

No. 789,924.

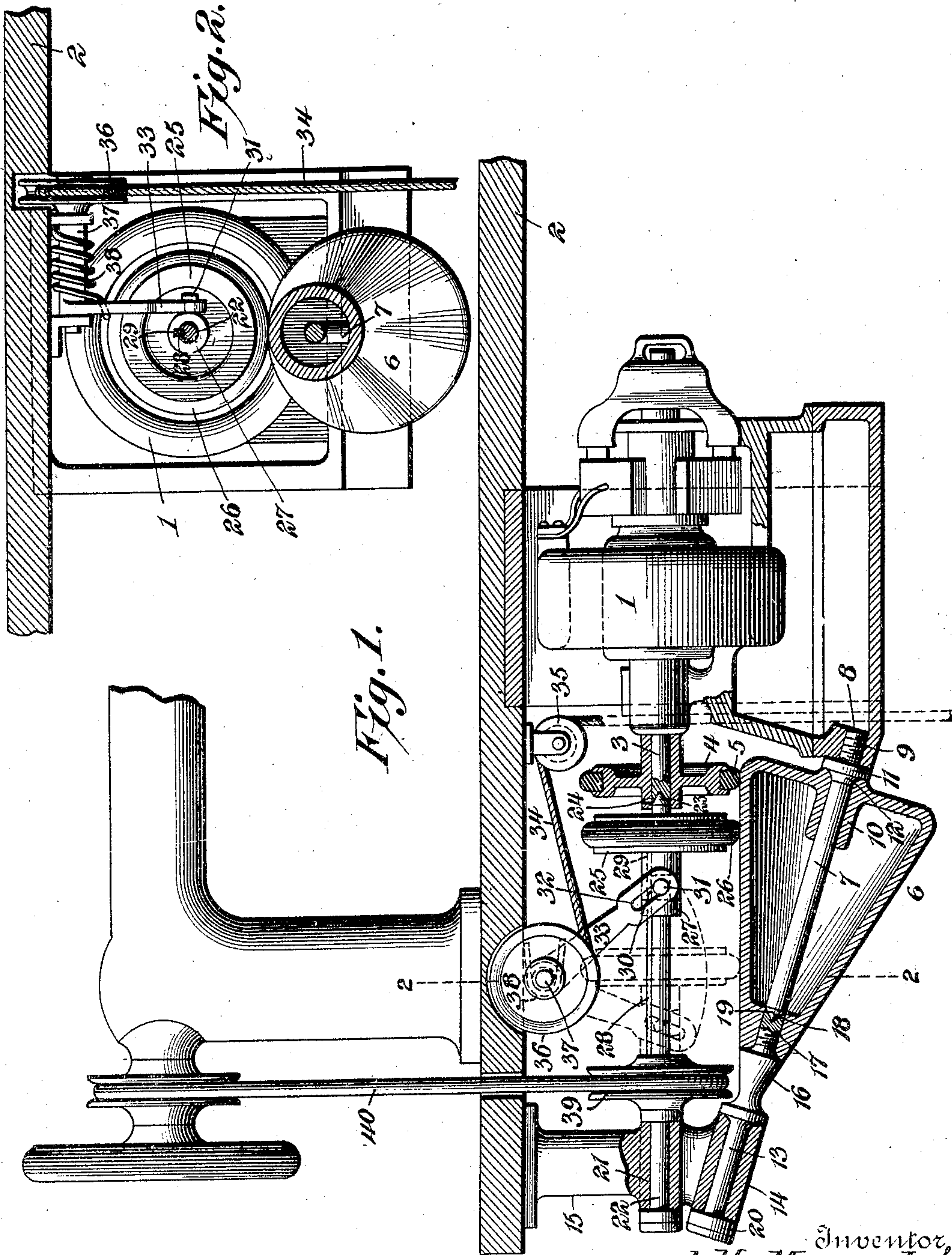
PATENTED MAY 16, 1905.

J. H. MACON, JR., DEC'D.

W. T. MACON, ADMINISTRATOR.

SPEED CONTROLLER FOR SEWING MACHINES.

APPLICATION FILED JULY 5, 1904.



Witnesses
Howard W. Carr.
J. F. P. Day.

By

Inventor,
Jacob H. Macon, Jr.,

E. G. Siggers

Attorney

UNITED STATES PATENT OFFICE.

JACOB H. MACON, JR., OF TAMPA, FLORIDA; WALTER T. MACON, ADMINISTRATOR OF SAID JACOB H. MACON, JR., DECEASED; SAID ADMINISTRATOR ASSIGNOR OF ONE-THIRD TO F. M. SIMONTON, OF HILLSBORO COUNTY, FLORIDA.

SPEED-CONTROLLER FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 789,924, dated May 16, 1905.

Application filed July 5, 1904. Serial No. 215,438.

