

927,847.

H. S. FOSTER.
SAFETY DEVICE FOR CAR BRAKES.
APPLICATION FILED DEC. 12, 1908.

Patented July 13, 1909.
2 SHEETS—SHEET 1.

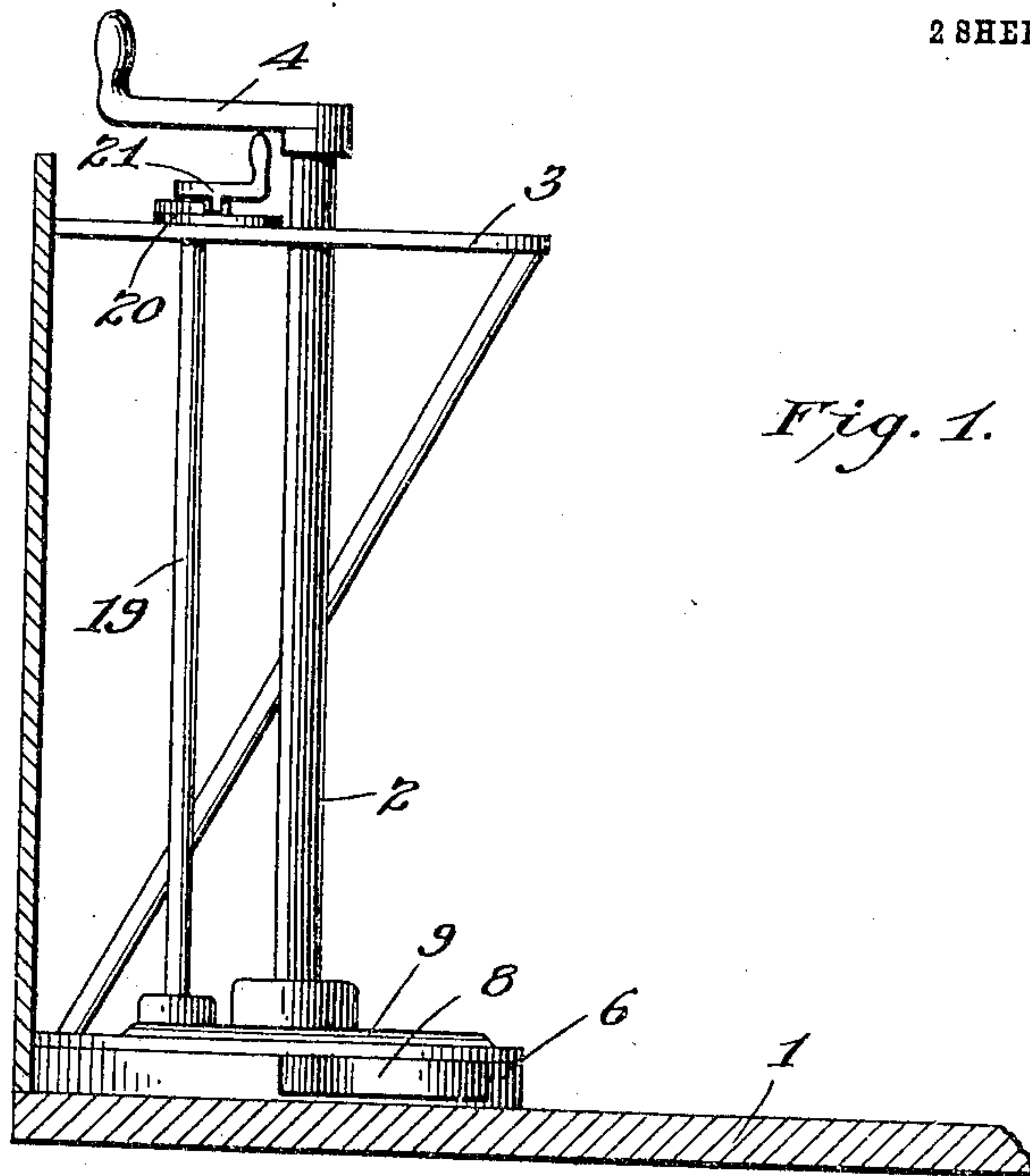


Fig. 1.

