

No. 820,327.

PATENTED MAY 8, 1906.

H. R. WELLMAN.
SEWING MACHINE MOTOR.
APPLICATION FILED AUG. 17, 1905.

3 SHEETS—SHEET 1.

Fig. 1.

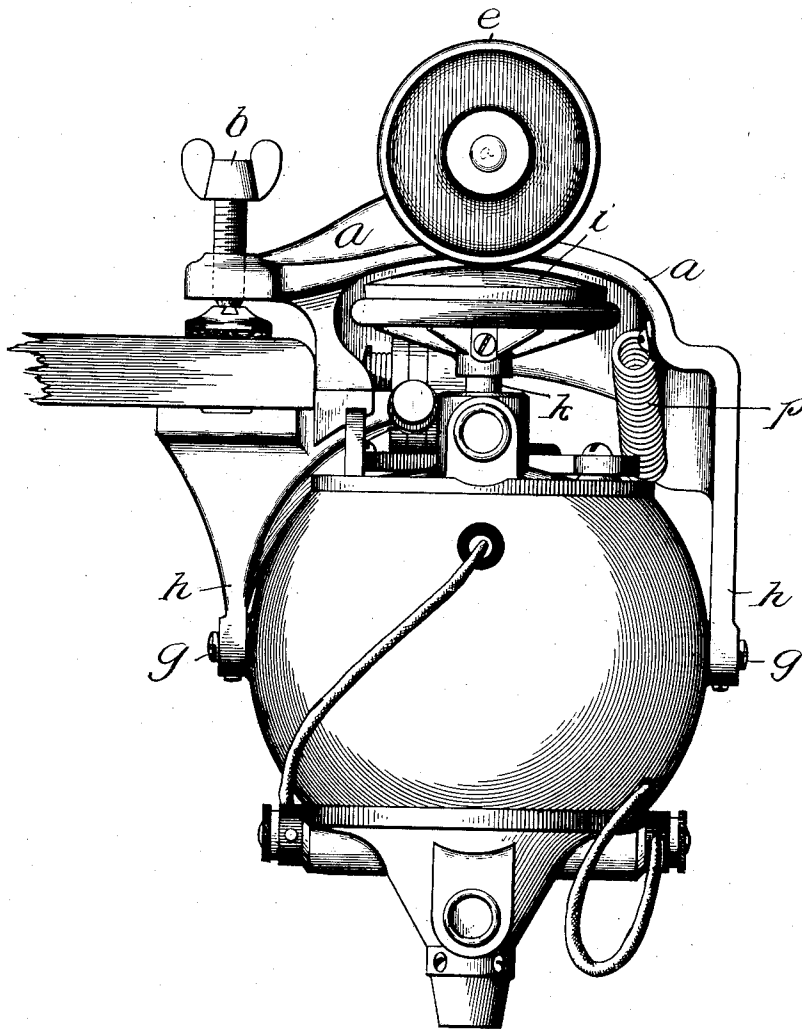
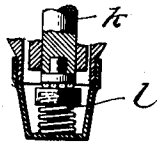


Fig. 7



Witnesses
Ed. Carson
Irving Mac Donald

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3 SHEETS—SHEET 2.

