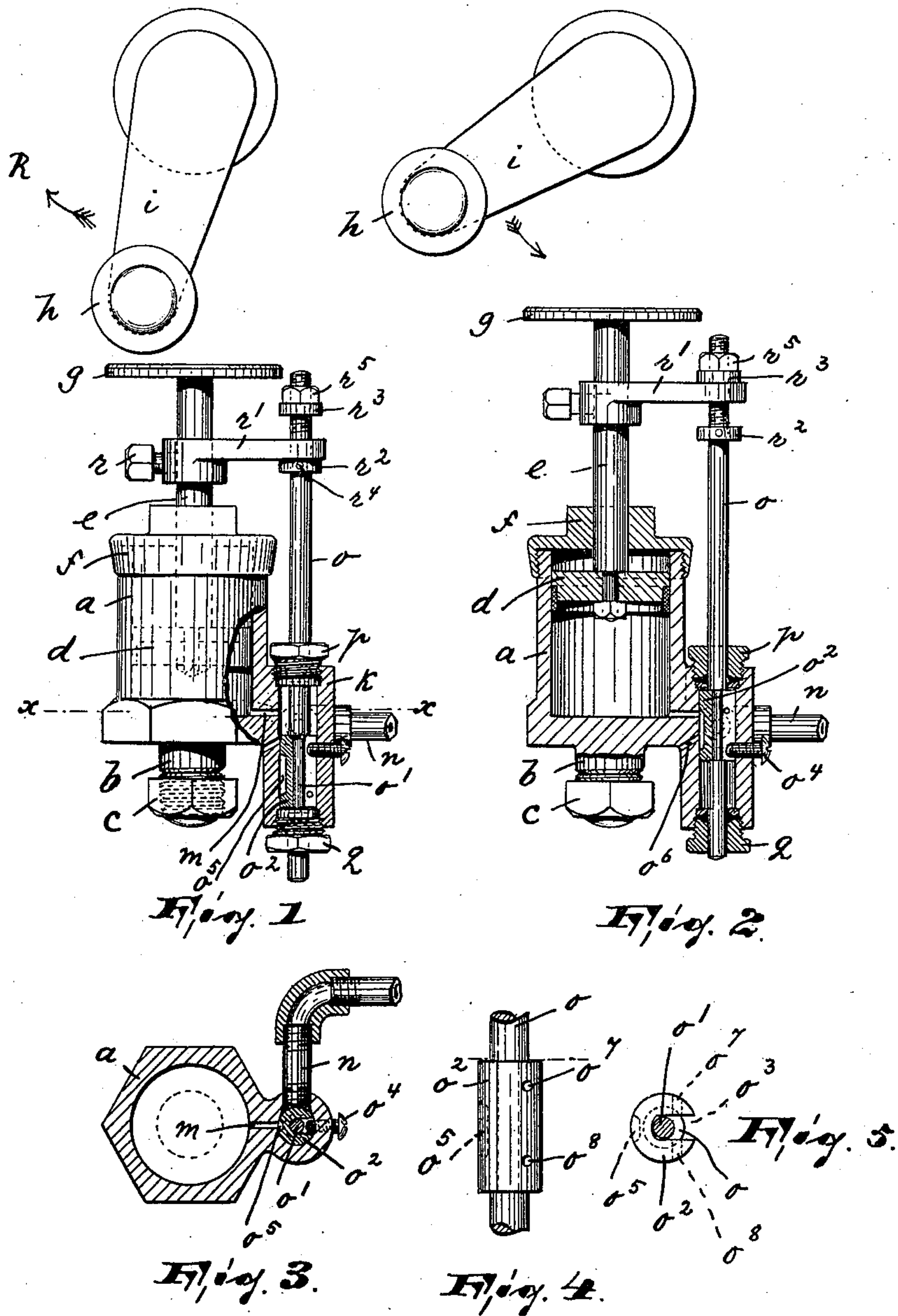


(No Model.)

J. H. BARTOW.
BELL RINGER.

No. 599,052.

Patented Feb. 15, 1898.



WITNESSES:

Wm. D. Bell.
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JOHN H. BARTOW, OF PATERSON, NEW JERSEY.

