

(No Model.)

T. J. CHRISTY.

CRANK FOR OVERCOMING DEAD CENTERS.

No. 305,739.

Patented Sept. 30, 1884.

Fig. 1.

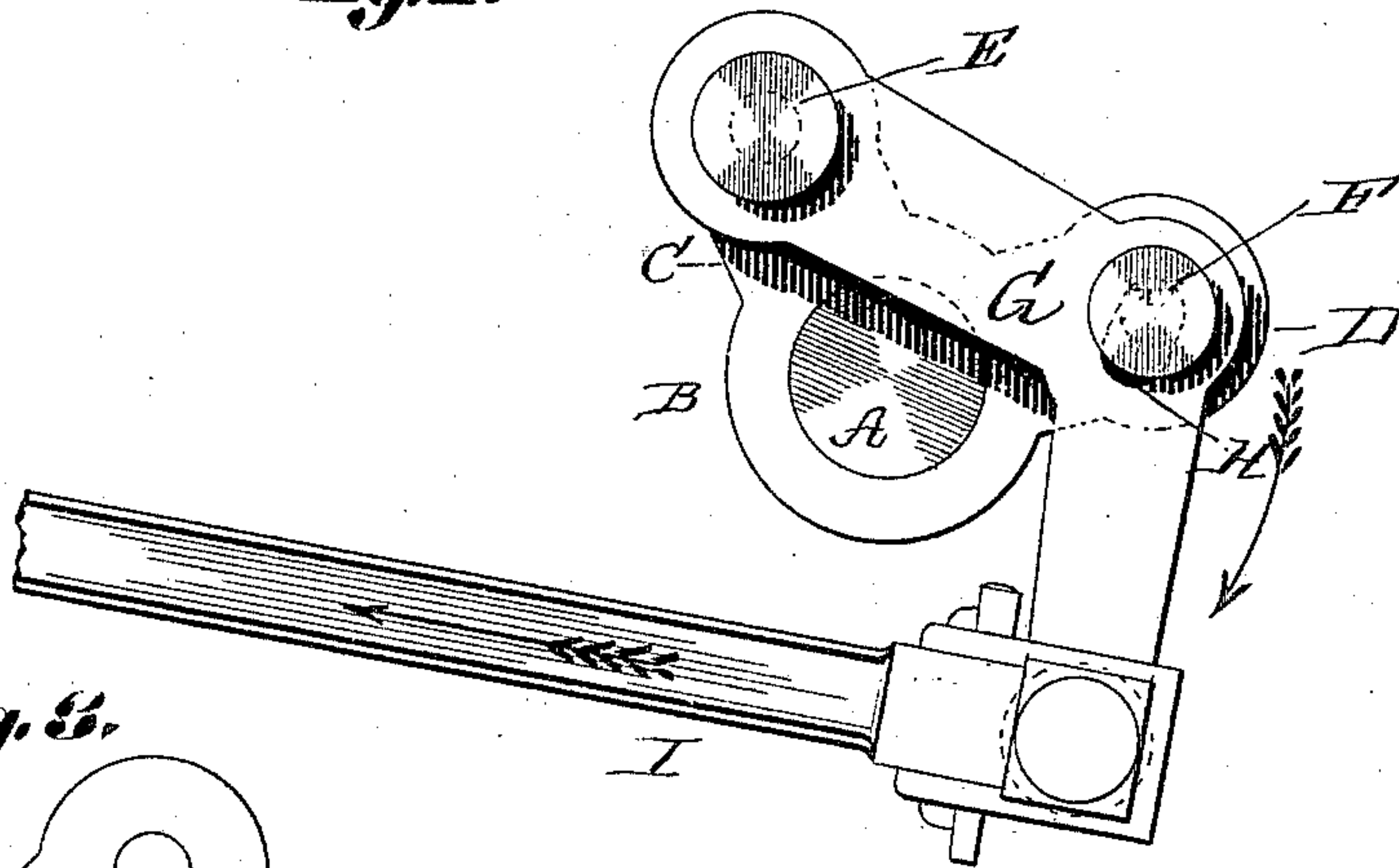


Fig. 2.

