

(No Model.)

4 Sheets—Sheet 1.

W. Y. OBER.
SHOE SEWING MACHINE.

No. 467,429.

Patented Jan. 19, 1892.

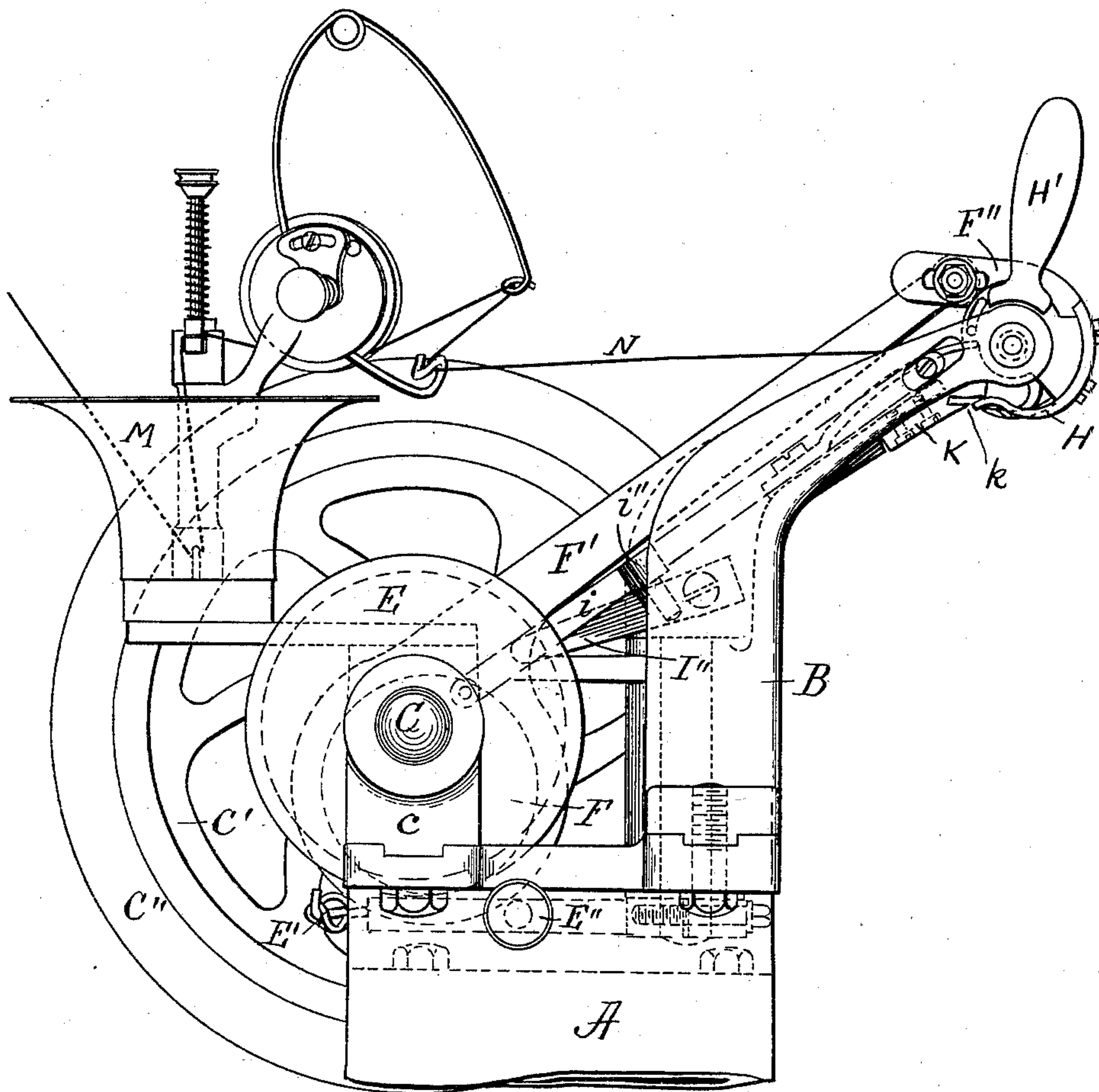


Fig. 1.

