

**Nov. 26, 1935.**

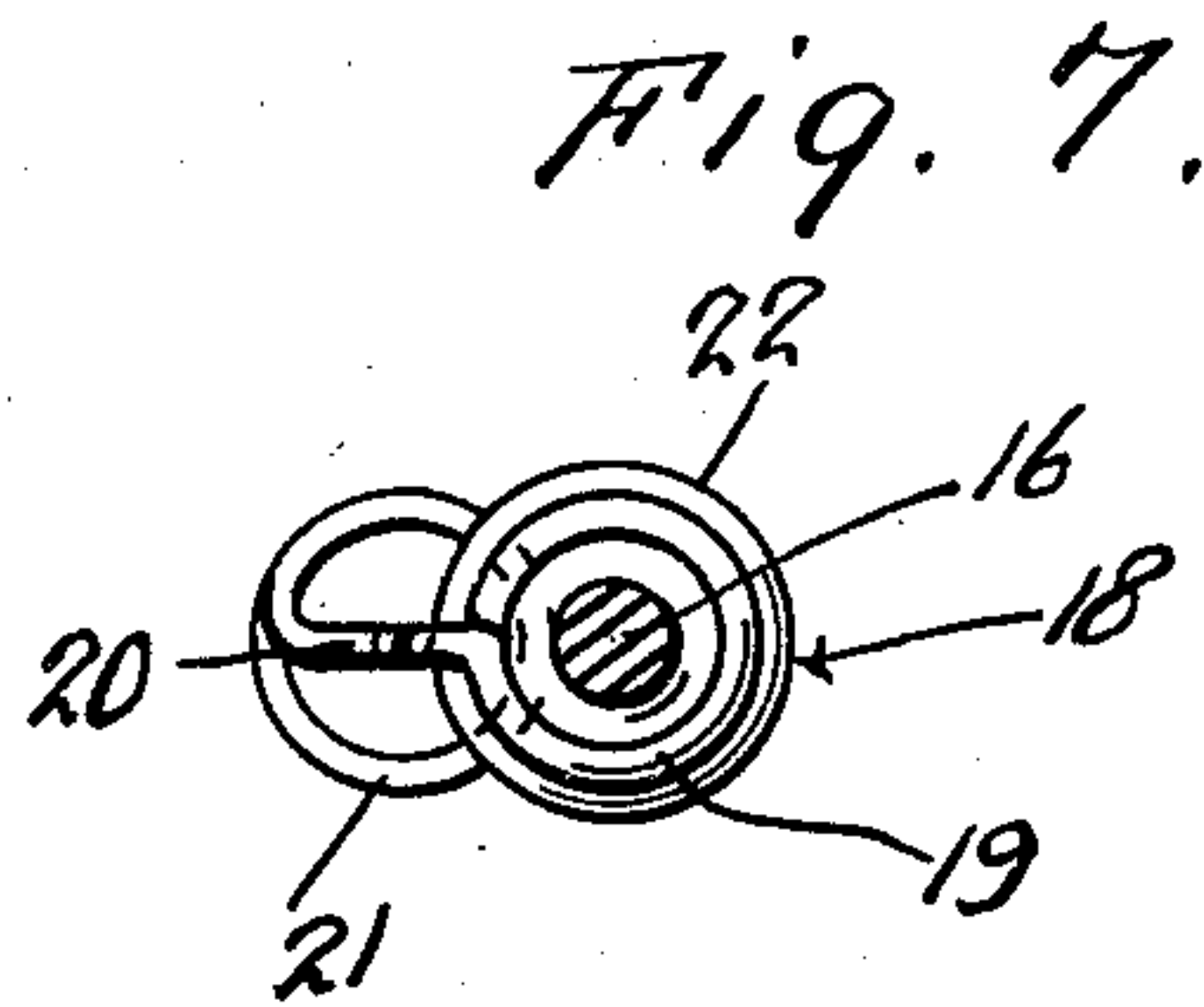
