(No Model.) 2 Sheets—Sheet 1.

H. A. FRANTZ.

MOTOR FOR SEWING MACHINES.

No. 491,751. Patented Feb. 14, 1893.

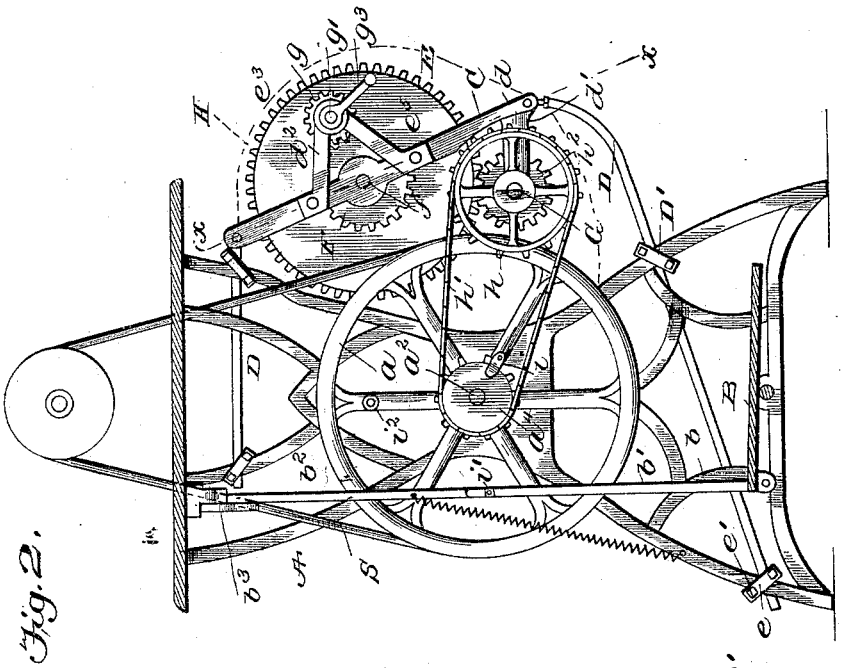

Fig. 2.