BELL-RINGER.

SPECIFICATION forming part of Letters Patent No. 599,052, dated February 15, 1898.

Application filed September 15, 1897. Serial No. 651,771. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. BARTOW, a citizen of the United States, residing in Paterson, county of Passaic, and State of New Jersey, have invented certain new and useful Improvements in Bell-Ringers; 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of my present invention is to provide a bell-ringer for locomotives and the like of simple, strong, and durable construction, and which bell-ringer is operated by steam or compressed air and is effective and automatic in operation and imparts a uniform motion to the bell-crank without jarring or unnecessary clanging of the bell.

The invention consists in the improved bell-ringer, its plunger-valve, and in the combination and arrangements of the various parts, substantially as will be hereinafter more fully described, and finally embodied in the clauses of the claim.

Referring to the accompanying drawings, in which like letters of reference indicate corresponding parts in each of the several views, Figure 1 is a side elevation of my improved bell-ringer with certain portions broken away and others shown in section to better illustrate the nature of my said invention; Fig. 2, a central sectional view of Fig. 1, partly in elevation, illustrating a different position of the working parts; Fig. 3, a sectional view on the line xx of Fig. 1, the valve being moved upward; and Figs. 4 and 5 enlarged detail views of the said valve and its stem.

In the drawings, a represents a cylinder provided on its lower portion with a screw-threaded projection b , on which is arranged a nut c , by means of which the said cylinder a is removably secured to a bell-frame, as in the usual manner.

In the cylinder a is slidably arranged a piston or plunger d , carried by the piston-rod e , which latter is guided in the head f of the said cylinder, and is provided at its free end

with a disk or plate g , adapted to engage and to be engaged by an antifriction-roller h , arranged on the free end of the bell-crank i , which latter is connected with the bell in the usual and well-known manner, and therefore said connection and bell are not illustrated in the drawings.

On one side of the cylinder a is arranged a valve chamber or chest k , communicating with the lower portion of said cylinder through a port or channel m , and also provided with an inlet n , entering said valve chamber or chest slightly below the port or channel m . Within said valve-chamber is slidably arranged a valve-rod o , guided in the stuffing boxes or heads p and q , and provided within said chest or valve-chamber with an annularly-reduced portion o' , forming the stem for the valve o^2 . Said valve, which is cylindrical-shaped, is provided on one side with an elongated groove or channel o^3 , extending through its entire length and adapted to be engaged by a set-screw o^4 , which latter penetrates the said valve chamber or chest and is adapted to bear against the annular shoulders of the valve-rod o in its upward and downward movement. The valve o^2 is also provided on the opposite side from said elongated channel with a groove or recess o^5 , adapted to form a connection or passage at certain stages of the operation between the port or channel m and the exhaust-port o^6 , which latter is arranged in the valve chamber or chest k , as clearly shown. The valve o^2 is also provided with a series of ports o^7 and o^8 , extending from the elongated channel o^3 to the outer periphery of said valve and adapted to be brought in alinement or communication with the inlet n , for a purpose hereinafter specified.

On the piston-rod e is adjustably secured by means of a set-screw r a horizontally-arranged arm r' , the free end of which is penetrated by and fits loosely around the upper portion of the valve-rod o and is adapted to bear, respectively, against the collars r^2 and r^3 , which latter are adjustably arranged on the said valve-rod, the collar r^2 by means of a screw r^4 , while the collar r^3 , which is of flexible material, by means of the nut r^5 engaging the screw-threaded end of the valve-rod o , all as clearly illustrated in Figs. 1 and 2 of the drawings.

