

(No Model.)

2 Sheets—Sheet 1.

E. S. MANN.
TREADLE MECHANISM.

No. 255,732.

Patented Mar. 28, 1882.

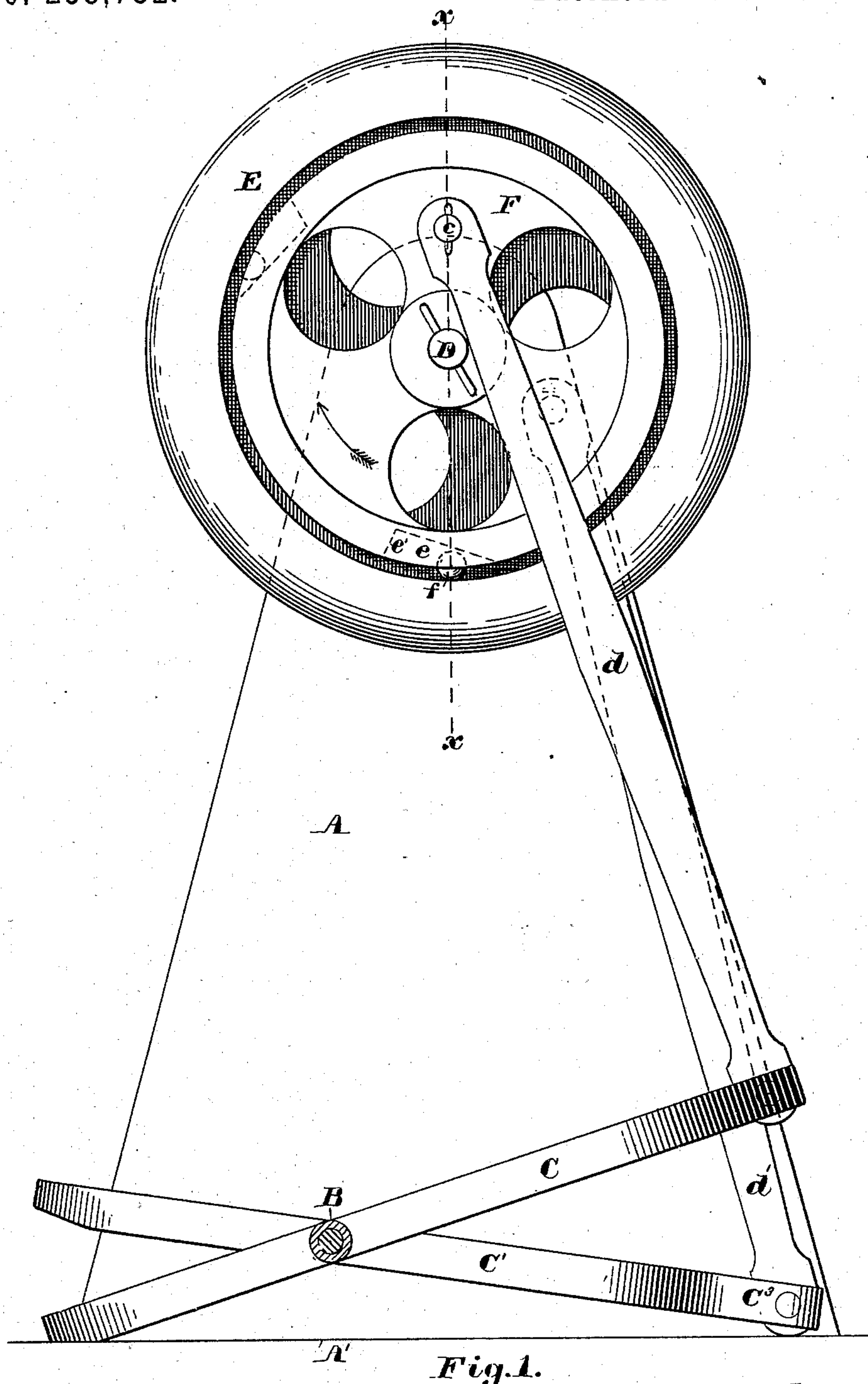


Fig. 1.

Witnesses:

Walter E. Lombard.
E. A. Hemmenway.

Inventor:

Ernest S. Mann
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Attorney.

