

(No Model.)

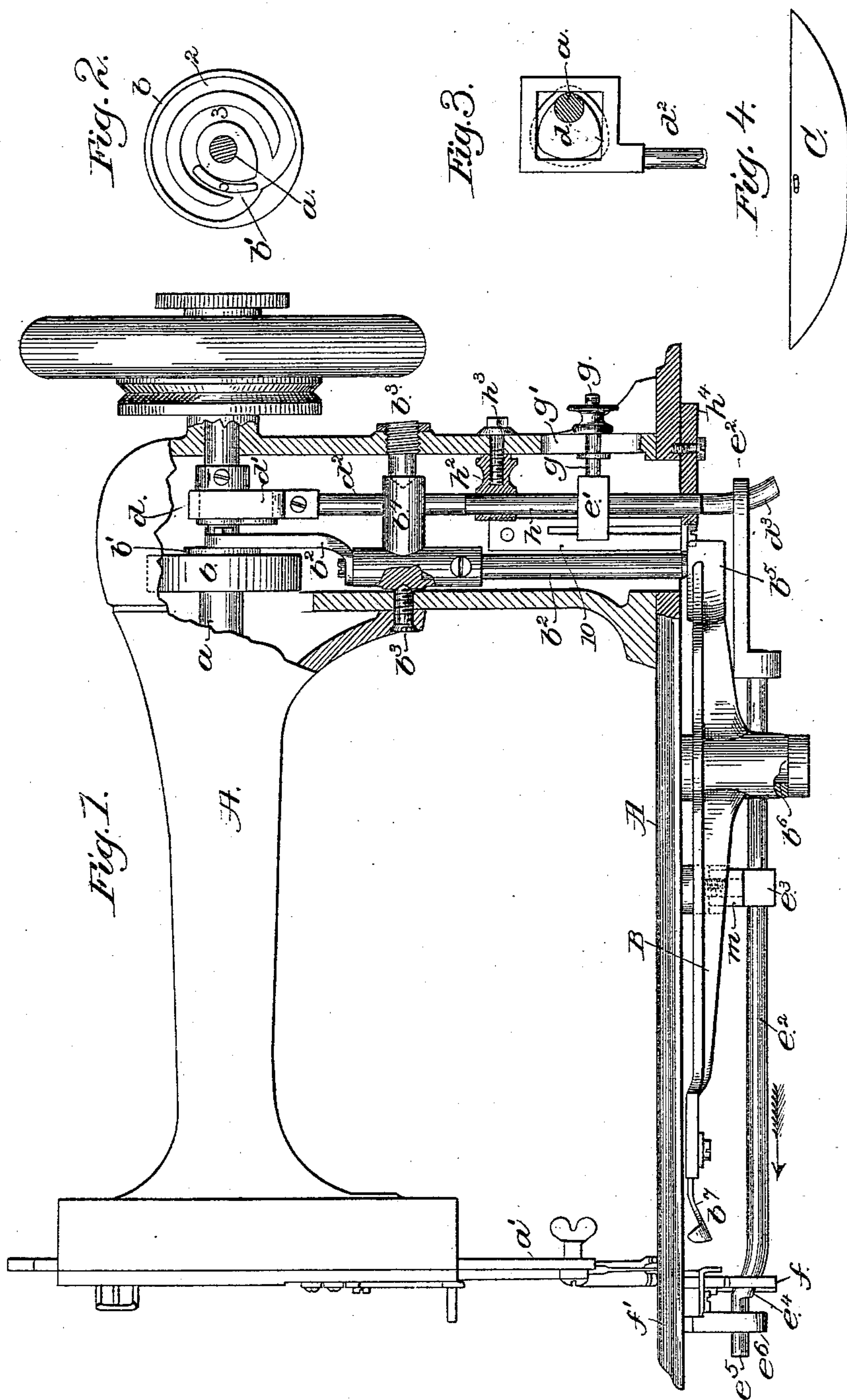
2 Sheets—Sheet 1.

G. W. BURGESS.

SEWING MACHINE.

No. 277,217.

Patented May 8, 1883.



Witnesses.

John F. C. Reinkens
Fred A. Powell.

Inventor.

George W. Burgess

By Crosby & Gregory attys.

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Fig. 5.

