(No Model.)

R. P. GARSED.

PNEUMATIC DOOR BELL.

No. 282,186. Patented July 31, 1883.

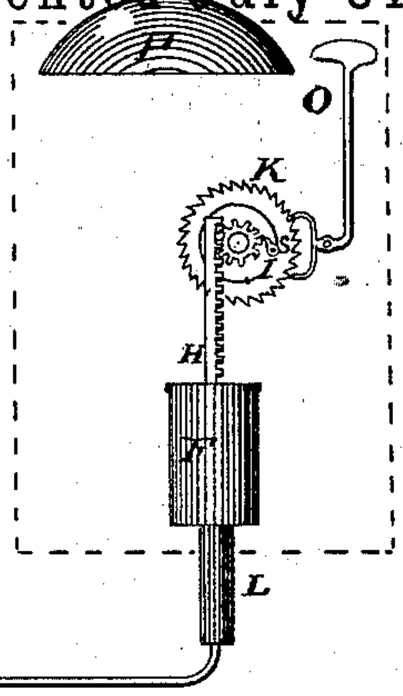
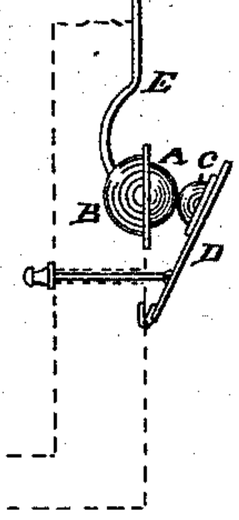


FIG. 1.



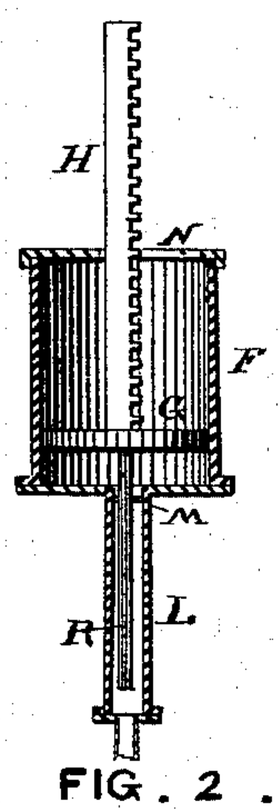


FIG. 2.

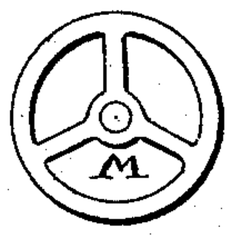


FIG. 4.

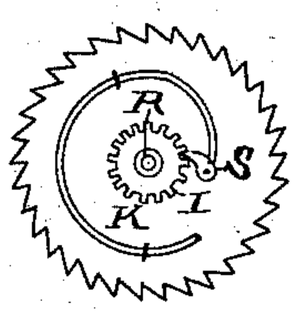


FIG. 5.

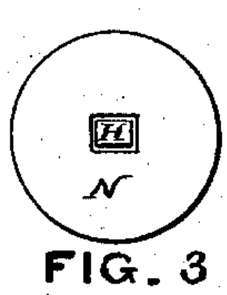


FIG. 3.

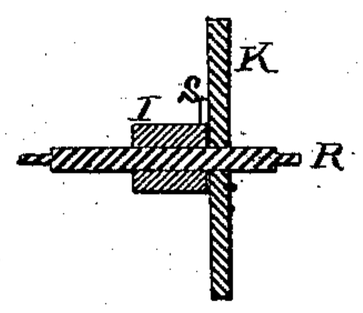


FIG. 6.

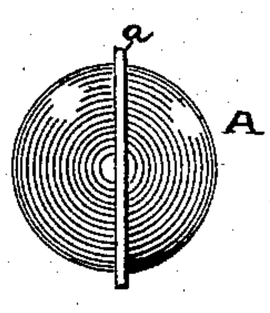


FIG. 7.

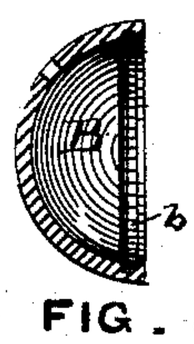


FIG. 8.

WITNESSES:

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PNEUMATIC DOOR-BELL.

