

(No Model.)

T. H. SYMINGTON.
DUST GUARD FOR AXLE BOXES.

No. 432,649.

Patented July 22, 1890.

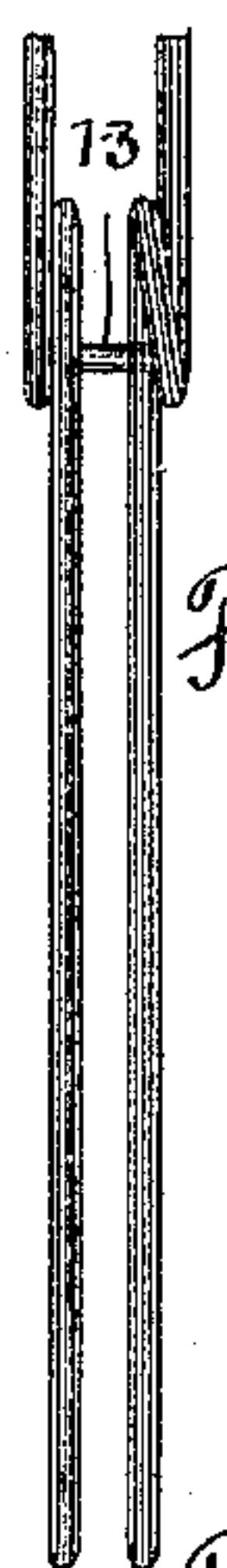
