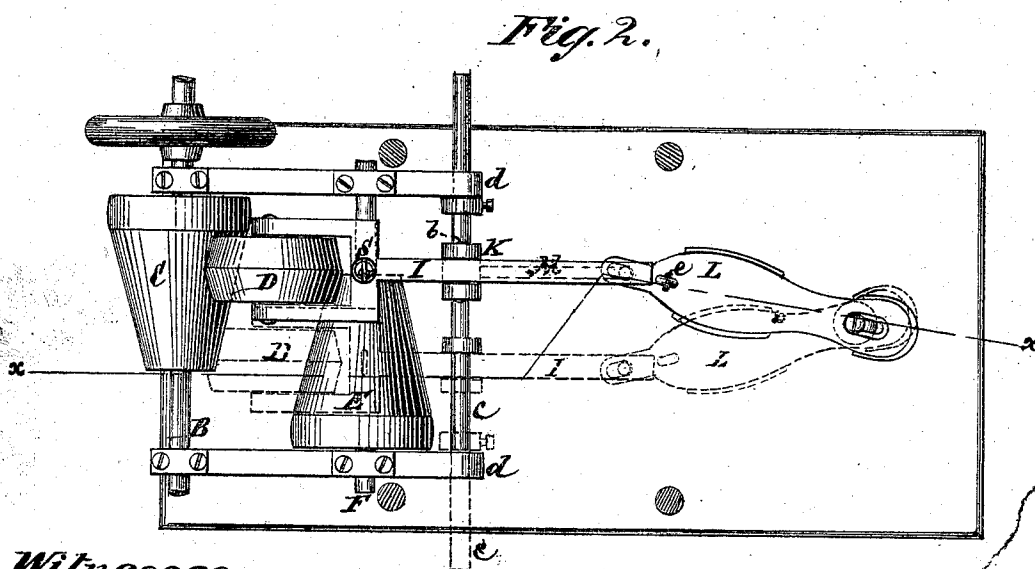
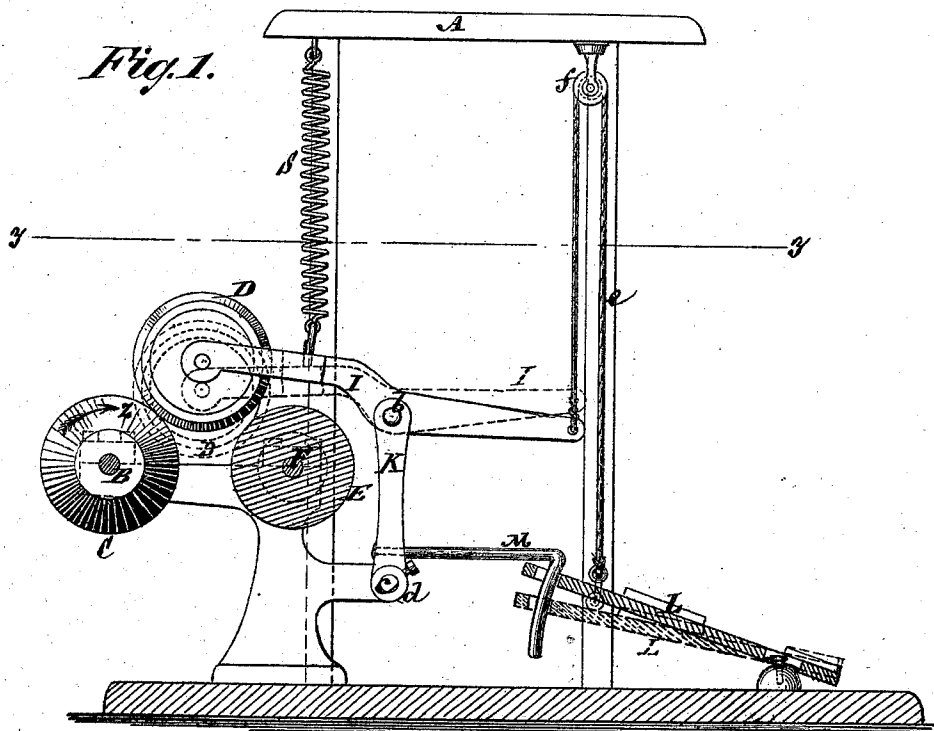


L. H. OLMSTED.

Modes of Regulating Speed in Machinery.

No. 142,504.

Patented September 2, 1873.



Witnesses

John Beecher.
Fred Hayner

L. H. Olmsted
by his attorneys
Brown & Allen

UNITED STATES PATENT OFFICE.

LEVERETT H. OLMSTED, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN THE MODES OF REGULATING SPEED IN MACHINERY.

Specification forming part of Letters Patent No. **142,504**, dated September 2, 1873; application filed April 9, 1873.

