

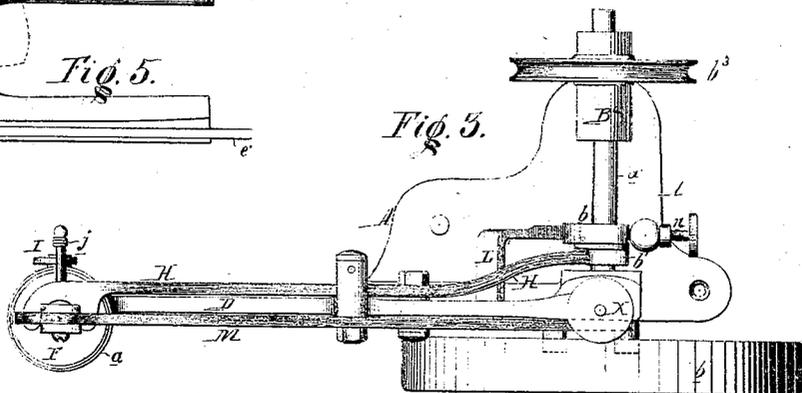
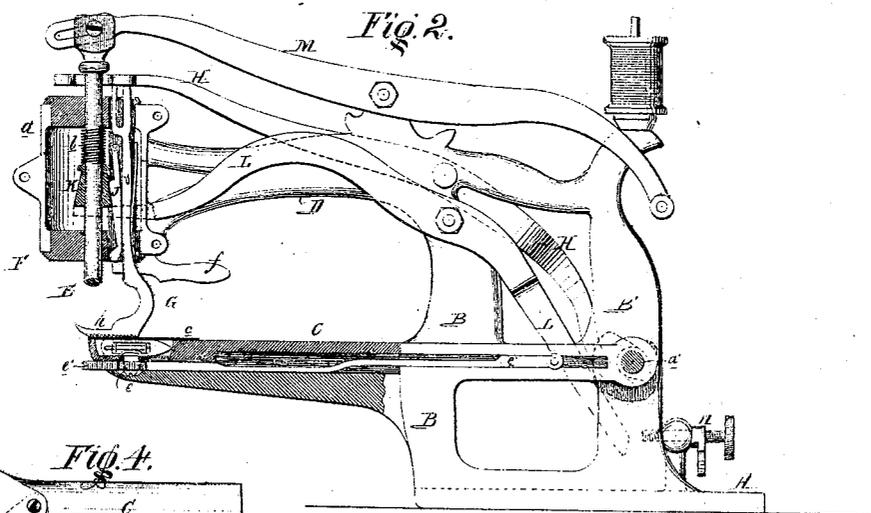
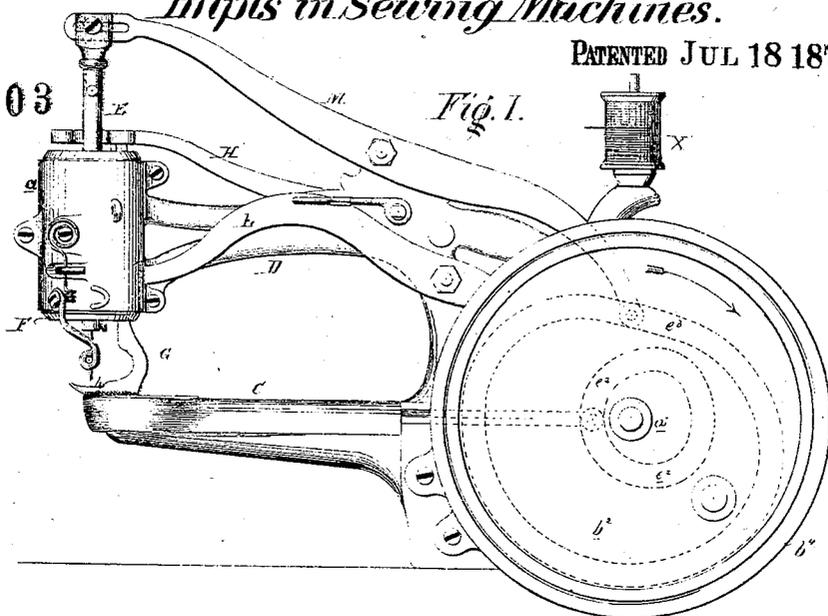
James, Joseph, Edw. & Wm Pitt,

Drawing No. 1.