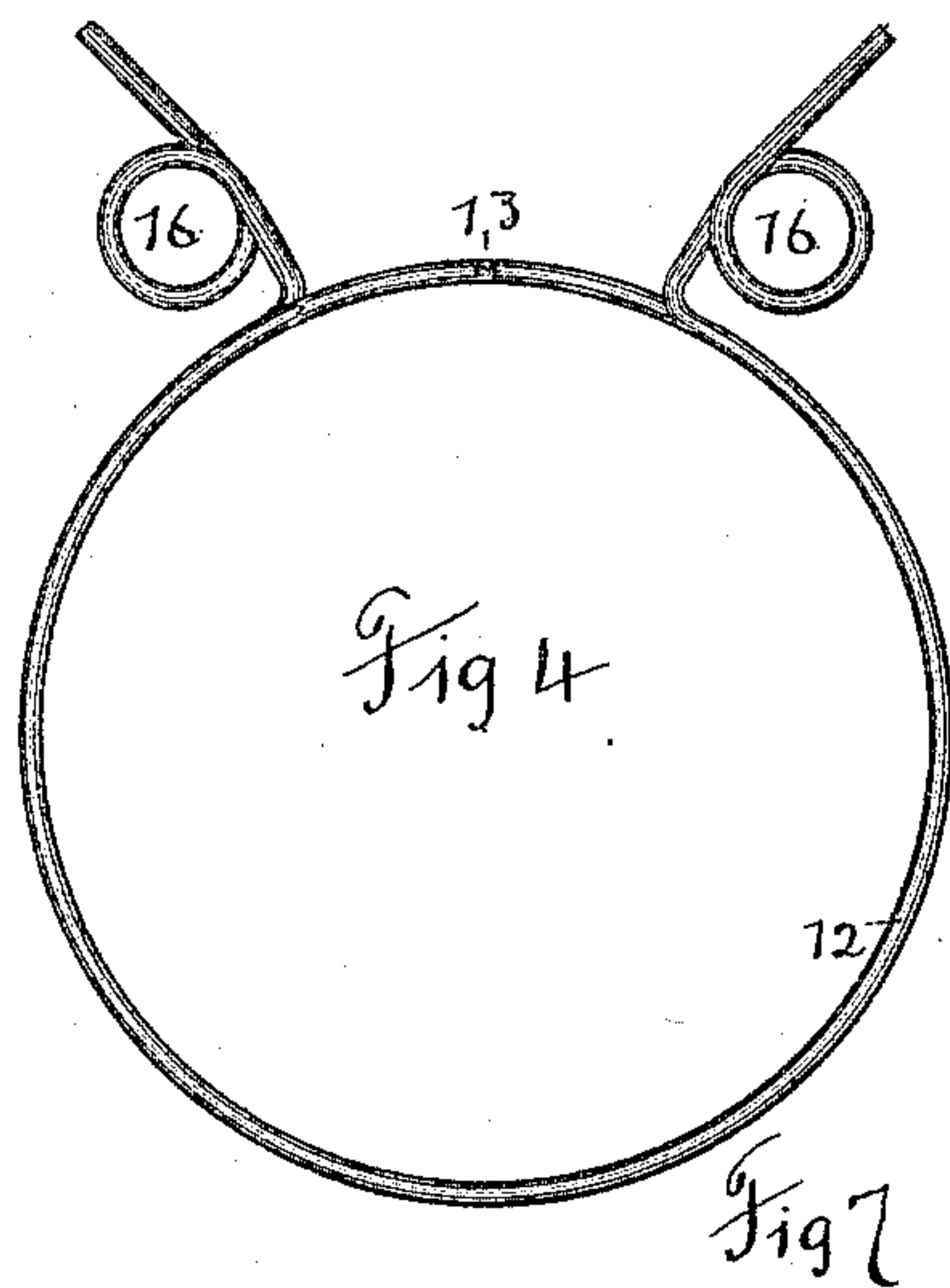
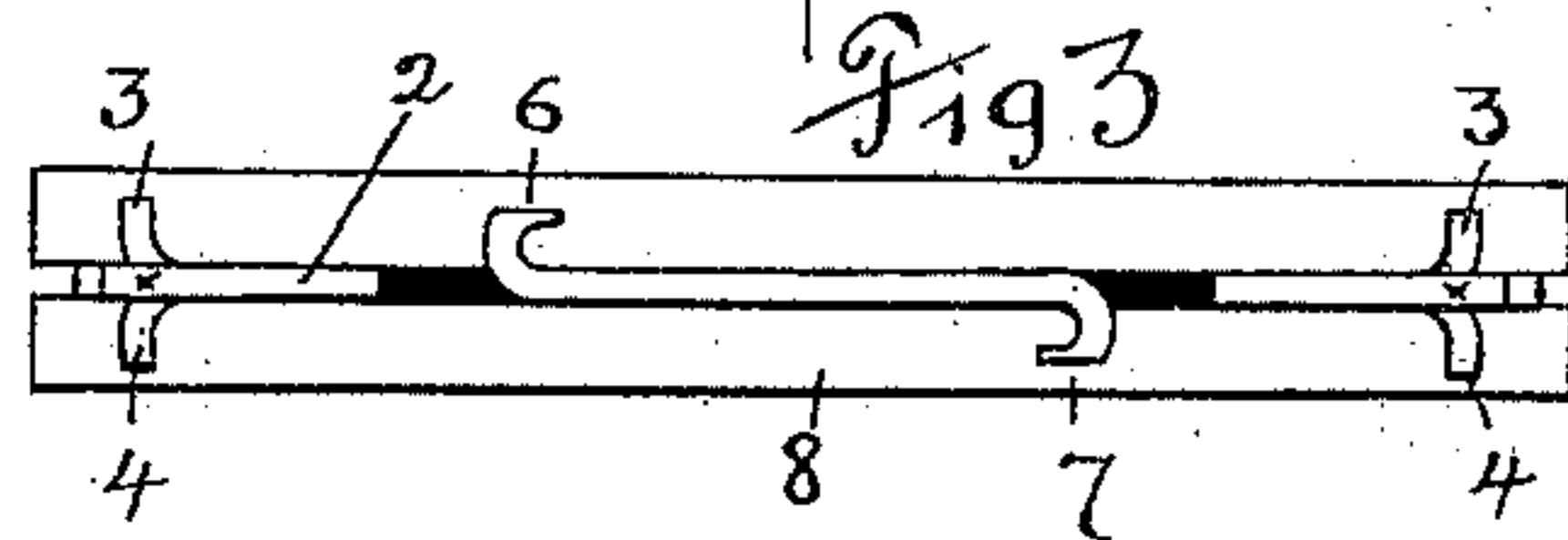
