵ to the arm F¹⁰. The arm F¹⁰ is pivotally connected at F¹⁶ to the rod F¹⁷, which is in turn pivoted at F¹⁸ to the table D. When the table D is folded back into the position shown in dotted lines in Fig. 3, the arms are thrown into the position shown in dotted lines and the wheel F⁵ is turned to lower the machine-head. The spring, however, resists such action, thus balancing or overcoming to a certain extent the weight of the machine-head.

G is a chain attached at G¹ to the wheel F⁵ and passing over the idler G² and thence upwardly, where it is attached at G³ to another side of the movable table E. Thus when the

wheel is operated the head is drawn down positively by the action of such chain to overcome any tendency which the sewing-machine head might have to stick or cramp and to draw down the table E when the sewing-machine head has been removed therefrom for any purpose.

J is one section, and J' another section, of the front movable leaf of the table, and J² is the fixed portion of the front leaf of the table. The part J' is hinged to the fixed table A at the point J³, and the parts J' and J are hinged together at the point J⁴. The part J' is provided with a slotted projection J⁵, in which travels the pin J⁶ on the downwardly depending lug J⁷ on the bracket F. The projecting end of this bracket is adapted to engage the under side of the table C, so as to bring the parts to a proper level. At the same time when the bracket and the associated movable table and machine-head are brought up into the position shown in Fig. 4 the effect on the folding front leaf is to fold the two parts into the position indicated in that figure. Thus the lower part of the machine is open and the several operating parts are accessible from in front or the side at which the operator sits. The two parts of this folding leaf are so associated that they fold up under the table and are not only out of the way, but do not in any manner interfere with the use and control of the mechanism.

It may be desirable to cushion the movable table as it descends, and for this purpose I attach to the bracket or under part of the movable table one or more piston-rods K K, each of which travels in the piston K', at the lower end of which is an aperture K², controlled by the ball-valve K³, and another aperture K⁴, controlled by the adjustable screw K⁵. Thus I form one or more suitable air-cushions to prevent the table and head from descending too rapidly.

It will be quite evident that in a certain sense my illustration and description have been diagrammatic and illustrative rather than minutely exact, and I do not wish to be limited to the precise forms, constructions, proportions, and arrangement of parts shown. Moreover, it is evident that some of the features of my invention may be dispensed with without materially affecting the remainder. It is also evident that very extensive departures can be made from these several constructions without departing from the real spirit of my invention.

The use and operation of my invention are as follows:

Assuming that the machine is in condition for use, the parts will be in substantially the position shown in Fig. 1. The case below the head will be inclosed on all sides except the bottom and the forward side, and the table D will project laterally in proper position for use as a sewing-machine table. If now the operator desires to close the case and fold

the sewing-machine head out of sight, it is only necessary to turn the table D on its hinges, thus carrying the arms in the rear into the position indicated in Fig. 3, whereupon the parts will descend into the position shown in Fig. 2, and the sewing-machine head will be inclosed upon all sides, with, of course, those slight openings which are necessary on account of the construction of the operative parts. As the arm F¹⁰ is moved toward its new position the shaft or pin F¹² of the wheel F⁵ is rotated, carrying with it the wheel, and as the wheel rotates in the direction indicated by the arrow in Fig. 1 the chains F³ and F⁶ are slackened, so that the weight of the machine-head causes it, together with its table, to move downwardly along the guides. If for any reason the table tends to stick at any point, as particularly in the case where the sewing-machine head has been detached, the chain G tends to pull the table down positively, as is evident from an inspection of Fig. 1. As the table E descends with its bracket F the pin J⁶ is carried downwardly, thus carrying downwardly the outer end of the leaf portion J, and as this motion is continued the parts J and J' are turned on their hinges until at the end of the motion they assume the position shown in Fig. 2. As the table continues to descend the action of the cushion devices is of course to receive and cushion the table toward the end of its descent. Again, as the table and machine-head descend the belt E² would tend to become slack and get out of position were it not for the action of the belt-catching device E⁵, which operates as indicated in Fig. 2. The spring E³ gives an additional flexibility to the belt, so that if one wishes to move the belt it is only necessary to partly lower the machine-head until the belt has taken a turn around the link or holder E⁵, when the belt can be easily slipped off its pulleys, for the spring E³ will give sufficiently for that purpose. Thus this latter device becomes a sort of belt-tension device as well as a device for taking up the slack in the belt. The spiral spring F¹³ is so set as to be coiled by this process, or, in other words, it resists the action, thus making it easier for the operator to move the parts into the folded position, for the spring tends to overcome the weight of the head, and when the parts are to be restored to their working positions the spring, acting in the opposite direction, tends to overcome the weight of the head, and thus to aid the operator. It is a kind of reinforcing-spring, reinforcing or aiding the operator in bringing the parts into position for use or otherwise.

