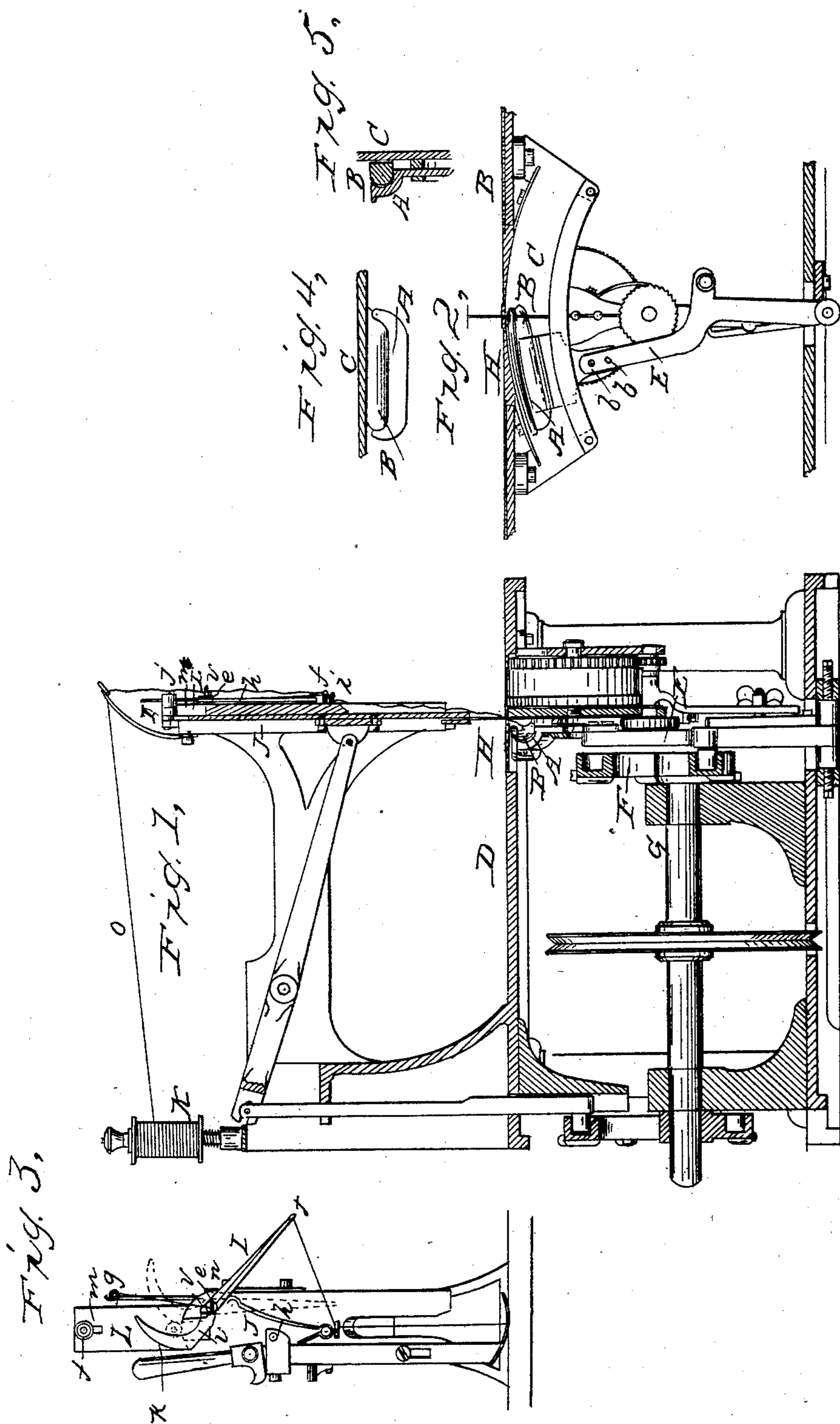


C. PARHAM.
Sewing Machine.

No. 11,971.

Patented Nov. 21, 1854.



UNITED STATES PATENT OFFICE.

CHARLES PARHAM, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 11,971, dated November 21, 1854.

To all whom it may concern:

Be it known that I, CHARLES PARHAM, of the city and county of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a longitudinal section of a sewing-machine constructed according to my invention. Fig. 2 is a back view of the shuttle-motion of the same. Fig. 3 is a front view of the mechanism for taking up the slack of the needle-thread and drawing tight of the stitch. Fig. 4 is a top view of the shuttle and its carrier. Fig. 5 is a transverse section of the same.

Similar letters of reference indicate corresponding parts in the several figures.

My improvement relates to that well-known description of sewing-machine in which the stitch is formed by the interlacing of two threads by means of a needle and a shuttle, or its equivalent.

The object of my improvement is to dispense with the shuttle-race, which, in all sewing-machines using the shuttle known to me, has been employed for the shuttle to travel in. The motion of the shuttle in this race is productive of much friction, and much oil or lubricating material is required to make it work freely, and this oil, covering those parts of the shuttle which come in contact with the loop of the needle-thread in passing through it, soils the thread so much as to be very perceptible in work of delicate material.

To obviate the above defect, the nature of this improvement consists in the employment of a shuttle-carrier in which the shuttle fits so as to allow it to pass through the loop, but to require no movement independently of a movement which is given to the said carrier, and to require no fixed guide with which it produces friction, except on that side which never comes in contact with the thread.

To enable those skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

All those parts of the machine which are not herein described are or may be presumed to be the same as the corresponding parts of well-known machines, as it is only necessary to

illustrate my invention to describe those parts of the machine to which it bears intimate relation.

