A. H. SAWTELL.

BALL GOVERNOR.

APPLICATION FILED MAR. 20, 1920.

1,372,557.

Patented Mar. 22, 1921.

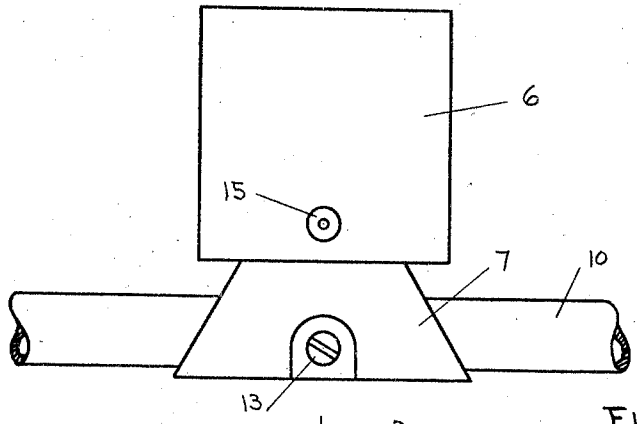


FIG. 1.

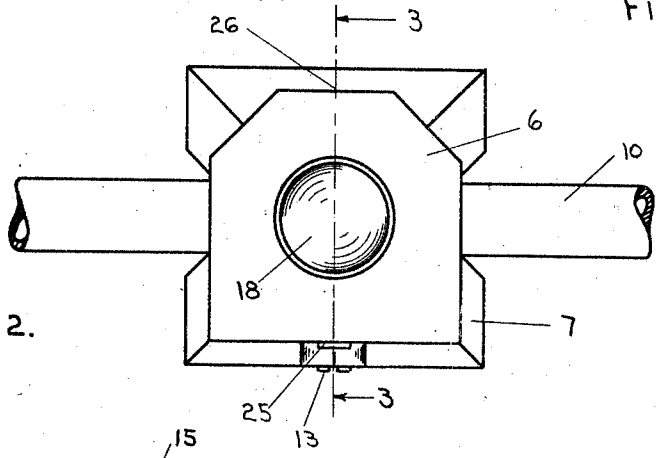


FIG. 2.

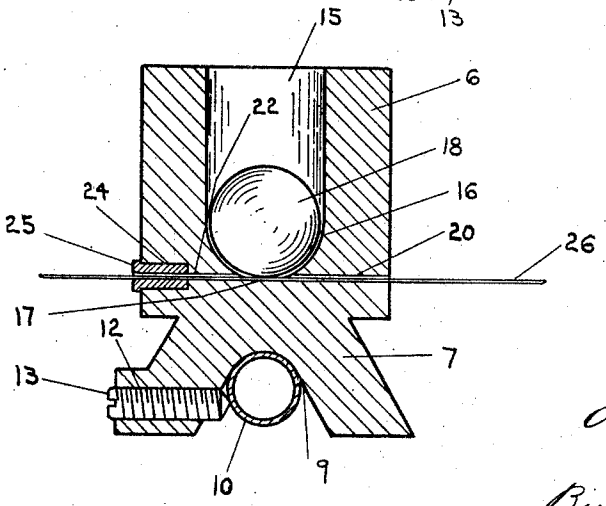


FIG. 3.

INVENTOR

Albert H. Sawtell

By Horatio E. Bellows

ATTORNEY

UNITED STATES PATENT OFFICE.

ALBERT H. SAWTELL, OF PROVIDENCE, RHODE ISLAND.

BALL-GOVERNOR.

1,372,557. Specification of Letters Patent. Patented Mar. 22, 1921.

Application filed March 20, 1920. Serial No. 367,471.

To all whom it may concern:

Be it known that I, ALBERT H. SAWTELL, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Ball-Governors, of which the following is a specification.

My invention relates to devices for controlling the delivery of silk from bobbins, cops, or other packages mounted on textile frames, and is a continuation of some of the features shown in my pending application Ser. No. 327,463 filed September 30, 1919.