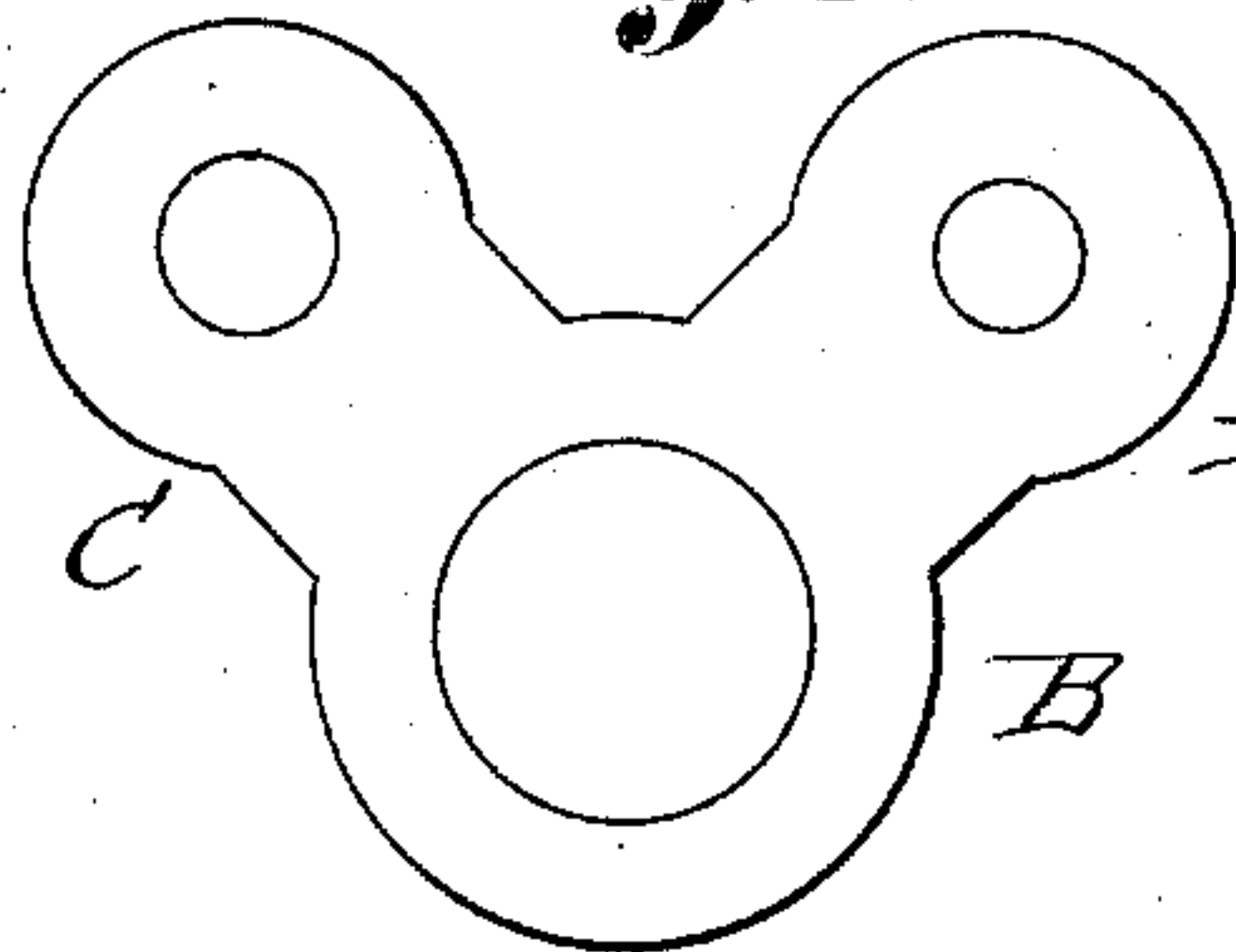


Fig. 3.

