June 7, 1932. Y. A. BOUGET ET AL 1,861,562

SUPPORTING ARBOR

Filed June 8, 1929

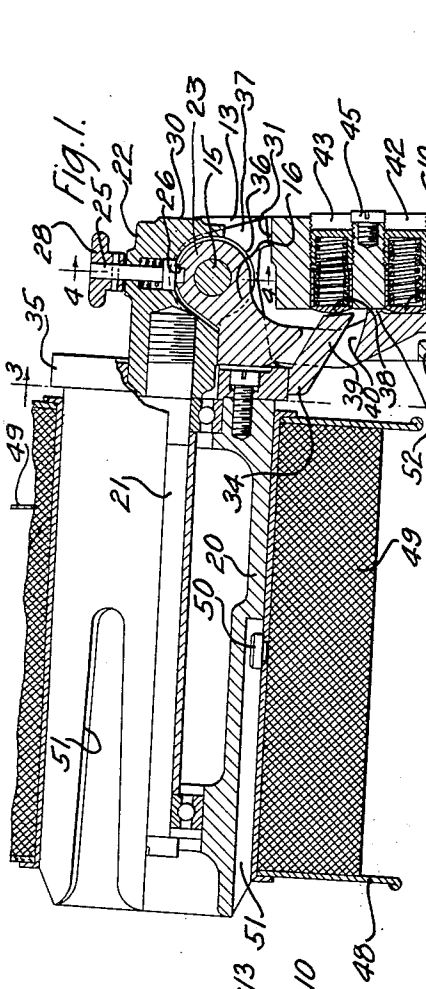


Fig. 1.

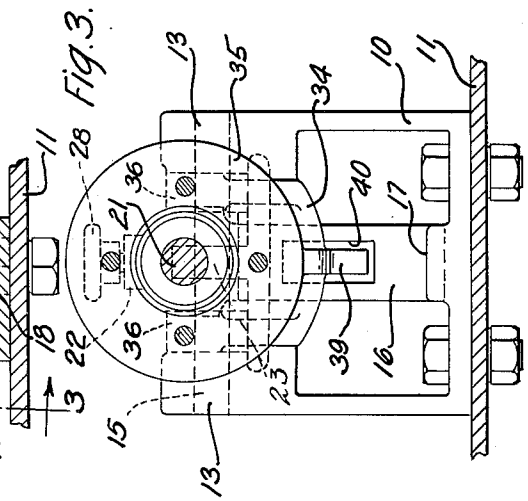


Fig. 3.

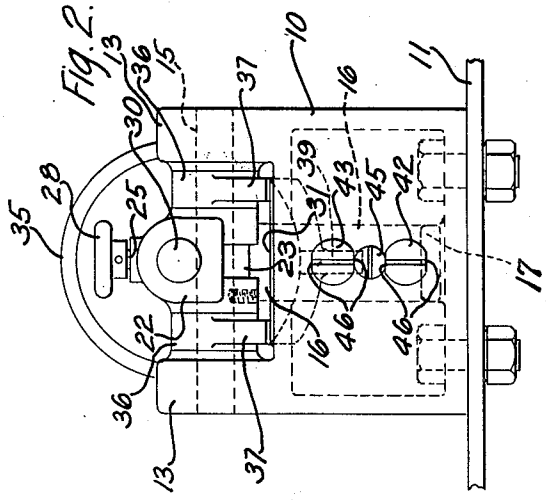


Fig. 2.

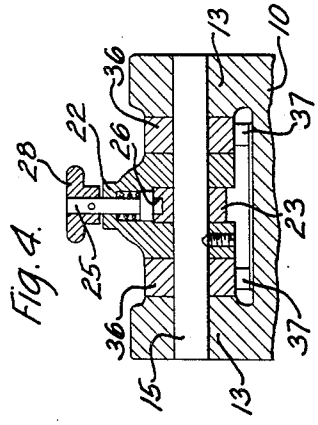


Fig. 4.

Inventors
Yves A. Bouget
Lester O. Reichelt
By H. A. Patterson Atty.

