

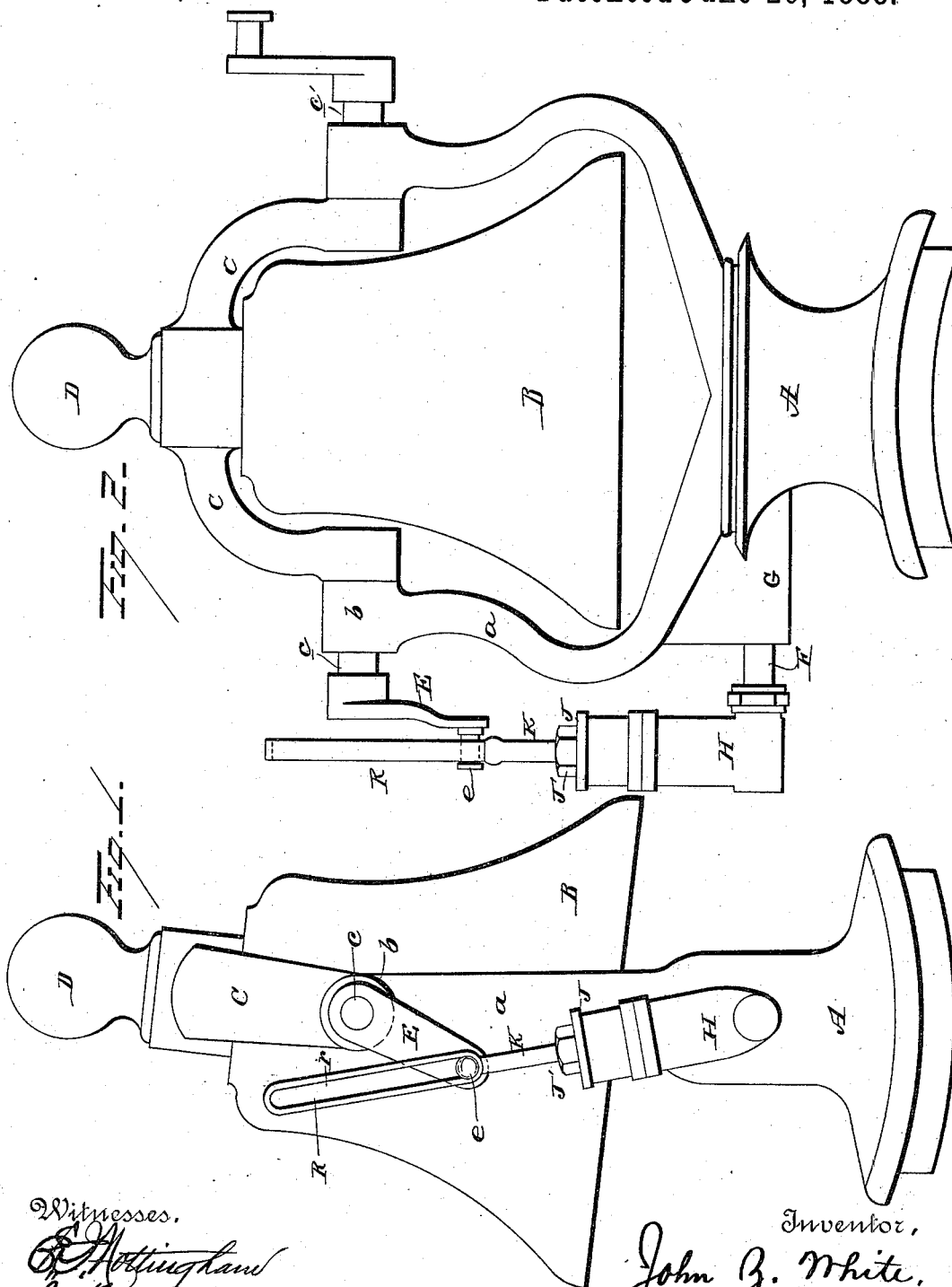
(No Model.)

2 Sheets—Sheet 1.

J. Z. WHITE.
BELL RINGING MECHANISM.

No. 385,029.

Patented June 26, 1888.



Witnesses,

E. Nottingham
G. F. Downing.

Inventor,

John G. White.