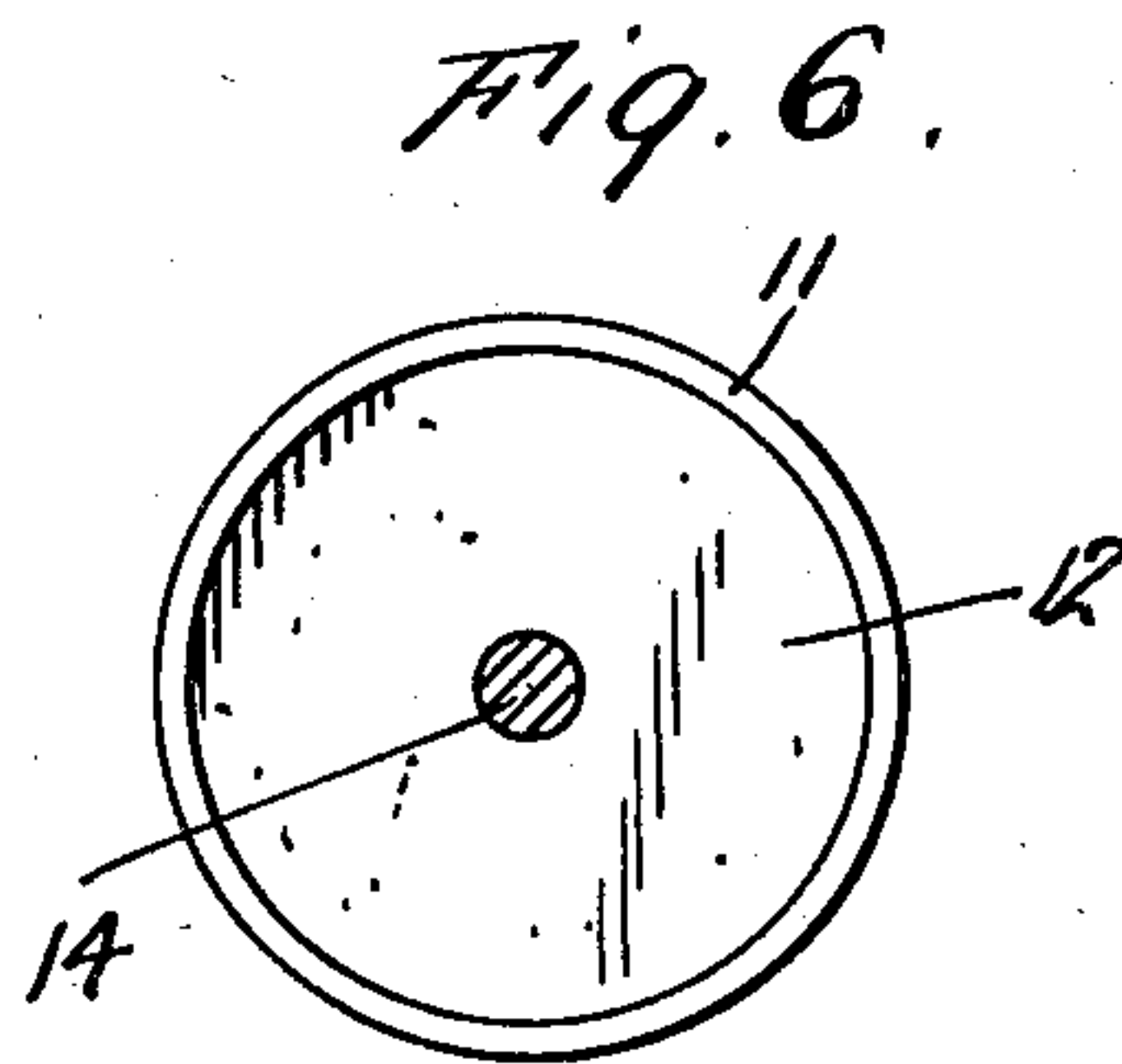