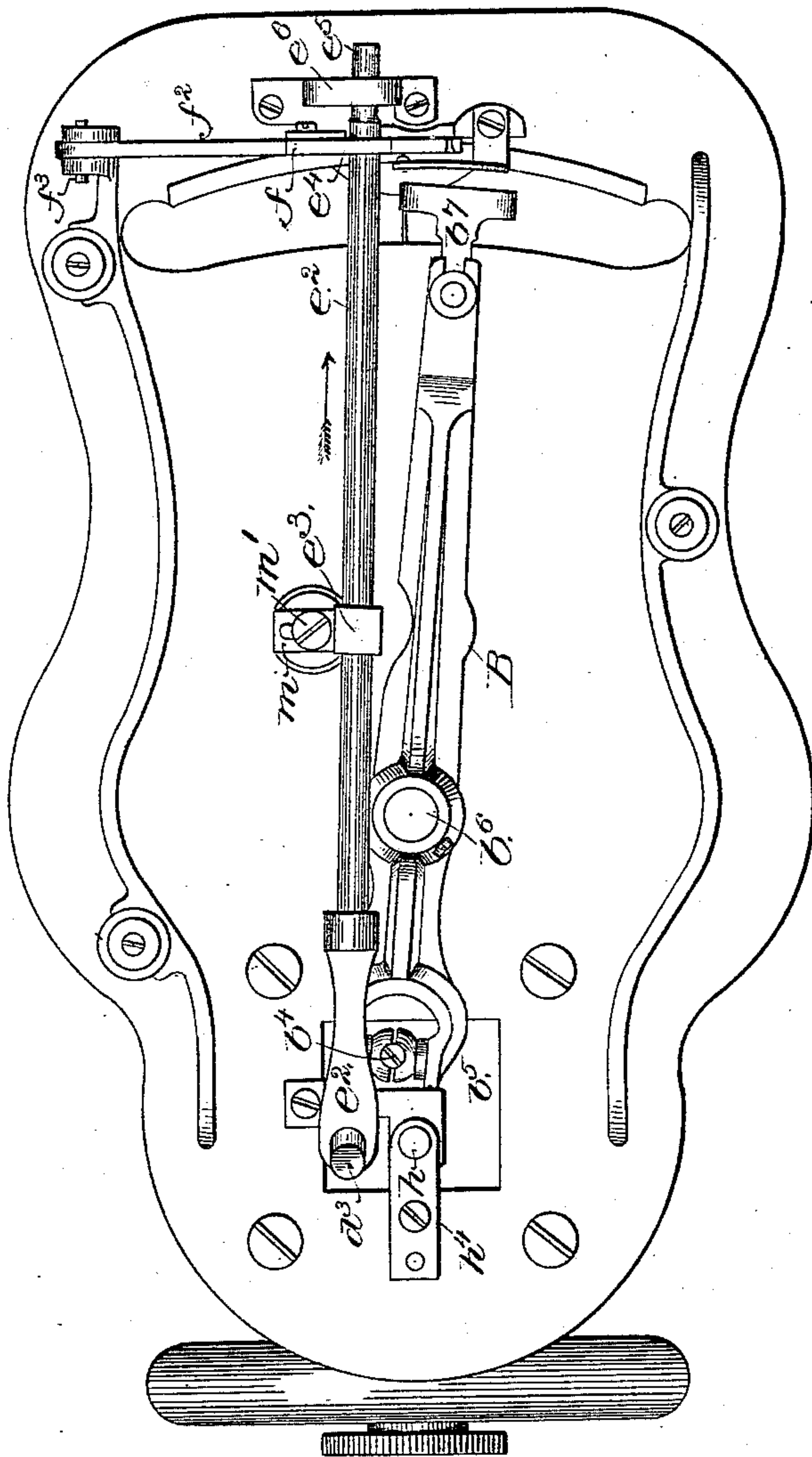
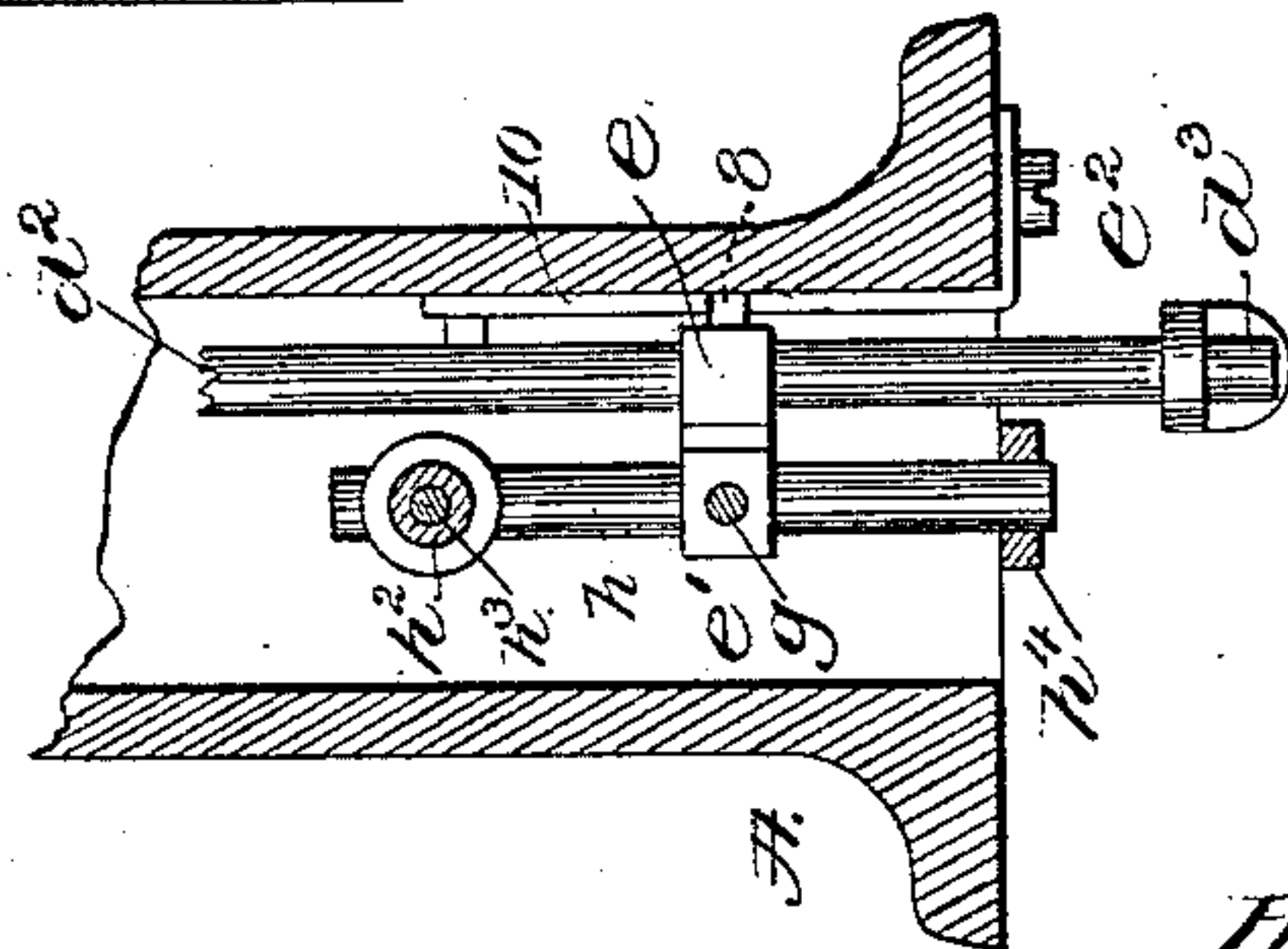