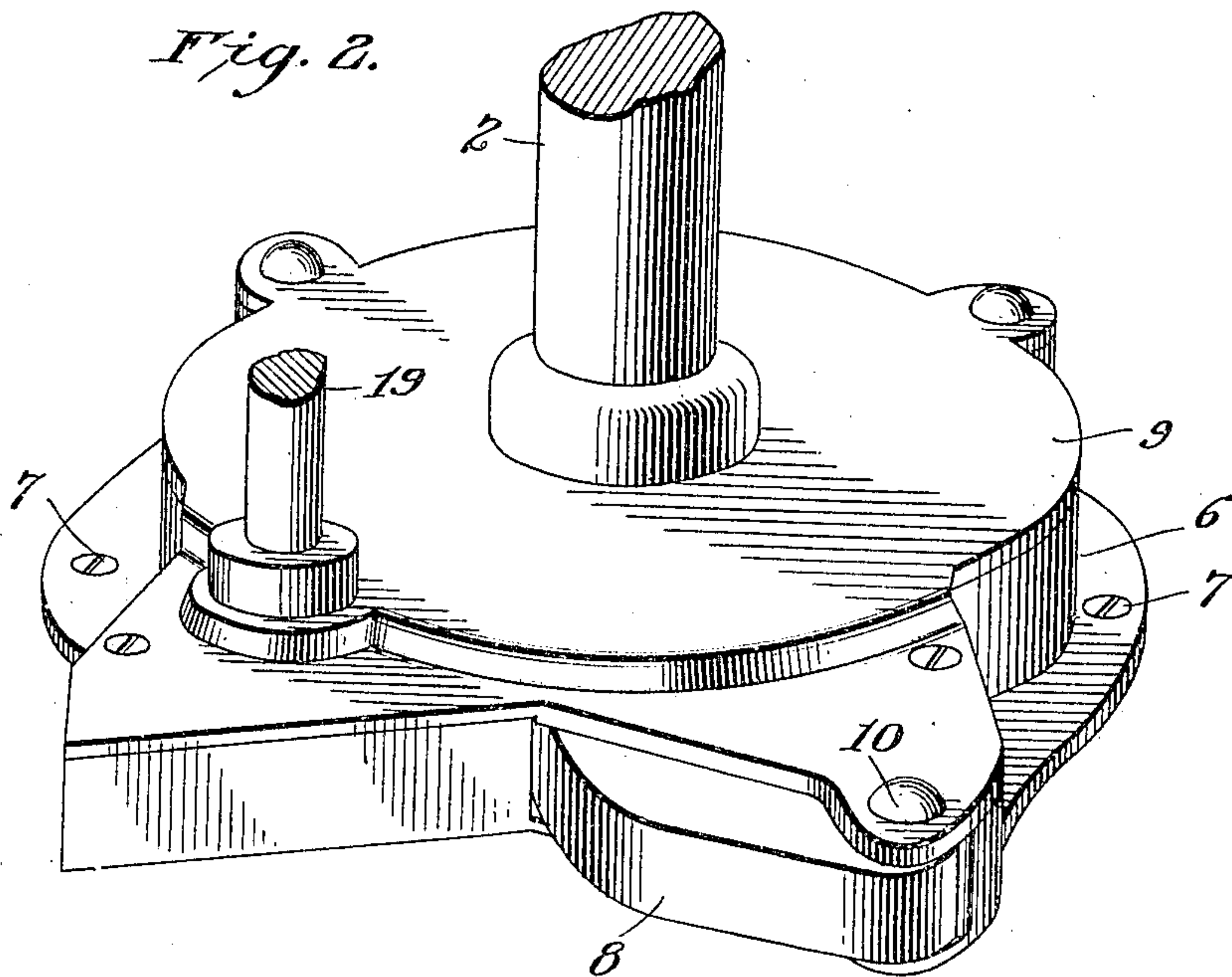


Fig. 2.

