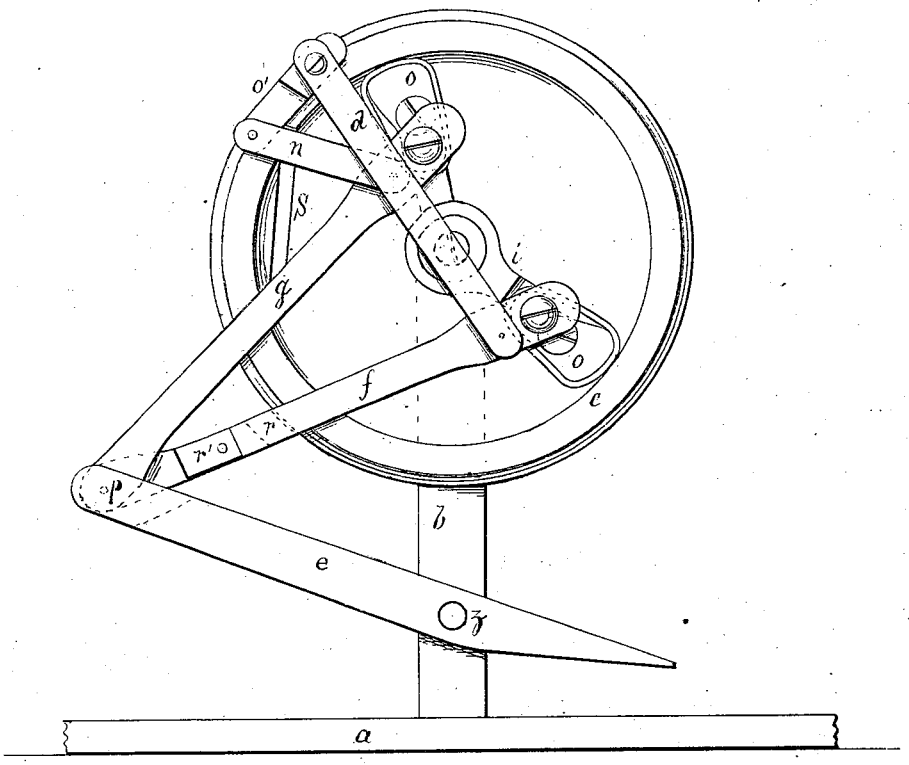
A. W. CRAM.

Clutch Machanism for Operating Treadles.

No. 162,035. Patented April 13, 1875.



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UNITED STATES PATENT OFFICE.

ALONZO W. CRAM, OF LITCHFIELD, ASSIGNOR OF ONE-HALF HIS RIGHT TO HENRY O. GOODRICH, OF JERSEYVILLE, ILLINOIS.

IMPROVEMENT IN CLUTCH MECHANISMS FOR OPERATING TREADLES.

Specification forming part of Letters Patent No. **162,035**, dated April 13, 1875; application filed December 17, 1873.

To all whom it may concern:

Be it known that I, ALONZO W. CRAM, of Litchfield, in the county of Montgomery and State of Illinois, have invented a new Mechanical Movement, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing and the letters of reference marked thereon, making a part of this specification, in which is represented a side elevation of a machine illustrating my invention.

