

No. 873,725.

PATENTED DEC. 17, 1907.

F. B. COREY.  
PNEUMATICALLY OPERATED GONG.  
APPLICATION FILED MAY 23, 1904.

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Fig. 1.

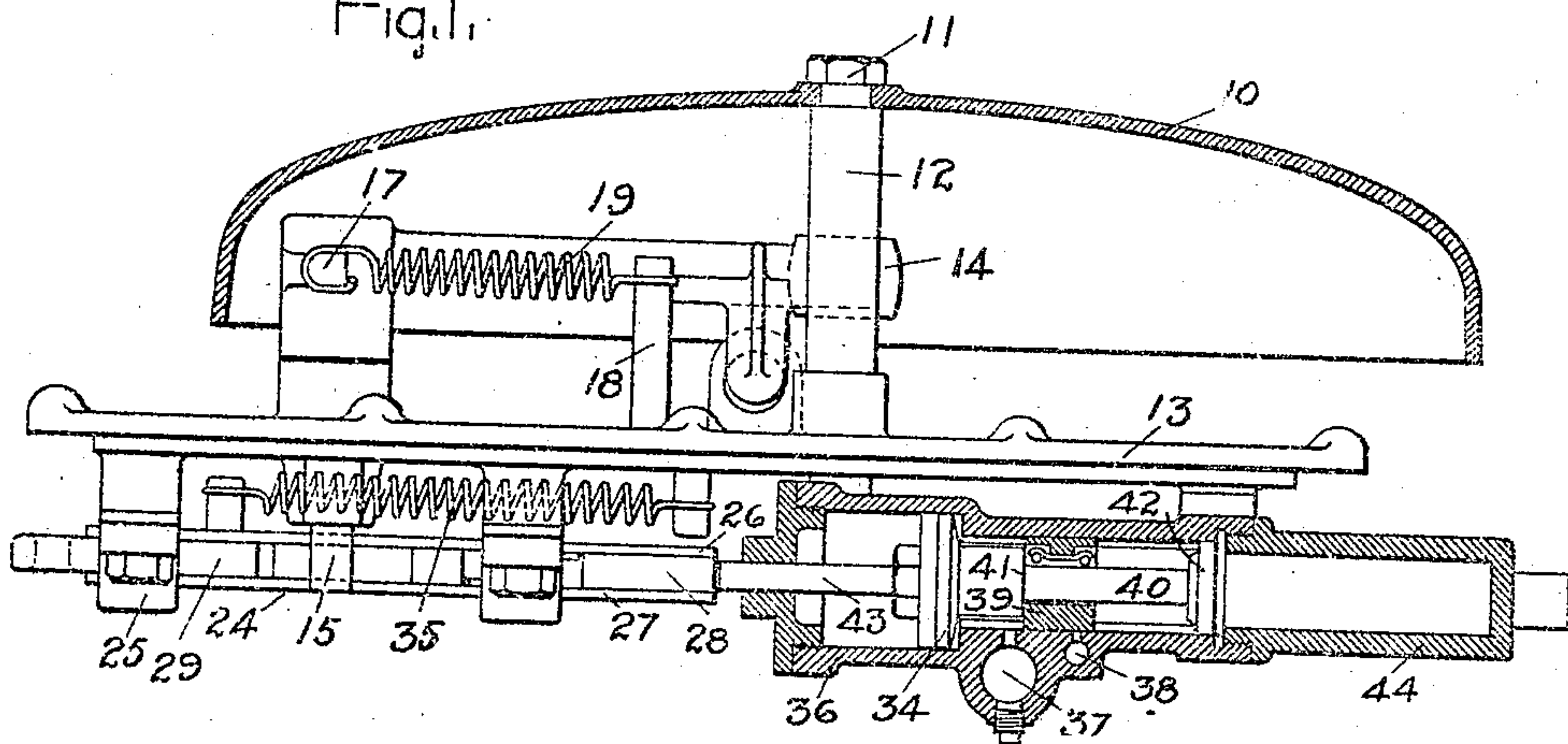


Fig 2.

