March 4, 1924. 1,485,662

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SERVING OR INSULATING MACHINE

Filed March 7, 1922

Fig. 1.

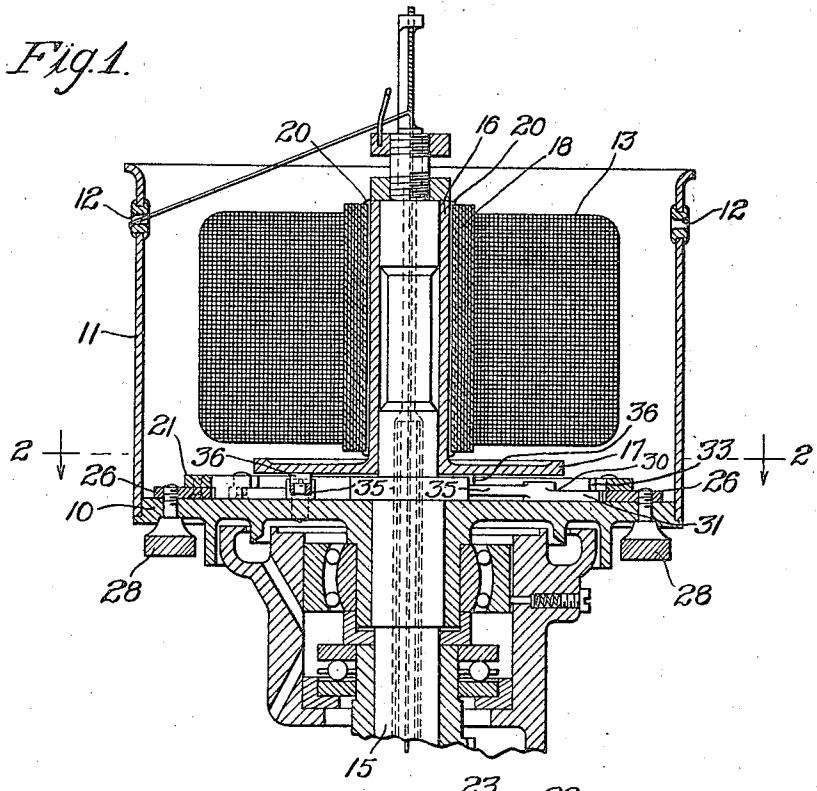
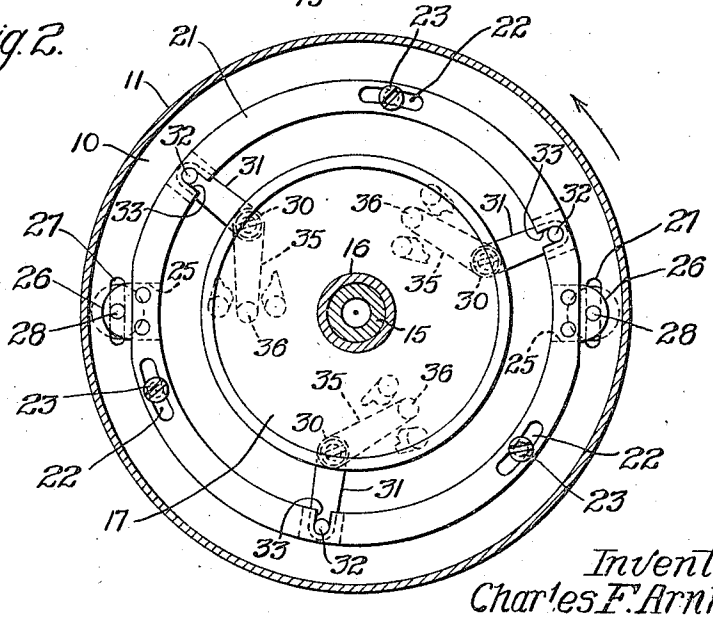


Fig. 2.



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Patented Mar. 4, 1924. 1,485,662

UNITED STATES PATENT OFFICE.

CHARLES FREDERICK ARNHORST, OF CHICAGO, ILLINOIS, ASSIGNOR TO WESTERN ELECTRIC COMPANY, INCORPORATED, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

SERVING OR INSULATING MACHINE.

