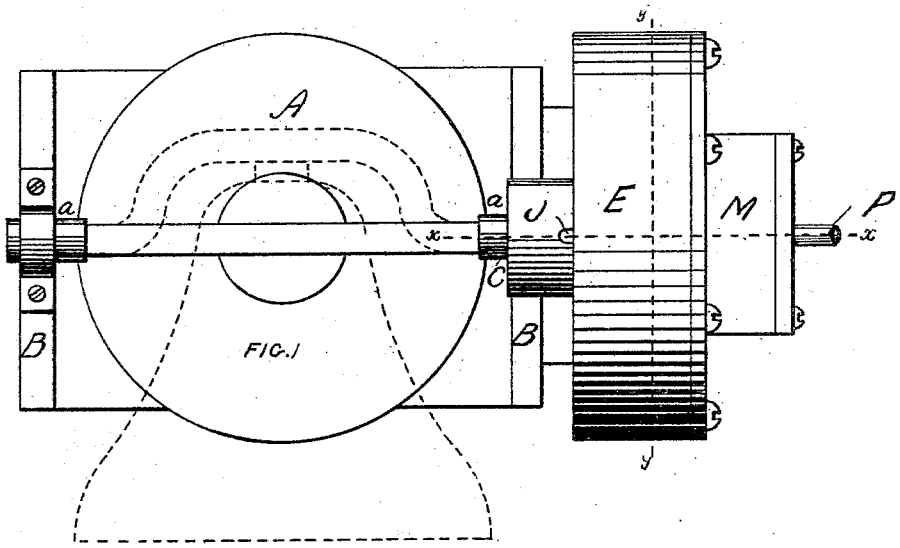
G. N. OSGOOD.

Steam Bell-Ringer.

No. 210,956. Patented Dec. 17, 1878.



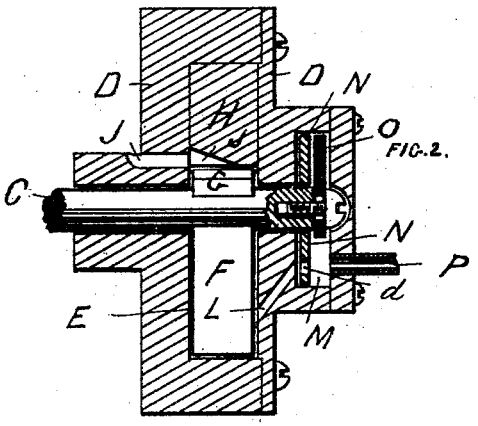


FIG. 3.

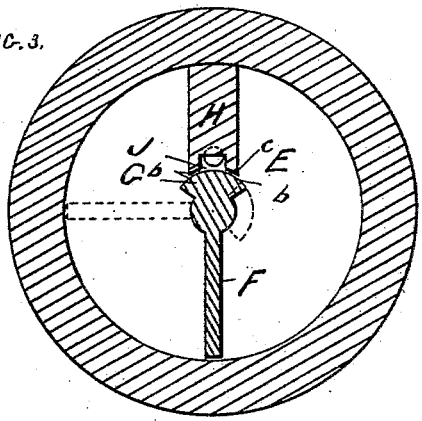


FIG. 4.

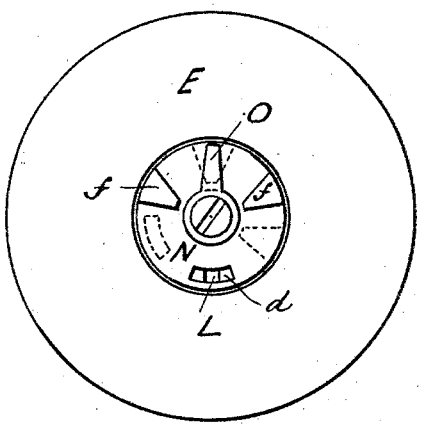
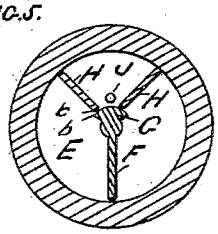


FIG. 5.



WITNESSES.

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UNITED STATES PATENT OFFICE.

GALEN N. OSGOOD, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN STEAM BELL-RINGERS.

Specification forming part of Letters Patent No. **210,956,** dated December 17, 1878; application filed May 17, 1878.

To all whom it may concern:

Be it known that I, GALEN N. OSGOOD, of Boston, in the county of Suffolk and State of Massachusetts, have invented a certain new and useful Improvement in Steam Bell-Ringers, of which the following is a full, clear, and exact description.

This invention relates to steam bell-ringers for locomotives, although, as will be obvious from the description hereinafter given, it is adapted to other purposes, and it more particularly pertains to improvements on the steam bell-ringer shown and described in my application for Letters Patent of the United States which was allowed March 28, 1878.