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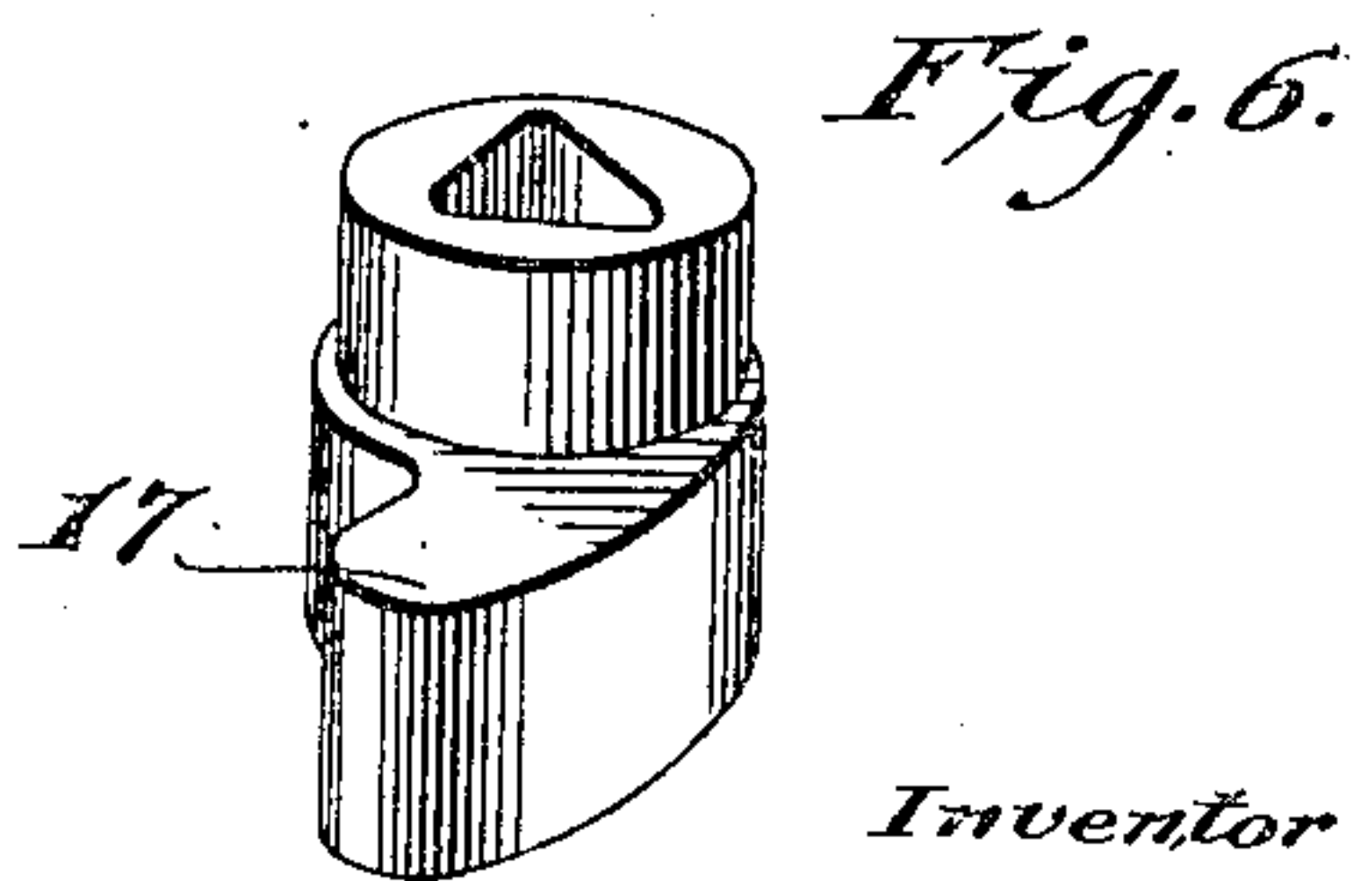