Fig 2

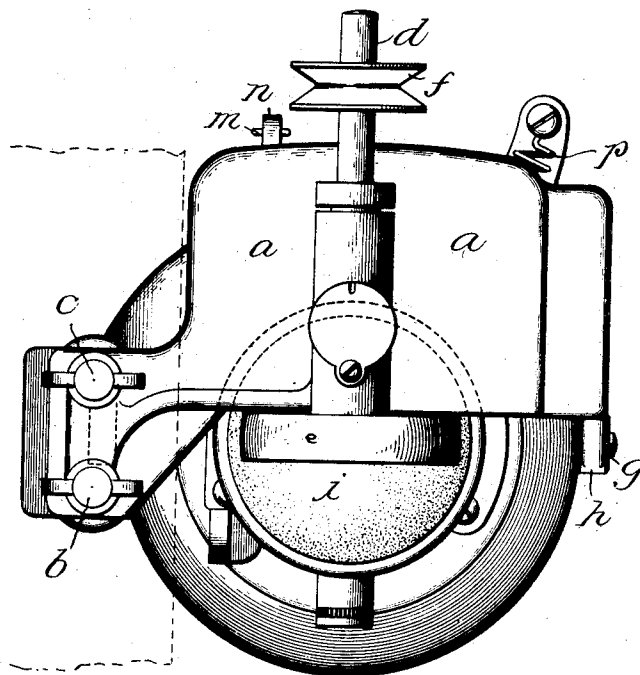
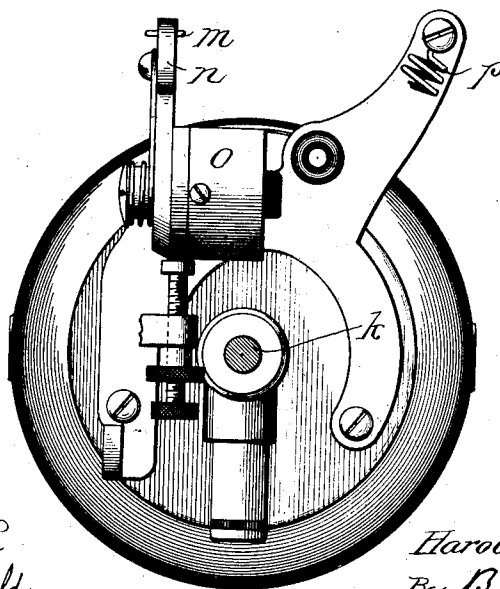


Fig. 3.



Witnesses:
Geo. S. Loring.
Irving Mac Donald.

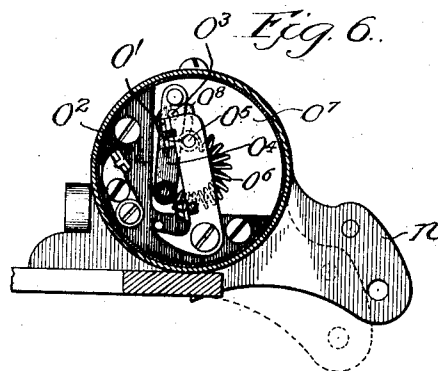
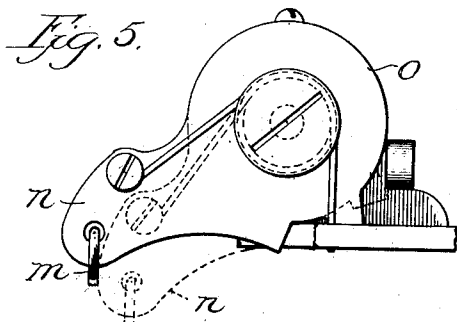
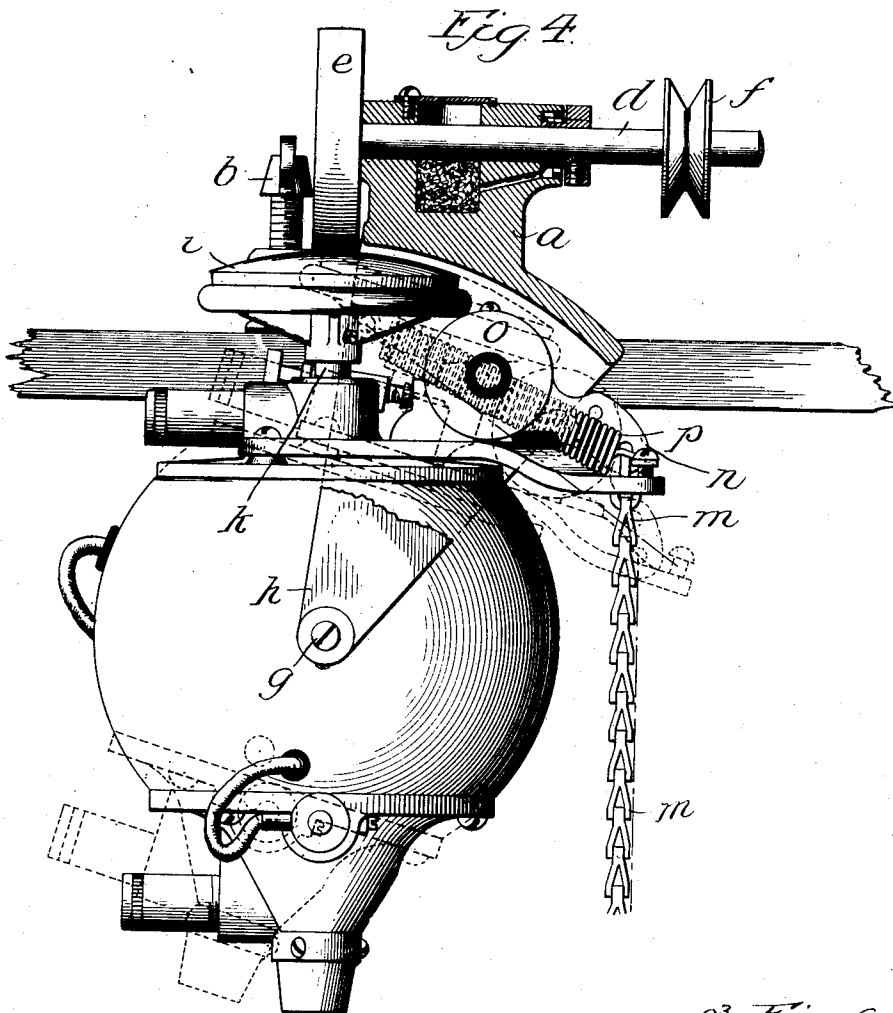
Inventor:
Harold R. Wellman,
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3 SHEETS—SHEET 3.