Application filed March 7, 1922. Serial No. 541,884.

To all whom it may concern:

Be it known that I, CHARLES FREDERICK ARNHORST, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Serving or Insulating Machines, of which the following is a full, clear, concise, and exact description.

This invention relates to serving or insulating machines of the type in which a cop or bobbin of serving material is rotatably mounted concentrically of the strand to be served and is adapted in its rotation to have the serving material drawn therefrom and applied spirally to the strand.

The object of the invention is to provide tension regulating means for regulating the tension or pull upon the serving material as it is drawn from the cop or bobbin whereby materials of different tensile strength may be worked.

In accordance with the general features of this invention, adjustable retarding means is provided for regulating the resistance to turning of the cop or bobbin with respect to the serving head whereby the tension on the serving material may be varied.

In the preferred form of the invention, a cop or bobbin carrier is rotatably mounted upon the spindle of the serving head and is provided with a friction disk or plate which rests upon a plurality of friction members which are adjustable toward and from the center of the disk or plate to vary the retarding action thereof on the disk or plate.

In the drawings:

Figure 1 is a vertical sectional view through a serving head embodying the features of the invention, and

Fig. 2 is a plan section taken on the line 2—2 thereof.

As shown in the drawings, the serving head comprises a horizontal plate 10 carrying a rim 11 provided with suitable openings 12 for the threading of the covering material from a cop or bobbin 13. The plate 10 is rigidly secured to a driving spindle 15 by a driving fit or otherwise, the spindle projecting a suitable distance above it and forming a bearing about which a sleeve member 16 provided at its lower end with a friction plate 17 may revolve. The bobbin 13 is mounted on a tube of pasteboard 18 secured in position on the sleeve member 16 by pressing the tube over a plurality of fins 20—20 provided upon the sleeve member 16. Below the friction plate 17 and resting upon the plate 10 is a ring-like member 21. The member 21 is positioned centrally with respect to the axis of the plate 10 and adapted to be moved thereabout. Formed in the member 21 at points 120° apart are suitably shaped slots 22—22 and passing freely therethrough are screws 23—23 threaded into the plate 10 to retain the member 21 in position and guide it when turned about the axis of the plate 10. Suitably secured to the member 21 in slots 25 formed 180° apart in the lower horizontal face thereof are outwardly projecting plates 26. The plate 10 is provided with slots 27 at points directly below the outward end of the plates 26 and screw-threaded thereinto and passing freely through the slots 27 are thumb screws 28. By tightening the thumb screws 28 the ring-like member 21 is secured in a set position with respect to the plate 10 and upon loosening and using the heads thereof as handles the member 21 may be turned about the axis of the plate 10 within the range of the slots 27. Pivotally secured to the plate 10 at points 120° apart and located between the slots 22—22 are bell-crank levers 30—30. Each of the outside arms 31 of the bell-crank levers 30—30 is provided with a pin 32 which rides in a slot 33, one for each arm, formed in the ring-like member 21 and extending toward the axis of the plate 10.

The inside arm 35 of each of the bell-crank levers 30 is raised from the surface of the plate 10 and carries at its end and upon the top surface thereof a friction member 36 preferably composed of cork. The friction plate 17 rests upon the cork friction members 36 and it will be seen that the pressure between the plate 17 and the members 36 will gradually decrease as the bobbin 13 carried by the sleeve 16 decreases in weight, but at the same time the force necessary to draw the material off the bobbin will increase, due to the increase in leverage as the bobbin decreases in diameter. The result of this action is that the tension on the material is substantially constant at all times from a full bobbin to an empty one. The force necessary to turn the plate 17 upon the members 36 may be increased or de-

creased by merely loosening the thumb screws 28 and revolving the ring-like member 21 one way or the other to turn the bell-crank levers 30—30 about their pivots due to the engagement of the pins 31, 31 carried on their outside arms in the slots 33, 33 in the member 21 and thereby move the friction members 36, 36 carried on their inside arms closer or farther away from the axis of the plate 17. The members 36, 36 are set with relation to the axis of the plate 17 according to the tensile strength of the covering material. When a material of low tensile strength is used, the members 36, 36 are set close to the axis of the plate 17, and the stronger the material the farther out from the axis thereof. It will readily be seen that the force necessary to turn the plate 17 and consequently the tension on the material will be less with the friction members 36, 36 close to the axis of the plate 17 and vice versa.

