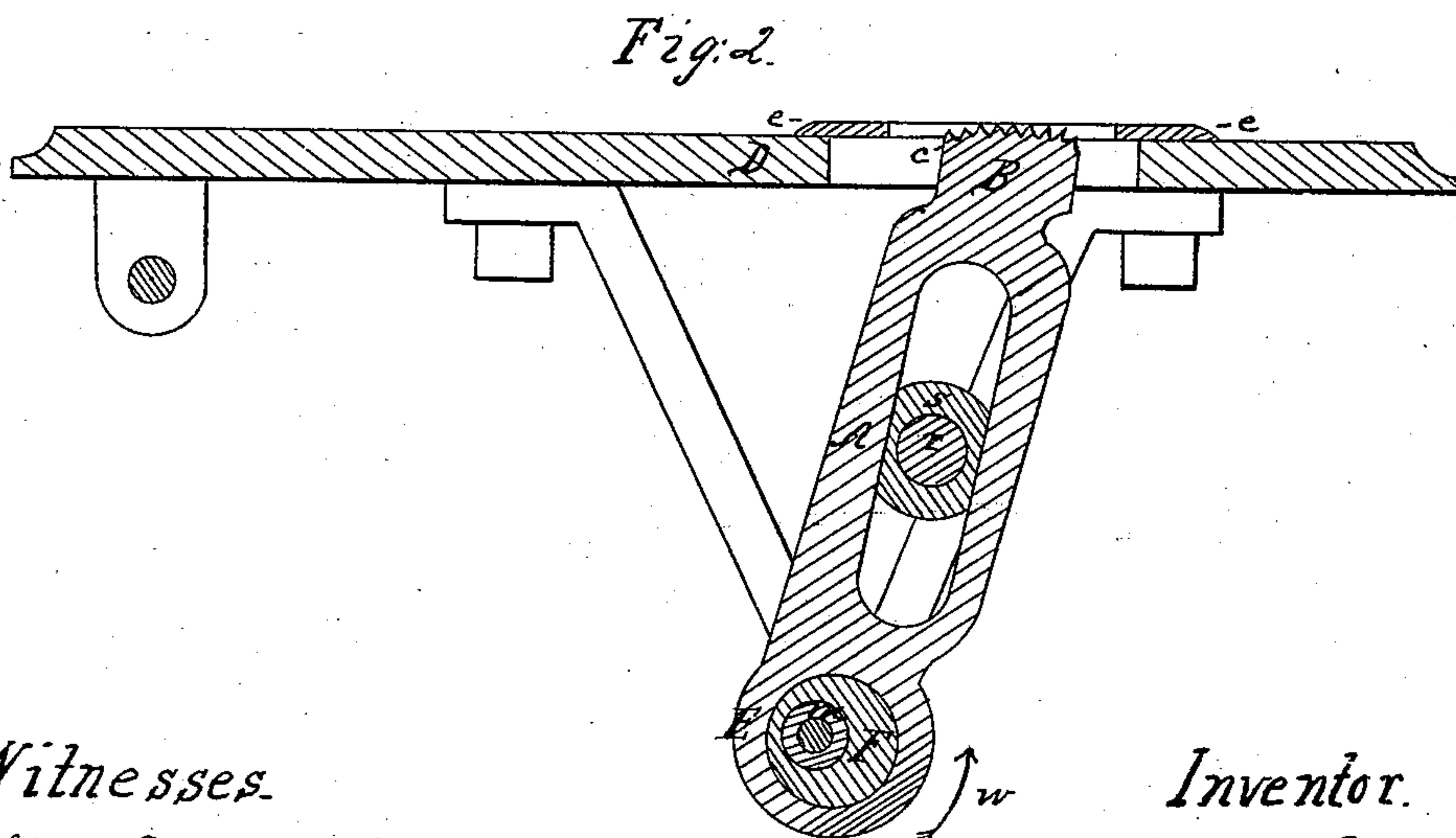
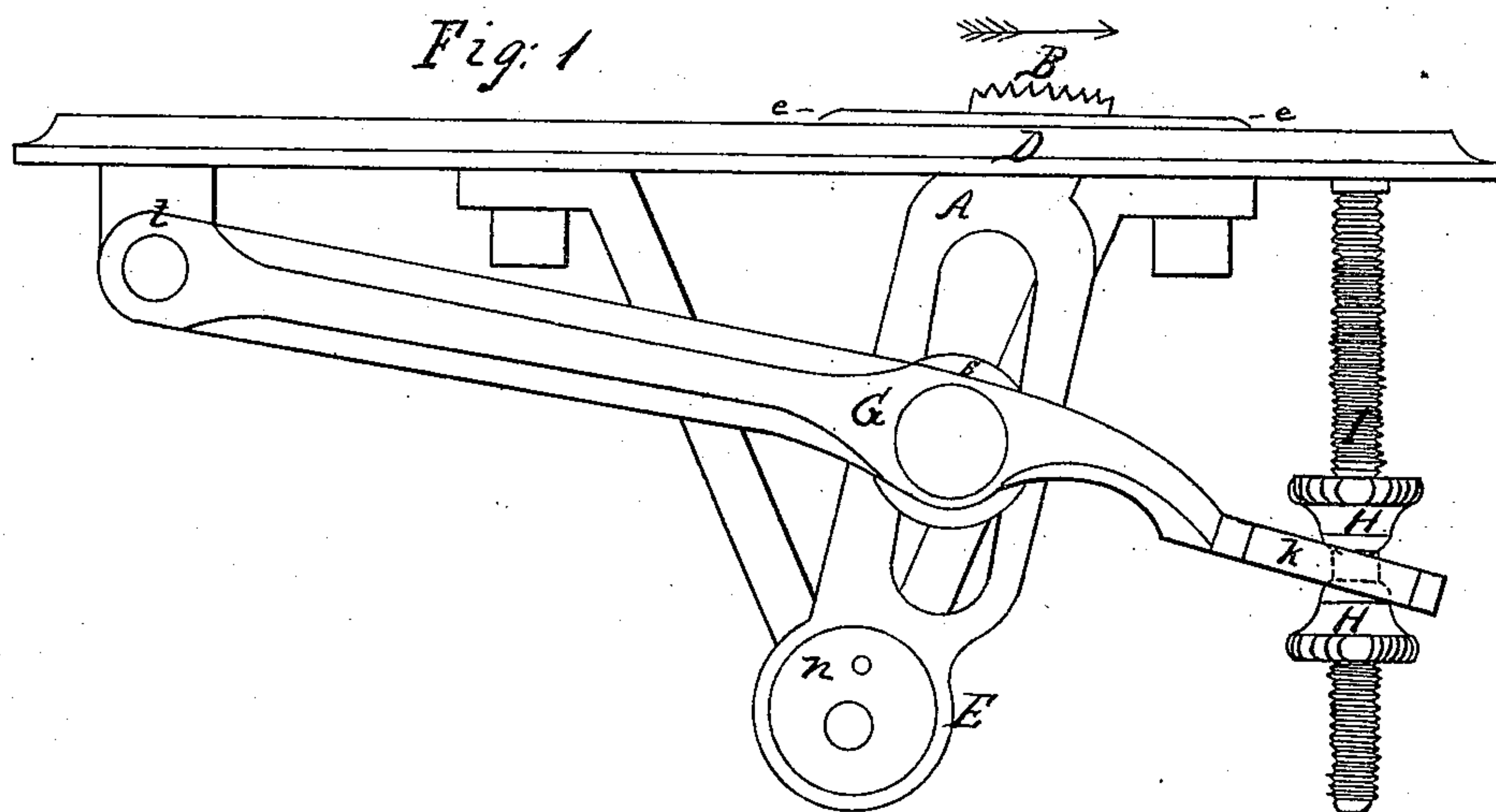