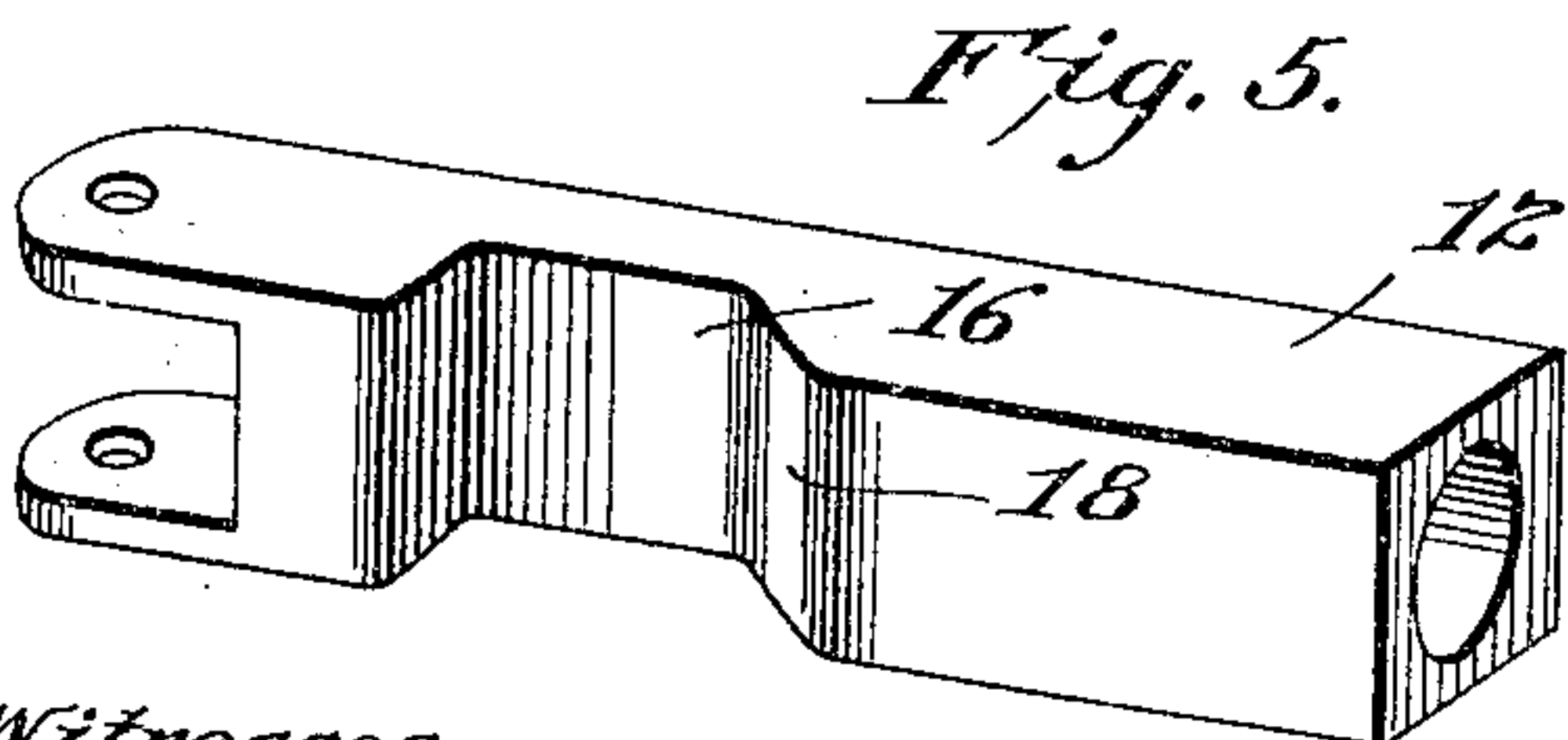
