

(No Model.)

2 Sheets—Sheet 1.

J. L. FOLLETT.
MECHANICAL MOVEMENT.

No. 402,430.

Patented Apr. 30, 1889.

FIG. 1.

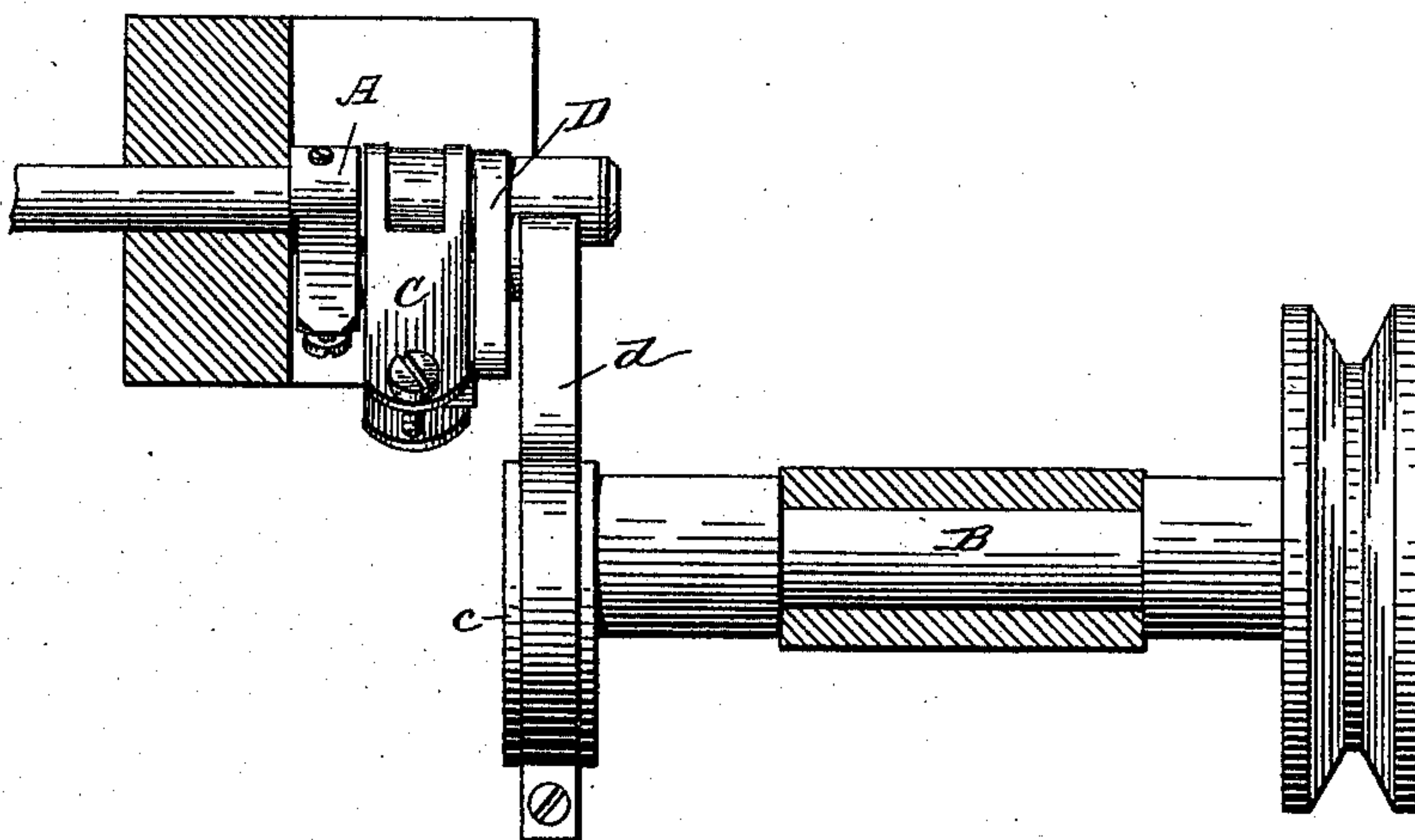


FIG. 2.