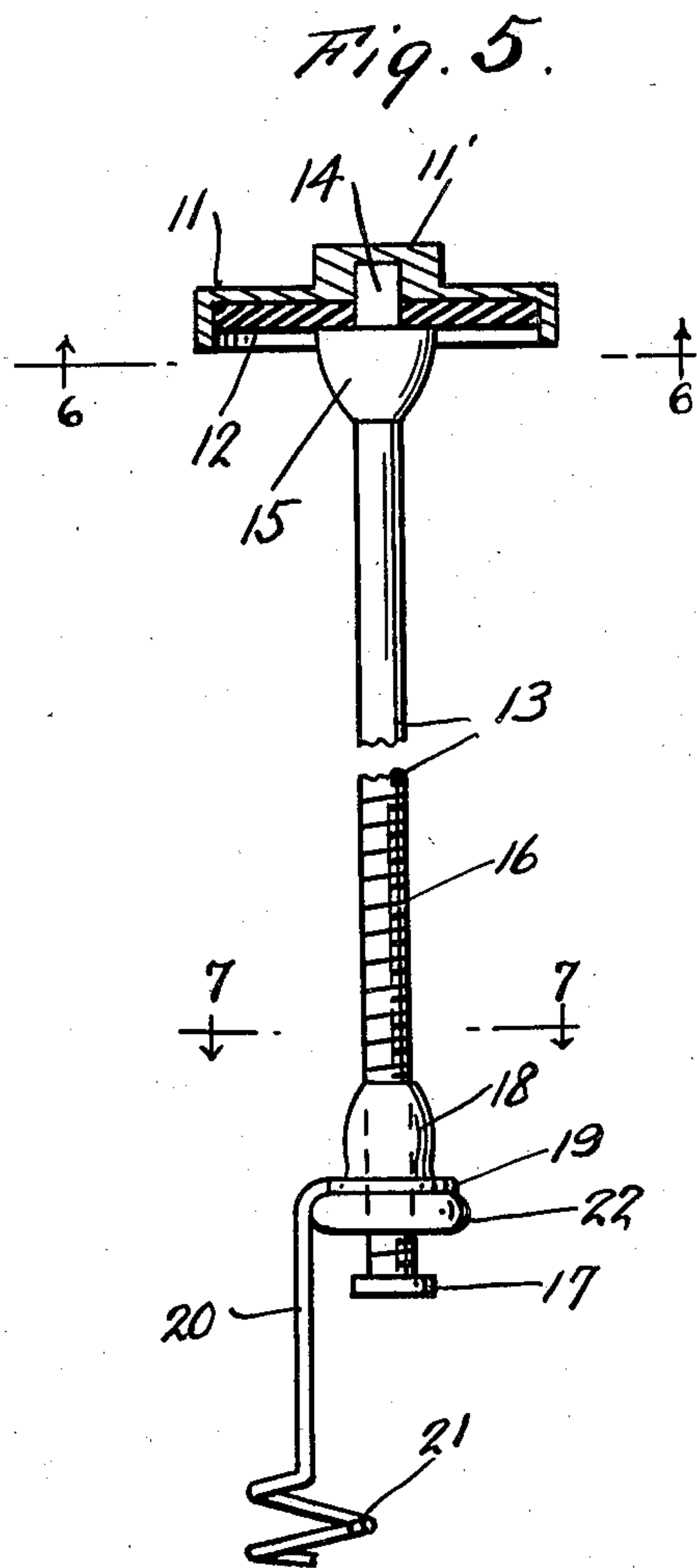
