To all whom it may concern:

Be it known that I, CHARLES R. MESTON, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Machine-Operating Mechanism; of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, referred to in the accompanying drawings, forming part of this specification, in which—

Figure 1 is a fragmentary view of a sewing-machine frame to which my invention is applied to accommodate the device to a motor-shaft rotating from right to left. Fig. 2 is a top plan view of the device applied to a sewing-machine frame. Fig. 3 is a plan view of the device arranged to accommodate a motor-shaft rotating from left to right. Fig. 4 is a sectional view through one of the belt-tightening pulleys attached to the brake-lever. Fig. 5 is a view of the brake-rod and brake-shoe, the brake-pin being shown in section; and Fig. 6 is an enlarged perspective view of the brake-lever.

This invention relates to a motor-support having belt-controlling mechanism adapted to control the speed of light-running machinery, and particularly sewing-machines.

The object of the invention is to provide a mechanism which may be utilized so that the motor may be permitted to run continuously, while the speed of the machine may be within the control of the operator and may be governed irrespective of the number of revolutions made by the drive-shaft.

Another object of the invention is to provide means for controlling the speed of the driven shaft through the medium of a treadle under the control of the operator.

Another object of the invention is to provide an interchangeable brake pin or block which may be positioned so as to provide for a reversal of the drive-shaft without changing any of the rest of the mechanism.

Another object of the invention is to provide means whereby the support for the mechanism may be easily attached to and removed from the frame to which it is to be attached.

Other objects and advantages, as well as the novel details of construction of this invention, will be specifically described hereinafter.

In the drawings I have illustrated my invention as applied to one of the vertical sides of a sewing-machine frame, because the device is primarily intended to be used in connection with sewing-machines; but it is obvious that the device might be applied to other light-running machines, such as jewelers' lathes, jig-saws, and kindred devices.

The support consists of two plates 1 and 2, which are clamped to the frame 3 by means of through-bolts 4. The motor, preferably an electric motor, (designated by the reference-numeral 5,) is secured to the plate 2 by any suitable means. The drive-shaft of the motor projects through the plate 1 and carries thereon a pulley 7, around which passes a belt 8, by means of which motion may be communicated to the driven shaft of the device to be operated.

9 and 10 designate belt-tightening pulleys on the brake-lever 11, which is pivoted on a rigid journal 12, carried by the plate 1. The pulley 9 is carried by a depending arm 13 on the brake-lever 11, while the pulley 10 is carried on an upstanding arm 14, near one end of said lever 11. Engaging one end of the lever 11 is a pitman comprising two rods 15 and 16, adjustably connected by a sleeve 17, carrying a set-screw 18, whereby the length of the pitman may be regulated to suit varying conditions. The lower end of the pitman 85 is connected to a treadle 19, pivoted at 20 to the frame 3. The end of the lever 11 opposite to the end to which the pitman is secured is provided with an integral brake-shoe 21, having its belt-engaging portion in approximately a horizontal plane, said brake-shoe 21 having a longitudinal groove 22 therein, in which the belt is guided. In the plate 1, beneath the brake-shoe, is an opening 23 for the reception of a brake pin or abutment 24, 95 which in Fig. 1 is illustrated as being in the opening 25, also formed in said plate, but which in Fig. 3 is illustrated as being in the opening 23. The upstanding arm 26 of the brake-lever 11 is connected to a tension spring 27, one end of which is connected to a rigid part of the machine—i.e., for example, at 28. The arm 26 is also connected to a brake-rod 29, having thread-and-screw con-
nection with the shank 30 of a brake-shoe 31, which shank 30 is slideable in a bearing 32, rigid on the plate 1. In applying the device the position of the brake pin or abutment will be determined by the direction of rotation of the driven shaft, it being understood that, particularly in sewing-machines, the different makes employ shafts which rotate in different directions—that is to say, some shafts rotate toward the operator, while others rotate away from the operator. Therefore in setting up the device to the machine-frame if the driven shaft rotates away from the operator the arrangement will be similar to that shown in Fig. 1, with the brake-pin in the opening 25. If the shaft rotates toward the operator it will be necessary to reverse the motor and change the brake-pin to the opening 25, it being understood that the brake-shoe 21 is utilized when the motor-shaft operates in one direction, and the brake-shoe 31 is utilized when the motor-shaft operates in an opposite direction. The drive-pulley 7 may have two or more grooves of different diameters, so that different speeds may be maintained from the motor-shaft. In actual practice, however, this will hardly be necessary, because the speed of the driven shaft of the machine to be operated may be governed by the operator through the manipulation of the treadle 19. Under normal conditions the motor 8 will be started up so that the pulley 7 will rotate. This will not be sufficient to set the belt in motion, however, because the belt will be loose and the spring 27 will exert a sufficient force on the brake-lever 11 to throw one or the other of the brake-shoes against the belt and bind it against the brake-pin or abutment 24, so as to prevent any movement being imparted to the belt 8.