To all whom it may concern:

Be it known that I, LEVERETT H. OLMSTED, of Brooklyn, in the county of Kings and State of New York, have invented certain Improvements in Means for Starting, Driving, and Stopping Sewing-Machines, and for other purposes, of which the following is a specification:

This invention relates to means for starting, driving, and stopping sewing and other machines, and by which provision is afforded for graduating or varying speed from a continuously and uniformly running power-shaft through the direct contact of wheels or pulleys, including an intermediate or idle pulley, which is made capable of adjustment to receive and transmit motion at variable distances from the centers of the other pulleys. The invention consists in certain novel combinations of devices for controlling the action of said means, including a laterally-adjustable treadle and a frame arranged to rock in a plane which is transverse to the axis of the idle-pulley, as well as to move in a direction parallel to the axis thereof.

Although applicable to other machines or purposes, it will suffice here to describe the invention as used for the running of sewing-machines.

In the accompanying drawing, which forms part of this specification, Figure 1 represents a vertical section on the irregular line *x x*, Fig. 2, of an apparatus or combination of mechanism embodying my invention. Fig. 2 is a horizontal section on the line *y y* of the same.

Similar letters of reference indicate corresponding parts.

A represents the table, stand, or bench of a sewing-machine, or on which any number of sewing-machines may be arranged side by side at suitable distances apart, and which are driven from a horizontal main and power shaft, B. This shaft, which may be supported in bearings altogether distinct from the rest of the mechanism, has secured on it a driving-pulley, C, for each machine, which pulley serves to give motion, through friction by direct contact, to an idle-pulley, D, that in its turn serves to communicate motion in a similar manner to a pulley, E, on a shaft, F, from which motion is conveyed by belt to a sewing-machine on the table A above. The shaft B

may be driven, by engine or otherwise, in a continuous manner, and is parallel, and may have its axis in the same horizontal plane as that of the shaft F, from which it is disposed at a suitable distance to admit of the idle-pulley D entering between and bearing by direct contact on or against the pulleys C and E when it is required to operate the machine. The arrangement here shown represents the idle-pulley D as arranged above, but the latter might be arranged to bear against the lower portions of the peripheries of the pulleys C and E; or the same shaft B and pulley C might be used to operate double sets of idle-pulleys D, arranged the one above and the other below, to communicate motion in appropriate directions to double sets of pulleys E and shafts F, for working double rows or sets of sewing-machines on opposite sides of the main shaft B. The pulleys C and E are of a reverse conical form or arrangement in relation with each other and the idle-pulley D of a double or reverse conical shape, to give the latter a wide or sufficient peripheral bearing on both pulleys C and E. The object of using conical pulleys is to give an accelerated motion, through the idle-pulley D, from the shaft B or its pulley C, to the shaft F or its pulley E, by laterally moving the idle-pulley D from the smaller end of the pulley C toward the larger end of the latter and smaller end of the pulley E, as shown by full and dotted lines in Fig. 2, in order that a slow motion may be communicated to the sewing-machine at starting, and a gradually-quickenening or quicker one after the machine has been set going. The idle-pulley D is carried by a rocking frame constructed to provide for bringing said pulley in contact with pulleys C and E, as represented by dotted lines in Fig. 1, and, where a lateral adjustment of the idle-pulley is required, of moving it laterally. To these ends the idle-pulley D is carried by the one arm of a lever, I, having an intermediate fulcrum, *b*, in a rocking arm or frame, K, whose center of motion is in common with a rod, *c*, which is free to turn in bearings *d d*, and is capable of longitudinal movement to provide for lateral adjustment of the idle-pulley. The lever I, when the idle-pulley is arranged above, may be connected with the treadle L, by which said pul-

ley is thrown into driving contact with the pulleys C and E, by means of a chain or cord, e, and pulley f, with freedom for the treadle to swing laterally in common with the lever I and frame K, by means of a hooked connection, M, which also provides for the independent up-and-down movement of the treadle, to bring the idle-pulley D in contact with the pulleys C and E, and to admit of its freedom from contact, when required, its freedom from contact taking place by means of a spring, S, or weight suitably applied to operate with like effect whenever the foot is moved from the treadle. By means, too, of the lever carrying the idle-pulley and rocking frame, forward driving motion of the shaft B in direction of the arrow z causes the pulley C to force or press the idle-pulley D, when the latter is brought down by the treadle, into hard driving contact with the pulley E, so that there can be no slip; but when the driving-shaft is run backward, then the pulley C exerts a driving action on the idle-pulley D away from the pulley E, which allows of slip, and so prevents, or tends to prevent, the sewing-machine from being run

backward, even though the foot be kept down on the treadle. When the idle-pulley D is arranged beneath the pulleys C and E, then the connection of the treadle with the rocking frame or lever carrying the idle-pulley must be modified to suit.

What is here claimed, and desired to be secured by Letters Patent, is—

1. The combination of the laterally-adjustable treadle L with the idle-pulley D, the power-shaft B, the tapering driving-pulley C, and the reversely taper driven pulley E, substantially as specified.

2. The combination, with the conical pulleys C E, the idle-pulley D, and the lever I, of the frame K, arranged to rock in a plane which is transverse to the axis of the idle-pulley, and to move in a direction parallel to the axis thereof, essentially as and for the purposes herein set forth.

L. H. OLMSTED.

Witnesses:

HENRY T. BROWN,

MICHAEL RYAN.