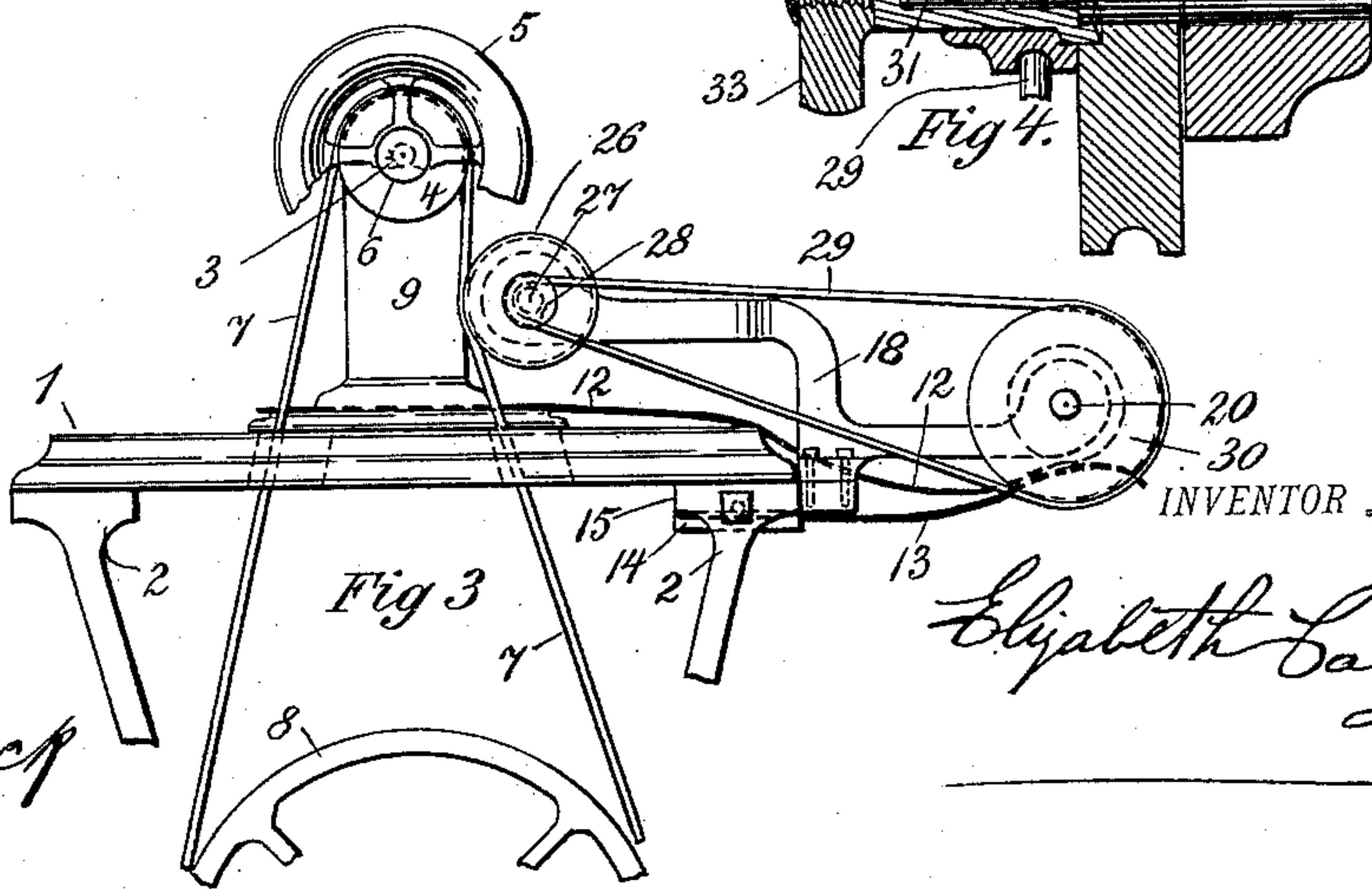
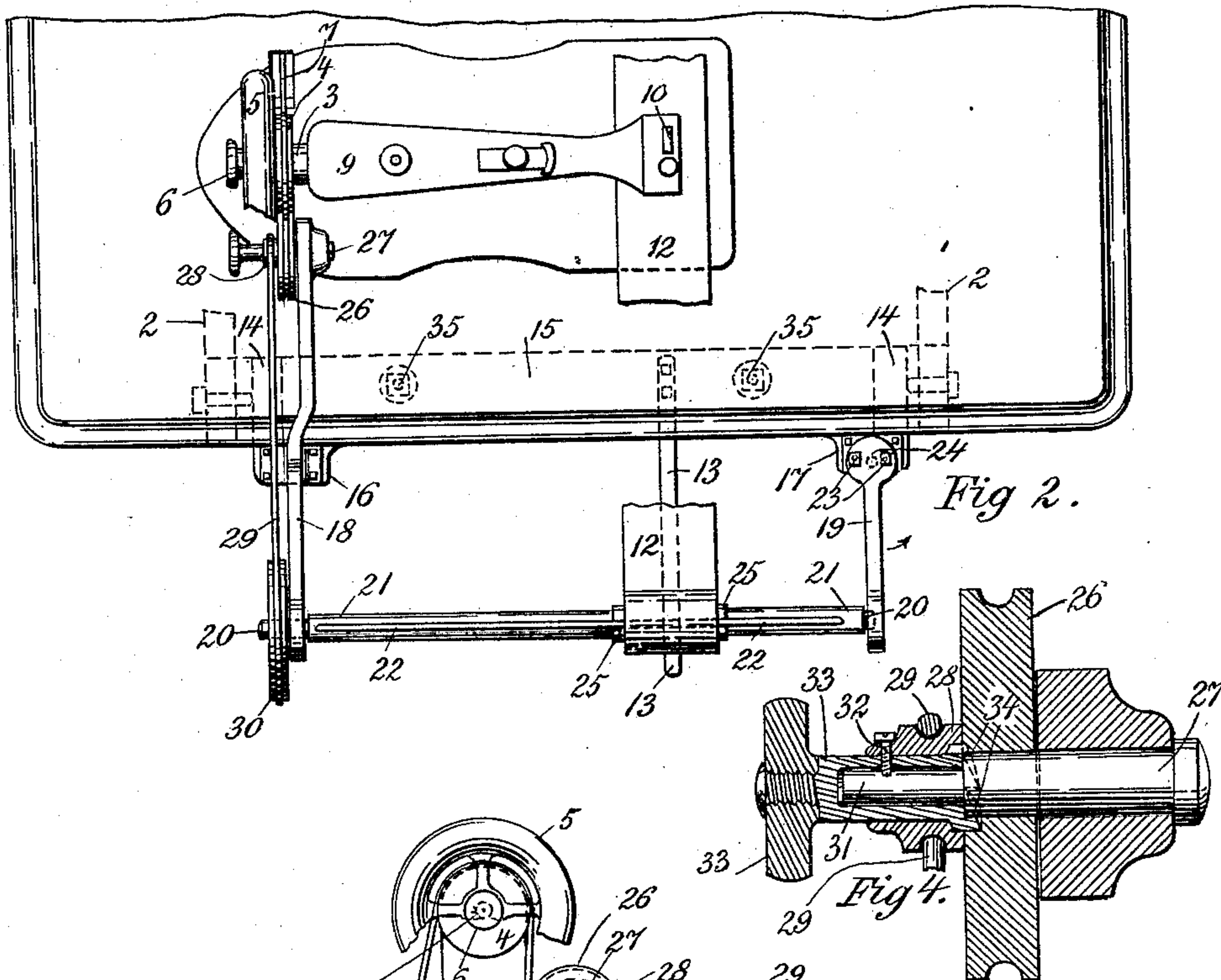
