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J. W. H. UYTENBOGAART.

VARIABLE SPEED DRIVING MECHANISM FOR SEWING MACHINES.

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NO MODEL.

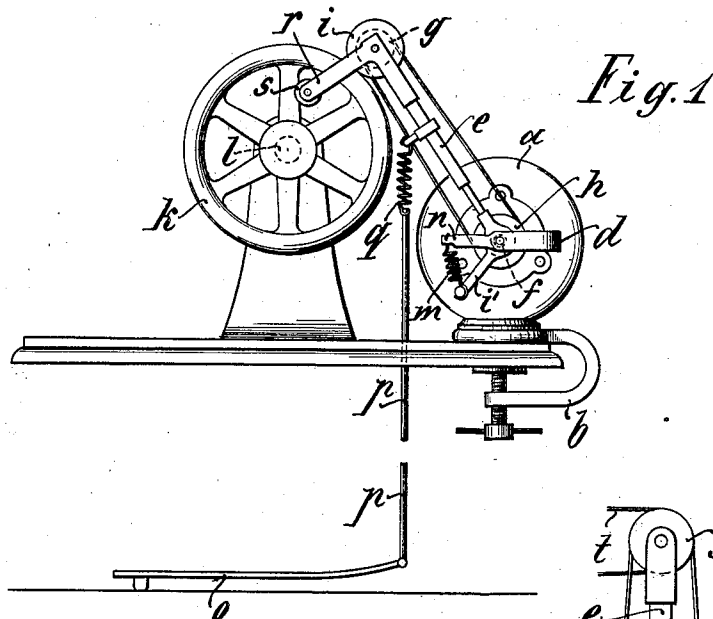


Fig. 1

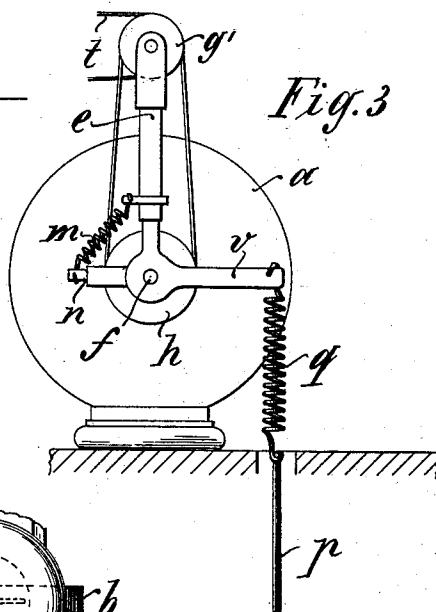


Fig. 3

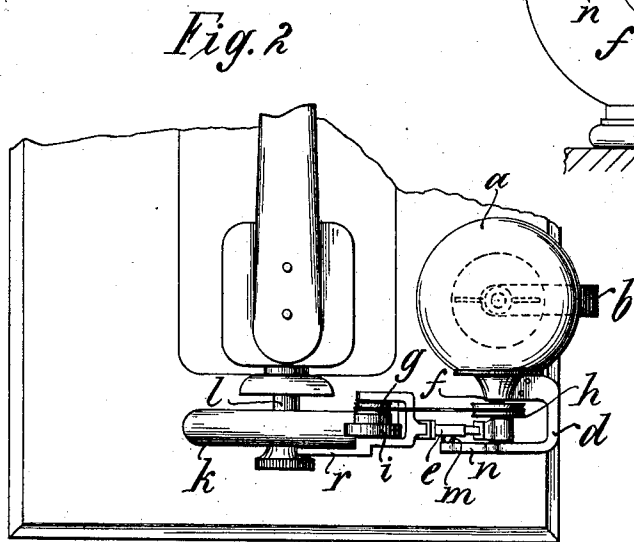


Fig. 2

Witnesses:

[Signature]
Max [unclear]

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UNITED STATES PATENT OFFICE.

