

No. 708,945.

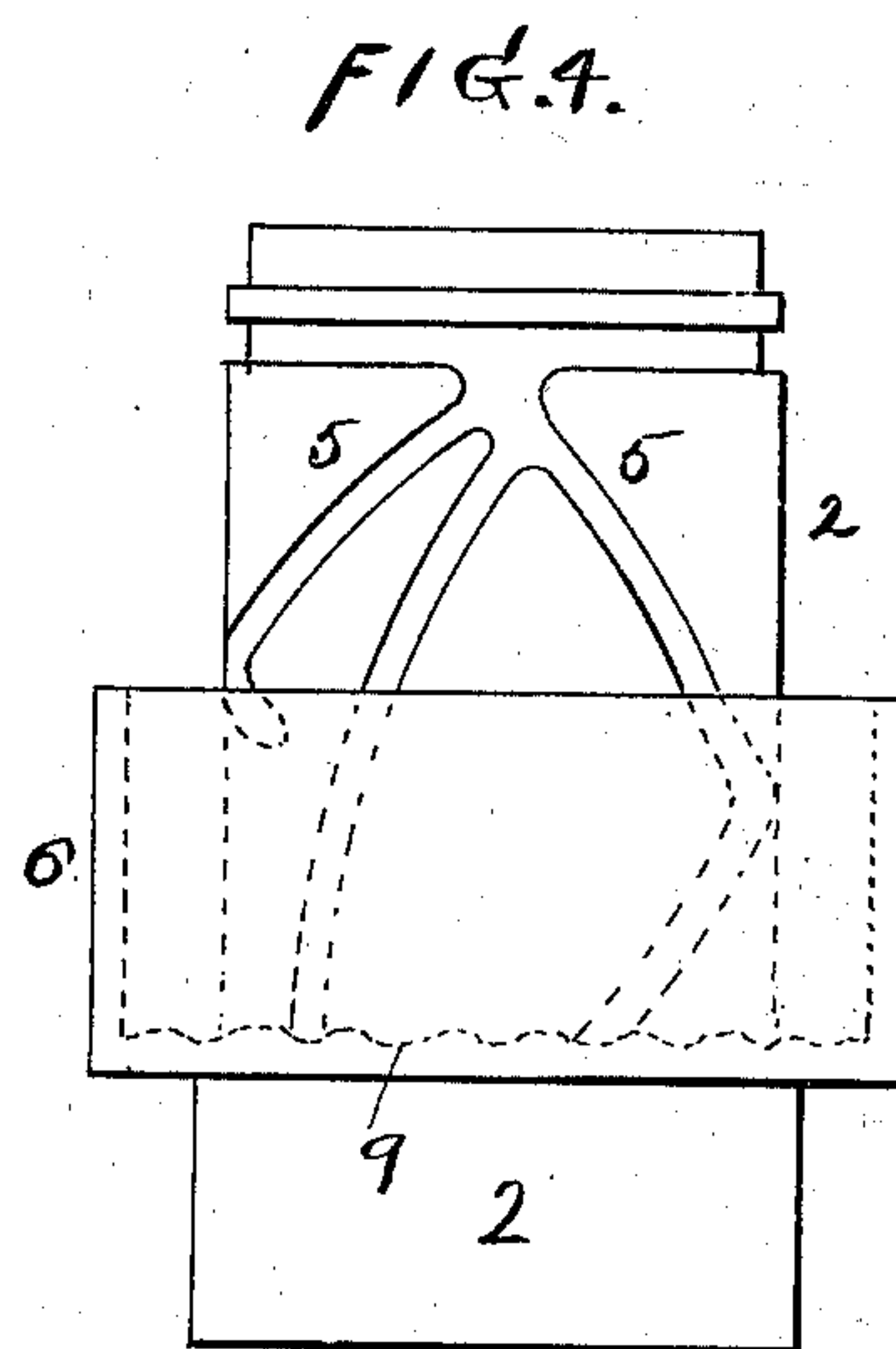