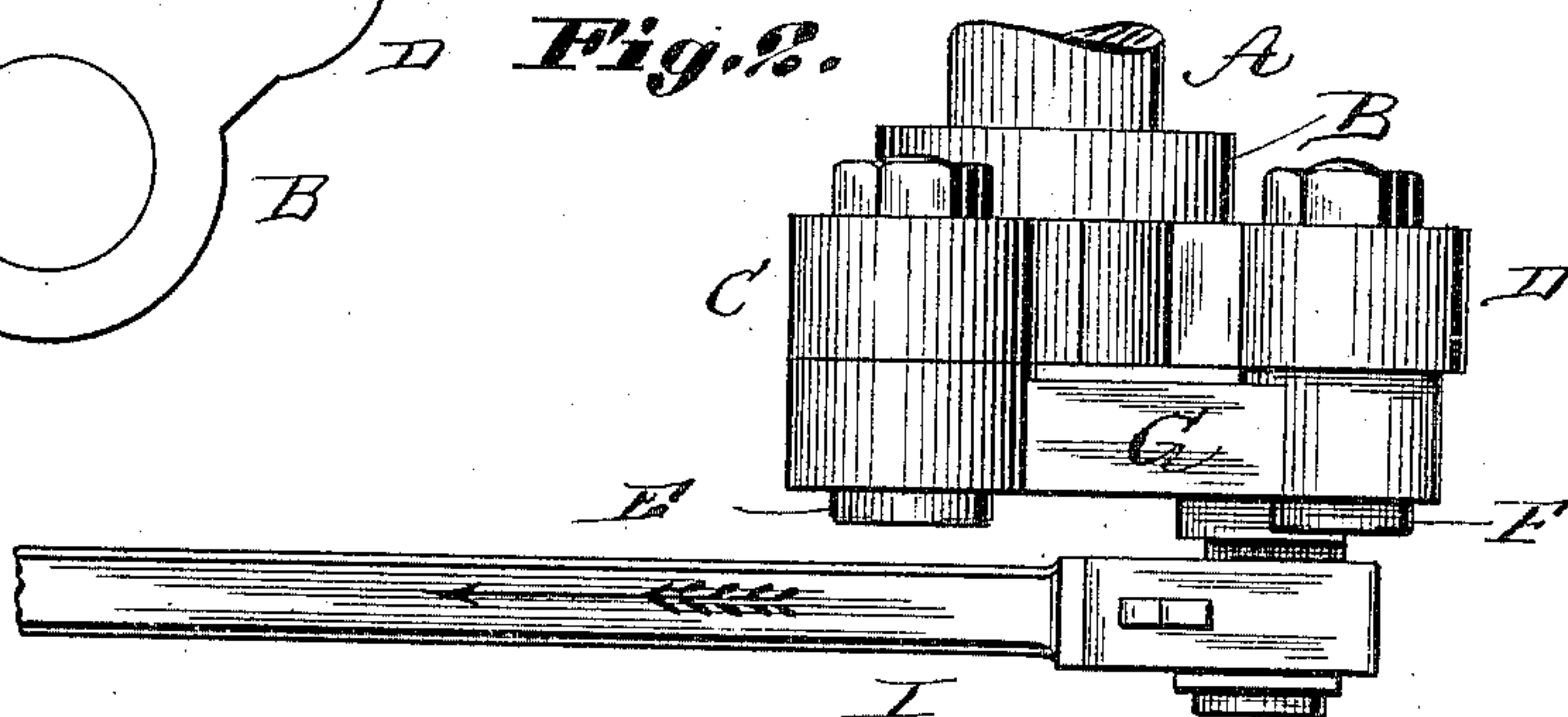


Fig. 4.

