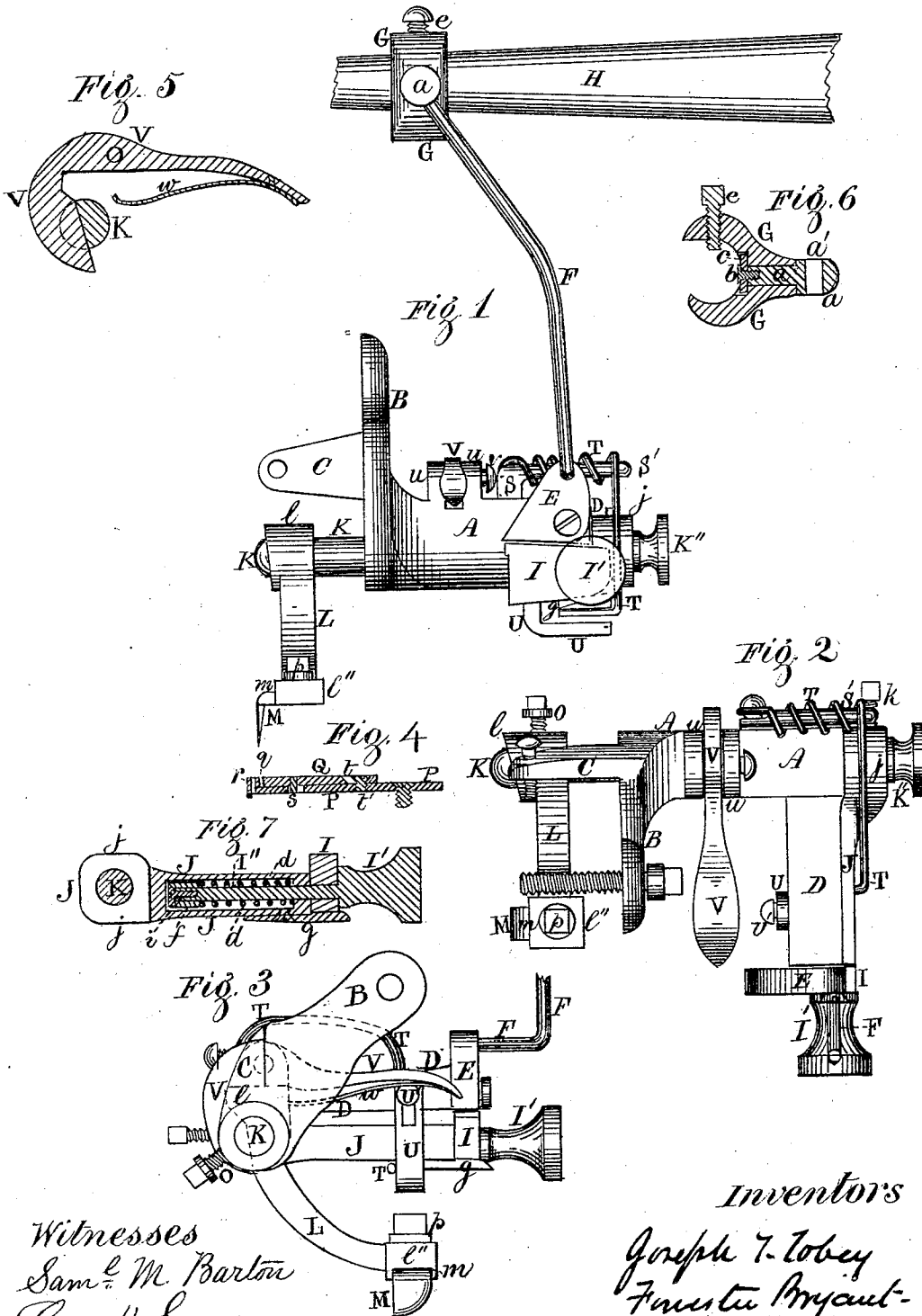


J. T. TOBEY & F. BRYANT.

Cutting Attachments for Sewing-Machines.

No. 153,504.

Patented July 28, 1874.



Witnesses
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UNITED STATES PATENT OFFICE.