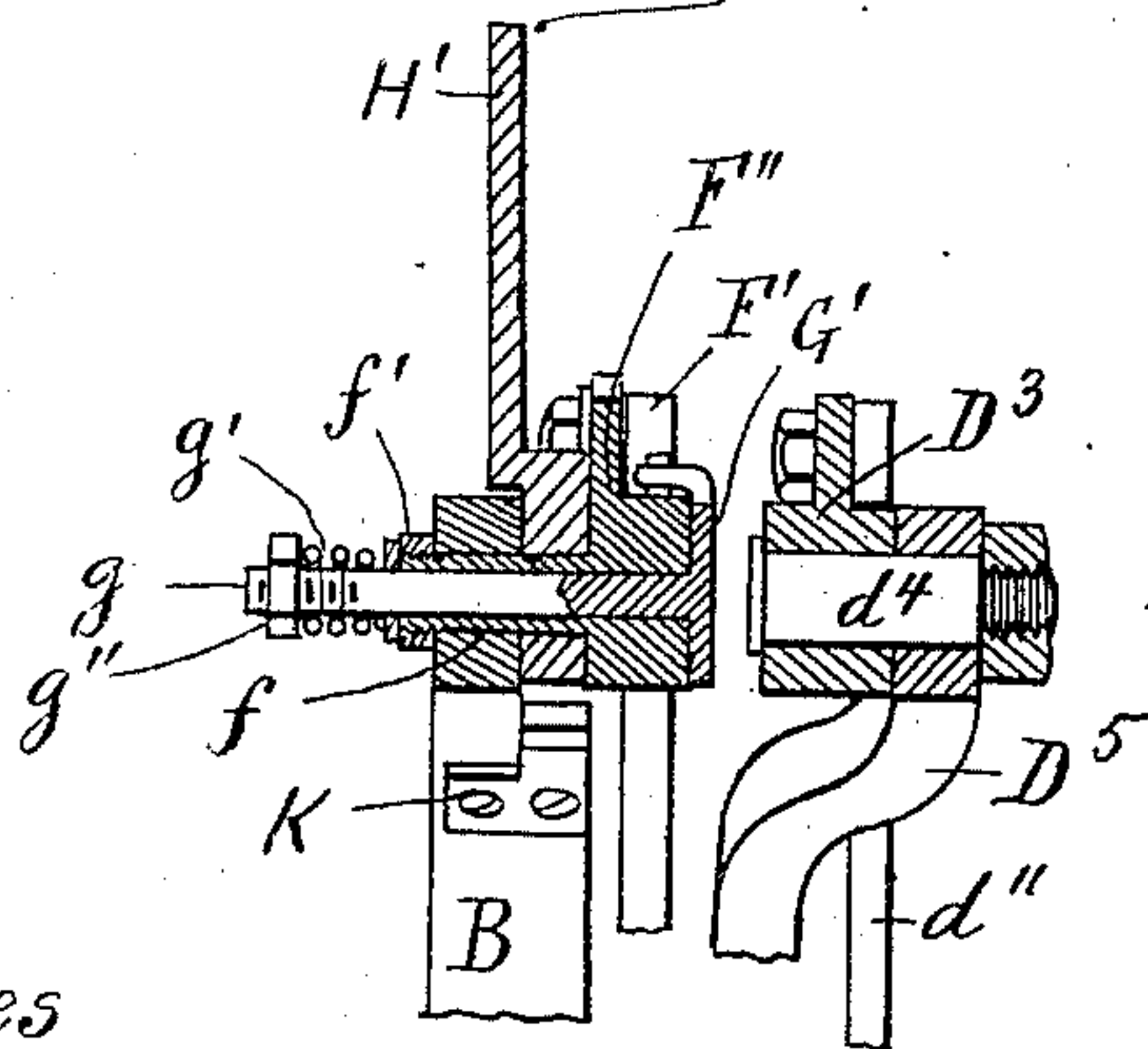


Fig. 9.