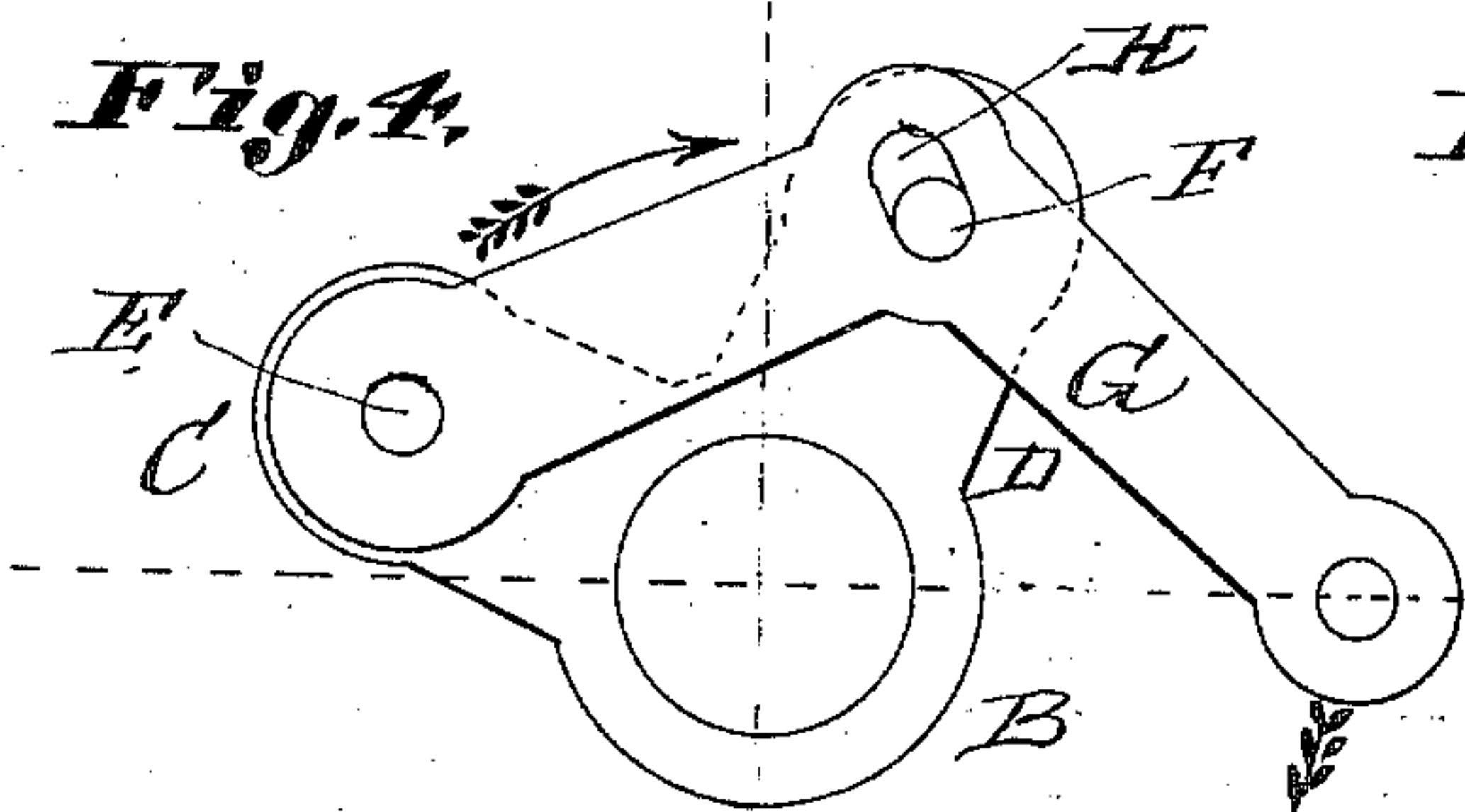


Fig. 5.