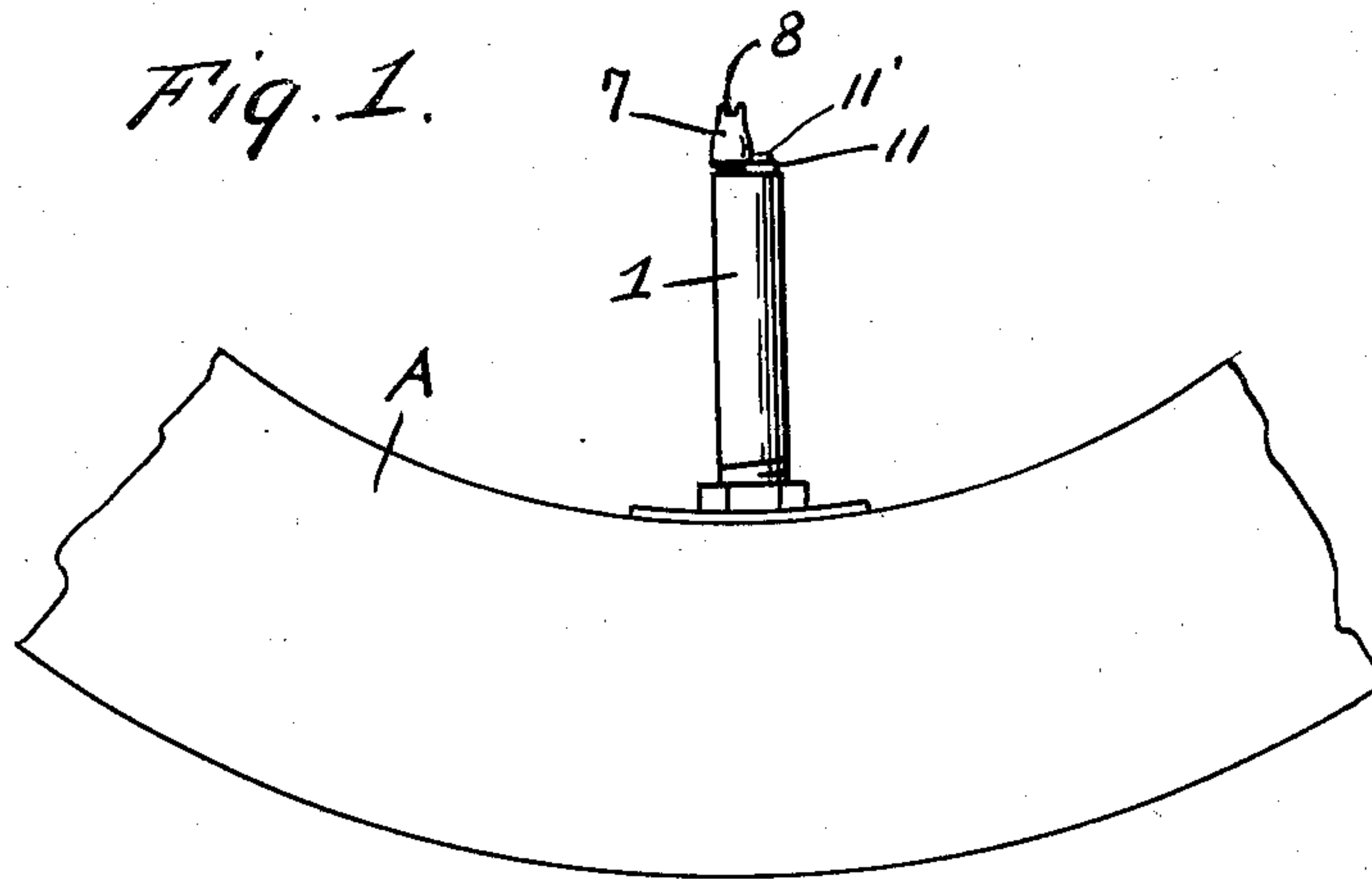
B. GRECO

