J. K. ALTEMUS.

WINDING HEAD APPARATUS.

APPLICATION FILED JAN. 8, 1915.

1,212,600.

Patented Jan. 16, 1917.

Fig. 1.

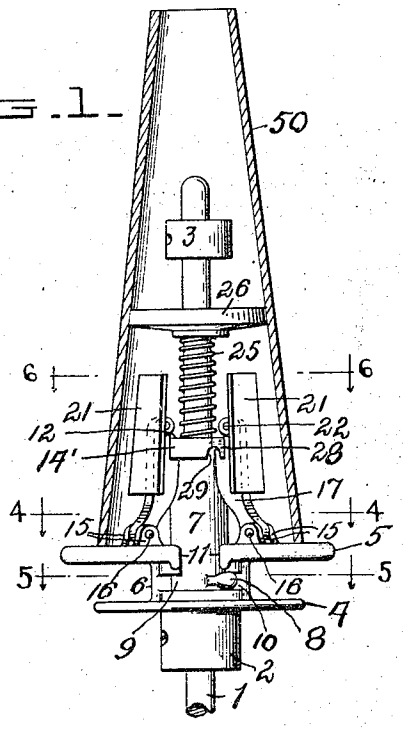


Fig. 2.

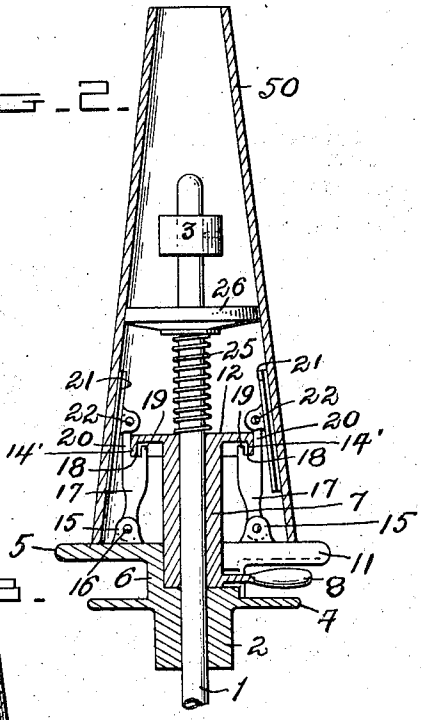


Fig. 3.

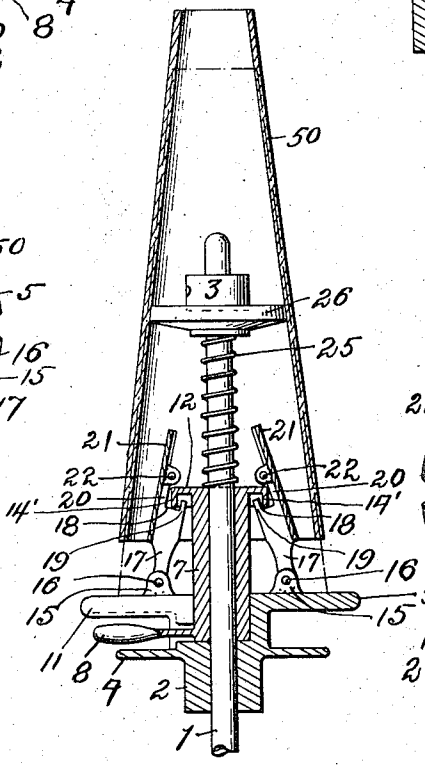


Fig. 4.

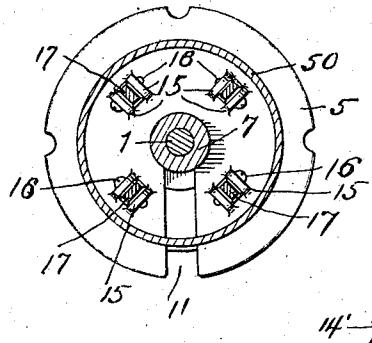


Fig. 5.

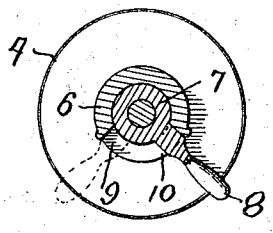
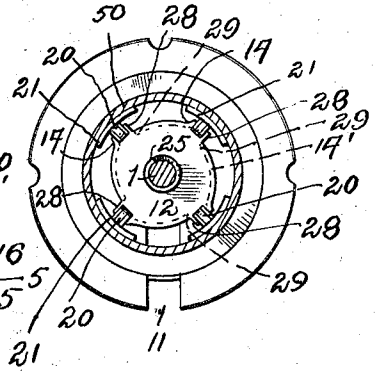


Fig. 6.