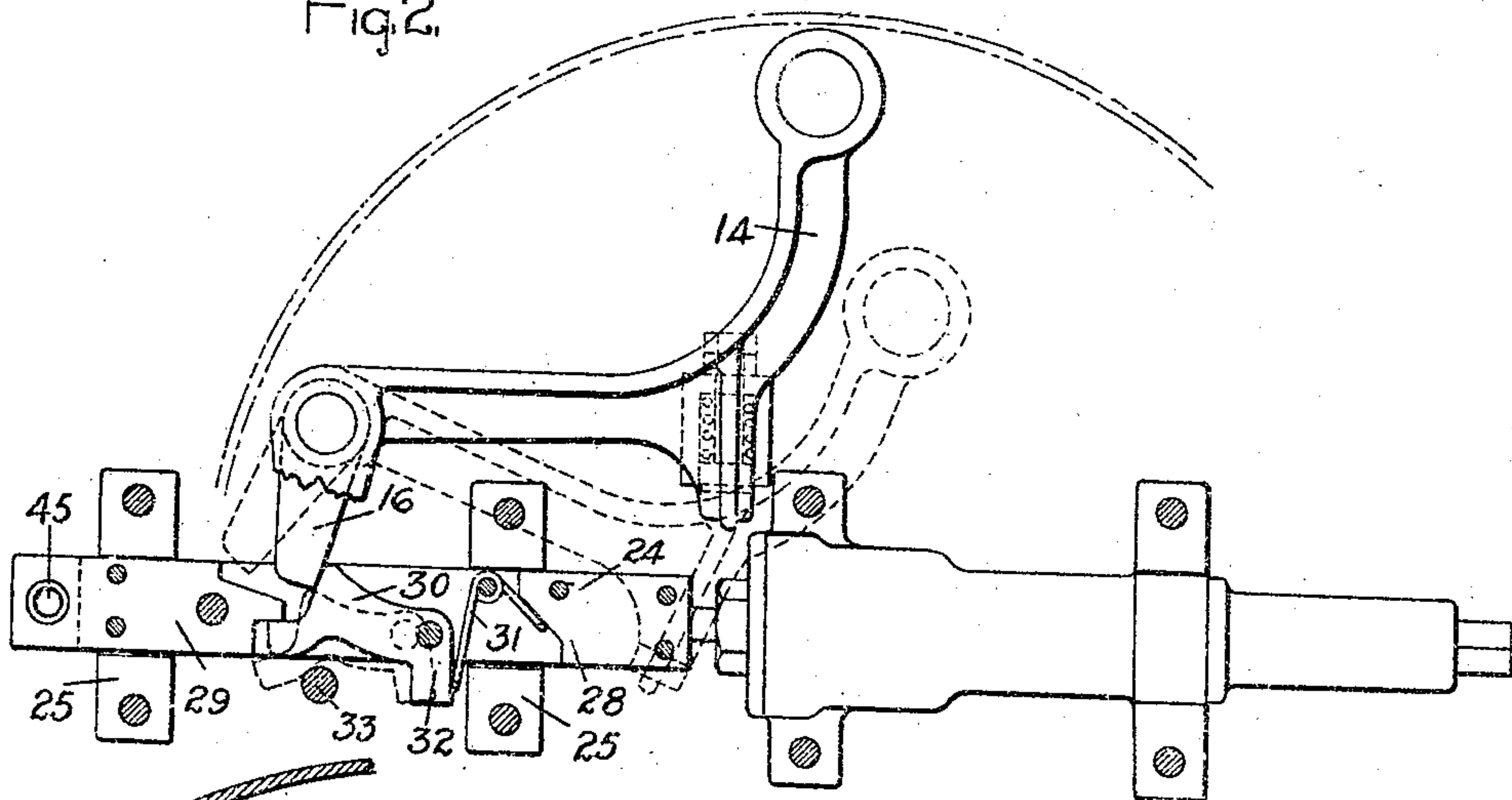


Fig. 3.

