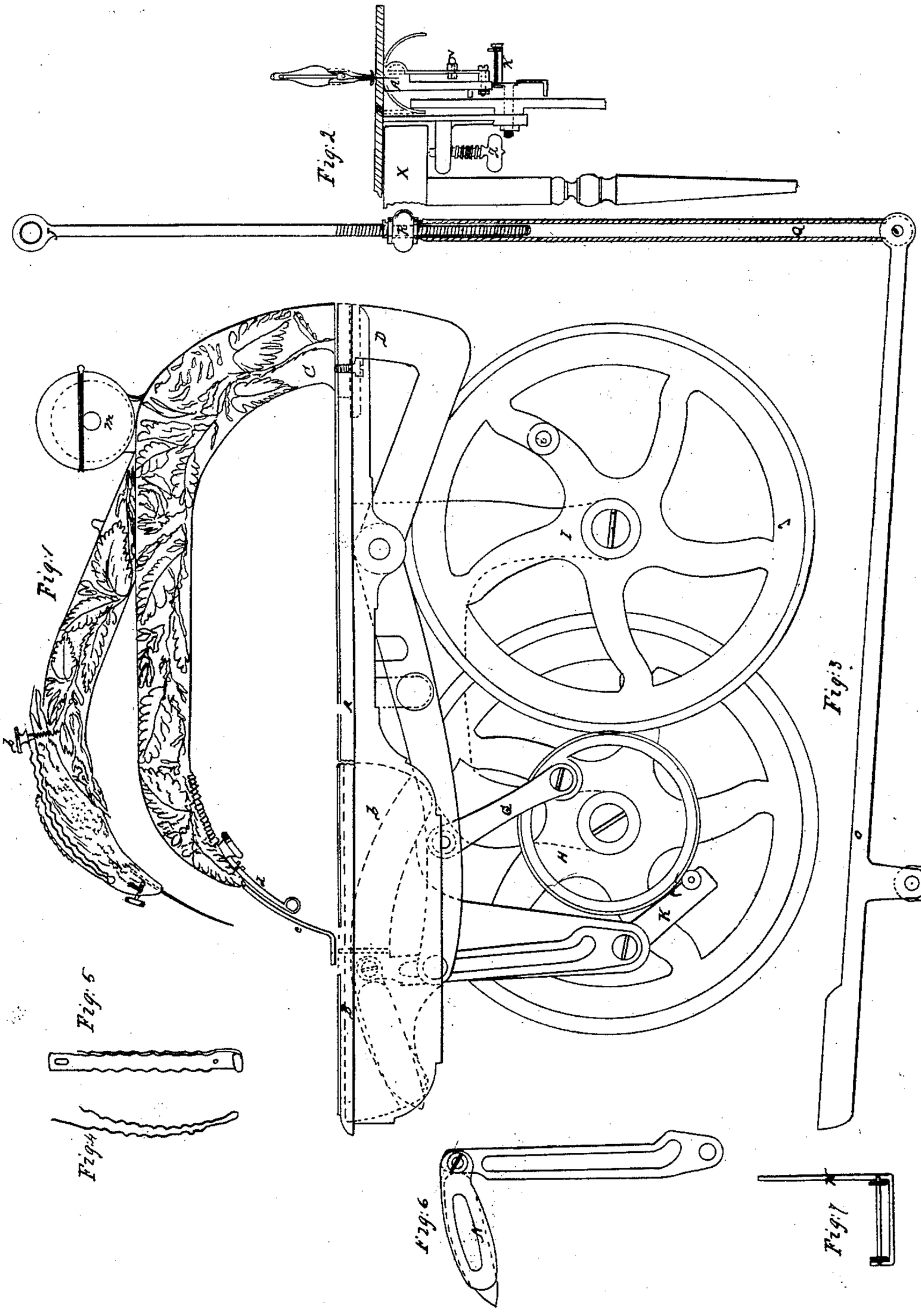
J. B. WOODRUFF.

SEWING MACHINE.

No. 21,461. Patented Sept. 7, 1858.



UNITED STATES PATENT OFFICE.

J. B. WOODRUFF, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **21,461**, dated September 7, 1858.

To all whom it may concern:

Be it known that I, JEROME B. WOODRUFF, of the city of Washington, in the District of Columbia, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which make part of this specification.

Figure 1 represents a side elevation, showing the arrangement of the mechanism. Fig. 2 is the front end elevation, (diminished size,) showing the mode of clamping to the table. Fig. 3 is a side view of the hinged foot-piece and bed with the extension-rod attached. Figs. 4 and 5 are detached views of the corrugated spring-tension. Fig. 6 is a view of the shuttle bowl and driver. Fig. 7 is a spooler and shuttle-bobbin.