J. S. McCURDY.  
SEWING MACHINE.

No. 41,164.

Patented Jan. 5, 1864.



Witnesses.

Wilson S. Smith  
H. L. Bennett

Inventor.

Jas. S. McCurdy  
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# UNITED STATES PATENT OFFICE.

JAMES S. McCURDY, OF BRIDGEPORT, CONNECTICUT.

## IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 41,164, dated January 5, 1864.

*To all whom it may concern:*

Be it known that I, JAMES S. McCURDY, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful improvements in feed mechanism for sewing-machines and for other purposes to which it is applicable; and I do hereby declare that the following is a full, clear, and exact description of my invention, reference being had to the accompanying drawings, in which—

Figure 1 represents a side view of the bed-plate of a sewing-machine with a feed mechanism of my construction applied thereto, and Fig. 2 is a vertical longitudinal section of the same through the center of the feed-bar.

The object of my invention is to move forward cloth or other material by a series of steps without appreciable noise, and also to have the means of readily varying the extent of the movement at each step.

To this end the first part of my invention consists of the combination of a feed-bar slotted obliquely to its length, a fulcrum upon which it both oscillates and slides longitudinally, and an eccentric for imparting motion to it, the whole operating in such manner that the eccentric imparts the rising and descending movements and also the forward and retrograde movements to the acting end of the feed-bar, and that the motion so imparted is modified by the obliquity of the slot, so that the feed-bar takes a firm hold upon the cloth before it moves it forward.