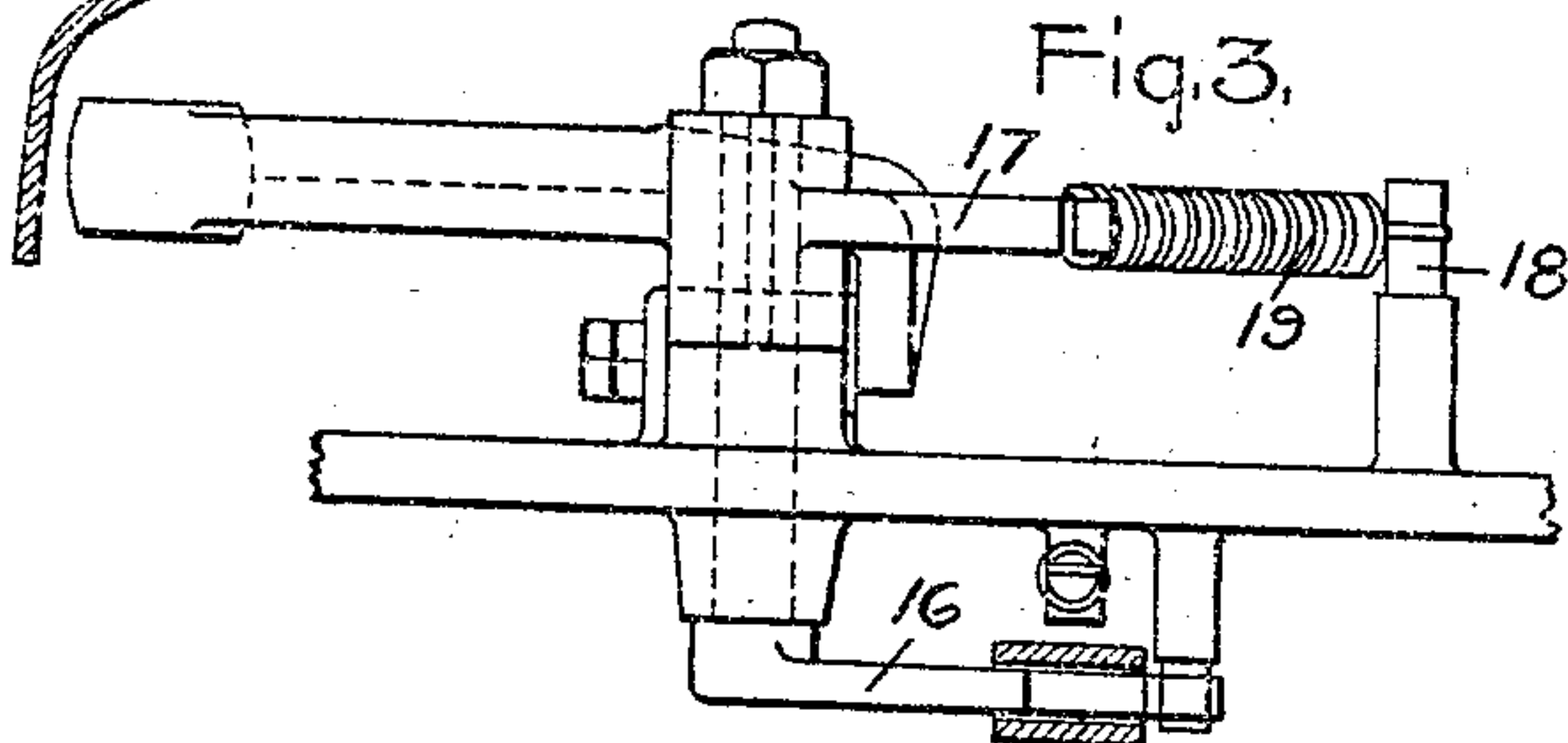