In the art of silk textile manufacture the filament formed from the strands is of excessive fineness and is particularly susceptible to breaks and abrasion.

It has been attempted to control delivery by passing the filament between rolls or between a roll and an abutment, but this has caused "crawling" or bunching. It has been attempted to control the filament by passing the same between a ball coöperating with a seat provided with an orifice, also between a ball and a seat having an elevated edge, but the contact of the filament with the boundary of the orifice or with the elevated edge abraded the strands and ultimately broke the filament.

The essential objects of my invention are to insure a constant, uniform, and sufficient pressure upon the passing filament and maintain the same under an even and certain tension; to prevent the escape of the filament from beneath the controller ball at all times regardless of the angle at which the filament is drawn; to prevent abrasion or breaking the filament; and to attain these ends in a simple and inexpensive structure, and one adapted to successful use upon filaments of varied sizes.

To the above ends primarily my invention consists in such parts and in such combinations of parts as fall within the scope of the appended claim.

In the accompanying drawings which form a part of this specification,

Figures 1 and 2, are a side elevation and a top plan view respectively of one and a preferred form of my invention, and

Fig. 3, a section of the same on line 3—3 of Fig. 2.

Like reference characters indicate like parts throughout the views.

The structure in its present and preferred form comprises a solid block or body 6 carried by a base 7 provided with a longitudinal channel 9 to receive the supporting rail 10 of a textile frame. A threaded opening 12 in the base receives a clamping screw 13 to engage the rail or bar 10. The body is vertically bored to form a cylindrical cavity 15 terminating near the base of the body in a substantially hemispherical space 16 constituting a concave seat 17 for a steel ball 18, preferably of slightly less diameter than the hole 15. Extending transversely of the body is a horizontal raceway opening laterally into the space 16 at the lower portion of the seat 17, but the apex of the seat is unbroken. The portion of the thread-passage leading to the rear face of the body is identified as 20, and the portion leading to the front face of the body is identified as 22. In this instance the portion 22 of the thread-passage is enlarged, as at 24 to receive a porcelain eyelet 25.

The filament 26 is drawn through the thread-passage from the cop or other passage mounted on the frame or jack of which the bar 15 is a part by the winding beam. In its passage the filament passes beneath the ball 18 whose gravity presses the former against the seat 17. The movement of the filament rolls the ball, but the weight of the latter is sufficient to prevent its being elevated out of coöperation with its seat, and the construction of the parts is such that the filament cannot escape the continuous and contemporaneous engagement with the ball and seat. Different sizes and weights of balls may be used when a greater or less tension on the thread is required.

The horizontal disposition of the thread-passage through the body, and its mergence with the face of the ball seat at the lowest point of the latter prevents the filament from riding around or escaping above the ball, and insures against the filament assuming an inclined position as it approaches or leaves the ball. Hence the location of the spools or of the beam above or below the plane of the ball can in no manner induce an escape of the filament, or a breakage of the same, or an elevation of the ball.

The length of filament exposed to the ball is limited and its course is immediately below the ball; therefore the gravity pressure of the ball upon the interposed filament is constant, uniform, and certain.

The absence of any vertical hole or opening in the seat 17 avoids the abrasion and

breaking resultant upon the registration of the ball with the annular edges of the holes present in earlier structures.

It will be observed that the hole 15 constitutes a guideway for the ball 18 to its seat 17, and is preferably of such a depth as to prevent accidental escape of the ball from the block or body 6.

Without departing from the principle of my invention other modes of applying said principle may be employed instead of the one explained, change being made as regards the construction herein disclosed, provided the means stated by the following claim or the equivalent of such stated means be employed.

I claim:—

In a governor of the character described, a body provided with a vertical guideway terminating in a concave seat and with a thread-passage extending across the seat, and a ball movable in the guideway and engageable with the seat in an intermediate portion of the thread-passage.

In testimony whereof I have affixed my signature.

ALBERT H. SAWTELL.