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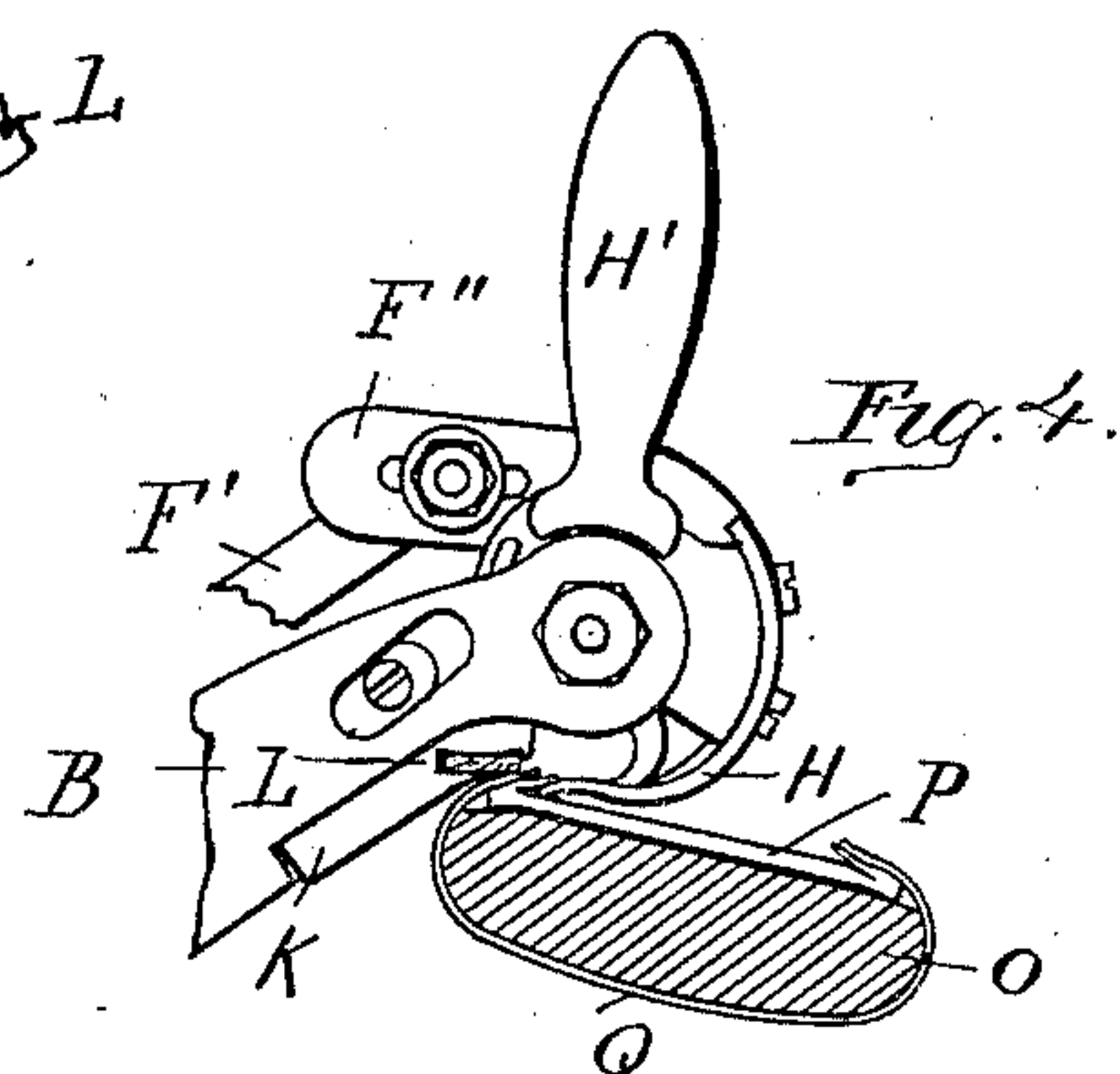
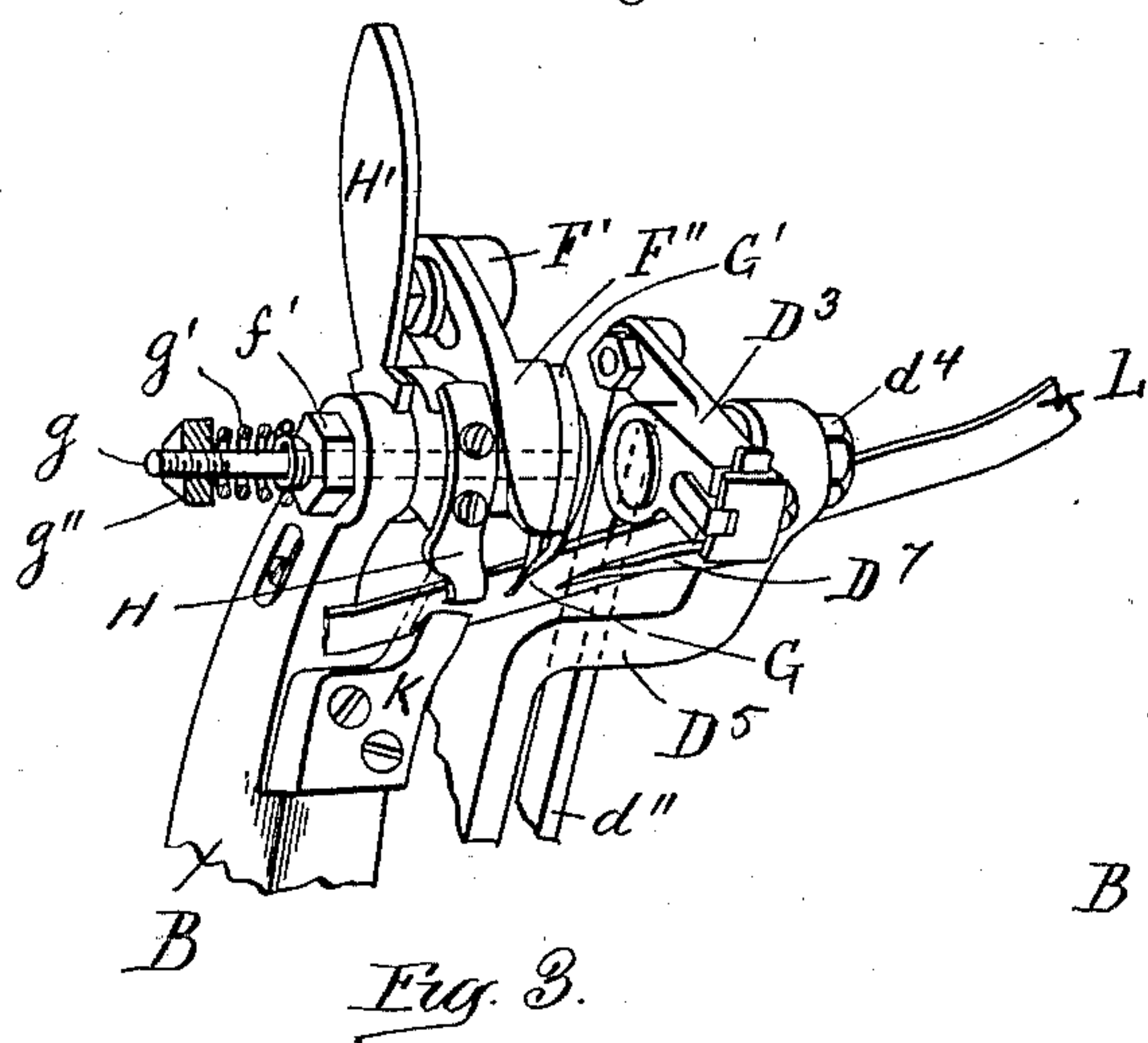
