

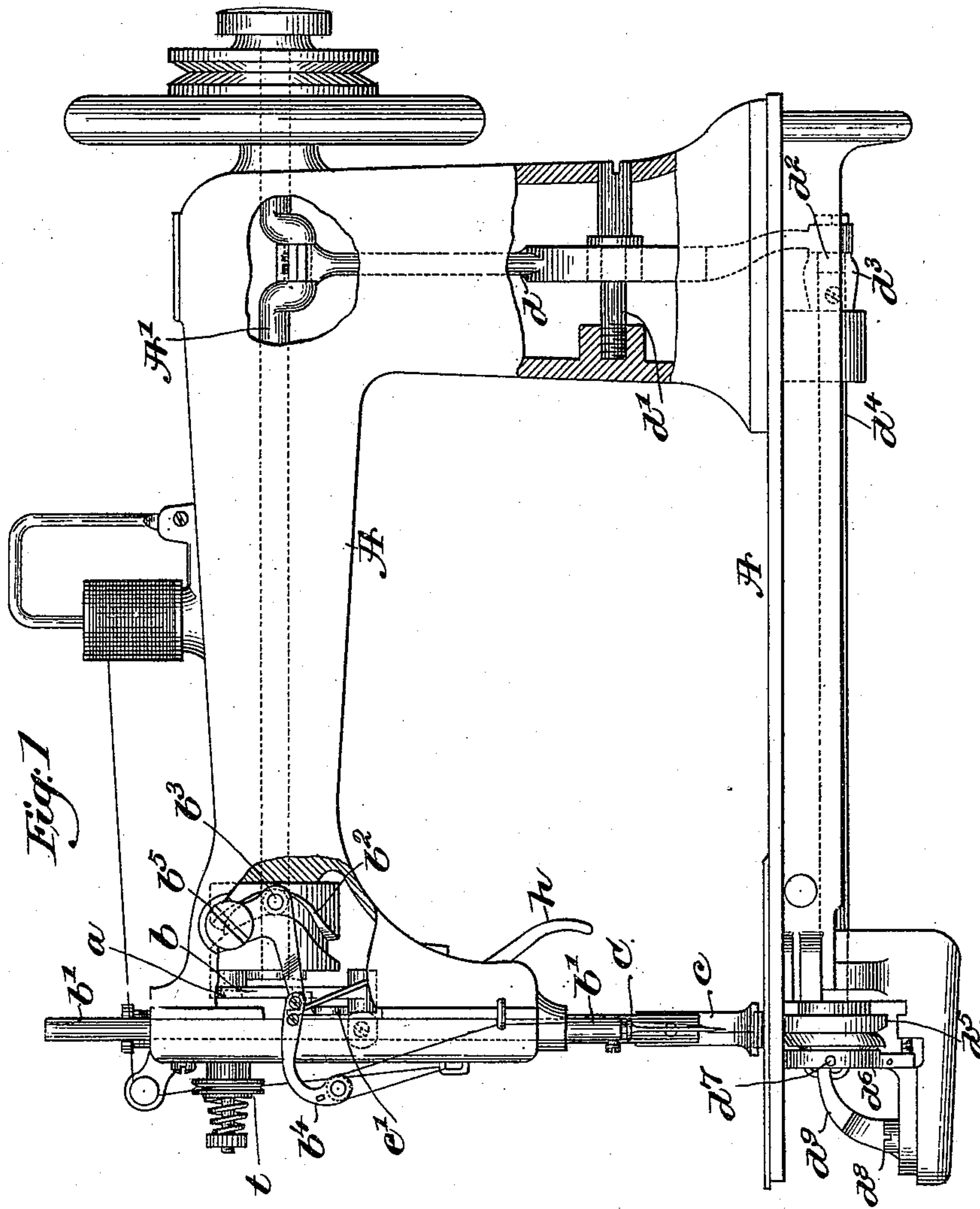
(No Model.)

2 Sheets—Sheet 1.

W. F. DIAL.
SEWING MACHINE.

No. 547,632.