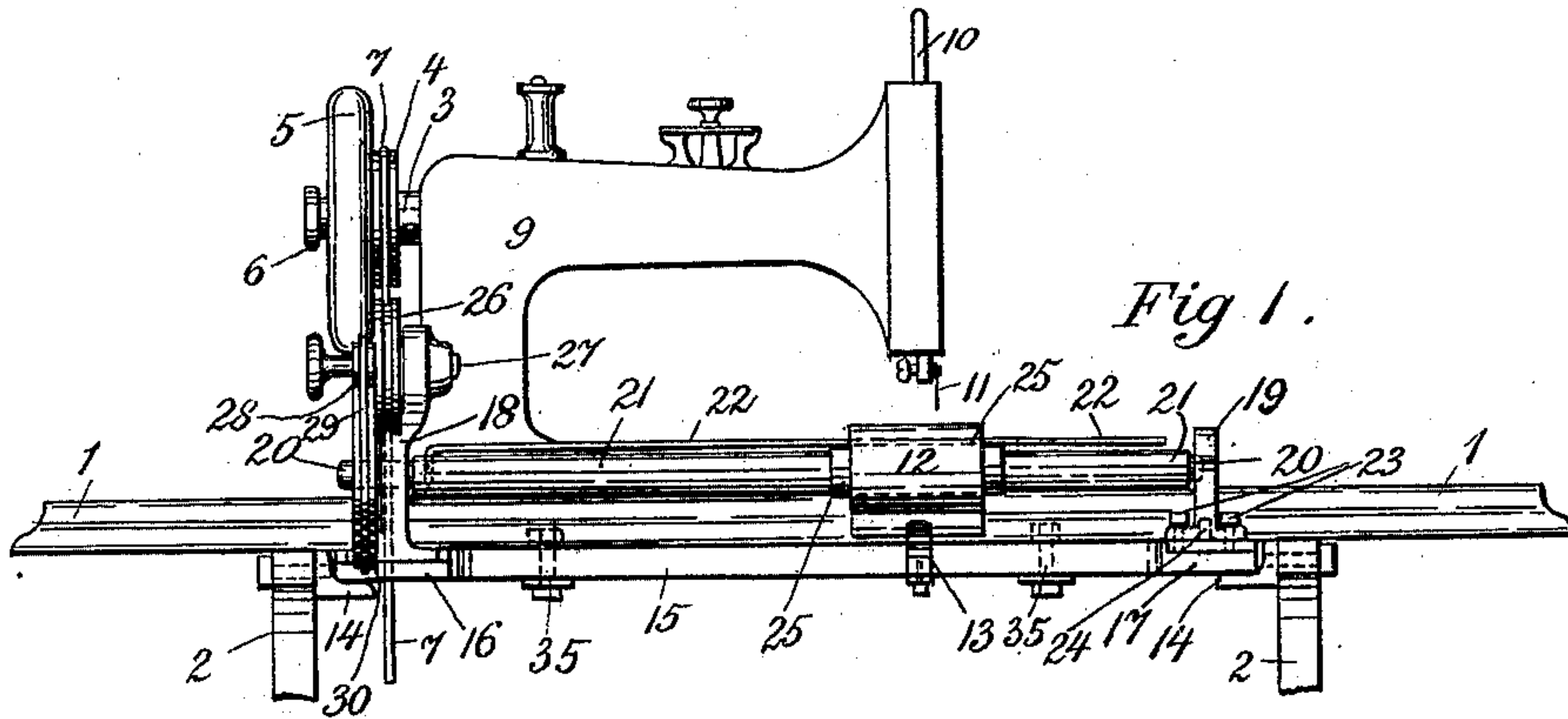


