

C. H. HUDSON.  
Steam Bell-Ringing Apparatus.

No. 154,394.

Patented Aug. 25, 1874.

Fig. 1

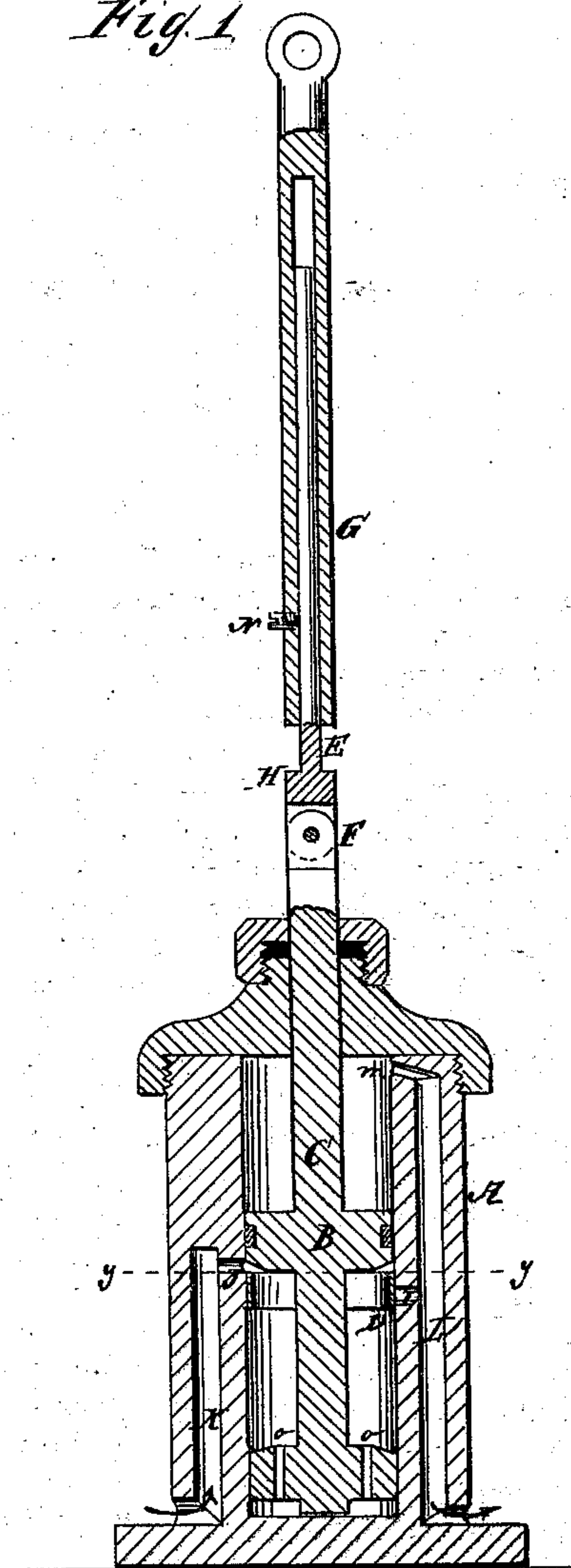
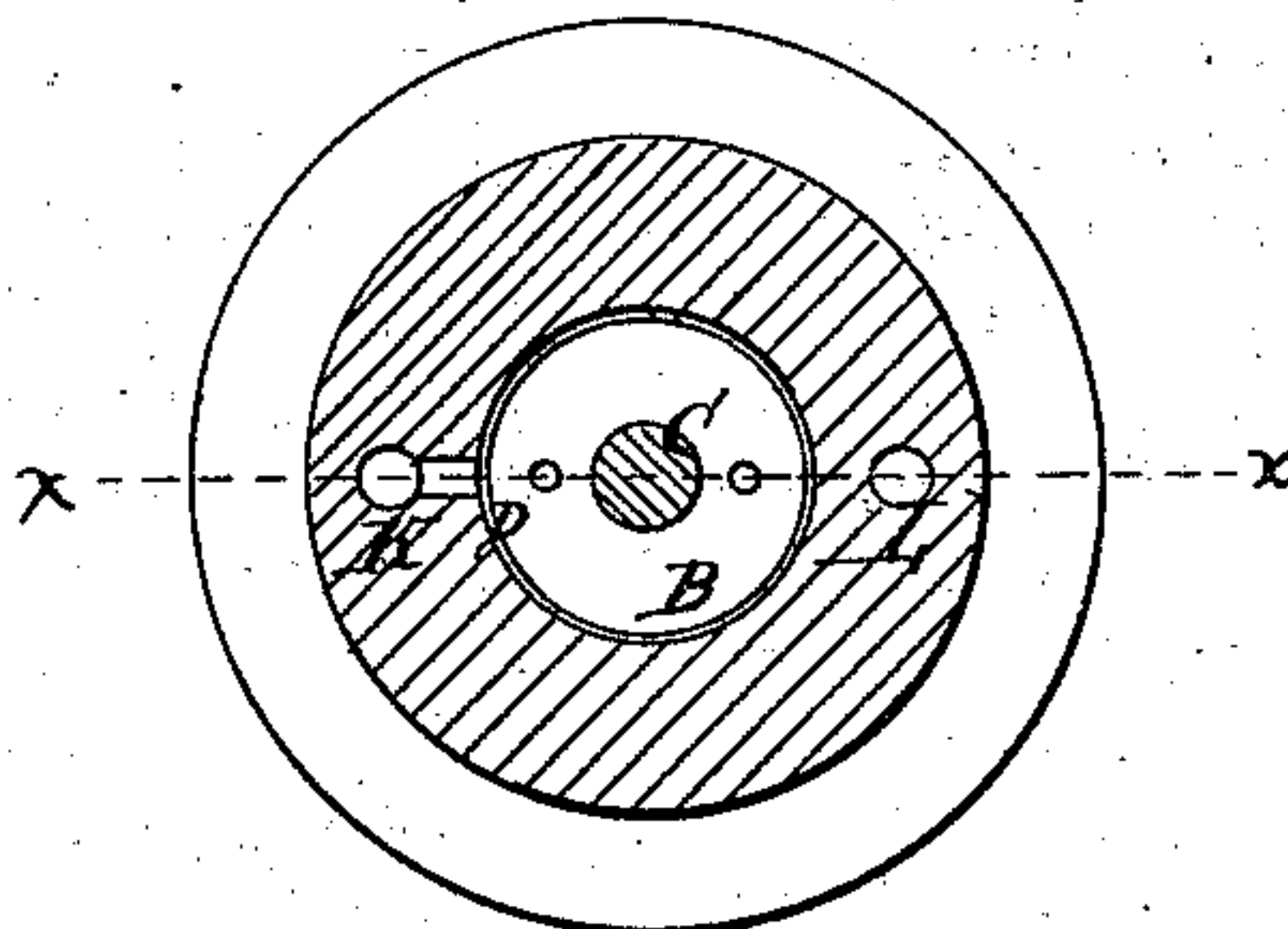