**2,022,196**

AUTOMATIC SAFETY VALVE STEM

Original Filed May 3, 1934

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 2.

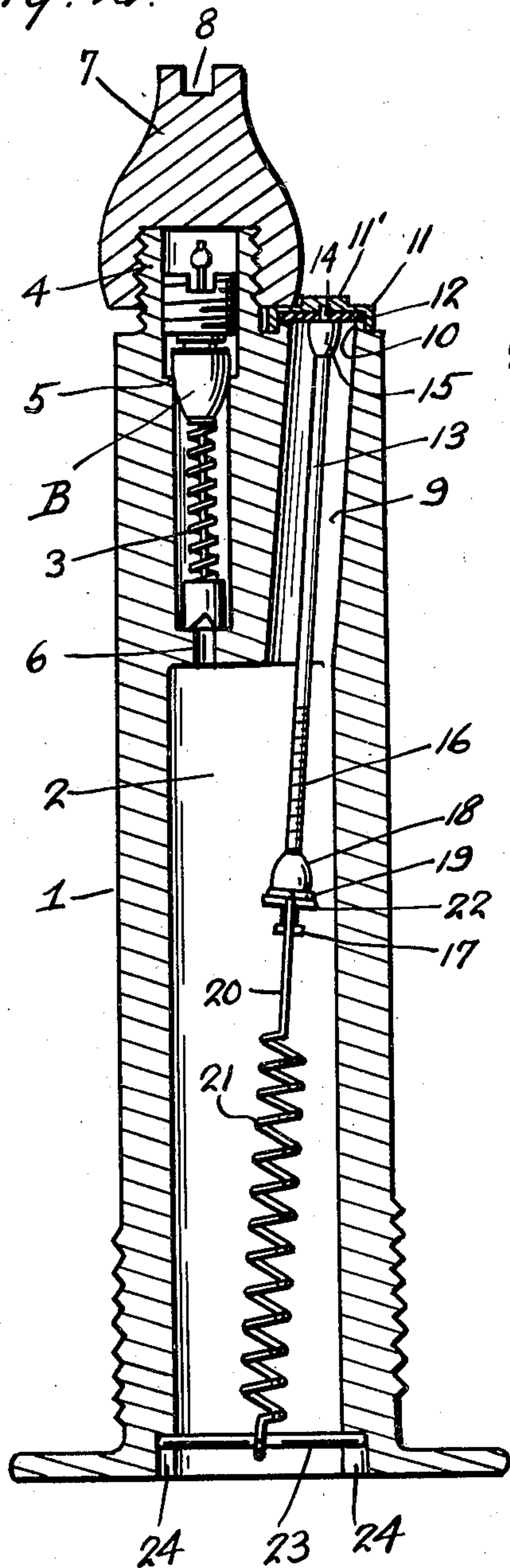


Fig. 3.