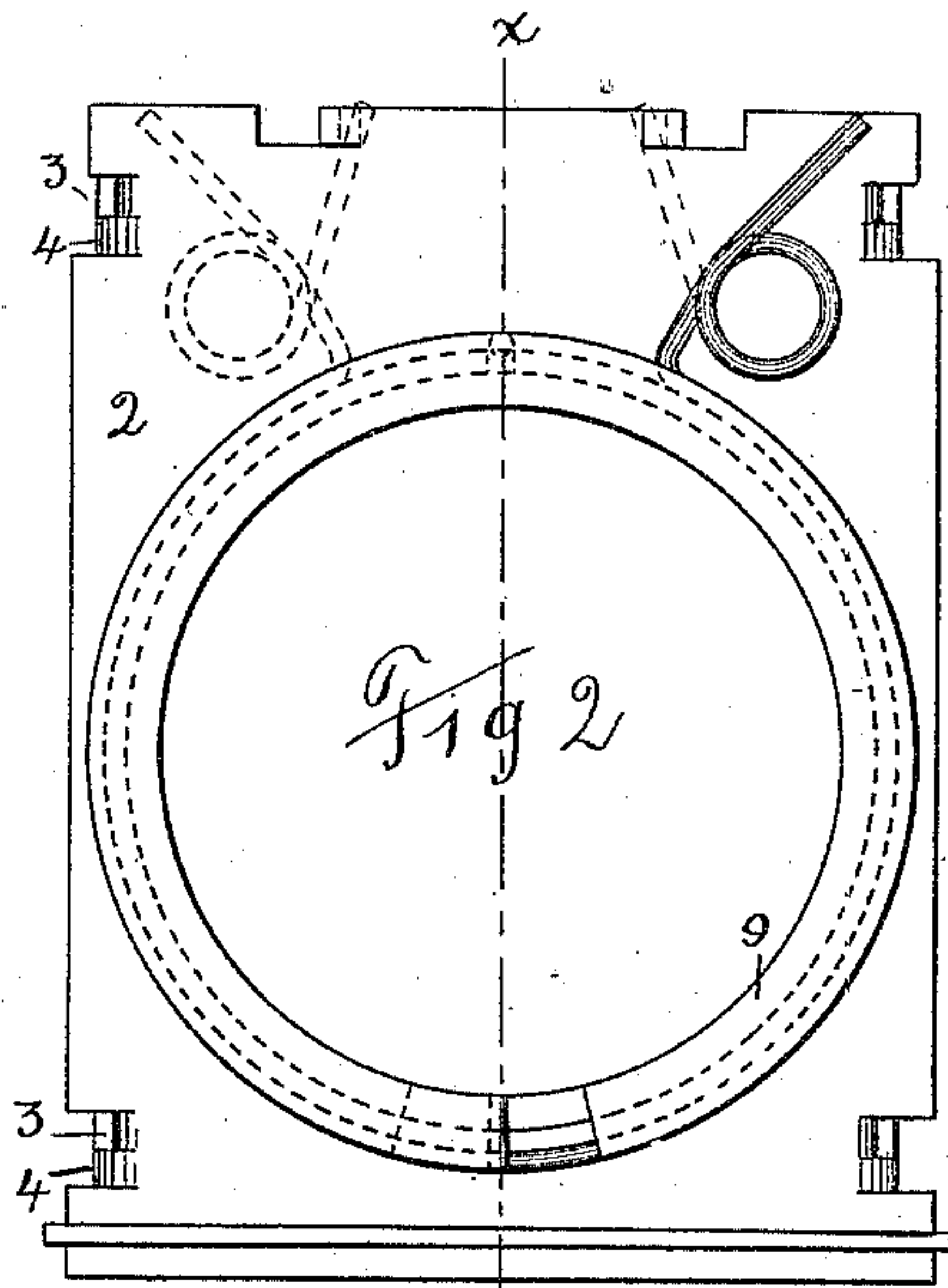
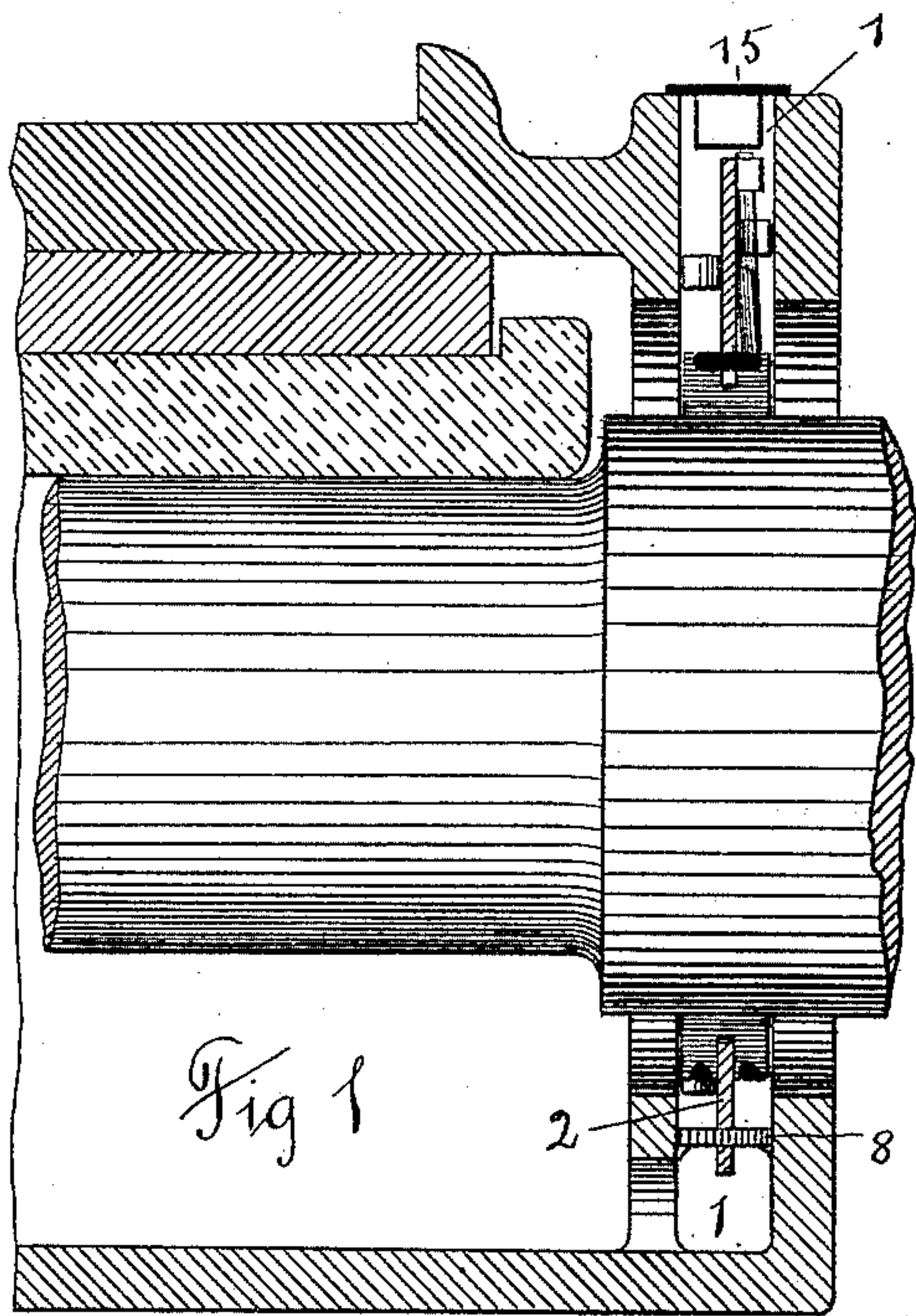


