Feb. 20, 1923. 1,445,946

F. F. HILLIX

MOTOR ATTACHMENT FOR SEWING MACHINES

Filed Sept. 12, 1921 2 sheets-sheet 1

FIG. 1.

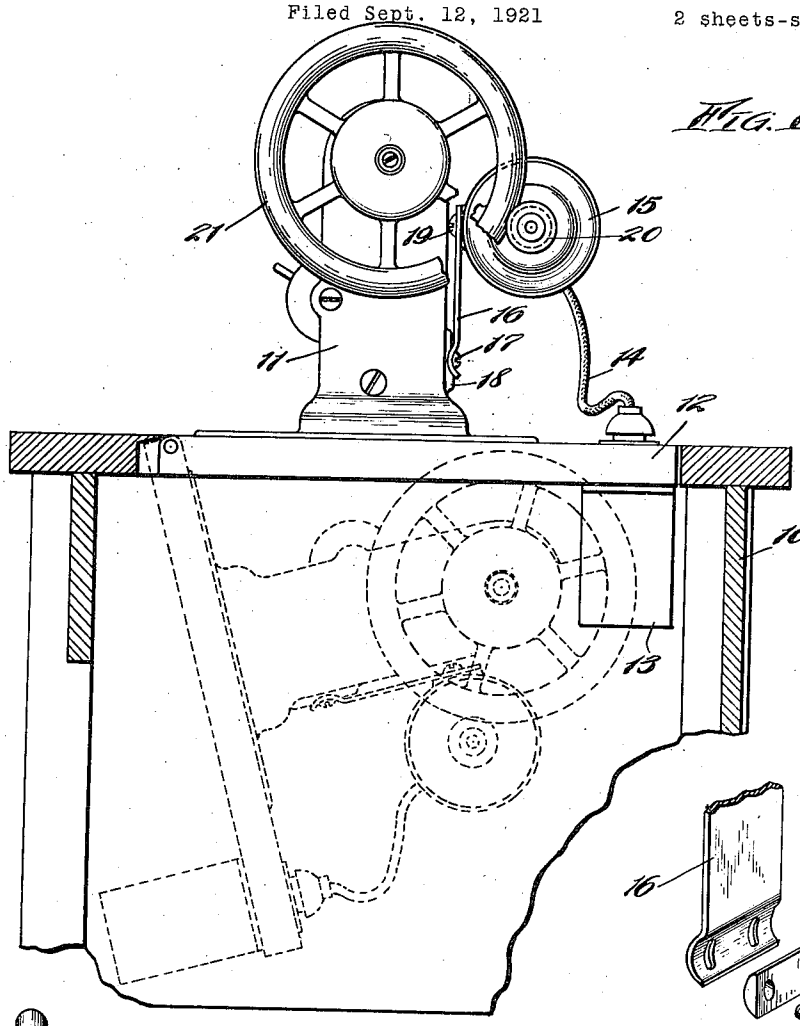






FIG. 8.

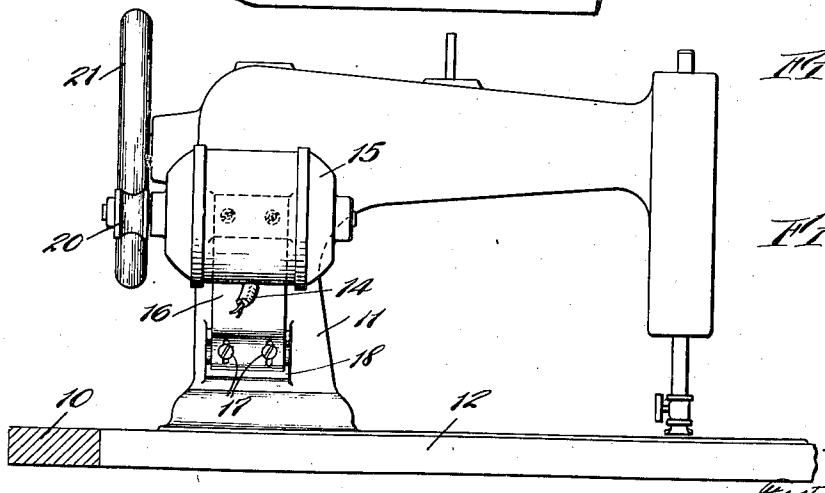



FIG. 2.