To all whom it may concern:

Be it known that I, JACOB H. MACON, JR., a citizen of the United States, residing at Tampa, in the county of Hillsboro and State of Florida, have invented a new and useful Speed-Controller for Sewing-Machines, &c., of which the following is a specification.

The invention relates to improvements in speed-controllers for sewing-machines, &c.

The object of the present invention is to improve the construction of devices for controlling speed and to provide a simple, inexpensive, and efficient device designed for use on sewing-machines and the like and adapted to be employed in connection with electric and other motors and capable of enabling the speed of such machines to be controlled and varied as desired.

A further object of the invention is to provide a speed-controlling device of this character capable of operation by the foot of a person and adapted to leave the hands free for controlling the work.

With these and other objects in view the invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion, size, and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a vertical longitudinal sectional view of a portion of a sewing-machine provided with a speed-controller constructed in accordance with this invention. Fig. 2 is a transverse sectional view taken substantially on the line 2 2 of Fig. 1.

Like numerals of reference designate corresponding parts in both figures of the drawings.

I designates an electric motor of any preferred construction, secured beneath the top 2 of a sewing-machine, as clearly indicated in Fig. 1 of the drawings. An electric or other

motor may be employed for operating the sewing-machine, and as the particular construction of the motor does not constitute a portion of the present invention a detail description and illustration thereof is deemed unnecessary. The motor or driving shaft 3 carries a driving-wheel 4, keyed or otherwise fixed to the said shaft 3 and provided with an elastic rim or tire 5, of india-rubber or other suitable material, for frictionally engaging a cone-wheel 6, whereby the latter is rotated. The cone-wheel 6 is set at an angle or inclination for arranging its upper face in a horizontal plane, as clearly shown in Fig. 1, and it is mounted on an inclined shaft 7, provided with a lower threaded end 8 and secured in a threaded opening 9 of the casing of the motor, which forms a support for the shaft 7. The cone-wheel, which preferably consists of a hollow metallic shell, may be constructed in any desired manner, and it is provided at its lower end or base with an inwardly-extending tubular portion 10, which forms a hub or bearing. The shaft 7 is provided near its lower end with an enlargement or collar 11, fitting against the motor-casing and having a conical inner or upper portion which fits in a corresponding recess 12 of the lower end or base of the cone-wheel.

The upper end or apex of the cone-wheel is provided with a stem 13, mounted in a lower bearing 14 of a hanger 15, and provided at its lower portion with an enlargement 16. The lower end 17 of the shaft or stem 13 is threaded and is screwed into a threaded opening of the upper end or apex of the cone-wheel, and it is provided with a conical recess 18, which receives the upper tapered end 19 of the fixed shaft 7. The enlargement 16 is oppositely tapered, the lower portion being substantially conical and conforming to the configuration of the cone-wheel. The upper portion of the enlargement forms a shoulder to fit against the lower bearing 14 of the hanger 15. The upper end of the shaft or stem 13 is provided with a head 20, which fits against the outer end of the lower bearing.

The hanger 15 is also provided with an upper bearing 21 for the reception of a horizontal driven shaft 22, which is provided with opposite shoulders for engaging the inner and
 5 outer ends of the upper bearing 21. The upper and lower bearings of the hanger 15 may be sectional, and the heads at the ends of the shafts may be detachable for enabling the parts to be assembled. The lower shaft 7 is
 10 fixed, and the upper shaft or stem 13 rotates, and a suitable oil-hole is designed to be provided for lubricating the adjacent ends of the shafts 7 and 13.

The horizontal driven shaft, which is supported at its outer end by the upper bearing
 15 21 of the hanger 15, has its inner end 23 tapered and fitted in a conical recess of the adjacent end of the motor-shaft, a suitable oil-hole 24 being provided for lubricating the
 20 ends of the shafts. The oil-hole extends through the hub of the motor-wheel 4 and the adjacent portion of the motor-shaft 3.

The hanger 15 is suitably secured to the lower face of the top 2 of the sewing-machine,
 25 and the driven shaft carries a shiftable wheel 25, having an elastic rim or tire 26, of rubber or other suitable material, for engaging the periphery of the cone-wheel 6. The shiftable wheel has an enlarged hub 27 and is slidable
 30 on the driven shaft by means of a key 28 and keyway 29 or other suitable means. The enlarged or extended portion of the hub receives a loose sleeve 30, which is provided with a projection 31, arranged to engage a
 35 slot 32 of an oscillatory arm 33, adapted to be swung back and forth by the means hereinafter described to carry the shiftable wheel longitudinally of the cone-wheel, whereby the
 40 speed of the sewing-machine is varied, the machine being made to run fast or slow, according to the position of the shiftable wheel with relation to the cone-wheel. The speed of the
 sewing-machine is gradually increased as the shiftable wheel is moved from the apex of the
 45 cone-wheel toward the base of the same, and this movement is effected by means of a treadle (not shown) designed to be connected with the lower end of a flexible connection 34, consisting of a chain or cord and arranged on a guide-
 50 pulley 35 and extending therefrom to a pulley or wheel 36. The pulley or wheel 36 is mounted on a shaft 37, being keyed or otherwise fixed to the same, and this shaft 37 also has the arm 33 fixed to it, whereby when the pulley
 55 or wheel is partially rotated the arm will be oscillated. The shaft 37 is journaled in suitable bearings and has wound upon it a helical spring 38, which has one end attached to the oscillatory arm 33, and the other end of the
 60 spring is secured to one of the bearings or hangers of the shaft. When the oscillatory arm is moved toward the base of the cone-wheel, the spring is wound up or placed under tension and is adapted to move the said arm
 65 toward the other end or apex of the cone-

