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Fig. 1.

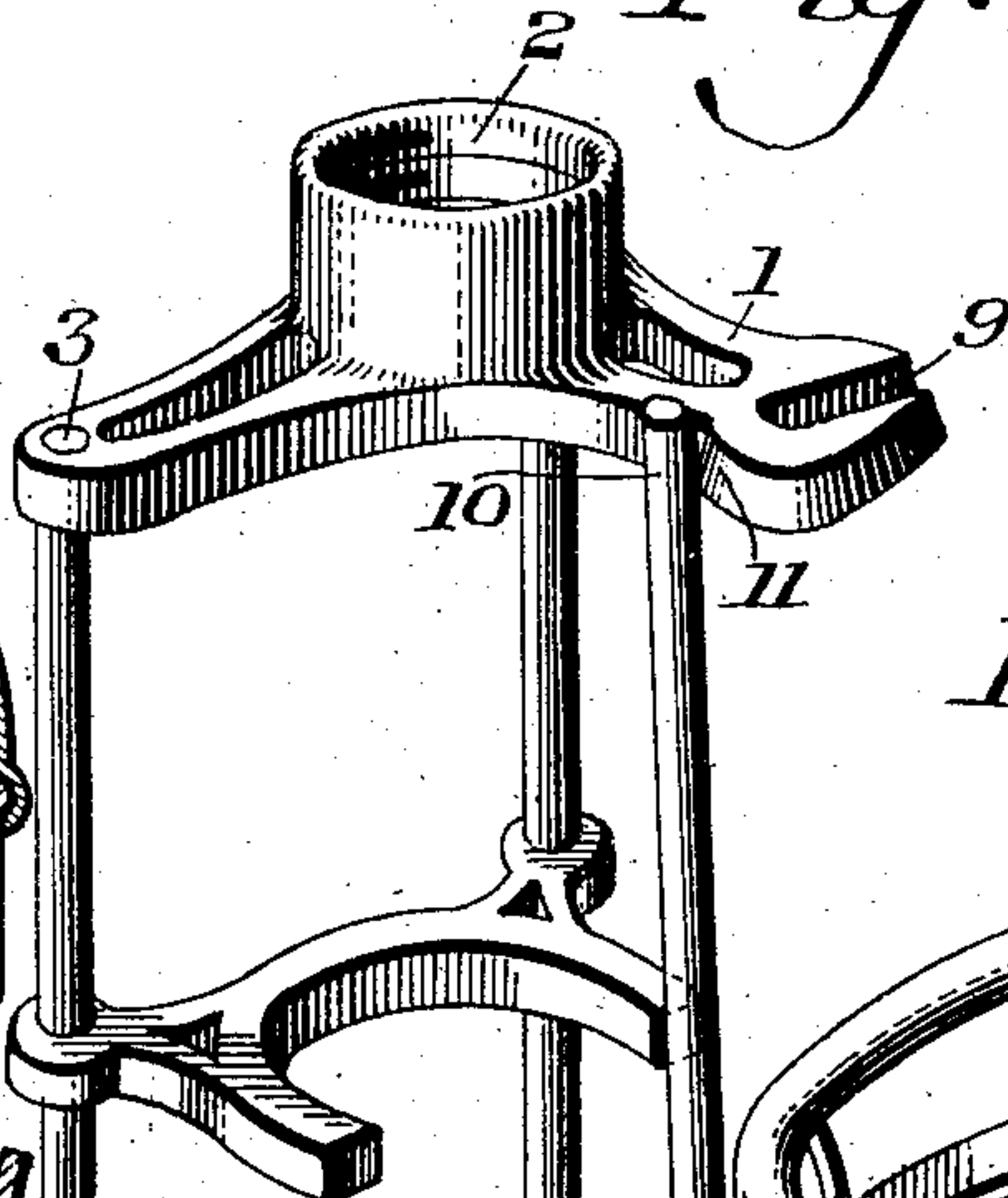


Fig. 2.