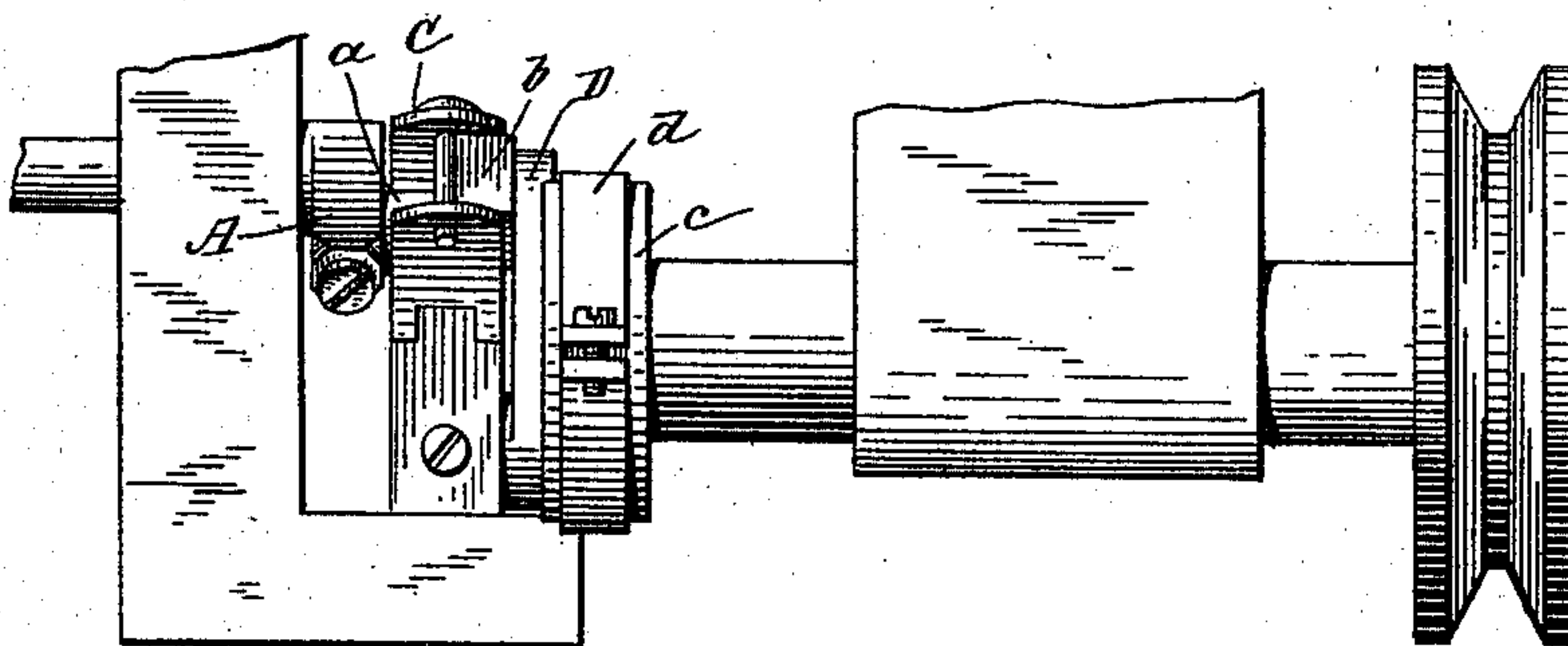
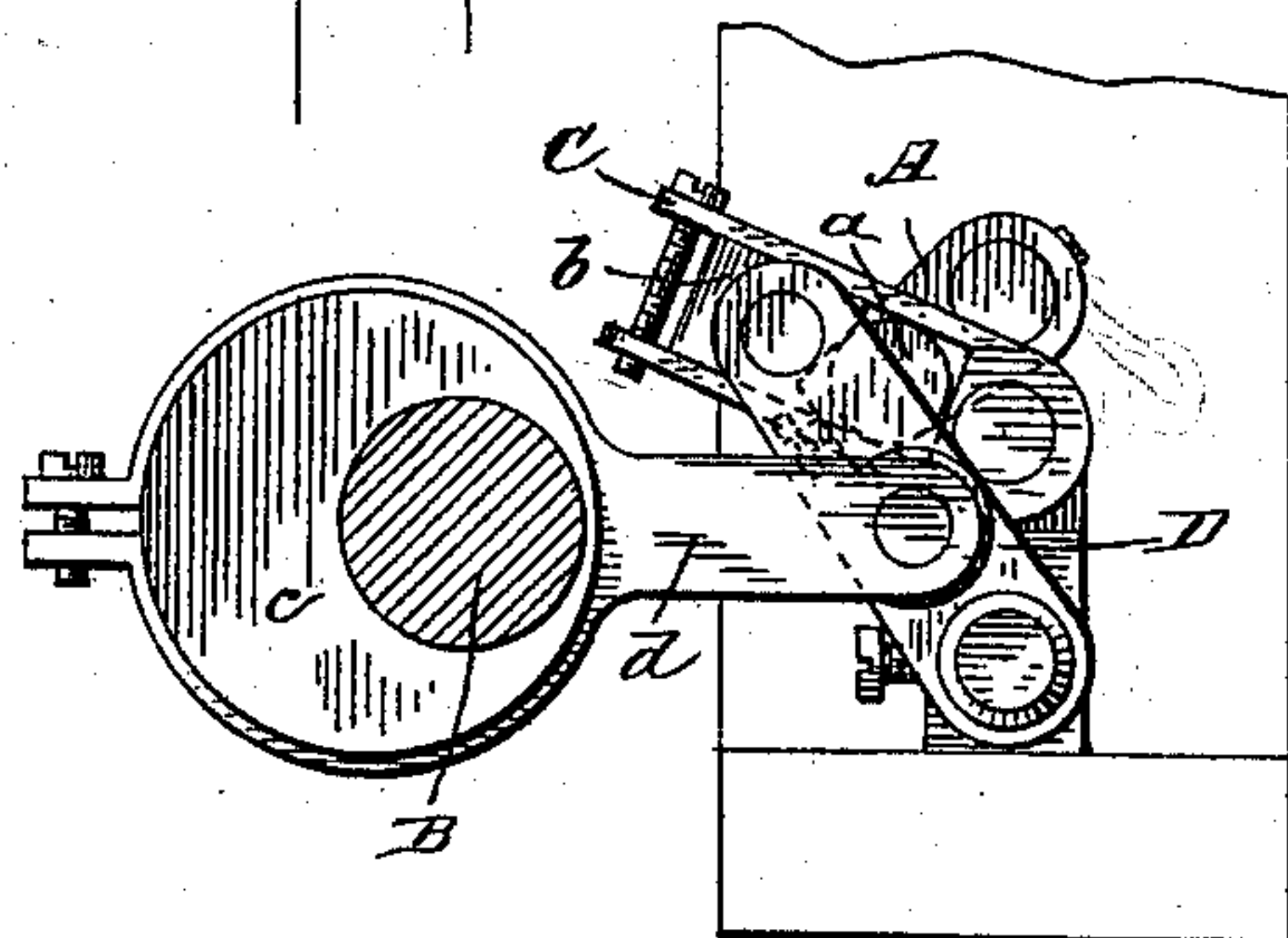


