

No. 862,518.

PATENTED AUG. 6, 1907.

C. SOWTER & J. HOWE.
BELL RINGER.
APPLICATION FILED MAR. 7, 1906.

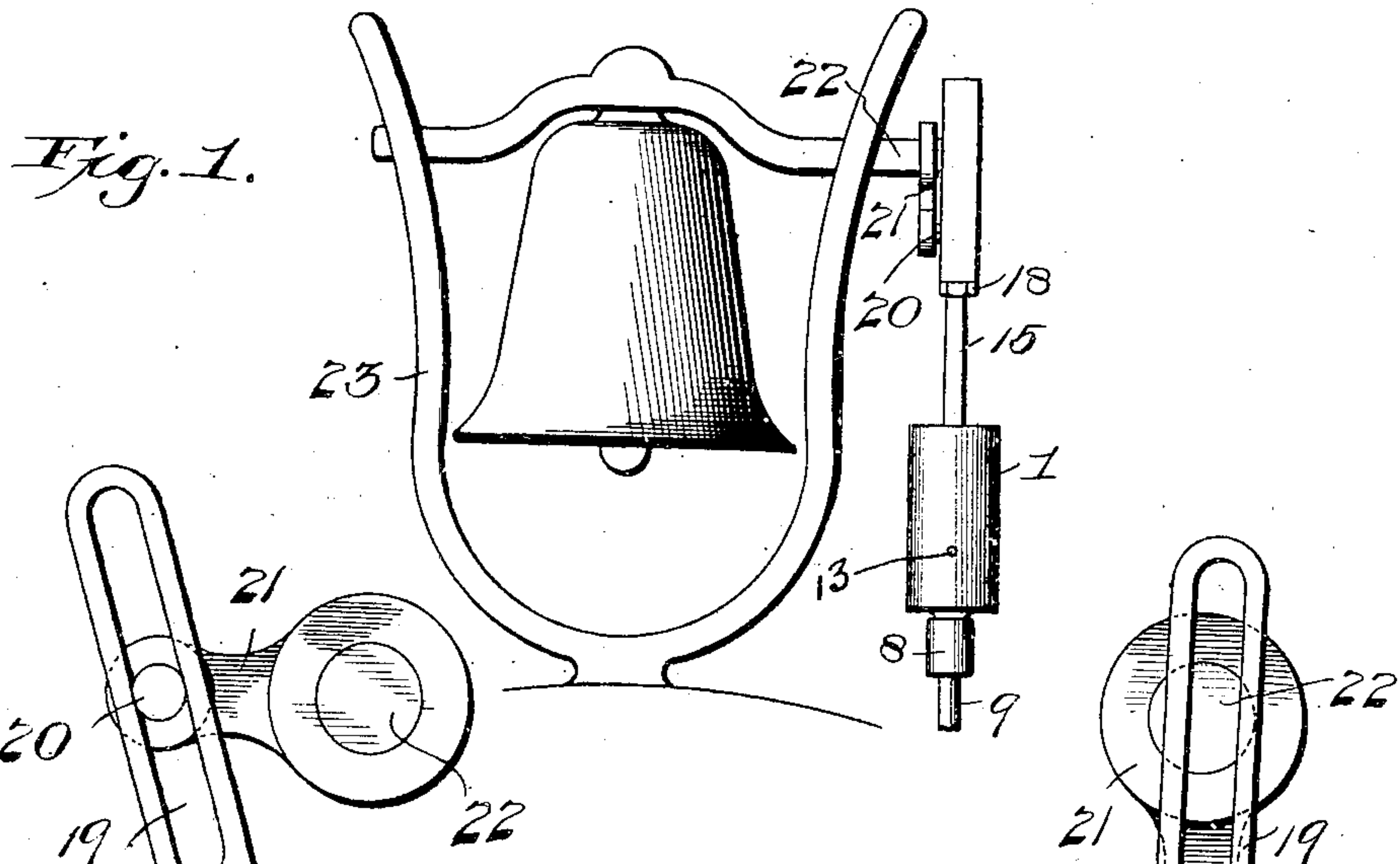


Fig. 2.