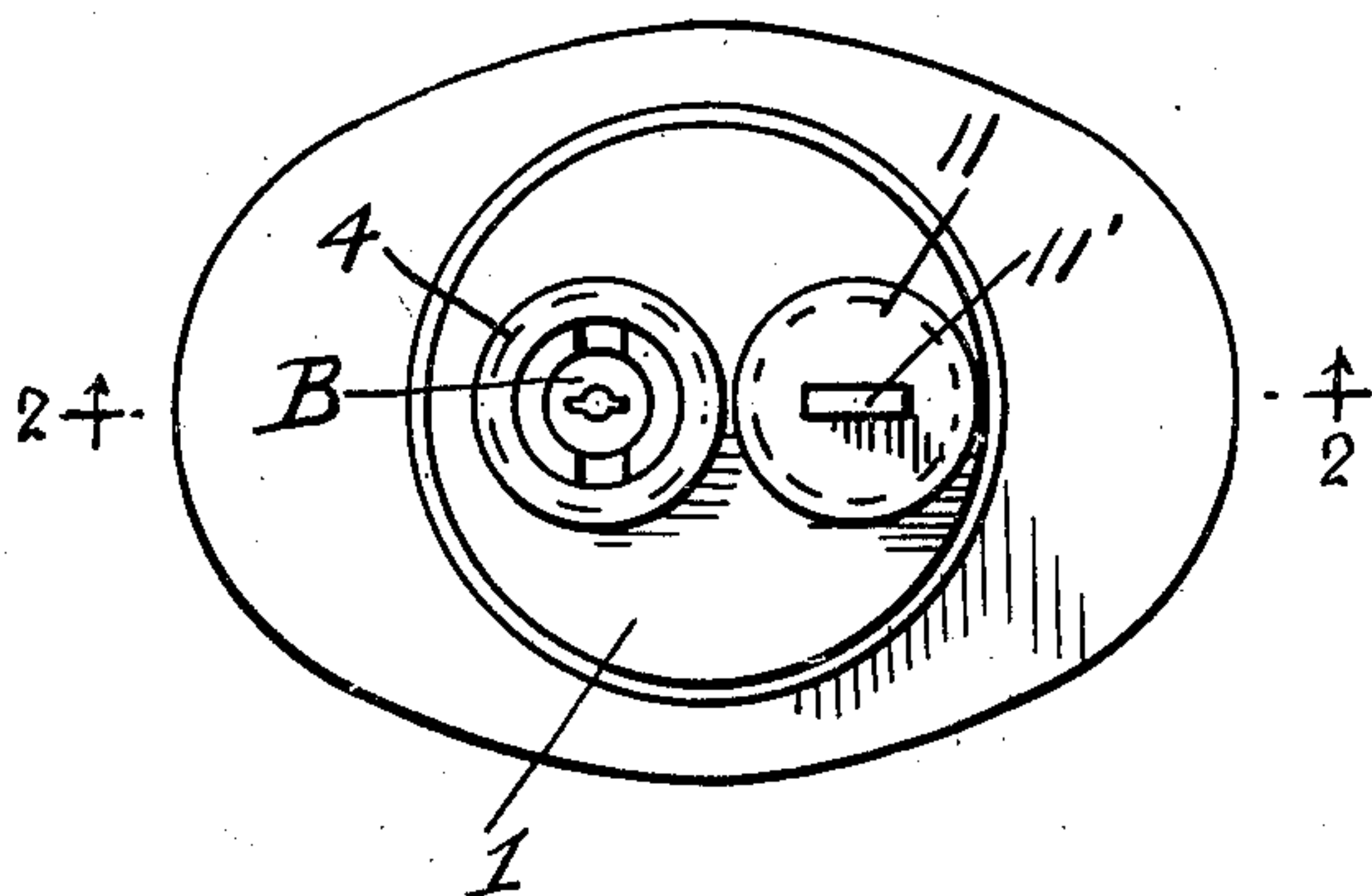