Impts in Sewing Machines.

PATENTED JUL 18 1871

117203



WITNESSES

Wm. A. Stey
John Parker

James Pitt
Joseph Pitt
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William Pitt

by their Attys
Horner and Son

Jas, Jos, Edw, & W^m Pitt—Impls. in Sewing Machines

Drawing No. 2.

117203

Fig. 6.

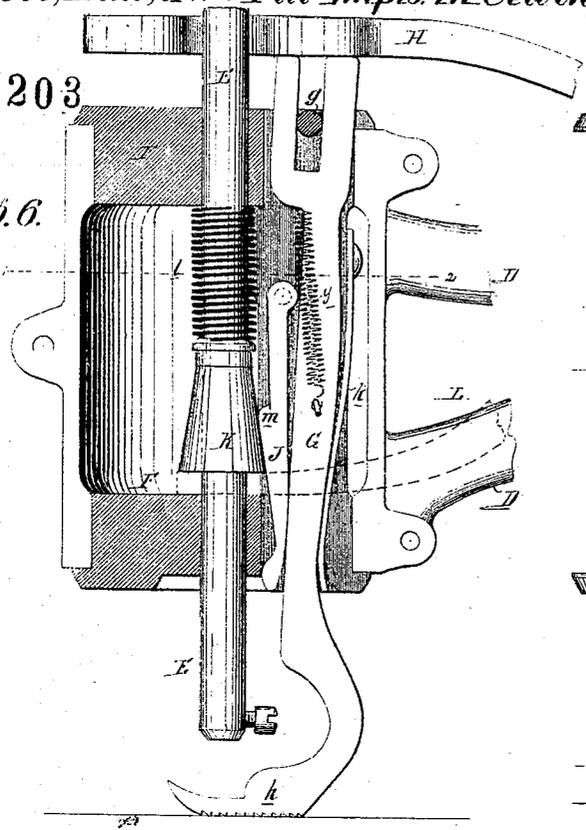


Fig. 7.

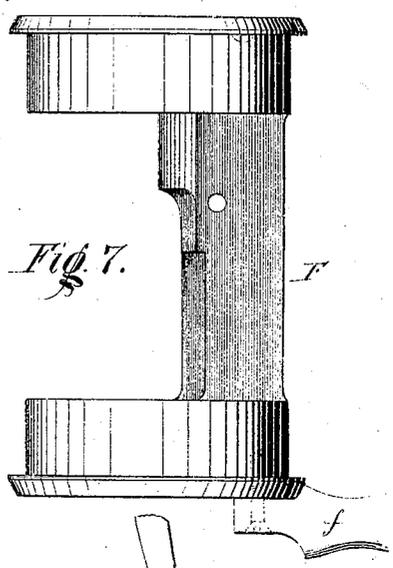


Fig. 8.

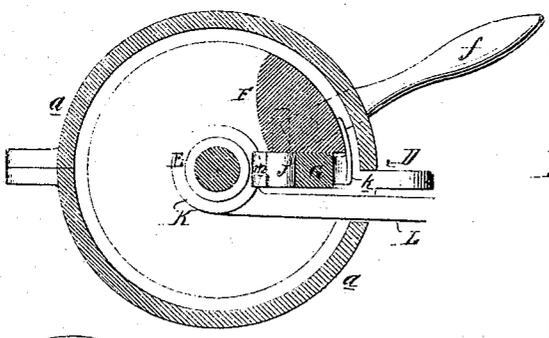


Fig. 9.

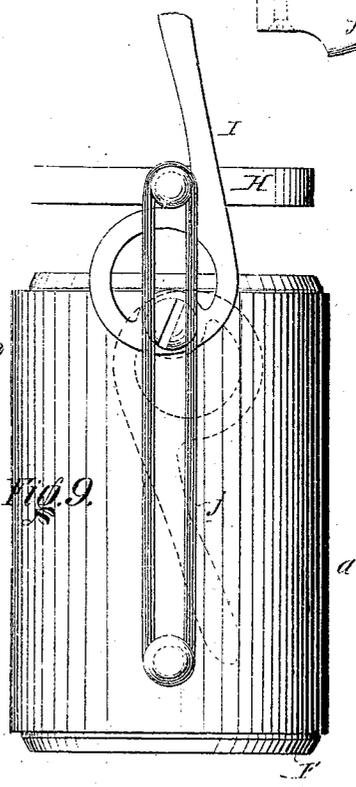
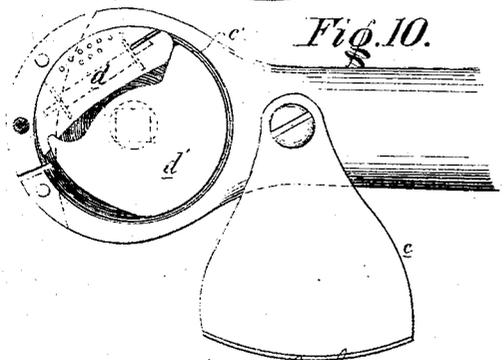