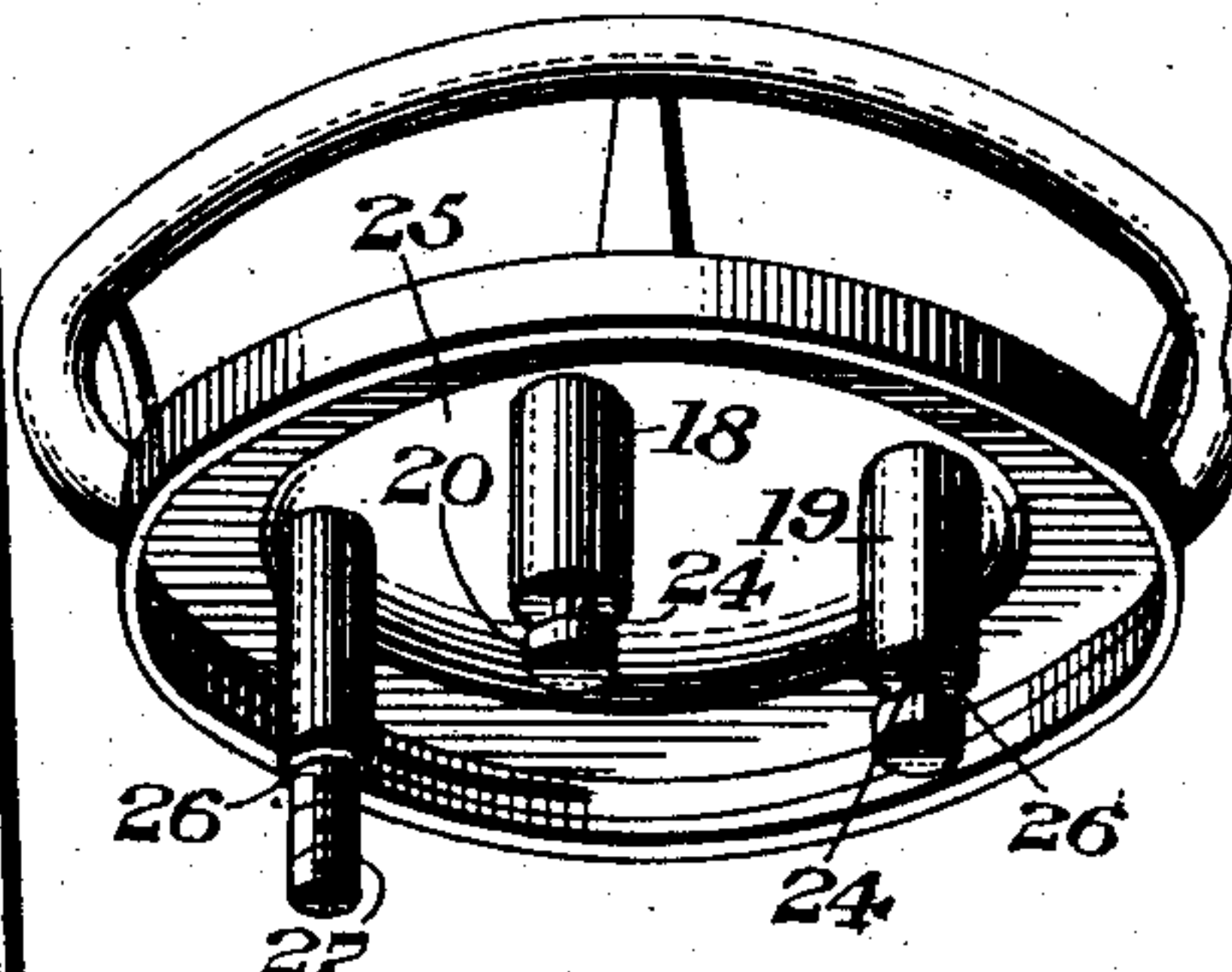
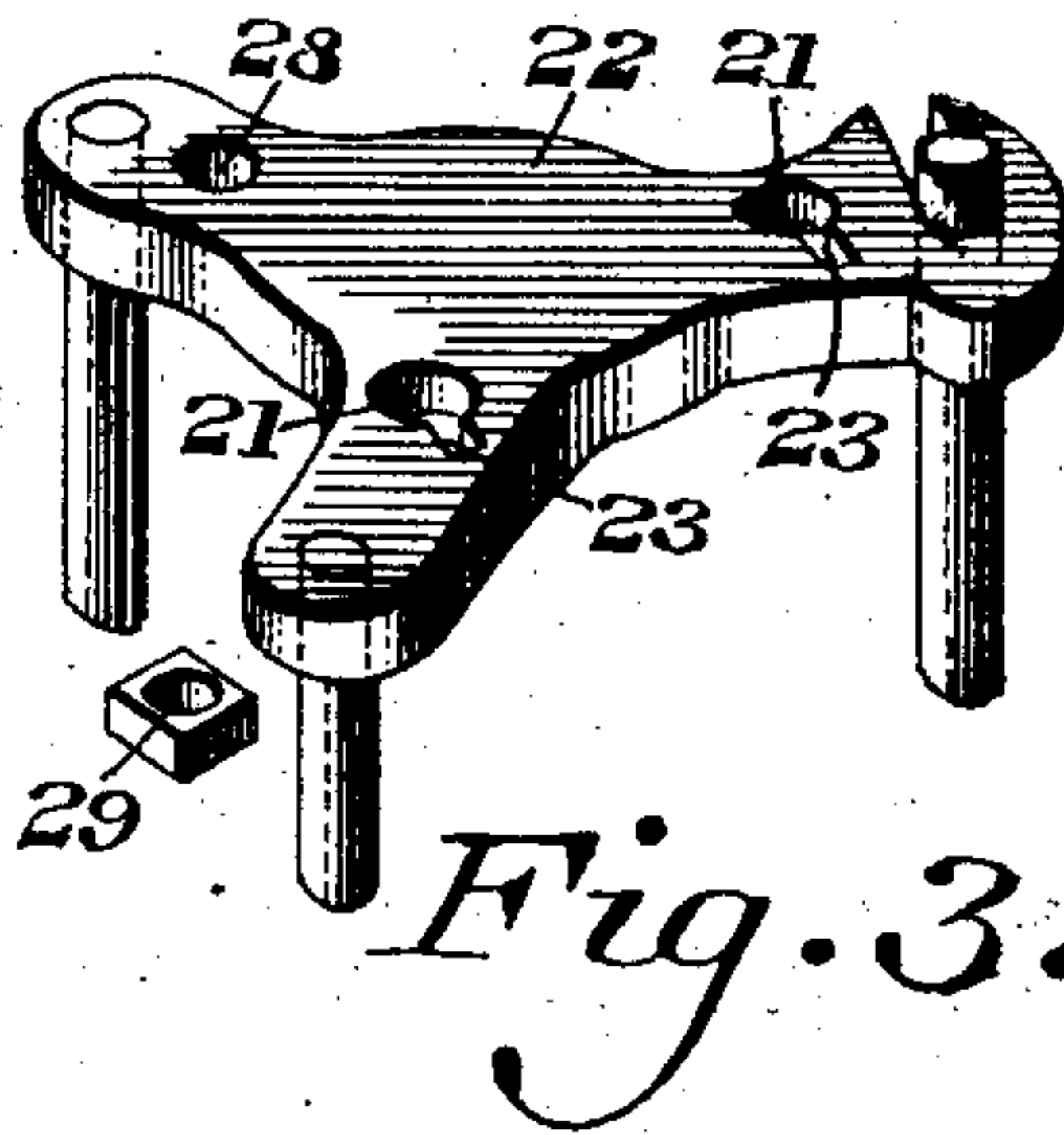
