J. WEST & O. M. PARKER.

Steam Bell-Ringers.

No. 134,719. Patented Jan. 7, 1873.

Fig. 2.

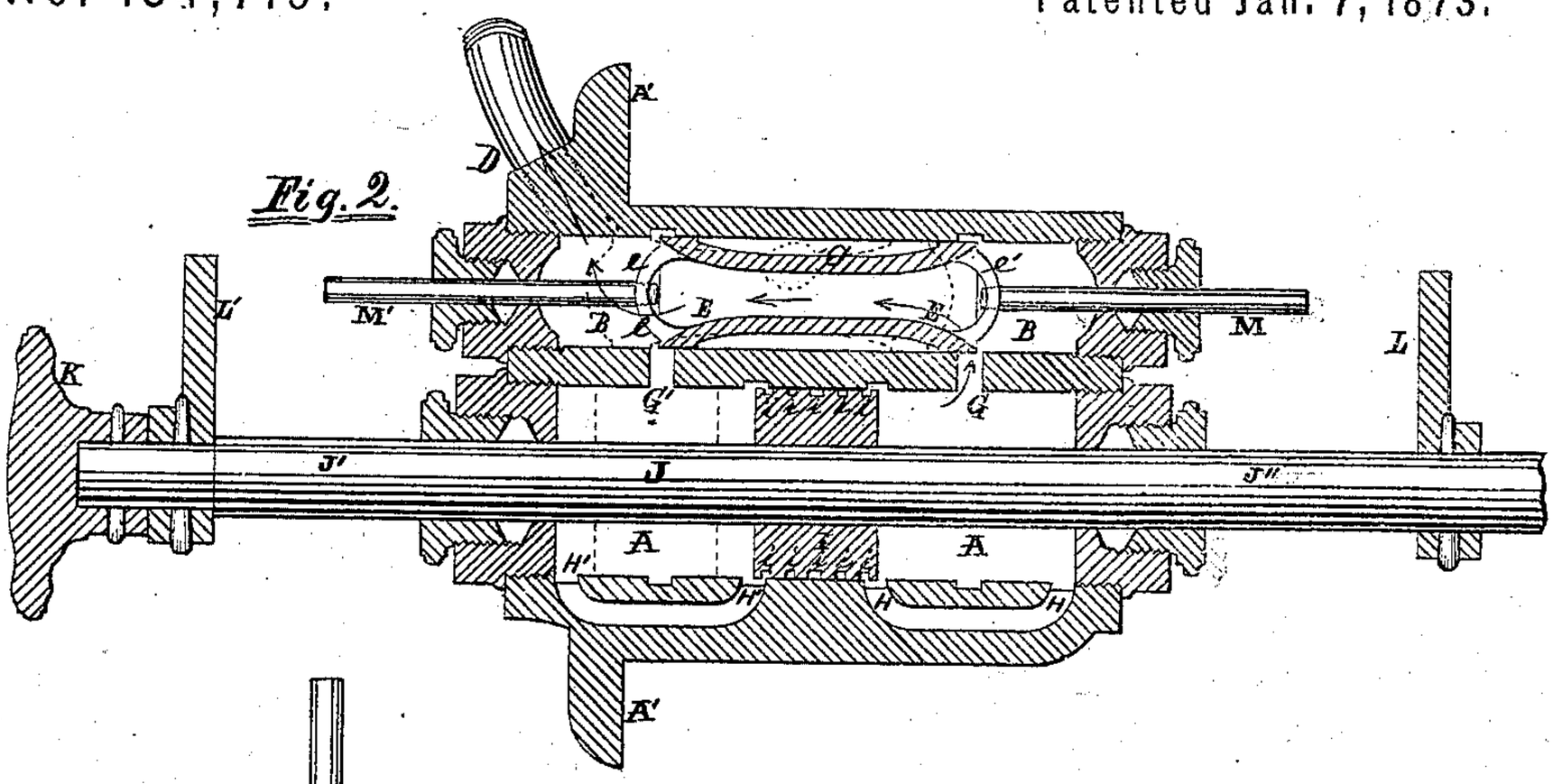


Fig. 4.