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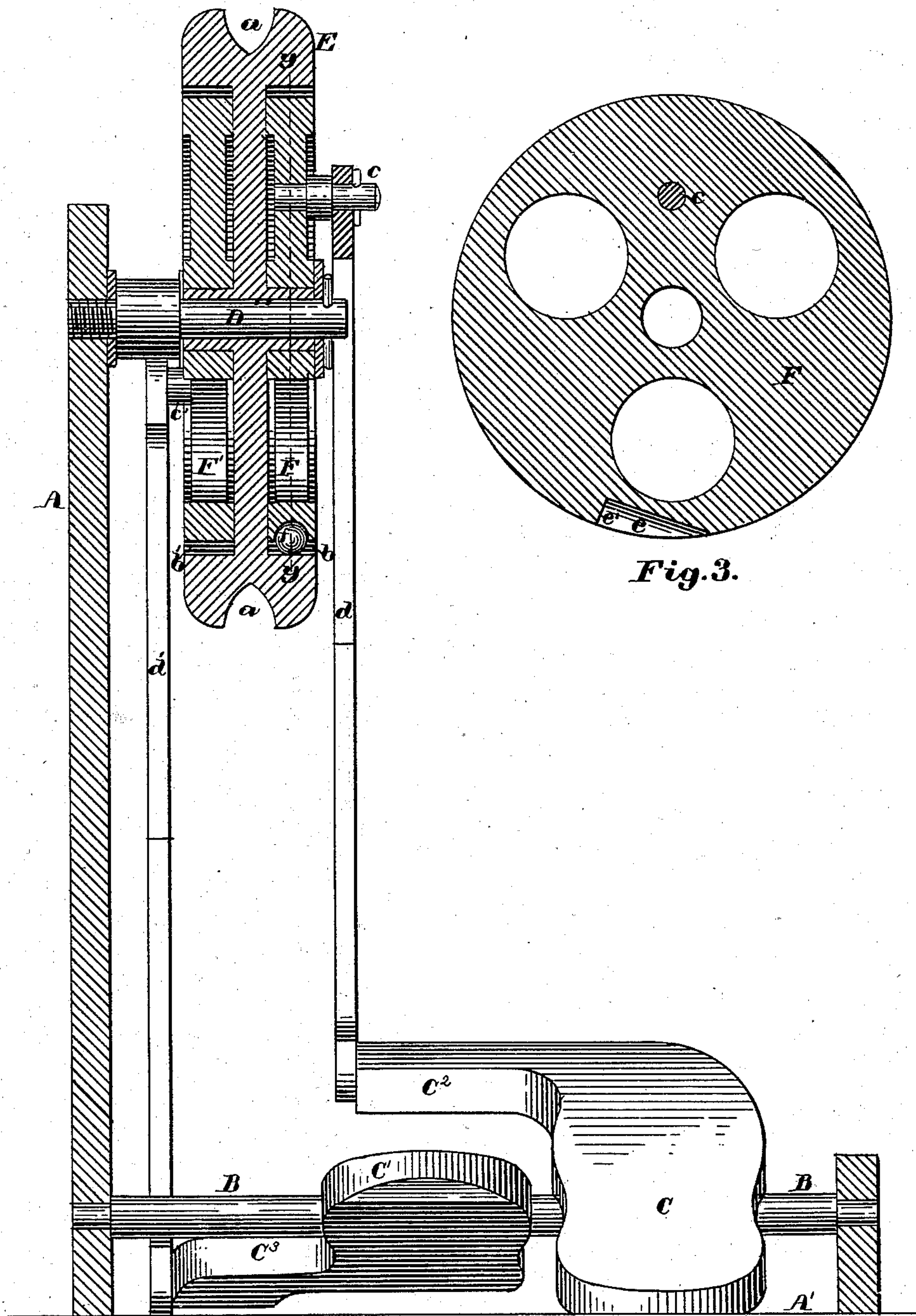


Fig. 2.

Fig. 3.

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UNITED STATES PATENT OFFICE.

ERNEST S. MANN, OF BROCKTON, MASSACHUSETTS.

TREADLE MECHANISM.

SPECIFICATION forming part of Letters Patent No. 255,732, dated March 28, 1882.

Application filed November 7, 1881. (No model.)

To all whom it may concern:

Be it known that I, ERNEST S. MANN, of Brockton, in the county of Plymouth and State of Massachusetts, have invented new and useful Improvements in Treadle Mechanisms for Sewing-Machines and other Purposes, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to that class of treadle mechanisms in which rotary motion is imparted to the driving shaft or pulley by means of the alternate intermittent action of two frictional devices; and it consists in the combination, with two alternately-operating treadles, of a driving-pulley mounted loosely upon a journal about which it may be revolved, two disks or wheels, also mounted loosely upon the same shaft stud or journal, one upon each side of the arms or web of said pulley, and so as to revolve or oscillate within the inner periphery of the rim of said pulley, and each provided in its outer periphery with a recess or pocket, the bottom of which is inclined to the periphery of said disk or eccentric to its axis, a ball placed in each of said pockets between the inner periphery of the driving-belt pulley and the bottoms of said pockets, a crank-pin set in each of said disks, and a connecting-rod connecting each of said crank-pins with one of the treadles, as will be described.