The operation is as follows, the parts being as illustrated in Fig. 1: Compressed air or steam enters through the inlet *n* into the valve chamber or chest *k* and above the valve through the port or channel *m* into the cylinder *a* and below the plunger or piston *d*. The latter is thus forced upward and the disk or plate *g* in its upward motion engages the anti-friction-roller *h* and forces the crank *i* in the direction of the arrow *R*. In said upward motion of the plunger *d* the arm *r'* engages the rubber collar *r³* and moves the valve-rod *o* and valve *o²* upward into the position illustrated in Fig. 2. The inlet *n* is thus closed, (allowing only a small quantity of compressed air or steam to enter through the ports *o⁷* and elongated groove *o³* below the said valve to better balance the latter,) while the groove or recess *o⁵* connects the port or channel *m* with the exhaust *o⁶*, thus allowing the spent compressed air or steam to exhaust or escape as soon as the plunger or piston *d* is forced downward by the anti-friction-roller *h* on the bell-crank *i* coming into contact with the plate or disk *g* on the return movement of said crank. The said crank returns into the position illustrated in Fig. 1 by gravity, as will be manifest. The piston or plunger *d* in its downward movement, or when returning to its normal position, forces the valve-rod *o* and valve *o²* downward, thus closing the exhaust and opening the inlet *n*, when the heretofore-described operation is repeated.

It must be remarked that by means of the nut *r⁵* and the screw *r⁴* the length of the stroke of the piston-rod and valve-rod can easily be regulated to thus adjust the bell-ringer to various-sized cranks, and, further, that the valve *o²* can be reversed, in which case the ports *o⁸* will communicate with the inlet when the said valve is in its uppermost position.

I do not intend to limit myself to the precise construction shown and described, as various alterations can be made without changing the scope of my invention, but

What I claim as new, and desire to secure by Letters Patent, is—

1. A bell-ringer comprising a cylinder, a plunger and piston-rod slidingly arranged in said cylinder, a striking disk or plate carried by said piston-rod, a valve-chest on one side of said cylinder and communicating through a port or channel with the lower portion thereof, an inlet and an exhaust in said valve-chest, a valve-rod slidingly arranged in said valve-chest, a valve carried by said valve-rod and provided at one side with a vertical elongated channel and at its opposite side with a vertical groove or recess adapted to form a connection between the inlet-channel to the cylinder and the exhaust in the valve-chest, a screw penetrating said valve-chest and engaging

the vertical elongated channel therein, and an arm secured with one end on the piston-rod and vertically adjustable thereon and slidingly arranged with its other end on the valve-rod, substantially as and for the purposes described.

2. A bell-ringer comprising a cylinder, a plunger and piston-rod slidingly arranged in said cylinder, a striking disk or plate carried by said piston-rod, a valve-chest on one side of said cylinder and communicating through a port or channel with the lower portion thereof, an inlet and an exhaust in said valve-chest, a valve-rod slidingly arranged in said valve-chest and provided with an annularly-reduced portion, a valve on said valve-rod and surrounding its reduced portion and provided on one side with an elongated channel and on its opposite side with a groove or recess adapted to form a connection between the inlet-port to the cylinder and the exhaust in the valve-chest, a screw penetrating said valve-chest and engaging the elongated channel therein, and an arm secured with one end on the piston-rod and vertically adjustable thereon and slidingly arranged with its other end and the valve-rod, substantially as and for the purposes described.

3. A bell-ringer comprising a cylinder, a plunger and piston-rod slidingly arranged in said cylinder, a striking disk or plate carried by said piston-rod, a valve-chest on one side of said cylinder and communicating through a port or channel with the lower portion thereof, an inlet and an exhaust in said valve-chest, a valve-rod slidingly arranged in said valve-chest, and provided with an annularly-reduced portion, a cylindrical-shaped valve interchangeably arranged on said valve-rod and surrounding its reduced portion and provided on one side with an elongated channel, penetrated by ports *o⁷* and *o⁸* in its upper and lower portion respectively and also provided on its opposite side with a groove or recess adapted to form a connection between the inlet-port to the cylinder and the exhaust in the valve-chest, a screw penetrating the valve-chest and engaging the elongated channel of the valve, an arm secured with one end on the piston-rod and vertically adjustable thereon and having its other end slidingly arranged on the valve-rod, and two collars adjustably arranged on the valve-rod for limiting the sliding movement of said arm on the valve-rod to thus regulate the stroke of the piston, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 3d day of September, 1897.

JOHN H. BARTOW.

Witnesses:

ALFRED GARTNER,
WM. D. BELL.