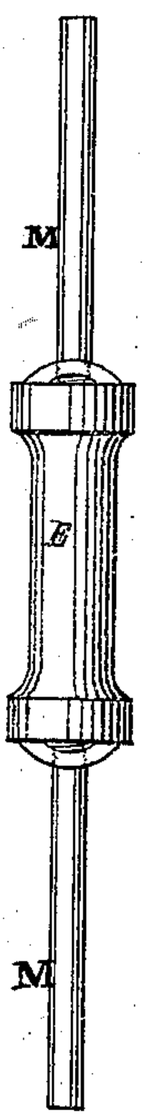


Fig. 3

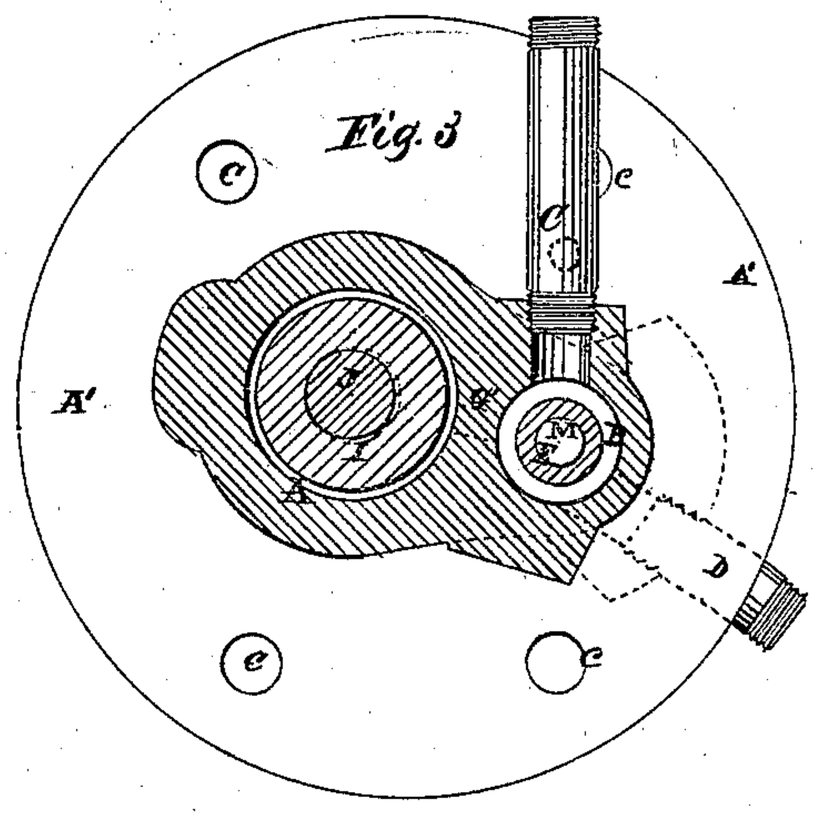
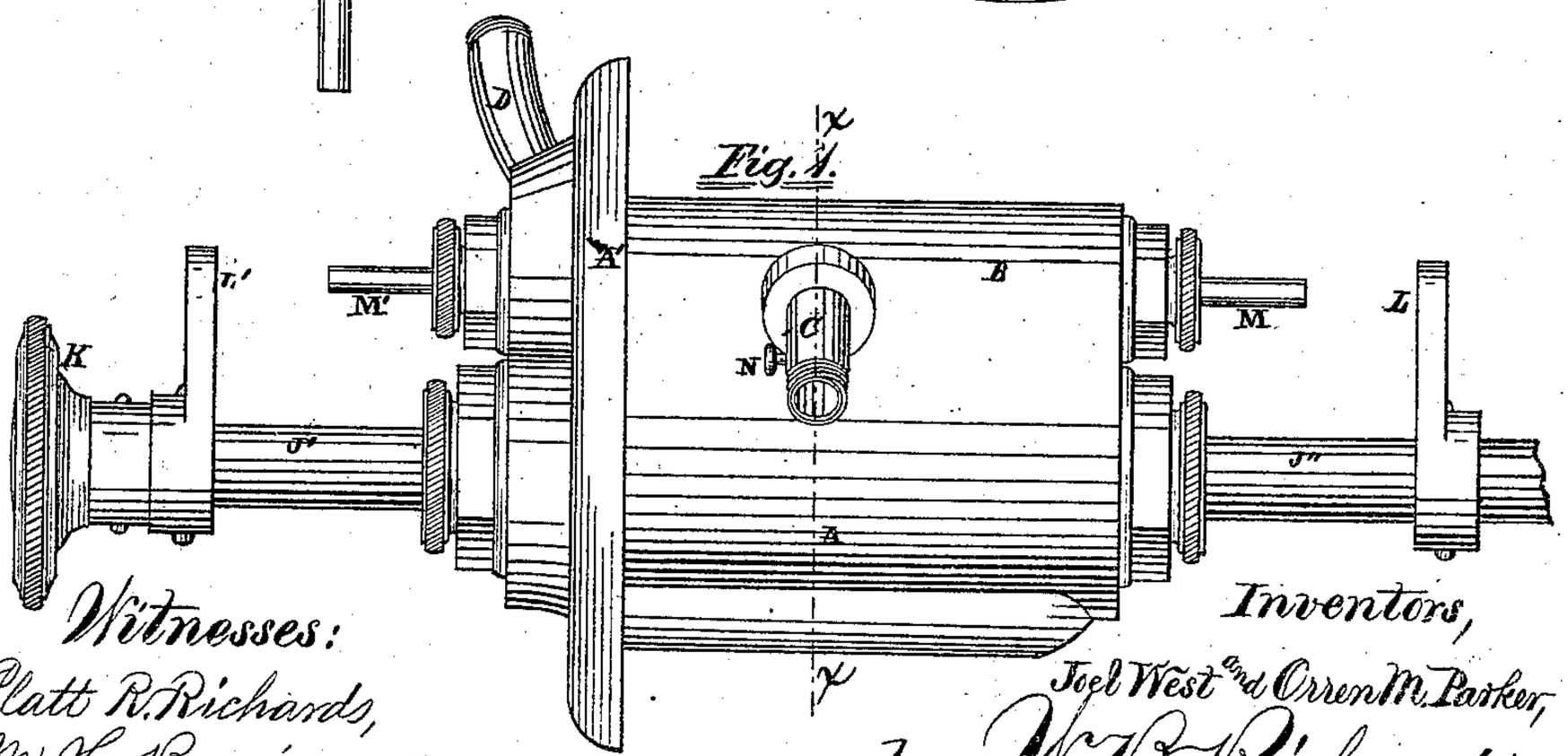


