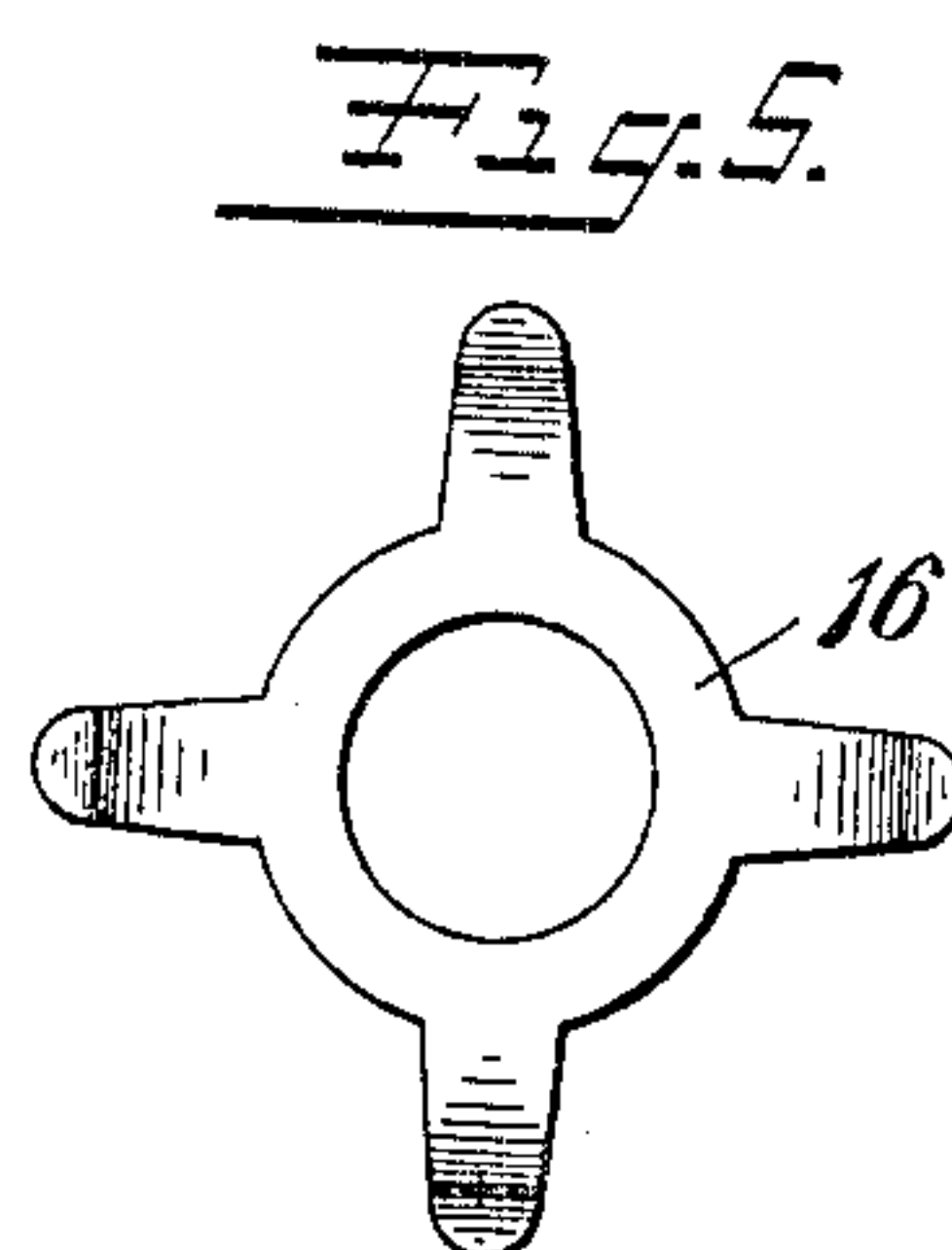
