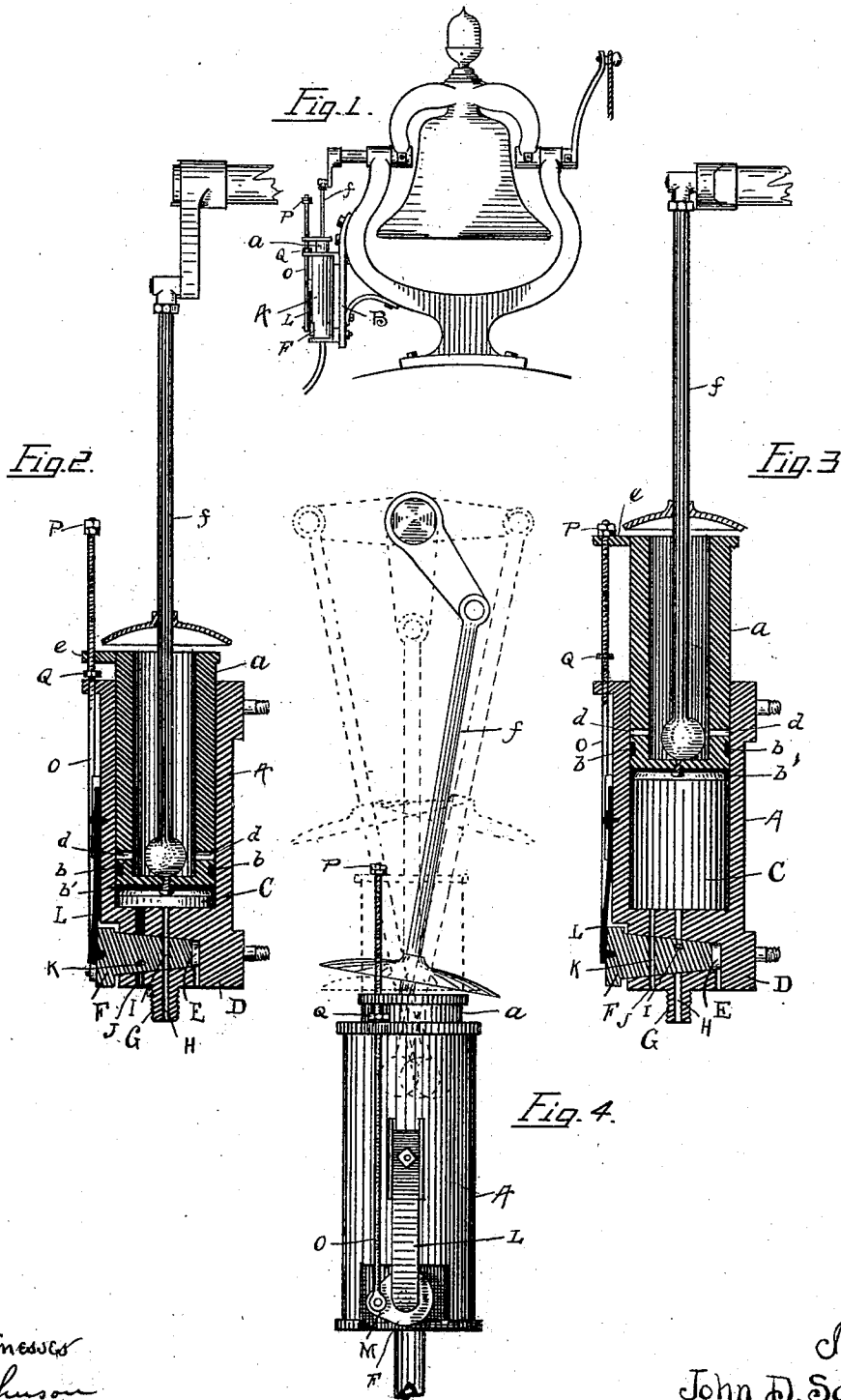


(No Model.)

J. D. SANSOM.
BELL RINGER.

No. 553,429.

Patented Jan. 21, 1896.



Witnesses
C. Johnson
A. Keithley

Inventor
John D. Sansom.
By L. M. Thurston
ATTY.

UNITED STATES PATENT OFFICE.

JOHN D. SANSOM, OF PEORIA, ILLINOIS.

BELL-RINGER.

SPECIFICATION forming part of Letters Patent No. 553,429, dated January 21, 1896.

Application filed November 29, 1895. Serial No. 570,101. (No model.)

To all whom it may concern:

Be it known that I, JOHN D. SANSOM, a citizen of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Bell-Ringers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

The class of inventions to which this improvement belongs is bell-ringers.

The object of the invention is to provide a locomotive-bell with a simple and inexpensive device which may be driven by steam or air.

Most devices of this class are expensive, complicated, and hard to keep in order, and it is the purpose of this improvement to overcome these difficulties.

In the drawings herewith presented, Figure 1 represents the bell and its supporting-frame with the invention secured thereto. Fig. 2 is a sectional elevation of the ringer, showing the position of the various parts when the device is at rest or when ready to respond to pressure when applied. Fig. 3 is also a sectional elevation of the ringer, showing its piston at its highest position when in operation and showing the position of the valve for exhaust. Fig. 4 is an elevation of the ringer, showing the front thereof and also showing various positions of the piston-rod and bell-crank.

