

**No. 664,772.**

**Patented Dec. 25, 1900.**

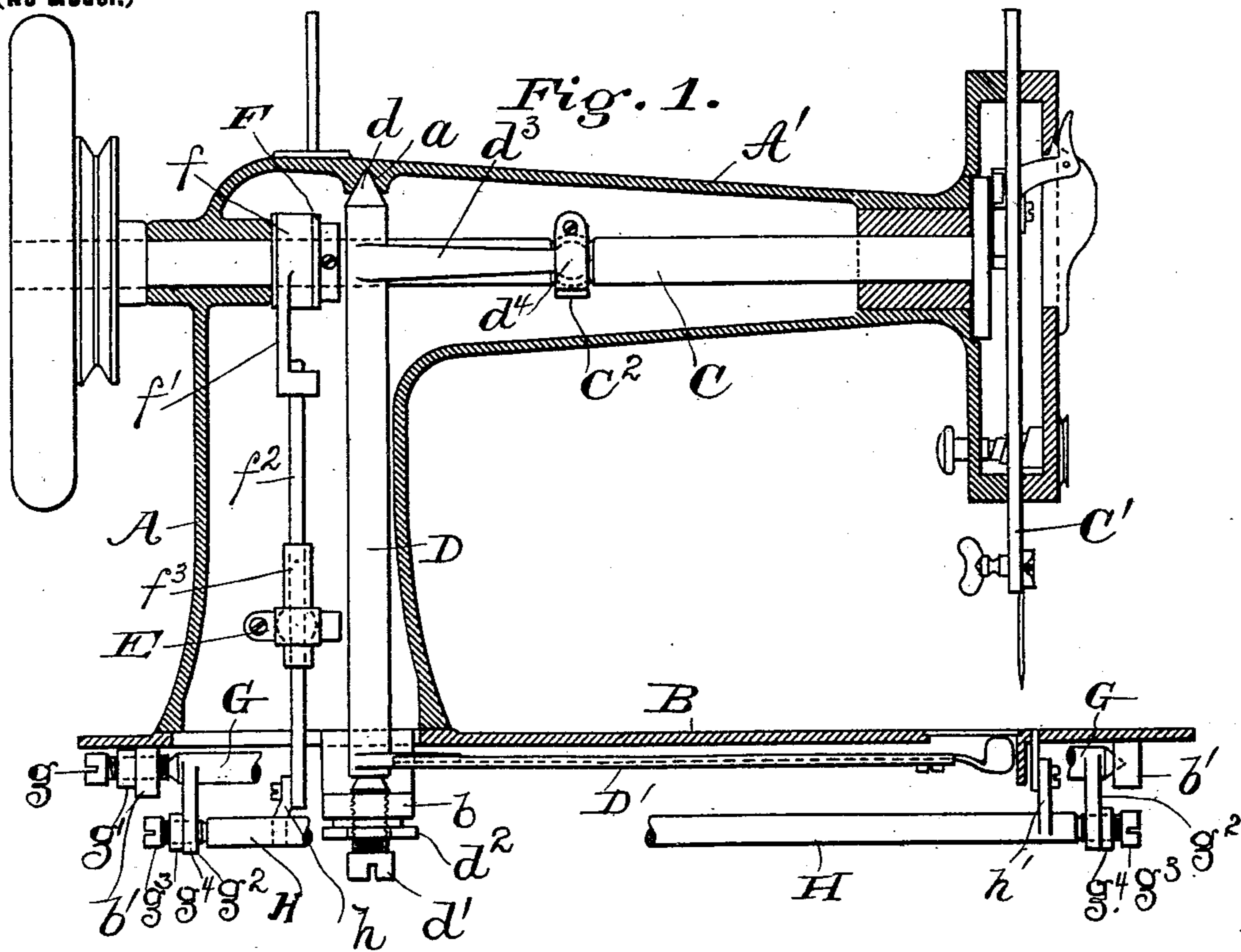
**J F. MCKENNEY.**

## FEEDING MECHANISM FOR SEWING MACHINES.

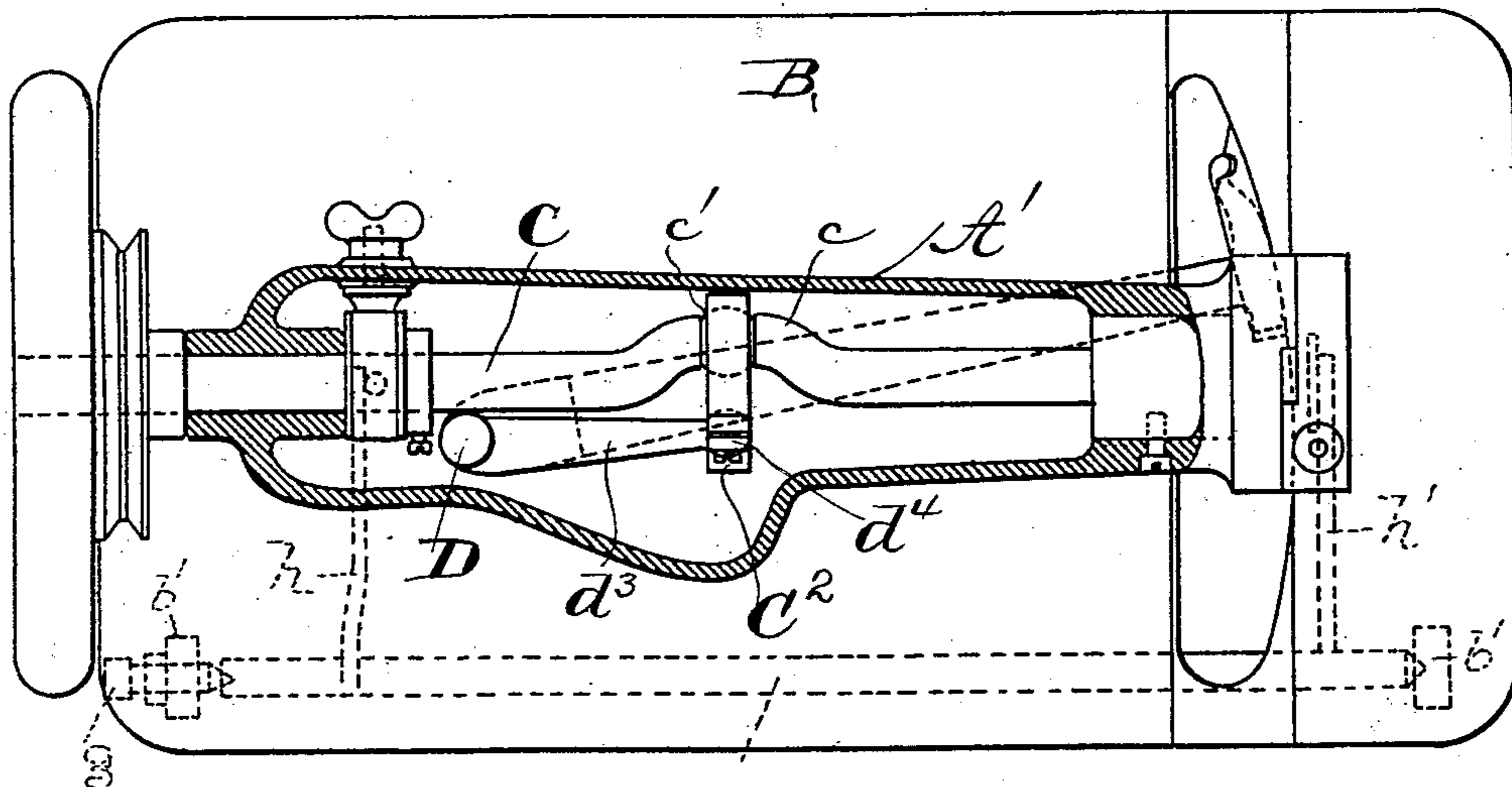
(Application filed Sept. 2, 1896.)

(No Model.)

**2 Sheets—Sheet 1.**



*Fig. 2.*



## Witnesses

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G. A. Pauberschmidt.