JOSEPH T. TOBEY AND FORRESTER BRYANT, OF BOSTON, ASSIGNORS
OF ONE-THIRD THEIR RIGHT TO BENJAMIN F. LARRABEE, OF LYNN,
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IMPROVEMENT IN CUTTING ATTACHMENTS FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. 153,504, dated July 28, 1874; application filed
May 6, 1874.

To all whom it may concern:

Be it known that we, JOSEPH T. TOBEY and FORRESTER BRYANT, both of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Cutting Attachments for Sewing-Machines, of which the following is a specification:

Figure 1 of the accompanying drawing is a front view; Fig. 2 is a top view, and Fig. 3 is an end view, of our invention; Figs. 4, 5, 6, and 7, are vertical sections of portions of the same.

The present invention relates to certain new and useful improvements in sewing-machines, having for their principal object the production of a simple, economical, and effective knife attachment that shall cut the material of boots or shoes or other work at the same time that the needle is performing its work, and that may be readily thrown off the work to allow only the stitching operation to be performed.

Our invention consists mainly in an adjustable knife, connected with and operated, as will be hereinafter more fully explained, by a series of mechanical devices actuated by the operation of a needle-lever or shaft of a sewing-machine, so as to produce a segmental, elliptical, or hand-like stroke to the knife, and cut the material at the same time as it is being stitched.

These improvements also consist in the construction, arrangement, and combination of several of the operating devices that will be fully described in due course.

In the drawings, A represents a longitudinal metallic frame, formed at one end with a lateral upward-extending arm, B, and a forward-projecting arm, C, arranged to fit against and be screwed to the side and back of the head or arm of a sewing-machine, to support the frame A, which, if desired to prevent its wobbling, may be formed above the arm C, with another arm screwed to the head of the machine; or the frame A may, if preferred, be constructed and arranged to be otherwise attached and held to a sewing-machine. The frame A is formed on the front side, at its other end, with a lateral horizontal arm, D,

at whose end is pivoted an eccentric-cam, E, provided with a lateral and upward-extending lever-rod, F, whose upper end extends through and is held in an orifice, *a'*, formed in the head of a stem, *a*, held by a screw, *b*, and washer *c*, or otherwise, so as to turn in the socket of a projecting portion of a curved clamp, G, formed to fit upon and be held or released by a screw, or otherwise, readily adjusted to a needle-lever bar, H, or shaft of a sewing-machine. Located below the cam E, so as to receive its pressure and be operated by it, is a cam or plate, I, having an outer finger-knob, I', and connected with a rod or stem, I'', that extends longitudinally within the socket of an arm, J, (Fig. 7,) and is provided with a spiral or other spring, *d*, that abuts against the front end of the socket of the arm J, and against a movable sleeve or collar, *f*, to which the rod or stem I'' is held by a screw, *i*. Attached to the bottom of the arm J, and projecting forward from it below, so as to form a bed for the cam I, is a plate, *g*, beveled downward on its front edge to allow the easy slipping off or on of the cam I, when drawn out from or shoved in under the cam E. The inner end of the arm J is formed with a nave, *j*, that receives a shaft, K, held by a screw, *k*, or otherwise. The shaft K extends lengthwise through and turns in the frame A, and at its other end receives the nave end *l* of a curved downward and outwardly-extending arm, L, formed at its lower end with a knife or cutter-head, *l'*, grooved on its bottom or otherwise formed to receive a top horizontal plate, *m*, of a knife or cutter, M, held or released by a screw, *p*, extending through the head *l'* and top plate *m*, or otherwise held or released, and formed with a downward-extending blade that is curved and sharpened from the under side of the plate *m* to the bottom point of its rear vertical edge, as shown in Fig. 3. The curve of the blade is such that when operated by the arm L a sweeping stroke is made like that produced by a knife operated by hand. The arm L is adjusted and held by a screw, *o*, or otherwise, and the knife M is adjusted and held by its screw *p* in the exact position re-

quired to bring the blade, when operating on one side of the needle, in a groove or slot, *g*, (Fig. 4,) between the inner side of a top flange or throat of an under plate, *P*, and an upper adjustable plate or under blade or cutter, *Q*, formed with an under stud or pin, *s*, that engages in a slot formed in the under plate *P*, a slot, *t*, being formed in the upper plate *Q* to receive and hold a screw, *t'*, that screws into the under plate *P*, which is attached by a screw, or otherwise, to a sewing-machine. The top inner edge of the upper adjustable plate *Q* is sharpened, and, in connection with the knife *M*, forms an under cutter.