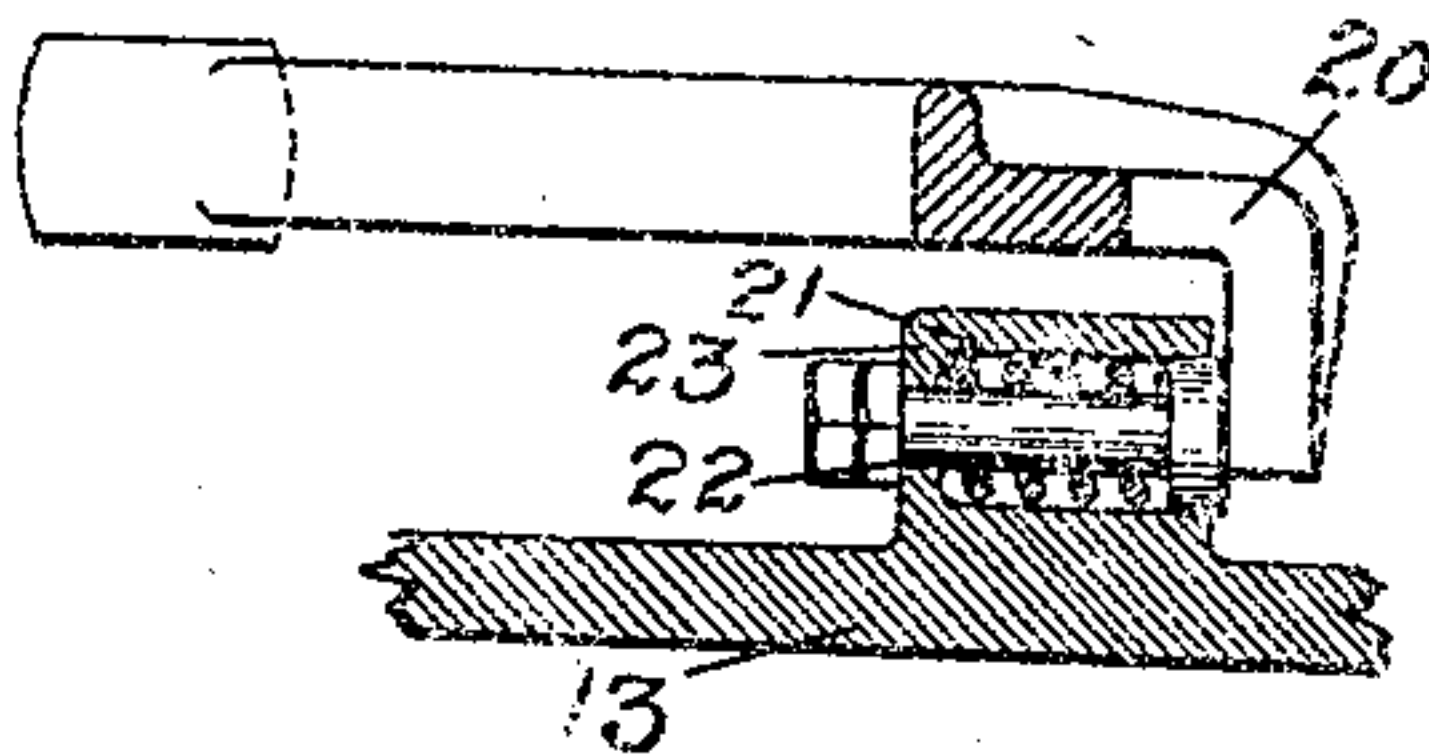