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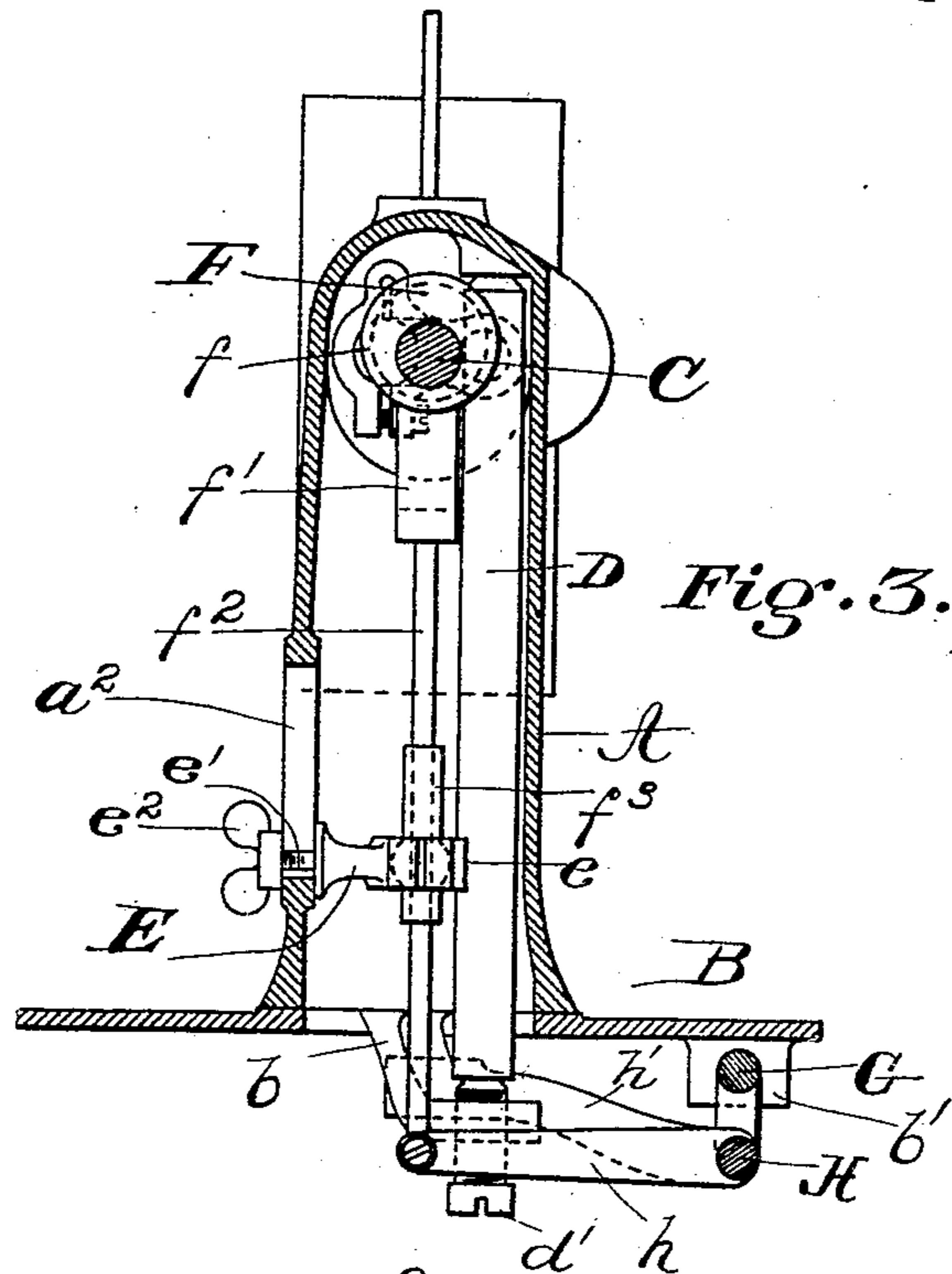


Fig. 3.