The forward leaf of the table I have called a "compound" leaf, meaning thereby to suggest two or more sections folded together or hinged together, as distinguished from a single section or leaf.

Any ordinary machine-head and apparatus for operating the same can be employed, and

therefore I have not gone into details with this part of the mechanism. Neither have I dwelt particularly upon the stand, as it and its several parts can be made to suit the convenience of the manufacturer.

I have spoken of the connection between the wheel and the movable table as a "chain" and have so used the term in my claims; but it will of course be understood that I mean by this term any suitable device for accomplishing the result. Generally speaking, a flexible connection is required. I may also speak of the forward compound table as an "apron." Of course the apparatus will be provided with the usual means for taking up lost motion and adjusting the several parts. The spring F¹³ is, in effect, a motor, acting against the force of gravity which tends to move the machine-head downwardly.

I have shown chains as being used in my device and shall employ these terms in my claims; but it will be understood that these words are to be used in a very broad sense as including straps or cords of whatever material or flexible connections suitable to accomplish in a general way the functions performed by the chains.

I claim—

1. In a folding sewing-machine table, the combination of a vertically-movable table on which the head is mounted, with a rotatable part, chains from the rotatable part and adapted to wind thereon to the movable table, whereby when the rotatable part is rotated the chains are simultaneously wound up on the rotatable part and thus the table is moved vertically, and a hinged leaf or table, and arms pivoted together and directly to the rotatable part and hinged leaf so that when the hinged leaf is moved the rotatable part is rotated.

2. In a folding sewing-machine table, the combination of a movable table on which the head is mounted, with a rotatable part, and two chains attached to the rotatable part so as to wind in opposite directions thereon, and both chains connected with the movable table so that as the part is rotated the movable table is moved positively in one or the other direction.

3. In a folding sewing-machine table, the combination of a movable table on which the head is mounted, with a rotatable part, and three chains, all of said chains secured to the rotatable part and connected with the movable table and adapted, when the rotatable part is rotated in one direction, two of them to raise the movable table, and when the rotatable part is rotated in the opposite direction, one of them to positively draw the movable table downwardly.

4. In a folding sewing-machine table, the combination of a movable table with a sewing-machine head thereon, a loop which encircles one reach of the sewing-machine driving-belt, a flat spring which holds said loop in position against the bottom surface of the fixed

table, the connection between the loop and the spring being such that the loop is normally held in a horizontal position, but when pressure is applied to the belt under tension, can be forced into a vertical position to partially release the belt.

5. In a folding sewing-machine table, the combination of a movable table upon which the head is mounted, with a rotatable part, two chains attached so as to wind in opposite directions to the rotatable part, and each connected with the movable table, and two idler-pulleys, one for each of said chains.

6. In a folding sewing-machine table, the combination of a movable table adapted to receive the sewing-machine head, with a rotatable part, two chains each connected at one end to the rotatable part and at the other end to the table-support, and means for rotating such rotatable part to cause the table to move vertically.

7. In a folding sewing-machine table, the combination of a vertically-movable table adapted to receive the sewing-machine head, with a rotatable part, two chains each connected at one end to the rotatable part and at the other to opposite ends of the table-support, and means for rotating such rotatable part to cause the table to move vertically.

8. In a folding sewing-machine table, the combination of a movable table adapted to receive the machine-head, with a rotatable part and two chains connected therewith, each at one end, and each connected at the other end with such movable table-support, and means for rotating the rotatable part so that the table is caused positively to descend or ascend under the action of such chains.

9. In a folding sewing-machine table, the combination of a vertically-movable table adapted to receive the machine-head, with a rotatable part and two chains connected therewith, each at one end, and each connected at the other end with such movable table-support, and means for rotating the rotatable part so that the table is caused positively to descend or ascend under the action of such chains.