Fig 5

Fig 8

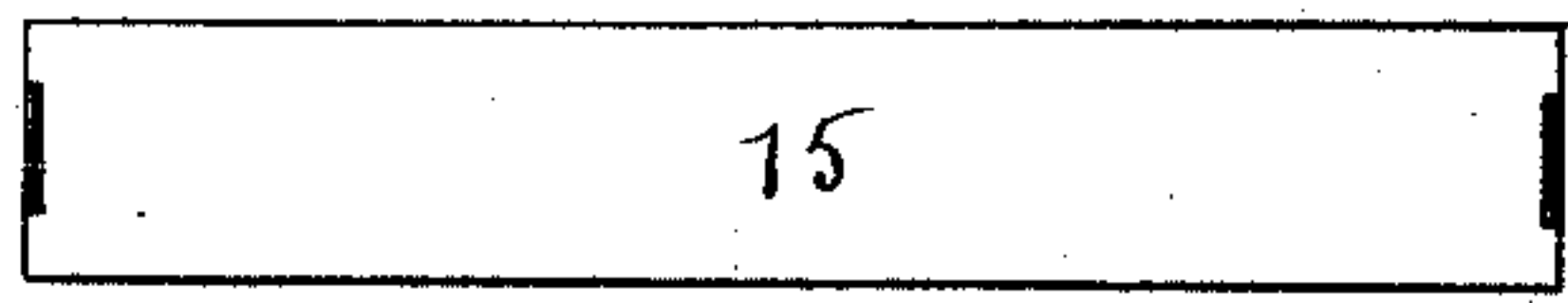
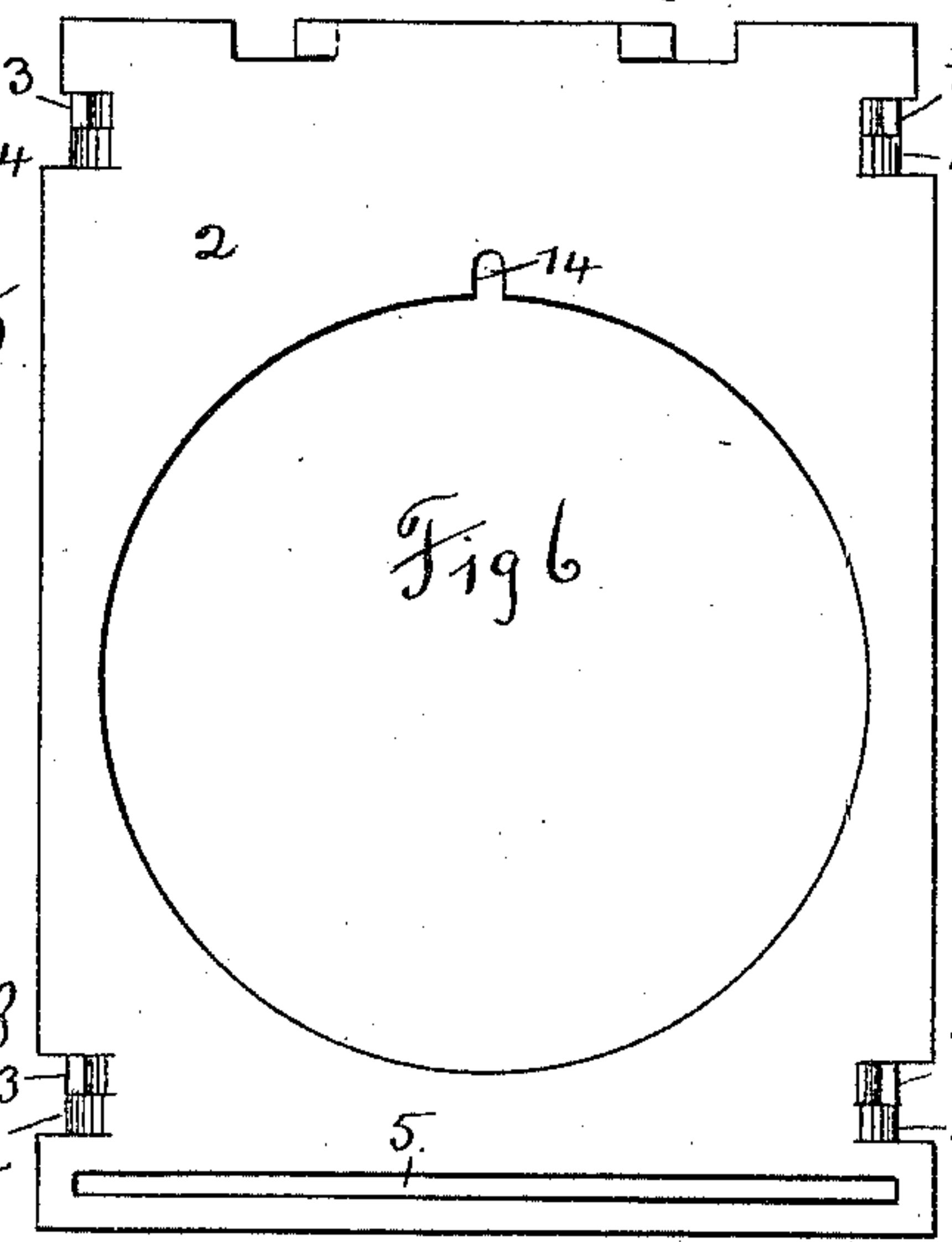