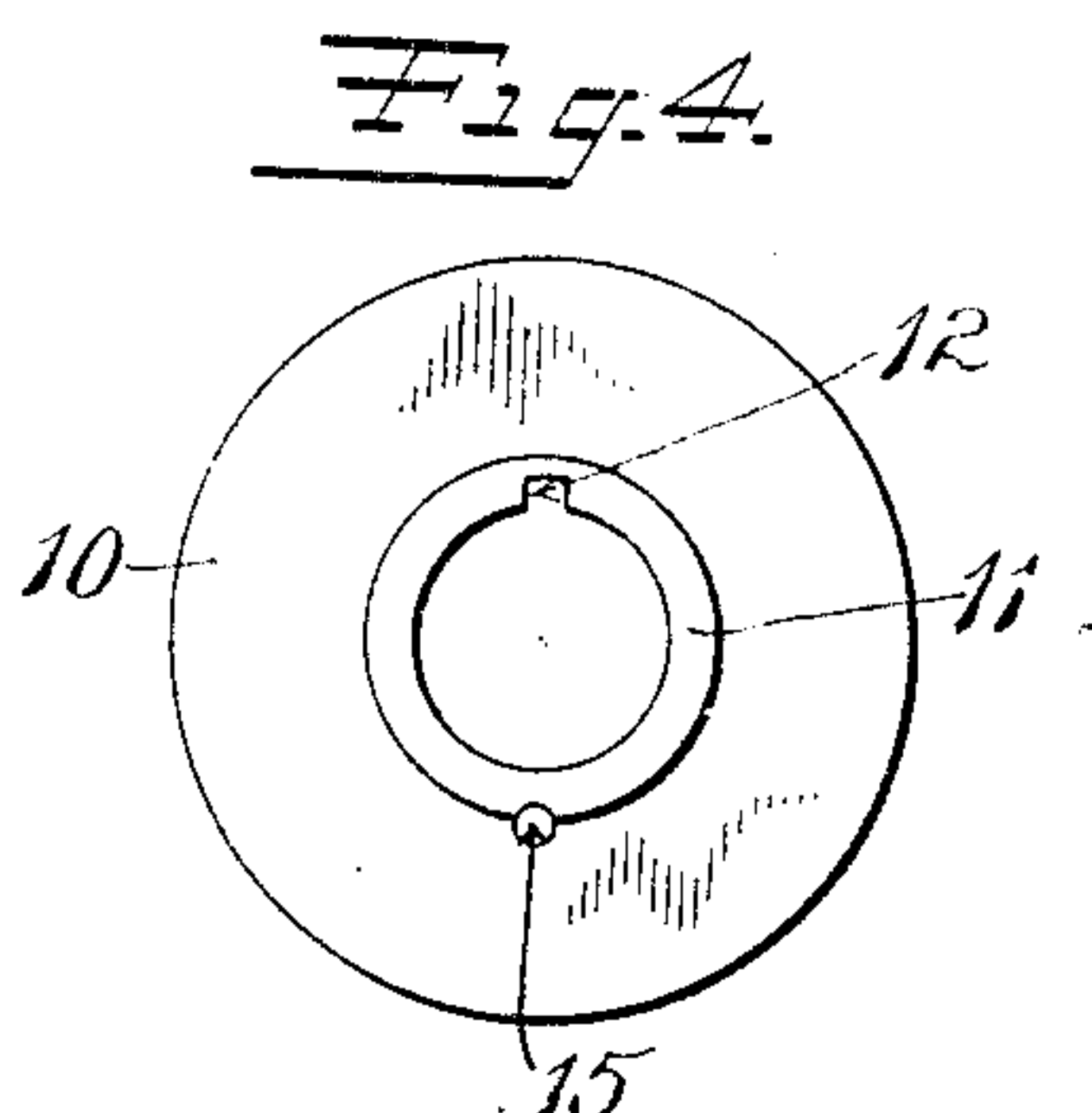