When the operator desires to start the machine it will be necessary to depress the rearward portion of the treadle 19 to move the brake-lever 11 into the position shown in dotted lines in Fig. 1, thereby simultaneously moving the brake-shoe out of engagement with the belt and causing the pulleys 9 and 10 to tighten the belt. The speed of the driven shaft will be governed by the degree of pressure of the belt on the motor-pulley until the pressure is sufficient to prevent all slipping of the belt, when the driven shaft will be driven at its full speed.

It will be observed from an examination of the drawings in connection with the description heretofore given that the speed of the machine to be operated will be entirely under the control of the operator through the medium of the treadle 19 and that an instantaneous starting or stopping may be had through this treadle.

One of the particular advantages of this device is that it may be attached to the frame of an ordinary machine without changing or altering its construction.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent is—

1. In a device of the class described, the combination with a drive-pulley, of a belt thereon, a brake-lever, a belt-tightening pulley carried by the brake-lever, a brake-shoe operable by the brake-lever to clamp said belt, an abutment adjacent to the brake-shoe and cooperating therewith, and means for actuating the brake-lever to simultaneously cause the brake-shoe to release the belt and the pulley on the brake-lever to bind against the belt or vice versa; substantially as described.

2. In a device of the class described, a support, a device movably mounted on said support and provided with a plurality of brake-shoes which move at an angle to each other as said device is moved, and a removable abutment carried by said support and adapted to be placed in a position for cooperating with either of said brake-shoes; substantially as described.

3. In a device of the class described, the combination with an attaching-plate adapted to be secured to the frame of a machine, of a rotatable drive-shaft carried by said attaching-plate, a pulley on said drive-shaft, a brake-lever pivoted to the plate, brake-shoes connected to said lever, a brake-abutment carried by said plate and adapted to be placed in position for cooperating with either of said brake-shoes, and a belt-tightening pulley carried by said lever; substantially as described.

4. In a device of the class described, the combination with a plate, of a drive-pulley on said plate, a spring-controlled brake-lever on said plate, a brake-shoe carried by said brake-lever, a brake-abutment adjacent the brake-shoe, a belt-tightening pulley on said brake-lever, and means for actuating the brake-lever; substantially as described.

5. In combination with a machine having a frame and provided with a treadle, a plate secured to said frame, a drive-pulley carried by said plate, a brake-lever carried by said plate, a brake-abutment, a brake-shoe carried by said brake-lever and adjacent to the brake-abutment, a belt-tightening pulley carried by said brake-lever, and a connection between the brake-lever and the treadle of the machine; substantially as described.

6. In combination with a machine having a frame and provided with a treadle, a plate secured to said frame, a drive-pulley carried by said plate, a brake-lever carried by said plate, a brake-abutment, a brake-shoe carried by said brake-lever and adjacent to the brake-abutment, a belt-tightening pulley carried by said brake-lever, and an adjust-
able connection between the brake-lever and the treadle of the machine; substantially as described.

7. In combination with a machine having a frame and provided with a treadle, a plate secured to said frame, a drive-pulley carried by said plate, a spring-controlled brake-lever carried by said plate, a brake-abutment, a brake-shoe carried by said spring-controlled brake-lever and adjacent to the brake-abutment, and a connection between the brake-lever and the treadle of the machine; substantially as described.

8. In a device of the class described, the combination with a plate, of a drive-pulley carried by said plate, a pivoted brake-lever carried by said plate and provided with an upstanding projection, a spring connected to the plate and to the upstanding projection, a rod connected to said projection, a brake-shoe connected to said rod and having a groove for a belt, a removable abutment carried by said plate and adapted to be placed in position to cooperate with either of said shoes for clamping the belts, and means for actuating the brake-lever to move the operative brake-shoe out of clamping position with respect to said abutment; substantially as described.

9. In a device of the class described, the combination with a plate, of a drive-pulley on said plate, a brake-lever having a brake-shoe for retarding the movement of the belt driven by said pulley, an idler-pulley carried by said brake-lever, a belt-tightening pulley carried by said brake-lever, means for actuating said brake-lever, and a brake-abutment adjacent to the brake-shoe; substantially as described.

10. A brake-lever comprising a body portion having projections 14 and 26 and a brake-shoe 21; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 16th day of September, 1905.

CHARLES R. MESTON.

Witnesses:

F. R. CORNWALL,

GEORGE BAKEWELL.