Fig. 6.



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UNITED STATES PATENT OFFICE.

GEORGE W. BURGESS, OF NEW YORK, N. Y.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 277,217, dated May 8, 1883.

Application filed August 15, 1882. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. BURGESS, of New York, county and State of New York, have invented an Improvement in Sewing-Machines, of which the following description, in connection with the accompanying drawings, is a specification.

This invention relates to sewing-machines employing a shuttle for the under thread and making the lock-stitch. In my invention I employ a double-pointed shuttle, it carrying its thread through a loop of needle-thread at each movement of the shuttle in each direction; and my invention consists in means for operating the shuttle-carrying lever and double-pointed shuttle in the proper time, the means herein shown being a switch-cam having a double or crossing groove at one side and secured to the rotating shaft which carries the needle-bar-actuating devices, the said cam receiving in its grooves a shoe pivoted upon the upper end of a pivoted vertical lever, having at its lower end a ball or equivalent joint, which enters between the forked rear part of the horizontally-vibrating shuttle-carrying lever. The under four-motioned feeding device is raised and lowered by an inclined portion of a round rod, guided at its front end by a bracket, and moved longitudinally and vibrated by means of an inclined part at the lower end of a vertically-reciprocating rod or bar moved by a cam on the main shaft, the said rod being vibrated, more or less over or in an adjustable fulcrum-block, the change of position of which changes the length of feed.

Figure 1 represents in side elevation a shuttle sewing-machine embodying my invention, a part of the frame-work being broken out to show my improvements or the devices for actuating the shuttle and feeding devices; Fig. 2, a detail of the switch-cam for moving the shuttle-carrying lever to enable me to employ a double-pointed shuttle; Fig. 3, a detail of the cam and yoke forming part of the feeding mechanism; Fig. 4, a double-pointed shuttle. Fig. 5 is an under side view of Fig. 1, and Fig. 6 a detail of the parts for moving the feeding devices.