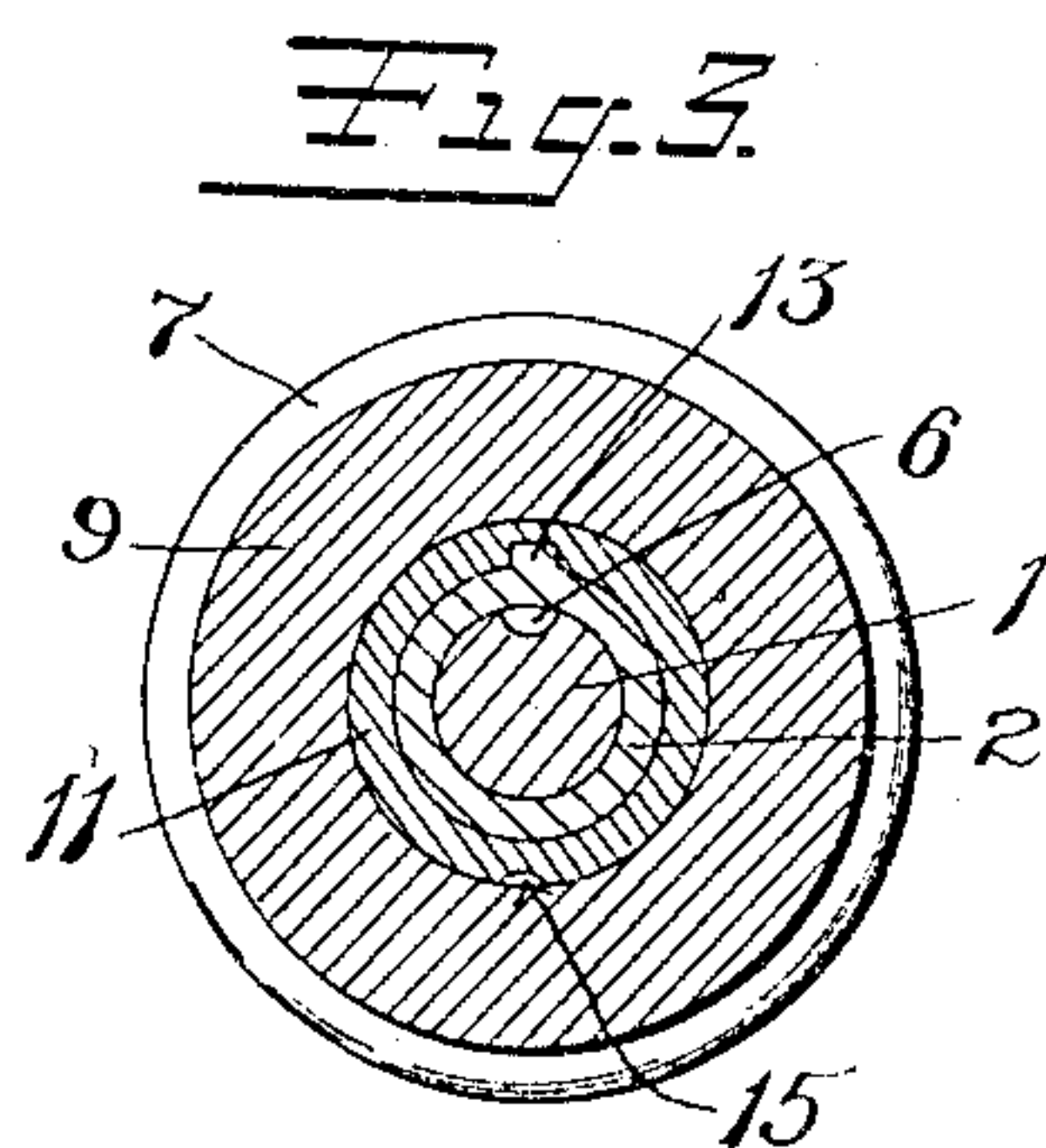
