

(No Model.)

3 Sheets—Sheet 1.

E. KOHLER.

ROTARY SHUTTLE ACTUATING MECHANISM FOR SEWING MACHINES.

No. 489,162.

Patented Jan. 3, 1893.

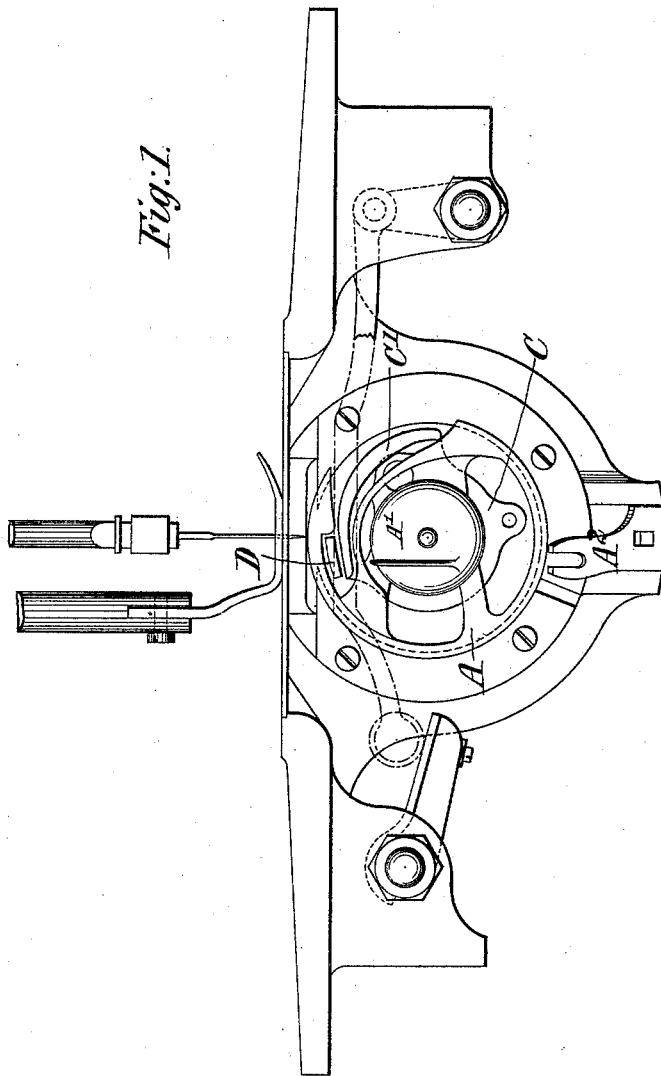


Fig. 7.

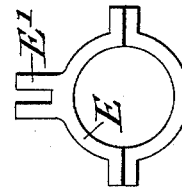
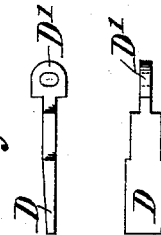


Fig. 6.



Witnesses:-
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(No Model.)