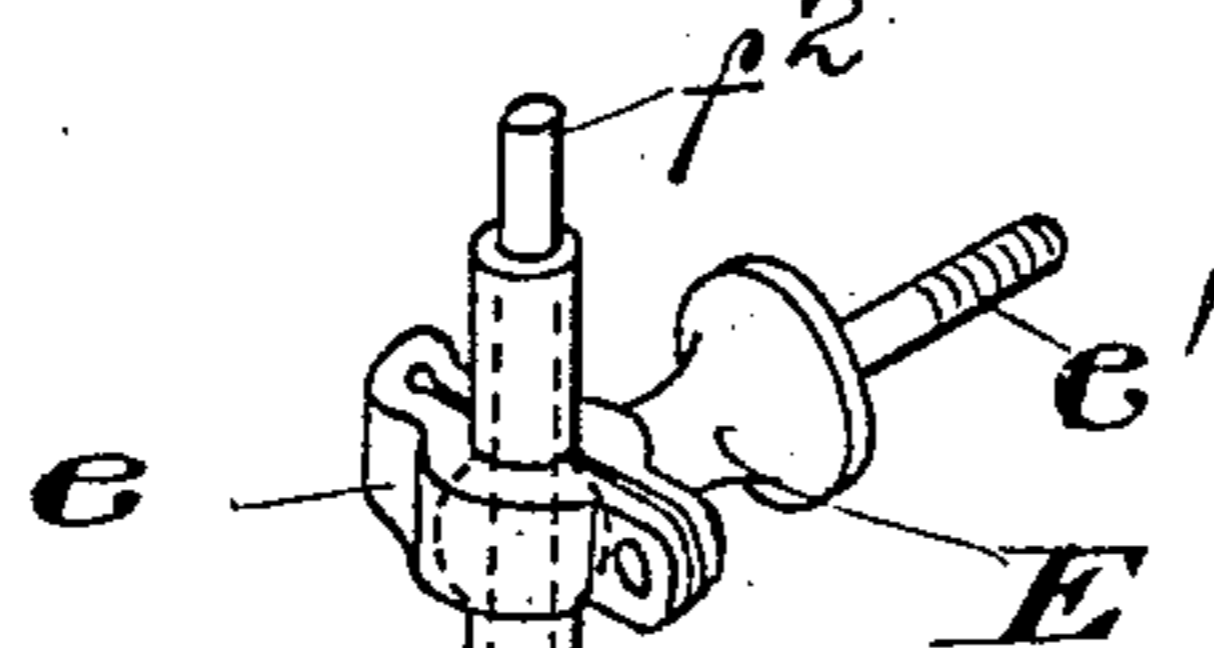


Fig. 4.

