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3,238,562

CLOSURE FOR A SPINNING SHAFT

Filed Aug. 14, 1963

3 Sheets-Sheet 2

FIG. 3

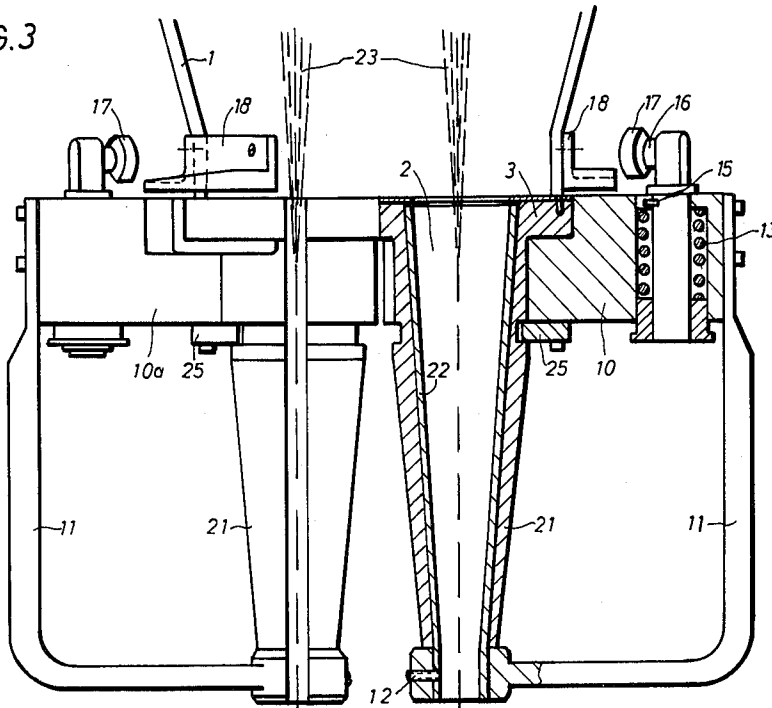
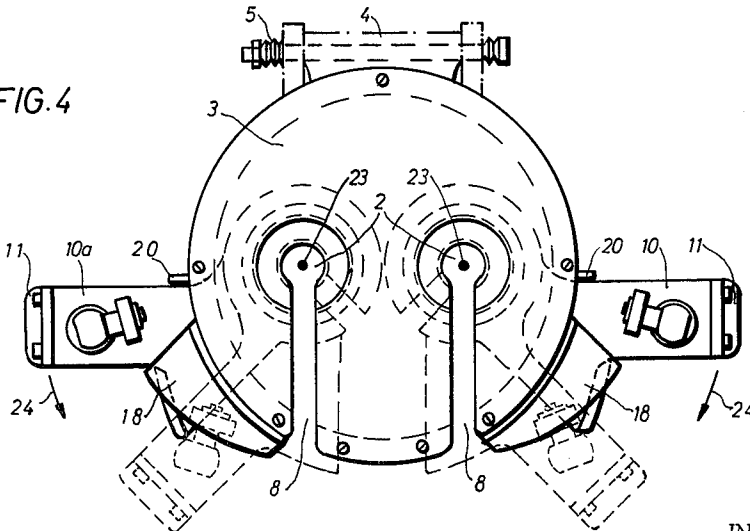


FIG. 4



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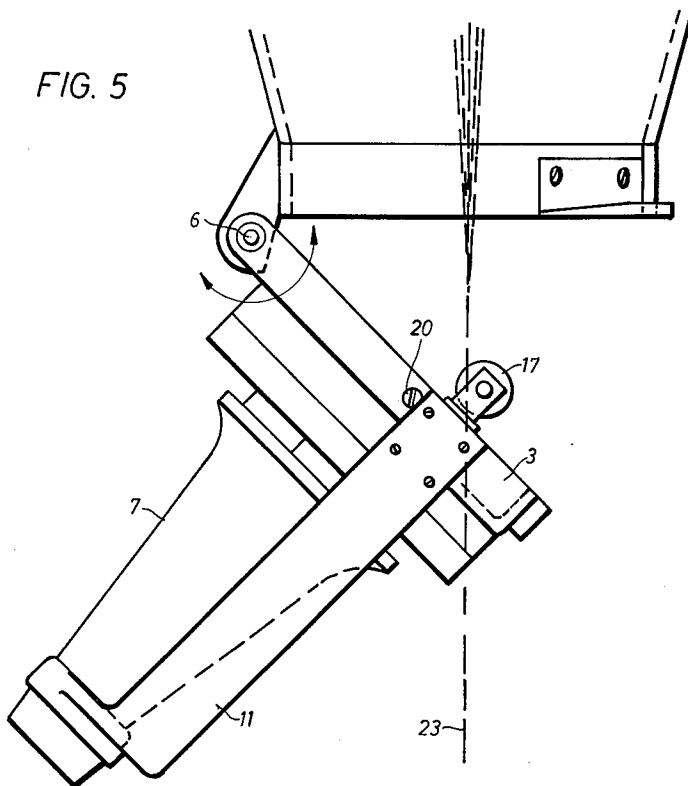
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## CLOSURE FOR A SPINNING SHAFT

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F 37,686

2 Claims. (Cl. 18—8)

The present invention relates to a closure for a spinning shaft, which comprises a lid which is hingeably connected to the lower edge of the shaft and which has a continuous central bore and at least one funnel shaped extension on its lower surface. It is the object of the invention to provide a manually or mechanically operated rapid locking device for a heated spinning shaft, which locking device ensures continuous movement of the spinning cable on draw-off rollers below the lid even when the lid is opened and swung out and ensures that the shaft will be air-tightly closed against the external atmosphere when it is in the closed position.