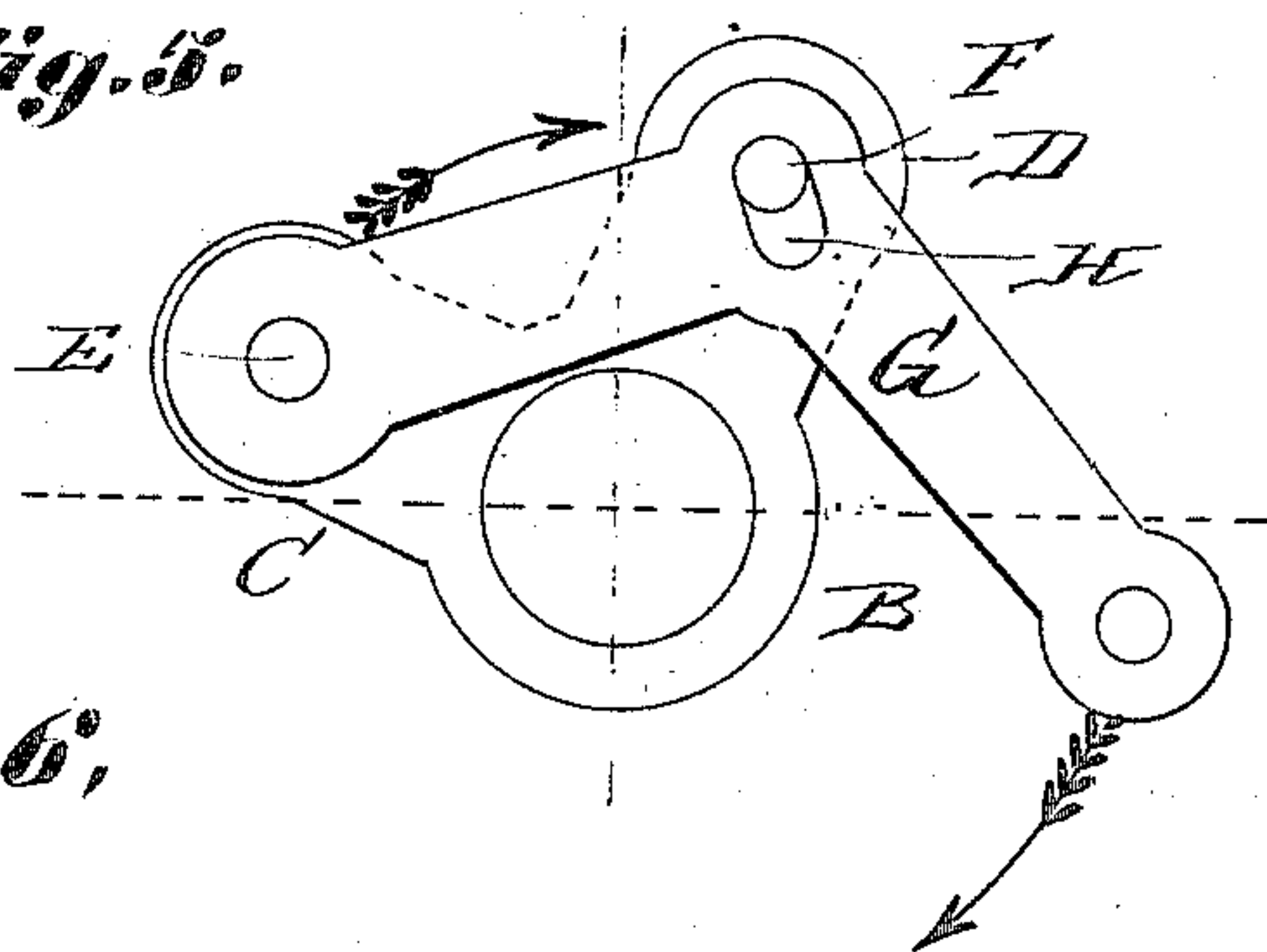