Fig. 4.



WITNESSES:

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Atty



# UNITED STATES PATENT OFFICE.

FRED B. COREY, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY,  
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## PNEUMATICALLY-OPERATED GONG.

No. 873,725.

Specification of Letters Patent.

Patented Dec. 17, 1907.

Application filed May 23, 1904. Serial No. 209,293.

*To all whom it may concern:*

Be it known that I, FRED B. COREY, a citizen of the United States, residing at Schenectady, in the county of Schenectady and State of New York, have invented certain new and useful Improvements in Pneumatically-Operated Gongs, of which the following is a specification.

The present invention relates to gong-operating mechanism and has particular reference to pneumatically-operated means for performing this function.

The object of the invention is to provide an efficient mechanism which is simple and compact in structure.

To this end it comprises certain novel features which will be best understood from the following detailed description of one embodiment of the invention taken in connection with the accompanying drawing, and the scope of the invention will be particularly pointed out in the appended claims.

Figure 1 of said drawings is a side elevation of the complete device illustrating the gong and the pneumatic cylinder in section; Fig. 2 is a fragmentary plan view designed particularly to illustrate the operation of the device; Fig. 3 is an end view illustrating particularly the hammer and its connections with other parts of the mechanism; and Fig. 4 is a detailed view illustrating the spring cushion for the hammer. Throughout these figures like characters refer to like parts.

Referring in detail to the drawings, 10 designates the gong which is secured by a bolt 11 to the upper end of the post 12 mounted on the upper side of the base-plate 13. The hammer 14 is secured to the upper end of a pin 15 which is journaled in the base-plate 13 and terminates at its lower end in a laterally-extending arm 16. The hammer 14 is also provided with a laterally-extending arm 17 which extends in the same direction as the arm 16 but above the base-plate. The outer end of the arm 17 is connected to a fixed post 18 by a coiled tension spring 19. The hammer and its actuating spring are located within the periphery of the gong 10 and between it and the base-plate 13. From the above it will be seen that when the hammer is moved to the dotted line position of Fig. 2, the spring 19 will be put under strain and as soon as the hammer is released it will fly outward against the gong.

In order to prevent the hammer from re-

maining in contact with the gong after it has delivered its blow, a spring cushion is provided which is adapted to engage a downwardly-extending projection 20 on the hammer. This cushion consists of a spring 21 which normally forces a bolt 22 slightly beyond the end of the spring case 23 formed integral with the base-plate 13.

In order to place the spring 19 under strain, I employ a reciprocatory driving member 24 located on the under side of the plate 13 and adapted to reciprocate in the guides 25. The member 24 consists essentially of upper and lower plates 26 27 secured at their ends to spacing blocks 28 29 which are cut away at their adjacent ends in the manner illustrated in Fig. 2, thus leaving an open space at the center of the member between the plates 26 and 27 for the pivoted actuating pawl 30. This pawl is normally held in the full-line position of Fig. 2 by a spring 31. When in this position the outer end of the pawl is adapted to engage the laterally-projecting arm 16 of the hammer 14 as said member reciprocates. Thus it will be seen that when the member 24 is moved forward, the hammer is rocked about its pivot and the spring 19 is put under strain. This movement continues until the tail 32 of the pawl strikes the fixed pin 33. When this occurs, the pawl is thrown out of engagement and the hammer blow is delivered under the strain of the spring 19. The pin 33 is located so as to trip the pawl before the member 24 reaches the end of its forward movement.

In order to reciprocate the member 24, I employ a piston 34 to move the member forward and the spring 35 to return it. The piston 34 is located in a cylinder 36 which is provided with supply and exhaust ports and passages 37 and 38 respectively. These ports are controlled by a slide-valve 39 mounted on the valve stem 40. A lost-motion connection between the valve and the stem is provided by making the length of the engaging surfaces 41 and 42 of the piston. On the opposite side of the piston 34 is a pin 43 which extends through the head of the cylinder and abuts against the end of the reciprocating member 24. When compressed air or other fluid under pressure is admitted to the right of the piston 34 through the port 37, the piston will be forced forward and