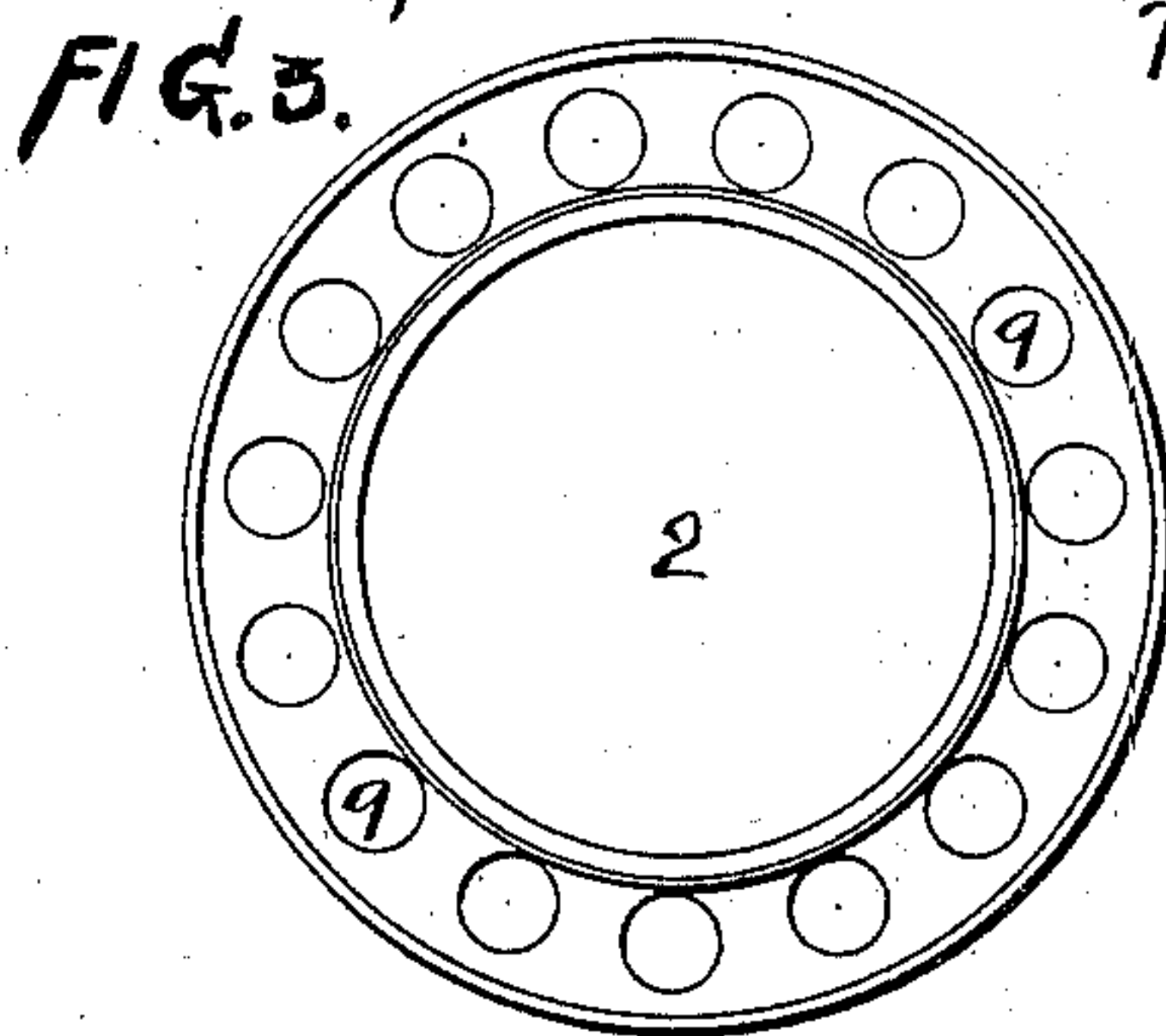
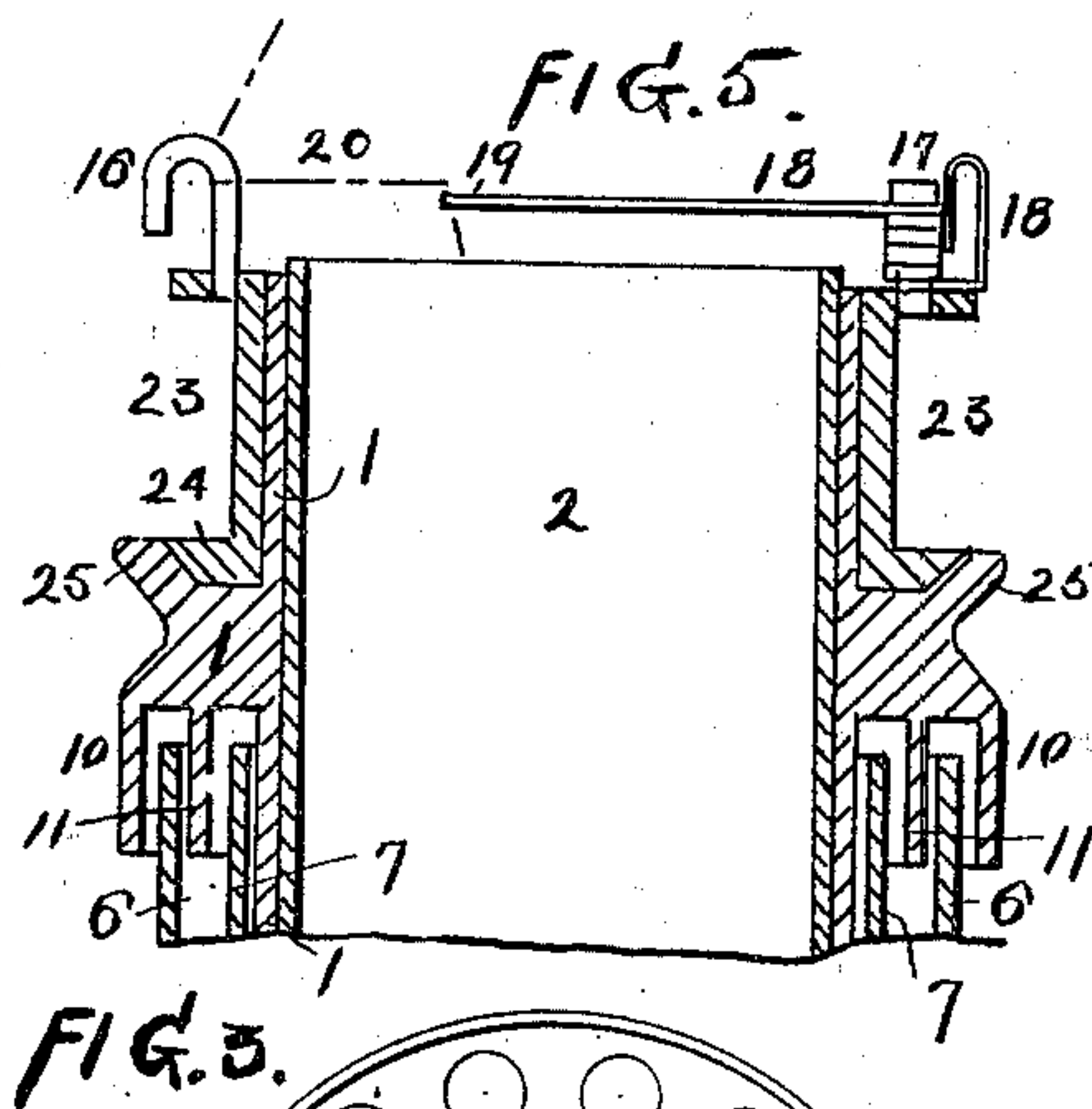