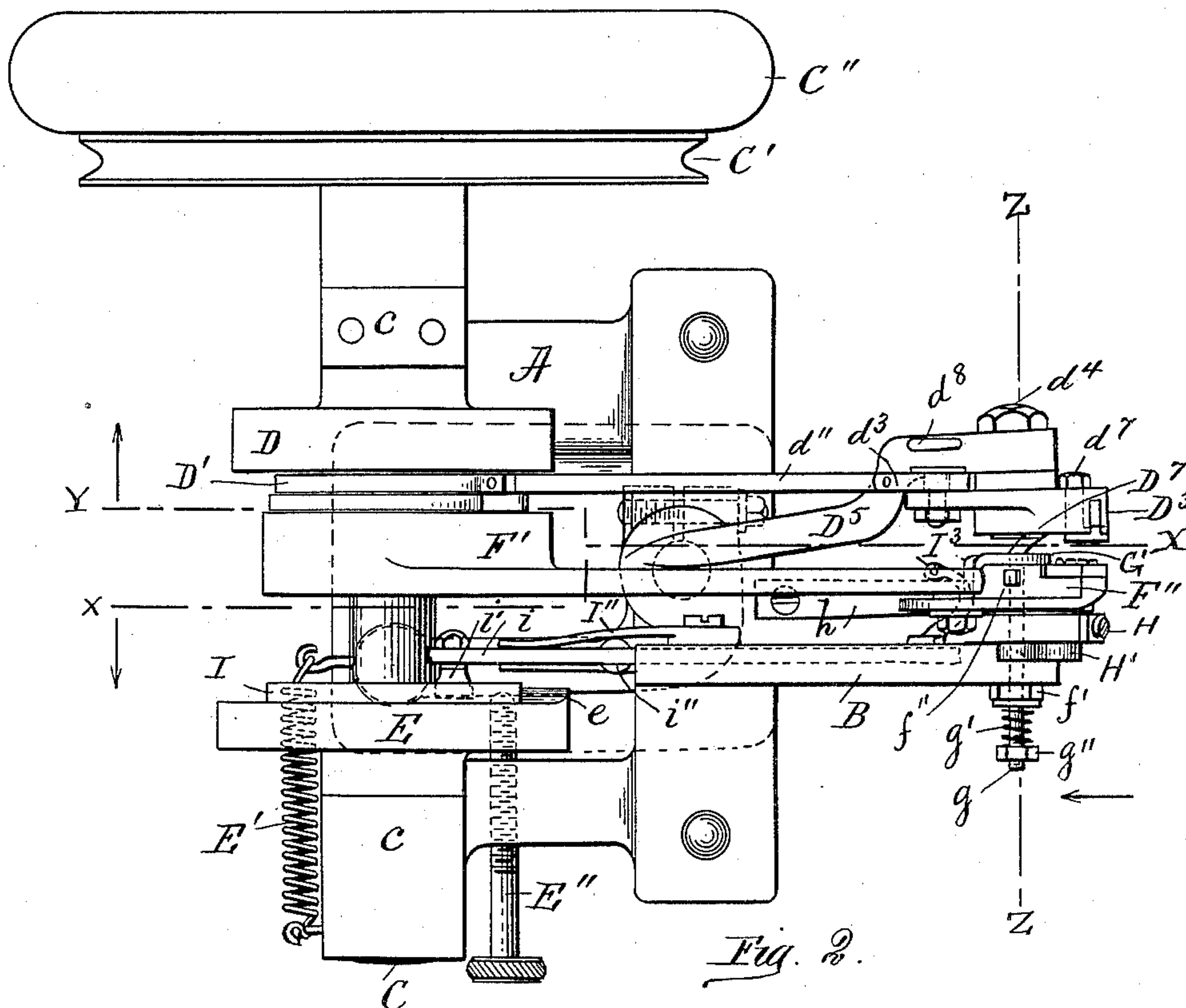
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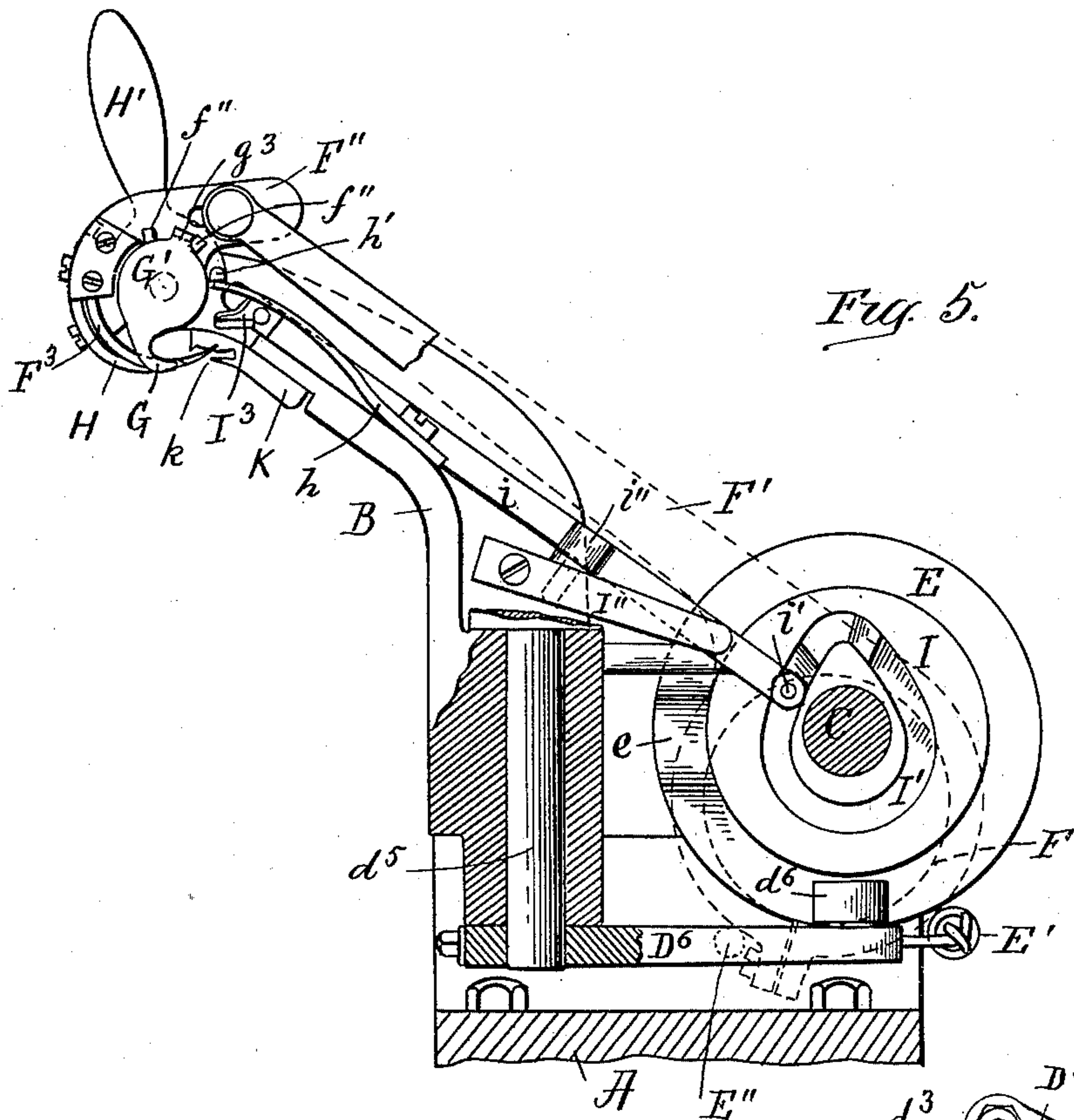