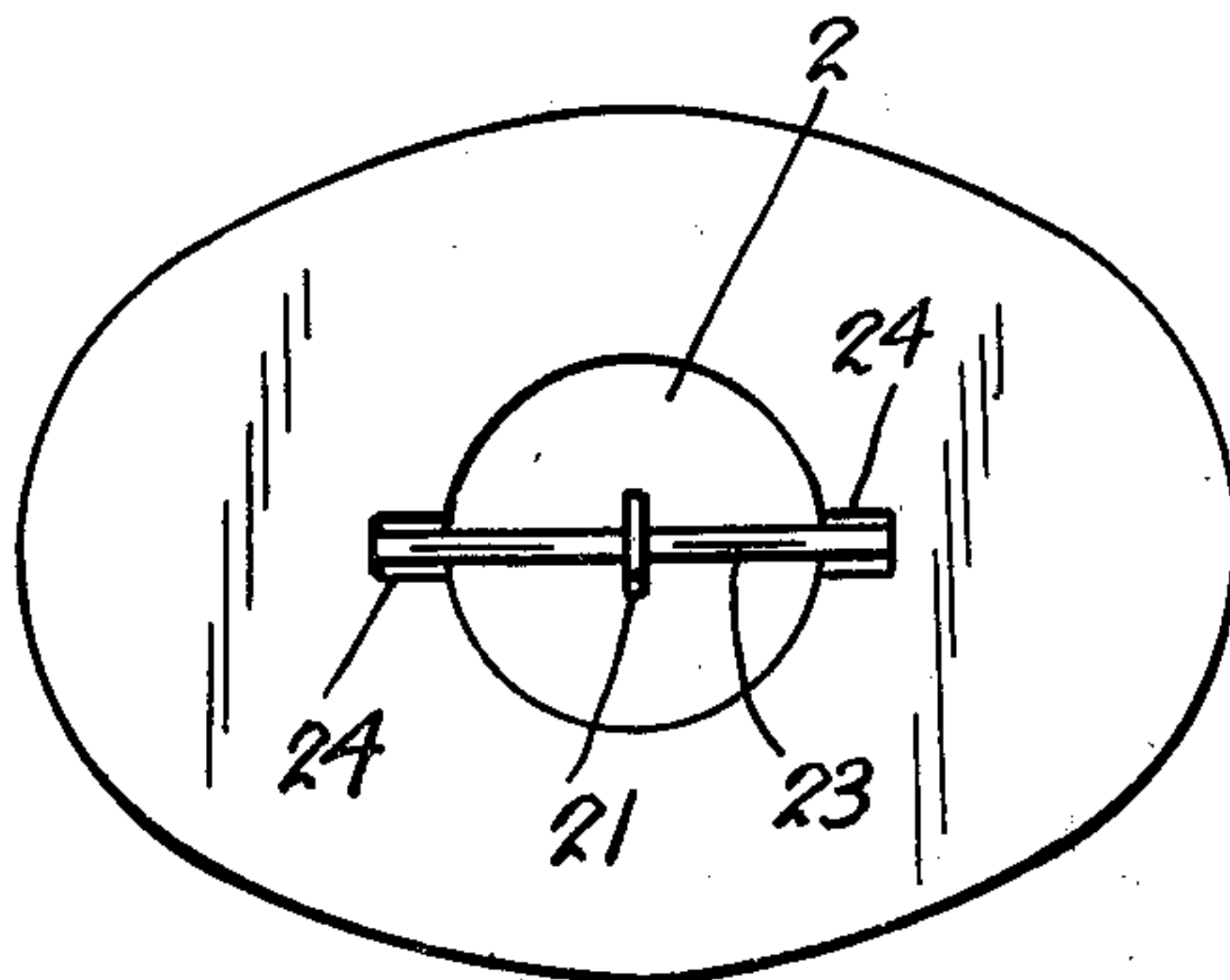