Figure 1 of the drawings is a side elevation of my improved treadle mechanism. Fig. 2 is a vertical section on line *xx* on Fig. 1, and Fig. 3 is a vertical section through one of the crank-carrying disks on line *yy* on Fig. 2.

A and A' represent portions of the frame of a sewing or other machine.

B is the treadle-shaft, having mounted thereon the two treadles C and C' in such a manner that they may be vibrated about said shaft independently of each other, said treadles being provided with the offsets C² and C³, to permit the connecting-rods to be attached thereto at one side of the operator's knees.

D is a stud set in the frame A in a fixed position, and having mounted loosely thereon the pulley E, provided with the peripheral groove *a* to receive a belt (not shown) by which the motion of said pulley may be transmitted to the cam-shaft of a sewing-machine or to any other shaft or pulley. The pulley

E has formed in opposite sides thereof the annular recesses *b* and *b'*, in which are placed the disks or wheels F and F', respectively, which are fitted loosely upon the opposite hubs of the pulley E, or they may have their bearings upon the stud D upon each side of said pulley. The disks F and F' have set in their outer radial faces the crank-pins *c* and *c'*, respectively, by which and the rods *d* and *d'* the disks F and F' are respectively connected to the treadles C and C', and each of said disks has formed in its peripheral edge the recess or pocket *e*, the bottom of which is inclined to the periphery of said disk, and is provided at one end with the abutment *e'*, as shown in Fig. 3.

In the pocket *e*, and between its inclined surface and the inner periphery of the rim of the pulley E, is placed a ball, *f*, which, when the treadles are in the position indicated by C in Fig. 1, will rest on the rim of the pulley E without touching the inclined surface of the pocket *e*. If, now, the inner or toe end of the treadle C be depressed so as to move the disk F about its axis in the direction indicated by the arrow, the inclined surface of the pocket *e* engages with the upper side of the ball *f*, causing it to be wedged between said inclined surface and the inner periphery of the rim of the pulley, thereby compelling said pulley to move about its axis with the disk F. If at the same time the heel end of the treadle C' be depressed, the disk F' will be moved about its axis in a direction opposite to that indicated by the arrow without affecting the movement of the pulley E as the inclined surface of the pocket *e* is moved away from the ball *f*, thus relieving the gripe upon the pulley E. If, now, the motion of the treadles C and C' be reversed, the gripe between the disk F and pulley E will be released, and the pulley E will be made to continue its revolution in the direction indicated by the arrow by the disk F' pressing the ball *f* between its inclined surface and the rim of said pulley, as before described in regard to the disk F, and thus by the alternate action of the two treadles C and C' a continuous revolution of the pulley E in one direction is obtained without danger or possibility of turning the pulley in the wrong direction.

I am aware that is not new to rotate a shaft by means of an intermittent and alternately-

acting double frictional device, as described in Letters Patent No. 103,847, granted to Edwin Cowles, June 7, 1870, and reissued July 6, 1873; but my invention is an improvement upon the devices shown and described in said patent, in that the number of parts are reduced, and the apparatus is simplified and rendered much less liable to get out of order and more effective in operation by substituting the rigid connecting-rods for the leather straps used in said patent, which I am enabled to do by my arrangement of the pulley E and the disks F and F'.

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

1. The pulley E, loosely mounted upon a fixed bearing, and provided with an annular recess in its opposite radial sides, and adapted to carry and impart motion to a belt, the two disks F and F', each provided with a pocket, *e*, a ball in each of said pockets, and mechanism for imparting to each of said disks alternately an intermittent oscillating motion about its axis, substantially as described.

2. In combination with two treadles, the pulley E, provided with recesses upon its opposite sides and adapted to carry a driving-belt upon its periphery, mounted loosely upon a fixed bearing, the two disks F and F', each provided with a crank-pin and having formed in its periphery a recess or pocket, *e*, the two balls *f*, and two connecting-rods, all arranged and adapted to operate substantially as and for the purposes described.

3. The combination of the treadles C and C', provided with the offsets C² and C³, respectively, the connecting-rods *d* and *d'*, disks F and F', each provided with a crank-pin and a pocket, *e*, the two balls *f*, and the pulley E, all constructed, arranged, and adapted to operate substantially as and for the purpose described.

Executed at Boston, Massachusetts, this 3d day of November, A. D. 1881.

ERNEST S. MANN.

Witnesses:

E. A. HEMMENWAY,
WALTER E. LOMBARD.