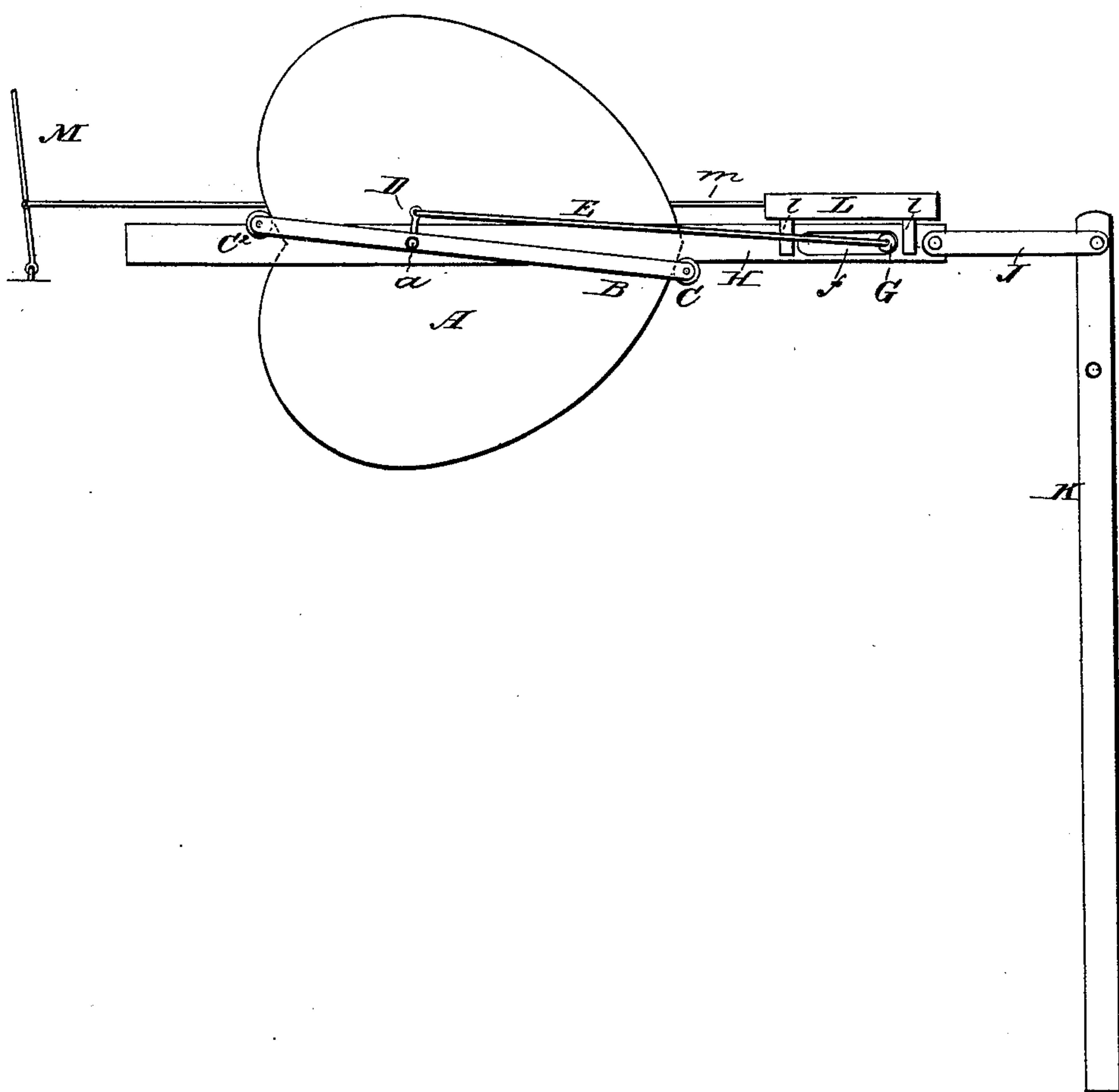


(No Model.)

S. W. HANSON.
Substitute for Crank.

No. 229,700.

Patented July 6, 1880.



WITNESSES:

Francis M. Ardtle.
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INVENTOR:

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BY

Mum H.

ATTORNEYS.

UNITED STATES PATENT OFFICE.

SAMUEL W. HANSON, OF WEST UNION COURT-HOUSE, WEST VIRGINIA.

SUBSTITUTE FOR CRANKS.

SPECIFICATION forming part of Letters Patent No. 229,700, dated July 6, 1880.

Application filed May 19, 1880. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL W. HANSON, of West Union Court-House, in the county of Doddridge and State of West Virginia, have
5 invented a new and useful Improvement in Substitutes for Cranks, of which the following is a specification.

My invention consists in a novel arrangement and combination of a heart-cam and a
10 series of slides and levers, as hereinafter described.

The accompanying drawing illustrates the manner of carrying out my invention.

A represents a heart-cam attached to a
15 shaft the center of rotation of which is at the point *a*. B is a lever pivoted at *a* and carrying at its ends two friction-rollers, C C², which engage with the face of the cam A. D is an arm attached to the lever B at or near the ful-
20 crum *a*. E is a rod which connects the arm D with a pin, G, working in a slot, *f*, in a sliding bar, H, which is connected by a link, J, to the short arm of a lever, K. The long
25 arm of this lever may be connected with the piston-rod of a steam-engine or with any other primitive power. A rectilineal motion being

imparted to the sliding bar H, the rollers C C² impart rotary motion to the cam A and to the shaft which carries it.

L is a sliding bar provided with pins *l*, 30 which straddle the bar H at the ends of the slot *f*. A rod, *m*, connects the bar L with a lever, M. By moving the lever M toward the left-hand side of the device the pins *l* will move the pin G to the opposite end of the slot, 35 and thus the motion may be reversed.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with the heart-cam A, of 40 the lever B and rollers C C², the arm D, rod E, pin G, slotted bar H, link J, and lever K, as shown and described, for the purpose specified.

2. The combination, with the cam A, the lever B, the arm D, the rod E, the pin G, and 45 the slotted bar H, of the bar L, pins *l*, rod *m*, and lever M, as shown and described, for the purpose specified.

SAMUEL WOODBURY HANSON.

Witnesses:

E. B. SOUTHWORTH,
C. DAVIDSON.