Fig 7

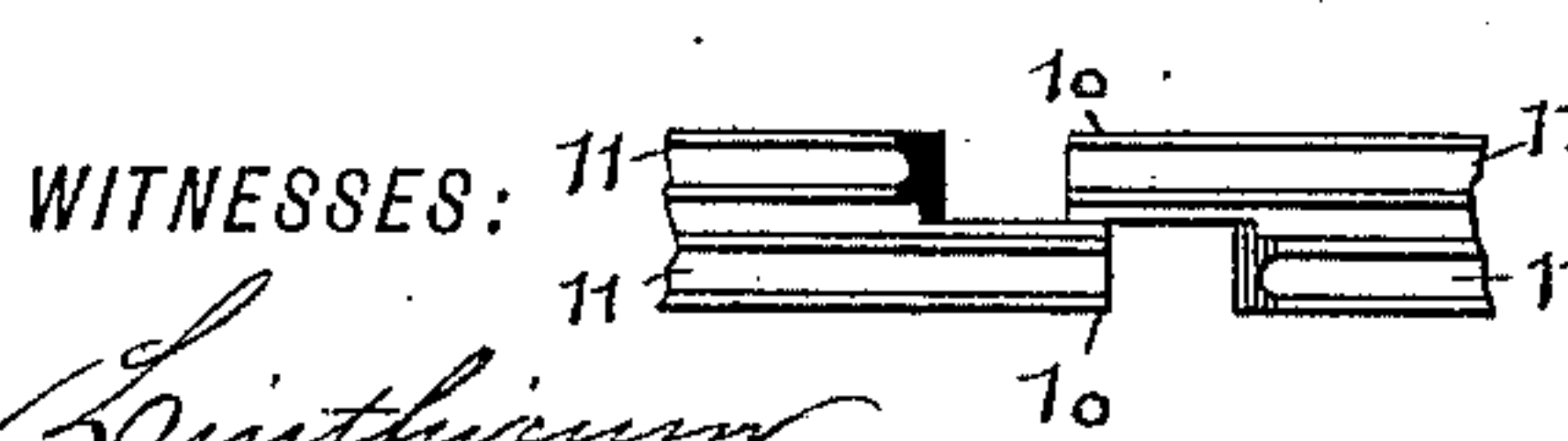


Fig 9

WITNESSES:
Eda Luthium.
Arthur L. Jones

INVENTOR
Thomas H. Symington
BY
Price & Stuart
ATTORNEYS.

UNITED STATES PATENT OFFICE.

THOMAS HARRISON SYMINGTON, OF BALTIMORE, MARYLAND, ASSIGNOR OF
ONE-FOURTH TO WM. S. HILLES, OF SAME PLACE.

DUST-GUARD FOR AXLE-BOXES.

SPECIFICATION forming part of Letters Patent No. 432,649, dated July 22, 1890.

Application filed November 30, 1889. Serial No. 332,121. (No model.)

To all whom it may concern:

Be it known that I, THOMAS HARRISON SYMINGTON, a citizen of the United States, and a resident of the city of Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Dust-Guards for Axle-Boxes, of which the following is a full and complete specification, reference being had to the accompanying drawings.

Figure 1 is a section of an axle-box, showing part of the axle in full, one side of the axle-box being broken away, showing the dust-guard in section. Fig. 2 is a full side elevation of the dust-guard. Fig. 3 is a plan view of the dust-guard. Fig. 4 is a full side elevation of the dust-guard spring. Fig. 5 is a full side elevation of the same. Fig. 6 is a full side elevation of the dust-guard plate with all other things removed from it. Fig. 7 is a top view of the cap of the dust-guard recess. Fig. 8 is a side view of the same. Fig. 9 is a plan view of the joint of the dust-guard ring.

My invention relates to that class of dust-guards which are employed for the purpose of preventing the escape of oil from axle-boxes around the axle, and also to prevent dust from entering at this point. As the axle turns within the axle-box, it is necessary to provide some means by which the dust may be kept from entering and the oil from escaping from the interior of the box. This I accomplish by surrounding the axle with a packing of some suitable material—such as vulcanized fiber, leather, or other similar material—and then surrounding this with a spring which is stretched around it.

