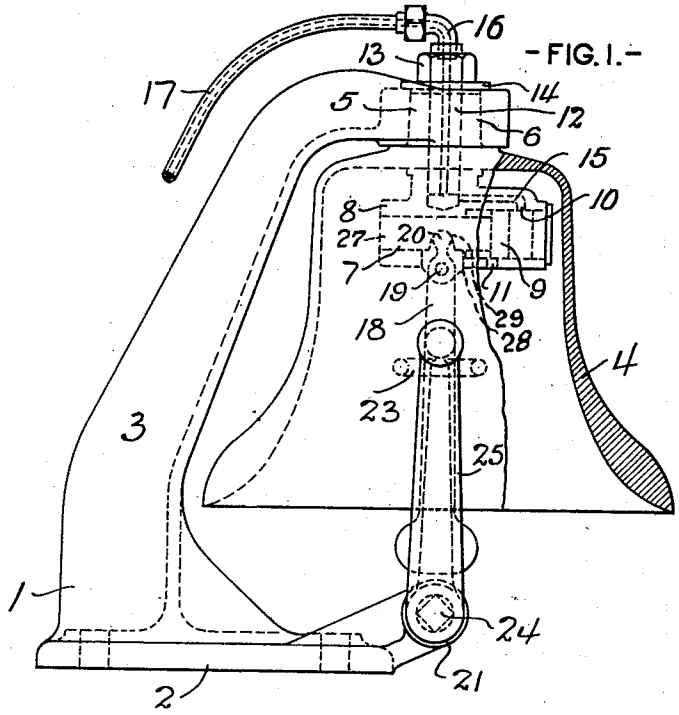
June 2, 1931. S. MILLER 1,808,313

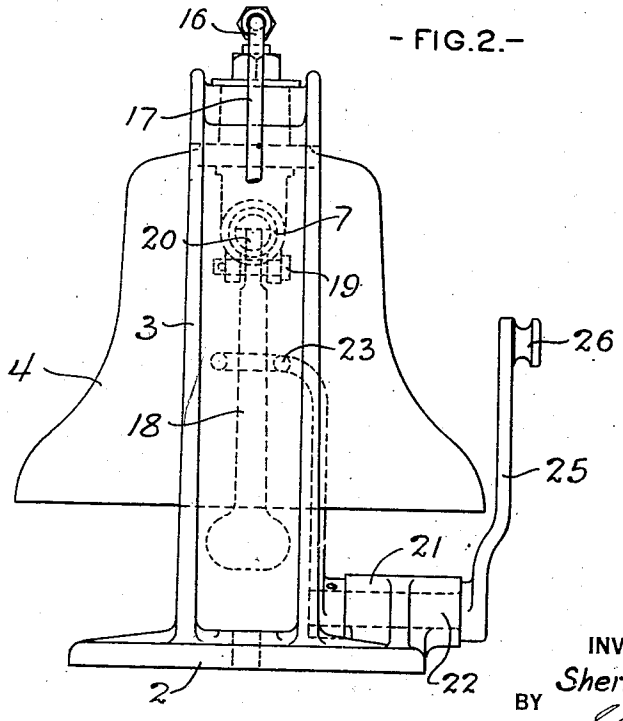
BELL

Filed Oct. 15, 1930

- FIG. 1. -



- FIG. 2. -



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BELL

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This invention relates to bells, and particularly to ringing mechanisms for locomotive bells of the type adapted to be rung either by motor or manually operable striking means.

The object of the invention is to provide a stationary bell with a clapper having motor and manual actuating means adapted to be operated independently of each other, which construction will comprise a simplified mechanism, of low initial cost, and which will be inexpensive to maintain.

Additional advantages of the construction will be apparent from the following detailed description thereof, taken in connection with the accompanying drawings, in which:

Figure 1 is a side elevation, partly in section, of a bell and support with the invention applied thereto; and Fig. 2 is a rear view of Fig. 1.

In the practice of the invention referring descriptively to the specific embodiment thereof, which is herein exemplified, the stand 1, comprises a base 2, which is adapted to be bolted or otherwise secured to the shell of a locomotive boiler or any other desired base, and a U shaped upwardly and inwardly extending supporting arm 3. A bell 4, of the standard type, is provided with a hollow frusto-conical extension 5, at its top, which fits within a socket 6, formed at the upper end of the supporting arm 3.