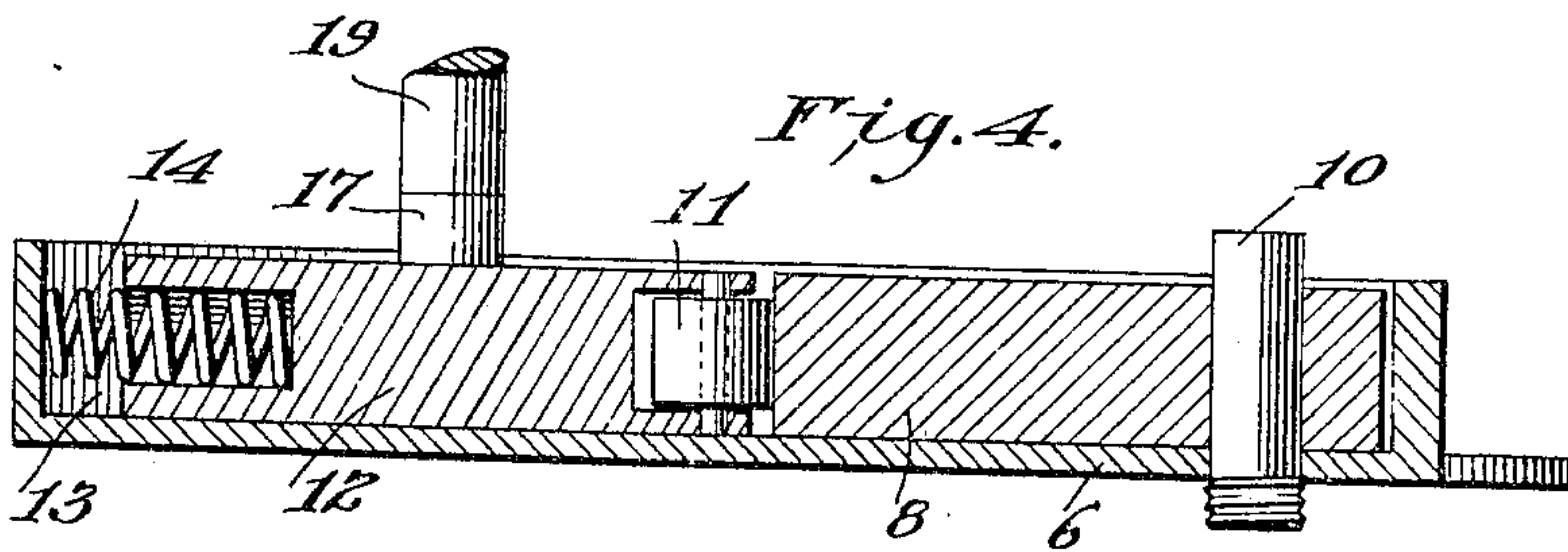
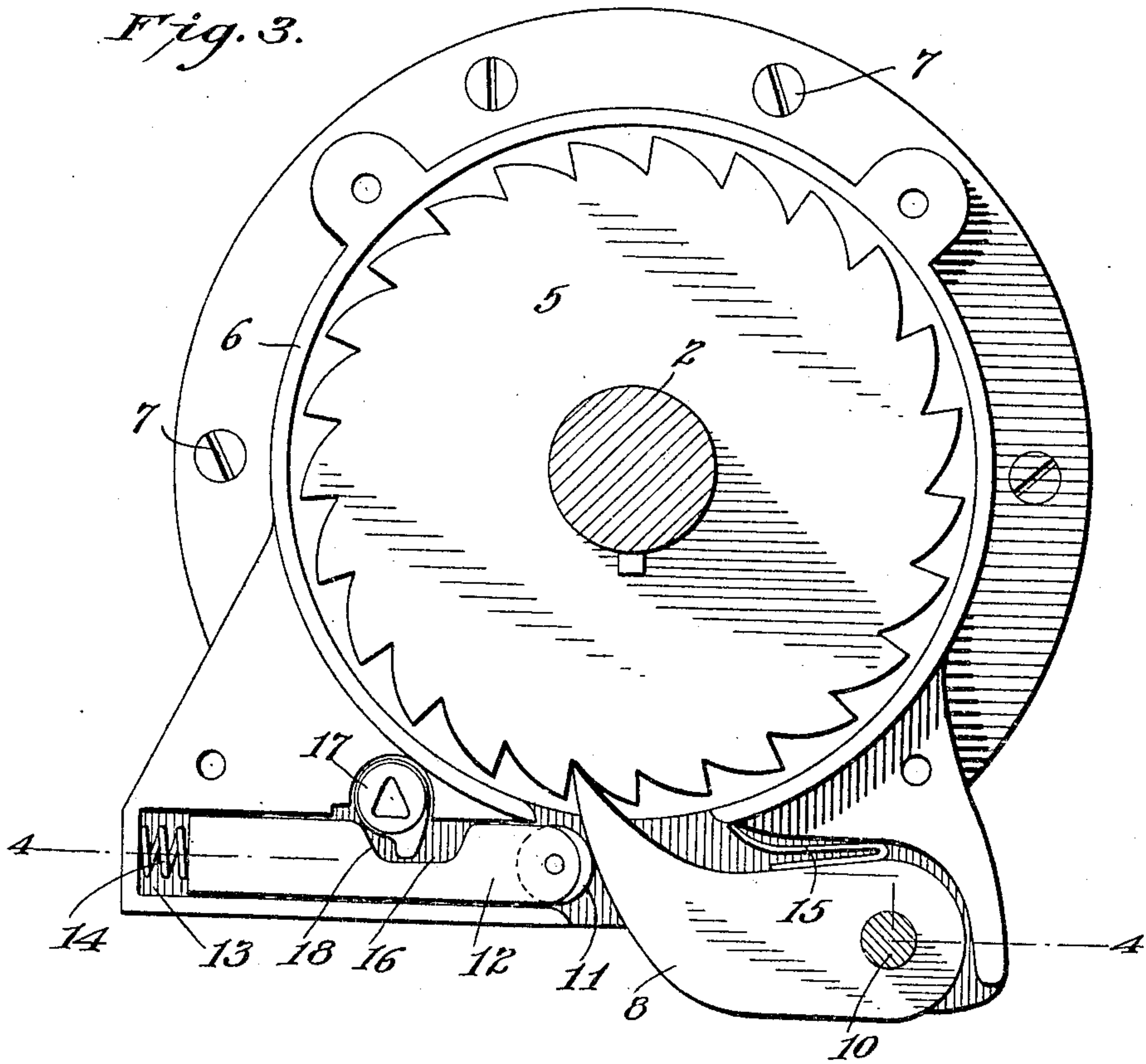
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UNITED STATES PATENT OFFICE.

