(134.)

JOHN FANNING & EDWARD NUGENT.

Improvement in Sewing Machines.

No. 122,113. Patented Dec. 26, 1871.

Fig 1.

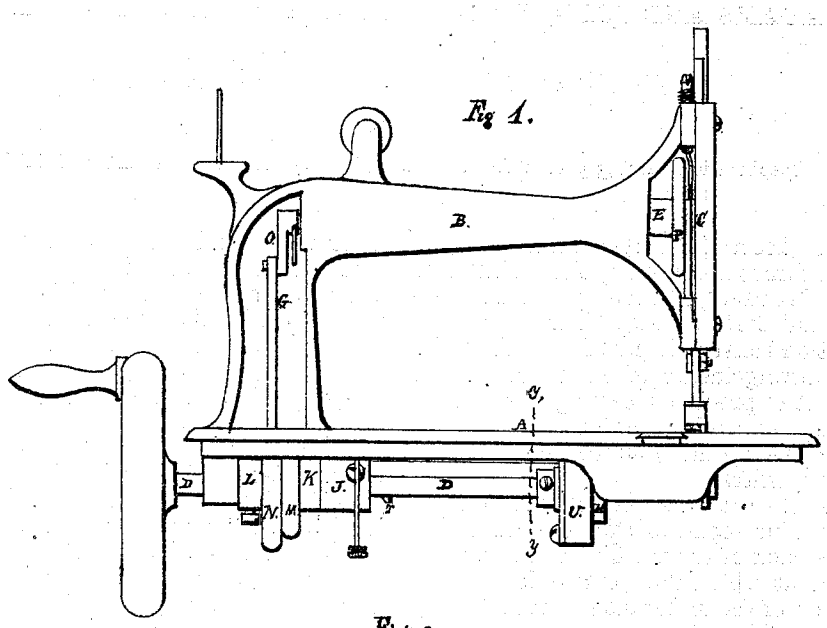


Fig 2.

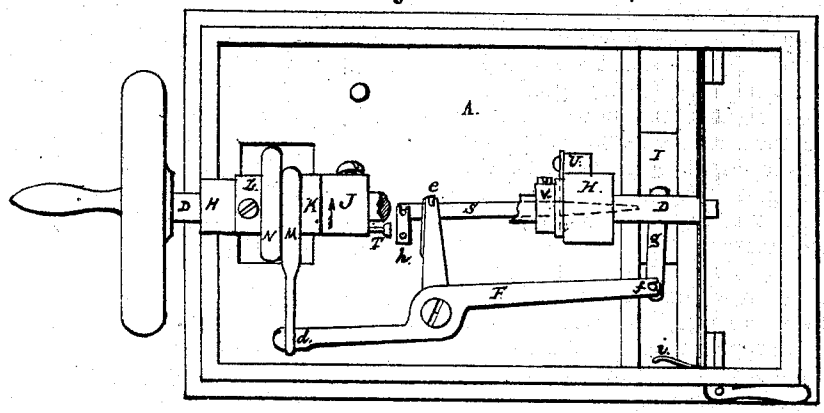


Fig 5.

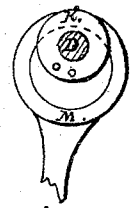


Fig 4.

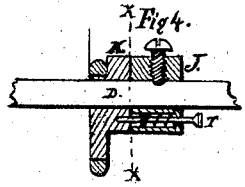


Fig 3.

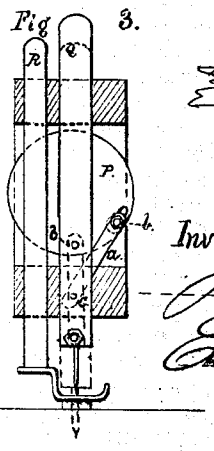
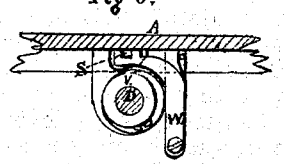


Fig 6.



Witnesses,

Edward H. Osborn

Edward H. Johnson

Inventors:

John Fanning

Edward Nugent

AM. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS.)

UNITED STATES PATENT OFFICE.

JOHN FANNING AND EDWARD NUGENT, OF BROOKLYN, ASSIGNORS TO JOHN C. ADAMS AND JOHN H. ANDRUS, OF BUFFALO, NEW YORK.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 122,113, dated December 26, 1871.

Specification describing certain Improvements in Sewing-Machines invented by JOHN FANNING and EDWARD NUGENT, of Brooklyn, in the county of Kings and State of New York.

Our invention consists in certain novel combinations and arrangements of parts which have for their object to produce a sewing-machine capable of being changed and adjusted at pleasure to sew either the ordinary shuttle-stitch or the the double-loop stitch.