Fig. 1.



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UNITED STATES PATENT OFFICE.

JOEL WEST AND ORREN M. PARKER, OF QUINCY, ILLINOIS; SAID PARKER ASSIGNOR TO SAID WEST.

IMPROVEMENT IN STEAM BELL-RINGERS.

Specification forming part of Letters Patent No. **134,719**, dated January 7, 1873.

To all whom it may concern:

Be it known that we, JOEL WEST and ORREN M. PARKER, of Quincy, county of Adams and State of Illinois, have invented certain Improvements in Steam Bell-Ringers, of which the following is a specification.

The nature of our invention relates to improvements on the steam bell-ringer for which we obtained Letters Patent the 25th day of June, 1872; and the invention consists, first, in extending the valve-stem through the end of the steam-chest most distant from the bell, or, in other words, through both ends of the steam-chest, so that tappets may be placed on the extended ends of the piston-rod, described in our said patent, which, striking the extended ends of the valve-stem, may communicate thereto a reciprocating motion from the movement of the piston-rod; second, it consists in the construction and arrangement of a tubular valve with an exhaust-opening at the end of the steam-chest, the steam from one of the piston-cylinders passing out direct, and from the other passing out longitudinally through the tubular valve to the exhaust-opening; third, it consists in the arrangement and construction of all the parts to form a compact, simple machine, which can be easily and readily attached at the desired place on an engine, all as hereinafter fully described.

In the accompanying drawing, Figure 1 is a top view of a machine embodying our invention; Fig. 2 is a sectional view on a plane centrally through the cylinder and valve-chest, longitudinally; Fig. 3 is a transverse sectional view of Fig. 1 on the line *x x*, showing the end to the left hand of said line; and Fig. 4 is a view of the tubular valve—a side elevation.