My invention relates to an improved means of converting oscillating into rotary motion, and is a most desirable movement to use in connection with sewing-machines. The nature of my invention consists in the employment of a flanged motor-wheel, and which is journaled in any suitable upright bearing. At the axis of this wheel are secured radial arms, to the outer extremities of which are pivoted eccentrics or dogs. These eccentrics or dogs are connected with an ordinary treadle by means of treadle-levers or pitman-arms, which are pivoted to the eccentrics, and at or near the inner faces or edges, the whole being so combined and arranged that at each oscillating movement of the treadle one or the other of the dogs, through the action of its treadle-lever, is thrown in contact with the inner periphery of the flange of the wheel, so as to impart motion or power to the same, while at the same time the bite of the other dog or eccentric is relieved and held entirely free from all contact with the wheel until the reverse movement of the treadle again causes it to bite on the periphery of the flange, so, in turn, to act on the wheel. Thus, it will be seen that an alternate movement is imparted to the eccentrics; or, while one is acting directly on the wheel so as to drive the same, the other is idle, and held or drawn to such position as not to drag, thus utilizing all the power expended by the operator, in avoiding, as it does, all lost power incident to the dragging of the idle eccentric, and accomplishing the same without employing a spring or any other equivalent device to release the bite of the dog when not in use in imparting or continuing the motion or momentum to the wheel. My invention also consists in permanently securing to one treadle-lever or pitman, and at or near its upper section, a lever-arm, and which, by a short pivoted arm, is connected or attached to a lever-arm pivoted to the other treadle-lever or pitman. These arms are relatively so arranged and connected with the treadle-lever as to act as a stop, preventing the dogs or eccentrics from striking, and thus avoiding noise and all danger of the dogs or eccentrics catching on a dead-center.

The construction and operation of my invention are as follows:

In the accompanying drawing, *a* is the base of the machine, having an upright, *b*, in the upper end of which is journaled the flanged wheel *c*, provided with the radial arms *i i*, pivoted to its axis. On or near the outer extremities of the radial arms *i i* are pivoted the eccentrics *o o*, to the inner ends of which are articulated the treadle-levers *f g*, which are made to meet at the treadle, and are pivoted thereto at *p*. The treadle is pivoted to the upright *b* at *z*. The eccentrics have, preferably, a comparatively large face-surface, and are preferably covered with rubber or other similar substance, to increase the friction on the flange of the wheel, against which they are made to bear in the operation of the machine. It will be obvious from this construction that, by raising and depressing the inner end of the treadle, the eccentrics will alternately be brought to bear against the inner face of the flanged wheel, and impart a rotary motion thereto in the same direction; and the treadle-levers so act that, while one drives the eccentric or dog so against the periphery of the wheel as to insure its positive bite, and the transmission of the desired power, the bite of the other eccentric or dog is not only released, but is drawn to such position as to free it from all contact with the wheel, and thus the dragging of the idle dog or eccentric is rendered impossible, and the loss of power incident thereto avoided. To the treadle-arm *f* is permanently attached a lever-arm, *d*, and to the treadle-arm *g* is pivoted a short arm, *n*. These arms *d n* are connected by a short arm, *o'*. These arms *d*, *n*, and *o'* are relatively so arranged and connected with the pitman-levers *f g* as to act as a stop, thus preventing, under all circumstances, the dogs or eccentrics *o o* from so

striking as to create noise, or of their meeting, so as to catch on a dead-center. S is a spring, and is connected with the treadle-lever *g* and the arm *n*, and is so arranged that its tension is constantly employed, so as to prevent the arms *n o'* from so catching as to stop on a center, as it were, and which would instantly arrest the motion of the motor. On the outer face of the treadle-lever *f* is a brake, *r*, and on its inner face is a spring or yielding stop, *r'*. These are relatively so arranged that in the ordinary movement of the treadle the treadle-lever *g* will strike the stop *r'*, and so prevent the approach of the treadle-levers as to avoid the bringing of the brake *r* in contact with the outer periphery of the flange of the wheel *c;* but when it is desired to stop the motor a slight additional pressure or depression of the treadle will so overcome the tension of the stop as to throw the brake *r* in contact with the wheel, and instantly arrest its motion.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

The flanged wheel *c*, radial arms *i i*, eccentrics *o o*, treadle-levers *f g*, arms *d*, *n*, and *o'*, and spring S, the whole being so combined and arranged as to prevent the striking or meeting of the dogs, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALONZO W. CRAM.

Witnesses:

JOHN C. RYAN,

CHAS. W. BEARDLEY.