The second part of my invention consists in the combination of the first part of my invention with means of adjusting the position of the fulcrum in reference to the eccentric, whereby the length of the feed at each operation can be regulated.

Both parts of my invention are embodied in the mechanism represented in the accompanying drawings.

The feed-bar A consists of a slotted plate terminating at its upper end in a head, B, which is roughened by small teeth, so that it can take hold of the cloth, is of sufficient breadth to afford the amount of toothed surface required to move cloth, and is guided by a slot, c, in the bed-plate D, in which it rises and descends and also moves forward (in the

the direction of the arrow, Fig. 1) and backward. The lower end of the feed-bar terminates in an eccentric ring, E, which fits upon an eccentric, F, that is secured to a rotating shaft, m, whose length is at right angles to the line in which the cloth is to be fed. The eccentric ring is retained upon the eccentric by a washer, n, and screw. The length of the feed-bar is such that during about half a revolution of the eccentric in the direction of the arrow w, Fig. 2, the surface of the roughened head is above the surface of the bed upon which the cloth lies, while during the other half of the revolution the surface of the roughened head is below the surface of that bed.

The slotted part of the feed-bar between its two ends is fitted upon a block, s, which is constructed to rock upon a stud, r, that is secured to the support G, so that the feed-bar can slide to and fro and also oscillate upon the stud r as a fulcrum, the block s being interposed between the stud and the feed-bar for the purpose of affording a larger sliding-surface than the round stud would afford. The slot is oblique, or, in other words, is inclined to a line drawn from the center of the eccentric-ring E to the center of the roughened head B, and the inclination is such that when the feed-bar is moving from the surface of the bed *ee* upward the tendency of the eccentric to rock the roughened feeding-surface forward is compensated by the antagonistic inclination of the slot to cause the roughened feeding-surface to move backward, so that the feeding-surface rises above the surface of the bed-plate in a direction practically perpendicular to the surface of the cloth. The compensating action is continued until the feeding-surface has risen sufficiently to take a firm hold of the material to be moved, when it becomes subsidiary to the oscillating movement of the bar produced by the passage of the eccentric center along the uppermost quarter of its revolution, at which time the sliding of the feed-bar on its fulcrum is but small. When on the other hand the action of the eccentric causes the feeding-surface to descend the inclination of the slot causes the forward movement of the feeding-surface to be greater than that which would result from the action of the eccentric alone. When the eccentric has withdrawn the head of the



feed-bar into the slot of the bed its continued movement causes the feed-bar to oscillate backward upon its fulcrum, so as to cause the feeding-surface to retrograde to the proper position it is to occupy when it is again protruded.

The feed mechanism thus constructed is to be operated in connection with an antagonistic surface to press the material in contact with the roughened feeding-surface of the head of the feed-bar, and this antagonistic surface may be that of the ordinary spring presser-foot of sewing-machines.

In order to vary the extent of movement of the feeding-surface in a forward direction the support G, which holds the fulcrum-stud *r* of the feed-bar, has the form of a lever, which is pivoted at one end, *t*, to a hanger depending from the bed-plate, and is controlled at the other end by two screw-nuts, H H, which are fitted to a screw-standard, I, that passes through a slot in the adjacent end *k* of the support G. Hence by screwing these nuts up or down the fulcrum-stud can be moved farther from or nearer to the eccentric, the relative lengths of the parts of the feed-bar above and below the fulcrum will be thereby changed, and consequently the head, which forms the feeding-surface, will be moved less or more in the direction the cloth is to be fed by the same movement of the eccentric.

The invention is not of necessity limited to the arrangement of the oblique slot in the feed-

bar, because it is clear that the same result will be produced if the portion of the feed-bar between its head and the eccentric-ring may be a plain bar, and this portion be arranged to slide in an oblique slot made in a head formed upon the fulcrum-pin or fitted to rock upon it. In this case the straight portion of the feed-bar must be inclined in the same manner as the oblique slot to produce the same antagonistic effect to the operation of the eccentric. The eccentric may of course be replaced by a crank of the same throw.

I do not claim the combination of every slotted feed-bar with a fulcrum and eccentric; but

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of an oblique slotted feed-bar, fulcrum, and eccentric, or their equivalents, operating substantially as herein set forth.

2. The combination of said oblique slotted feed-bar, fulcrum, and eccentric, or their equivalents, with devices for adjusting the position of the fulcrum, the combination as a whole operating substantially as set forth.

In testimony whereof I have hereunto set my hand.

JAS. S. McCURDY.

Witnesses:

D. GOODSSELL,  
F. HURD.