Fig. 5.

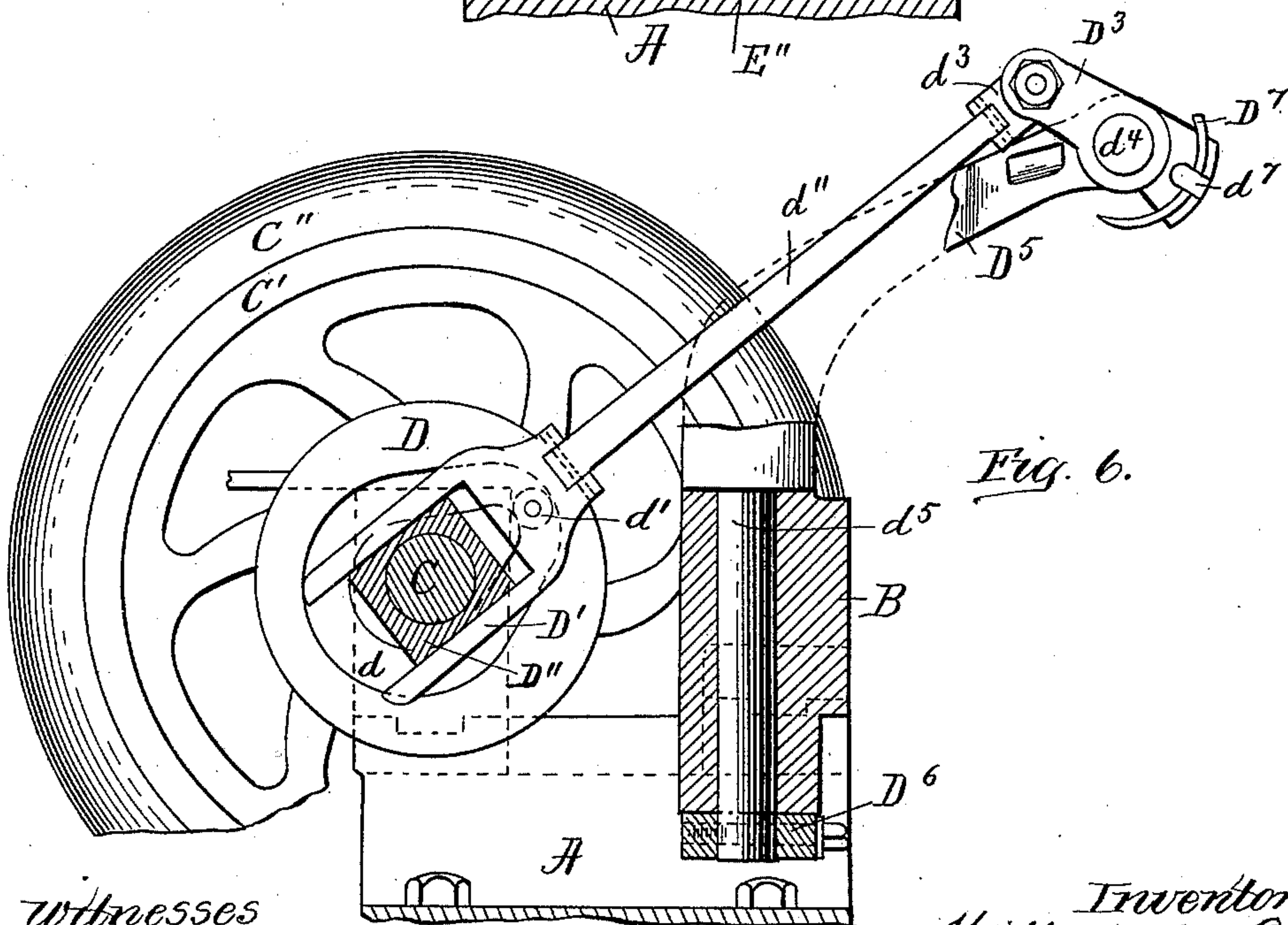


Fig. 6.