Patented June 7, 1932 1,861,562

UNITED STATES PATENT OFFICE

YVES ANDRÉ BOUGET, OF EAST ORANGE, AND LESTER OSWALD REICHELT, OF CRANFORD, NEW JERSEY, ASSIGNORS TO WESTERN ELECTRIC COMPANY, INCORPORATED, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

SUPPORTING ARBOR

Application filed June 8, 1929. Serial No. 369,456.

This invention relates to supporting arbors, and more particularly to arbors for supporting spools or reels of strand material.

The invention has for its object the provision of an arbor of simple, inexpensive, and rigid construction for supporting a supply of material and for maintaining the material under a constant predetermined tension.

In accordance with the invention there is provided in one embodiment thereof, a spool supporting arbor which is pivoted at one end with its axis of rotation inclined with respect to the horizontal, the free end of the arbor being movable due to the action of a spring as the supply of material decreases, whereby the retarding effectiveness of a friction brake is correspondingly decreased so as to maintain a constant uniform tension in the material as it is withdrawn from the spool.

Other features and advantages of the invention will become apparent from the following detailed description, reference being had to the accompanying drawing, wherein

Fig. 1 is a longitudinal vertical section, partly in elevation, of a spool supporting device embodying the invention,

Fig. 2 is an end elevational view thereof,

Fig. 3 is a vertical cross section taken on line 3—3 of Fig. 1, and

Fig. 4 is a fragmentary cross section taken on line 4—4 of Fig. 1.

Referring now to the drawing wherein like reference numerals designate corresponding parts throughout the several views, it will be observed that a supporting frame 10 is attached to a horizontal bed plate 11 and is provided with spaced vertically extending bearing portions 13—13 for rotatably supporting a horizontal shaft 15. Pivoted upon the shaft 15 is a depending member 16, the lower end of which is normally pressed outwardly against an upturned flange 17 of the supporting frame 10 by means of a spring pressed plunger 18 (Fig. 1).

The spool supporting arbor consists of a sleeve 20 rotatably carried upon a shaft 21 which is threaded at one end in a bracket 22 secured to the shaft 15 so as to be rotatable therewith. As shown in Fig. 4, the bracket 22 is bifurcated so as to straddle a reduced portion 23 of the member 16. A spring pressed pin 25 is provided for locking the arbor to the member 16 with its axis of rotation slightly inclined with respect to the horizontal, as shown in Fig. 1. The locking pin 25 is mounted in the bracket 22 and is adapted to engage a companion aperture or slot 26 in the member 16. Upon the withdrawal of the pin 25 by means of a knob 28, the arbor may be swung upwardly to a substantially vertical position for facilitating the removal or replacement of supply spools. When the arbor is in a vertical position a raised end portion 30 of the bracket 22 engages a raised horizontal surface 31 of the frame 10.

An adjustable friction brake member is provided for maintaining the material under a constant predetermined tension as it is withdrawn from the supply spool. This brake member consists of an arcuate shaped brake shoe 34 arranged to engage the peripheral surface of a circular plate 35 secured to the arbor. A pair of spaced arms 36, 36 extending upwardly from the brake shoe 34 serve as a means for pivotally supporting the brake member upon the shaft 15. The arms 36 are provided with depending lugs 37 which are adapted to engage the surface 31 of the frame 10 to limit the clockwise movement of the brake member. The brake shoe 34 is normally held in contact with the peripheral surface of the plate 35 by a spring pressed plunger 38 mounted in the frame 10. A reduced depending portion 39 of the brake member is engaged by the plunger 38, as shown in Fig. 1. The member 16 is slotted, as indicated at 40, for accommodating the reduced portion 39 of the brake member.

Adjusting screws 42 and 43 are provided

for varying the effectiveness of the spring pressed plungers 18 and 38, respectively. These adjusting screws are secured in their adjusted positions by means of a lock screw 45, the head of which engages flattened head portions 46 of the adjusting screws.

In the operation of the above described device, a spool or reel 48 containing wire or other strand material 49 is mounted upon the arbor in the usual manner. The spool may be provided with a driving pin or lug 50 which engages one of a plurality of spaced tapered slots 51, 51 formed in the arbor whereby the arbor is rotatable with the spool as the material is withdrawn. Due to the weight of the spool, the arbor is moved downwardly against the action of the spring pressed plunger 18, the amount of this movement being obviously dependent upon the weight of the spool and, therefore, upon the amount of material on the spool. The spring in the plunger 18 is adjusted so that with a full spool, the arbor is held in a position wherein a raised surface 52 of the depending member 16 engages the side of the frame 10, as shown in Fig. 1. With the arbor in this position, the spring in the plunger 38 is adjusted so that the required braking force is applied by the brake shoe 34 to provide a predetermined tension in the material as it is withdrawn from the spool.