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FIG. 3.

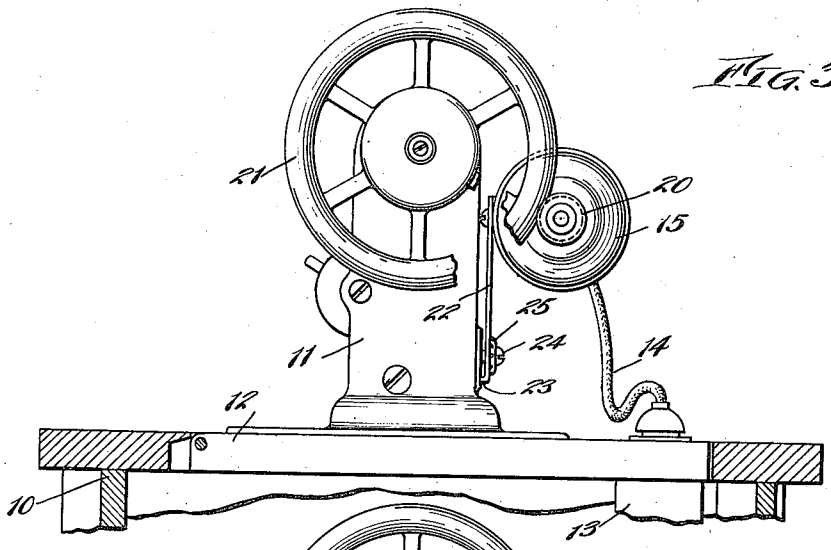



FIG. 4.

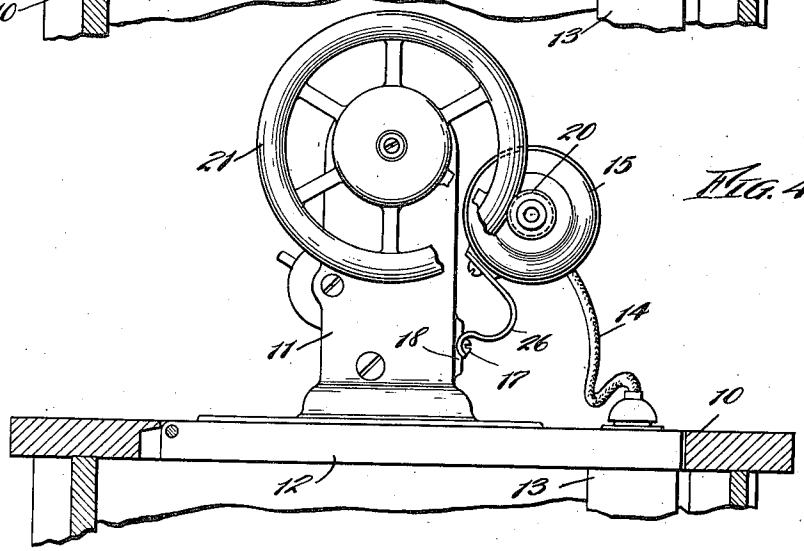



FIG. 5.

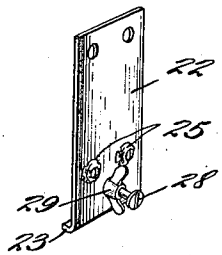



FIG. 6.

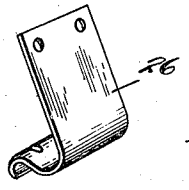
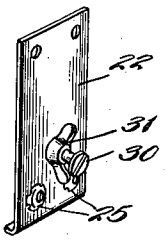



FIG. 7.




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# UNITED STATES PATENT OFFICE.

FOSTER F. HILLIX, OF CLEVELAND, OHIO, ASSIGNOR TO WHITE SEWING MACHINE COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

## MOTOR ATTACHMENT FOR SEWING MACHINES.

Application filed September 12, 1921. Serial No. 500,008.

