

(No Model.)

2 Sheets—Sheet 1.

C. W. FOSTER.
SEWING MACHINE MOTOR.

No. 251,207.

Patented Dec. 20, 1881.

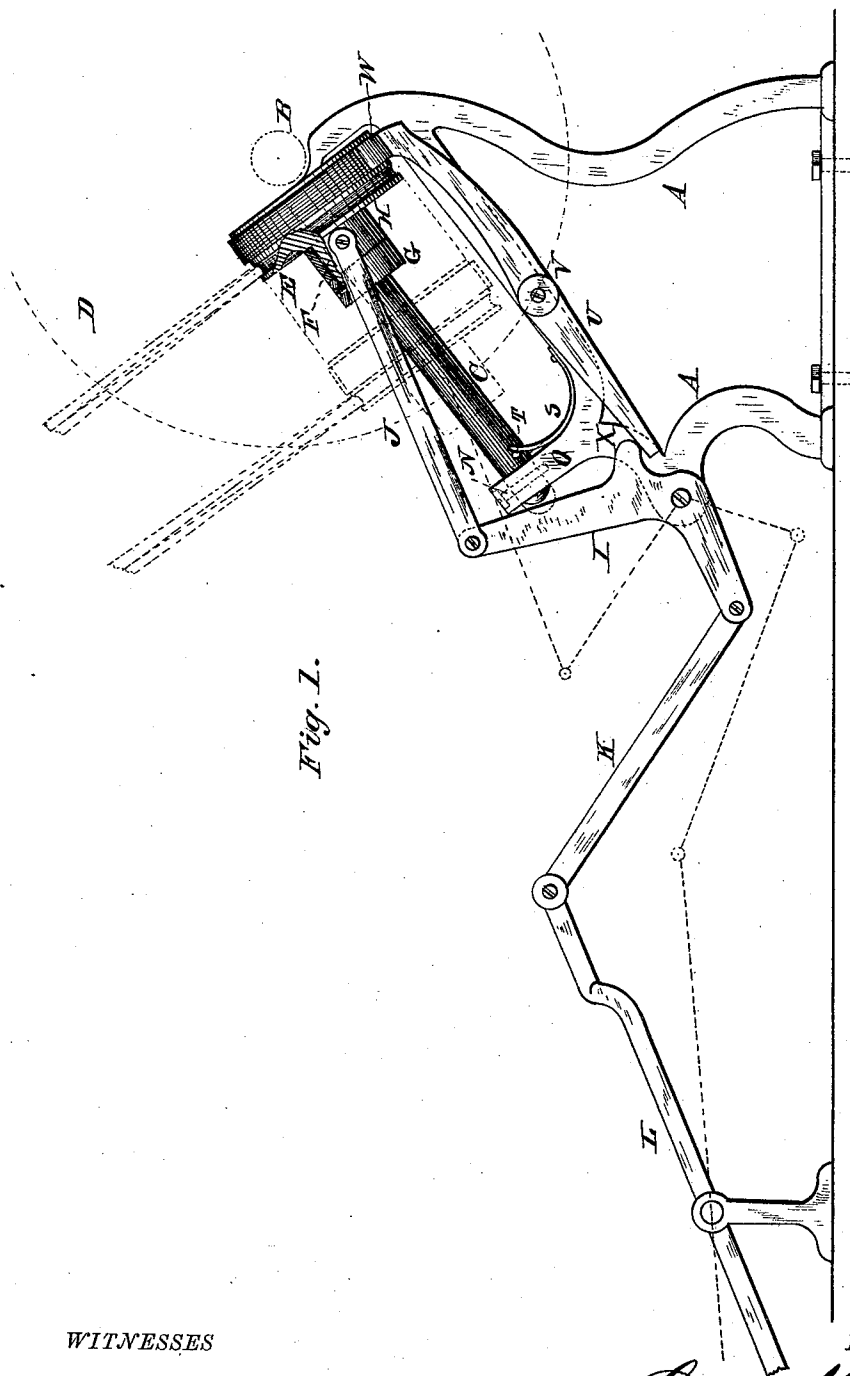


Fig. 1.

WITNESSES

Wm. L. Dietrich,
F. C. Dietrich.