JOHANNES WILHELMUS HUYBERT UYTENBOGAART, OF UTRECHT,
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VARIABLE-SPEED DRIVING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 759,409, dated May 10, 1904.

Application filed October 12, 1903. Serial No. 176,762. (No model.)

To all whom it may concern:

Be it known that I, JOHANNES WILHELMUS HUYBERT UYTENBOGAART, a subject of the Queen of the Netherlands, and a resident of Utrecht, Netherlands, have invented a new and useful Variable-Speed Driving Mechanism for Sewing-Machines, of which the following is a description.

The present invention relates to variable-speed driving mechanisms for sewing-machines and other purposes; and it consists of the details of construction hereinafter set forth, and particularly pointed out in the claims.

In order to render the present specification easily intelligible reference is had to the accompanying drawings, in which similar letters of reference denote similar parts throughout the several views.

Figure 1 is a side elevation, and Fig. 2 a plan, showing such parts of a sewing-machine in combination with the driving mechanism which are necessary for illustrating the invention; and Fig. 3 is an elevation of a modified form of the invention.

The electromotor *a* is mounted on the table of the sewing-machine in any suitable manner—for instance, by means of the clamp *b*—the said electromotor being of any suitable construction. A bracket *d* is fitted to some suitable part of the motor, and in this bracket is pivotally mounted, concentric with the motor-shaft, an arm *e*, supported on the pivot *f*. The motor-shaft carries a belt or cord pulley *h*, and at the free end of the arm *e*, which may be telescopically arranged, if desired, a belt or cord roll *g* is mounted and driven by a belt or cord from the roll or pulley *h*. The arm *e* constitutes a bell-crank lever having a downwardly-extending arm *i*, connected by a spring to a stationary arm *n*, mounted at any suitable position on the motor or machine. Keyed to the shaft of the roll or pulley *g* is a friction-roll *z*, which drives the wheel *k* of the sewing-machine by friction. The wheel *k* is mounted in the usual manner on the driving-shaft of the sewing-machine, (indicated by *l*.) By varying the pressure of the friction-roll *z* on the wheel *k*

the speed of the machine will be varied, as will be readily understood.

The arm *e* is connected, by means of a connecting-rod *p*, with the pedal *o*, mounted at the lower part of the table-frame, a spring *q* being provided the tensile strength of which is so measured that when the spring begins to stretch the maximum power of the motor is attained—*i. e.*, that the spring will give as soon as the pressure on the pedal *o* is so great that the maximum power of the motor would be exceeded were the same brought to bear on the friction-roll *z*, and consequently on the wheel *k*—so that it is practically impossible to exercise too great a pressure on the pedal and damage the motor. The free end of the arm *e* is provided with a branch arm *r*, carrying a friction-roll *s*. The tendency of the spring *m* is to normally hold the roll *z* of arm *e* out of contact with the wheel *k* of the machine, and when the machine is to be stopped this spring pulls the roll *z* out of engagement with the wheel *k* and at the same time the friction wheel or roll *s* is brought into contact with the wheel *k* and acts as a brake to stop the machine.

The device operates in the following manner: When the pedal *o* is depressed, the arm *e* is moved toward the wheel *k*, and the friction wheel or roll *z*, driven by the electromotor, will contact with the said wheel *k* and drive the same, the spring *m* being stretched the while and the spring *q* being strong enough to withstand the pressure as long as it does not exceed the power of the motor. By varying the pressure on the pedal *o* the speed of the motor will be varied, and should the pressure exceed the power of the motor the spring *q* will yield, and thus prevent the motor from being overloaded. On releasing the pedal *o* the spring *m* will draw back the arm *e* and bring the friction-roll *z* out of contact with the wheel *k*, and at the same time the brake-roll *s* will contact with the inner rim of wheel *k* and stop the machine.