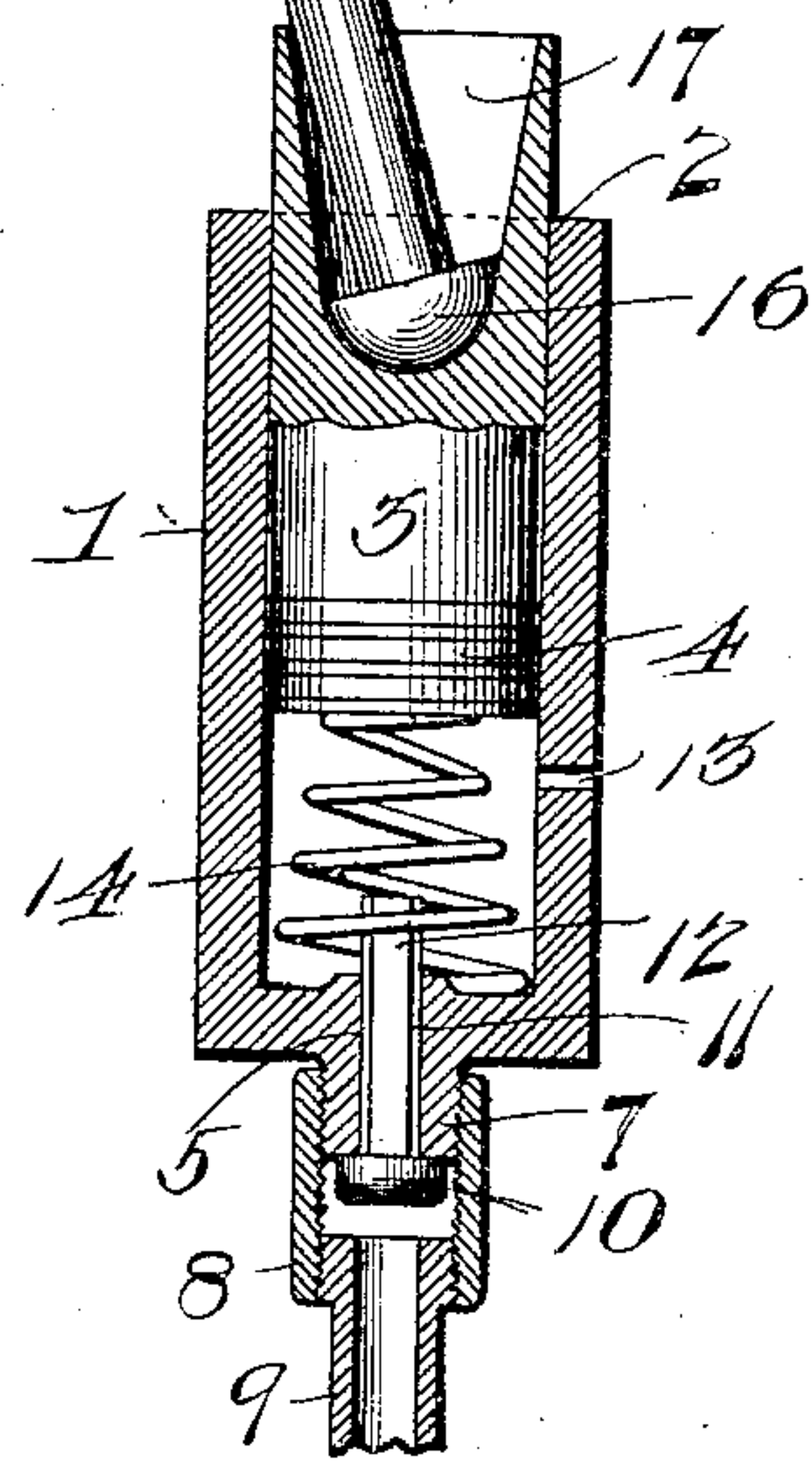