Patented Oct. 8, 1895.



Witnesses.
A. C. Harmon
Thomas J. Drummond

Inventor,
Wilbur F. Dial,
by Lewis Gregory Attys

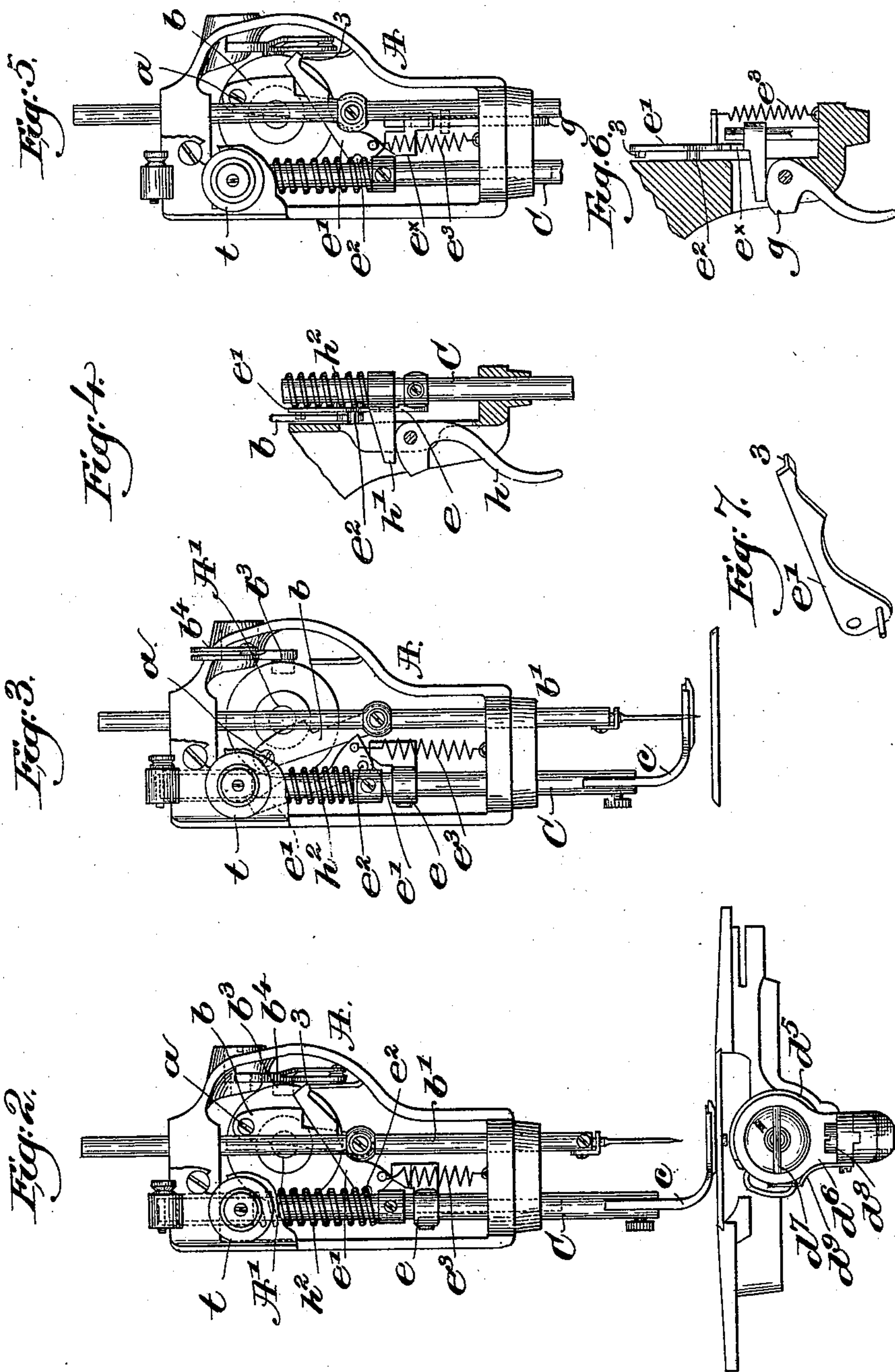
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Thomas Drummond

Inventor:

Wittbur F. Dial,
by Crosby & Gregory Attys.