*To all whom it may concern:*

Be it known that I, FOSTER F. HILLIX, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Motor Attachments for Sewing Machines, of which the following is a full, clear, and exact description.

This invention relates to motor attachments for sewing machines and has for its chief object to provide a simple and effective manner of supporting an electric driving motor directly on the arm of the sewing machine head, and in a manner such that the motor will not interfere with the lowering of the head when the invention is applied to machines of the drop head type, and without requiring that the motor be swung to an inoperative position, to permit the lowering of the head.

Further the invention aims to secure the motor to the arm of the sewing machine head in the manner such that the spring bracket which is preferably utilized will not only support the motor, but hold the driving wheel thereof in frictional driving engagement with the hand wheel of the machine.

The invention may be briefly summarized as consisting in certain novel details of construction and combinations and arrangements of parts which will be described in the specification and set forth in the appended claims.

In the accompanying sheets of drawings, Fig. 1 is a transverse sectional view through a cabinet of a sewing machine equipped with my improved motor attachment in one embodiment of the invention, the head of the machine being shown in end elevation; Fig. 2 is a side view of the head showing the motor attachment; Figs 3 and 4 are views similar to Fig. 1, showing slight modifications of the invention; Fig. 5 is a perspective view showing the motor supporting bracket of Fig. 3 with a slight modification; Fig. 6 is a perspective view of the motor supporting bracket of Fig. 4; Fig. 7 is a perspective view of a bracket such as shown in Fig. 3, with a further slight modification; and Fig. 8 shows in perspective the lower part of the bracket of Fig. 1, the screws for attaching it in place, and a filler piece which may be employed, the parts being shown separated.

Referring now to the drawings, 10 represents the cabinet which may be of any suitable design and construction, and 11 represents the head of the machine which in this instance is mounted on a swinging platform 12, which is designed to be lowered into the cabinet when the machine is not in use, the machine here shown being of the well known drop head type. On the lower side of the platform is shown conventionally a rheostat 13 which in this instance is connected to the motor by conductors 14, although it is not essential that the rheostat be mounted at the point herein illustrated.

A friction type of drive is contemplated with the mounting of the present invention, as this type of drive has proven to be effective for sewing machines, but the prior mountings of which I am aware utilizing the friction drive have not been satisfactory, for in the majority of instances the mounting had to be of such a nature that the motor could be swung to operative position and to an inoperative position under the horizontal arm of the head, so as to permit the head to be lowered into the cabinet. The mounting which I have devised overcomes this difficulty, and at the same time has the features of efficiency and extreme simplicity, and the mounting in the best forms and embodiments now known to me will next be described.

In Fig. 1 the motor which is shown at 15 is supported from the upright portion of the arm of the head by a flat resilient or spring bracket in the form of a strap 16. The lower end of this bracket has a rounded portion secured by a pair of screws 17 in a rounded seat or protuberance 18 which may be in the form of a lug cast onto the arm of the head or in the form of a pad secured thereto, but preferably the former. The screws 17 pass through elongated slots in the lower rounded part of the bracket so as to permit an adjustment of the bracket. The bracket extends up alongside the vertical portion of the arm 11 and at its upper end is secured by screws 19 to a boss on one side of the frame of the motor. This arrangement permits the motor to stand close up to the arm, as is apparent from Fig. 1. The shaft of the motor is provided with a friction driving wheel 20 which engages and drives the usual hand wheel 21 on the operating shaft of the head. The bracket or strap 16 being formed of flexible material

holds the friction wheel yieldingly with the necessary pressure against the hand wheel, but the tension of the bracket, and therefore the pressure with which the friction wheel engages the hand wheel may be adjusted by loosening the screws 17 and slightly shifting the rounded part of the bracket in its seat.

In Fig. 3, substantially the same results are secured by a flat strap or bracket 22 which extends up along side the arm as in the first instance. In this case the lower end of the bracket is provided with an inturned lip 23 (see also Figs. 5 and 6) and the upper end is secured to the motor, as in the first instance. The friction driving wheel 20 is caused to be held yieldingly but with the necessary pressure against the hand wheel through the medium of a pair of screws 24 which pass loosely through holes just above the lip 23 and through spring washers 25 which are arranged between the heads of the screws and the outer face of the bracket, as shown.