Witnesses:

Ed. C. Johnson
Irving Mac Donald.

Inventor:
Harold R. Wellman,
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UNITED STATES PATENT OFFICE.

HAROLD R. WELLMAN, OF RIVERSIDE, ILLINOIS, ASSIGNOR TO WESTERN ELECTRIC COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

SEWING-MACHINE MOTOR.

No. 820,327.

Specification of Letters Patent.

Patented May 8, 1906.

Application filed August 17, 1905. Serial No. 274,606.

To all whom it may concern:

Be it known that I, HAROLD R. WELLMAN, a citizen of the United States, residing at Riverside, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Sewing-Machine Motors, of which the following is a full, clear, concise, and exact description.

My invention relates to electric motors of the class designed for running sewing-machines, and constitutes an improvement over my Patent No. 690,334, granted December 31, 1901.

My improvement herein relates more particularly to the bracket of the motor, the manner of mounting the motor by said bracket upon the sewing-machine table, and the compact arrangement and disposition of the several parts. The motor is placed beneath the counter-shaft and below the sewing-machine table. Frictional engagement between the driving-wheel of the motor and the driven wheel of the counter-shaft is maintained by a spring-thrust exerted, primarily, against the lower end of the motor-shaft.

The starting-switch is adapted to open and close its contacts with a snap, and the working parts thereof are protected by an inclosing shell, and the entire switch mechanism is securely mounted directly upon the frame of the motor. Pressure on the treadle first acts to operate the snap-switch. The spring of the snap-switch is considerably less in strength or tension than is that of the spring between the frame of the motor and the transmitter-bracket, and hence the snap-switch will be operated to start the motor before the driving-disk is moved to come into radial engagement with the driven wheel upon the counter-shaft. Further pressure upon the treadle after the motor has been started throws the driving-disk of the motor into greater radial engagement with the driven wheel, and thus increases the speed of said driven wheel. The counter-shaft has its bearings in the transmitter-bracket frame.

I employ a ball-bearing spring-thrust of well-known construction, such spring-thrust being utilized to press the driving-disk against the driven wheel of the counter-shaft.

The form of snap-switch which I have shown is the invention of another. I have

shown this form, as I have found it to be well adapted for the service, though other forms work successfully.

My invention will be more readily understood by reference to the accompanying drawings, in which—

Figure 1 is a side elevation illustrating my motor clamped to the rear of a sewing-machine table. Fig. 2 is a plan view of the same. Fig. 3 is a plan view showing the transmitter-bracket and the driving-disk removed, the driven shaft being shown in section. Fig. 4 is a rear elevation of my motor, the transmitter-bracket being shown in section and the operative position of the motor being indicated by dotted lines. Figs. 5 and 6 are detail views of the snap-switch and the casing thereof. Fig. 7 is a detail sectional view of the ball-bearing thrust.