Fig. 2.



WITNESSES:

*E. Wolff*  
*Chadwick*

INVENTOR:

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BY

*Munn & Co.*

ATTORNEYS.

# UNITED STATES PATENT OFFICE.

CHARLES H. HUDSON, OF DUBUQUE, IOWA, ASSIGNOR TO HIMSELF, PIERCE R. SUTTON, EDWIN SMEDLEY, AND ORREN F. HODGE, OF SAME PLACE.

## IMPROVEMENT IN STEAM BELL-RINGING APPARATUS.

Specification forming part of Letters Patent No. **154,394**, dated August 25, 1874; application filed June 20, 1874.

*To all whom it may concern:*

Be it known that I, CHARLES H. HUDSON, of the city and county of Dubuque, Iowa, have invented a new and useful Improvement in Steam Bell-Ringing Apparatus, of which the following is a specification:

This invention relates to steam-engines designed for ringing bells on locomotives and in other places; and consists in the construction and arrangement of parts, as hereinafter described, and specifically indicated in the claim.

In the accompanying drawing, Figure 1 represents a vertical section of Fig. 2 on the line *x x*; and Fig. 2 is a horizontal section taken on the line *y y*, Fig. 1.

Similar letters of reference indicate corresponding parts.

This bell-ringing engine may be worked with either steam or air.

A is the cylinder; B, the piston. C is the piston-rod. D is the valve-ring. E is a rod, which is hinged to the piston-rod at the point F. This rod E slides in the tube G, which is attached to the bell-crank. This connection is such that the lower end of the tube G will be at the shoulder H when the bell-crank is at the lowest point, and the piston at the bottom of the stroke. The movement of the tube upon the rod E will allow the bell to be turned over and the bell-crank to go to its highest point freely, while the piston is at the lowest point.

I is the exhaust-port; J, the inlet-port. The valve-ring D is so arranged, in regard to the ports, that the movement of the piston to the lowest point moves the valve-ring down, and closes the exhaust and opens the inlet port. When the piston moves to the other end of the stroke the ring is moved in the other direction, and the inlet is closed and the exhaust is opened. K is the inlet-passage. L is the exhaust-passage. *m* is a small opening into the exhaust-passage, to allow any steam

which may pass the piston to escape. O O are ports or passages in the lower head of the double piston, to permit the steam (or air, if used) to act against the lower head of the cylinder.

When the bell is in motion, the bell-crank will press the tube down on the rod and force the piston to the bottom of the stroke, and thereby close the exhaust and open the inlet ports. When the crank has passed the center of the stroke, the steam admitted by the movement of the valve-ring presses the piston up and throws up the bell. The tube-connection allows the bell-crank to move freely upward after the piston has reached the end of its stroke, cut off the steam, and open the exhaust-port. The return swing of the bell is followed by the same action of the parts.

N is a small set-screw in the tube G, the end of which enters a groove, or acts against a flat side of the rod E, to prevent the piston-rod from turning. Any other suitable device may be adopted for the purpose.

I do not claim, broadly, the combination of a valve-ring with a piston and cylinder for cutting off admission and escape of steam alternately; but,

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

In combination with the vertical cylinder A, having inlet and exhaust ports K J and I L *m*, the double piston B, having openings or passages O O in its lower head, and the valve-ring D, arranged below the upper head thereof, as shown and described, to operate as specified.

CHARLES H. HUDSON.

Witnesses:

P. R. SUTTON,  
RICHARD LORD.