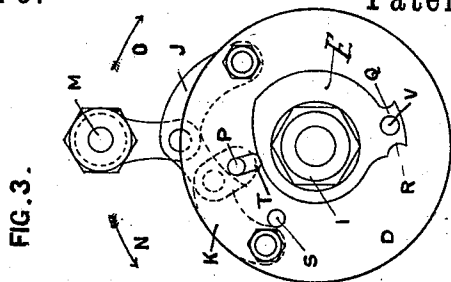
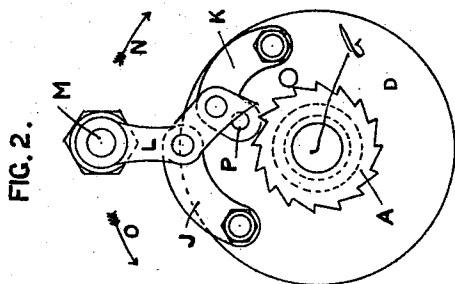
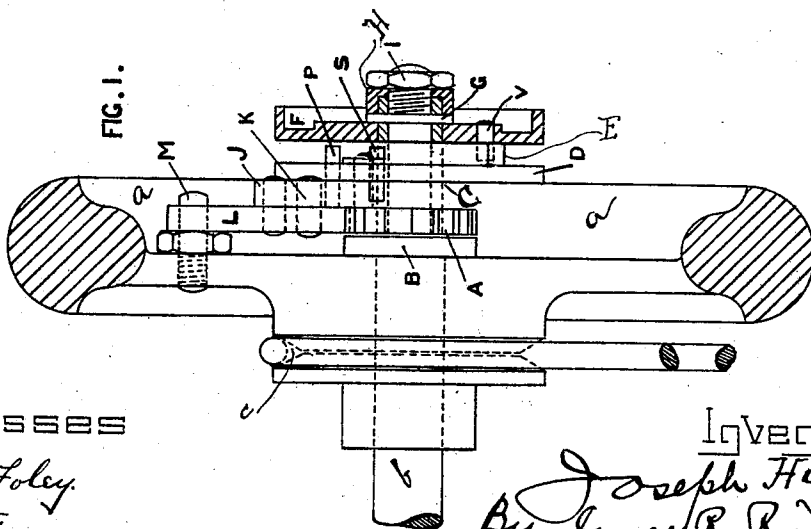


(No Model.)

J. HIGHAM.
CLUTCH FOR SEWING MACHINES.

No. 588,275.

Patented Aug. 17, 1897.



Witnesses
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UNITED STATES PATENT OFFICE.

JOSEPH HIGHAM, OF WIGAN, ENGLAND.

CLUTCH FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 588,275, dated August 17, 1897.

Application filed April 20, 1897. Serial No. 632,985. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH HIGHAM, a subject of the Queen of Great Britain, residing at Wigan, in the county of Lancaster, England, have invented certain new and useful Improvements in Clutches for Sewing-Machines, of which the following is a specification.

This invention has for its object to effect in sewing-machines a more perfect control of the shaft that works the needle by preventing it from revolving in a backward direction, this backward movement being so liable to cause damage, more or less, to the needle, thread, and fabric.

The invention will be understood from the following description, reference being had to the accompanying drawings, in which—

Figure 1 shows my invention, partly in section, applied to the balance-wheel and actuating-shaft of a sewing-machine; Figs. 2 and 3, detail views of my invention separated from the wheel, Fig. 2 being an obverse view of my device and Fig. 3 the reverse view thereof, but with the hand-wheel F removed.

In the figures, *a* is the balance-wheel, mounted loosely on the needle-actuating shaft *b*, and *c* a pulley for the driving gut or band by which the wheel *a* is operated by a treadle. The shaft *b* is prolonged beyond the balance-wheel *a* and reduced in diameter somewhat to receive the several parts composing my present invention. They consist of a toothed or ratchet wheel A, mounted on and secured to the needle-shaft *b*, against the collar-face B, by a projecting pin or by a small key on the shaft.

D is a disk, and C a sleeve mounted on the shaft *b*. One end of this sleeve C and the end of the boss of the disk D abut against the wheel A.

E is a cam also loosely mounted on the sleeve C against the face of the disk D, and F a small hand-wheel or disk for turning the cam, the cam and hand-wheel being coupled together by a pin V.

G is a friction-washer, and H a recessed steel collar on the outer end of the sleeve C, all being secured by the nut I.

J and K are two curved links pivoted to the disk D and to the link L, which latter is pivoted to the balance-wheel *a* at M. The

links J and K are pivoted to the disk D by a small collared pivot screwed through the disk and secured each by a small lock-nut on its outer side. The link L is pivoted to the links J and K by a pivot screwed through each of the free ends of these same two links J and K and so riveted at each end that all shall work freely. The shorter end of the link L is formed as a pawl to engage with the teeth of the wheel A.

P is a check-pin secured to the curved link K and projecting through the segmental slot T in the disk D into the path of the cam E.

In action when the wheel *a* is turned in the direction of the left-hand arrow N the pawl L will engage the teeth in the wheel A, which, being keyed to the shaft *b*, causes the latter to rotate; but when the said wheel is rotated in the direction of the left-hand arrow O the pawl is raised clear out of engagement from the teeth, and the wheel *a*, being loose on the shaft, will revolve without actuating the shaft at all. That is to say, when the wheel *a* is revolved in the forward direction the combined action of the links J, K, and L and the disk D is such as to insure a perfect grip on the wheel A to revolve the shaft, while when revolving in the backward direction the engaging point of the link L is raised just clear of the teeth of the wheel A, and the link K is also raised until its check-pin P arrives at the outward end of its segmental slot T in the disk, as shown in Figs. 2 and 3, and thus while all the links J, K, and L and disk D are revolved in the backward direction the shaft *b* itself remains at rest.

The machine is put permanently out of gear for bobbin or spool winding by rotating the cam E by turning the wheel F until the abutment Q comes against the pin P, and thus holds the pin permanently raised, which prevents the link L from engaging the teeth in the wheel A. The wheel *a* can then be freely rotated, while the shaft remains stationary. It is put into gear again by rotating the cam E in the opposite direction until the abutment R arrives at the stop-pin S. The link L is then free to engage the teeth in the wheel A, when the wheel *a* is revolved in the forward direction N. The cam E may be provided with a spring so arranged as to enable it to lock in the disk D at each end of its

stroke—namely, when its shoulder R abuts against the pin S or when its other shoulder Q abuts against the pin P, thus retaining the cam in either of its required positions when
5 the machine is in motion.

I declare that what I claim is—

1. In a sewing-machine, a balance wheel or pulley mounted loosely on the actuating-shaft, a ratchet-wheel keyed to the said shaft
10 and a link or pawl L pivoted to the balance wheel or pulley, in combination with a disk mounted loosely on the shaft, links pivoted thereto and to the link L in such a manner that the pawl will only engage the ratchet-
15 wheel and drive the shaft one way substantially as set forth.

2. In a sewing-machine, a balance-wheel

mounted loosely on the actuating-shaft, a ratchet-wheel keyed to the said shaft and ratchet-links L J K having pin P, in combination with a cam E with suitable handle capable when turned of pushing pin P aside and holding the ratchet-link L out of gear with the ratchet-wheel until such time as the cam is reversed substantially as and for the
25 purposes described.

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

JOSEPH HIGHAM.

Witnesses:

G. C. DYMOND,
W. H. BEESTON.