

(No Model.)

T. D. HEFFERNAN.
AUTOMATIC BELL RINGER.

No. 393,830.

Patented Dec. 4, 1888.

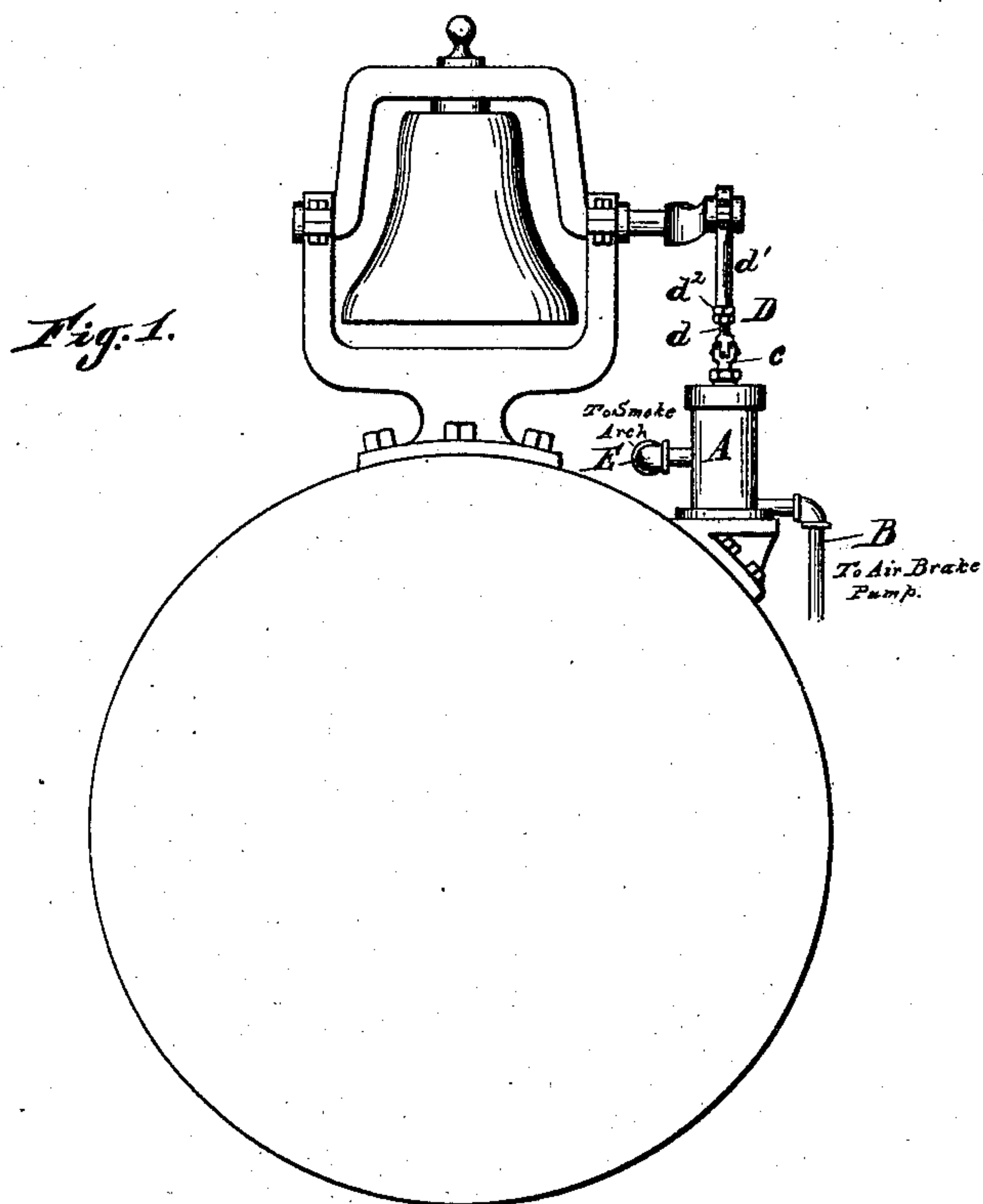
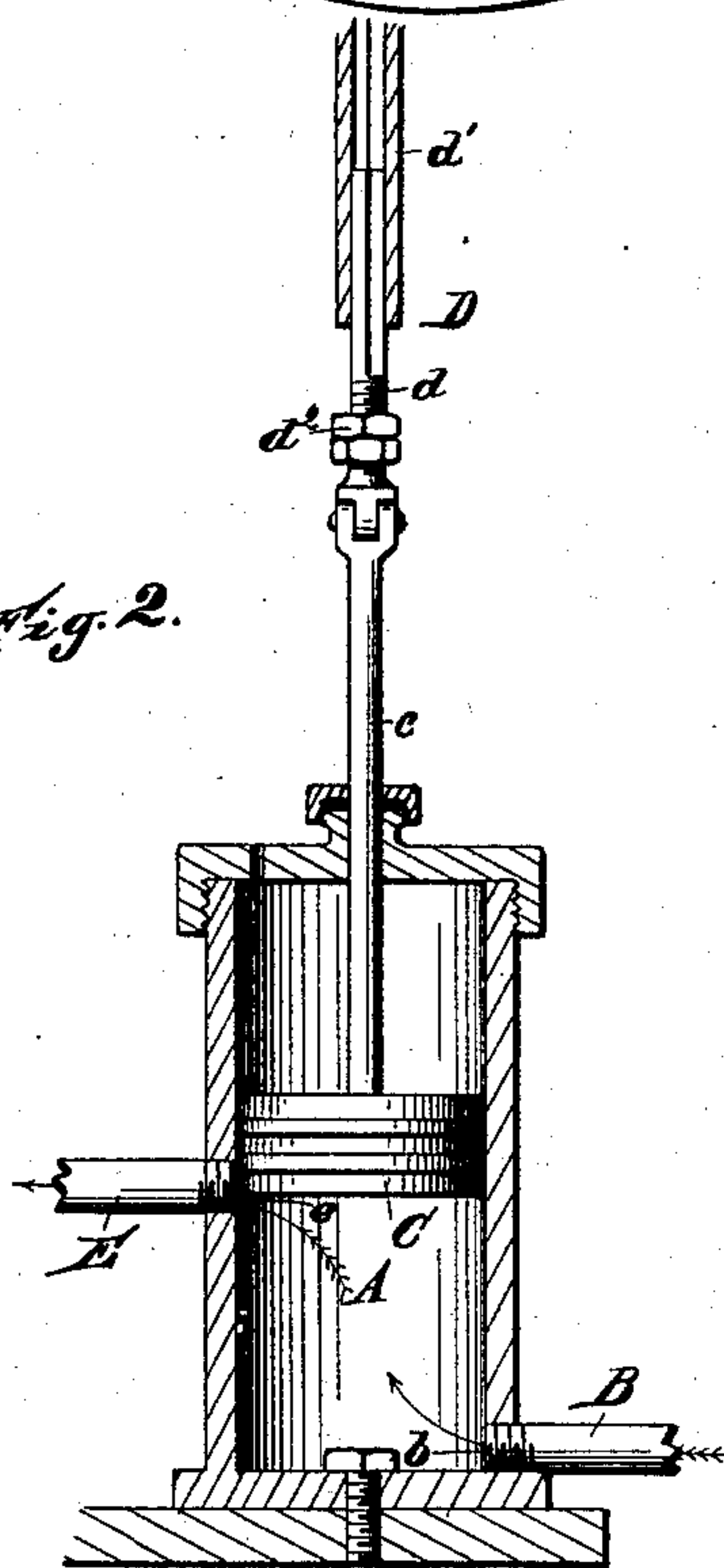


