No. 657,165. Patented Sept. 4, 1900.

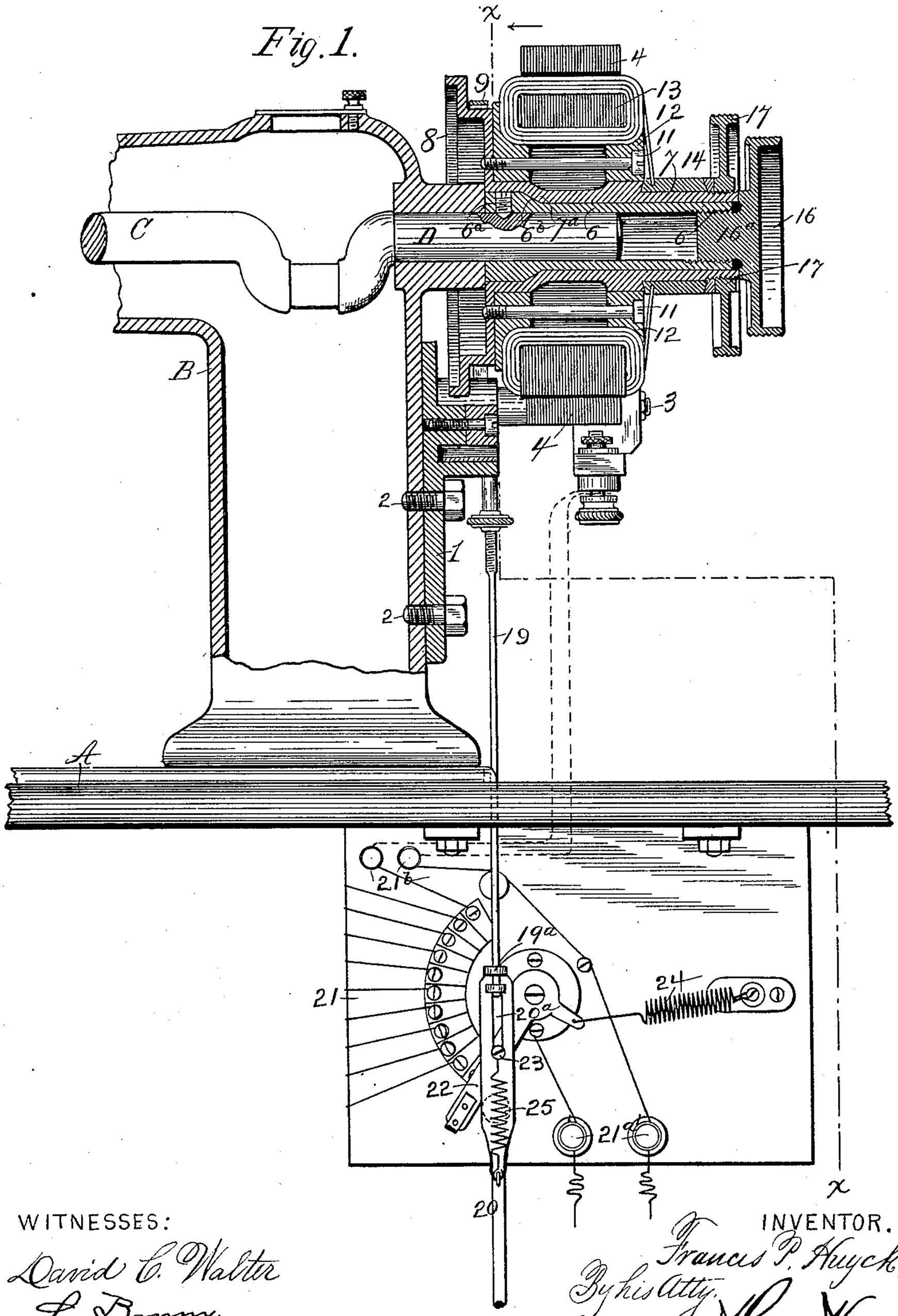
F. P. HUYCK.

SEWING MACHINE MOTOR ATTACHMENT.

(Application filed June 7, 1900.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.



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(No Model.) 3 Sheets—Sheet 2.