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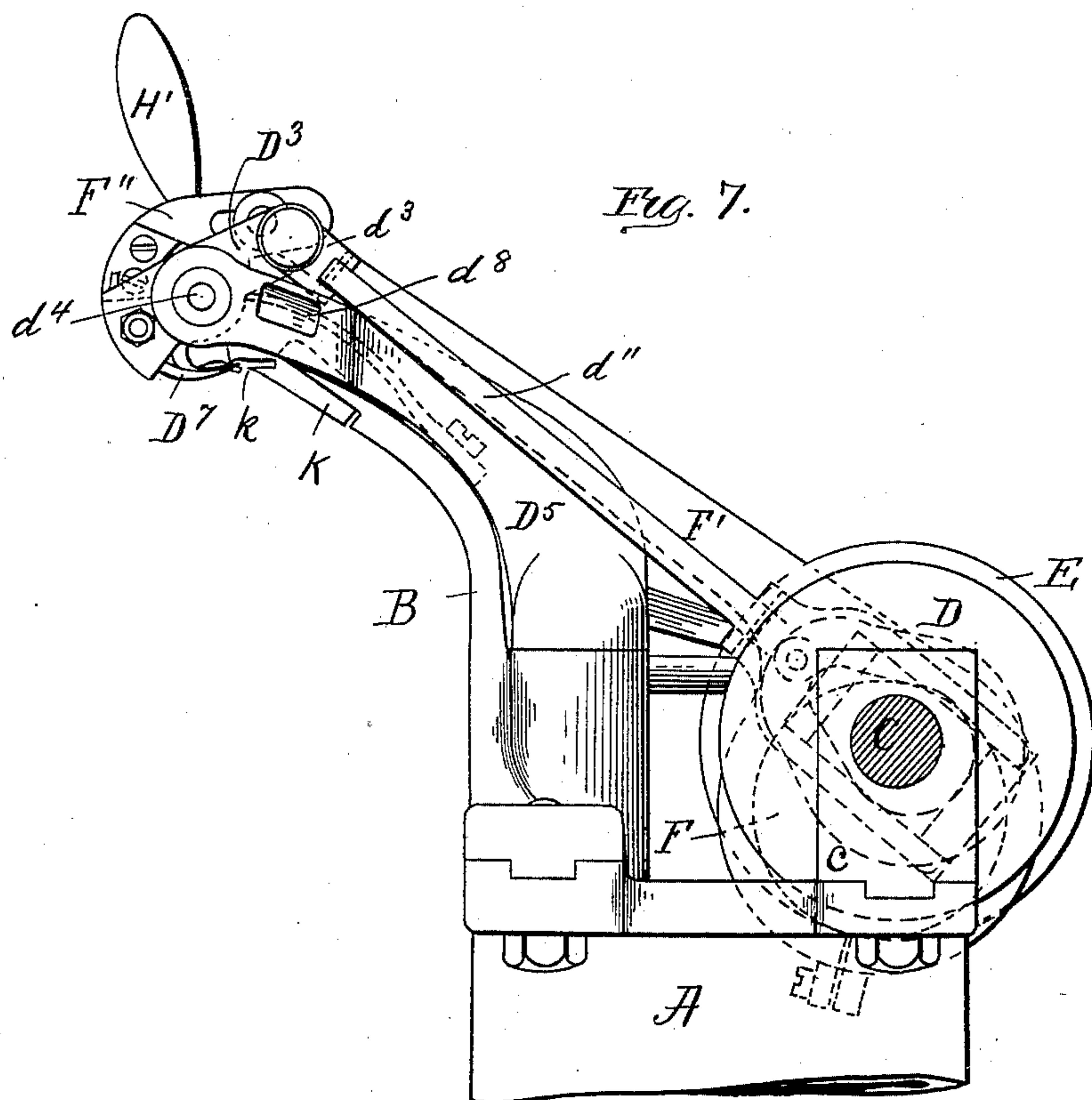
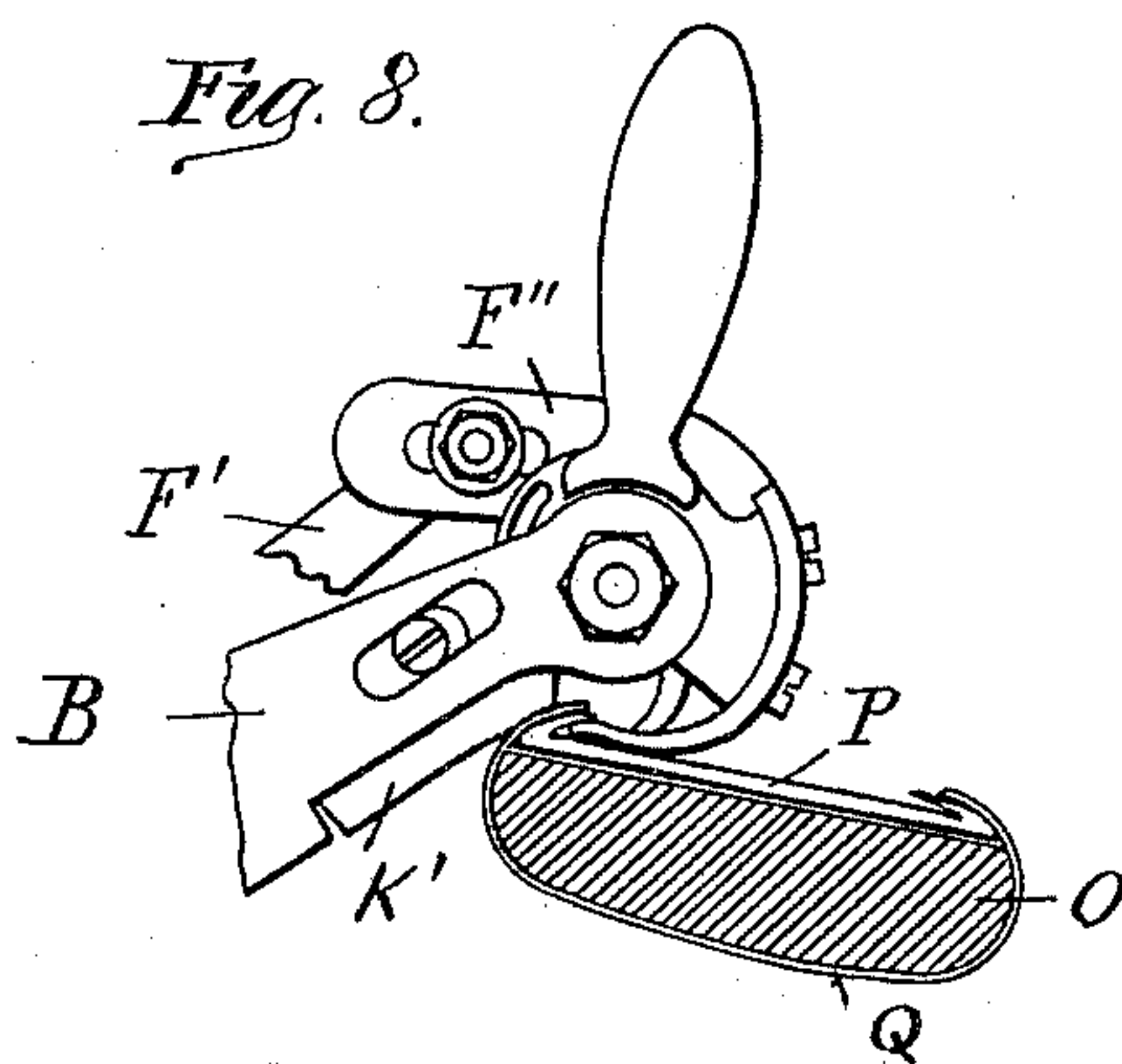


Fig. 8.



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UNITED STATES PATENT OFFICE.

WILLIAM Y. OBER, OF LYNN, MASSACHUSETTS, ASSIGNOR TO THE BOSTON WELT MACHINE COMPANY, OF PORTLAND, MAINE.

SHOE-SEWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 467,429, dated January 19, 1892.

Application filed April 14, 1891. Serial No. 388,837. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM Y. OBER, a citizen of the United States, and a resident of Lynn, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Welt-Sewing Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to improvements in welt-sewing machines, and it is carried out as follows, reference being had to the accompanying drawings, wherein—

Figure 1 represents a side elevation of the improved machine. Fig. 2 represents a plan view of the same, the wax-pot being omitted. Fig. 3 represents a perspective view of the upper head portion, showing the awl and cast-off, as well as the other parts of the stitch-forming mechanism. Fig. 4 represents a detail side view of the upper head portion, showing a welt in the welt-guide and a shoe held in position during the operation of sewing the welt to the upper and inside. Fig. 5 represents a cross-section on the line X X in Fig. 2, showing the cast-off, looper, needle, presser-foot, and means of operation. Fig. 6 represents a similar section on the line X Y in Fig. 2, showing the awl and mechanism for operating the same. Fig. 7 represents a rear side elevation of the machine-head, the driving-pulley being omitted. Fig. 8 represents a detail side elevation of the upper part of the head and a sectional view of boot or shoe held against it while sewing the upper to the channeled inner sole without sewing a welt to said parts, and Fig. 9 represents a cross-section on the line Z Z shown in Fig. 2.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

A in Figs. 1, 2, 5, 6, and 7 represents the upper portion of the standard or post to which the head B is secured. To said post or standard is also secured a pair of bearings c, in which is journaled the driving-shaft C, having secured to one of its ends a cord or belt pulley C', which is rotated by means of cord or belt power, as is usual in machines of this kind.