FIG. 3.



Witnesses.
E. S. Smith
W. L. Smith

Inventor.
Joseph L. Follett
by Maxwell Bader
his attorney

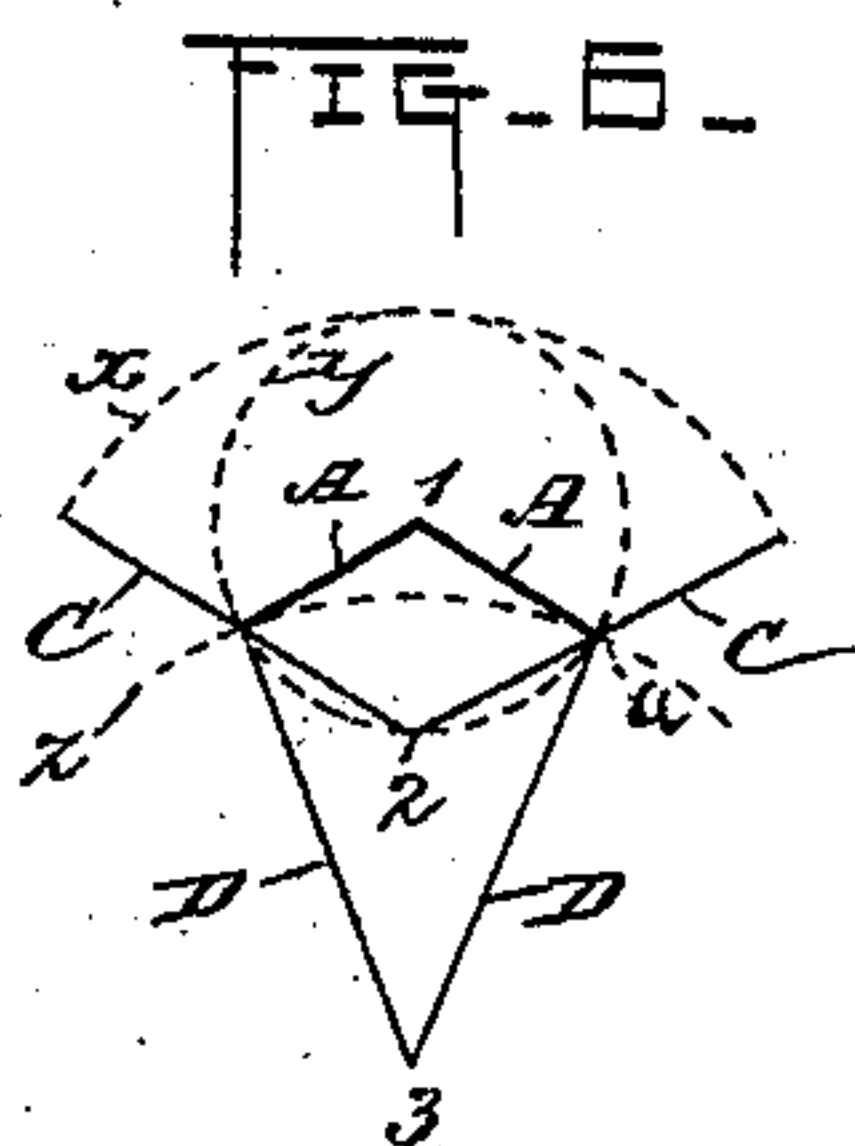
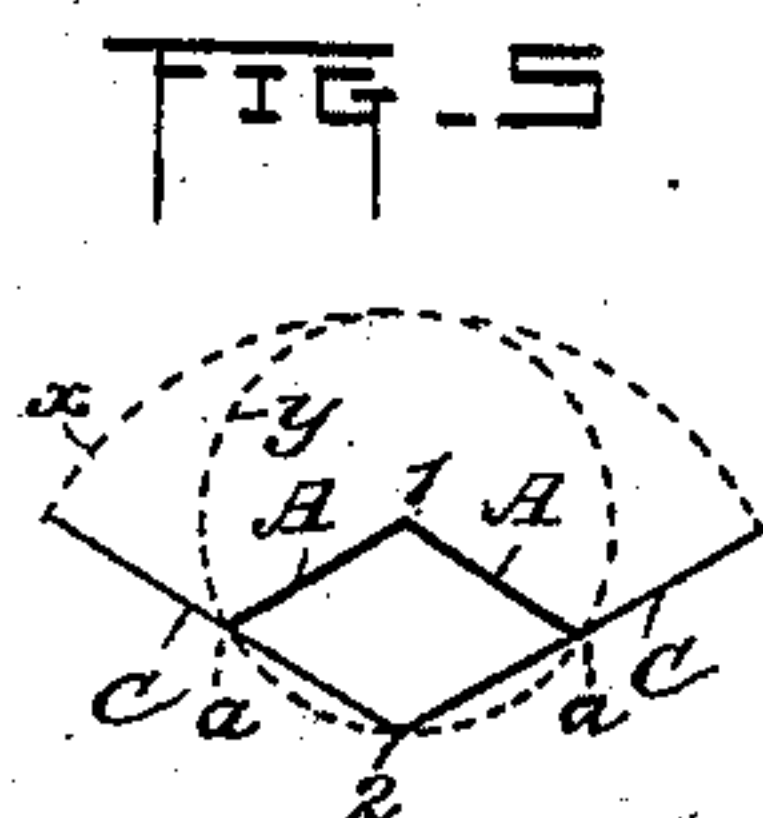
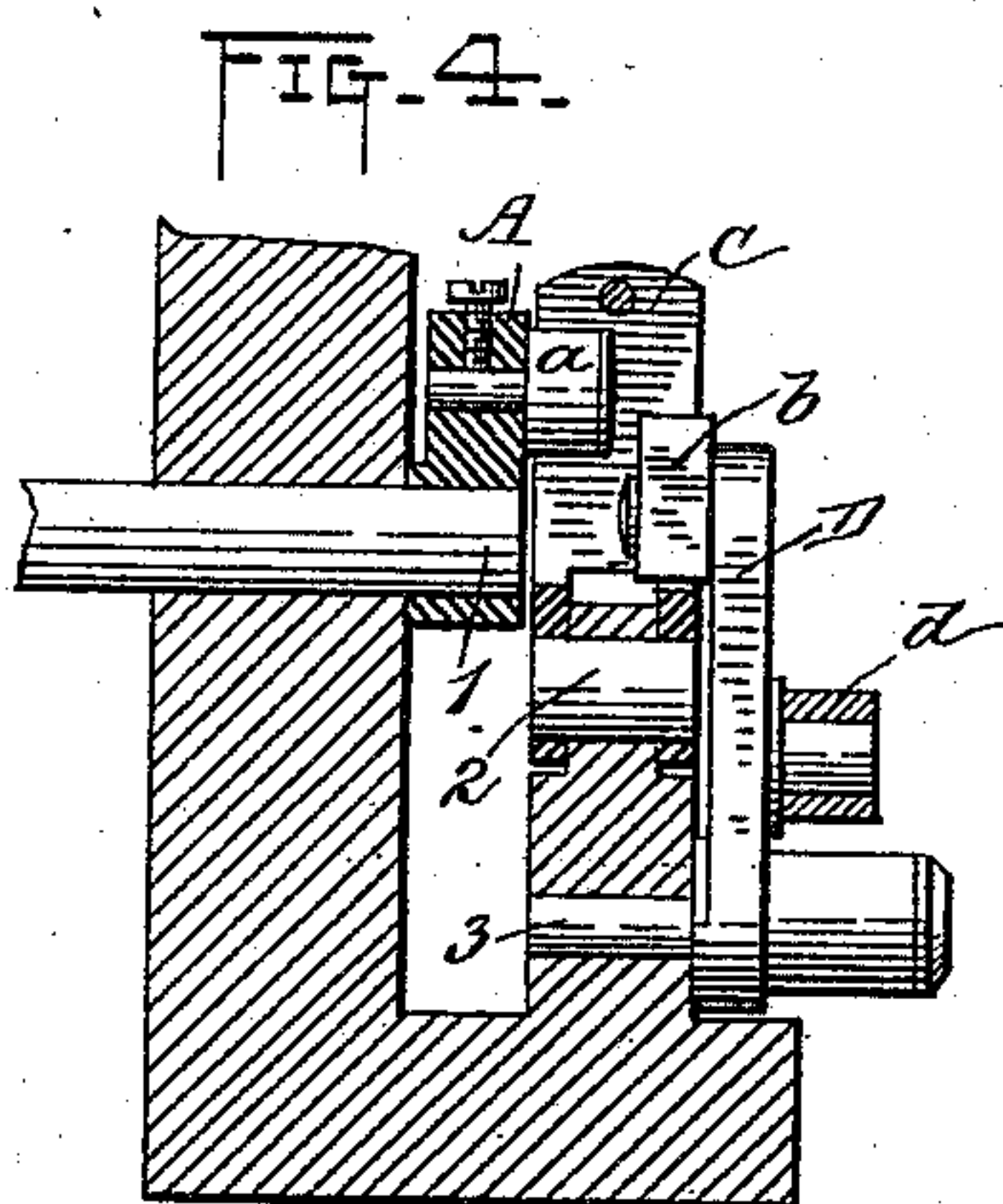
(No Model.)