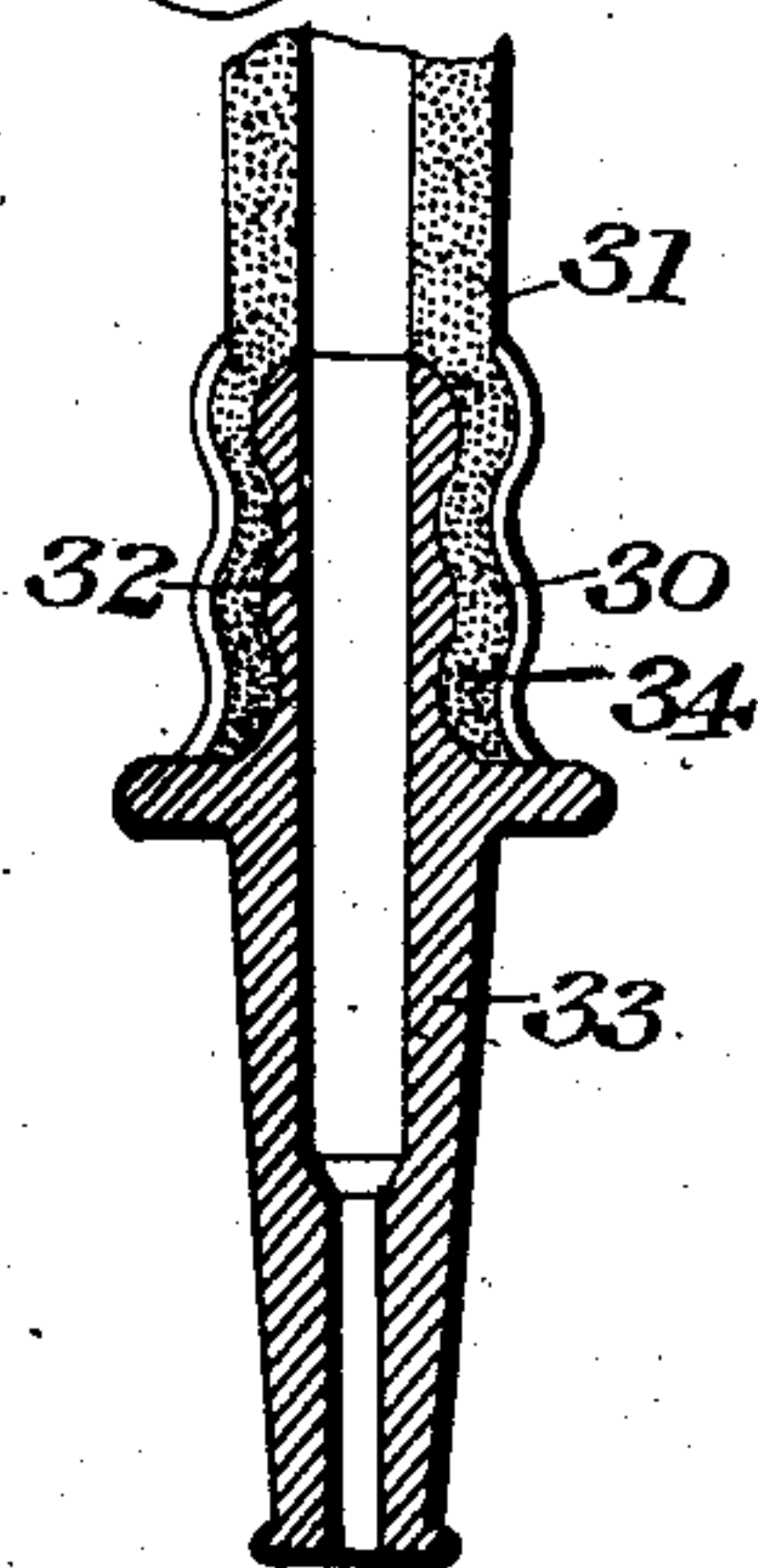