Figure 1 of the drawing is an elevation of our improved machine separate from the stand representing the back of the machine or the side opposite to that at which the work is inserted in. Fig. 2 is a view of the under side of the machine. Fig. 3 is a view taken from the right-hand side of Fig. 1 with the face-plate C removed to show the arrangement of the mechanism employed to drive the needle. Figs. 4 and 5 are views in detail of the device employed to change the relative time of the movement of the looper with the needle when the machine is required to sew the double-loop stitch, Fig. 5 being a section through the line *x x*, Fig. 4. Fig. 6 is a sectional view through the line *y y*, Fig. 1, showing the looper-operating mechanism.

The parts A B represent the casting or frame of the machine in which the several operating parts have their bearings, the former constituting the bed-plate, and the latter the arm for supporting the needle-operating mechanism. The driving-shaft D has its bearings in the lugs H H on the under side of the bed-plate and operates both the needle and the shuttle, and the looper. It gives an oscillating motion to the needle-operating shaft E by means of the crank O, connecting-rod G, strap N, and eccentric L, and it also gives a vibrating movement to the shuttle-driving and looper-operating lever F, through the eccentric K, strap N, and connecting-rod jointed to the lever at *d*. The needle-bar Q has a reciprocating motion given to it by the link *a*, pivoted at *c* to the needle-bar, and at *b* to the disk P on the end of the oscillating shaft E. The extent of motion of the needle-bar is governed by the length of the link *a*, which is pivoted at the end *b* and held to the disk P by the nut or set-screw at that end, which passes through a slot in the disk, and its motion can therefore be regulated by adjusting the link *a*. This arrangement is shown in the detail view Fig. 3, where the face-plate C is removed and the position of the needle-bar when at its lowest point is represented by the dotted lines. The lever F is provided with an arm, *f*, which drives the shuttle-carrier I through the medium of the link *g*, and has also another arm, *e*, which can be connected to the looper S when it is desired to work the double-loop stitch. When the looper S is not in operation it is held back out of the way by the catch *h* on the under side of the bed-plate, and when the shuttle is not operating and is disconnected from the end *f* of the lever it is held back in like manner by the spring catch *i*. The motion of the shaft E is at all times uniform with the shaft D, as the eccentric L is fixed on the shaft D, but the relative movement of the eccentric K can be changed by virtue of the arrangement of the parts shown in the detail views, Figs. 4 and 5. The collar J, there shown, is fixed on the shaft D by a set-screw and has a pin, T, which passes through it and enters a hole in the eccentric K, this eccentric being loose on the shaft D and turning with the collar J, as will be readily understood. By this arrangement the relative time of the two eccentrics K L can be changed without deranging the other parts of the machine.

In Fig. 2 the machine is represented as being adjusted to sew the lock stitch with needle and shuttle, but when it is required to sew the double-loop stitch with needle and looper the shuttle-carrier is disconnected from the arm *f* and held back by the catch *i*, and the pin in the end of the looper S is slipped into the slot in end of the arm *e* of the lever F. The arm *e* is made of such length as to give the proper throw to the looper S, but as its time of movement with respect to the needle requires to be changed, the pin T is drawn out of the eccentric K and the collar J, and shaft D turned until the pin engages in another hole in the eccentric K, made just forward of the first hole. This change will cause the eccentric K to operate upon the lever F a little sooner than it did when it occupied the former position, and is necessary to the proper working of the looper. It is also necessary when the machine is altered to sew the double-loop stitch to shorten the throw of the needle. This is accomplished by loosening the screw *b* on the face of the disk P and shortening the link *a* the required amount, as this amount is governed by the length of the slot in the face of the disk P,

so that the adjustment can be quickly and accurately made. The mechanism shown in Fig. 6 gives the proper vibratory movement to the looper S, D representing the driving-shaft, V a cam secured upon it, and W a vibrating arm operated by the cam V.

We are aware of the patent No. 22,060 granted to Burnet and Broderick on the 30th of November, 1858, in which the loop of needle-thread for the passage of the shuttle is obtained by the use of a crank-connection upon the needle-bar which rocks past its center, forms the loop, and then descends during the passage of the shuttle through the loop; and we, therefore, disclaim such device.

We claim—

1. The combination and arrangement of the eccentrics K L, connecting-rods G M, crank O, shaft E, crank P, and needle-bar Q, and its connection *a*, and the double-armed lever F, for operating the shuttle and needle, all constructed and operating substantially as described and specified.

2. The double-armed lever F, constructed, arranged, and adapted to work the shuttle and looper, substantially as described.

3. The locking device, Fig. 4, for changing the positions of the needle and shuttle and the upper and under needle, when the machine is converted or changed from one stitch to the other, constructed substantially as described and specified.

4. In combination with the above device for changing the time of the vibrations of the lever F, the slotted disk P for changing the throw of the needle, constructed and operating substantially as described.

JOHN FANNING.
EDWARD NUGENT.

Witnesses:
C. A. DURGIN,
ROBERT M. BERRY.

(134)