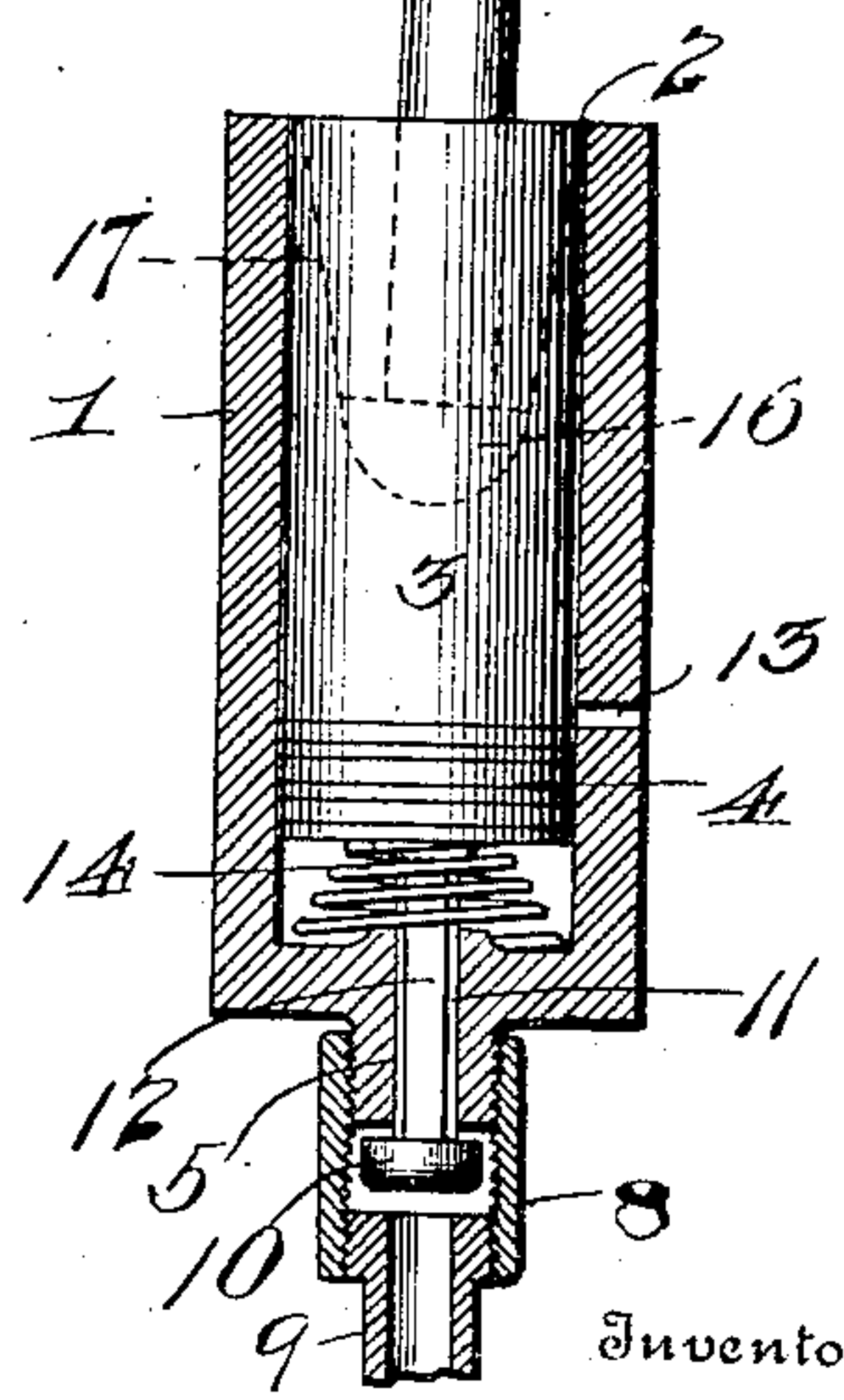