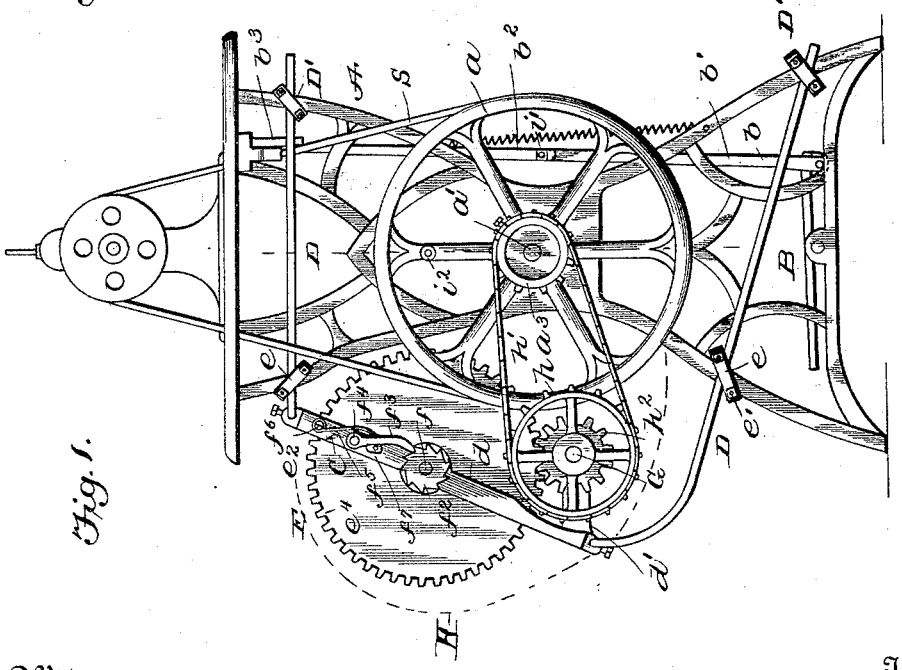

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

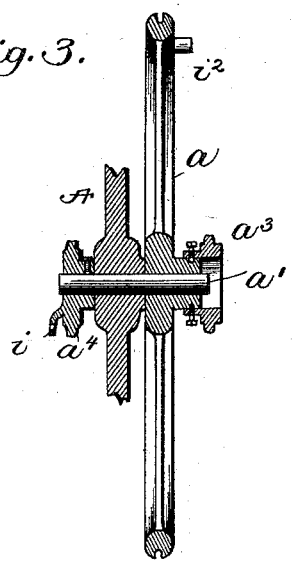


Fig. 4.

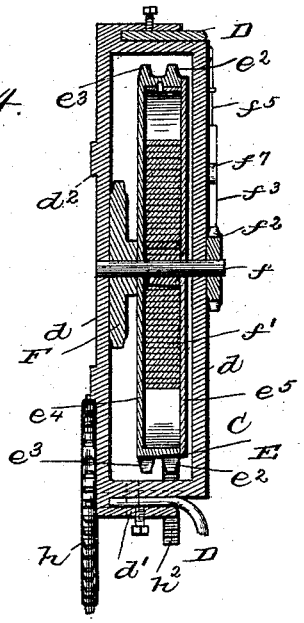
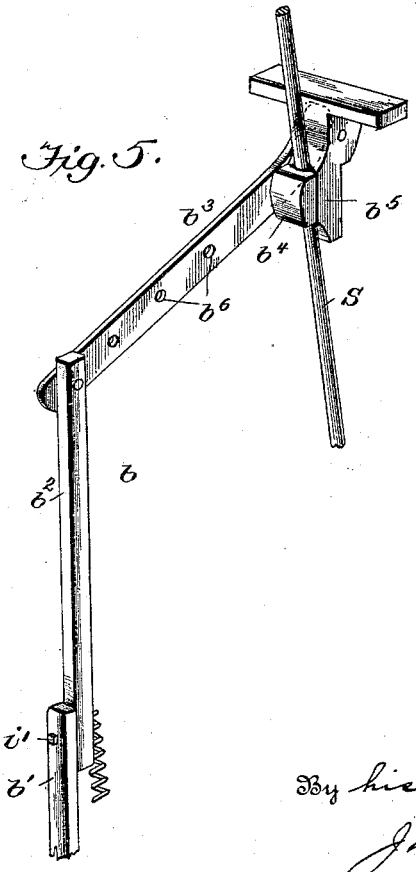


Fig. 5.



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UNITED STATES PATENT OFFICE.

HIRAM A. FRANTZ, OF TAMAQUA, PENNSYLVANIA.

MOTOR FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 491,751, dated February 14, 1893.

Application filed April 27, 1892. Serial No. 430,830. (No model.)

To all whom it may concern:

Be it known that I, HIRAM A. FRANTZ, a citizen of the United States of America, residing at Tamaqua, in the county of Schuylkill and State of Pennsylvania, have invented certain new and useful Improvements in Motors for Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in motors for sewing machines, and has for its object, primarily, to provide a motor capable of being attached to different styles of sewing machines, whether the fly-wheel is within or without the framework or stand.

A further object is to provide a motor of this class possessing advantages in point of simplicity, durability, and general efficiency.

The invention comprises the detail of construction, combination and arrangement of parts, substantially as hereinafter fully set forth and particularly pointed out in the claims.

In the accompanying drawings:—Figure 1 is an end elevation of a sewing machine provided with my improved motor, the fly-wheel being shown on the outside of the frame or stand. Fig. 2 is a sectional view with the wheel on the inside of said frame or stand. Fig. 3 is a vertical sectional view of the fly-wheel. Fig. 4 is a sectional view on the line x—x, Fig. 2. Fig. 5 is a detail view of the brake.