By *his* Attorney

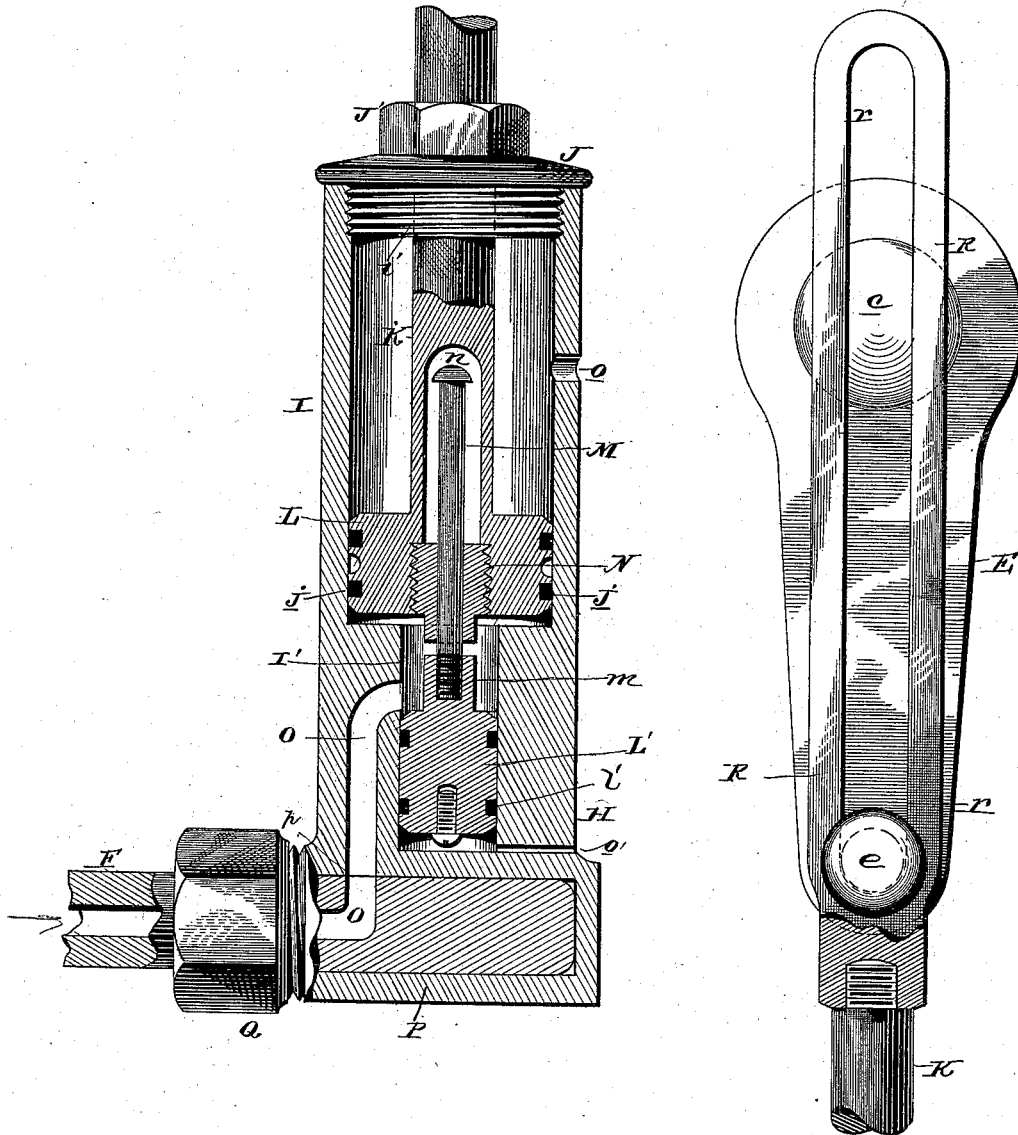
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Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN Z. WHITE, OF LOGANSPORT, INDIANA.

BELL-RINGING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 385,029, dated June 26, 1888.

Application filed October 12, 1887. Serial No. 252,161. (No model.)

To all whom it may concern:

Be it known that I, JOHN Z. WHITE, of Logansport, in the county of Cass and State of Indiana, have invented certain new and useful Improvements in Bell-Ringing Mechanism; and I do hereby 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.

My invention relates to an improvement in mechanism for ringing bells.

The object is to avoid the usual inconvenience attending the ringing by hand of bells—such as school, church, and locomotive bells; and to this end my invention consists in applying a small oscillating engine to the crank of a bell and in actuating this engine by air or steam.

The invention further consists in certain features of construction and combinations of parts, as will be hereinafter fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a front elevation of a bell, bell-frame, and the attached oscillating engine. Fig. 2 is a side elevation, or elevation taken at right angles to that shown in Fig. 1. Fig. 3 is a vertical section through the engine.

A represents the bell-support, having a pair of outwardly and upwardly projecting arms, *a*, in the ends of which are formed bearings *b*. This support is designed to be placed in church-steeple, on locomotives, or in other places where bells are employed. The bell itself, B, which is provided with the accustomed clapper, is suspended between arms *a* by means of downwardly-projecting arms C, the trunnions or axes *c c'* of which are journaled in the bearings *b*. In order to raise the center of gravity, a heavy counterpoise weight or handle, D, is rigidly secured on top of the bell, and by this means the bell is rendered more easy to operate, it having a tendency to thus vibrate of its own accord when started.