Fig. 4



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## UNITED STATES PATENT OFFICE

2,022,196

## AUTOMATIC SAFETY VALVE STEM

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Application May 3, 1934, Serial No. 723,778

Renewed April 27, 1935

## 1 Claim. (Cl. 152—11.5)

This invention relates to a valve stem for a pneumatic tire, the general object of the invention being to provide automatic means for preventing excess pressure occurring in the tube of the tire, with means for adjusting the device so that the desired amount of pressure can be maintained in the tire.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claim.

In describing the invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:

Figure 1 is a fragmentary side view, showing the invention applied to the stem of a tube.

Figure 2 is a longitudinal sectional view through the invention, the section being taken on line 2—2 of Figure 3.

Figure 3 is a top plan view of Figure 2, but with the cap removed.

Figure 4 is a bottom plan view of Figure 2.

Figure 5 is a view of the valve assembly for preventing excess pressure from occurring in the tube.

Figure 6 is a section on line 6—6 of Figure 5.

Figure 7 is a section on line 7—7 of Figure 5.

In these drawings, the numeral 1 indicates the stem which is suitably connected to the inner tube A, as shown in Figure 1, and this stem is formed with a chamber 2 which opens out through the inner end of the stem and has its outer end spaced a considerable distance from the top of the stem. A small bore 3 extends from the top of the chamber through the reduced exteriorly threaded extension 4 at the top or outer end of the stem, said bore being formed with the seat 5 and the annular enlargement 6. The letter B indicates the usual form of valve assembly which is placed in the bore 3, with its inner end resting on the enlargement 6 and the valve casing resting on the seat 5, with the threaded part threaded in the portion 4. A cap 7 is threaded on the part 4 for closing the outer end of the bore 3 and said cap is provided with the usual notch 8 in its outer end which is used, in the usual manner, for removing and replacing the valve assembly B.

A slightly diagonally arranged bore 9 extends from the top of the chamber 2 through the outer end of the stem to one side of the cap 7 and an annular reduced part 10 surrounds the outer

end of the bore, as shown in Figure 2. A cap 11 has its flange surrounding this annular part 10 and contains a gasket 12 for forming an airtight joint between the cap and said part 10. A rod 13 has a reduced upper end portion 14 which is fastened to the cap 11 and passes through a hole in the gasket and said rod is provided with an enlarged part 15 which bears against a portion of the gasket, the lower part of the rod being threaded, as shown at 16, and has a collar 17 on its lower end. A nut 18 is threaded on the threaded part of the rod and a rightangularly extending eye 19, formed at the end 20 of a coiled spring 21, engages a flange 22 at the lower end of the nut, and the other end of the spring is attached to a rod 23, the ends of which fit in notches 24 formed in the inner end of the stem. The eye so engages the nut 18 that the nut is held against turning movement when the rod is turned, so that the nut will move longitudinally on the rod if the same is turned, so that the tension of the spring can be adjusted. The cap 11 is provided with a projection 11' which can be engaged with the notch 8 of the cap 7, when the cap is removed from the part 4 and inverted and placed in engagement with said part 11. Then by turning the cap 7, the cap 11 and the rod can be turned to adjust the tension of the spring. When the two caps are in place, the cap 7 will have a part thereof resting on the cap 11 so as to lock the cap 11 in place.

As will be seen, when the cap 7 is removed and air forced through the bore 3 into the chamber 2, this air will pass into the tube A, the valve assembly B holding the air in the tire in the usual manner. However, if too much air has been forced into the tire, the excessive pressure will pass into the bore 9 and thus raise the cap 11 against the action of the spring 21, so that the excess pressure will escape and this escaping air will act as a signal for one pumping up the tube that too much air is being placed in the tube and, of course, if too much air has been placed in the tube, such air will continue to escape past the cap 11, even after the pumping operation ceases. When the spring returns the cap 11 to closed position, the cap 7 is put in place so as to lock the cap 11 in position.

As will be seen, this invention can be adjusted to hold different degrees of pressure in the tube before permitting the pressure to escape. It will eliminate guesswork as to how much air is being placed in the tube and it also eliminates the use of air gauges and the like.

It is thought from the foregoing description



that the advantages and novel features of the invention will be readily apparent.

5 It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claim.

What is claimed is:—

10 A tire stem having a chamber extending from its inner end to a point an appreciable distance from its outer end, and a pair of bores extending from the chamber through the outer end of the stem, an inlet valve assembly in one bore, a cap

having a gasket therein closing the other bore, a rod connected with the cap, a nut threaded on the rod, a spring having one end connected with the nut and the other end to a part at the inner end of the stem, said spring and rod holding the cap in closed position until excess pressure occurs in the tire, a projection on the cap, a cap for closing the first mentioned bore, the second mentioned cap having a notch therein for engaging the projection on the first cap for turning the rod to cause the nut to adjust the tension of the spring. 5 10

BRUNO GRECO.