will carry the member 24 with it to store energy in the spring 19 and then trip the hammer loose so as to strike the gong. As the piston 34 moves forward, the slide valve 5 39 is engaged by the member 42 and moved so as to close the supply port 37 and open the exhaust port 38. In order that this movement of the valve may be sufficient to completely close the port 37 and completely 10 open the port 38, the tripping mechanism is arranged so that the hammer 14 will be freed before the piston reaches the forward end of its stroke. This has the effect of suddenly removing the resistance to the forward 15 movement of the piston and allowing the expansion of the air behind the piston to carry it and the valve forward so as to make a quick and complete closing of the one port and opening of the other. As soon as the 20 supply port is closed and the exhaust port is opened, the air will escape from the right of the piston and the spring 35 which is connected between the member 24 and the base-plate 13 will return said member and with it 25 the piston. Since this movement is relatively slow, as soon as the valve 39 is engaged by the bearing 41 on the piston, its movement will be correspondingly slow in opening the supply port and closing the ex- 30 haust port. In order that air admitted through the port 37 when it is partially open may not be sufficient to stop the backward movement of the piston and thus produce an unsatisfactory operation of the device, the 35 cylinder at the right of the piston is made of such capacity that the expansion of the air that may enter the cylinder through a partially-opened supply port will be insufficient to stop the piston before the valve has com- 40 pletely opened the supply port and closed the exhaust port. In the present instance, this enlarged capacity of the cylinder is obtained by an extension or receiver 44 located at the outer end of the cylinder.

45 In case of failure of the pneumatic supply, the gong mechanism may be operated manually by means of a cord passed through an opening 45 in the forward end of the member 24.

50 It will be apparent from the above description that my invention comprises features and sub-functions which are capable of use in other connections than that disclosed. It will also be apparent to those 55 skilled in the art that many alterations and modifications may be made in the construction of the device herein disclosed without departing from the spirit and scope of my in-

vention. I, therefore, do not wish to be limited to the specific matter shown, but aim to 60 cover by the terms of the appended claims all such alterations and modifications.

What I claim as new and desire to secure by Letters Patent of the United States, is,

1. In combination with a gong, an auto- 65 matic ringing mechanism comprising a spring-actuated hammer, a reciprocatory member carrying a pivoted spring pressed pawl arranged to cooperate with said hammer, fluid-operated means for reciprocating 70 said member, and a fixed abutment which, near one limit of movement of said member, engages with said pawl and moves it out of engagement with said hammer to allow said hammer to strike said gong. 75

2. In combination with a gong, an automatic ringing mechanism comprising a hammer, a spring tending to move said hammer toward said gong, a reciprocatory member arranged adjacent said hammer, a spring 80 tending to hold said member at one limit of its movement, a pawl carried by said member and normally held by a spring in engagement with said hammer, means for reciprocating said member, and a fixed abutment 85 which engages with said pawl near one limit of movement of said member and moves said pawl out of engagement with said hammer allowing the spring attached to said hammer to bring said hammer into forcible contact 90 with said gong.

3. In combination with a gong, an automatic ringing mechanism comprising a hammer, a spring tending to draw said hammer toward said gong, a reciprocatory member 95 arranged adjacent said hammer, a pawl carried by said member and arranged to engage with said hammer while said member is moved in one direction, a fixed abutment for disengaging said pawl from said hammer 100 when said member is near one of its limits of movement, a piston movable by fluid pressure for moving said member in one direction, a cylinder for said piston provided with supply and exhaust ports, a valve carried by 105 said piston and movable over said ports, and a spring attached to said reciprocatory member and adapted to return said member and piston after they have been moved in one direction by the fluid pressure. 110

In witness whereof, I have hereunto set my hand this 21st day of May, 1904.

FRED B. COREY.

Witnesses:

BENJAMIN B. HULL,  
HELEN ORFORD.