A is the shuttle-carrier, in which the shuttle B is supported, and C is a fixed guide-plate, which is attached firmly below the table D of the machine, and may be considered to resemble the front side of the usual shuttle-race. The shuttle-carrier A consists of a metal box or seat, which is open at the top and on one side, whose transverse sectional form (see Fig. 5) corresponds with that side of the shuttle farthest from the guide-plate, which is such that the shuttle may rest very easily within it, and by the force of its gravity may be kept in contact with the guide-plate, and whose longitudinal form is such (see Fig. 4) that, though open at the ends to pass outside the loop and allow the shuttle to pass through the same, it will confine the shuttle within it. The seat of the shuttle-carrier has a shank, *a*, on its lower side, by which it is attached by means of bolts *b b* to a swinging arm, E, which is pivoted at *d* to the bed-plate of the machine, and which derives a swinging motion of sufficient length for the proper flight of the shuttle from a cam, F, on the main shaft G of the machine, which acts on a stud, *c*, on its back side. The arm works through a fixed slotted guide, which is secured to the guide-plate C and parallel therewith. An arched cap-piece, H, fits in the table D above where the shuttle works, in order to prevent the shuttle being tipped up at the end and thrown out of its carrier.

It will be understood that the shuttle-carrier describes an arc, and for that reason the shuttle and its seat are arched longitudinally. Owing to the free, loose manner in which the shuttle fits in its carrier, and the rounded form of all the edges and exposed parts of the carrier, the shuttle is allowed to pass freely through the loop without an obstruction from the carrier, which passes easily over the loop. As no oil or grease is necessary in the seat of the carrier, the loop-thread cannot become soiled or injured. The oil that is necessary between the front side of the shuttle and the guide-plate C is productive of no injury, as no thread passes that side of the shuttle so as to be in any danger of contact with it, as that part which lies in front of the needle is protected from it by the needle, which works in a recess in the face of the guide-plate.

The mechanism which effects the tightening and slackening of the thread is a lever, I, of the first order, (see Fig. 3,) which works on a fulcrum, *e*, secured in the head J, in which the needle-bar L slides. This lever has at its lower extremity an eye, *f*, through which the needle-thread *o* (shown in blue color) passes, after having previously passed from the spool K through an eye, *g*, in a small stand attached to the head J, and through another eye, *v*, in the end of the stud *e*, which forms the fulcrum of the lever. From the eye *f* the thread passes through another fixed eye, *i*, in the lower part of the head J before passing down to the needle-eye. The lower arm of the lever I is influenced by a spring, *h*, so as to be thrown outward to the right hand, as shown in black outline in Fig. 3, when the upper arm is not influenced by roller, *j*, attached to the needle-bar L. This roller, when the front of the needle is about entering the cloth, comes in contact with the curved upper part, *k*, of the upper arm of the lever, and, as the descent of the needle continues, runs down the curve *k* and quickly forces the said arm outward and the lower arm inward to the position shown in red outline in Fig. 3, and then, running down a straight part, *l*, below *k*, holds the lever stationary, with the thread perfectly slack, until it is necessary to tighten the loop, by which time the roller has again ascended far enough to clear the straight part *l* of the lever and allow it to return to the position shown in black outline. The point in the needle's motion at which it may be desired to let slack and commence drawing tight the thread may be regulated by raising or lowering the stud which forms the axis of the roller *j* in a slot, *m*, in which it is secured, the raising of the roller having the effect of slackening later and tightening earlier, and the lowering of the roller an opposite effect. The proper movement of the lever to take up the slack is regulated exactly by the adjustable fixed stop *n*, which is secured by screws to one side of the head J, and arrests the outward movement of the arm. By raising the stop the lever is allowed a greater amount of movement, and thus the stitch is drawn tighter. By lowering the stop a less movement is allowed, and thus the stitch is left slacker.

It is obvious that the shuttle-carrier A, shuttle B, and guide-plate C may be shaped and arranged for the shuttle to operate in a right line in the place of a curved one, as specified, and the shuttle-carrier be variously acted upon to drive or give motion to

the shuttle without departing from the novel feature and advantageous action of those parts before specified, in which the moving carrier is made to form the bearing-surface for the shuttle during the shuttle's travel, and, in combination with the guide-plate C, to direct the shuttle in its course without the aid of supporting-guides entering slots on either side of the shuttle for the shuttle to travel on, as is usual in other sewing-machines of a like character, and which occasion much inconvenience and soiling of the thread forming the loop by reason of the necessary lubrication of that side of the shuttle coming in contact with the thread or loop and the clogging of oil and dirt in the carrying-grooves of the shuttle, which defects are obviated by my arrangement, that, in requiring no lubrication of that side of the shuttle coming in contact with the thread or loop, (there being no friction of the shuttle on that side,) prevents the soiling of the thread and dispenses with that clogging of oil, grease, or dirt that takes place in the grooved shuttle, consequently producing less friction in the movement of the shuttle, while my arrangement generally insures more freedom of action for the shuttle, by reason of the loose manner in which it is carried and driven by the carrier A, and by the specified construction of the carrier affords equal or greater facility for the passage of the shuttle through the thread or loop formed by the needle, as fully set forth.

What I claim as new and useful herein, and desire to secure by Letters Patent, is—

The shuttle-carrier and driver A, constructed substantially as shown and described, and forming the bearing or seat for the shuttle B during its travel, as well as the guide for it on that side coming in contact with the thread-loop formed by the needle, and freely admitting of the passage of the shuttle through the loop, when the said carrier is arranged and combined for operation, together with the needle and with the guide-plate C, or its equivalent, on the needle side of the shuttle, essentially as set forth, whereby the shuttle is relieved from all friction or rubbing bearing on its thread side of the loop, the thread is prevented from being soiled or injured by lubricating material, and increased freedom of action is given to the shuttle, as specified.

CHAS. PARHAM.

Witnesses:

WM. B. DOWN,
C. THAW, Jr.