SPECIFICATION forming part of Letters Patent No. 282,186, dated July 31, 1883.

Application filed October 2, 1882. (No model.)

To all whom it may concern:

Be it known that I, ROBERT P. GARSED, a citizen of the United States, and a resident of Norristown, in the county of Montgomery and State of Pennsylvania, have invented a new and useful Improvement in Pneumatic Door-Bells, of which the following is a specification.

The object of my invention is to furnish a pneumatic door-bell in which one pull of the bell-knob will cause the bell to ring a number of times, and I accomplish this object by the mechanism hereinafter described.

In the accompanying drawings, forming part of this specification, and in which similar letters of reference indicate like parts throughout the several views—Figure 1 is a side elevation of my invention; Fig. 2, a sectional elevation of the air-cylinder, showing the rack for operating the escapement-wheel and the device for guiding it; Fig. 3, a top view of this cylinder; Fig. 4, a plan of the guide or yoke for guiding the rack; Fig. 5, an enlarged side view of the escapement-wheel and its operating mechanism; Fig. 6, a sectional elevation of the same; Fig. 7, an enlarged view of the pump, and Fig. 8 a sectional elevation of the metal hemisphere which holds the pump.

My air-pump A consists of a rubber sphere, around which is a flange or rim, *a*, which fits into a groove, *b*, in the metal hemisphere B, which holds the pump, and which is secured in some suitable manner to the door-frame or other convenient place. The pump is operated by a plunger, C, which is situated upon one end of a lever, D, the other end of which is hinged and fastened, preferably, to the door-frame; but if more convenient, it may be placed in the cellar and be operated by a wire or chain leading from the bell-pull. The bell-pull is fastened to this lever near the hinge, and a small motion of the bell-knob causes the plunger a much larger one. Leading from the hemispherical cup B is a small pipe, E, through which the air passes to a cylinder, F. This cylinder is furnished with a piston, G, which carries upon it a rack, H, which gears into a pinion, I, and operates the escapement-wheel K.

It will be seen that the rubber sphere A need have no hole in its outer side for the ingress of air, but may fit loosely within the hemispherical cup, and thus allow the entrance of air around its edges; and when operated upon by the plunger its sides distend and form a perfect joint between said sphere and its holder, preventing the escape of air.

Below and communicating with the cylinder F is a smaller cylinder, L, in which works a guide-rod, R, which is secured to the lower side of the piston, and whose purpose is to keep the rack H in gear with the piston I and to keep the piston from jamming in the cylinder. This guide-rod passes through a yoke or spider, M, which is placed at or near the junction of the two cylinders. The top of the cylinder F is covered with a lid, N, which prevents dust from accumulating in it.

The operation of the device is as follows: When the bell-pull is drawn out, the plunger C is forced into the sphere A, and compresses the air therein and forces it through the pipe E to the cylinder F, raising the piston G and rack H and revolving the escapement-wheel K, and causes the hammer *o* to give the bell P a number of strokes. When the bell-pull returns to its normal position, (which may be assisted by a spring beneath the lever,) the air in the pipe E and cylinder F is exhausted and the piston G and rack H are drawn down. To allow this the pinion I is loose upon the shaft R, and upon the wheel K is a pawl, S, which, when the rack H is moving upward, catches in the pinion I and causes the wheel K to be revolved; but when the rack is moving downward, the pawl slips and allows the pinion to move without moving any of the other mechanism.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. The herein-described pump for operating a pneumatic door-bell, consisting of the rubber sphere A, hemispherical cup B, and plunger C, situated upon a lever, D, said lever being secured to the bell-pull in a manner to cause through the system a ringing of the bell, substantially as set forth.

2. The herein-described device for multiplying the number of strokes of a pneumatic door-bell, and adapted to be operated by the pump A, the cylinder F, furnished with a piston, G, carrying upon one end a rack, H, and upon the other a guide-rod, R, said guide-

rod working in a second cylinder, L, and said rack gearing into a pinion, which causes the ringing of the bell, substantially as set forth.

3. In a device for operating a pneumatic door-bell, the combination of the plunger C, operated by pump A, said plunger consisting of the cylinder F, with piston G, and guide-rod R, adapted to cause a perpendicular motion of the piston G in its movements, the shaft connected to the wheel K, and the escapement mechanism, substantially as set forth.

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