INVENTOR

Charles W. Foster,
by Edward & Co. Attorneys

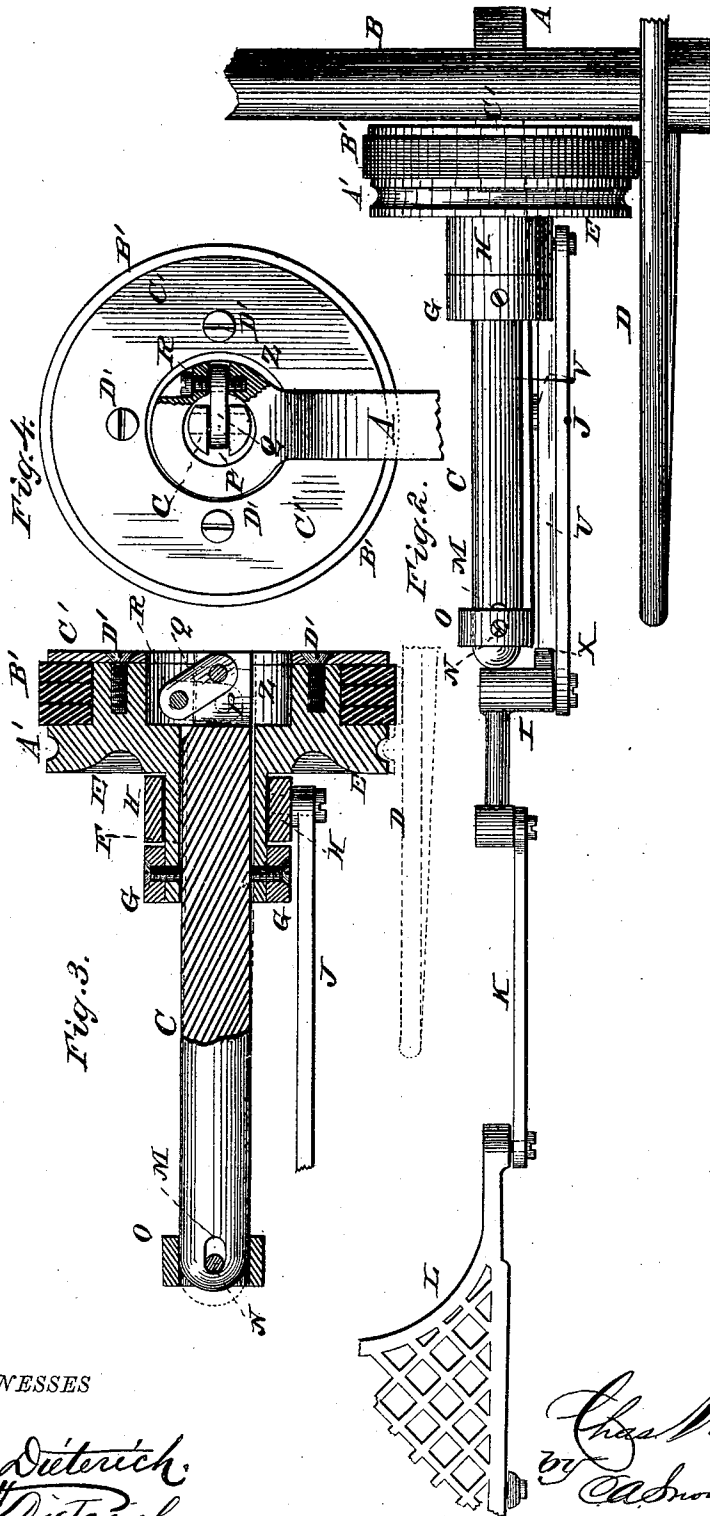
(No Model.)

2 Sheets—Sheet 2.

C. W. FOSTER.
SEWING MACHINE MOTOR.

No. 251,207.

Patented Dec. 20, 1881.



WITNESSES

Mrs. L. Dietrich
P. C. Dietrich

INVENTOR
Chas. W. Foster
by *C. Snow & Co.*
Attorneys

UNITED STATES PATENT OFFICE.

CHARLES W. FOSTER, OF NEW HAVEN, CONNECTICUT.

SEWING-MACHINE MOTOR.

SPECIFICATION forming part of Letters Patent No. 251,207, dated December 20, 1881.

Application filed November 23, 1881. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. FOSTER, of New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Sewing-Machine Motors; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

Figure 1 is a side view. Fig. 2 is a top plan. Fig. 3 is a horizontal sectional view through the counter-shaft and driving-pulley. Fig. 4 is a front or face view of the counter-shaft and driving-pulley.

Corresponding parts in the several figures are denoted by like letters of reference.

This invention relates to motors for sewing-machines and other light machinery; and it consists in certain improvements in the construction of the same, whereby the speed may conveniently be regulated and controlled, as will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings hereto annexed, A represents a suitably-constructed frame having bearings for the main drive-shaft B, to which motion is imparted from a steam-engine or other suitable motive power.

Frame A is provided with bearings for a counter-shaft, C, located transversely and in a slanting position in relation to shaft B, which latter carries a fixed friction drive-wheel or disk, D, placed near the shaft C, as shown, so as to be capable of engaging and operating a friction-pulley, E, revolving loosely upon shaft C.