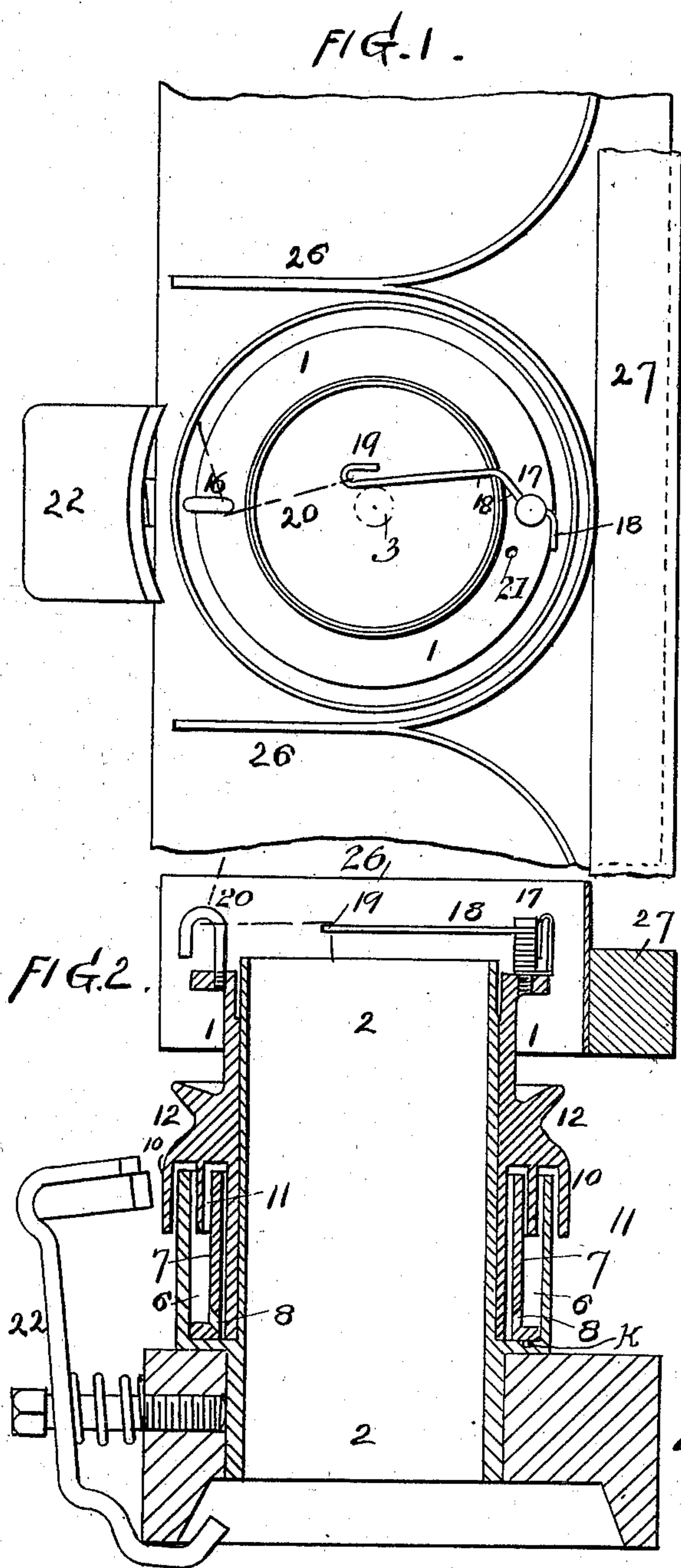
Patented Sept. 9, 1902.