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SAFETY DEVICE FOR CAR-BRAKES.

No. 927,847.

Specification of Letters Patent.

Patented July 13, 1909.

Application filed December 12, 1908. Serial No. 467,302.

To all whom it may concern:

Be it known that I, HOWARD S. FOSTER, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Safety Devices for Car-Brakes, of which the following is a specification.

My invention relates to an improved safety device for car brakes, an object of the invention being to provide improved mechanism for securely locking the brake against accidental release, which is especially designed for permitting a motorman to leave his car without danger of the brake being accidentally released by a passenger.

As is well known, it is frequently necessary for motormen to leave their cars, to throw a switch, or for other reasons, and at such times he must of course apply his brakes. The only securing means ordinarily employed, is a pivoted dog to engage the ratchet wheel on the brake shaft, and should this dog be accidentally touched by the foot of a passenger, the brake handle will swing around with great force, and this frequently happens, resulting in injury to the passenger, and also causing the release of the car brakes, and the movement of the car. To avoid any such possibility, my invention was devised, and consists in an improved means for locking a ratchet dog against possibility of accidental release from the ratchet-wheel, such locking means being under control of the motorman, and can only be released when done so by design.

The invention also consists in certain novel features of construction, and combinations, and arrangement of parts as will be more fully hereinafter described and pointed out in the claims.

In the accompanying drawings, Figure 1, is a view in elevation illustrating the application of my improvements to a car platform. Fig. 2, is a perspective view. Fig. 3, is a plan

view showing the shafts in section and the casing top removed. Fig. 4, is a view in section on the line 4—4 of Fig. 3, and Figs. 5 and 6, are detail perspective views of the latch-bar and its operating tumbler respectively.

1 represents a car platform, 2 the ordinary vertical brake shaft supported by a frame or bracket 3, such as ordinarily employed on street cars and a crank arm or brake handle 4 is secured on the upper end of the shaft.

5 indicates a ratchet-wheel keyed to shaft 2 and located in a casing 6, the latter secured to the platform 1 by means of screws 7. This casing 6 is preferably a casting having a flat bottom on the platform 1, and provided with perforations in an annular flange on said casing to receive screws 7 and rigidly secure the casing to the platform.

The ratchet-wheel 5, is engaged by a dog 8, pivotally supported in a recess in the casing, by means of a long wood screw 10, the smooth portion of which is located in aligned openings in the casing top 9, in the dog 8, and in the casing bottom, and is screwed into the platform 1. The idea being that the constant vibration and operation of the dog will not tend to loosen the casing from the platform as the screw 10 is secured directly to the platform 1, and will take up the strains and stresses on the dog. The rear face of the dog 8 is curved as shown, and is engaged by a roller 11 on the end of a latch-bar 12, the latter mounted to move in an elongated recess 13 in the casing 6. A coiled spring 14 is located between the inner end of latch-bar 12 and the end of the recess 13, normally pressing the latch 12 toward the dog 8, and a bow spring 15 is provided between the dog 8 and the wall of its recess and normally presses the dog 8 away from the ratchet-wheel 5, the spring 14 being stronger than the spring 15, so as to hold the dog in locked engagement with the ratchet-wheel 5 when the latch-bar is permitted to engage the dog. This latch-

bar 12 is made with a recess 16, and an eccentric tumbler 17 is supported to turn in the casing, and is movable in the recessed portion 16, and adapted to engage the shoulder 18 at the inner end of said recess, and hold the latch-bar in a rearward position out of contact with the dog 8. This tumbler 17 is fixed to the lower end of a vertical shaft 19, the latter supported at its upper end in a plate 20, and said plate is secured to the frame or bracket 3, and a crank arm 21 is secured on the upper end of shaft 19 above plate 20, and by turning this crank arm 21 the tumbler 17 can be operated.

Suitable collars are provided around the shafts 2 and 19, above the casing top 9, so as to prevent the entrance of dirt and moisture into the casing and not interfere with the operation of the locking mechanism.