Disposed in the upper interior of the bell 4, is a motor 7, comprising a cylinder 8, and a fluid pressure actuated piston 9; an inlet port 10, being formed at the end of the cylinder, and an outlet port 11, being formed in the same, inwardly spaced from the inlet port. The piston 9 is provided with a stem 27 which extends rearwardly thereof within the cylinder. In the lower part of the cylinder a slot 28 is formed and a corresponding slot 29 is formed in the bottom of the piston 27 over the slot 28. It will be understood that the specific construction of the motor is not a part of this invention, but that any suitable motor may be located in the aforesaid position. The parts comprising the motor have therefore been illustrated diagrammatically and the relative positions of the valves and piston will, of course, be adjusted in the conventional manner, well known in the art to produce the desired results. A hollow stem 12, is secured in the upper side of the cylinder, and passes through the extension 5, on the bell, its upper end projecting beyond the socket 6, and being threaded to receive a nut 13, which is screwed thereon over a washer 14, and thereby rigidly secures the motor and bell in position on the arm 3. A passageway 15, is formed in the cylinder 8, connecting the inlet port 10, with the interior of the hollow stem 12, and the upper end of the stem is connected to a pipe 17, by means of the connection 16, fitted at the end of the same; the pipe 17 leading to a source of fluid pressure and a control valve for the same (not shown).

The bell clapper 18, is pivotally connected to the lower part of the cylinder 7, by the pin 19. The upper end of the clapper, above the pin, is provided with a tongue 20, which extends into the cylinder through the slot 28 and is loosely held in the slot 29 of the piston 27.

When it is desired to operate the bell by the motor, fluid pressure is applied through pipe 17, the hollow stem 12, the passageway 15, and the inlet port 10, to the end of the piston 9, within the cylinder 8, forcing the piston and its stem outward, carrying back the tongue 20, and thereby actuating the clapper 18. When the piston passes the outlet port 11, however, the fluid pressure is thereby placed in communication with the atmosphere and the pressure on the piston is relieved. Upon the return stroke of the clapper, its tongue, 20, will throw the piston back to its initial position, and the fluid pressure will thereupon again force the same forward, the clapper continuing to be thus actuated as long as the fluid pressure is applied.

A bearing 21, is integrally formed on the base 2, of the stand 1, and a shaft 22, is operably disposed within the said hearing. An upwardly extending arm 23, is rigidly secured to the inner end of the shaft 22, by means of a squared fitting on the shaft and arm, and a taper pin (not shown), the upper end of the arm being turned inwardly and encircling the bell clapper 18, so as to leave

clearance space around same when in neutral position. At the outer end of the shaft 22, an arm 25 is similarly secured as indicated at 24. The arm 25 extends upwardly on the outside of the bell 4. The shaft 22, and the arms 23 and 25, thus comprise a two arm lever, with the shaft as their common fulcrum, the arms moving in unison so that the clapper 18, will be actuated by the end of the arm 23 upon movement of the arm 25. The upper end of the arm 25 is provided with a button 26 to which a rope or other connecting means may be attached for manually operating the arm. The manual operating means are thus entirely independent of the motor means.

It will be apparent that in this construction, the trunnions necessary in a revolving bell structure are eliminated, as well as the flexible joints for the actuating fluid conduits usually employed in similar motor mechanisms. The shaft 22 will require very little pull in order to move the bell clapper when ringing by hand, and there will be practically no wear on the same. In this construction therefore, there will be practically no maintenance involved except in the motor mechanism. This being entirely within the bell is guarded from the elements, and consisting of but one moving part is of the sturdiest and most durable construction. It will be further noted that the pipe, hollow stem, and passageway are so located as to provide the simplest possible fluid pressure conduit with a minimum number of joints and connections.

While there has been described herein a preferred specific embodiment of the invention, it will be understood that there are many and various changes and modifications in the details of construction which may prove desirable, and will be apparent to those skilled in the art, and that all and any such changes and modifications are contemplated as a part of this invention within the scope of the appended claims.

The invention claimed and desired to be secured by Letters Patent is:

1. The combination of a stationary bell having a clapper, motor means for actuating said clapper, and manually operated means disposed below and extending upwardly into said bell for actuating the said clapper independently of said motor means.