In the drawings, Fig. 1, A represents the axle-box, and 1 represents the dust-guard recess and the rear end of the axle-box. The axle passes through the center of the rear end of the axle-box through two concentric holes. The dust-guard device is shown in Fig. 2, and consists of a plate of metal. It may be made in any shape; but this is the form in which I prefer to make it. The plate has a circular hole stamped out of the center of it and a slot which is marked 5. In Fig. 6, at the bottom, the sides are slitted and ears are formed by bending the intermediate portions of the plate in opposite directions. These ears serve to hold the plate in the center of the axle-box.

The side ears are marked 3 4. On the top of the plate two ears are formed, which are bent laterally in opposite directions. These ears are marked 6 and 7. They serve as hooks to confine the ends of the spring when stretched around the dust-guard ring.

8 is a piece of rubber sheeting, which is passed through the slot 5 in the bottom of the dust-guard plate, and is made of a size somewhat larger than the recess 1, so that as the plate 2 is forced down into said recess the rubber packing 6 will be bent up or down as the plate is forced down or up, and the space around the plate will be effectually closed and the escape of oil around the plate prevented. The dust-guard ring 9 is split, as shown in Fig. 9, and two projecting ends 10 10 overlap one another. The exterior of the dust-guard ring 9 is cut with two grooves which are parallel to one another and encircle the ring, and are marked 11 11.