Fig. 2.

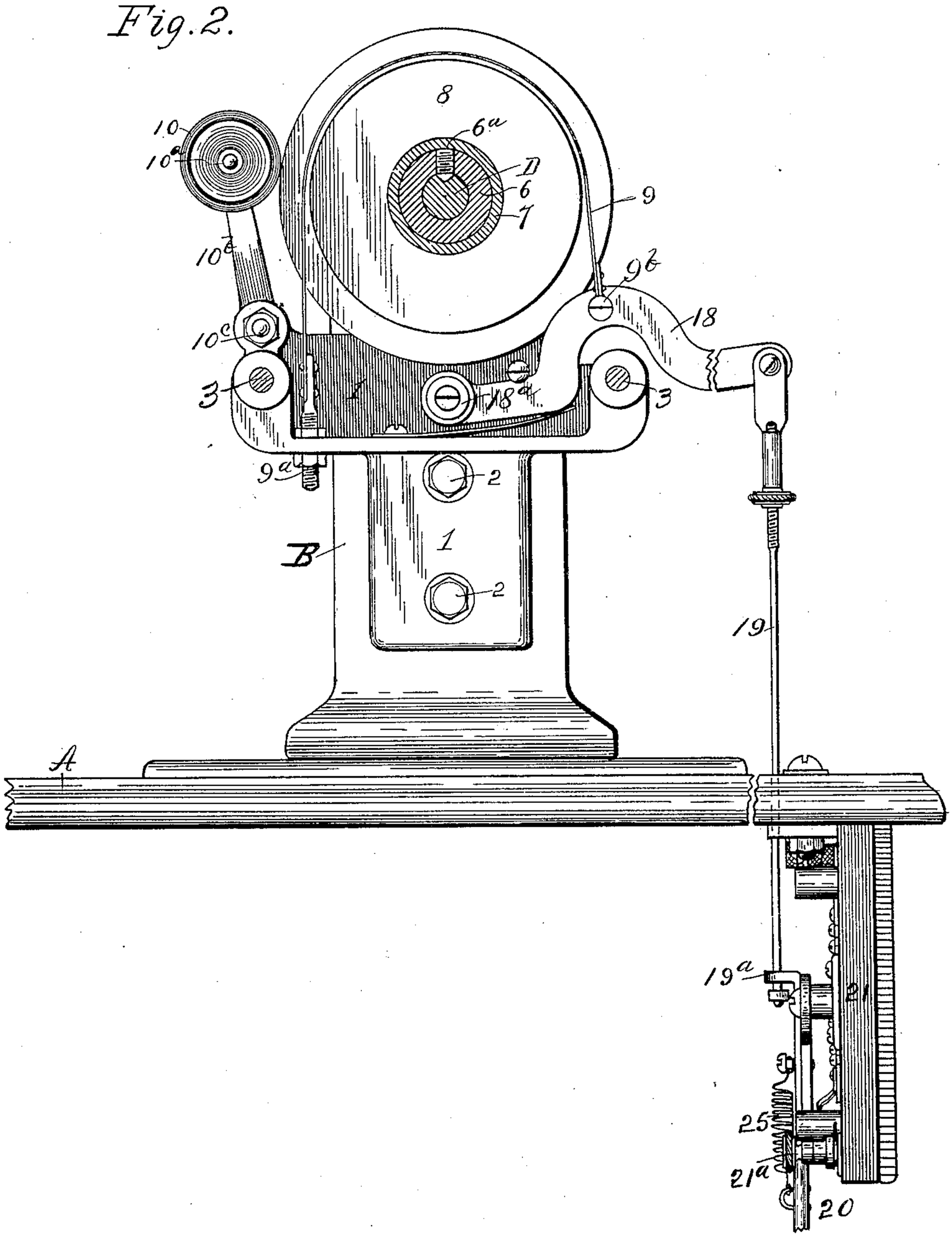

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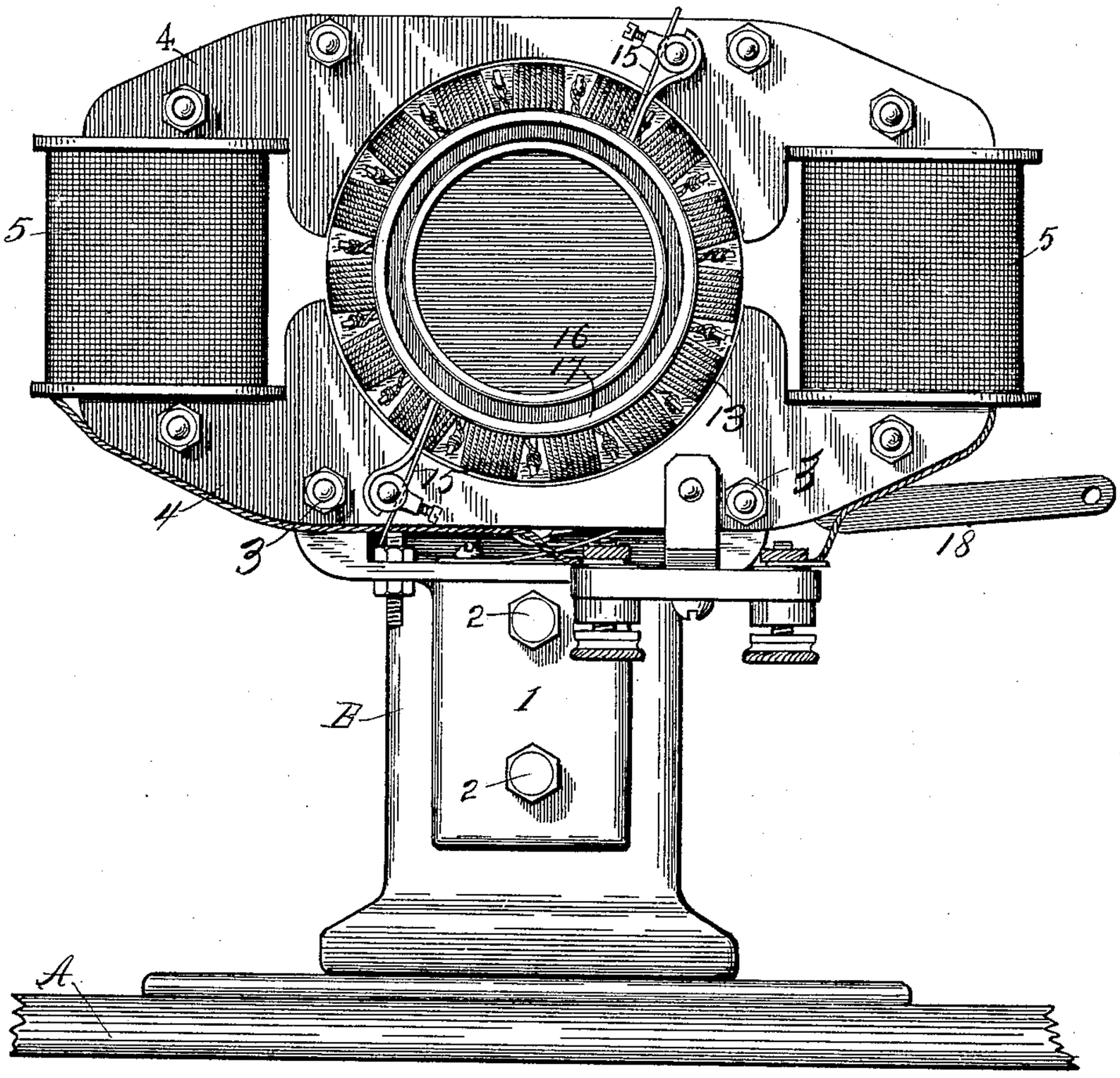
Fig. 3.



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UNITED STATES PATENT OFFICE.

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SEWING-MACHINE MOTOR ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 657,165, dated September 4, 1900.

Application filed June 7, 1900. Serial No. 19,378. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS P. HUYCK, a citizen of the United States, residing at Swanton, in the county of Fulton and State of Ohio, have invented certain new and useful Improvements in Sewing-Machine Motor Attachments; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

In nearly all sewing-machines of standard makes a driving band or belt runs over a balance-wheel pulley fixed upon the projecting stub of a horizontal shaft in the arm of the machine.