Fig. 4.

Fig. 5.



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CHEMICAL FIRE-EXTINGUISHER.

973,857.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRANK LESLIE COOKE, a citizen of the United States, residing in the city and county of New York, State of New York, have invented a new and useful Chemical Fire-Extinguisher; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

From the nature of the subject the construction involved in chemical fire-extinguishers must be as nearly as possible free from defects and also proof against the ordinary accidents and errors due to ignorant or careless using. Whether its use be frequent or infrequent, it is always of an emergency character in time of peril to life or property, and the importance of reliability can hardly be overestimated.

One of the difficulties which has most frequently been met in operation arises from the possibility in wire cage constructions of carelessly inserting the cage within the shell while its movable closing member is displaced. This permits the chemical receiver to fall out of the cage, even when the extinguisher is not being operated and prevents that control of the flow of the fluid in operation, which is so desirable in order to avoid excessive pressure with consequent irregularity of range and reduced time of operation. Difficulty has also been experienced in securing a suitable form of attachment of the spider to the cap, which shall be light and effective, and at the same time independent of the character of the center of the spider. There has been difficulty also in suitably uniting the hose to the thimble and nozzle, respectively, in such manner that even after long dis-use the parts shall be capable of withstanding the required pressures without leakage or rupture.

The purpose of my invention is to eliminate the evils mentioned from consideration of fire extinguishers.

A further object of my invention is to provide a side opening cage construction, which is light and simple, which is limited in opening range, which can not be inserted unless almost completely closed, and which shall show very evidently by its position whether it be closed or not.