Fig. 10.



WITNESSES

Wm. A. Steel
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James Pitt
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UNITED STATES PATENT OFFICE.

JAMES PITT, JOSEPH PITT, EDWARD PITT, AND WILLIAM PITT, OF CLECKHEATON, GREAT BRITAIN, ASSIGNORS TO THEMSELVES AND CHARLES KEIGHLEY, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 117,203, dated July 18, 1871.

To all whom it may concern:

Be it known that we, JAMES PITT, JOSEPH PITT, EDWARD PITT, and WILLIAM PITT, all of Cleckheaton, county of Yorkshire, and Kingdom of Great Britain and Ireland, have invented certain Improvements in Sewing-Machines, of which the following is a specification:

Our invention consists of certain devices, fully described hereafter, whereby the direction in which the fabric on the work-plate of a sewing-machine is moved or fed may be changed in a moment at the will of the operator. The invention further consists in certain peculiarities in the construction and arrangement of parts of the machine for facilitating the sewing of the sides of shoes, gaiters, and other like objects which cannot be readily operated on by machines of the ordinary construction.

Figure 1 (sheet No. 1) is a side elevation of a sewing-machine with our improvements; Fig. 2, the same, partly in section; Fig. 3, a plan view; Figs. 4 and 5, detached views of parts of the machine; Figs. 6, 7, 8, 9, and 10, (sheet No. 2), detached views, drawn to an enlarged scale, of different parts of the machine.

The frame of the machine consists of the base A, uprights B B¹ B², hollow arm C, and arm D overhanging the arm C, and having at its outer end a hollow cylindrical enlargement or case, *a*. The driving-shaft *a'* turns in the uprights B¹ B² and carries the cams *b* *b*¹, grooved pulley *b*², and crank-wheel *b*², the latter being inclosed by a stationary rim, *b*⁴, which prevents articles which are being sewed or the clothing of the operator from coming in contact with the wheel. At the outer end of the arm C is a flat horizontal work-plate, *c*, a portion of which is so pivoted to the arm that it may be turned to one side to expose a circular recess, *c'*, Fig. 10, in which reciprocates a curved shuttle, *d*, the latter fitting the curved side of the recess and being operated by a vibrating block, *d'*, connected to a central spindle carrying a pinion, *e*, to the teeth of which are adapted those of a ratchet on a reciprocating shaft, *e'*, extending through the hollow arm C. The shaft *e'* is operated by a cam, *e*², at the inside of the wheel *b*². The needle-bar E extends through the center of and slides in a cylinder, F, which is fitted to the case *a*, so that it may be rotated freely therein, to the extent of one-half