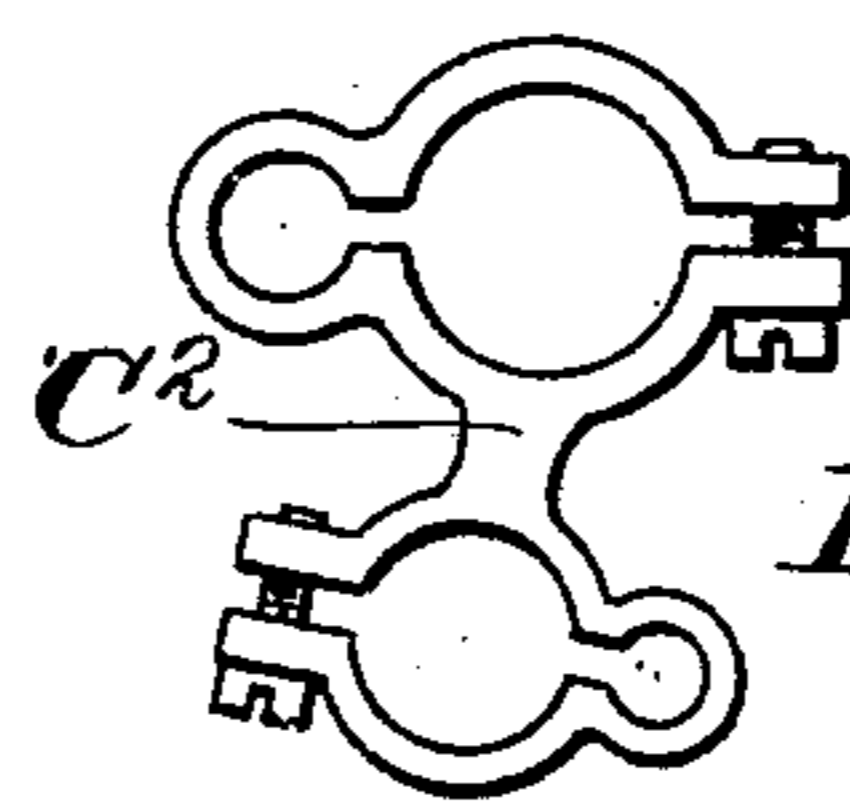
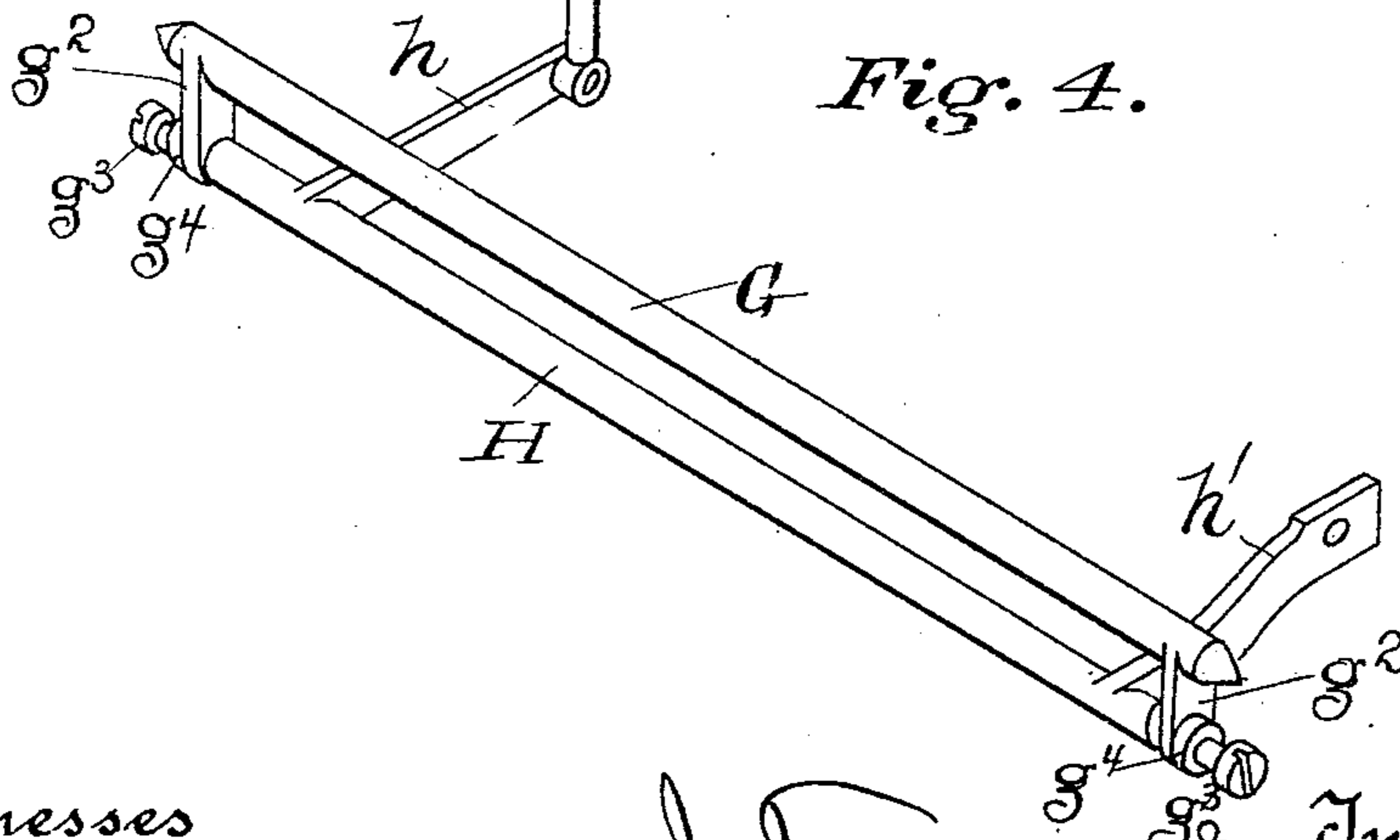


Fig. 5.