Fig. 2.



WITNESSES.

John E. Stiles.
H. B. O'Gherky.

INVENTOR.

Thomas D. Heffernan.
By *W. W. Lippert*
Attorney.

UNITED STATES PATENT OFFICE.

THOMAS D. HEFFERNAN, OF PONTIAC, MICHIGAN, ASSIGNOR OF ONE-HALF
TO HERVEY J. PARKE, OF SAME PLACE.

AUTOMATIC BELL-RINGER.

SPECIFICATION forming part of Letters Patent No. 393,830, dated December 4, 1888.

Application filed February 20, 1888. Serial No. 264,639. (No model.)

To all whom it may concern:

Be it known that I, THOMAS D. HEFFERNAN, a citizen of the United States, residing at Pontiac, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Automatic Bell-Ringers; and I 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, which form a part of this specification.

My invention relates to certain new and useful improvements in steam bell-ringers, and more particularly to that class of devices employing a steam-cylinder and a piston connected directly with the crank on the bell-yoke.

The object of my invention is to provide a novel connecting-rod operating so that the power developed in the return-stroke of the bell is utilized in forcing down the piston in the steam-cylinder; and this I accomplish in the manner and by the means hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a view in elevation of my improved bell-ringer in position upon a locomotive-boiler. Fig. 2 is a sectional view of the cylinder and piston, showing the arrangement of inlet and outlet ports and the adjustable connecting-rod.

A represents a steam-cylinder supported in any suitable manner on the boiler adjacent to the bell; B, the inlet-pipe connected to the air-brake pump or to the boiler, as desired, and having a free opening, *b*, into the base of the cylinder A.

C is the piston, and *c* the piston-rod; D, the connecting-rod, preferably made in two parts, *d d'*, as shown, in which case the portion *d'* is sleeved over the portion *d*, and an adjusting-nut, *d²*, is located upon the rod *d*, to act as a stop to engage the hollow portion *d'* and force it upward, and against which said hollow rod *d'* will strike and force the piston down. This nut is adapted to be turned up or down upon the rod *d* to lengthen or shorten the connecting-rod, thus adapting it for use on various styles of locomotives where the bell-crank may be of different heights from the boiler.

E is the outlet, passing off from the port *e* to the smoke-arch or other suitable locality.

The operation of my device is as follows: Steam or air entering the cylinder at the inlet-port *b* raises the piston and starts the bell to swinging. As soon as the piston passes the port *e*, the steam or air exhausts through said port into the exhaust-pipe, and immediately thereafter the piston will drop by its own gravity and the weight of the rod *d*, so as to partially close the port *e* and prevent more than a small portion of steam from escaping until the bell starts upon its return-stroke, when the hollow portion *d'* of the connecting-rod comes down upon the rod *d* and, striking upon the nut *d²*, forces down the piston C past the exhaust-port *e*, the momentum of the bell causing the piston to travel down against the pressure of the steam or air in the cylinder until the bell passes the dead-center, when the full pressure of the steam or air is exerted to raise the piston and give the required impetus for another stroke of the bell.

It will be seen that the action of the piston is simply to start the bell, and that as the piston stops rising the hollow portion *d'* of the rod will slide freely outward upon the inner portion, *d*, and upon the return-swing of the bell will slide back again until it comes in contact with the nut *d²*, when the momentum of the bell carries the connecting-rod and the piston downward against the pressure in the cylinder.

I am aware that various devices of this class have been made in which a steam-cylinder has been employed, the piston being connected directly to the bell-crank; but in all such devices valves have been employed to govern either the admission or exhausting of the steam, or both. These forms of bell-ringers are therefore necessarily expensive in construction, and the valves are liable to get out of order and to clog up, in which case the device will cease to operate satisfactorily. With my improvement, however, these objections are entirely done away with, as the absence of valves independent of the piston renders the device extremely simple in construction, and it is not liable to get out of order.

I have found in practice that this device is very simple and effective in its operation,

easily applied to any style of locomotive, and requiring no attention whatever on the part of the engineer or fireman, but may be kept ringing constantly or stopped at will by means
5 of any suitable mechanism for turning on or turning off the steam or air.

Having thus described my invention, what I claim is—

A bell-ringer composed of a cylinder and
10 piston and a connecting-rod made in sections,

said sections telescoped together, and in connection therewith an adjusting-nut for lengthening or shortening the rod, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

THOMAS D. HEFFERNAN.

Witnesses:

JOHN E. WILES,

M. B. O'DOHERTY.