Fig. 3.



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CHARLES SOWTER AND JOHN HOWE, OF ST. JOSEPH, MISSOURI.

BELL-RINGER.

No. 862,518.

Specification of Letters Patent.

Patented Aug. 6, 1907.

Application filed March 7, 1906. Serial No. 304,767.

To all whom it may concern:

Be it known that we, CHARLES SOWTER and JOHN HOWE, citizens of the United States, residing at St. Joseph, in the county of Buchanan and State of Missouri, have invented certain new and useful Improvements in Automatic Bell-Ringers, of which the following is a specification.

This invention relates to an automatic bell-ringing appliance for the bells of locomotive engines.

10 To this end the invention contemplates a simple and practical construction of bell operating device comprising means for positively and automatically effecting the necessary swinging movement of a locomotive bell to cause the sounding or ringing thereof for any desired
15 length of time, thereby dispensing with the usual primitive methods still employed by using the common bell rope.

Another object of the invention is to provide a bell operating device so constructed as to insure a positive
20 and light action of the parts with a minimum amount of wear. Also to provide a construction or device which may be operated by compressed air or equivalent fluid.

With these and other objects in view, the invention consists in the novel construction, combination and arrangement of parts hereinafter more fully described,
25 illustrated and claimed.

In the drawings: Figure 1 is a general side view showing a locomotive bell equipped with an operating or ringing device constructed in accordance with the
30 present invention. Fig. 2 is a sectional view, partly in elevation, of the device with the parts in one position. Fig. 3 is a view similar to Fig. 2 with the parts in a position permitting the intake of motive agent.

Like references designate corresponding parts in the
35 several figures of the drawings.

The bell operating device contemplated by the present invention, may be associated with any type of swinging bell such as ordinarily employed on locomotive engines. This device includes in its general organization, a working cylinder 1 open at one end, as at
40 2, and accommodating for reciprocatory movement therein, an actuating piston 3 carrying suitable piston packing 4 to provide an air or fluid tight bearing between the piston and the inner wall of the cylinder.

45 Opposite its open end the cylinder is provided therein with an inlet port 5, and at the outer end of the said inlet port, the cylinder is provided with a valve-seat neck 7 over which is arranged a valve casing 8, to which latter is connected a supply pipe 9. This supply pipe
50 is preferably connected with the compressed air supply of the air-brake system, though it is obvious that steam may be utilized as the motive agent for working the device.

The valve casing 8 accommodates therein a pressure-

closed automatic supply valve 10. This valve works 55 on to the valve seat of the neck 7 and is provided with a stem 11 working in the inlet port 5 and having on its sides the flats 12 which permit the motive agent to freely pass through the port 5 when the valve is open. The upper end of the stem 11 projects into the lower
60 end of the working cylinder in the path of the piston 3.

At an intermediate point the cylinder 1 is provided in the side thereof with an exhaust port 13 for the motive agent and in one position of the piston the latter and its connected parts are sustained in an elevated
65 position to permit of the exhausting action through the medium of an auxiliary yielding piston support 14. The support 14 is preferably a helical spring interposed between the cylinder bottom and the piston though it is obvious, that this spring may be positioned at any
70 other point of the line of the piston connections to secure a similar effect without departing from the invention.

The piston 3 actuates a piston rod 15 preferably having a turning ball and socket connection with the piston. This connection usually consists of a ball member
75 16 on one end of the piston rod and working in the base of a rounded ball socket 17 formed in one end of the piston body 3. Preferably the piston rod and its ball connection are set about one-half inch off of dead center to insure the swing of the piston rod past dead
80 center.

The piston rod 15 has adjustably connected to one end thereof, as at 18, a longitudinally slotted connecting link 19 which slidably receives therein the wrist-
85 pin 20 of a crank arm 21 fitted on the bell-axle 22 which supports the bell-yoke 23 of an ordinary locomotive bell.

From the foregoing it will be obvious that the weight of the bell normally holds the parts in the position
90 shown in Fig. 3 ready for the intake of motive agent. When it is desired to operate the bell, the engineer opens the valve which permits the air or other motive agent to enter the supply pipe 9. The motive agent then flows past the supply valve and moving against
95 the piston 3, causes the same with its connections, to move upward to the position shown in Fig. 2. The bell is thus elevated and in this movement, the motive agent exhausts through the port 13. The weight of the bell descending causes the piston to strike the
100 upper end of the valve stem thus causing the valve to open when the crank is passing the center. The valve will remain open until the piston rises in the cylinder up the exhaust port, whereupon the pressure in the cylinder reduces and the supply valve closes.
105

During the foregoing action the spring 14 will hold the piston above the exhaust port, allowing the motive agent to escape until the weight of the descending bell

forces the piston down again. The action repeats itself continuously and automatically as long as motive agent is admitted to the pipe 9.

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

In an automatic bell-ringer, the swinging bell member comprising a cylinder having an inlet port at one end and a side exhaust port, an automatic valve for said inlet port.
10 the piston, an auxiliary supporting spring for the piston,

and a piston rod having a wrist connection with the piston and a slotted link connection with said crank arm.

In testimony whereof we affix our signatures in presence of two witnesses.

CHARLES SOWTER.
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Witnesses :

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