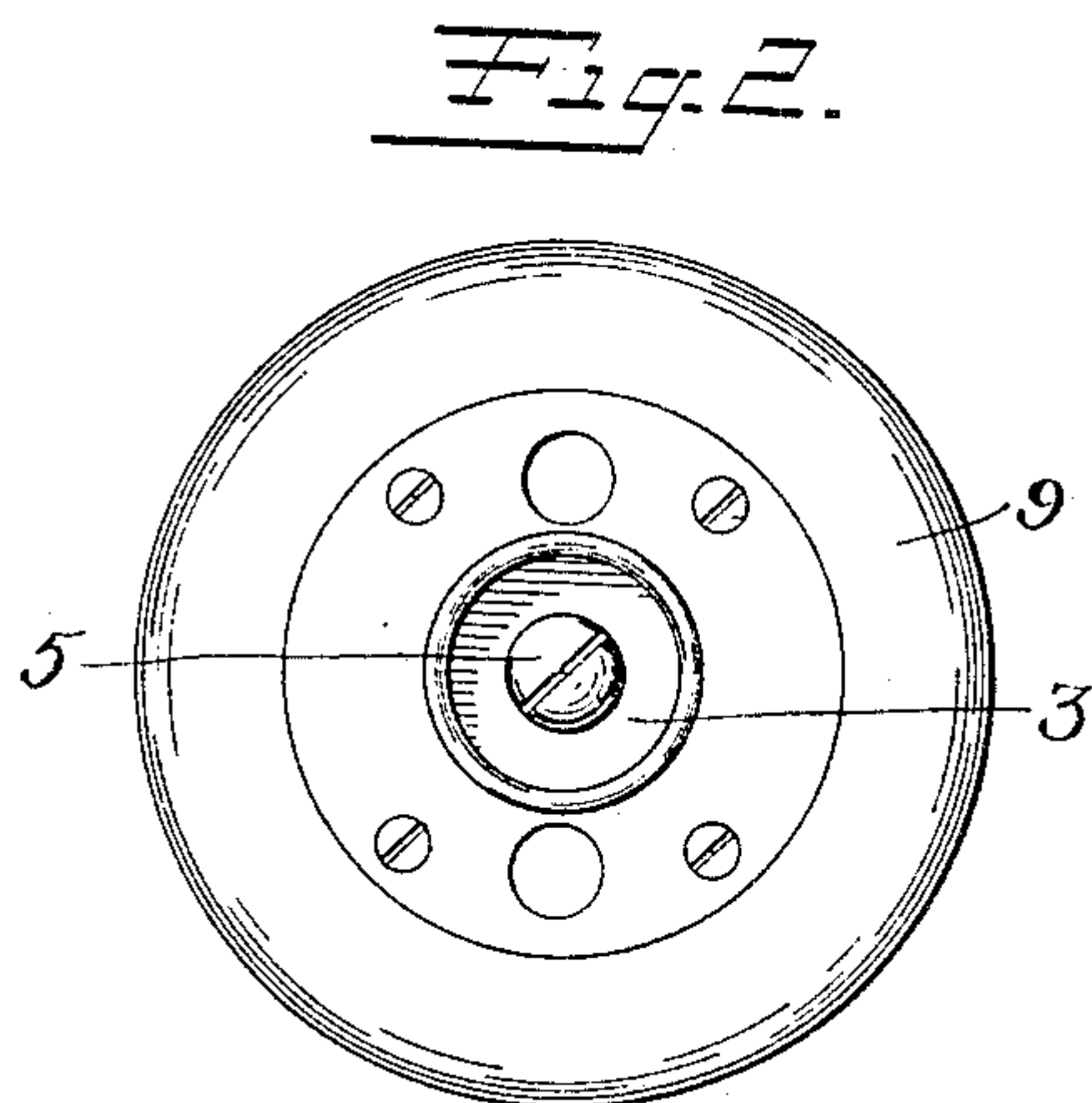