Witnesses

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WINDING-HEAD APPARATUS.

1,212,600. Specification of Letters Patent. Patented Jan. 16, 1917.

Application filed January 8, 1915. Serial No. 1,075.

To all whom it may concern:

Be it known that I, JACOB K. ALTEMUS, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Winding-Head Apparatus, of which the following is a specification.

The invention has particular reference to winding apparatus and embodies mechanism on the winding head for securely gripping and locking various sizes of cones on said head, and steadying means for engagement with the upper portions of the cones, said latter means having also the function of elevating the cones upon their release by the gripping means.

With other objects in view, as will be hereinafter more fully brought out, reference will be had to the accompanying drawing forming a part of this specification and wherein like characters of reference designate corresponding parts throughout the several views, in which:

Figure 1 is a view in elevation of the invention, with a cone applied and shown in vertical section, Fig. 2 is a vertical section of both the cone and the winding head, Fig. 3 is a view similar to Fig. 2 with the gripping mechanism released and the cone elevated, Fig. 4 is a view in horizontal section taken on line 4—4 of Fig. 1, Fig. 5 is a view in horizontal section taken on line 5—5 of Fig. 1, and Fig. 6 is a view in horizontal section taken on line 6—6 of Fig. 1.

Referring to the drawing, reference character 1 designates the spindle upon which are fixed the base 2 and adjustable stop 3. The base comprises a bearing flange 4 and a cone supporting flange 5, and intermediate hub 6. The hub 6 is bored large at its upper portion to receive a tubular member 7, through the bore of which extends the said spindle 1. The tubular member 7 at its lower end is provided with a radially extending handle 8 by means of which the member 7 is rotated on the spindle for a purpose to be described. The handle in its movement operates in slots 9 and 10 formed horizontally in the hub 6. Both of the slots 9 and 10 communicate with a vertical slot 11 formed on the hub 6 and extending through the cone supporting flange 5. Upon the upper end of the tubular member 7 is provided a disk 12 having at four peripheral points cam projections 14 and the disk 12 and its projections 14 have downwardly extending flanges 14′.

At four regular points, pairs of ears 15 are provided on the cone supporting flange 5, and between each pair of ears is pivoted at 16 a cone gripper arm 17. Each gripper arm has a vertical notch cut therein as at 18 to receive the respective flanges 14′ of the cam disk 12. Each of these gripper arms is further provided with fingers 19 and 20 which engage opposite sides of the respective flanges 14′. The fingers 20 extend above the cam disk 12 and have cone gripping plates 21 pivoted thereto at 22, the outer faces of these gripping plates being rounded and tapered inwardly toward their upper ends.

A coil spring 25 surrounds the spindle 1 and bears upon the cam disk 12 and yieldingly supports a cone steadying disk 26 which is slightly tapered at its peripheral edge to conform to the cones. The said stop collar 3 confines the steadying disk on the upper end of the spindle.

Attention is called to the fact that the flanges 14′ are not continuous with each other, but conform to the peripheral shape of the cam disk 12, and each of said flanges 14′ begins at the point 28 and terminates at the point 29. Point 28 constitutes the radial face of each cam projection 14, and when the cam disk is turned in one direction these faces 28 contact with the gripper fingers 20 to arrest rotation of the cam disk in one direction. The cam disk is arrested from rotation in the other direction by the ends 29 of the flanges 14′ contacting with the fingers 19 of the gripper arms. The ends of the slots 9 and 10 form supplemental stops and with which the operating arm 8 contacts.

In assembling the invention, the tubular member 7 and its cam disk 12 are placed on the spindle 1. the handle 8 passing down through the slot 11 in position to enter either of the slots 9 and 10. In lowering the cam disk 12, its flanges 14′ enter the notches 18 in the gripper arms 17 to support the gripper arms in elevated and assembled positions. The spring 25 is next placed on the

spindle 1, then the steadying disk 26 is applied on the spindle, and finally the stop collar 3 secured properly on said spindle. Should any of the parts require replacement, this operation is reversed, or it may not become necessary to disassemble the entire mechanism, in which latter case, the operating handle 8 is raised through the slot 11 carrying with it the member 7 and its disk 12. The disk 12 compresses the spring 25 and as soon as its flanges 14′ are removed from the notches 18 in the gripper arms, the latter fall outwardly to accessible positions.