(No Model.)

E. CALM.
SEWING MACHINE.

No. 472,333.

Patented Apr. 5, 1892.



WITNESSES:

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ELIZABETH CALM, OF NEW YORK, N. Y.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 472,333, dated April 5, 1892.

Application filed June 27, 1891. Serial No. 397,713. (No model.)

To all whom it may concern:

Be it known that I, ELIZABETH CALM, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification.

My invention refers to sewing-machines in general, no matter what motive power be employed to operate the same.

The purposes of my invention are, first, to provide simple and efficient means for placing on suitable rollers pieces of fabric of considerable length immediately after having been stitched on the machine—such as flounces—and to employ in doing so parts of the mechanism provided for operating the needle of the machine; second, to provide means for so regulating the mechanism for winding the fabrics on rollers as to be able to do such winding either while the sewing mechanism of the machine is in operation or while the same is idle; third, to arrange for promptly removing such fabrics from the shaft containing or propelling the roller upon which the fabric has been wound; fourth, to so connect appliances needed for said purposes with the table or the stand supporting the sewing mechanism as to guard against their interfering with the usual functions of the machine and the comfort of the operator, and, further, to be capable of being removed from their operative position or to be disconnected from said table or stand when they are not to be used for winding the fabrics passing through the machine upon rollers, as mentioned.

The means employed by me for accomplishing these and other useful purposes are set forth in the following description, and in the claims annexed thereto.

In the accompanying drawings, forming part of this specification, Figure 1 represents a rear view of the upper part of a sewing-machine with my improvements attached; Fig. 2, a ground plan of the same, and Fig. 3 an end elevation, while Fig. 4 represents, on an enlarged scale, a vertical section of that part of my appliances which may be employed in

setting said winding mechanism in motion or arresting such motion.

Corresponding figures in the different views refer to corresponding parts.

1 is the sewing-machine table, resting in the usual manner on legs 2 2, of which only the upper parts are shown.

3 is the main shaft of the machine, containing the pulley 4, which is adjusted with reference to said shaft so as to be capable of running loose on the same.