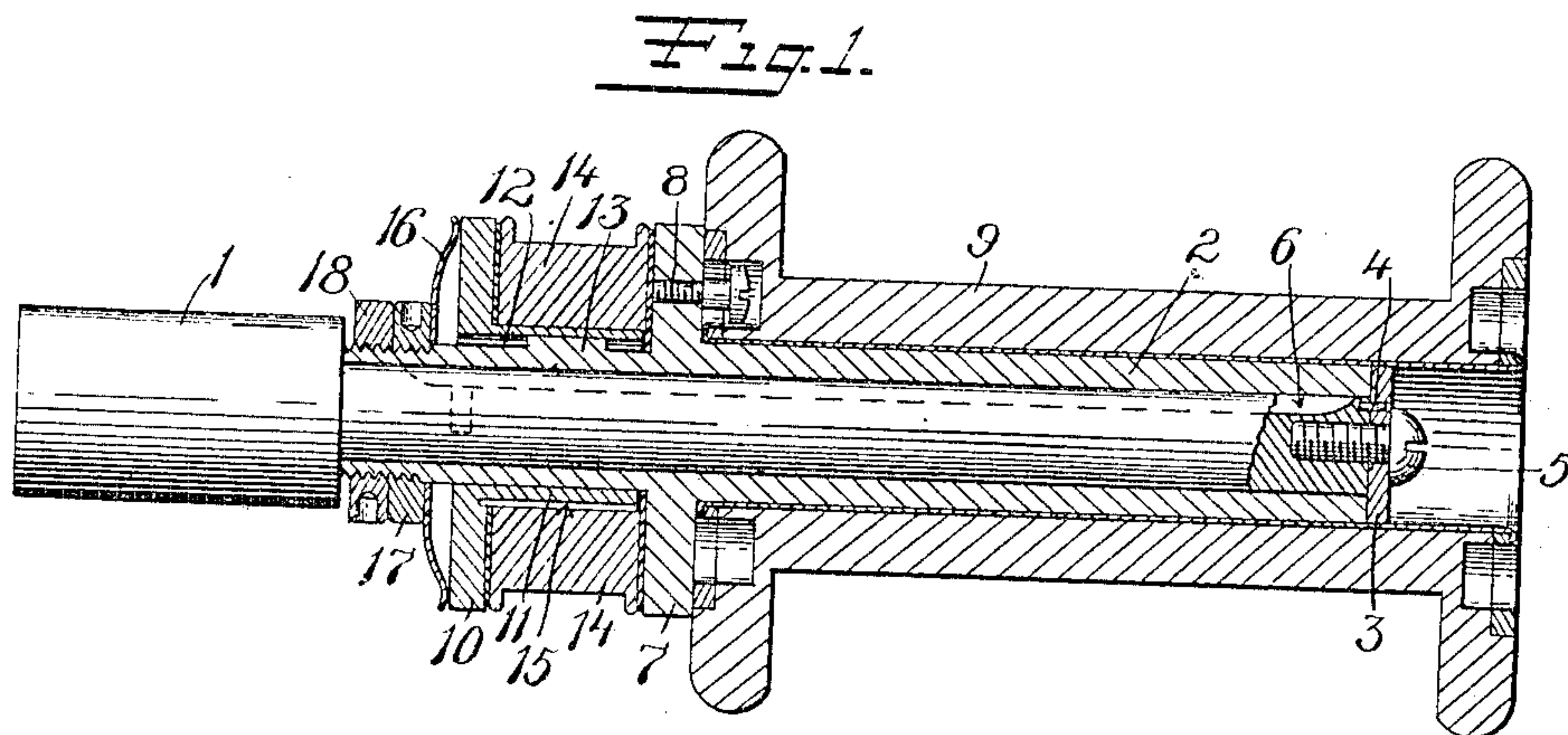


