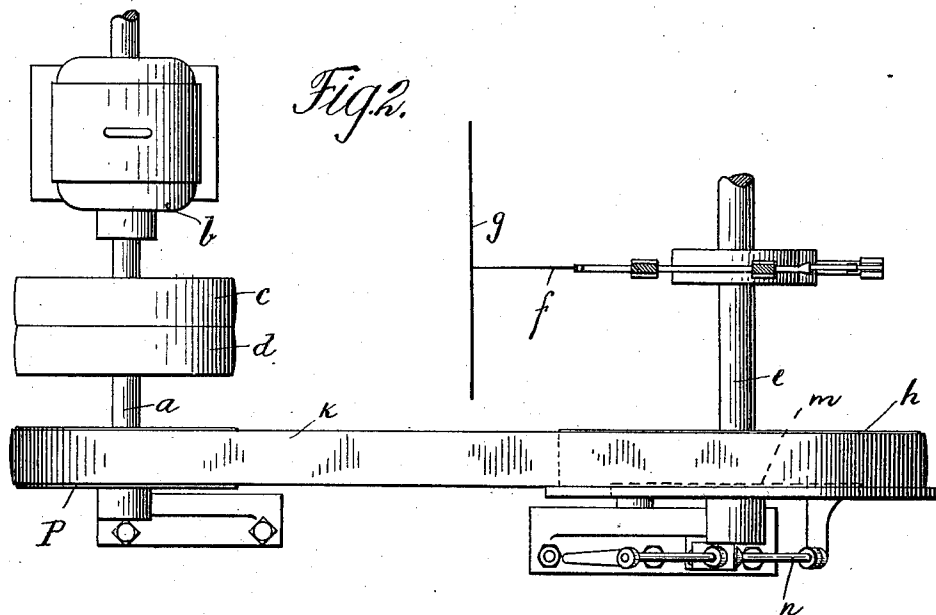
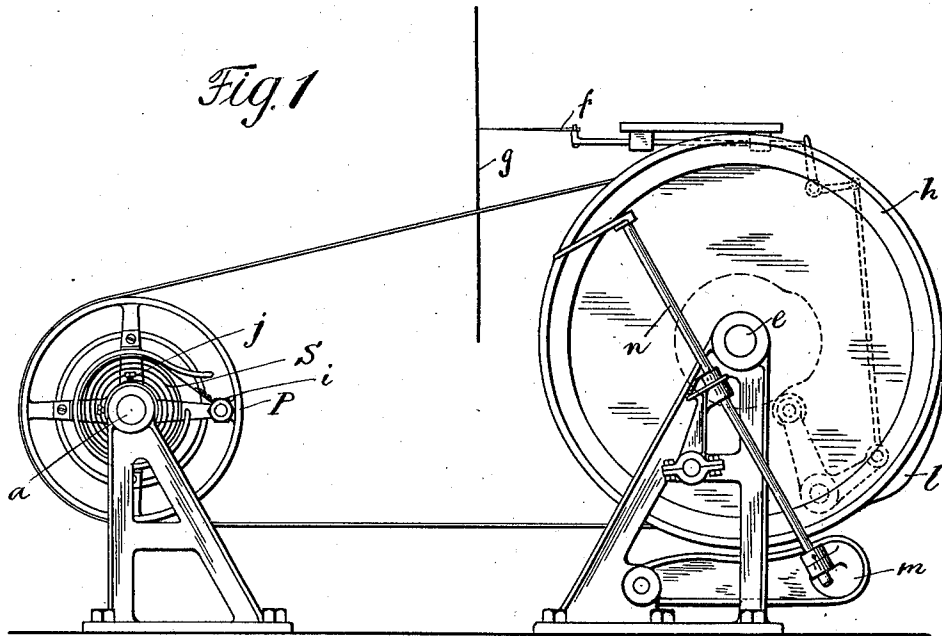


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GEARING FOR EMBROIDERY OR SIMILAR MACHINES.
APPLICATION FILED JAN. 7, 1911.

996,887.

Patented July 4, 1911.



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UNITED STATES PATENT OFFICE.

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GEARING FOR EMBROIDERY OR SIMILAR MACHINES.

996,887.

Specification of Letters Patent.

Patented July 4, 1911.

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To all whom it may concern:

Be it known that I, PAUL SCHNORR, a subject of the German Emperor, residing at Weehawken Heights, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Gearing for Embroidery or Similar Machines, of which the following is a specification.

The present invention relates to embroidering machines and particularly to a mechanism whereby without stopping the machine or reducing the average speed thereof, the stitch needle operating shaft may at certain intervals be retarded in order that the time for carrying the thread from point to point of the design may be prolonged to produce longer stitches.

Generally the speed of an embroidering machine limits the time for carrying the thread from point to point of the design and thus allows of stitches only of limited length being produced. To make an embroidery with hitherto used machines, in which longer stitches appear than the usual speed of the machine allows, is not possible without stretching the thread too taut unless the machine is stopped or its speed reduced, in consequence of which much time is lost in the production of the embroidery.

The object of my invention is to obviate these drawbacks, which I accomplish by introducing between the driving and driven parts of the machine a resilient medium and a load increasing means in such a manner that normally when the machine is driven with the ordinary load the resilient medium will transmit to the driven part the usual speed of the machine, and when the load of the machine is increased, the said resilient medium owing to the increased load will not transmit movement to the driven part, but be compressed to accumulate energy, until its tension has become high enough to overcome the additional load and to set the driven part in motion, imparting to the latter a higher speed than that of the driving part, so that the loss of time during the retarding period is recuperated.