12 is a wire by which the dust-guard ring is pressed against the axle. This wire is in circular form and consists of two rings joined together at one point only, the free ends of the wire being bent into circular springs, which are marked 16 16.

13 is a portion of the wire 12 at right angles to the balance of the ring and by which the two parallel circles of the wire are connected together. This portion 13 of the wire 12 passes through a slot 14 in the dust-guard plate at the top of the hole through it and serves to hold the two rings to one another. It will be observed that the two rings of the wire 12 lie around the exterior of the dust-guard ring in the grooves 11 11.

It is necessary to provide pressure upon the outside of the dust-guard ring on both sides of the plate 2, in order that the pressure upon the dust-guard ring may be uniform. This is accomplished by making one complete circle on each side of the plate and passing the wire at the point where it passes from one circle to the other through the plate by the notch 14, which is at the top of the aperture in the plate through which the axle passes. It will thus be seen that the two free ends of the wire are on opposite sides of the plate. Another spring-pressure is applied on the free ends of the wire, as shown.

15 is a plate or cap intended to cover the dust-guard recess on the top of the axle-box, which consists of a plate of metal, the ends of which are bent downward and shaved off, so as to be small enough to enter the recess. The downwardly-projecting ends are, however, made to fit the recess closely enough to hold the cap firmly in place when they are driven into the recess. The spring and dust-guard ring and plate are entirely disconnected from this cover.

The operation of the device is as follows: The dust-guard ring and spring are placed in position upon the plate 2, and then the packing-piece 8 of rubber sheeting is passed through the slot 5 in the lower end of the plate. The whole thing is then forced down into the recess 1. The rubber packing 8, being somewhat larger than the recess 1, will be bent upward or downward, as the case may be, as the plate is moved up or down, and will thus form a close packing in the bottom of the recess and prevent the oil from the bottom of the axle-box from rising around the bottom of the plate 2 and escaping through the rear aperture in the axle-box, the wire 12 being stretched around the exterior of the packing-ring 9 on either side of the plate 1. The free ends 16 16 may now be bent toward one another and hooked one upon the hook 6 and the other upon the hook 7. This will exert a pressure upon the exterior of the packing-ring 1 and cause it to hug snugly and tightly the exterior of the axle, forming a perfect packing, preventing the escape of oil or the ingress of dust.

Having thus described my invention, what I claim as new is—

1. In a dust-guard for axle-boxes, the combination of a plate through which the axle passes with a dust-guard ring encircling the axle and fitting into the aperture in the plate,

a wire stretched around the exterior of the dust-guard ring, and a spring secured to the free end of said wire and adapted to exert a stretching strain upon it, substantially as described.

2. In a dust-guard for axle-boxes, the combination of a carrier consisting of a single plate of metal, through which the axle passes, with a dust-guard ring encircling the axle, fitting the aperture in the plate, and provided with an annular groove upon its exterior and overlapping the edges of said aperture, a wire stretched around the exterior of the dust-guard ring, and a spring secured to the free end of said wire and adapted to exert a stretching strain upon it, substantially as described.

3. In a dust-guard for axle-boxes, the combination of a plate through which the axle passes with a dust-guard ring encircling the axle and fitting into the aperture in the plate, and a wire stretched around the exterior of the packing-ring on both sides of the plate, a portion of said wire passing through the plate, said wire exerting pressure upon the exterior of the packing-ring by means of a spring, substantially as described.

4. In a dust-guard for axle-boxes, the combination of a carrier through which the axle passes with a dust-guard ring encircling the axle and fitting into the aperture in the carrier, and means for pressing the ring upon the axle and a packing device for the lower end of the dust-guard carrier, consisting of a piece of rubber or other equivalent material secured to the lower end of the carrier and forced by it into the dust-guard recess of the axle-box, substantially as described.

THOMAS HARRISON SYMINGTON.

Witnesses:

ARTHUR STEUART,
IDA LINTHICUM.