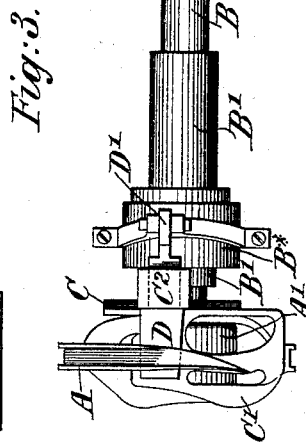
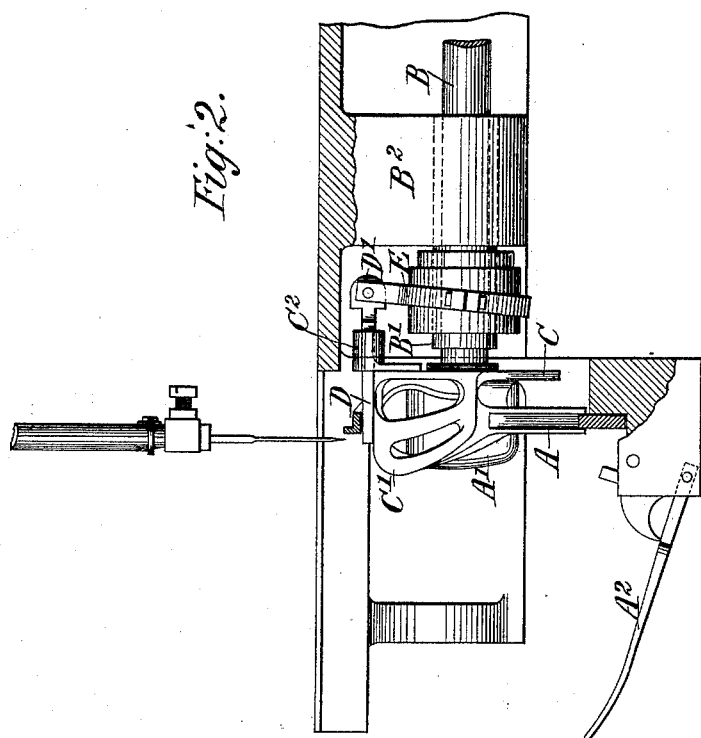
3 Sheets—Sheet 2.

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No. 489,162.

Patented Jan. 3, 1893.



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(No Model.)

3 Sheets—Sheet 3.

E. KOHLER.

ROTARY SHUTTLE ACTUATING MECHANISM FOR SEWING MACHINES.

No. 489,162.

Patented Jan. 3, 1893.

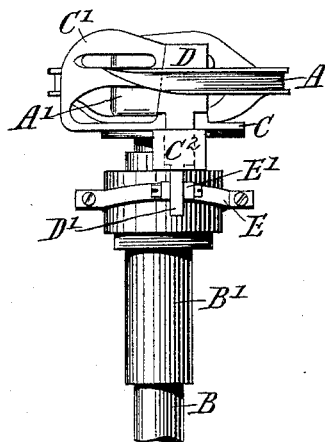


Fig: 4.

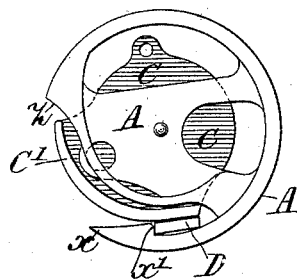


Fig: 5.

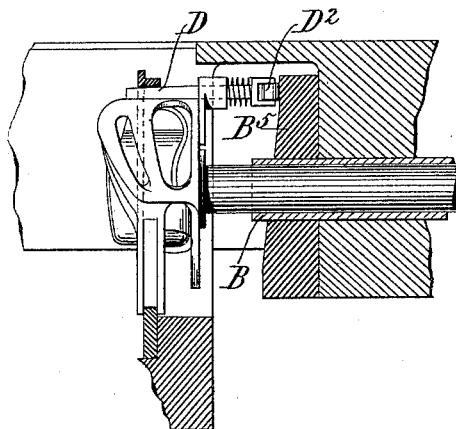


Fig: 8.

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UNITED STATES PATENT OFFICE.

EDWARD KOHLER, OF LONDON, ENGLAND, ASSIGNOR TO MAURICE GRANT,
OF SAME PLACE.

ROTARY SHUTTLE-ACTUATING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 489,162, dated January 3, 1893.

Application filed July 30, 1892. Serial No. 441,651. (No model.)

To all whom it may concern:

Be it known that I, EDWARD KOHLER, of 97 Cheapside, in the city of London, England, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification.

This invention relates to that class of lock-stitch sewing machines in which a rotary loop-taker or opener, or, as it is sometimes called, a rotary shuttle, is used as the means for passing the locking thread through the loop of the needle thread, and in which the loop-taker is driven alternately by the heel and the nose,—the object of this mode of driving being to remove any obstacle that would be a hinderance to the free run of the loop thread over the loop taker.

The object of this invention is to effect this double driving in a more simple and efficient manner than heretofore.