5 is the fly-wheel, rigidly connected with said shaft, and 6 the end of the nut or clutch usually employed for the purpose of so uniting pulley 4 and fly-wheel 5 as to thereby impart revolving motion of said pulley to said fly-wheel and to the main shaft when the needle is to be put in operation.

7 is the belt, through which revolving motion is imparted to pulley 4, 8 representing part of the driving-pulley underneath the table, from which said belt derives its motion.

As my improvements are applicable to any kind of machine, no matter whether its mechanism be operated by the foot of the operator applied to a treadle or by proper belting and gearing connecting with a suitable motor, I do not illustrate any particular mechanism for producing the revolving motion of driving-pulley 8.

9 is the usual cast-iron casing, which incloses the larger parts of main shaft 3 and of the needle-bar 10, as well as the cross-head and crank-disk.

11 is the needle, underneath which the machine-feed (not shown in the drawings) operates in the usual way.

12 represents an elongated piece of fabric—such as a flounce—passing under the needle and in process of being wound up or rolled up, such piece being shown here in two sections, so as to leave in full view the edge of the sewing-machine table and a leaf-spring 13, which spring may be made use of for purposes hereinafter specified.

14 14 are short pieces of angle-iron secured to the upper ends of legs 2 2 by means of bolts, as shown. The horizontal arms of said angle-irons support a board or shelf 15 in

close proximity to the under side of the table. 16 and 17 are parts of said shelf extending laterally beyond the edge of the table, so as to permit of securing to the former a bracket 18 and to the latter a bracket 19.

20 is a shaft journaled in proper bearings provided in brackets 18 and 19. The part of such shaft located between said brackets is shown to be surrounded by a hollow wooden cylinder 21, firmly attached thereto, which is only intended to increase the thickness of this part of the shaft to a suitable degree without materially adding to its weight, an elastic metallic rod 22 being secured to that end of the hollow wooden cylinder 21 which is nearest bracket 18 and extending parallel with and in close proximity to the surface of said cylinder. Bracket 19 is adjusted to swing horizontally around a pivot in the direction of the arrow after bolts 23 23, which secure its base to projection 17, have been withdrawn from the same, 24 being such pivot attached to such projection and extending upward into the body of said bracket. Shaft 20 extends into bracket 19 only sufficiently to obtain therein a bearing.

25 is a shell made of pasteboard or other similar material, its length being made to somewhat exceed the width of fabric 12. Said shell is placed between the hollow cylinder 21 and metallic rod 22, so as to be held by the latter in a position opposite the needle and the machine-feed. The outer end of fabric 12 is placed between such shell 25 and said rod 22, so that whenever shaft 20 is made to revolve neither slipping of shell 25 on hollow cylinder 21 nor slipping of the end of the fabric on shell 25 can occur.

26 is a grooved pulley running loose on a shaft 27 until connected by means of a clutching device (which is more fully illustrated in Fig. 4,) with an adjoining smaller grooved pulley 28, from which a belt 29 runs to a larger pulley 30, used at the end of shaft 20, pulley 28 being rigidly connected with an extension 31 of shaft 27 by means of a pin 32, which passes through the side of a hollowed-out stem 33, which at its right-hand end is provided with clutch-teeth 34 34, adapted to fit corresponding recesses on the face of pulley 26. Shaft 27 has a long bearing provided for it in an arm of bracket 18, extending toward the central part of the table, said arm being of such length as to bring, when my improvements have been attached to the machine, the groove of pulley 26 in sufficient frictional contact with belt 7 as to thereby cause said pulley to revolve. It will be seen that when stem 33 is turned inward so as to cause clutch-teeth 34 34 to engage with the corresponding recesses on the face of pulley 26 both pulleys will become attached to each other and will revolve with shaft 27, and pulley 26 having been brought in sufficient frictional contact with belt 7 shaft 27 will be made to revolve within

the bearing of the inner arm of bracket 18 and the revolving motion of pulley 28 will be communicated to pulley 30 by means of belt 29, thereby winding the fabric 12 on shell 25, the leaf-spring 13, which is attached to the under side of board of shelf 15, opposite the machine-feed and the needle, serving to hold up the fabric and to press it sufficiently against shell 25 as to cause it to be rolled up tightly and prevent it from sagging downward and touching the floor.

Owing to the fact that brackets 18 and 19 are made to extend beyond the rear edge of the table and that the receiving-roller is likewise supported by them in a position beyond the sewing-machine table, a large quantity of fabric may be wound upon said roller without to any extent interfering with the ordinary functions of the sewing-machine or the convenience of the operator.