of a revolution, by means of the handle *f*, and is cut away at one side, as shown in the drawing. The needle-arm is connected to and operated by a lever, M, hung to the overhanging arm D, and operated by a cam, *e*³, on the wheel *b*²; and in the arm C is the usual recess for the reception of the needle when it descends, so that the shuttle may pass close to the same and catch and penetrate the loop of needle-thread in the usual manner. Through the cylinder F extends an arm, G, slotted at the upper end for the passage of a pin, *g*, on which the arm slides and vibrates, the arm having at the lower end a foot, *h*, which rests on the work-plate and is serrated at the under side, as shown in the drawing. A spring, *y*, attached to the cylinder F and to the arm G, tends to elevate the latter and maintain its upper end in contact with a lever, H, hung to the arm D and operated by the cam *b*¹, beneath which its inner end projects, the outer end of the lever H being enlarged so that the cylinder F may be turned to any extent not exceeding one-half of a revolution without removing the end of the arm G from beneath and in contact with the end of the said lever. A rubber band or spring, *j*, passing round pins on the case *a* and on the lever H, tends to keep the latter in contact with an elevating-cam or eccentric, I, hung to one side of the case. To the cylinder F, within the case *a*, is hung an arm, J, which has at one side an inclined projection, *m*, and bears at the opposite side against one edge of the arm G, and against the opposite side of the latter bears a spring, *k*, which tends to force the arm G against the arm J, and the latter against a conical block or sleeve, K, sliding in the needle-arm E. A spring, *l*, coiled round the needle-arm, bears at its upper end against the cylinder F and at its lower end on the sleeve K, and maintains the latter in contact with the outer end of a lever, L, projecting beneath the sleeve hung to the arm D, and operated by the cam *b*, beneath which its inner end extends. The cone K is raised by the action of the lever L and depressed by the spring *l*, and, bearing against the inclined projection *m* on the lever J, imparts, as it reciprocates vertically, a vibrating or swinging motion to the arms J G. A set-screw, *n*, turning in a projection on the base-plate A, regulates the extent of the movement of the lever L; and to

the frame of the machine are secured the usual tension and thread-controlling devices, through which the thread passes to the needle *x* from the spool *X*.

The cam-lever *I* is turned to raise the lever *H*, when the spring *y* will elevate the arm *G*. The fabric to be sewed is placed on the work-plate *c*, and the lever *I* is then turned so as to permit the lever *H* to descend and bring the foot *h* down onto the fabric. The wheel *b*² is now turned in the direction of the arrow, when the needle will be caused to rise and descend, and the shuttle to reciprocate, interlocking the threads and producing a series of stitches in a manner too well known to those familiar with this class of machinery to need description.

During these operations the fabric will be fed toward the heel of the foot *h* by the action of the latter, which operates in the following manner: While the needle is descending the foot *h* remains stationary, holding the fabric firmly against the work-plate *c* until the needle is arrested at the limit of its downward motion. The foot *h* now rises vertically from the fabric, moves toward the needle, and descends onto the fabric, when the needle will rise. As soon as the needle is clear of the fabric the foot *h* will move the length of one stitch from the needle, carrying with it the fabric, after which the needle will descend and hold the fabric while the foot again rises, moves toward the needle, descends, and feeds forward the fabric, as before. The upward and downward movements of the foot *h* are caused by the spring *y* and the lever *H*, operated by the cam *b*¹, while the vibrating motion of the arm *G* results from the action of the sliding cone *K*, as before described, the extent of the movement of the cone, and consequently the extent of the vibration of the arm *G* and length of the stitch, being regulated by a set-screw, *n*, which limits the vibration of the lever *L*.

Inasmuch as the sleeve *K* is conical in form, and as it is situated at the center of the cylinder *F* carrying the arm *G*, it will be apparent that

the rotation of the said cylinder on its center, while it will alter the position of the foot *h* on the work-plate, will not affect the relative position of the said arm *G* and operating-sleeve *K*, so that the simple turning of the cylinder *F* (by its arm) will bring the foot *h* to any desired position in respect to the needle *x* without affecting the movements of the foot, which may thus be caused to move or feed the fabric in any desired direction.

By the arrangement of the flat work-plate *c* on the end of a long slender arm, *C*, many kinds of work (as the sewing of rubber fabric to the sides of gaiters, &c.) which could not be effected in ordinary machines can be performed with ease and rapidity.

The arm *J* may be dispensed with, and in place of the sleeve *K* the end of the lever *L* may be formed into a disk, which, as the lever vibrates, will bear against the inner edge of the lever *G* and impart the desired vibrating motion to the same.

I claim—

1. The overhanging arm *D* with its cylindrical enlargement *a*, in combination with the block *F*, inclosed by and turning in said enlargement, and with the bar *E*, lever *G*, springs *y* and *k*, and sliding wedge *K* for operating the arm *G*, all as set forth.

2. The arm *J*, arranged and operating in combination with the bar *E*, sleeve *K*, lever *G*, and levers *H* and *L*, as specified.

3. The combination, with the sleeve *K*, of lever *L* and set-screw *n*, or its equivalent.

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

JOSEPH PITT.
EDWARD PITT.
JAMES PITT.
WM. PITT.

Witnesses:

W. YATES SELLECK,
R. RICHARDSON.