In order that this invention may be clearly understood, a detailed description will now be given, reference being made to the drawings hereunto annexed, in which:—

Figure 1, Sheet I, shows in end elevation so much of a sewing machine as is needed to illustrate this invention.—Fig. 2 is a side view of the same, partly in section.—Figs. 3 and 4 are top plan views of the loop taker and the driving devices showing the parts at two stages in the rotation of the said devices. Fig. 5 is a front view of the loop taker and driver, when in the position shown at Fig. 4.—Fig. 6 shows an edge view and plan view of the wedge piece, and Fig. 7 is a front view of the driving strap or ring.—Fig. 8 shows an obvious modification in the mode of actuating the wedge piece.

In carrying out this invention, the heel of the loop-taker is driven in the usual way, that is to say, by means of a bracket piece extending from a disk carried by the driver shaft, and extending over the heel.—To drive the nose, a wedge piece is employed, which slides in a tubular guide on the disk, and is operated at the right moment to enter a notch in rear of the nose of the loop-taker, and cause the loop taker to advance clear of the heel driver, by means of a cam action, such as a strap working in a fixed inclined cam groove conveniently situated for the purpose.

A. is the loop taker, and A'. its bobbin, which is held in the taker by the bobbin holder A². in the usual way, the loop taker working in a race of the usual form.

x. is the point or nose of the loop-taker, and just in rear of the nose is a recess which forms a shoulder *x'*. by which the loop taker is driven at one part of the stroke.

z. is the heel of the loop taker, at which point it is driven at another part of the stroke.

B. is the driver shaft, which is mounted concentrically in a fixed sleeve B'. carried by the bracket B². of the machine.

C. is a disk or plate on the end of the shaft B, and it is formed with a forwardly-extending bracket or driving portion C', which strikes against the heel *z.* of the loop-taker, and drives it during one portion of its stroke or rotation.

D. is a wedge piece which drives the nose of the loop taker.—One form of this wedge piece is shown at Fig. 6.—The eye portion D'. fits into the forked part E'. of the strap or ring E, Fig. 7, and this wedge piece D. slides in a direction, at right angles to the vertical plane of the disk C, in a guide C². carried by the disk C.

B* is an enlargement of the sleeve B', and contains a diagonal groove in which the ring E is secured and works.—The rotation of the shaft B. in the fixed sleeve, will,—through the wedge piece D. with which it is connected by the disk,—cause the ring E to rotate in the groove, and thus to oscillate or rock on an imaginary horizontal line drawn through its center, and the wedge piece D. will thus be caused to work to and fro in its guide C².—When the wedge piece D. is pushed out as shown in Fig. 4, the inclined edge will strike against the shoulder *x'*. of the loop taker, and in addition to driving, advance the hook to such an extent as to clear the heel *z.* of the heel driver, and thus allow space for the loop thread to pass freely away. This position is shown at Fig. 5.—When the wedge is withdrawn, as shown in Fig. 3 the hook will, so to speak, drop back until its heel *z.* comes into contact with the rotating heel driver. Space will thus be allowed for the passage of the loop thread between the shoulder *x'*. and the

wedge driver D. This position will be seen in Fig. 1.

In the modification Fig. 8, the wedge D. is formed at its rear end with a bowl D², which runs in contact with the face of a cam B⁵, fixed on the sleeve B', or elsewhere,—a coiled spring being employed to keep the bowl up to its work.

In the modification just described as well as in the example first described, the connection between the cam and the wedge driver D is entirely outside of the driving shaft.

I claim.

In a sewing machine the combination substantially as herein set forth with a rotary shuttle having a shoulder near its nose, of a rotary driving shaft, a disk on said driving shaft provided with a forwardly extending bracket for driving the shuttle at its heel and

with a guide external to the shaft, a stationary cam arranged concentrically to the said shaft, a driver consisting of a wedge-piece fitted to said external guide, and a connection substantially as herein described entirely outside of said shaft between said cam and said driver for the purpose of producing the forward and backward movement of said driver to engage it with and disengage it from said shoulder during its rotation with the disk and shuttle.

London, July 14, 1892.

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