It will be seen that as the quantity of fabric wound upon shell 25 increases the diameter of the roll so formed will also increase. Hence while the machine-feed operates uniformly and shaft 20 revolves at a uniform rate that part of fabric 12 between the machine-feed and shell which is not in direct contact with the latter, as far as its motion depends upon the revolution of shaft 20, will move with an increasing speed depending upon the diameter of the roll of fabric already wound up. This, if not arrested at least temporarily, would lead to a pulling of the fabric from under the needle, thus interfering with the regularity of the stitching. To guard against this, it will be necessary to at times allow pulley 26 to run loosely on shaft 27 by releasing aforesaid clutch, applying the same again when a sufficient quantity of fabric has accumulated in the space between the machine-feed and shell 25. After the sewing operation has been completed the part of the fabric extending from the machine-feed to the part of the fabric already wound up will have to be likewise placed on shell 25. As there is no occasion then for further operating the needle, nut 6 will have to be unscrewed, so as to permit pulley 4 to run loose on shaft 3, whereby the movement of the needle will be stopped, while the revolving motion of pulleys 26, 28, and 30 may be continued until the winding of the fabric is completed. After this has been accomplished it is only necessary to lift bolts 23 23 out of their sockets, swing bracket 19 in the direction of the arrow, draw shell 25 and with it the fabric wound on it to the right until they clear hollow cylinder 21 and shaft 20, place a new shell on said cylinder, swing the bracket back into its former position, and proceed to wind on the new shell another piece of fabric, all as indicated above.

As the revolving motion of pulley 4 is necessarily rapid, while that of shaft 20 must be comparatively slow, transmission of power

from pulley 4 to said shaft should be made by a series of pulleys proportioned and arranged substantially as indicated on the drawings. Taking the power from belt 7, as described, makes it possible to provide and adjust my improvements in proper relation to the working parts of the machine without being compelled to make any changes in or additions to the latter, my improvements being thus embodied in an independent organization, which may be attached to or detached from the sewing-machine promptly, the angle-irons 14 14 and bolts 35 35 extending through board 15 into the under side of the sewing-machine table, being sufficient to adjust and maintain my improvements in proper operative position. However, it will readily be seen that the power for propelling the additional appliances provided by me might be taken direct from any other moving part of the apparatus, such as the shaft of pulley 8 or the treadle, or even from a source of power independent of that operating the sewing-machine mechanism.

Various other modifications in the details of my improvements will readily suggest themselves to the skilled mechanic, which modifications might be introduced without departing from the spirit of my invention. Thus any other suitable form of clutch or connecting device might be employed, so as to compel pulleys 26 and 28 to revolve jointly when required.

I claim as new and desire to secure by Letters Patent—

1. In combination with a sewing-machine, a frame attached thereto containing bracket 18, shaft 27, supporting-pulleys 26 and 28, the former pulley operated by the sewing-machine mechanism, a clutching device provided with a suitable handle for consolidating said pulleys, and appliances for converting the revolving motion of pulley 28 into revolving motion of a roller for receiving the fabric for

the purpose of enabling the operator to cause intermittent motion of the winding mechanism during continuous motion of the sewing mechanism, substantially as set forth.

2. In combination with a sewing-machine mechanism containing a pulley for propelling the main shaft operating the needle-bar, a clutching device for alternately connecting and disconnecting such pulley and such shaft, a roller for receiving the fabric, and mechanism for revolving the roller, propelled by the sewing-machine mechanism and constructed in two sections connected by a clutch with suitable handle for the purpose of enabling the operator to cause intermittent motion of the winding mechanism independent of the movements of the needle-bar, substantially as set forth.

3. In combination with a sewing-machine, a roller for receiving the fabric and mechanism for revolving the roller, propelled by the sewing-machine mechanism and constructed in two sections connected by a clutch with suitable handle for the purpose of enabling the operator to cause intermittent motion of the winding mechanism during continuous motion of the sewing mechanism, substantially as set forth.

4. In combination with a sewing-machine, a mechanism for winding the fabric, constructed in two sections united by a clutch with suitable handle, one of said sections containing a roller for receiving the fabric, and means for temporarily adjusting the other section in frictional contact with the mechanism operating the needle-bar, substantially as and for the purposes set forth.

Signed at New York, in the county of New York and State of New York, this 25th day of June, A. D. 1891.

ELIZABETH CALM.

Witnesses:

M. CALM,
HAROLD D. KEELER.