Referring to the drawings, A designates the frame or stand of a sewing machine, and a the fly-wheel thereof, which, in Fig. 1, is shown as mounted on a stationary stud or axle a' on the outside of frame or stand A, while in Fig. 2 it is shown on the inside of said stand or frame, and its axle a^2 free to revolve therewith. Around this fly-wheel the strap S for driving the sewing machine mechanism is passed. As shown in Fig. 1 a sprocket wheel a^3 is removably secured to the hub of fly-wheel a on the outside thereof, while in Fig. 2 a sprocket wheel a^4 is rigidly secured on shaft a^2.

B designates the pedal, to which pitman b is pivotally connected, said pitman being formed in two sections b', b^2. The section b^2 is pivotally secured at its upper end to a brake bar b^3, having a block or shoe b^4, which when lowered will bind strap S against a projection b^5 of the top of frame or stand A, and thus hold said strap and prevent further movement of the sewing machine mechanism. The brake bar b^3 is pivotally connected to the projection b^5, and is provided with a series of holes or apertures b^6 so that it can be connected to the pitman of sewing machines of different sizes. A coil spring connected at its lower end to frame or stand A, and at its upper end to pitman b serves to normally hold the brake-block or shoe b^4 against strap S.

C is a frame composed of two parallel members d, d, connected together at their upper and lower ends, and having a lower arm d', and a bracket d^2 extending from one side. This frame is removably secured to frame or stand A by means of upper and lower rods D having bent or angular ends projected through the socketed ends of said frame C, and held firmly against the legs of frame or stand A by clamps D′. These clamps are preferably composed of two parallel blocks e through holes or apertures in which are passed nutted bolts e'. By this means the sewing machine stand or frame is not defaced and the motor attachment can be readily applied or removed.

E is the main motor wheel, provided on its periphery with two sets of teeth e^2, e^3, and one of its sides e^4 is made integral therewith, while the other side e^5 is removable. The shaft or axle f of this wheel E is supported at its ends by the parallel members d, d, of frame C, and to this shaft or axle is secured the inner end of a coil spring f', the outer end thereof being attached to the inner surface of the rim of wheel E. Upon shaft or axle f is rigidly secured a ratchet wheel f^2 with which is designed to engage a pawl f^3 pivoted at f^4 to one of the members d, said pawl being held in engagement with said ratchet wheel by a spring f^5 bearing thereagainst and held at f^6 to said member d. An elastic stop f^7 attached to or projecting from member d limits the inward movement of pawl f^3. A gear-wheel F is also secured upon shaft or axle f adjacent to the inner side of wheel E, and with it is designed to engage a gear-wheel or pinion g mounted on a shaft g' supported by the outer end of bracket d^2. To this shaft is secured a crank-handle g^3 by means of which the spring f' can be wound or tightened. The wheel or

pinion g' is preferably about half the diameter of wheel F.

In the outer end of arm d' of frame C is mounted a shaft G, upon which, according to the construction shown in Fig. 1, is rigidly secured a sprocket wheel h around which is passed a chain h', which also encompasses sprocket wheel a^3 on the hub of fly-wheel a. Also upon this shaft G is keyed a gear-wheel h^2, which in this instance engages or intermeshes with the inner set of teeth e^2 of the main motor-wheel E, and whenever, for any reason, the fly-wheel is placed on the inside of the machine frame, the gear-wheel h^2 must be adjusted to mesh with the outer set of teeth e^2 of said main motor wheel. In Fig. 2 the sprocket wheel h is shown on the inner end of shaft G, and the chain h' is passed around sprocket wheel a^4 on the shaft a^2 of fly-wheel a, and the gear-wheel h^2 is in engagement with the outer set of teeth e^3 of wheel E. A shield H indicated by dotted lines is preferably secured to frame C so as to inclose the outer portion of the motor to protect the clothes of the operator from contact therewith. To the inner sprocket wheel a^4 the pitman b can be connected when the motor is not in use. For this purpose said sprocket wheel is provided with a lug or projection i to which the member b' of pitman b is pivotally connected by a nutted bolt i' passed through coincident eyes. If it be desired to connect the pitman directly to the fly-wheel, as when the latter is journaled on a stationary stud or shaft, the lower member of said pitman can be pivotally connected to a stud i^2 of said wheel, facing inward, as customary.