A B represent, respectively, the cylinder and steam-chest, formed, as shown, of one piece of metal, with a flange, A′, projecting annularly from one end, and pierced with holes *c c c c*, through which bolts may be inserted to secure it in any desired place on the engine. C is steam-inlet pipe. D is exhaust-opening. E is valve in steam-chest B, constructed as hereinafter described. G and G′ are steam-passages from steam-chest B to cylinder A. H H′ are relief-passages. I is the piston-head, with annular steam-packing rings *i i*, and made lengthy for operation with the steam-passages G G′ and relief-passages H H′, substantially the same as in our aforesaid patent. J is piston-rod working in suitable packing-boxes in each end of the cylinder A, extending beyond the cylinder-heads at J′ and J″, and provided with a handle, K, at the end J′, and connected with the bell at the other, the same as in our patent of June 25, aforesaid. L′ L are tappets or arms, one on each end J′ J″ of the piston-rod. M M′ are valve-rods, one on each end of the valve E, working in suitable packing-boxes in each end of the steam-chest B, and extending beyond the steam-chest heads, as shown in the drawing. N is a cock in the pipe C. The valve E is tubular, with its central portion contracted, and its ends made to fit accurately the cylindrical bore of the steam-chest B, and is of such length that when standing centrally longitudinally in the steam-chest its two ends will cover the steam-passages G G′, except a small portion of each. The rods M M′ are connected to the valves E by bails *e e′*.

For cheapness of construction and neatness and compactness of form, and convenience of attachment in working position, the steam-cylinder A and steam-chest B are cast in one piece, with an annular flange, A′, at one end. The device may be set up in any desired position, but preferably as shown at Fig. 3, with the piston-rod J horizontal, and with the lower side of the steam-chest B, or the exhaust-opening from the steam-chest, at its lowest side. It may be attached to the side of the cab of a locomotive, or other vertical base, by cutting a hole therein to pass the body through to the flange A′, where it may be secured by bolts through the holes *c c c c*.

The operation is as follows: The connection with a steam-reservoir is by the pipe C. The flow of steam through the pipe C may be regulated by the cock N. The operation of the piston I in relation to the ports G G′, and exhaust-openings H H′, and to the bell, are the same as in our said patent of June 25, 1872, the piston being carried throughout the central portion of its stroke by the force of the steam, and through the beginning and end of its strokes at each end of the cylinder, alternately, by the gravity and momentum of the bell. To start the bell the handle K may be taken hold of, and the piston I moved thereby to the position shown by dotted lines at Fig. 2, the tappet L striking the valve-stem M and bringing it to the left, and opening thereby the steam-way G′, and allowing steam from the annular

space surrounding the central part of the valve E to enter and fill the way G′, at the same time drawing the bell from its vertical position toward the cylinder A. Now, by releasing the hold of the handle K, the bell will, in swinging back to a vertical position, carry the piston I to the position shown by full lines in Fig. 2, and steam entering through the now open way G′, will carry the piston I to the right until the tappet L′ strikes the valve-stem M′, and carries the valve E to the right to the position shown at Fig. 2, cutting off the further admission of steam through the way G′, the momentum which the bell has acquired completing the stroke of the piston to the right, and carrying the valve E to the right, opening thereby port G′ for the exhaust of steam in that end of the cylinder and steam-chest, through the opening D, and at the same time open the port G for the admission of steam when the gravity of the bell carries the piston I back, as described in our former patent, until the tappet L strikes the valve-stem M, and the steam carries the piston toward the left-hand end of its stroke, and with it the valve E, to the position shown by dotted lines at Fig. 2, opening again the port G′ for the admission of steam, and the port G to exhaust centrally through the valve E, as shown by arrows, to the opening D, and thus continuously until stopped by taking hold of the handle K and bringing all of the parts into the relative position shown at Fig. 1.

When the engine is put up in the position described, it will be evident that the condensed steam in the steam-chest B may run out at the exhaust D.

The length of the valve E is such as to always allow a very small amount of opening to both ports G G′ for drainage, when standing as at Fig. 2.

Claims.

1. The valve-stem M, when extended through both ends of the steam-chest B, and arranged to operate with the other parts of a steam bell-ringing device, substantially as described, and for the purpose set forth.

2. The tubular valve E, when constructed as described, and arranged to operate with the ports G G′, substantially as described, and for the purpose specified.

3. The combination of the cylinder A, steam-chest B, and piston I, the latter being of less length than the distance between the ports H H′, and arranged in relation to the same, substantially as and for the purpose specified.

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