My invention relates to and one object is to provide a sewing-machine motor which may be removably applied directly to the shaft of any of the sewing-machines of the class referred to without other alteration in the sewing-machine than to merely remove the balance band-wheel from its shaft and to tap one or more small screw-threaded holes in the upright arm of the sewing-machine.

The further object of my invention is to provide my motor with a simple and efficient brake and rheostat arrangement designed to be governed by a single movement of one foot of the operator.

My invention is also designed to furnish a bobbin-winding device which may be run by my motor independently of the sewing-machine.

I attain these objects by means of the devices and arrangement of parts hereinafter described, and shown and illustrated in the accompanying drawings, in which—

Figure 1 is a central vertical longitudinal sectional elevation of my device; Fig. 2, an end view of the same in section on line *x x*, Fig. 1, seen from the right in said figure; and Fig. 3, an end view of my device seen from the right in Fig. 1.

Like letters and numerals of reference indicate like parts throughout the several drawings.

In the drawings, A is the sewing-machine table, B the arm of the sewing-machine, and C the horizontal driving-shaft in said arm, having a projecting stub portion D.

1 is a bracket with one or more holes coinciding with corresponding holes tapped in the arm B. Into these holes are secured the bolts 2, by means of which the bracket is rigidly secured in upright position upon the arm. The holes in the bracket are somewhat enlarged to permit the vertical and lateral adjustment of the bracket. Upon the bracket is secured, by means of bolts 3, the laminated pole-pieces 4 of the field-magnets 5.

6 is a sleeve which fits upon and is rigidly secured to the stub-shaft D by means of set-screws or equivalent devices 6^a. This sleeve serves as an extension of the shaft D, and its bore may be of any required size without varying the proportions of the other parts. Upon the sleeve 6 is a loose sleeve 7, having at its inner end and formed integral therewith a wheel 8, having two steps. One of these steps serves for the brake-strap 9 and the other for the bobbin-winder 10. Mounted upon and rigidly secured to this sleeve by means of bolts 11, passing through wood blocks 12 into the sides of the wheel 8, is the armature 13. The field-magnet and armature may be of any preferred type and are provided with commutators 14 and brushes 15 of any preferred construction. Upon the sleeve 6 is a conically-swelled portion 6^b. The sleeve 7 on its interior is provided with a coinciding conical portion 7^a.

16 is a hand-wheel having a central threaded boss 16^a, screwed into the threaded interior of the outer end of the sleeve 6, as at 6^c.

17 is a hand-wheel rigidly secured to the sleeve 7. When the hand-wheel 17 is held fast and the hand-wheel 16 is screwed into the sleeve 6, a shoulder 15^a on the hand-wheel comes in contact with the projecting end of the sleeve 7, which is forced inwardly, so that the two conical portions 6^b and 7^a become closely engaged. The two sleeves are now by means of the clutch arrangement here described closely engaged with each other, and when the armature is revolved the two sleeves and the shaft C D will rotate together.

The bobbin-winder 10 is journaled, as at 10^a, upon the extremity of arm 10^b, which at

its margin is pivotally mounted upon the bracket 1, as at 10^c.

The brake-strap 9 is secured at one end, as at 9^a, to the bracket 1 and passes thence around its proper step in the wheel 8 and is secured, as at 9^b, to a lever 18, fulcrumed to the bracket, as at 18^a. Pivotally secured to the outer end of the lever 18 is a down-rod 19, which loosely engages and travels in an eye, as at 19^a, in the top of a pedal-rod 20, connected with one of the pedals of the machine, (not shown in the drawings,) which is operated and controlled by the foot of the operator.

21 is a rheostat secured beneath the table of the sewing-machine and through binding-posts 21^a and 21^b is connected in the circuit which drives the motor. The movable rheostat-arm 22 is connected with and controlled by the rod 20. This is accomplished as follows: In the top of the rod 20 is a vertical slot 20^a, through which projects a screw or pin 23, which is rigid with the arm 22. The rod 20 and the arm 22 are held normally depressed by spring 24, connected with the arm 22, as shown. The rod 19 and the rod 20 are held normally in the relation to each other illustrated in Fig. 1 by means of spring 25.