Witnesses  
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# UNITED STATES PATENT OFFICE.

J FREEMAN MCKENNEY, OF BALTIMORE, MARYLAND.

## FEEDING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 664,772, dated December 25, 1900.

Application filed September 2, 1896. Serial No. 604,613. (No model.)

*To all whom it may concern:*

Be it known that I, J FREEMAN MCKENNEY, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Sewing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention is an improvement in sewing-machines; and it consists in the novel features of construction and combination of parts hereinafter described, reference being had to the accompanying drawings, which illustrate one form in which I have contemplated embodying my invention, and said invention is fully described in the following description and claims.

Referring to the said drawings, Figure 1 represents a vertical longitudinal section through a sewing-machine embodying my invention. Fig. 2 represents a top plan view of the machine, the horizontal arm being shown in section. Fig. 3 represents a vertical transverse section of the machine on the line 3 3 of Fig. 1. Fig. 4 is a detail view of the devices for transmitting motion to the feeding mechanism. Fig. 5 is a detail view of the link connecting the crank on the driving-shaft with the shuttle-operating devices.

In the drawings, A represents the vertical hollow standard of the machine, extending upward from the bed-plate B, and A' is the overhanging arm.

C represents the driving-shaft, which extends horizontally through the overhanging arm, is journaled in suitable bearings, and is operatively connected with the needle-arm C' in any usual or preferred manner for imparting vertical reciprocating motion thereto. Adjacent to its central portion the shaft C is provided with a crank c, having a very short throw, and said crank is provided with a ball c'.

A vertical rock-shaft D is mounted in the standard A in the following manner: The upper end of said shaft is provided with a center d, which engages a socket-bearing a in the upper part of the standard, and its lower end is provided, preferably, with a tapering socket-bearing which is engaged by a screw d', having a cone-shaped end or center

and extending through a step b, secured to or formed integrally with the bed-plate. The screw is also provided with a jam-nut d<sup>2</sup>, and the bearings for the rock-shaft can thus be accurately adjusted to take up wear.

Near its upper end the rock-shaft D is provided with a short arm d<sup>3</sup>, extending into the hollow overhanging arm and provided on its outer end with a ball d<sup>4</sup>. This arm is connected with the crank c by a link C<sup>2</sup>. (Shown in detail in Fig. 5.) This link is provided at each end with a circular recess, the walls of which are grooved in a well-known manner to receive the balls c' and d<sup>4</sup>, and each of the circular portions of the link surrounding said recesses is sawed and provided with adjusting-screws to enable the link to be placed in engagement with said balls and tightened upon them.

The vertical rock-shaft D is provided adjacent to its lower end beneath the bed-plate B with a shuttle-operating arm D', formed integrally therewith or secured thereto in any desired manner. I prefer to form this arm of sheet-steel for lightness, which may be corrugated, if desired, to give it greater strength. The outer end of the arm D' is provided with a shuttle-carrier of any usual or preferred form moving in a suitable shuttle-race. The link connecting the short crank c and the arm d<sup>3</sup> is very short, as will be seen, and consequently the distance between the axis of rotation of the shaft C and the axis of movement of the link—to wit, the arm d<sup>3</sup>—will be very slight when the parts are in the position shown in Fig. 2. As the crank moves around on that side of its axis of rotation, therefore, the arm d<sup>3</sup> will be given a somewhat long dwell or period, during which it is given little or no motion. The effect of this on the shuttle is to slow it up quickly and hold it substantially still for a longer period than is usual at the end of a stroke of the shuttle-arm. By means of this variable motion the needle-thread or upper thread is permitted to leave the heel of the shuttle and to be drawn quite up into the throat-plate or needle-plate ready to tighten before the shuttle-thread is tightened. Thus both threads are tightened simultaneously and each stitch is completed at once, making what is known in the art as the "Howe pull," and this makes

a tighter and neater stitch than can be made when first one thread and then the other is drawn tight.