No. 819,134.

PATENTED MAY 1, 1906.

P. HARDMAN.
BOBBIN SHAFT ATTACHMENT FOR TWISTER FLIERS.

APPLICATION FILED SEPT. 8, 1905.



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PETER HARDMAN, OF WILLIMANTIC, CONNECTICUT, ASSIGNOR TO THE
AMERICAN THREAD COMPANY, OF JERSEY CITY, NEW JERSEY, A
CORPORATION OF NEW JERSEY.

BOBBIN-SHAFT ATTACHMENT FOR TWISTER-FLIERS.

No. 819,134.

Specification of Letters Patent.

Patented May 1, 1906.

Application filed September 8, 1905. Serial No. 277,523.

To all whom it may concern:

Be it known that I, PETER HARDMAN, a citizen of the United States, residing at Willimantic, county of Windham, Connecticut, have invented certain new and useful Improvements in Bobbin-Shaft Attachments for Twister-Fliers, of which the following is a full, clear, and exact description.

My invention relates to machines known as "twister-fliers," and particularly to an attachment for the shaft of the bobbin.

This invention is an improvement adapted to be employed on a machine of the type shown in Patent No. 808,084, granted December 26, 1905, on my former application, filed November 10, 1900. In machines of this character the flier is driven at a substantially constant speed. The threads to be wound are drawn through the flier, and their speed or rate of speed is controlled by a power-driven roller. The bobbin itself is rotated by the pull of the thread being wound, but in contact with a power-driven member, so that its speed may be greater than if rotated on a stationary spindle. More work can thus be accomplished. This present improvement aims to reduce losses of power, to obtain greater regularity of operation, and to provide a convenient means for adjusting the resistance to rotation.

The invention consists in improvements the principles of which are illustrated in the accompanying single sheet of drawings.

It contemplates the employment of a stationary spindle, a sleeve rotatably mounted thereon adapted to carry a bobbin or spool, a pulley mounted to rotate relative to the sleeve, and means for creating a frictional resistance between the pulley and the sleeve which may be varied in amount as desired.

Figure 1 is a longitudinal section of the improvements of my invention. Fig. 2 is an end view of the bobbin or spool mounted on the spindle and sleeve. Fig. 3 is a vertical section taken on a plane through the pulley. Fig. 4 is an end view of one of the details. Fig. 5 is a similar view of a spring.

1 is the stationary spindle—that is, non-rotatable. It is customarily mounted to reciprocate longitudinally as the thread is being wound.

2 is a sleeve mounted to rotate on the spindle.

3 is a cap having a recess registering with the pin 4, carried by the end of the spindle, for preventing its rotation.

5 is a screw for removably attaching the cap to the spindle.

6 is a channel or groove in the spindle for conveying a lubricant.

7 is a flange integral with the sleeve. 8 is a screw mounted therein and adapted to removably secure the bobbin 9 in position. 10 is a second flange, having a collar 11, provided with a groove 12, which corresponds with the projection 13 on the sleeve 2.

14 is a pulley mounted on the collar 11 to rotate relative thereto. 15 is a groove in the collar for conveying a lubricant to this bearing. Suitable washers—for instance, of leather—are provided between the sides of the pulley and the adjacent flanges.

16 is a spring-frame or spider.

17 is a nut operable on a screw-threaded portion of the sleeve 2 for adjusting the pressure of the spring 16.

18 is a check-nut.

When the device is in operation, the pulley 14 is rotated from a counter-shaft, and the bobbin 9 is rotated by the pull of the thread being wound, but at a greater angular speed than the pulley 14. The sleeve 2 and the flanges 7 and 10, being connected to the bobbin 9, rotate therewith, but at a rate controlled by the frictional resistance afforded by the pulley 14. Since the feed of strands to the flier in this machine is positively controlled, the angular speed of the bobbin 9 will remain practically constant. The tension of the thread depends upon the frictional retardation afforded by the pulley, and this retardation may be adjusted or regulated so as to obtain the tension desired by simply adjusting the nuts 17 and 18, so as to change the pressure of the spring 16.

What I claim is—

1. An attachment for a twister-flier, comprising a spindle, a sleeve adapted to carry a bobbin and rotate therewith on said spindle, two flanges rotatable with said sleeve, one of said flanges being longitudinally movable, a rotatable pulley between said flanges, and an adjustable spring for varying the frictional engagement of the pulley with said flanges.

2. An attachment for a flier-twister, comprising a sleeve adapted to carry a bobbin

and rotate therewith, said sleeve having a flange integral therewith, a second flange having a collar longitudinally movable but keyed to rotate with said sleeve, a pulley
5 mounted between said flanges, and a spring pressing against said movable flange.

3. An attachment for a flier-twister, comprising a hollow rotatable sleeve having a flange projecting therefrom, a pulley mount-

ed to rotate relative to said flange, and adjustable spring-pressed means for varying the frictional engagement between said pulley and said flange.

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