From what has been said it will be seen that by removing the brake from the main operating strap the motor will impart motion to the fly-wheel of the sewing machine, and also that the motor can be connected to any style of sewing machine now in use whether the fly-wheel be on the inside or outside of the frame or stand, or whether it be mounted on a rotary or rigid axle or bearing. A motor thus constructed is extremely simple and inexpensive, and is not liable to get out of order or be deranged.

I claim as my invention:—

1. The herein-described improved sewing machine motor, comprising, in combination with the fly-wheel of a sewing machine and a sprocket wheel moving therewith, the frame removably secured to said sewing machine, the spring-impelled wheel having its axle or shaft mounted therein and having two sets of teeth on its periphery, the shaft supported by said frame having a gear-wheel in engagement with said teeth of the spring-impelled wheel, the sprocket wheel on said shaft, and the chain encompassing said latter wheel also the sprocket-wheel movable with said fly-wheel the pedal, the pitman secured thereto, and the brake to which said pitman is secured, substantially as set forth.

2. The herein-described improved sewing machine motor, comprising, in combination with the fly-wheel of a sewing machine, and a sprocket wheel moving therewith, the frame removably secured to said sewing machine, the spring-impelled wheel mounted in said frame and having two sets of teeth in its periphery, means for winding and holding said wheel, the shaft supported by said frame, the wheel on said shaft engaging said spring-impelled wheel, the sprocket wheel on said shaft, the chain encompassing said sprocket wheels, the pedal, the pitman secured thereto, and the brake to which said pitman is secured, substantially as set forth.

3. The combination with a sewing machine fly-wheel, and a sprocket wheel moving therewith, of a motor having a frame supporting or holding its mechanism, the arms or rods supporting said frame and removably secured to said sewing machine, the driving sprocket wheel, the chain encompassing the same and said sprocket wheel of the sewing machine the pedal, the pitman secured thereto, and the brake to which said pitman is secured, substantially as set forth.

4. The combination with a sewing machine fly-wheel, and a sprocket-wheel moving therewith, of a motor adjustably secured to said sewing machine and comprising the frame, the spring-impelled wheel having its shaft or axle supported by said frame, the spring secured to said shaft or axle and to said wheel, the gear wheel on said shaft or axle, the pinion engaging therewith having its shaft provided with a crank-handle, the ratchet wheel on the shaft of said spring-impelled wheel, the pawl engaging said ratchet-wheel, the shaft having a gear wheel engaging teeth of said spring impelled wheel, the sprocket-wheel also on said shaft, and the chain encompassing said latter wheel and the sprocket wheel moving with said fly-wheel, substantially as set forth.

5. The combination with a sewing machine fly-wheel, a strap encircling the same, and a motor for driving said fly-wheel, of the pedal, the pitman connected thereto, and the brake to which said pitman is secured and having a block or shoe designed to bind and hold said strap, substantially as set forth.

6. The combination, with a sewing machine fly wheel, an encircling driving strap, a motor for driving said fly wheel, a depending projection adjacent to said strap, of the pedal, the brake-arm pivoted to said projection and having a block or shoe designed to bind said strap against said projection, the pitman connection between said brake-arm and pedal, and the spring for normally holding said block or shoe against said strap, substantially as set forth.

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

HIRAM A. FRANTZ.

Witnesses:
T. H. COOMBE,
LEW. I. BACHMAN.