Like parts are indicated by similar letters of reference throughout the different figures.

The frame or bracket *a* is shown securely clamped to the machine-table by clamp-screws *b* and *c*. This bracket is provided with bearings for the counter-shaft *d*, on which are mounted the driven wheel *e* and the pulley or sheave *f*. The motor is pivotally mounted upon the bracket *a*, as indicated at *g g*, at the lower extremities of the downwardly-projecting arms *h h*. The driving-disk *i* is secured upon the end of the motor-shaft *k*. This shaft *k* is pressed upwardly by means of the ball-bearing thrust *l*. (Illustrated in Fig. 7.) The upper surface of the disk *i* is convex to conform to the pivotal mounting of the motor in order that as the motor is tilted the frictional engagement with the driving-wheel will be maintained.

The upper end of the chain *m* is attached to the spring-actuated switch-lever *n* of the snap-switch *o*, and the lower end of such chain will be attached to the treadle of the sewing-machine, which treadle is not illustrated.

The operation of the snap-switch will be understood by reference to Figs. 5 and 6. When the lever *n* is moved to the position indicated by dotted lines, the movable lever carrying the contact *o'* will be closed upon the fixed contact *o''* of said switch. This action is brought about when the pin *o'''*, which is in engagement with the link *o''''*, carries the free end of link *o''''* past the central point *o'''''* of the pivoted contact-lever *o'*—that is to say, the

stud o^3 is mounted on the lever n and passes through an opening o^8 in the fixed plate o^7 , to which the lever n is pivoted, and when said lever is pulled down to the dotted position said stud o^3 , which is in pivotal engagement with the link o^4 to the right and back of the lever o' and the spring o^6 , will at once act to close the contacts with a snap. When pressure is removed from the chain, the contacts are opened with a snap to assume their normal or open position.

The spring p between the bracket and the motor-frame should be of greater strength than the spring of the snap-switch. This spring p tends to hold the friction-disk i with its center in contact with the driven-wheel e , in which position no motion will be imparted to said driven wheel or to the counter-shaft.

I claim—

1. The combination with a sewing-machine table, of a bracket secured to said table and having arms depending beneath the table, a driven wheel mounted on said bracket, a motor device pivotally mounted beneath the table on said depending arms, a driving-wheel of said motor angularly disposed to the driven wheel and having frictional engagement therewith, and means for varying the speed of rotation of the driven wheel.
2. In a sewing-machine motor, the combination with a table, of a bracket secured to said table, a counter-shaft having bearings in said bracket and carrying a driving-pulley and a driven wheel for imparting a rotary motion to said shaft and pulley, a motor mounted in said bracket beneath said counter-shaft and below said table, a driving-wheel operated by said motor and having angularly-disposed frictional engagement with the driven wheel, and means for placing said

driving-wheel into operative relation with the driven wheel.

3. The combination with an electric motor carrying a driving-wheel, of a supporting-bracket in which said motor is pivotally mounted, a counter-shaft having bearings in said bracket and carrying a driven wheel, a spring normally holding said driving-wheel out of operative relation to the driven wheel, a switch mounted on the frame of the motor for closing the circuit of the motor, and means whereby said switch is first operated and said motor then tilted to place the driving and driven wheels into operative engagement.

4. In a sewing-machine motor, the combination with a table, of a bracket secured to said table and having depending arms, an electric motor pivotally mounted on said depending arms beneath the table, a counter-shaft having bearings in said bracket and carrying a driving-pulley, a driven wheel keyed to said counter-shaft for imparting a rotary motion to said shaft and pulley, a driving-wheel adapted to be operated by said motor, a spring normally holding said driving-wheel out of operative relation to the driven wheel, a switch mounted on the frame of the motor for closing the circuit of the motor, and means whereby said switch is first operated and said motor then tilted to place the driving and driven wheels into operative relation.

In witness whereof I hereunto subscribe my name this 26th day of July, A. D. 1905.

HAROLD R. WELLMAN.

Witnesses:

BERT STARR YORK,
ROY T. ALLOWAY.