My invention consists in the construction and use of a double corrugated spring to regulate the tension of the needle-thread, which is made to pass between the plates of the spring; in the employment of an extension-rod to adapt the machine to tables of varying heights; and, also, in the means employed for retaining the shuttle in place, and at the same time to render it easily accessible to insert and remove the bobbin.

To enable others skilled in the arts to make and use my improved sewing-machine, I will proceed more fully to describe the same.

Like letters indicate similar parts in all the figures.

A in the annexed drawings represents the table or plate to which the mechanism is secured, and upon which the material to be sewed rests. The front part of the plate B can be removed, which leaves a semicircular form, *b*, to sew in sleeves, or any shape not convenient to bear upon a flat surface.

C is shuck or hollow arm, made of cast metal, in the form of an ellipsis, secured to the rear end of plate A, extending over toward the front sufficient to support the cloth-holder *c* and cam-lever *d* and helical spring *e*, in which the needle-arm D vibrates, and is protected when the needle is through the plate. To that portion of the needle-arm that extends under the plate is attached the pitman G, which connects it to the driving-wheel H, whereby a positive and direct motion is given to all the working parts, they being all moved by the under portion of the needle-arm, whether the wheel rotates to the right or left. The balanced needle-bar, carrying the needle at one end and operating the shuttle direct by the other, the slotted shuttle-driver, and the shuttle-race are the same as described and patented by me December 23, 1856, so a description here is unnecessary. In the edge of the smaller rim of the driving-wheel H is inserted a strip of prepared leather, gutta-percha, or vulcanized rubber, which, coming in contact with the smooth surface of the periphery of a larger wheel, an increased speed may be obtained, which runs lighter, with less noise, and more power than can be obtained by double the amount of surface brought to bear by either belt or gear. The spooler K to fill the shuttle-bobbins, as seen in Fig. 7, is made of sheet metal, pressed out in suitable shape and bent at right angles, with notches to receive the outer ends of the bobbins, they being journals to run on, and is so placed on the flange that the shuttle-driver hangs on, so to be brought in contact with the friction-wheel H to receive its motion and power for spooling. The cap N, or bowl, as seen in Fig. 6, in which the shuttle is placed to hold it in its position to its race and carry it through the loop of the needle-thread, is pressed out of sheet-steel, and is raised in form by a punch and die, is connected to the slotted driver by a case-hardened screw, on which it may be moved down sufficient to take out and replace the shuttle, and when moved up to the top of the race will secure the shuttle in proper place for operation.

The double corrugated yielding spring-tension, as shown in Figs. 4 and 5, is made out of sheet metal, receives its form by suitable machinery, may be placed in or on the needle arm or slide to move with it in the most convenient place, as near as can well be to the needle, so that the thread will be guided between the two as it comes from the spool, passing through an eye in the under spring, and out on the opposite spring at the other end to the needle. More or less tension is given to any kind of silk, twist, cotton, or linen thread, and more uniformity, whether it be smooth or un even, by being adjusted by the small thumb screw *b*, or an equivalent device, than any mode before known or used. The spool-case *m*, as shown in Fig. 1, may be placed to suit the convenience anywhere without affecting of the tension of the thread. The fragment of a table, X,

as seen in Fig. 2, presents the front end view of the machine as secured to its top by the thumb-screw Z, under the projecting edge, so that all of the working parts of the machine are in the most convenient position to examine, oil, clean, regulate, and operate, either by the hand or foot, that they can possibly be placed in.

The foot-piece *o* and bed *p*, with the extension-rod attached, as shown in Fig. 3, are made of cast-iron, and pivoted to the bed-piece P, which rests upon the floor, so that the foot of the operator is balanced under the ankle-joint, thereby making the most natural and easy motion to the foot. The extension-rod, as shown in Fig. 3, is composed of a tube, Q, which is flattened at the end, and a hole through to connect it to the foot-piece *o* by a pin, *a*, the other end having a tapering screw, on which is fitted a milled nut, R, which compresses it to the sliding rod J, which forms the connecting-piece to the main driving-wheel I at the crank-pin *i*, which also serves as the handle to turn the machine when operated by the hand.

Having thus described my improved sewing-machine, what I claim therein to have invented as new, and desire to secure by Letters Patent, is—

1. The double corrugated yielding spring, between which the thread is guided, the same being regulated by a thumb-screw or any equivalent device to bear upon the thread, in the manner described, to produce any degree of tension required.

2. Making the bowl or shuttle carrier and attaching it to the slotted driver, as described, in combination with the circular shuttle-race.

3. The application of extension-rods for pitmen to sewing-machines, when used in combination with a hinged foot-piece to be placed upon the floor and the machine upon table, in the manner and for the purposes specified.

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Attest:

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