A further object of my invention is to

provide a side opening cage in which the line of movement of the movable member is transverse to the direction of movement of the acid receptacle, when inserted or removed therefrom.

A further object of my invention is to provide a stud construction for supporting the spider at the top of my cage, which shall be light, neat and strong, and capable of location so as to be free from interference with other parts.

Figure 1 represents a perspective view of a cage construction embodying the side opening feature of my invention. Fig. 2 represents a perspective view of a cap and depending studs. Fig. 3 represents a perspective view of a spider adapted to engage with the studs of Fig. 2. Fig. 4 represents a vertical section of the construction shown in Figs. 2 and 3, when assembled. Fig. 5 represents a nozzle and hose united by my invention. Fig. 6 is a partial longitudinal section of a fire extinguisher, showing my cage in elevated position.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings: 1 designates a spider forming the top of a cage and provided with interior screw threads at 2, for engagement with a depending boss not shown, for attachment of the spider to the cap of the extinguisher shell from which the boss depends.

The spider is provided with two openings 3, within which are secured fixed side rods 4 and 5, which at their lower ends are likewise secured through openings 6, within a lower spider 7 forming the bottom of the cage.

While the cage is shown as of three wire construction, having two thick wires and one movable wire, it is evident that the principle of my invention could be applied to structures having a different number of wires, rods or other side closures, and that one or more of these side members could be made movable.

In the location of the third wire to form my triangular frame construction, I place a movable wire or rod, constituting member 8, whose plane of movement is preferably transverse to a line joining it in its normal position with the center of the cage. In the upper spider 1, I form a slot 9, preferably transverse also to what I may term the radial plane of the cage, within which aper-

ture the end 10 of member 8 is adapted to be seated when in place. The spring of the member 10 is adapted to retain it within this aperture, and at the same time the

5 adjustment is preferably such that the end 10 will be held at a distance from the edge 11, of the spider, when it is not under tension, in order that the fact of its non-retention may be evident.

10 At the lower end of the cage the member 8 is pivoted so as to swing transversely of the plane of the radius of the cage at this point, the pivoting being preferably accomplished as hereinafter described.

15 The object of my invention may evidently be accomplished by other forms of pivoting in which the movement is restricted and in which torsion or other springing of the metal at one extremity may act to retain the member 8 in latched position or in definite unlatched position.

I preferably turn the end 12 of the member 8 transversely thereto, and pass it through part of the spider 7, to form bearings at 13 and 14, turning the ends again at 25 15 in such way as to engage with the spider 7 or an attachment thereto, at 16, when the member 8 has almost reached the face 11 of the spider 1. Further movement of member 8 will result in torsion of the end 12, causing the end 10 to rest securely within the aperture or slot 9.

I place a lug or boss 17 in such position in line with the path of movement of the member 8 or of its lateral extension 15, that 35 the member 8 may not move more than approximately a right angle, and at any rate not through nearly 180° in order that it shall be impossible for this rod or member to fall down nearly straight and permit insertion of the cage while this member is in such an undesirable position.

The bearings 13 and 14 are so placed as to afford preferably, a substantially radial 45 passage for the end 12 resulting in movement of the member 8 in a lateral direction which for convenience I have referred to as tangential inasmuch as it is in a plane tangential to the circle drawn through the parts 50 4, 5 and 8 when the part 8 is in its closed position. The location of this circle is further determined by the position of the bottle normally placed within the cage whose center corresponds substantially with the center of the circle. This use of the word "tangential" is merely for convenience and is not intended to imply that the bearings 13 and 14 must be exactly radial in their relative position nor that the member 8 must move 60 in the exact tangent to a circle having the bottle center as its center or the rods 4, 5, 8 in its circumference.

I preferably locate the end 10 sufficiently 85 near to the cap of the shell for it to make engagement with the neck of the shell, in

case of any movement therein, to prevent accidental opening of the cage within the shell, out of abundance of caution. As the cage is inserted before the cap is secured in place, it will be evident that the cage is inserted farthest within the shell when the cap is in place, and that the end 10 could not slip past the neck of the shell during the process of insertion.