2 Sheets—Sheet 2.

J. L. FOLLETT.
MECHANICAL MOVEMENT.

No. 402,430.

Patented Apr. 30, 1889.



Witnesses -

E. S. Smith
Well R. R. R.

Inventar

Joseph L. Fordell
by Maudlin Dack
his attorney

UNITED STATES PATENT OFFICE.

JOSEPH L. FOLLETT, OF BROOKLYN, NEW YORK.

MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 402,430, dated April 30, 1889.

Application filed November 10, 1888. Serial No. 290,413. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH L. FOLLETT, of Brooklyn, Kings county, in the State of New York, have invented a certain new and useful Improvement in Mechanical Movements, of which the following is a specification.

The invention which I have made involves the conversion of rotary into oscillatory motion; and it is designed with a view to impart from a continually-rotating shaft to a pivoted or oscillatory crank or arm an oscillatory movement of over one hundred and eighty degrees in each direction. In practice the extent of oscillatory movement which I desire to obtain, and do in fact obtain, is about two-thirds of one complete revolution, or about two hundred and forty degrees, and this from a crank or eccentric of slight throw on the rotary shaft.

The particular use to which I put the mechanism is to drive an oscillatory sewing-machine hook, as described, for instance, in my application for Letters Patent, filed October 4, 1888, Serial No. 287,238; but the mechanism can be employed in any desired connection.