10. In a folding sewing-machine table, the combination of a movable table adapted to receive the sewing-machine head, with a rotatable part, two chains attached to and adapted to wind on said rotatable part and each attached at its other end to the movable table-support, and means for locking the rotatable part to hold the movable table in its normal position.

11. In a folding sewing-machine table, the combination of a movable table adapted to receive the sewing-machine head, with a rotatable part, two chains attached to and adapted to wind on said rotatable part and each attached at its other end to the movable table-support, and means for locking the rotatable part to hold the movable table in its normal position, said means consisting of a hinged

portion of the table and suitable connections therefrom to the rotatable part.

12. In a folding sewing-machine table, the combination of a movable table adapted to receive the machine-head, with a rotatable part and chains attached thereto at one end and adapted to wind upon said rotatable part and attached at the other end to the support of the movable table, a controlling-arm attached to the rotatable part and connected at its other end with a folding portion of the machine-table, so that by operating the folding portion the rotatable part is rotated and the machine-head moved up or down as the case may be.

13. In a folding sewing-machine table, the combination of a movable table adapted to receive the sewing-machine head, with a rotatable part and two chains, each connected at one end to the rotatable part and adapted to wind thereon and at the other end to the support of the movable table, one of said chains traveling over an idler to reverse its direction.

14. In a folding sewing-machine table, the combination of a movable table adapted to receive the sewing-machine head, with a rotatable part and two chains, each connected at one end to the rotatable part and adapted to wind thereon and at the other end to the support of the movable table, one of said chains traveling over an idler to reverse its direction, and means for rotating such rotatable part.

15. In a folding sewing-machine table, the combination of a movable table adapted to receive the sewing-machine head, with a rotatable part and two chains, each connected at one end to the rotatable part and adapted to wind thereon and at the other end to the support of the movable table, one of said chains traveling over an idler to reverse its direction, means for rotating such rotatable part, and a spring connected with such means and acting in opposition to the weight of the machine-head.

16. In a folding sewing-machine table, the combination of a movable table adapted to hold the sewing-machine head, with a front compound vertical leaf, consisting of sections hinged together and hinged at the upper edge of the top section to the fixed table and attached at the lower end to the movable table.

17. In a folding sewing-machine table, the combination of a movable table adapted to hold the sewing-machine head, with a front compound vertical leaf, consisting of sections hinged together and hinged at the upper edge of the top section to the fixed table and attached at the lower end to the movable table, said last connection made by a loose or sliding joint.

18. In a folding sewing-machine table, the combination of a movable table adapted to receive the machine-head, with a forward

compound apron, consisting of sections connected together and adapted to fold up into parallel planes one section on another underneath the fixed forward portion of the machine-table and parallel therewith when the movable table is in its normal elevated position.

19. In a folding sewing-machine table, the combination of the movable table on which the head is mounted, with means for positively raising the table, when operated in one direction, and adapted, when operated in the other, to permit the table to fall by the action of gravity, and a separate device connected with the table and with the means for positively raising the table for positively moving the table downwardly to supplement the action of gravity.

20. In a folding sewing-machine table, the combination of the movable table on which the head is mounted, with means for positively raising the table, when operated in one direction, and adapted, when operated in the other, to permit the table to fall by the action of gravity, said means including a flexible member, and a separate flexible device connected with the table and with means for positively raising the table for positively moving the table downwardly to supplement the action of gravity.

21. In a folding sewing-machine table, the combination of a vertically-movable table upon which the head is mounted, with guides for such movable table, two flexible connections attached thereto one at each end of the table, a driving mechanism to which said flexible connections are attached, and means for operating the same to raise or lower the table.

22. In a folding sewing-machine table, the combination of a vertically-movable table upon which the head is mounted, with guides for such movable table, two chains attached thereto one at each end of the table, a rotating part to which the chains are attached, and means for rotating same to cause the chains to raise the table.

23. In a folding sewing-machine table, the combination of a movable table adapted to receive the sewing-machine head, with a rotatable part and two chains, each connected at one end to the rotatable part and adapted to wind thereon and at the other end to the support of the movable table, means for rotating such rotatable part, said chains so connected that when the rotatable part is rotated both chains are applied to raise the movable table.

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Witnesses:

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