This invention consists in the construction and arrangement of parts for operating the steam-valve and for exhausting the steam from the steam-cylinder, all substantially as hereinafter described.

In the accompanying plate of drawings of my improved steam bell-ringer, Figure 1 is a plan view; Fig. 2, a central vertical section on line *x x*, Fig. 1; Fig. 3, a cross vertical section on line *y y*, Fig. 1; Fig. 4, a face view, showing the steam-valve and its operating parts; and Fig. 5, a modification in section similar to Fig. 3.

In the drawings, A represents a bell supported and turning by trunnions *a a* upon supports B B. C is a shaft, which is an extension of one of the trunnions *a*, and passes centrally through the parallel heads or ends D D of a circular steam cylinder or chamber, E, secured in an upright position. This shaft C is suitably steam-packed, and within the steam-cylinder E it carries a radial piston-head, F, which closely fits the peripheral and end walls of the chamber E, and diametrically opposite to said piston-head F it carries a sector-shaped projection, G. Each end of the sector projection G closely fits the end walls of the steam-chamber E, and its arc-face *b* closely fits the concave face *c* of a stationary partition, H, of the chamber E. This stationary partition H is in line with the moving piston-head F, and the sector projection G of the shaft extends beyond each side of the stationary partition H when said piston-head F is in its lowest vertical position, all as shown in Fig. 3.

J is a passage which leads from the outside and opens to the inside of the steam-cylinder E at the concave face *c* of the stationary partition H. This passage J is for the exhaust of the steam from the steam-cylinder E, and it is closed when covered and open when uncovered by the sector projection G of the shaft C.

L is a passage through one of the heads of the cylinder E, and opening to the inside of the cylinder. This passage L is for the entrance of the steam to the steam-cylinder, and it opens to the inside of the cylinder at the lower portion thereof, and opposite to and in a line with the moving piston-head F when such piston-head is at rest and pendent. The steam-passage L, outside of the chamber E, opens into a steam-chest, M, and within the steam-chest is a plate or disk, N, which lies against the steam-passage L to the steam-cylinder E, and closes it to the passage of steam from the steam-chest M to the steam-cylinder, except when the elongated hole *d* through said plate N is in line with or opposite to the said steam-passage. This disk N is hung loosely upon the shaft C, and it has two shoulders or abutments or lugs, *f f*, against which the radial dog or arm O, in the turning of the shaft, strikes, thus securing the turning of the valve-plate N from the turning of the shaft.

P is an inlet-passage for steam to the steam-chest M.

When the moving or piston head F of the steam-cylinder E is at rest the steam-valve plate N is open to the steam-passage L of the steam-cylinder, and through this passage L the steam can pass to the cylinder by simply moving the piston-head to either one or the other side of the inlet-passage L, which can be done by turning the shaft C. Steam thus enters the steam-cylinder E at one side of the piston-head F, swings the said head around within the cylinder, and as the shaft C moves with said head F the steam-valve N is closed through the operation of the dog O against one of the lugs *f* of steam-valve N, and the exhaust-passage J opened first to the steam or air back of the piston-head F, and then to the steam in front of the piston-head, when, by the excess of the weight of the bell over any remaining pressure of steam acting on the pis-

ton-head, the head F is thrown back and carried by the steam-port L opening its valve N to the steam, which again enters the steam-cylinder E, but on the opposite side of the head to that above described, and lifts said head in that direction, first closing the valve-plate to the steam-port L, then opening the exhaust-passage first to the steam and air back of the piston-head F, then to the steam in front of the piston-head, when, the weight of the bell overcoming any remaining pressure of steam on the piston-head F, the head again is thrown back, and by the steam-port L again opening the valve N to the steam, which again enters the steam-cylinder on the same side of the piston-head F to that at which it first entered, and so on so long as may be desired, all of which obviously secures the automatic ringing of the bell.

The steam-port L may be placed at one side of the piston-head F when it is at rest or pendent, and thus adapted to admit steam to the cylinder to operate the piston-head, as above described, by simply letting the steam into the steam-chest; or the piston-head F can be attached to the shaft C in such a position relative to the bell that when it (the bell) is at rest the piston-head will be at one side of the steam-port L.

I am aware of the patent to Alden Kilby, dated October 5, 1869, No. 95,486, for an improvement in rotary steam-engines, and I hereby disclaim the invention therein set forth.

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

1. In a steam bell-ringing apparatus, the combination, with the bell-shaft C, of the cylinder E, piston-head F, steam-chest M, having inlet-port P and outlet-port L, valve-plate N, having port *d* and lugs *f*, the dog O, attached to the bell-shaft, and suitable exhaust devices, all arranged and operating substantially as set forth.

2. The sector projection G of the rotating piston-head F, in combination with the bearing *b* for said projection, having a steam-exhaust port, J, all substantially as described, for the purpose specified.

GALEN N. OSGOOD.

Witnesses:
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