The feed mechanism is driven by means of  
5 a cam or eccentric F, of usual or preferred form, secured upon the shaft C within the top of standard A. I prefer to use an eccentric which is provided with a strap  $f$ , having an arm  $f'$  connected therewith. To this arm is  
10 connected a vertically moving and oscillating rod  $f^2$ , which extends downward through an oscillating guide or sleeve  $f^3$ , provided with a spherical enlargement or ball  $f^4$  adjacent to its center. This ball is engaged by a  
15 bracket E, provided with a split circular grooved portion  $e$ , adapted to be tightened upon said ball, and said bracket has a threaded stem  $e'$ , which extends through a vertical slot  $a^2$  in the standard A and is provided with  
20 a milled or wing nut  $e^2$ . By loosening this nut the bracket and the sleeve  $f^3$  can be adjusted vertically to change the center of oscillation of said sleeve and the rod  $f^2$ , and thereby the throw of the lower end of the rod,  
25 and this adjustment serves to vary the movement of the feed-plates and regulate the length of the stitch.

G represents a pivoted hanger which is hung in brackets  $b' b'$ , projecting downward  
30 from the bottom of the bed-plate B. The hanger consists of a rod G, having a cone-shaped projection or center at one end engaging a tapering recess in one of the brackets  $b'$ , and the other bracket is provided with a  
35 set-screw  $g$ , having a cone-shaped recess engaging a similar center on the other end of the rod or bar G, thus allowing for wear, and said screw is provided with a jam-nut  $g'$ . The bar or rod G is provided at each end  
40 with a downwardly-extending arm  $g^2$ , each provided with a set-screw  $g^3$ , having a pointed or cone-shaped end, and a jam-nut  $g^4$ . Between said screws is placed a rock-shaft H, having its ends recessed to receive the screws  
45  $g^3$ , said rock-shaft being provided at one end with an arm  $h$ , which is pivotally connected to the lower end of the rod  $f^2$ , and at its other end with an arm  $h'$ , which is connected with the feed-plate of the machine. It will be  
50 seen that the rock-shaft is free to oscillate in its bearing and also to move bodily laterally by reason of its pivoted hanger G, so that the rod  $f^2$  will impart to the feed-plate verti-

cal and horizontal movements, the extent of which will be regulated by the position of the  
55 bracket E.

It will be noted that in the construction of the parts described great simplicity of construction is obtained and that all the parts can be accurately adjusted with respect to  
60 each other for correct operation and can also be adjusted to take up wear.

The mechanism for operating the shuttle is not claimed herein, as the same forms the subject of a divisional application, Serial No. 65 18,626, filed May 31, 1900.

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

1. In a sewing-machine, the combination with a rock-shaft having an arm extending  
70 therefrom and carrying the work-engaging feed-surface, of a pivoted hanger for said rock-shaft, an oscillating and longitudinally-moving rod operatively connected with said rock-shaft, and the driving-shaft and cam to  
75 impart the requisite motion to said rod, substantially as described.

2. In a sewing-machine the combination with a rock-shaft having two rigid arms extending therefrom, one of said arms carrying  
80 the work-engaging feed-surface, of an oscillating and longitudinally-moving rod connected to the other arm of said rock-shaft, the driving-shaft and cam for imparting the requisite movements to said rod, and a pivoted  
85 hanger for said rock-shaft, substantially as described.

3. In a sewing-machine the combination with a rock-shaft carrying the work-engaging feed-surface of a pivoted hanger for support-  
90 ing said rock-shaft a driving-shaft parallel to said rock-shaft provided with an operating-cam, a vertical rod connecting said cam and said rock-shaft, a guiding-sleeve on said rod provided with a spherical bearing, a bracket  
95 having a bearing to engage said spherical bearing portion of the sleeve and means for adjusting said bracket and sleeve longitudinally of said rod to vary the movements of said feeding devices, substantially as described. 100

In testimony whereof I affix my signature in presence of two witnesses.

J FREEMAN MCKENNEY.

Witnesses:

GEO. M. CAFFRAY,  
FRANCIS M. HAY.