C'' is the balance-wheel at the end of the shaft C.

The machine is what is termed in the art an "awl-feed" machine, and the mechanism for operating the awl-feed is constructed as follows: To the drive-shaft C is secured a face-cam D, having a cam-groove d, adapted to receive a pin or pin-roll d', arranged on the side of a forked slide D', which is loosely mounted, so as to slide on a guide-block D'', journaled on the shaft C, as shown in Figs. 2 and 6. The forked slide D' is universally jointed to the rocking awl-carrier D³ by means of a link d'' and joint-piece d³, as fully shown in said Figs. 2 and 6, or by similar or like mechanism. The awl-carrier D³ is loosely journaled on a pin d⁴, secured to the upper end of a laterally-swinging arm D⁵, as shown in Figs. 2, 6, 7, and 9, so that when this arm swings laterally the awl-carrier D³ moves therewith in the arc of a circle, of which the pivot of the swinging arm is the center. The awl-carrying feed-arm D⁵ is provided with a downwardly-projecting vertical pin d⁵, journaled in a bearing in the head B, and has attached to its lower end an arm or lever D⁶, Figs. 2, 5, and 6, having a pin (or pin and roll) d⁶ at its free end, which is actuated by a cam projection e on the disk E, that is secured to the rotary driving-shaft C, as shown in Figs. 2 and 5. The awl-feed is produced by said cam acting on the pin (or pin and roll) on the lever D⁶, and as soon as the cam projection e has passed by said pin (or pin and roll) the lever D⁶ is automatically moved in an opposite direction (while the awl is free from the work) by the influence of the spring E', one end of which is secured to the arm D⁶ and having its other end secured to a convenient stationary part of the machine, as shown in Figs. 1, 2, and 5.

E'' is a set-screw for regulating the amount of feed desired on the awl, said set-screw passing through a threaded perforation in the post A and having its inner end adapted to serve as a stop in limiting the return motion of the arm D⁶, caused by the spring E'.

D⁷ in Fig. 6 represents the curved awl, which is adjustably secured to the awl-carrier D³, preferably by means of the clamping screw and nut d⁷ or equivalent device.

The needle and mechanism for its operation are constructed and arranged as follows: Upon the shaft C is secured an eccentric disk

F, (shown in dotted lines in Figs. 1, 5, and 7,) which is surrounded by a strap F' , having its upper end adjustably connected to a rocking needle-carrier F'' , pivoted in a suitable manner to the upper end of the head B. In Fig. 9 I have shown the said needle-carrier as provided with a horizontal short sleeve f , journaled in a horizontal perforation in the head B, and held in position by means of a nut f' . The needle-carrier may, however, be pivoted to the head B in any other suitable or equivalent manner, as may be desired.

F^3 is the curved-hook needle, secured to the needle-carrier in any suitable manner. It will thus be seen that an oscillating or rocking motion is automatically imparted to the needle from the rotary driving-shaft C.

G is the cast-off, forming a part of a disk or washer G' , which is held frictionally in contact with the side of the needle-carrier F'' , as shown in Fig. 9, preferably by having a pin or spindle g attached to said disk G' , and inserted loosely through the needle-carrier sleeve f and provided with a coiled tension-spring g' and an adjustable nut g'' for regulating the friction between the cut-off plate and needle-carrier, as fully shown in Fig. 9. The cast-off is intermittently rocked forward and back by means of two projections $f'' f''$ on the needle-carrier coming in contact with a lip or projection g^3 on the cast-off disk G' , as shown in Figs. 2, 5, and 9.

H is the curved presser-foot secured to or made in one piece with the handle H' , the hub of which is loosely journaled on the needle-carrier sleeve f or otherwise hung on the same axis with the needle-carrier and cast-off that is mounted concentrically with said needle-carrier and cast off, as shown in Fig. 9.

The presser-foot H is normally held in operative position preferably by the influence of a spring h , secured to the head B or other stationary part of the machine and having its free end preferably pressing against a projection h' on the handle H' , as shown in Fig. 5. The presser-foot is withdrawn from the work by taking hold of the handle H' and pushing it backward. The presser-foot is automatically moved out from the work by the needle-carrier while the feed takes place, as is common in machines of this kind, and for this purpose I prefer to arrange a pin or projection on the needle-carrier adapted to enter a slot or groove in the presser-foot lever or in any other desirable or suitable manner.

The mechanism for operating the thread guide or looper is constructed as follows: In one piece with the cam E or secured to it or the driving-shaft C is a cam-disk I, having a duplex cam-groove I' , against which is held and guided a projection i' on the lower end of the thread-guide lever i , as shown in Figs. 2 and 5. The said lever i is guided in a forked rocking pin or stud i'' , loosely pivoted to the head B, so as to permit said lever i to slide up and down in said stud and to rock on it as a

fulcrum when actuated by the duplex cam-groove I' . The lower end of the lever i is held against the bottom of the duplex cam-groove I' by the influence of a suitable spring I'' , one end of which is preferably secured to the head B and having its free end pressing against the side of the said lever i between its fulcrum-guide i'' and lower end, as shown in Figs. 2 and 5.

I^3 is the perforated thread-guide attached in a suitable manner to the upper end of the lever i , as shown in Figs. 2 and 5. By this mechanism a proper movement is imparted to the thread-guide for the purpose of making a chain-stitch in connection with the needle and its cast-off.

To the under side of the upper end of the head B is secured in a detachable manner the welt-guide K, having a groove or recess k for receiving the welt L, which is passed through a perforation d^8 in the awl-feed-carrying arm D^5 before being laid in the grooved welt-guide K k , as shown in Figs. 2, 3, 6, and 7.

The welt may be fed from a reel, as is usual in a welt-sewing machine, such device being, however, not shown in the drawings.