The operation of my improvements is as follows. Under ordinary conditions, the tumbler 17 is turned by its crank arm 21, so as to force the latch-bar rearwardly, and by reason of the engagement of the tumbler with the shoulder 18, at the inner end of recess 16, the latch-bar will be securely held. When the brake is applied the motorman will kick the dog 8 inwardly, and the latter will securely lock with the ratchet-wheel 5. When the brake handle 14 is given a jar, as is ordinarily done, the dog 8 will be released, and will spring outward, allowing the brake to be released. If the motorman is to leave his car, he applies the brakes, and then turns crank arm 21 to release the tumbler 17 from engagement with the shoulder 18, and the spring 14 will move the latch-bar into engagement with the dog 8. As the spring 14 is stronger than the spring 15, the dog will be held against accidental release. If, however, the motorman desires to further apply the brake, he can turn the shaft 2 and ratchet-wheel 5 in that direction, as the ratchet-teeth of wheel 5 will force the dog 8 rearwardly against the action of the spring 14, but as soon as this turning pressure is released, the spring 14 will force the dog 8 inward, into locked engagement and prevent any reverse movement of said ratchet-wheel, until the tumbler 17 has been moved by its crank arm 21, to force the latch-bar rearwardly.

It will thus be seen that I have provided a safety device which will absolutely prevent any possibility of the accidental release of the brake, and will render it absolutely safe for a motorman to leave his car at any time, with the assurance that his brake will remain applied until he returns.

A great many slight changes might be made in the general form and arrangement of parts described without departing from my invention, and hence I do not restrict

myself to the precise details set forth, but consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a device of the character described, the combination with a brake shaft, a ratchet wheel thereon, and a dog engaging the ratchet wheel, of means normally holding the dog away from the ratchet wheel, and mechanism adapted to engage said dog and hold it in engagement with the ratchet wheel.

2. In a device of the character described, the combination with a brake shaft, a ratchet wheel thereon, and a pivoted dog engaging the ratchet wheel, of a spring normally pressing said dog away from the ratchet wheel, and mechanism adapted to engage said dog and lock the dog in engagement with the ratchet wheel.

3. In a device of the character described, the combination with a brake shaft, a ratchet wheel thereon, and a pivoted dog engaging the ratchet wheel, of a spring normally pressing said dog away from the ratchet wheel, and a latch bar adapted to engage said dog and lock the dog in engagement with the ratchet wheel.

4. In a device of the character described, the combination with a brake shaft, and a ratchet-wheel thereon, of a pivoted dog engaging said ratchet-wheel, a spring normally pressing said dog away from the wheel, a latch-bar engaging said dog, a spring pressing said latch-bar toward the dog, and means for holding said latch-bar out of engagement with the dog.

5. In a device of the character described, the combination with a brakeshaft, a ratchet-wheel thereon, and a pivoted dog engaging said ratchet-wheel having a curved outer face, of a spring-pressed latch-bar adapted to engage said dog and hold it in locking engagement with the ratchet-wheel, a tumbler adapted to engage said latch-bar and hold it out of engagement with the dog, and means for operating said tumbler.

6. In a device of the character described, the combination with a brakeshaft, a ratchet-wheel thereon, a pivoted dog engaging said ratchet-wheel and having a curved outer face, of a latch-bar adapted to engage said dog, a spring pressing said latch-bar toward the dog, a roller carried by said latch and adapted to engage the curved face on the dog, said bar having a recess forming a shoulder at one end of said recess, and a tumbler movable in said recess and adapted to engage said shoulder to hold the latch-bar out of engagement with the dog.

7. In a device of the character described,

the combination with a casing adapted to be
secured to a car platform, a brake shaft ex-
tending through said casing, and a crank or
brake arm on said shaft, of a ratchet-wheel
5 secured on the shaft within the casing, a
pivoted dog engaging said ratchet-wheel, a
spring normally pressing said dog away from
the ratchet-wheel, a spring-pressed latch-bar
adapted to engage the dog and lock it in en-
10 gagement with said ratchet-wheel, a tumbler
adapted to engage the latch-bar and hold it

out of engagement with the dog, a shaft con-
nected to said tumbler and projecting up-
ward from the casing, and a crank arm se-
cured on the upper end of said shaft.

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

HOWARD S. FOSTER.

Witnesses:

R. H. KRENKEL,

J. A. L. MULHALL.