UNITED STATES PATENT OFFICE.

WILBUR F. DIAL, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE
WHEELER & WILSON MANUFACTURING COMPANY, OF SAME PLACE.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 547,632, dated October 8, 1895.

Application filed May 8, 1894. Serial No. 510,470. (No model.)

To all whom it may concern:

Be it known that I, WILBUR F. DIAL, of Bridgeport, county of Fairfield, State of Connecticut, have invented an Improvement in Sewing-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

10 In the use of a sewing-machine by an operator, the work has frequently to be removed from under the presser-foot, and it is customary for the operator to lift the presser-foot, then break off the thread, and pull the work out from under the foot. Operators are instructed to see that the take-up is at its highest point when the work is removed; but frequently this feature is overlooked, and as a result when the machine is started and not enough thread has
15 been drawn through the tension device and needle-eye the take-up unthreads the needle. To obviate this trouble and avoid the waste of time of the operator, as well as to lessen the care in running the machine, I have devised and combined with the stitch-forming mechanism an auxiliary independent shaft-turning device, whereby when the machine has come to rest and the work is to be removed, the said shaft, and with it the take-up
20 actuating mechanism, may be moved sufficiently to put the take-up in substantially its highest position, said auxiliary moving device being inactive during the operation of sewing and being active only after the machine has been stopped and between the time
25 the machine is stopped and is again to be started for stitching, my device not in any way controlling or measuring the throw of the take-up according to the thickness of the material under the presser-foot.

30 In the manner in which I have herein chosen to illustrate my invention in this particular I have made the usual presser-foot lifter as the actuating device for the means employed
35 to move the take-up-actuating mechanism, that being a simple form of my invention.

Figure 1 in side elevation, partially broken out, shows a sewing-machine of well-known construction with my improvements added;
40 Fig. 2, a front end elevation with the cap-plate removed, the take-up being down. Fig.

3 shows the same parts above the bed-plate, but in a different position; Fig. 4, a partial section at one side of the presser-bar. Figs. 5 and 6 show a modification, and Fig. 7 shows
55 the lever e' detached.

The framework A, having the rotatable needle-actuating shaft A' , provided at its front end with a hub or plate having a crank-pin a , connected by link b to a projection on a block
60 connected with the needle-bar b' and having a cam-groove b^2 in its periphery to receive the roller or other stud b^3 of the take-up b^4 , pivoted at b^5 , the presser-bar C, having the presser-foot c , the connection d , joined at its upper end to a
65 crank on the needle-bar-actuating shaft and sliding on a fulcrum d' and having at its lower end a crank-pin d^2 to enter a slot in an arm d^3 , attached to the loop-taker shaft d^4 , said shaft having imparted to it by said con-
70 nection a variable rotary motion, a loop-taker d^5 , connected to said shaft, and the bobbin-holder d^6 , having a cross-bar d^7 and held in position by a screw d^8 , connected to a portion of the framework, and the latch d^9 to keep the
75 bobbin-holder in place, and the tension device t are and may be all as common in the Wheeler & Wilson machine, style No. 9, except as to the link b , which is somewhat differently shaped along one edge.

I have provided the presser-bar C (see Figs. 2 to 4) or a part moving in unison therewith with an actuator e , which when elevated acts against a lever or auxiliary independent shaft-moving device e' , represented as piv-
85 oted at e^2 and normally held down by a spring e^3 , said lever having a projection 3 and being shown as located between the usual needle-bar and the link b referred to for actuating the same, said link being slightly
90 changed, however, in shape so as to enable said projection, when the lever is operated as will be described, to slide freely upwardly along and off over the top of the link into the position shown by dotted lines, Fig. 3, which
95 it could not do if the link were of usual shape—that is, if its end having the hole for the reception of the stud a were nearly circular and of greater diameter than the width of the link.