In order to compensate for the increased tension which would normally be required in the material to withdraw it from the supply as the diameter of the supply decreases, the retarding effectiveness of the brake shoe 34 is gradually decreased in proportion to the decreasing weight of the supply. Thus, as the supply of material decreases, the weight of the supply spool correspondingly decreases. This causes the supply spool to be moved upwardly by the spring pressed plunger 18, whereby the braking pressure or retarding effectiveness of the spring actuated brake shoe 34 is gradually decreased in accordance with the decreasing amount of material on the supply spool. Thus the strand is maintained under a substantially constant tension at all times.

It is to be understood that the embodiment of the invention herein illustrated and described is merely one convenient and useful form of the invention which is capable of numerous other applications within the scope of the appended claims.

What is claimed is:

1. In a device for supporting a material supply, a substantially horizontal arbor transversely pivoted at one end for rotatably supporting the supply, and means pivoted coaxially with the arbor and adjustably responsive to the weight of the supply for retarding the rotation of the supply as the material is withdrawn therefrom.

2. In a device for supporting a material supply, a substantially horizontal arbor for rotatably supporting the supply, a pivoted friction brake member for retarding the rotation of the supply as the material is withdrawn therefrom, and means pivoted coaxially with the brake member and responsive to the weight of the supply for varying the retarding effectiveness of the brake member.

3. In a device for supporting a material supply, a substantially horizontal arbor pivoted at one end for rotatably supporting the supply upon an axis of rotation transverse to the pivotal axis of the arbor, a friction brake member for retarding the rotation of the supply as material is withdrawn therefrom, and an adjustable means for decreasing the retarding effectiveness of the brake member as the supply of material on the arbor decreases.

4. In a device for supporting a material supply, an arbor for rotatably supporting the supply, means for pivotally supporting the arbor upon a pivotal axis transverse to the axis of rotation of the supply, a frictional brake member for retarding the rotation of the supply as material is withdrawn therefrom, and an adjustable means co-acting with the weight of the supply for controlling the retarding effectiveness of the brake member.

5. In a device for supporting material supply spools, an arbor transversely pivoted at one end for rotatably supporting the spool upon a substantially horizontal axis of rotation, a member secured to the arbor, and a frictional brake shoe pivoted coaxially with the arbor for engaging the member to retard the rotation of the spool as material is withdrawn therefrom.

6. In a device for supporting material supply spools, an arbor transversely pivoted at one end for rotatably supporting the spool upon a substantially horizontal axis of rotation, a member secured to the arbor, a spring actuated brake shoe for engaging the member to retard the rotation of the spool as material is withdrawn therefrom, and means for tilting the free end of the supporting arbor upwardly to decrease the retarding effectiveness of the brake shoe as the amount of material on the spool decreases.

7. In a device for supporting material supply spools, a rotatable shaft, a rotatable spool supporting arbor attached at one end to the shaft, and a brake member pivoted upon the shaft for retarding the rotation of the arbor.

8. In a device for supporting material supply spools, a rotary shaft, a rotatable spool supporting arbor attached at one end to the shaft, a brake member pivoted upon the shaft for retarding the rotation of the arbor, and means also pivoted upon the shaft for varying the retarding effect of the brake member in accordance with the weight of a supply spool mounted upon the arbor.

9. In a device for supporting material sup-

ply spools, a rotatable shaft, a rotatable spool supporting arbor attached at one end to the shaft and extending transversely therefrom, a friction wheel disposed between the shaft and the arbor and co-axially rotatable with the arbor, a spring pressed brake member pivoted upon the shaft and engaging the friction wheel for retarding the rotation of the arbor, and means for varying the retarding effect of the brake member in accordance with the weight of a supply spool mounted upon the arbor.

In witness whereof, we hereunto subscribe our names this 31st day of May, A. D. 1929.

YVES ANDRÉ BOUGET.
LESTER OSWALD REICHELT.