When it is desired to use the machine for sewing turned shoes, no welt being used, the welt-guide is removed and a solid-work support K' substituted, as shown in Fig. 8.

In Fig. 1, M is the wax-pot, as usual, through which the thread N is guided on its way to the thread-guide. In connection with the machine any of the usual tension and take-up devices may be used without departing from the essence of my invention, and need therefore not be described, as they are well known in the art, and form no part of my present invention.

In Figs. 4 and 8, O represents the wooden last, P the channeled insole, and Q the upper lasted upon the last, as usual.

The operation of the machine is as follows: For welt-sewing the welt is placed in its guide and the lasted shoe having the channeled insole, as described, is held by the operator against the welt-guide and the presser-foot placed in the channel of the insole, as shown in Fig. 4, after which the machine is set in operation, causing a single-thread chain-stitch to be made through the bottom of the channel of the insole, the upper, and the welt, the chain of the stitch being laid in the bottom of the channel, and during such operation the awl enters and perforates the insole, upper, and welt, then feeds by moving sidewise until the awl comes within the path of the needle, when it automatically withdraws from the work and moves back to its original position, during which time the chain-stitch is made by the needle, cast-off, and thread-guide, and after the stitch is made the awl again enters the work, feeds it, and so on during the operation of the machine. The action of the presser-foot is the same as on other machines of this nature. After the

welt has been sewed on it is cut off, the presser-foot released, the shoe removed, and another placed in position to be sewed.

The machine is very simple in construction and operation, is composed of a very few parts, is very convenient and practical, and by its use strong and accurate workmanship is obtained in a very rapid manner.

Having thus fully described the nature, construction, and operation of my invention, I wish to secure by Letters Patent and claim—

1. In a welt-sewing machine, the combination, with a stationary head B and an oscillating needle-carrier, presser-foot, and cast-off, all pivotally mounted on the stationary head, of a laterally-swinging arm D^5 , the oscillating awl-carrier D^3 , pivoted directly to the upper end of the laterally-swinging arm and moving therewith in the arc of a circle of which the pivot of the arm is the center, a driving-shaft having a series of cams, and connections for imparting motion from the cams to the needle-carrier, presser-foot, and cast-off, transmitting lateral feed motion to the swinging arm and oscillating the awl-carrier thereupon as the awl-carrier moves in the arc of a circle with the arm, substantially as described.

2. In a welt-sewing machine, a stationary head having secured to it a grooved welt-guide and having pivoted to its upper end a needle-carrier, presser-foot, and cast-off, a pivoted laterally-swinging arm, and an oscillating awl-carrier pivoted directly to the upper end of the arm and swinging therewith in the arc of a circle of which the pivot of the arm is the center, combined with a series of cams on the driving-shaft, and connections which impart motion from said cams to the individual members of the stitch-forming and feed mechanism, transmit the lateral feed motion to the swinging arm and oscillate the awl-carrier thereupon as such awl-carrier moves in the arc of a circle with the arm, substantially as described.

3. In a welt-sewing machine, a rocking needle-carrier, presser-foot, and cast-off, a pivoted laterally-swinging arm D^5 , and an oscillating awl-carrier pivoted directly to the upper end of the swinging arm and moving therewith in the arc of a circle of which the pivot of the arm is the center, combined with a series of cams on the driving-shaft, and connections for imparting motion from said cams to the individual members of the stitch-forming and feed mechanism and transmitting the lateral feed motion to the swinging arm and oscillating the awl-carrier thereupon as such awl-carrier swings in the arc of a circle with the arm, substantially as described.

4. In a welt-sewing machine, the combination of a pivoted laterally-swinging arm D^5 and an oscillating awl-carrier D^3 , pivoted directly to the upper end of the arm and swinging therewith in the arc of a circle of which

the pivot of the arm is the center, with a driving-shaft, and means, substantially as described, for swinging the arm laterally and oscillating the awl-carrier thereupon as such awl-carrier moves in the arc of a circle with the arm, substantially as described.

5. In a welt-sewing machine, the combination, with a driving-shaft having cams, of a pivoted laterally-swinging arm D^5 , and an oscillating awl-carrier D^3 , pivoted directly to the upper end of the arm and swinging therewith in the arc of a circle, a guide-block D'' , loosely mounted on the driving-shaft, a forked slide D' , engaging the guide-block and acted upon by a cam on the driving-shaft, and a link d'' , connecting the forked slide with the oscillating awl-carrier, substantially as described.

6. In a welt-sewing machine, the combination, with a driving-shaft C, having cams D and E, the stationary head B, and the oscillating needle-carrier, presser-foot, and cast-off, all pivotally mounted on the head, of the laterally-swinging arm D^5 , having the vertical pin d^5 , journaled in the stationary head and provided at its lower extremity with a lever D^6 , acted upon by one of the cams on the driving-shaft, an oscillating awl-carrier D^3 , pivoted directly to the upper end of the arm and swinging therewith in the arc of a circle, a guide-block D'' , loosely mounted on the driving-shaft, a forked slide D' , engaging the guide-block and acted upon by the other cam of the driving-shaft, a link d'' , connected with the forked slide and having a universal-joint attachment to the oscillating awl-carrier, and connections for oscillating the needle-carrier, presser-foot, and cast-off, substantially as described.

7. In a welt-sewing machine, the combination, with a stationary head B, having a needle-carrier, a presser-foot, and a cast-off, of a laterally-swinging arm D^5 , having a vertical pin d^5 , journaled in the stationary head and provided at its lower extremity with a horizontal lever D^6 , a driving-shaft having cams, one of which acts upon the said lever to move it in one direction, a spring E' for retracting the lever after it has been moved by the cam, an oscillating awl-carrier D^3 , pivoted directly to the upper end of the swinging arm and moving therewith in the arc of a circle, a guide-block D'' , mounted on the driving-shaft, a slide D' , engaging the guide-block and acted upon by the other cam of the driving-shaft, and a link d'' , connecting the slide with the oscillating awl-carrier, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 29th day of December, A. D. 1890.

WILLIAM Y. OBER.

Witnesses:

ALBAN ANDRÉN,

ALICE A. PERKINS.