The operation of my device is as follows: Assume that the bracket 1 is by means of the bolts 2 properly secured to the sewing-machine arm B, that the sleeve 6 is rigidly attached to the stub-shaft D, that the rheostat and motor are duly connected in circuit, and that the sleeve 7, by means of the hand-wheel 16, is forced inwardly upon conical shoulder 6^b, so that the two sleeves and their attachments revolve together. Now, if the pedal-rod 20 by means of the pedal is elevated the brake-strap 9 will be released from the brake-wheel 8 and the arm 22 of the rheostat will be moved in the arc of a circle through a gradually-decreasing electrical resistance and the armature of the motor will revolve with a speed in proportion to the electrical energy transmitted through the rheostat. The motion of the armature revolves the shaft C, and thereby imparts motion to the sewing-machine in the usual manner. When the foot of the operator is removed from the pedal, the spring 24 throws the machine out of circuit, and if it is desired to stop the machine suddenly the continued movement of the pedal will overcome the resistance of the spring 25, and the rod 20, through the connection 19^a, will now pull down upon the rod 19, which in turn will pull upon the lever 18, thus setting the brake-strap 9 against its step upon the periphery of the wheel 8. This will instantly stop the machine. When the bobbin is to be wound, the hand-wheel 16 is slightly unscrewed, and the arm 10^b is swung so that the periphery of the bobbin-winder 10 will fall into frictional contact with the outer periphery of the wheel 8. The armature 13 and its attached parts will now revolve loosely upon the sleeve 6; but the bobbin-wheel will be revolved, while the shaft C D will cease to revolve.

Having described my invention and its operation, what I claim, and desire to secure by Letters Patent, is—

1. In a machine of the described class, a bracket, means for detachably securing the same to a sewing-machine arm, an electric motor mounted upon said bracket, and means for detachably securing the armature of said motor upon the shaft of such sewing-machine.

2. In a machine of the described class, a bracket, means for detachably securing the same to a sewing-machine arm, a motor mounted upon said bracket, an extension-sleeve adapted to be detachably secured to the shaft of such sewing-machine and means for detachably engaging the driving mechanism of the motor with said sleeve.

3. In a machine of the described class, a bracket, and means for detachably securing the same to the arm of the sewing-machine, a motor mounted on said bracket, a sleeve, means for rigidly securing the sleeve to the shaft of the sewing-machine, another sleeve on said latter sleeve engaged with the driving mechanism of said motor, and means for engaging and disengaging said two sleeves, whereby they may be caused to revolve in unison, or whereby the outer sleeve may revolve loosely upon the inner sleeve.

4. In a machine of the described class, a motor adapted and arranged to be detachably engaged directly with the shaft of the sewing-machine, a clutch mechanism for engaging and disengaging the motor with the shaft, a bobbin-winder and means for throwing the bobbin-winder into and out of operative connection with the motor, whereby the sewing-machine and the bobbin-winder may be operated independently of each other.

5. In a machine of the described class, a motor, means for connecting the same directly to the shaft of a sewing-machine, a rheostat, a brake mechanism for said motor, a pedal-rod connecting the brake mechanism and the rheostat, whereby, by the movement of said rod, the brake and rheostat are controlled in harmony.

6. In a machine of the described class, a motor, means for detachably securing the same directly to the shaft of a sewing-machine, a clutch mechanism for throwing the motor into and out of operative engagement with the said shaft, a two-step wheel upon said motor, a brake mechanism connected with one of said steps, a bobbin-winder, and means for throwing said winder into and out of engagement with the other step of said wheel.

7. In a machine of the described class, a bracket, a motor thereon, a sleeve adapted to be engaged with the shaft of a sewing-ma-

chine, another sleeve upon said first-mentioned sleeve concentric therewith, a swelled conical portion on the inner sleeve, a corresponding portion upon the interior of the outer sleeve, connections between the outer sleeve and the driving mechanism of the motor, and means for securing the longitudinal movement of the outer sleeve upon the inner sleeve.

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

FRANCIS P. HUYCK.

Witnesses:
ELMER MINNICH,
EDGAR EDSON HAYNES.