What is claimed is:

1. In a serving machine, a rotatable spindle, a serving head carried thereby, a bobbin carrier loosely mounted upon the rotatable spindle, a friction plate connected to the bobbin carrier, and friction supports for said friction plate connected to the head, said friction supports adapted to be adjusted with respect to the axis of said friction plate whereby the force necessary to turn the friction plate may be varied to suit the strength of the serving material used.

2. In a serving machine, a rotatable spindle, a serving head carried thereby, a bobbin carrier loosely mounted upon the spindle, a friction plate connected to the bobbin carrier, and friction members associated with the head and upon which said friction plate bears, said friction members adapted to be adjusted radially with respect to the axis of said friction plate whereby the force necessary to turn the friction plate may be varied to suit the strength of the serving material used.

3. In a serving machine, a rotatable spindle, a serving head carried thereby, a bobbin carrier loosely mounted upon the spindle, a friction plate secured to one end of the bobbin carrier, and a plurality of friction members equally disposed radially about the axis of and adapted to support said friction plate, said friction members being secured to the head and adapted to be adjusted radially with respect to the axis of said friction plate whereby the force necessary to turn the friction plate may be varied to suit the strength of the serving material used.

4. In a serving machine, a rotatable spindle, a serving head carried thereby, a bobbin carrier loosely mounted on the spindle, a friction disk secured to the lower end of the bobbin carrier, a plurality of bell crank levers pivotally secured to the head and equally disposed radially about the axis of said friction plate, a friction member secured to the free arm of each of said levers and upon which said friction plate bears, and means for turning said levers about their pivots to change the radial position of said friction members with respect to the axis of said friction disk whereby the force necessary to turn the friction disk may be varied to suit the strength of the serving material used.

5. In a serving machine, a rotatable spindle, a serving head carried thereby, a bobbin carrier loosely mounted on the rotatable spindle, a friction disk secured to the lower end of the bobbin carrier, a plurality of bell-crank levers pivotally secured to the head and equally disposed radially about the axis of said friction disk, a friction member secured to the top face of the free arm of each of said levers and upon which said friction disk bears as it rotates, connecting means between said levers for turning them about their pivots in unison to change the radial position of the free arms thereof with respect to the axis of said friction disk whereby the force necessary to turn the friction disk may be varied to suit the strength of the serving material used.

6. In a serving machine, a rotatable spindle, a serving head carried thereby, a bobbin carrier loosely mounted on the spindle, a friction disk secured to the lower end of the bobbin carrier, a plurality of bell-crank levers pivotally mounted upon the head and equally disposed radially about the axis of said friction disk, a friction surfaced member secured to the free arm of each of said levers and upon which said friction disk bears as it rotates, a ring-like member associated with the actuating arm of each of said levers and adapted to be operated to turn them about their pivots in unison to change the radial position of the free arms thereof with respect to the axis of said friction disk whereby the force necessary to turn the friction disk may be varied to suit the strength of the serving material used, and means for securing and guiding said ring-like member upon the head.

7. In a serving machine, a serving head, a carrier for a cop or bobbin of serving material rotatably mounted in said serving head and rotated independently of the serving head by the drawing of material therefrom, and adjustable means carried by the rotating head, and regulated by the weight of the cop or bobbin, for applying a braking pressure to retard the rotation of the cop or bobbin to regulate the tension of the serving material drawn therefrom.

8. In a serving machine, a rotatable serving member, a carrier for a supply of serv-

ing material rotatable independently of the serving member, and adjustable means regulated by the weight of the supply of serving material to control the tension on the material during the serving thereof.

9. In a serving machine, a rotatable serving member, a carrier for a supply of serving material rotatable independently of the serving member, and adjustable means regulated by the weight of the supply of serving material to regulate the relative rate of rotation of the serving member and the supply carrier.

In witness whereof, I hereunto subscribe my name this 24th day of Februray, A. D. 1922.

CHARLES FREDERICK ARNHORST.