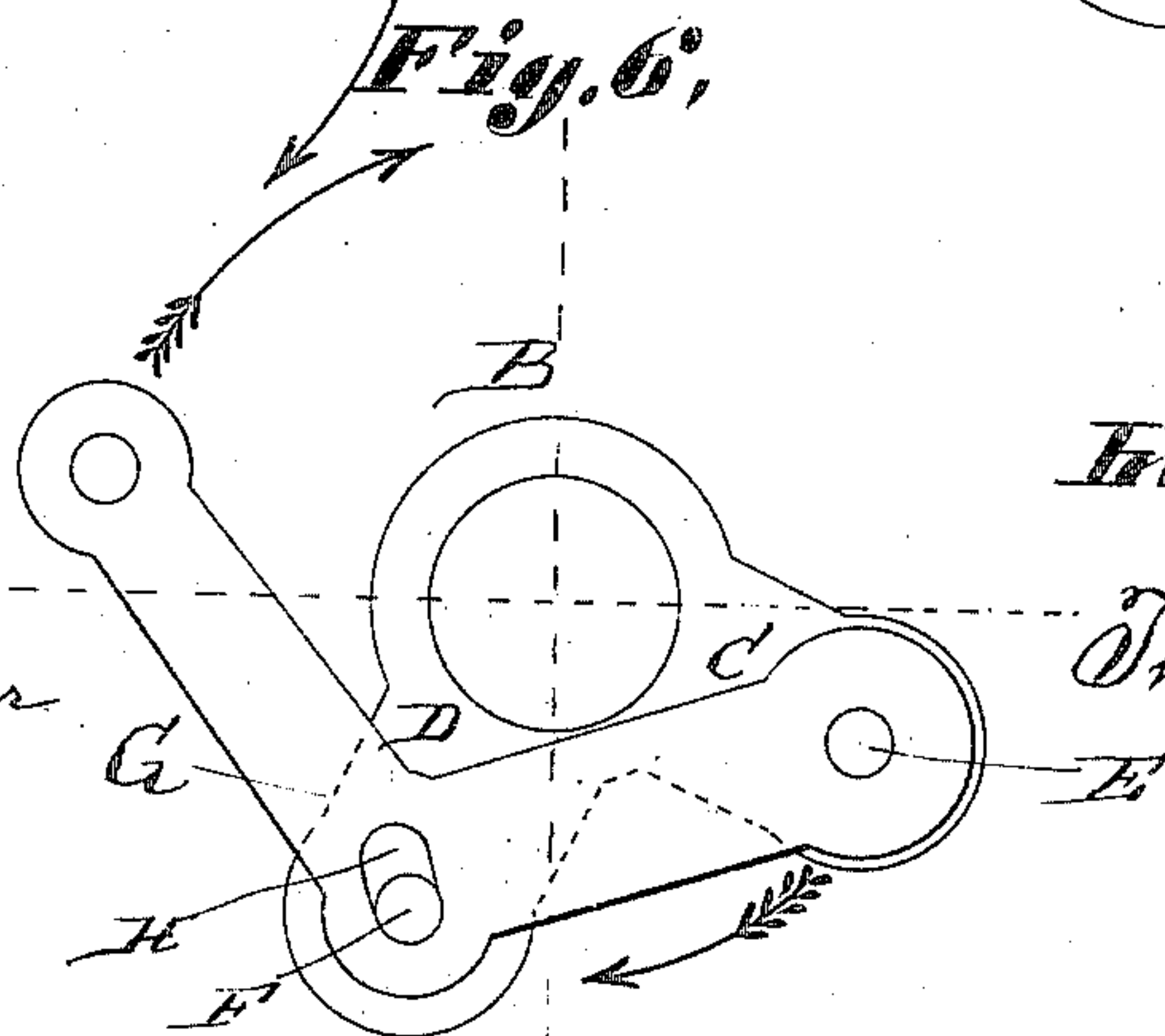