In the modification shown in Fig. 3 the speed variation is attained by varying the tension on the driving belt or cord *t*. The arm *v* of the bell-crank lever *e* is connected

by the spring *q* and rod *p* to the pedal *o*, and the arm *n* is connected to a stationary part of the machine by means of the spring *m*, as previously described. The free end of the arm
 5 *e* is provided with a double cord or belt pulley, as at *g'*, and this pulley is connected to the pulley *h* of the electromotor, and a second cord or belt connects the pulley to the driving-wheel of the sewing-machine. Thus the
 10 speed of the latter will be varied by varying the tension on the driving cord or belt *t*. The device otherwise operates in the same manner as that shown in Figs. 1 and 2.

The device has the advantage that the motor remains stationary, the driving cord or belt will not be subjected to varying tension, owing to the fact that the arm *e* is concentrically mounted on the motor-shaft, and that the motor cannot be overloaded, owing to the
 15 arrangement of the spring *q*.

I claim as my invention—

1. A variable-speed driving mechanism for sewing-machines consisting of a stationary motor, a swinging arm mounted concentrically
 25 with the motor-shaft, a driving medium at the free end of said arm and means for swinging the same toward and from the sewing-machine in the manner and for the purpose substantially as described.

2. A variable-speed driving mechanism for sewing-machines, consisting of a stationary electromotor, a swinging arm mounted concentrically with the motor-shaft, a driving-roll mounted at the free end of the arm and driven
 35 from the motor, a spring to normally hold the said arm away from the sewing-machine and means for advancing the said arm toward the sewing-machine to drive the latter substantially as described.

3. A variable-speed driving mechanism for sewing-machines, consisting of a stationary motor, a swinging arm mounted concentrically with said motor-shaft, a driving-roll mounted at the free end of said arm and driven by the
 45 motor, a spring to normally hold the said driving-roll away from the sewing-machine, means for yieldingly advancing the said arm to the sewing-machine to drive the latter in the manner and for the purpose substantially as described.
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4. A variable-speed driving mechanism for sewing-machines, consisting of a stationary motor, a swinging arm mounted concentrically

to the motor-shaft, a driving-wheel at the free end of said arm, driven by the motor, a pedal
 55 at the lower part of the machine-table, a connecting-rod to connect said arm and pedal and a spring inserted between said arm and pedal, and adapted to stretch or yield, when the pressure on the pedal exceeds the power of the
 60 motor substantially as described.

5. A variable-speed driving mechanism for sewing-machines, consisting of a stationary motor, a swinging arm, mounted concentrically therewith, a driving-roll at the free end of the
 65 said arm, driven by the motor and means for advancing the said roll toward the sewing-machine to drive the same, a spring to normally hold the said roll out of contact with the machine and a brake-roll mounted on the said
 70 arm to contact with the driving-wheel of the sewing-machine and brake the same when the arm is moved away from the machine in the manner and for the purpose substantially as described.
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6. A variable-speed driving mechanism for sewing-machines, consisting of a stationary motor, a swinging arm mounted concentrically therewith, means for normally holding the said
 80 arm out of contact with the machine and means for moving the same toward the driving-wheel of the machine, a friction-roll at the free end of the said arm, a driving belt or cord for the same from the motor-shaft, in the manner and for the purpose substantially as described.
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7. A variable-speed driving mechanism for sewing-machines, consisting of a stationary motor, a swinging arm mounted concentrically with the motor-shaft and having a driving-roll mounted at its free end means for driving
 90 the said roll from the motor-shaft, means for moving the said arm to and from the driving-wheel of the sewing-machine and a brake-roll mounted at the free end of the said arm to contact with the driving-wheel of the sewing-machine when the said arm is moved away from the machine in the manner and for the purpose substantially as described.
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In witness whereof I have hereunto set my hand in presence of two witnesses.

JOHANNES WILHELMUS

HUYBERT UYTENBOGAART.

Witnesses:

BARTHOLOMEUS THEODORUS ROESELING,
 JOHANNES HARINUS KONING.