The arm to which movement is to be imparted is pivoted or hung upon an axis on which it can oscillate. It is actuated by a vibratory bar slotted to receive a wrist-pin on said arm. The vibratory bar is operated from a rotary shaft through the medium of an eccentric and connecting-rod or the like, and its axis or center of motion is located on or nearly on the circle described by the wrist-pin of the oscillatory arm were that wrist-pin revolved one complete revolution. By this arrangement with a comparatively small range of movement for the vibrating bar, I can readily impart oscillations of, say, two hundred and forty degrees to the oscillating arm without at any time increasing the danger of bringing points or pivots of the arm and the bar to any position approaching a dead-center.

The vibrating bar can be actuated directly from a rotating shaft by means of a crank or eccentric and connecting-rod or the like; but I prefer to interpose between said bar and the driving-shaft an auxiliary vibrating bar, which has a slot-and-pin connection with the main vibrating bar and is driven from the rotary shaft. When this auxiliary bar is used

its center of motion or axis should be so placed that the axis of all three vibrating bodies shall be in a right line.

In the accompanying drawings, Figure 1 is a plan, Fig. 2 is a side elevation, and Fig. 3 is a front elevation, of a mechanism embodying my invention. Fig. 4 is a sectional elevation in the plane of the axes of the moving parts. Figs. 5 and 6 are diagrams, hereinafter more particularly described.

A is the oscillatory arm, to which motion is to be imparted.

B is the driving-shaft, intended to rotate continuously in one direction.

C is the main vibrating bar.

D is the auxiliary vibrating bar.

The main vibrating bar C is slotted longitudinally, and receives in its slot the wrist-pin a of arm A, which wrist-pin should be armed with a friction-roller or with a block swiveled upon it to fit and slide in the slot. The axis or center of motion of arm A is at 1, and that of bar C is at 2. Axis 2 is located on or nearly on a circle described from 1 as a center with a radius equal to the distance between 1 and a . The effect of this arrangement can best be appreciated by reference to diagram in Fig. 5. In this diagram the bar C in its vibrations describes the arc x of a circle. I have shown this bar at its two extremes of movement. The path in which the arm A moves is indicated at y . I have shown this arm also at its two extremes of movement. The center 2 is located at a point on the circle y , which latter has as its radius the line 1 a . Under this arrangement I obtain for arm A an oscillatory motion of two-thirds of a complete revolution with a comparatively slight oscillation or vibration of bar C, without danger throughout any portion of the movement of dead-center, or placing line 1 a at right angles to C.

I have shown the point 2 as precisely on a circle, having 1 a as its radius. This arrangement may be varied, however, within small limit—that is to say, the points may be nearly on that circle without materially affecting the result—although I prefer the particular arrangement shown in the diagrams.

Diagram Fig. 6 is the same as diagram 5, with the added representation of the auxi-

any vibrating bar D. The arc described by this arm is lettered z . Its center 3, is below and in line with the centers 1 and 2. Bar D has a crank or wrist pin, b , which engages the slotted bar C in the same way as the wrist-pin a , but from the opposite side of the said bar. Bar D is driven from an eccentric, c , on shaft B by means of a strap and connecting-rod, d , in the usual way.

10 Having described my improvement and the manner in which the same is or may be carried into effect, what I claim herein as new and of my own invention is—

1. The combination, with the arm A, oscillatory upon an axis, 1, of the vibratory bar C, connected directly to arm A at a , with its axis 2 on or nearly on a circle described from axis 1 with a radius, $1a$, and means for vibrating said bar C, substantially as hereinbefore set forth.

2. The combination of the oscillatory arm

A, the main vibrating bar C, having its axis 2 on or nearly on a circle described from axis 1 of arm A with $1a$ as a radius, and the auxiliary vibrating bar D, having its axis 3 in line with axes 2 1, substantially as and for the purposes hereinbefore set forth.

3. The combination of a rotary shaft, B, the arm A, the main vibrating bar C, having its axis located with reference to arm A, as specified, the auxiliary vibrating bar D, having its axis in the same line with those of arm A, and bar C, and an eccentric or crank and connecting-rod for imparting movement from the shaft B to bar D, substantially as and for the purpose hereinbefore set forth.

In testimony whereof I have hereunto set my hand this 7th day of November, 1888.

J. L. FOLLETT.

Witnesses:

EWELL A. DICK,

WILL E. AUGHINBAUGH.