I form projections or studs in the form 75 shown in Figs. 2-4, depending from the cap. These are preferably three in number, of which two, 18 and 19, are provided with notched ends 20 for insertion within the larger apertures of key-hole slots 21 within spider 22. The reduced portion 23 of the key-hole slots are suitable for engagement with the necks 24. The third stud depending from cap 25 and numbered 26, is provided with a reduced screw threaded end 27, 85 adapted to enter aperture 28 within the spider 22 within the key-hole slots engaged with the neck 24. The nut 29 is then placed upon the stud 26 securing the spider rigidly in place.

In the form shown in Fig. 5 I have illustrated my means of attachment of the hose to the nozzle or to the thimble attached to the shell of the machine. I slip a shell 30 of suitable material over the tubing 31 and 95 place the extension 32 of the nozzle 33 or of the thimble within the tubing. I preferably form distinct corrugations 34 or other irregularities within the surface of the extension 32, and spin the shell into tight gripping engagement with the tubing and conformation to and with the shape of the projection within.

Having thus described my invention, what I claim as new and desire to secure by 105 Letters Patent, is:—

1. In an extinguisher cage, top and bottom parts, one of which provides bearings, a plurality of side members connecting these parts, a transversely movable pivoted side 110 member mounted in said bearings, and means for changing from pivotal movement of this member to lateral spring movement thereof in proximity to the closed position.

2. In an extinguisher cage, an upper 115 spider having a transverse slot therein, a lower spider having bearings upon opposite sides of the center thereof, fixed connections between said spiders, a closing member pivoted in said bearings, and means upon the 120 lower spider for checking pivotal movement of said closing member in proximity to its closed position.

3. In an extinguisher cage, top and bottom members therefor having a transverse 125 catch in one and bearings upon opposite sides of the center of the other thereof, connections between the top and bottom, a closure pivoted in said bearings and extending beyond said bearings, and means upon the 130

member carrying the bearings for engaging said extension.

4. In an extinguisher cage, top and bottom cage portions presenting bearings upon opposite sides of the center in one and a catch in the other, fixed connections between said portions, a side opening member pivoted in said bearings, and having a free end of sufficient length to engage with the catch.

5. In an extinguisher, a cap, studs depending therefrom, a spider engaging with the said studs and a cage secured to said spider.

6. In an extinguisher, a cap, a plurality of studs depending therefrom, a plate engaging some of said studs by means of key-hole slots, means for securing said plate to another of said studs and a cage secured to said plate.

7. In an extinguisher cage, top and bottom cage portions presenting bearings upon opposite sides of the center in one of said portions and a catch in the other, fixed connections between said portions, a closing member pivoted in said bearings and extending at an angle thereto for engagement with said catch, and means for checking the pivotal movement of said member before its engagement with said catch.

8. In a device of the character described, top and bottom cage members presenting a plurality of bearing points in the one of said members, and a catch in the other thereof, fixed connections between said members, a side opening member having a portion substantially parallel to the fixed connections and a substantially right angular portion fitting in said plurality of bearings and an extension terminating said portion and restricting full movement of said side opening member to its position in the catch.

9. In a device of the character described, top and bottom cage portions presenting radially directed bearings in one of said portions, and a catch in the other thereof, fixed connections between said portions, a tangentially movable opening member piv-

oted in said bearings and a stop on the member having the bearings restricting movement of said side opening member.

10. An extinguisher, a cap, a spider secured thereto and conforming to the cage, a lower end for said cage, side members therefor, one of said side members being pivotally connected to one of the ends of the cage, and means for restricting the free movement of this pivot to cause torsional strain upon the same in the final closing movement of the pivoted member.

11. In a device of the character described, top and bottom cage portions presenting bearings in the one and a catch in the other thereof, a pivoted side opening member, and means for limiting the opening movement of said member.

12. In a device of the character described, top and bottom cage portions presenting bearings in the one and a catch in the other thereof, fixed connections between said portions, a tangentially movable cage closure, means for limiting the tangential closing movement thereof before the catch is reached and means for limiting the opening movement thereof.

13. In an extinguisher cage, top and bottom cage portions affording bearings in the one and a catch in the other, fixed side connections between, a pivoted closure extending to engage with said catch and a stop for said pivoted closure in proximity to its bearings, checking movement thereof before the end engages with the catch.

14. In an extinguisher cage, top and side cage portions in combination with a pivoted side member having a free end to engage with the top portion, and means for checking movement of the pivot of said side member before the free end engages with the top member.

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Witnesses:

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