2. The combination with a stationary bell, of a clapper adapted to swing within the same, a fluid pressure actuated mechanism operably connected with said clapper, and a manually operated actuating lever having an arm directly engaging the clapper for actuating the same independently of the fluid pressure actuated mechanism.

3. The combination with a bell having a clapper, of motor means for actuating said clapper operably connected to the same, and a two armed lever having one of its arms disposed without the said bell and its other arm within the same, operably associated with the said clapper, and adapted to independently actuate the same upon movement of the said outer arm.

4. The combination of a bell, a clapper operably disposed within the same normally in a gravitated position out of contact with said bell, a fluid pressure actuated mechanism operably connected to said clapper and adapted to successively bring the striking end of the same into contact with the bell upon introduction of fluid pressure into the said mechanism, and means disposed below and extending upwardly into the bell, directly engaged with said clapper for manually bringing the said striking end of the same into contact with the said bell, independently of the fluid pressure actuated mechanism.

5. The combination of a bell, a clapper operably disposed within the same normally in a gravitated position out of contact with said bell, a fluid pressure actuated mechanism operably connected to said clapper and adapted to successively bring the striking end of the same into contact with the bell upon the introduction of fluid pressure into the said mechanism, and means independently engaged with said clapper for manually bringing the said striking end of the same into contact with the said bell, comprising a pair of lever arms rigidly connected to a common fulcrum and respectively disposed on the inner and outer sides of the said bell, the said inner arm operably engaging the said clapper.

6. The combination of a bell, a supporting stand engaging said bell and holding the same in a relatively stationary position, a clapper disposed within said bell, a bearing formed on said stand, a shaft operably disposed within said bearing, a lever arm rigidly connected to one end of said shaft extending on the outside of said bell, and a lever arm rigidly connected to the other end of said shaft extending within said bell and operably engaging said clapper, whereby the same may be actuated by said inner arm to strike the bell upon movement of said outer arm.

7. The combination of a bell, a supporting stand engaging said bell and holding the same in a relatively stationary position, a clapper disposed within said bell, motor means operably connected with said clapper for actuating the same, a bearing disposed on said stand, a shaft disposed within said bearing, a lever arm rigidly connected to one end of said shaft extending on the outside of said bell, and a lever arm rigidly connected to the other end of said shaft and extending within said bell operably engaging said clapper at its upper end whereby the said clapper may be actuated by said inner arm

independently of said motor means, to strike the bell upon movement of the said outer arm.

8. The combination of a bell, a supporting stand for said bell, engaging the same at its upper end, a clapper disposed within said bell, fluid pressure actuated mechanism operably connected with said clapper and adapted to actuate the same, comprising a cylinder having an inlet and an outlet port formed therein and disposed within the upper end of said bell, a piston disposed within said cylinder and adapted to be successively brought into contact with the said clapper, and a stem member formed on said cylinder extending through the upper end of said bell, the said cylinder and stem member being provided with connecting ports adapted for the introduction of fluid pressure from a source outside of said bell and to the said cylinder, to actuate said piston, and manually operated means for actuating the clapper independently of the fluid pressure actuated mechanism, comprising a lever having an arm directly engaging the clapper within the bell.

9. The combination of a bell, a supporting stand for said bell, engaging the same at its upper end, a clapper disposed within said bell, fluid pressure actuated mechanism operably connected with said clapper and adapted to actuate the same, comprising a cylinder having an inlet and an outlet port formed therein and disposed within the upper end of the said bell, a piston operably disposed within said cylinder and adapted to be successively brought into contact with the said clapper, and a stem member formed on said cylinder extending through the upper end of said bell, the said cylinder and stem being provided with connecting ports adapted for the introduction of fluid pressure from a source outside of the said bell and to the said cylinder, to actuate said piston, and means independently associated with said clapper for manually actuating the same comprising a bearing on said supporting stand, a shaft disposed within said bearing, a lever arm rigidly connected to one end of said shaft and extending without the said bell, and a lever arm rigidly connected to the other end of said shaft and extending upwardly within the said bell having its upper end operably engaged with the said clapper whereby the same may be actuated by said inner arm to strike the bell upon movement of the said outer arm.

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