This is achieved in accordance with the invention by means of the fact that the lid and the funnel-shaped attachment are provided with a longitudinal slit extending through the lid and the wall of the attachment, that locking members engaging in grooves in the lid and swingable in a horizontal plane about the centre of the lid are arranged on the outside of the lid, and that a sleeve covering the inner wall is arranged inside the lid, which sleeve has a continuous longitudinal slit and is connected at the bottom to the locking members through stirrups.

As a result of this arrangement, the spinning cable can continue uninterrupted on its course even when the lid is opened since it can pass through the slit on the side of the wall of the lid. When the locking members are turned into the locking position, the sleeve inside the lid turns with them and covers the slit passing through the wall, the spinning shaft being thereby sealed against the external atmosphere. The spinning cable refers to a multi-filament bundle of spun threads. The spun threads are formed from cellulose derivatives, vinyl resins, and like materials. The spinning cable continues to move without interruption even during the locking process. The spinning cable (multiple filament bundle) is drawn off by drawing discs located below the closure constituting the subject-matter of the instant invention. The spinning nozzle, i.e., filament forming means is located above the shaft.

To ensure that the lid will be locked securely, the locking members are provided with bolts which are adjusted by compression springs and which are equipped with ball bearings at the ends which are bent at right angles, the outer rings of these ball bearings running on to angle pieces attached to the shaft when the locking members are deflected. These angle pieces are provided with inclined surfaces. Owing to these inclined surfaces and the spring-loading of the locking members, the closure lid can adapt itself to the edge of the shaft and automatically adjust itself. The spinning shaft is provided with a heating jacket and serves for the drying of the spun threads. As noted above, the spinning shaft must be sealed off from the atmosphere, it being necessary that the temperature therein be kept constant and not permitted to fall below the permissible value.

Constructional examples of the invention are shown diagrammatically in the drawings.

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FIGURE 1 shows a closure lid with single funnel shaped extension, partly in longitudinal section and partly in elevation. FIGURE 2 is a plan view of this arrangement. FIGURE 3 shows a closure lid with a double funnel-shaped extension. FIGURE 4 is a top plan view of this arrangement. FIGURE 5 is an elevational view of the lid in the deflected position.

A lid 3 having a continuous central bore 2 is pivoted to the lower edge of the spinning shaft 1 by means of a hinge 4. The lower surface of the lid is extended to form one or more funnel-shaped attachments 7 and 21 respectively, and the outward deflection of the lid due to its own weight is limited by spring plates 5 on the pivot shaft 6. The lid and funnel-shaped attachment are made in one piece and are provided with a longitudinal slit 8 which extends through the wall and perpendicularly to the pivotal shaft 6. The lid and attachment are lined on the inside with a loose sleeve 9 which is also provided with a continuous slit. Locking members 10 and 10a which engage in grooves in the lid and are swingable in a horizontal plane about the centre of the lid are arranged on the outside of the lid and fixed to stirrup handles 11. Lugs 25 sliding in the grooves and fixed to the members 10 and 10a prevent downward displacement of the lever lock. The stirrups 11 are fixed to the bottom of the loose rotatable sleeve 9 by means of screws 12. The locking members 10 and 10a contain bolts 14 which are adjusted by compression springs 13 and which are prevented from twisting by means of pins 15. Ball bearings 17 are arranged on the spindles 16 which project at right angles from the bolts 14. When the locking members 10 and 10a are deflected, the outer rings of the ball bearings 17 run on to angle pieces 18 which have inclined surfaces and are attached to the edge of the shaft. Two stop spindles 20 limit the open and closed position of the locking members 10 and 10a. When the members 10 and 10a and hence also the stirrups 11 are in the unlocked position, the slit 8 of the lid and of the funnel-shaped attachment and of the corresponding sleeves (9 and 22) are in the same position and form a single gap in the whole apparatus, so that when the lid is deflected about the hinge 4, the spinning cable 23 can continue on its course without interruption since it passes through the slit 8 when the lid is deflected. When the lid is swung back and fitted on to the lower edge of the shaft by swinging the members 10 and 10a, the cable 23 passes through the slit and is therefore not hindered in its course. At the same time that the lid is locked by swinging the members 10 and 10a in the direction of the arrows 24, the loose sleeve 9 is also rotated with them so that the longitudinal slit 8 in the lid and the attachment is covered. This ensures that the shaft is sealed against the outer atmosphere so that the temperature of the shaft, which must be kept constant, will not drop.

I claim:

1. A closure mechanism for a spinning shaft, comprising a lid hingeably connected to the lower edge of the shaft and provided with a continuous central bore and at least one funnel-shaped attachment on its under surface, said lid and said funnel-shaped attachment being provided with a longitudinal slit extending through said lid and the wall of said attachment, locking members engaging in grooves in said lid and swingable in a horizontal plane about the center of said lid and being arranged on the outside of said lid, a loose sleeve covering the inner wall of the funnel-shaped attachment and being arranged on the inside of said lid, said sleeve being provided with

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a continuous longitudinal slit and connected at the bottom thereof to said locking members through stirrups.

2. A closure mechanism for a spinning shaft as claimed in claim 1, comprising bolts adjusted by compression springs and being arranged on said locking members, said bolts being bent at right angles and being provided with ball bearings having outer rings at their ends, angle pieces attached to the shaft and being provided with oblique surfaces, the outer rings of the ball bearings running on the oblique surfaces of the angle pieces, when said locking members are swung.

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