To make my invention more clear, the same is diagrammatically illustrated in the accompanying drawing, in which similar ref-

erence letters denote corresponding parts and in which—

Figure 1 is a side view of the driving and driven parts of an embroidery machine and Fig. 2 a plan view thereof.

In the drawing, which forms a part of my invention, *a* denotes the shaft of the motor *b*, and *c*, *d* the regulation tight and loose pulleys.

e denotes the driven shaft of the embroidering machine, from which in well known manner, for instance, as indicated in Fig. 1, by dotted lines, the stitching needles *f* are operated to work through the embroidery material *g*.

h denotes the usual fly wheel arranged on the needle operating shaft of the embroidering machine.

Loosely mounted on the driving shaft *a* is a pulley *P* from which by a belt *k* movement from the driving shaft *a* is transmitted to the fly wheel *h* and driven shaft *e*. Suitably mounted in said pulley *P* around the shaft *a* is a strong coil spring *S* having one end attached to the pulley as at *i* and the other end to the shaft as at *j*. Said spring is so calculated that with the usual resistance or load of the machine, it will cause the pulley *P* to run with the usual speed of the driving shaft thus transmitting the same speed to the driven shaft *e*. In order to allow an increase of resistance or load of the machine, I provide a suitable brake mechanism, which in the present example, is shown to consist of an arm *m* pivoted in the frame and capable of being brought in frictional engagement with a shoe *l* projecting from the circumference of the fly wheel. This shoe extends only over a small portion of the circumference of the fly wheel and has for its object to allow of the braking action being automatically cut out as soon as the tension of the spring has increased so far that it will overcome the latter, whereby the fly wheel when released from the brake arm will at once assume a speed that owing to the accumulated energy in the spring will be higher than that of the driven part. The operator may then set the brake arm *m* into its initial position, so that the said arm will be out of the path of the shoe *l*. The manipulation of the brake arm *m* I accomplish

by means of a screw threaded rod *n*, working in a stationary nut and being suitably connected to the brake arm *m*.

The mode of operation is as follows: As long as the needles make stitches of ordinary length allowed by the given speed of the driving part, the spring *S* will transmit the same speed to the driven part or the needle operating shaft. But when a longer stitch is to be made, the operator adjusts the brake arm, so that when the fly wheel is brought with its projecting shoe *l* into register with the brake arm the latter will frictionally engage the shoe *l*, whereby the resistance of the machine is increased to such an extent that while the driving shaft *a* continues to revolve the spring *S* will not transmit movement to the driven part, but during the time the brake is on will be caused to wind around itself, becoming thereby compressed and storing up energy until its tension will be enough to overcome the extra resistance or load. While the driven part is retarded, the time for carrying the thread from point to point is extended and a longer stitch can be produced. When the tension of the spring is high enough to overcome the brake, the stored up energy in the compressed spring is given off, in consequence of which the driven part is accelerated to such an extent that the time lost during the retarding period is recuperated. As soon as the tension of the spring has overcome the extra load and the fly wheel has resumed its rotary movement, the operator may return the brake arm into its initial position, so that it may be out of the path of the shoe *l*.

It is understood that various modifications may be designed to accomplish the object sought for without departing from the spirit of my invention and I, therefore, do not wish to restrict myself to the particular construction described and shown.

What I claim and desire to secure by Letters Patent is:

1. In an embroidery machine, the combination with the driven stitch needle operating shaft and the driving shaft, of a gearing between the said two shafts consisting of a loose member on the driving shaft, an elastic medium connecting said loose member to the latter shaft and motion transmitting means between the said loose member and

the driven shaft, said elastic medium being adapted when the load is increased to permit of the transmission of motion to the driven part being temporarily interrupted. 55

2. In an embroidery machine, the combination with the driven stitch needle operating shaft and the driving shaft, of a gearing comprising a loose member on the driving shaft, an elastic medium connecting said loose member to the latter shaft, motion transmitting means between said loose member and the said driven shaft and braking means cooperating with the said driven shaft, said elastic medium being adapted upon the application of said braking means to permit of the transmission of motion to the said driven shaft being temporarily interrupted. 60 65 70

3. In an embroidering machine, the combination with the driving shaft and the driven shaft, of a loose pulley on the driving shaft, a coil connecting said pulley with the latter, braking means cooperating with the said driven shaft, means for transmitting movement from the said loose pulley to the driven shaft, said spring being adapted upon the application of the said braking means to permit of the transmission of movement to the driven shaft being temporarily interrupted. 75 80

4. In an embroidery machine, the combination with the driven stitch needle operating shaft and the driving shaft, of a gearing comprising a loose member on the driving shaft, an elastic medium connecting said loose member with the latter shaft, motion transmitting means between said loose member and the said driven shaft and braking means consisting of an adjustable braking arm and a member on the driven shaft with which the said braking arm is to cooperate to temporarily increase the load, said elastic medium being adapted upon application of the said braking arm to permit of the transmission of motion to the said driven shaft being temporarily interrupted. 85 90 95

In testimony whereof I affix my signature in presence of two witnesses. 100

PAUL SCHNORR.

Witnesses:

JOHN T. CARMODY,
MAX D. ORDMANN.