Fig. 6.



Attest:
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UNITED STATES PATENT OFFICE.

THOMAS J. CHRISTY, OF OLNEY, ILLINOIS, ASSIGNOR OF ONE-HALF TO F. T. PHILLIPS, OF SAME PLACE.

CRANK FOR OVERCOMING DEAD-CENTERS.

SPECIFICATION forming part of Letters Patent No. 305,739, dated September 30, 1884.

Application filed December 27, 1883. (No model.)

To all whom it may concern:

Be it known that I, THOMAS J. CHRISTY, a resident of Olney, in the county of Richland, and the State of Illinois, have invented certain
5 new and useful Improvements in Cranks; and I do hereby declare that the following is a full, clear, and exact description of the same, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings,
10 which form a part of this specification, and in which—

Figure 1 is a front view of my improved crank applied. Fig. 2 is a top view of the
15 same. Fig. 3 is a detailed view of the two-armed crank; and Figs. 4, 5, and 6 are front views showing the crank and the arm in their different positions.

Similar letters of reference indicate corresponding parts in all the figures.

My invention has relation to devices for converting reciprocating motion to rotary motion, or vice versa; and it consists in the improved construction and combination of parts of a
25 crank having an arm attached to it, whereby the "dead-centers" may be overcome, as hereinafter more fully described and claimed.

In the accompanying drawings, the letter A indicates the end of a shaft, which is provided with a two-armed crank, B, having
30 its two arms, C and D, at right angles to each other. One of these arms, C, is provided at its end with a wrist-pin, E, and the other arm has a laterally-projecting pin, F, at its end.
35 An arm, G, bent at an obtuse angle, is pivoted at one end upon the wrist-pin, has a slot, H, at its elbow, which slot slides upon pin F and has the pitman I hinged or pivoted to its other end in the usual manner. The slot in the elbow
40 of the pivoted arm forms a segment of a circle having its center in the center of the wrist-pin; and it will in this manner be seen that the arm may be rocked upon the wrist-pin, the slot sliding upon the projecting pin
45 upon the other crank-arm. It will be seen

that as the pitman is reciprocated it will act upon the outer end of the bent arm in the same manner as upon the end of a crank, revolving the arm and the crank and the shaft with it, and by referring to the drawings and supposing the crank-shaft to revolve in the direction
50 of the arrows upon the drawings it will be seen that in the moment when the end of the pitman and the outer end of the bent arm arrive at the dead-center at the farthest end of the
55 stroke of the pitman the weight of the pitman and of the bent arm, together with the pushing force exerted by the pitman, will draw the end of the bent arm downward, the said arm sliding upon the pin, which will bring the
60 outer end of the arm and of the pitman below the dead-center, allowing the pitman to pull the arm around to the dead-center at the inner end of the stroke of the pitman, where the
65 pull upon the pitman and consequently upon the arm will raise the end of the latter above the dead-center, allowing the pushing motion of the pitman to rotate the arm and cranks, as shown in Figs. 4, 5, and 6.

Having thus described my invention, I claim
70 and desire to secure by Letters Patent of the United States—

The combination of a revolving shaft, a two-armed crank secured upon the end of the shaft and having a wrist-pin upon one arm and a
75 laterally-projecting pin upon the other arm, an arm bent at an obtuse angle pivoted at one end upon the wrist-pin and sliding with a slot at its elbow upon the pin of the other arm, and a pitman pivoted or hinged at its end upon
80 a pin at the outer end of the arm, as and for the purpose shown and set forth.

In testimony whereof I have hereunto set my hand this the 8th day of December, A. D. 1883.

THOMAS J. CHRISTY.

In presence of—

GODFREY H. LASAR,
CHARLES PICKLES.