The frame-work A has mounted in its upper part the main shaft a , which at its front end will be provided with any usual cam or device

to reciprocate the needle-bar a' , raising and lowering it once for each rotation of the said shaft. The shaft a has upon it the switch-cam b , having in its side face the double or crossing grooves 2 3, as shown in Fig. 2, the said grooves receiving a shoe, b' , pivoted upon the upper end of the vertical lever b^2 , having the center hub, b^4 , pivoted at b^3 , and provided at its lower end with a ball-like termination, b^4 , which is entered between the forked end b^5 of the shuttle-carrying lever B, pivoted at b^6 , and provided at its front end with the shuttle-carrier b^7 , which receives in it the double-pointed shuttle C. The switch-cam causes the shuttle-carrying lever to be moved in one direction, and the shuttle through the loop of needle-thread at one rotation of the shaft a , and in the opposite direction and through the loop of needle-thread in the opposite direction at the next rotation of the shaft a . With a double-pointed shuttle to pass through the loop of thread at each movement of the shuttle in opposite directions, the speed of movement of the shuttle-carrying lever B may be lessened one-half, which, in a sewing-machine employing a long horizontally-vibrating lever to reciprocate the shuttle, is of very considerable importance, for by reducing the speed of the said lever its liability to overrun by momentum and the strain due to reversing the motion of the lever quickly are greatly lessened. The shaft a also has fixed upon it a cam, d , (see Figs. 1 and 3,) which enters the yoke d' , secured to the upper end of a rod or bar, d^2 , bent or inclined backward, as shown at d^3 . The bar d^2 is extended through a hole in the adjustable oscillating fulcrum-block e , (see Fig. 6,) pivoted on a movable frame, e' , adjustment of the said frame and block vertically placing the block e nearer to or farther from the shaft a , and consequently regulating the extent of vibration of the bar d^2 and of the horizontal vibration of the lever e^2 , held loosely in the oscillating fulcrum-piece e^3 , the lower inclined end, d^3 , of the rod d^2 entering an opening at the rear end of the lever e^2 . The lever e^2 , held loosely in the pivoted fulcrum-piece e^3 , is moved or reciprocated longitudinally in the piece e^3 by the inclined part d^3 of the bar d^2 ; but the horizontal vibrations of the lever e^2 are derived from the vibrations of the vertical bar or le-

ver d^2 . The extreme front end, e^5 , of the lever e^2 is received in a slot in a guide, e^6 ; but the inclined part e^4 of the lever e^2 , at the rear of the said guide, is entered loosely into a round hole made in a block, f , attached to the usual under feeding device or bar, f^2 , supported at its rear end in usual manner by the pin f^3 . Longitudinal forward movement of the lever e^2 in the direction of the arrow causes its inclined part e^4 to lower, and movement in the opposite direction to raise the feeding device f^2 . The horizontal vibrations of the lever e^2 cause it to move the feeding device forward and backward.

The pivoted fulcrum-block e may be raised and lowered in any suitable manner. I have herein shown for such purposes a screw, g , extended through a slot, g' , in the frame A, (see Fig. 6,) the said screw being made to clamp and hold the frame e' in adjusted position. The frame e' , in order to insure its proper vertical movement, is guided by a stem or stud, h , which is extended upward through a guide, h^2 , secured by a set-screw, h^3 . The frame e' is prevented from turning horizontally by means of a spline, 8 , thereon, which enters a slot in a plate, 10 , or vice versa.

The fulcrum-piece e^3 (see Fig. 1) is pivoted upon a plate, m , secured adjustably to the frame-work A by the screw m' . The lower end of the guide-rod h is held in the guide-plate h^4 . The guide-rod h is parallel with and located just in front of the bar or lever d^2 , the rod being located between the operator and the lever d^2 .

The shuttle C may be of any shape or construction common to double-pointed shuttles.

The detail, Fig. 6, is supposed to be a section between the right-hand side of the rod h , Fig. 1, and the frame-work.

I do not broadly claim a double-pointed shuttle making with its thread and the needle-thread a stitch at each movement in each direction; nor do I broadly claim a shuttle-lever actuated directly by a switch-cam below the bed-plate.

I claim—

1. In a sewing-machine for forming a lock-stitch with two threads, a double-pointed shuttle to carry the under or second thread, a horizontally-vibrating shuttle-carrying lever, and the vertical lever and its shoe, combined with the shaft a , and the switch-cam thereon, to operate substantially as described.

2. The feed-bar, the guide e^6 , the longitudinally-reciprocating and horizontally-vibrating lever e^2 , provided with the incline e^4 and the fulcrum-block e , the vertical lever d^2 , provided at its lower end with the incline d^3 , combined with the yoke, the cam d to move the lever d^2 , and the shaft a , substantially as shown and described.

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

GEORGE W. BURGESS.

Witnesses:

G. W. GREGORY,
FRED A. POWELL.