In the several figures, A represents the cylinder of the ringer, which is secured by studs to the bracket B of the bell frame or support, as shown in Fig. 1. The said cylinder A is bored out to form the recess C. At the lower end of the cylinder is left plenty of stock to form a heavy base D, which is provided with a tapering bore E, within which is seated a plug F to form a valve, and which conforms perfectly with the said bore by grinding it into its seat by any of the well-known methods. The base of the cylinder is also provided with a depending threaded stud G, through which is drilled a channel H forming a port which communicates with the interior of the cylinder from the outer air. The valve F is given a corresponding channel I, so that when the said channel or passages are in line a direct

communication from the source of steam or air supply to the cylinder is the result.

To provide for exhaust from the cylinder, a passage-way or port J is drilled through the base D and the valve F is given a corresponding passage K, which of necessity must be at an angle to the passage I, as will be hereinafter more fully understood.

The valve F is secured in its seat by a spring L, which is secured by suitable means to the cylinder and which exerts a certain pressure upon the said valve. The spring carries a lug on its free extremity which rests in a central indentation in the valve. This gives a positive hold and a "good job." A vent-hole is drilled through the base and opens into the end of the tapering bore E, so that pressure cannot force the valve from its seat. The outer extremity of the valve is provided with an offset M to form a lever, and to this is pivoted the lower end of a valve-stem O, the upper extremity of which passes through a lip on the upper end of the cylinder. The stem is threaded and fitted with adjustable stops P and Q, as shown. A piston *a* is now fitted to the cylinder, and is also bored out, substantially as shown. The usual packing-ring *b* surrounds the piston, and a cupped leather *b'* forms a perfectly-tight joint so that no air or steam can possibly pass.

Near the bottom of the piston are bored holes *d*, through which oil, with which the piston is supplied, may pass to the sliding parts, and thus keep them well lubricated. A projecting lug on the piston is drilled to receive the valve-stem, after which the taps P are replaced.

The piston-rod *f* is provided with a ball on its lower extremity and simply rests on the bottom of the piston, while the upper extremity thereof is pivotally secured to the crank of the bell-shaft. A protecting-plate is secured to the piston-rod and prevents foreign matter from reaching the working parts.

The operation of the device may be readily understood from the following: When the bell hangs at rest the crank thereof occupies a position at one side of the center, as shown in solid lines in Fig. 4, and as the valve is in a position to allow the pressure from whatever source to enter the cylinder uninter-

rupted the piston rises, carrying with it the piston-rod, carrying the bell to the proper position or as far as the piston will travel, and as the piston reaches this point the lug
 5 *e* thereof carries the valve-stem upward, thus turning the valve a portion of a revolution or sufficient to cut off the pressure to the cylinder and open the exhaust-port, as shown in Fig. 3. The bell then returning by gravity
 10 forces the rod *f* and piston downward, thus exhausting the air through the passage or port K in the valve, and as the crank and piston-rod pass the center at the lowest position the valve again opens, and pressure is
 15 again admitted to the cylinder, so that the crank is carried upward on the opposite side, and so on.

When the bell is to be rung by the cord, the air is cut off from the cylinder, and the
 20 piston retains the position shown in Fig. 2. The piston-rod being independent of the parts simply rises and lowers within the hollow piston as the bell swings.

Should the bell swing through an entire
 25 revolution no harm is done. The stops on the valve-stem are made adjustable, so that the valve may be arranged to cut off at any point, so that the bell does not ring too hard, it being sometimes necessary to cut off the
 30 steam or air before the piston has made the full stroke.

I claim—

1. In a bell ringer the combination of the bell, a cylinder rigidly mounted on the bell
 35 support, said cylinder having a solid base and a tapering bore in said base, a tapering valve seated in said bore, a valve stem pivoted at its lower end to the outer extremity of the valve, a hollow piston working within
 40 the cylinder, a piston rod resting within the said hollow piston and bearing upon the bot-

tom thereof, and the bell crank having the upper extremity of said rod pivoted thereto substantially in the manner and for the purposes set forth.

2. For a bell ringer, a single-acting cylinder open at its upper extremity, mounted vertically upon the bell frame in rigid manner, a hollow piston working within said cylinder, a tapering valve seated in the lower extremity or base of the cylinder, a valve stem pivoted at its lower extremity to the valve and operated by the vertical movement of the piston, a piston rod pivoted to the bell crank and operated by the said piston substantially
 55 as and for the purposes set forth.

3. In a bell ringer, a single-acting cylinder rigidly mounted upon the bell frame and open at its upper end, a hollow piston working within the cylinder and having the lubricating openings *dd*, the packing ring *b* and the head *b'*, the said cylinder having a tapering bore or valve seat, *E*, the channel or ports *H* and *J* bored in the cylinder base, a valve *F* seated within the bore and provided with
 60 channels *K* and *L* corresponding longitudinally with said channels or ports *H* and *J*, a spring secured at one end to the cylinder and bearing against the valve for keeping same in its seat, a valve stem pivoted at its lower
 70 end to the valve, its upper end being adapted to be operated by means of the said piston *a* in its vertical movement and a piston rod pivoted to the bell crank and adapted at its lower end to bear within the said piston substantially as herein set forth and described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN D. SANSOM.

Witnesses:

C. JOHNSON,
 A. KEITHLEY.