A crank, E, is rigidly secured or keyed on the trunnion *c* and provided with a crank-pin, *e*. It will be perceived from the drawings, Fig. 1, that this crank E projects downwardly and a little to one side of the vertical axis of the bell, so as to be normally in position, when

at rest, to instantaneously respond to the motion of the actuated reciprocating piston, which there would be no assurance of its doing if the crank projected straight down below the trunnion *c* or parallel with the vertical axis of the bell.

To ring the bell, I employ the following mechanism: A steam or air supply pipe, F, conducts steam or air from a steam-chest, pump, or other source through a bracket, G, to a duct in the thimble P of the engine. H represents this engine, having in its upper portion a cylinder, I, and a supplementary cylinder, I', below it and communicating therewith. A removable cap, J, having a nut, J', thereon, is screwed into or upon the upper end of this main cylinder I, and in this cap there is a perforation, *i*, through which piston-rod K extends and reciprocates. Rigidly secured on the end of this piston-rod is the main piston or plunger L, provided on the periphery with the usual packing-rings, *j*, to give the piston a steam and air tight joint in the cylinder. A smaller or supplementary piston or plunger, L', is located in and adapted to reciprocate in the supplementary cylinder. This plunger is also provided with the usual yielding packing-rings, *j'*.

Preferably the piston L' has a screw-threaded boss, *m*, projecting from its upper head, and a stem, M, is screwed therein. The main piston and piston-rod have a hollow bore adapted to receive the stem M and permit it to slide therein, and to prevent this stem from being entirely withdrawn from the piston when the latter operates a hollow screw-plug, N, is screwed into the piston L, against which the head *n* of the stem abuts when the pistons are driven apart. Out of each cylinder there is an exhaust-passage, *o o'*, and leading into the supplementary cylinder just above the smaller piston, when the latter is in its depressed position, there is a steam-supply duct, O. A thimble, P, into which the duct O opens, is formed integral with the lower end of the engine L, whereby the engine is mounted on the end of the supply-pipe F. A nut, Q, holds the thimble on this pipe in rotating adjustment. The upper end of the piston-rod terminates in the slotted fork R, the slot *r* of which is adapted to receive the crank-pin *e*,

the slot *r* being of sufficient length to permit the crank-pin to turn completely over with the bell when the piston-rod is forced upward. When the bell is to be rung, the steam or air is forced through the pipe *F* into the duct *O*, whence it passes beneath main piston *L* and forces the latter up, carrying with it the piston-rod *K*, which forces crank-pin *e* up, and thus vibrates the bell, the clapper striking its sides and the bell turning completely over, if need be, the slot *r* being sufficiently long to permit this; or the bell may turn only a part way over, as is customary. Meanwhile the head *n* of the stem *M* has been impinged by the screw-plug *N*, and small piston *L'* has been slid upwardly sufficiently to cut off the steam or air supply by closing the duct *O*, (and, if desired, also shutting off at point *p*.) The main piston is now above the exhaust-passage *O*, and the weight of the bell forces both pistons down again, opening the supply-duct in position for a repetition of the operation. Thus it is plain that the operation of the engine is automatic.

25 In the event that any parts of the mechanism become inoperative or are being repaired, an arm or wheel projecting from the trunnion *e'* can be provided with a rope, whereby the bell may be swung in the usual manner. The bell may be rung fast or slow and continuously or at intervals, as desired.

35 It is evident that slight changes might be resorted to in the form and arrangement of the several parts described without departing from the spirit and scope of my invention; hence I do not wish to limit myself to the particular construction herein set forth; but,

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

1. In a bell-ringer, the combination, with a base or support and a bell journaled thereon and provided with a crank, of an oscillating cylinder, a piston therein, and a rigid piston-rod having a sliding connection with the crank, substantially as set forth.

2. In a bell-ringer, the combination, with a base and a bell journaled thereon and provided with a crank, of an oscillating engine, the two pistons therein loosely connected together, and the rigid piston-rod having a sliding connection with the crank, substantially as set forth.

3. The combination, with a bell journaled on a suitable standard, of an oscillating engine having large and small cylinders and large and small pistons, the large piston having a hollow bore and a hollow plug therein, and the latter having a stem adapted to enter the large piston to be held therein, and a supply-duct leading into the smaller cylinder at a point between the large and small pistons, and a rigid piston-rod attached to the larger piston, and having a sliding connection with the bell-crank, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOHN Z. WHITE.

Witnesses:

A. P. JENKS,
C. D. HERRICK.