In operation, the handle 8 is turned to the left into the slot 9 thereby rotating the tubular member 7 and its cam disk 12. The flanges 14′ engaging with the gripper arm fingers 19 draw the gripper plates 21 to their innermost positions. A cone 50 is then placed over the winding head so that the base of the cone rests upon the supporting flange 5 as illustrated in Fig. 1. Before the base of the cone reaches the flange 5, the tapered steadying disk 26 becomes engaged with the upper interior portion of the cone, and then as the cone is manually pressed downwardly, the spring 25 yields and permits the steadying disk 26 to also move downwardly. The handle 8 is then turned to the right, or into the slot 10, thereby rotating the cam disk 12 in the opposite direction and causing the cam faces 14 of said disk, and also the flanges 14′ of said cam portions to engage with the fingers 20 of the gripper arms 17. This engagement causes the gripper plates 21 to be forced outwardly into firm locking engagement with the inner face of the lower portion of the cone. The range of outward movement and the articulation of the gripper plates 21 is such that various sizes of cones may be secured on the winding head. It will also be noted that if the cones vary as to size and taper, the steadying disk 26 will adjust itself thereto readily. After the material has been wound onto the cone, the handle 8 is again turned as afore stated into the slot 9 to reverse the operation and withdraw the gripper plates 21. Immediately upon the release of the cone by the gripper plates, the spring 25 will expand and force upwardly the steadying disk 26, and consequently the cone will be raised from the supporting flange 5. In this elevated position, the wound cone may be more readily grasped by the operator without danger of the winding being disturbed.

What is claimed:

1. In a winding head, a spindle, a form rest and form gripper means carried thereby, gripper actuating means rotatable independently on said spindle, a form steadying member slidably mounted on said spindle, and a coil spring surrounding said spindle and bearing against said gripper actuating means and said form steadying member.

2. In a winding head, a spindle, a form rest rotatable therewith, radially movable form gripper means on said rest, and means concentrically movable on said spindle for actuating the form gripper means, said actuating means having a cam face in direct engagement with said gripper means.

3. In a winding head, a spindle, a form rest rotatable therewith, radially movable form grippers on said rest, gripper actuating means rotatable on said spindle, and means whereby the grippers are actuated upon rotation of said actuating means, said actuating means being movable longitudinally of said spindle to entirely become disengaged from said grippers.

4. In a winding head, a spindle, a form rest rotatable therewith, radially movable form grippers on said rest, means rotatable on said spindle for actuating said grippers, a steadying member slidable on said spindle, yielding means exerting pressure upon the steadying member and gripper actuating means, said gripper actuating means being movable longitudinally of said spindle to entirely become disengaged from said grippers.

5. In a winding head, a spindle, a form rest rotatable therewith and having a radial slot, form grippers on said rest, means rotatable on said spindle for actuating said grippers, a handle on said gripper actuating means, said handle being movable beneath the form rest on either side of said radial slot to rotate said gripper actuating means, said handle being movable through said radial slot to engage and disengage the gripper actuating means from operative relation with the grippers.

6. In a winding head, a spindle, a form rest rotatable therewith and having a radial slot, form grippers on said rest, means rotatable on said spindle for actuating said grippers, a handle on said gripper actuating means, said handle being movable beneath the form rest on either side of said radial slot to rotate said gripper actuating means, said handle being movable through said radial slot to engage and disengage the gripper actuating means from operative relation with the grippers, form steadying means movable longitudinally on said spindle, and a coil spring exerting pressure upon said steadying means and said gripper actuating means.

7. In a winding head, a spindle, a form rest disk rotatable therewith, radially movable gripper arms pivoted thereto and having notches, articulating form gripper plates on said gripper arms, and a cam member rotatable on said spindle and engaged in said notches of the gripper arms.

8. In a winding head, a spindle, a form rest member rotatable therewith, radially movable gripper arms pivoted to said form rest member and having notches, articulating form gripper plates on said gripper arms, a gripper actuating member concentric with and journaled on said spindle, said form rest member having a slotted portion, a handle on said gripper actuating member movable in said slotted portion, and cam flanges on said gripper actuating member engaged in said notches of the gripper arms.

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

JACOB K. ALTEMUS.

Witnesses:

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WALTER W. CALMORE.