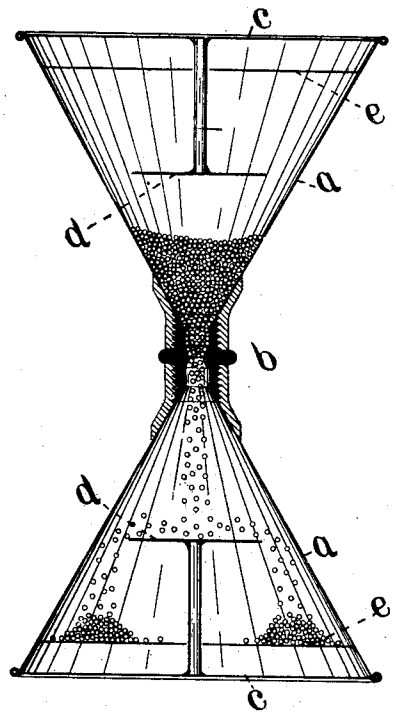
(No Model.)

T. SHAW.

TIME SOUNDING INDICATOR.

No. 372,090. Patented Oct. 25, 1887.



Witnesses
J. Logan Fitts
Wm Garwood

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UNITED STATES PATENT OFFICE.

THOMAS SHAW, OF PHILADELPHIA, PENNSYLVANIA.

TIME SOUNDING-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 372,090, dated October 25, 1887.

Application filed June 4, 1887. Serial No. 240,203. (No model.)

To all whom it may concern:

Be it known that I, THOMAS SHAW, of the city and county of Philadelphia, Pennsylvania, have invented a new and Improved Sounding Time-Indicator for Fractions of Time; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

My invention consists in the utilization of metallic shot caused to flow through a cylinder of hour-glass configuration upon a sounding-plate connected with a diaphragm, all operating in the manner and for the purpose hereinafter described.

The object of the invention is to furnish audible time-indications for fractions of time, noticeable in dark mine-chambers, useful in signaling where fractions of time form an important part in the production of signals.

In order to enable others to use and practice my invention, I will proceed to describe its construction and operation.

The drawing represents a vertical section through center of time-indicator, constructed almost entirely of sheet-tin, consisting of two cones, *a*, united at their apex by ordinary screw metal ferrules, soldered at the tin and screwed upon a metallic nipple, *b*, which is provided with a central passage-way, for the purpose hereinafter explained. The base or outer ends of said cones *a* are provided with thin metallic disks *c*, in the center of which is soldered a wire stem, shown supporting a small metal disk, *d*, for the purpose hereinafter explained. A metallic disk, *e*, is soldered to sides of cone *a*, and has an aperture in center for stem of disk *d*, for supporting the fallen shot, as hereinafter explained.

The indicator is operated in this wise: More or less fine shot is placed in one of the cones, regulated by experiment for the number of seconds of time it is required to pass said shot through the central aperture, until it is adjusted for any predetermined number of seconds. On placing the instrument in a vertical position with the shot in the upper chamber, the shot will fall on disk *d*, and will glance off and fall upon the floor-support *e*. The effect of said shot is to vibrate the disk *d*, which in turn transmits the vibration to disk *c*, causing a constant sound during the passage of the shot, giving audible indications of any period of time for which the instrument is set. The flooring *e* supports the fallen shot away from contact of disk *c* and prevents the same from interfering with the sound-vibrations of said disk.

This instrument is useful in dark mine-chambers where signals are sent pneumatically and require a certain number of seconds for the transmission. Each mine-chamber, differing in time, requires a separate instrument for each chamber of expeditious working.

What I claim, and desire to secure by Letters Patent, is—

1. A time-indicator for giving audible signals, consisting of a case having inclined sides leading to a contracted opening, a sounding-plate situated at a distance from and below such opening, and shot contained in such case and adapted to pass through said opening and to fall upon said plate when the indicator is set in proper position, substantially as described.

2. A time-indicator for giving audible signals, consisting of a case of double-cone or hour-glass shape containing shot, and having sounding-plates placed opposite and at a distance from the contracted opening between the two cones, said plates being caused to vibrate and give forth sounds as the shot falls thereon, substantially as described.

3. A time-indicator for giving audible signals, consisting of a case having walls converging toward a contracted opening and containing shot, a plate below and at a distance from said opening, upon which the shot falls from said contracted opening, and a diaphragm connected with said plate to increase the audible effect of the vibrations caused by the falling shot, substantially as described.

4. A time-indicator for giving audible signals, consisting of a case having two chambers or portions connected by a contracted passage-way and containing shot adapted to pass from one chamber to the other through said passage-way, a plate, *d*, situated in one of said chambers opposite to and at a distance from said opening, a support, *e*, for the shot, and a diaphragm, *c*, connected with the plate by a rod passing freely through said support *e*, substantially as described.

5. A time-indicator for giving audible signals, consisting of a case of double-cone or hour-glass shape, having its ends covered by vibratory diaphragms *c*, and the chambers formed by the two cone-shaped sections connected by a contracted opening, plates *d*, mounted opposite to and a distance from said opening and supported upon rods or stems connected with the diaphragms, floorings *e*, through which said stems pass loosely, arranged between said plates and diaphragms, and shot arranged in said case and arranged to pass from one cone to the other through said opening, substantially as described.

THOMAS SHAW.

Witnesses:
J. LOGAN FITTS,
WM. GARWOOD.