In the form shown in Fig. 4, a spring bracket or strap 26 is employed, which at its lower end is secured to the lower part of the arm 11 by screws 17 like the bracket shown in Fig. 1, and it is likewise secured to the motor as in Fig. 1, but in this instance the bracket or strap is curved to provide greater elasticity.

However, I do not regard it as necessary that the bracket be curved to obtain the necessary elasticity, or resiliency, as the straight construction shown in Fig. 1 is found to be satisfactory.

With the bracket shown in Figs. 1 and 2 and with the bracket 26 shown in Figs. 4 and 6, where the lower part of the bracket has a curved or rounded part engaging a similarly shaped seat in the arm of the head, it may be desirable to employ a filler piece such as shown at 27 in Fig. 8, which filler piece is adapted to engage the concavity or rounded portion in the lower part of the bracket, this filler piece having a flat outer surface against which the heads of the screws 17 may bear.

Furthermore, with the form of the invention shown in Fig. 3, it may be desirable to employ between the holding screws 24 and the lip 23 a set screw 28 which may be threaded in the bracket and is adapted to bear against the adjacent face of the arm of the sewing machine head, to increase the holding action of the spring washers 25 under the heads of the screws 24 shown in Fig. 3. In this event the set screw is preferably provided with a lock nut 29.

It may be desirable also to use a similar set screw designated 30, above the spring washers 25 and holding screws 24 as shown in Fig. 7, for the purpose of forming a stop to limit the inward movement of the strap or bracket 22, as for example, if the friction wheel should contain a low spot or defect which would have a tendency to cause the motor and friction wheel to oscillate and possibly chatter. If the set screw 30 is employed as shown in Fig. 7, it would first be adjusted so that its inner end may engage the arm and thereby limit or prevent more than the desired inner movement of the bracket, and would then be set in its adjusted position by a lock nut 31.

In all forms of the invention herein illustrated, the objects of the invention heretofore enumerated are attained to a very high degree, and while I have shown three forms of the invention, I do not desire to conform to the precise details shown, but aim in my claims to cover all modifications which do not involve a departure from the spirit and scope of my invention as set forth in the appended claims.

Having described my invention, I claim:

1. In combination with a sewing machine head having an arm with an upper horizontal portion, a motor attachment comprising a motor for operating the sewing machine, and a flexible or elastic strap or bracket supporting the motor and secured at one end directly to the motor and at the other end to the rear face of the arm of the head below the upper horizontal portion thereof and below the motor.

2. A sewing machine head having a hand wheel and having an arm with an upper horizontal portion, and a motor attachment therefor comprising a motor having a friction drive wheel and a strap or bracket attached at its lower end to the arm of the head below the upper horizontal portion thereof and at its upper end directly to the motor and serving to support the motor and to hold the drive wheel thereof in frictional engagement with the hand wheel of the head.

3. In combination with the head of a sewing machine, having an arm with a substantially horizontal upper portion, a motor attachment comprising a motor for driving the sewing machine, and an elastic or spring bracket for supporting the motor, said bracket being secured to the motor, and being adjustably secured to the arm of the head below the upper horizontal portion thereof and below the motor.

4. In combination with the head of a sewing machine, a motor attachment comprising a motor and means for supporting the same from the arm of the head, comprising a strap or bracket connected to the motor and to the arm, the arm having a rounded seat and the strap or bracket having a rounded portion secured in said seat.

5. In combination with the head of a sewing machine, a motor attachment comprising a motor and an elastic or yielding bracket

in the form of a strap secured to the lower portion of the rear face of the arm of the head and extending upwardly along the latter and secured to the motor.

6. A sewing machine head having a motor attachment comprising a motor with a friction driving wheel adapted to engage the hand wheel of the head, a flat strap for supporting the motor and holding its drive wheel in proper engagement with the hand wheel, said strap extending alongside of the rear face of the upright portion of the arm of the head and adjacent its lower end secured to the arm, and having its upper portion between the motor and head and secured to the motor.

In testimony whereof, I hereunto affix my signature.

FOSTER F. HILLIX.