T. WATSON.

FLIER FOR SPINNING AND DOUBLING MACHINES.

(Application filed July 17, 1901.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

THOMAS WATSON, OF BRIDGE OF WEIR, SCOTLAND, ASSIGNOR TO ERNEST SYMINGTON COATS, OF PAISLEY, SCOTLAND.

FLIER FOR SPINNING AND DOUBLING MACHINES.

SPECIFICATION forming part of Letters Patent No. 708,945, dated September 9, 1902.

Original application filed April 12, 1901, Serial No. 55,514. Divided and this application filed July 17, 1901. Serial No. 68,668. (No model.)

To all whom it may concern:

Be it known that I, THOMAS WATSON, a subject of the King of Great Britain and Ireland, and a resident of Bridge of Weir, in the county of Renfrew, Scotland, (whose postal address is Glenapp, Bridge of Weir, Scotland,) have invented a certain Improved Flier for Spinning and Doubling Machinery, (for which application for British patent has been made, No. 16,816, dated September 21, 1900,) of which the following is a specification.

My said invention has for its object to provide an improved flier device whereby the tension of the yarn is regulated as it is being wound either on the bare spindle or on a tube or bobbin placed thereon, so that the strain on the yarn or thread shall be as nearly as possible equal throughout from the beginning to the end of the building of the cop.

My invention is shown on the accompanying sheet of drawings, in which—

Figure 1 is a plan, and Fig. 2 is a vertical section, of an improved flier-piece, Figs. 3 and 4 being, respectively, a plan and a vertical elevation of a tubular bearing for the flier. Fig. 5 is a view similar to Fig. 2 of a variation of the improved flier.