The adjustable arrangement of the plate *Q* is for the purpose of removing the plate for sharpening and to allow of its advancement as worn.

Attached to the rear or upper portion of the frame *A*, by a screw or otherwise, is a vertical plate or arm, *S*, of a top longitudinal stem or bar, *S'*, or other suitable support, which holds a spiral or other spring, *T*, one end of which spring is fastened to the screw or otherwise held, and the other end is extended and bent downward and forward underneath the bottom of the arm *J*.

Near the forward end of one side of the arm *I* is an adjustable right-angled arm, *U*, whose horizontal bottom portion extends below the arm *J* the required distance to prevent the arm *J* being carried beyond the desired position, and whose vertical portion is formed with a slot to receive a screw, *U'*, that screws into the arm *J* and holds or allows the release of the arm *U* to adjust the same and limit the action of the arm *J*, as desired. The frame *A* is formed with top lugs or standards *u*, that receive a pivot, on which turns a lever-cam, *V*, curved on its front and upper portion and cut out and beveled on its under side, as shown in Fig. 5, or otherwise formed to engage in a notch formed in the shaft *K*, or otherwise formed or arranged to hold the shaft, or to be readily released from the same to allow the drawing out of the shaft at one end to disengage the knife from operating when stitching alone is required. The lever-cam *V* is provided with a bent spring, *w*, having a fulcrum on the frame *A* to throw the cam into the notch of the shaft. Connected with the end of the shaft *K* is a knob, *K''*, for the purpose of pulling out or shoving in the shaft.

The operation of our invention is as follows: When the needle-lever or needle-shaft is operated to carry down the needle, the rod *F* is actuated thereby and turns the cam *E*, which bears upon the cam or plate *I*, so as to press down the arm *J*, and turn the shaft *K*, which tips down the curved arm *L* and gives the required movement to the knife *M* against the material, and, in connection with the under cutter *Q*, effectively cuts the same at the same time the needle is performing its work.

The knife *M*, owing to the shape of its

blade, and the movement given to it by the tipping action of the arm *L* turns from the bottom point of the vertical edge forward and upward to its top plate, thus giving it a segmental elliptical-like stroke on the material, similar to the cutting movement given to a knife when drawn on the material by the human hand, and more satisfactory in its results than either the vertical or chisel-like movement, or the rotary movement of the cutters usually adopted for a like purpose. On the release of the cam *E* the arm *J* is carried back to its normal position by the action of the spring *T*.

When it is desired to turn a corner in the work or to stitch without cutting, the knife *M* is held inoperative by drawing out and lifting up the stem *J*, which is thus disconnected from the cam *E* at the bottom, and abuts against its side where it is held by the tension of the spring *d*.

To throw the knife *M* completely out of connection, the cam or plate *I* is thrown down, the lever-cam *V* is released from the notch of the shaft *K*, which is drawn out at one end of the frame, thus allowing the lifting and carrying away of the knife *M* from the work.

Having thus fully described our improvements, what we claim as our invention, and desire to have secured to us by Letters Patent, is—

1. The combination of the frame *A*, having the rigid arm *D*, cam *E*, and spring *T*, with the shaft *K*, having the arms *J* *L*, and provided with the adjustable knife *M* and cam *I*, substantially as described, for the purpose specified.

2. In a sewing-machine knife attachment, the combination of a cam or plate, *I*, stem *I''*, spring *d*, and arm *J*, all arranged and operating substantially as and for the purposes described.

3. In a knife attachment of a sewing-machine, a pivoted cam, *E*, provided with a rod, *F*, in combination with a plate or cam, *I*, arm *J*, shaft *K*, and frame *A*, arranged and operating substantially as and for the purpose specified.

4. In a knife attachment of a sewing-machine, a lever-cam, *V*, in combination with shaft *K* and frame *A*, substantially as and for the purpose described.

5. In a knife attachment of a sewing-machine, an adjustable slotted arm, *U*, in combination with screw *U'*, and arms *D* and *J*, substantially as and for the purpose herein set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOSEPH T. TOBEY.
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Witnesses:

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SAM'L. M. BARTON.