wheel, when the shiftable wheel is free to move in that direction. By this construction the position of the shiftable wheel with relation to the cone-wheel may be readily changed
 as desired. Motion is communicated from the
 70 cone-wheel to the shaft 22 by the shiftable wheel, and the shaft 22 carries a wheel 39, which is connected by a belt 40 with the shaft of the sewing-machine. The pulley or wheel
 36, which receives the flexible connection 34,
 75 is provided with a grooved periphery, and the said pulley or wheel and the oscillatory arm constitute a lever for shifting the wheel 25.

It will be seen that the speed-controlling device is exceedingly simple and inexpensive
 80 in construction, that it is particularly adapted for use on a motor-operated sewing-machine, and that it will enable the speed of the machine to be varied to suit the character of the
 work to be performed by the same. 85

Having thus fully 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 of a driven shaft, a shiftable
 90 wheel mounted on the said shaft, a cone-wheel engaged by the shiftable wheel and having its engaged side arranged throughout its entire
 length in parallelism with the driven shaft, and a drive-wheel also engaging the cone-
 95 wheel at the side in parallelism with the said shaft.

2. In a device of the class described, the combination with drive and driven shafts operating in the same plane, of a cone-wheel
 100 having one of its sides arranged throughout its entire length in parallelism with the said shafts, a drive-wheel mounted on the drive-shaft and engaging the side of the cone-wheel
 in parallelism with the said shafts, and a
 105 shiftable wheel mounted on the driven shaft and engaging the said parallel side of the cone-wheel.

3. In a device of the class described, the combination with drive and driven shafts operating
 110 in the same horizontal plane, of a cone-wheel, means for mounting the cone-wheel for rotation in fixed relation with the said shafts and with one of its sides in parallelism
 with the same throughout its entire length,
 115 and wheels mounted on the said shafts and engaging the side of the cone-wheel in parallelism with the shafts, one of the wheels being shiftable on one of said shafts for engaging
 the cone-wheel at different points to provide a variable speed. 120

4. In a device of the class described, the combination with a motor-shaft, of a driven shaft,
 a cone-wheel, wheels mounted on the shafts and engaging the cone-wheel, one of the
 125 wheels being shiftable longitudinally of the cone-wheel to provide a variable speed, and means for moving the shiftable wheel longitudinally of the cone-wheel, said means embodying an oscillatory arm connected with
 130

the shiftable wheel, a pulley or wheel connected with the arm, a flexible connection for rotating the wheel to move the arm in one direction, and a spring for moving the arm
5 in the opposite direction.

10 5. In a device of the class described, the combination with a motor-shaft, a driven shaft extending from and having its inner end supported by the motor-shaft, a hanger supporting the outer end of the drive-shaft, a cone-wheel supported by the motor and the hanger,
15 wheels mounted on the driven and motor shafts and engaging the cone-wheel, one of the wheels being shiftable to provide a variable speed, and means for connecting the driven shaft to the machine to be operated.

20 6. In a device of the class described, the combination with a driving-shaft, of a driven shaft, a cone-wheel, wheels connected with the driving-shaft and with the driven shaft,
one of the wheels being shiftable to provide a variable speed, a fixed shaft receiving the cone-wheel, a stem or shaft fixed to the cone and extending therefrom, and a hanger sup-

porting the driven shaft and the stem or shaft 25 of the cone-wheel.

7. In a device of the class described, the combination of a cone-wheel consisting of a hollow shell provided at its base with a tubular portion, a fixed shaft receiving the cone-wheel 30 and having an enlargement or collar for engaging one end of the same, a shaft or stem fixed to the other end of the cone-wheel and receiving the said shaft and provided with an intermediate enlargement, a driving-shaft, a 35 driven shaft, wheels connected with the driving-shaft and with the driven shaft, one of the wheels being shiftable to provide a variable speed, and bearings for supporting the driven shaft and the stem or shaft of the cone- 40 wheel.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JACOB H. MACON, JR.

Witnesses:

O. G. SEXTON,

CHAS. DONOVAN.