The hub F of pulley E is provided with two sleeves, G H, the outer one of which, G, is firmly keyed or otherwise secured to the hub, while the inner one, H, is loose, in order that it may be held stationary while the pulley revolves.

I is a bell-crank lever, pivoted to the frame A, and having its upper arm connected by a pivoted rod, J, with the loose sleeve H of pulley E, its lower arm being connected by a pitman or rod, K, with the treadle L of the sewing-machine or other machine which is to be operated. By this mechanism it will be seen

that a longitudinally-sliding motion upon the counter-shaft C may be imparted to pulley E. The counter-shaft C is provided near its lower end with a slot, M, through which passes a pin, N, fixed in the lower rest or bearing, O, of said shaft, which is thus permitted to have a limited longitudinal sliding motion. The upper end of shaft C is provided with a transverse slot or recess, P, connected by a pivoted arm or link, Q, with the side of the upper rest or bearing, R, in which the shaft C is fitted loosely, as shown. It will be seen that when shaft C is slid upward or forward its upper end is at the same time, by the action of link Q, moved laterally in a direction outward or away from the drive-wheel D, and vice versa when the shaft is lowered. To keep it automatically in the latter position I employ a spring, S, suitably secured to frame A and acting with downward pressure against a stud, T, upon the lower side of counter-shaft C. Said spring S may be arranged to operate in any suitable manner different from that shown in the drawings.

U is a brake-lever, pivoted at V to the frame A, and carrying at its front or outer end a shoe, W, adapted to bear against the pulley E. Said brake-lever is operated by downward pressure upon its lower or inner end by a stud, X, upon the upper arm of the bell-crank lever I, near the fulcrum of the latter. At a point near its upper end the said upper arm of bell-crank lever I is adapted to strike the inner or lower end of the counter-shaft, and thus force the latter in a forward and upward direction against the tension of spring S.

The front side or face of pulley E is provided with a recess, Z, adapted to receive or slide over the bracket of frame A, which forms or constitutes the upper rest or bearing, R, of the shaft C. This is in order to enable said pulley to be slid as closely as possible toward the center of the main driving-wheel, D, when it is desired to operate at a very slow rate of speed. The said pulley E has a groove, A', for the belt or band by which it is connected to the drive-wheel of the sewing-machine, and it has a friction-bearing rim composed of a series of washers, B', of leather, rubber, or other suitable material, clamped and held in place by a plate or disk, C', secured by screws D'.

In practice any desired number of my im-

proved motors may be arranged side by side, so as to derive their power from the main shaft B, which may be of any desired length, and provided with a drive-wheel or disk, D, for each of said motors.

By operating the treadle L the pulley E may be slid upon the counter-shaft C, toward or from the center of the drive-wheel D, with which it is in contact, thus diminishing or increasing the rate of speed, as the case may be. When pulley E is near the center of wheel D, or at its lowest rate of speed, the lug or stud X and the upper end of the bell-crank lever I simultaneously strike the brake-lever U and the lower end of shaft C, forcing the latter forward, and the pulley E, which is now at the upper end of said shaft, away from the drive-wheel and into contact with the brake-shoe, which is simultaneously, by the pressure upon the brake-lever, forced against the rim of pulley E, the motion of which is thus stopped, thereby stopping the operation of the machine.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination of the main friction drive-wheel, the longitudinally-sliding counter-shaft, the upper end of which has a lateral movement, the loose friction-pulley sliding longitudinally upon said counter-shaft, and mechanism for adjusting the said pulley, substantially as set forth.

2. The combination of the main friction drive-wheel, the longitudinally-sliding counter-shaft, the upper end of which has a lateral movement, the loose friction-pulley sliding longitudinally upon said counter-shaft, the brake-

lever, and mechanism for simultaneously operating the latter and forcing the counter-shaft in an upward direction and its upper end, with the loose pulley, away from the drive-wheel and toward the brake, substantially as set forth.

3. The combination, with the counter-shaft mounted loosely in suitable rests or bearings and capable of sliding longitudinally in said bearings, of a pivoted link or arm connecting the upper bearing with the upper end of said shaft, to which a lateral movement may thus be imparted, substantially as set forth.

4. The combination of the slotted counter-shaft, the rest or bearing R, the arm or link Q, and the spring S, bearing against a stud, T, upon said counter-shaft, substantially as set forth.

5. The combination, with the counter-shaft having rest or bearing R, of the sliding pulley having its face recessed to receive said bearing, substantially as set forth.

6. The combination of the main drive-wheel, the longitudinally-sliding counter-shaft, the upper end of which has a lateral movement, the pulley E, having loose sleeve H, the bell-crank lever I, having stud X, the connecting-rods J K, and the brake-lever U, all arranged and operating substantially as and for the purpose set forth.

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

CHAS. W. FOSTER.

Witnesses:

E. A. FOLSOM,
GEO. TERRY.