In Figs. 1 to 3, where the point of the needle is represented as above the work-plate or throat, it will be seen that when the presser-

bar is lifted by the action of the usual presser-bar lifter *h* the finger *h'* of said lifter will move the actuator *e*, and the latter in turn will act against and move the lifter *e'*, constituting the auxiliary independent shaft-mover, causing it to engage the link *b*, occupying a position, it may be, substantially as in Fig. 2, or a position with the stud *a* at or above the center line of the shaft *A'*, and will cause the said shaft, the machine having been previously stopped, to be turned for a part of a revolution, thus causing the take-up-actuating means, herein shown as a cam and having the groove *b²*, to move into a position to put the take-up into substantially its highest position in case it had not been left in such position when the machine was stopped, the putting of the take-up in substantially its highest position after the machine has been stopped and before starting it again insuring the pulling off from the usual thread supply for the needle of a sufficient quantity of thread, so that when the machine is again started the movement of the needle-bar and the take-up will not effect the unthreading of the needle. This invention is not limited, however, to the particular construction shown for the lever or devices employed for partially rotating the shaft independently of its usual driving mechanism after the machine has been stopped and thus move with it the actuating means for the take-up in order that it may put the take-up in proper position to avoid unthreading the needle, as stated, and instead I may employ any other usual or suitable devices, and it will be readily seen that the shape and construction of the devices may be changed by the exercise of only the skill of the mechanic and without invention, according to the particular mechanism to which my invention is to be applied, and this invention is not limited to the particular shape of the take-up or to the particular shape of the take-up-actuating means. While I prefer that the actuator, for simplicity, be connected directly to the presser-bar, yet this invention is not limited to mounting said actuator on the presser-bar, as, instead, the actuator (marked *e^x*, Fig. 5) may have an independent guide or support which may be actuated by a lifter *g*, which may be the usual lever or may be an independent lever or device suitably located for that purpose. In Fig. 6, showing this modification, it will be understood that the lever *e'* may be moved by the lever *g* even when the presser-foot is down, and consequently the take-up-actuating mechanism may be lifted independently to draw off a proper amount of thread.

This machine is not devised or intended to vary the throw of the take-up automatically

according to the thickness of the work under the presser-foot, and it does not so work, and the independent auxiliary shaft-moving device operates only after the machine has been brought to rest with the crank-pin *a* at or above the center of the shaft *A'*.

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

1. A needle-bar having an eye-pointed needle, a rotating needle-bar actuating shaft, a link connecting said shaft and needle-bar, a take-up constructed and arranged independently of the needle-bar, and take-up actuating devices deriving movement from the needle-bar actuating-shaft during the sewing operation, combined with an auxiliary shaft-moving device to at times engage a portion of the needle-actuating mechanism and thereby turn the shaft after the machine has ceased sewing, such turning of the shaft effecting an independent and supplementary movement of the take-up and causing it to pull off enough needle thread to prevent the unthreading of the needle, substantially as described.

2. In a sewing machine, the following instrumentalities, viz;—a presser-bar; an actuator *e*, means to move it; a take-up; a shaft, a take-up actuating cam thereon, the needle-bar, and link *b*, combined with the lever *e'* to engage the link *b* and effect the movement of the said take-up actuating mechanism to put the take-up in substantially its highest position and thereby draw off sufficient thread to prevent unthreading of the needle when beginning to sew, the thread in the meantime having been broken, substantially as described.

3. A needle-bar having an eye-pointed needle, a rotating needle-bar actuating shaft, a link connecting said shaft and needle-bar, a take-up, and take-up actuating devices deriving movement from said shaft during the sewing operation, combined with an actuator and means to raise it, an auxiliary shaft-moving device arranged between the needle-bar and the connecting link and operated by the raising of the actuator after the sewing operation ceases, to give further movement to the shaft and thereby actuate the take-up and cause it to pull off enough needle thread to prevent the unthreading of the needle, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILBUR F. DIAL.

Witnesses:

ISAAC HOLDEN,
A. E. PORTER.