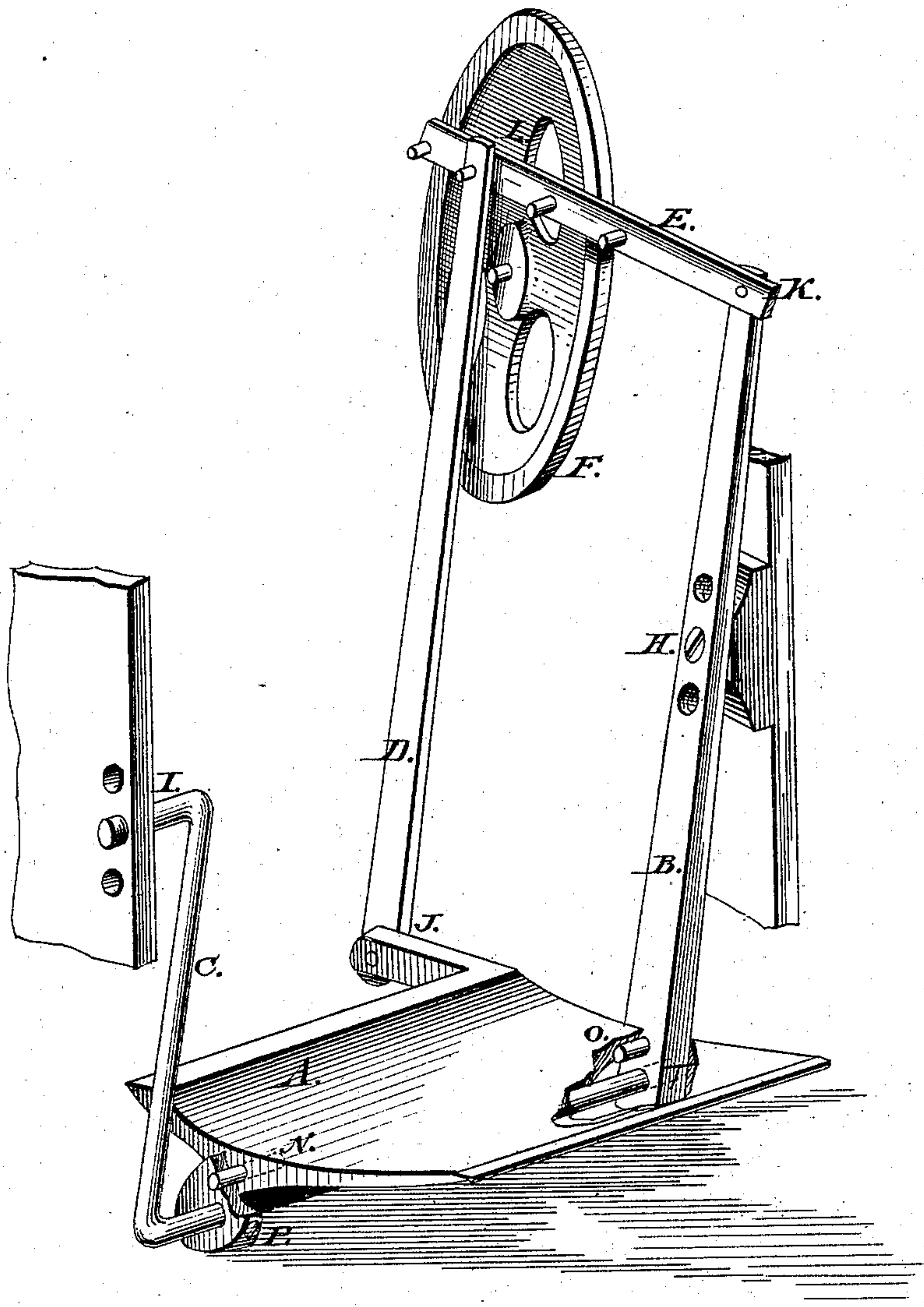


S. W. ROBINSON.

TREADLE.

No. 174,093.

Patented Feb. 29, 1876.



Witnesses:

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UNITED STATES PATENT OFFICE.

STILLMAN W. ROBINSON, OF CHAMPAIGN, ILLINOIS.

IMPROVEMENT IN TREADLES.

Specification forming part of Letters Patent No. **174,093**, dated February 29, 1876; application filed September 17, 1875.

To all whom it may concern:

Be it known that I, STILLMAN W. ROBINSON, of Champaign, county of Champaign, State of Illinois, have invented certain Improvements in Treadles, of which the following is a specification:

My invention relates to such a combination of pieces connecting the pedal of a treadle device with the crank as shall be entirely free from dead-points, and as shall increase the range of motion of the pedal to any extent desired, and also as shall give action to all the muscles of the leg and ankle, thus enabling the operator to develop much more power than with the ordinary treadle, and also to stop and start the machine at any possible point desired.

The treadle is represented in perspective in the accompanying drawing.

A is the pedal or part upon which the feet are placed. F is a fly-wheel, with a crank-pin, L, which receives motion from A through the connecting-pieces B D E. C and B are rigidly and permanently joined at T, so as to form a firm U-shaped piece. B is pivoted at H, and C at I, to the main frame-work of the machine, so that the U-shaped part B T C can swing about H I as an axis of motion. B is extended above H to K, and thence connected with the crank-pin L by means of the pitman E. By placing the pivots H and I higher or lower, the extent of swing of A may be made greater or less.

The pedal A is mounted upon the horizontal or bottom part of the U-shaped piece, so as to rock freely as follows: P is a collar upon C, as shown, with an extension to one side, so as to receive the pin N. This pin projects to one side of P and enters a suitable hole in the pedal to form a bearing, and allow freedom of rocking motion. The other side of the pedal is likewise suspended by the pin O, the latter being secured to a collar similar to P or directly to B. The object of thus suspending A upon small pivots is to decrease the friction of A upon its bearings to a minimum, this object being realized by making N and O very

small, and perhaps of tempered steel, whereas B T C must have considerable size for the necessary strength, and would involve large bearings if A rested directly upon it, causing greater resistance in action. A prolongation from A is pivoted at J to a second pitman, D, which latter either takes hold upon the crank-pin L or upon other pins shown upon E, according to the extent of rocking motion of A required. This double-pitman arrangement, it is easily seen, avoids the dead-centers, because, where L is on the dead-point for E, it is in the position of best advantage for D, and vice versa.

The motion of the pedal A in this treadle device is seen to be peculiar, causing either the toe or heel of the operator to describe a sort of an elliptical curve in which there are no stop and start points, which also shows the entire absence of dead-points. This freedom from dead-centers enables the operator to stop and start, as desired, at any possible position, without touching the machinery by hand, a matter of much importance in sewing-machines. It is further easily seen that the adjustment of the extent of rocking motion of A, and of the swinging of A, as above explained, is each independent of the other, the same being governed by the resistance to be overcome. Also, as the foot can act to give motion to F at all possible positions of the latter, the fly-wheel may be much lighter, thus reducing the friction upon its bearing.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the U-shaped part B T C and pitmen D and E, with the pedal A, all arranged as and for the purposes specified.

2. The combination, with pedal A, of the collar or collars P, and pins N O for relieving pedal A of friction of suspension, as and for the purpose set forth.

STILLMAN W. ROBINSON.

Attest:

TH. J. SMITH,
J. S. LOTHROP.