As shown in the drawings, the improved flier device consists of a short tube 1, which is arranged to rotate on a tubular bearing-piece 2, encircling the spindle 3 and fixed to a fixed rail 4 of the spinning-frame, grooves 5, of somewhat spiral shape, being formed around the outer circumference of the tubular bearing for suitably circulating the oil for lubricating the parts. The lower portion of the short tube 1 dips or extends down into an oil chamber or casing 6, divided into two parts by a detachable annular piece or partition 7 arranged within it, this annular piece being prevented from turning by a stop or key *k*, formed on its flanged lower end, engaging in a slot formed in the chamber, holes 8 being formed around the lower part of the annular piece for the admission of oil to the parts. Recesses 9 for oil are also formed all around the bottom of the oil-casing, so that the oil can be most advantageously retained for distribution to the bearing as required. Outer

and inner hooded parts 10 11 are formed on the short flier-tube 1, the outer hood fitting over and encircling the upper end of the oil-casing 6 and the inner hood extending into the casing, so that the upper end of the casing thus projects into the space between the hoods, a groove 12 being formed on the flier-tube to receive a driving-band to connect the tube to the driving-drums. (Not shown.) The annular piece 7 and the inner hood 11 act as baffles and prevent the oil from being thrown out of the casing 6 during the rotation of the flier-tube 1. On the upper end of the flier-tube 1 there is fixed a guide-eye 16 for the yarn or thread, and on the opposite part of the upper end there is centered on a stud 17 a lever or finger 18, formed, preferably, with two arms, as shown, and made of wire of suitable metal. The longer arm of the lever 18 is formed with a hook 19, which extends inward, so as to bear against the yarn on the spindle 3. (Shown in dotted lines in Fig. 3.) The yarn or thread 20 is led onto the spindle 3 through the guide-eye 16 and then over the hook 19 of the finger-piece 18, so that on the flier 1 rotating the yarn is carried around the spindle, the shorter arm of the lever or finger 18 being arranged to act against a stop 21, so as to limit the outward movement of the longer arm. The finger-piece 18 is preferably balanced, so that the hooked end 19 always keeps in close contact with the yarn on the spindle 3, easy and firm winding being thereby produced, the strain on the yarn being regular throughout the winding process. A hand or knee brake 22 is fitted, as shown, so as to act against each flier 1, and thereby enable the fliers to be stopped separately when required. As shown in Fig. 5, the guide-eye 16 and hooked finger 18 may be attached to the upper end of a ring-piece 23, which is made separate from the flier-tube 1. This detachable ring-piece 23 is fitted loosely onto the upper part of the flier-tube 1 and has a lower flanged part 24, formed with a beveled outer edge 25, which fits closely a corresponding part in the flier-tube, so that the detachable piece 23 is made to rotate along with the flier-tube 1 by the friction action set up between these parts.

With this arrangement of flier the hand-brake 22 is dispensed with, and when it is desired to stop the spindle for any purpose the attendant simply applies a tongs-like gripper
 5 or similar braking instrument (not shown) to the sides of the detachable piece, so as thereby to overcome the friction action, and thus stop its rotation. One of the main advantages of this type of flier is that the life of
 10 the driving-band is thereby greatly increased, as no extra friction is imparted to it when a spindle is stopped, as the flier-tube still continues to rotate, although the detachable piece has been prevented from revolving. A guard-
 15 piece 26 of horseshoe shape, Fig. 1, is provided for each flier, the guard being fixed to an upper longitudinal rail 27 of the machine.

I claim as my invention—

1. In fliers for spinning and doubling machinery, a tubular bearing-piece to encircle the spindle and having oil-grooves on its bearing-face, and an oil-chamber for the bearing-piece having an annular piece fixed therein to divide the chamber into compartments, in
 20 combination with a flier-tube on the tubular bearing-piece, a hood for the latter, a driving-pulley, a hand-brake, a guide-eye, a two-armed lever, a stud for the latter and a stop, substantially as described.

30 2. An improved flier for spinning and doubling machinery, comprising a tubular bearing-piece, having oil-grooves and an outer

annular wall in one with it, comprising an oil-chamber, a fixed annular piece in the latter, in combination with a flier-tube adapted
 35 to rest on its lower edge in said chamber, and having hoods, one outside the oil-chamber and extending down below the top of the oil-chamber and one outside the annular piece extending down between the annular piece
 40 and the oil-chamber wall, substantially as described.

3. An improved flier for spinning and doubling machinery, comprising a tubular bearing-piece, a flier-tube, a pulley for the latter,
 45 and a ring-piece frictionally held to the flier-tube carrying the guide-eye, said ring-piece normally revolving with the flier-tube, but adapted to be stopped independently without stopping the pulley, substantially as de-
 50 scribed.

4. A flier-tube, comprising a pulley and hood and a ring therefor carrying the guide-eye, said ring having a flanged beveled lower end fitting into a corresponding groove in the
 55 flier-tube, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THOMAS WATSON.

Witnesses:

DAVID FERGUSON,
 GEORGE PATTERSON.