J. F. HANLEY.
MECHANICAL MOVEMENT.

No. 392,332.

Patented Nov. 6, 1888.

ATTORNEYS.
To all whom it may concern:

Be it known that I, JAMES F. HANLEY, of Charleston, in the county of Charleston and State of South Carolina, have invented a new and useful Improvement in Mechanical Movements, of which the following is a specification.

The object of my invention is to form a compound double-crank rotary motion with one lever, adapted for converting motion or connecting shafting; and it consists in the peculiar construction and arrangement of parts hereinafter described, and pointed out in the claims.

Figure 1 is a side elevation, partly in section. Fig. 2 is an end view, partly in traverse section; and Figs. 3 and 4 are similar views of a modification.

A is a yoke-shaped frame, which has upon its inner sides circular hubs or bosses a, through which pass the journals of a double crank shaft, B, having two cranks, b b', set diametrically opposite each other. Upon the hubs or bosses a are hung the forked ends of a band or power lever, C. This operating-lever is connected by a fulcrum-pin, c, to the middle of a pair of link-bars, D, which latter at their ends are jointed to the ends of curved semicircular levers E E', one of which, E, is fulcrumed to the frame A on one side of the crank-shaft, and the other of which, E', is fulcrumed to the frame on the other side of the shaft, and which levers curve around the said shaft. The ends of these levers opposite the link-bars D are separately connected by pitman-rods F F' to the two cranks b b' of the crank-shaft.

When an oscillating motion is given to the operating-lever C, it turns on the hubs or bosses a of the frame as a center, and through the link-bars D it transmits a reverse motion to the two curved levers E E', which causes the pitmen on the opposite ends of the same to work in unison on the oppositely-set cranks of the crank-shafts, causing one pitman to pull in one direction while the other is pushing in the opposite direction to give a continuous rotary motion, which may be made steady by a fly-wheel.

My device is simple in every detail, and, while giving the double application of power, nearly two-thirds of the revolution is formed with one vibration of the reciprocating lever, enabling it to be applied to every use for which a rotary motion is needed. There is no lost motion, but the power is directed to the cranks with each vibration of the lever and gives a backward and forward motion with the same ease. When necessary to use two levers on the one shaft, the double cranks on the said shaft are placed at right angles to each other, thus completely overcoming dead-center and giving the double application of power to every quarter of a revolution the shaft makes. Every portion of its working parts is attached to its own frame at an equal distance from the center, making it of uniform leverage and evenly balanced in every particular.

As a modification of my invention I may form the operating-lever C in one piece with one of the semicircular levers, E, as in Figs. 3 and 4, the other parts remaining substantially the same.

Having thus described my invention, what I claim as new is—

1. The combination, with a frame, A, of a crank-shaft, B, having two oppositely-set cranks, b b', semicircular levers E E', fulcrumed in the frame upon opposite sides of the crank-shaft and curving around the latter, and a pair of pitmen connecting one pair of ends of the levers to the cranks, the other ends of said levers being connected together by a link on the opposite side of the crank-shaft, and provided with an extended operating-lever, as described.

2. The combination of frame A, having hubs or bosses a and crank-shaft B passing through them, the operating-lever C, swiveling on said hubs, the semicircular levers E E', fulcrumed in the frame, pitmen F F', connecting levers E E' to the cranks, and link-bars D, connecting the semicircular levers and operating-lever, substantially as shown and described.

Witnesses:
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