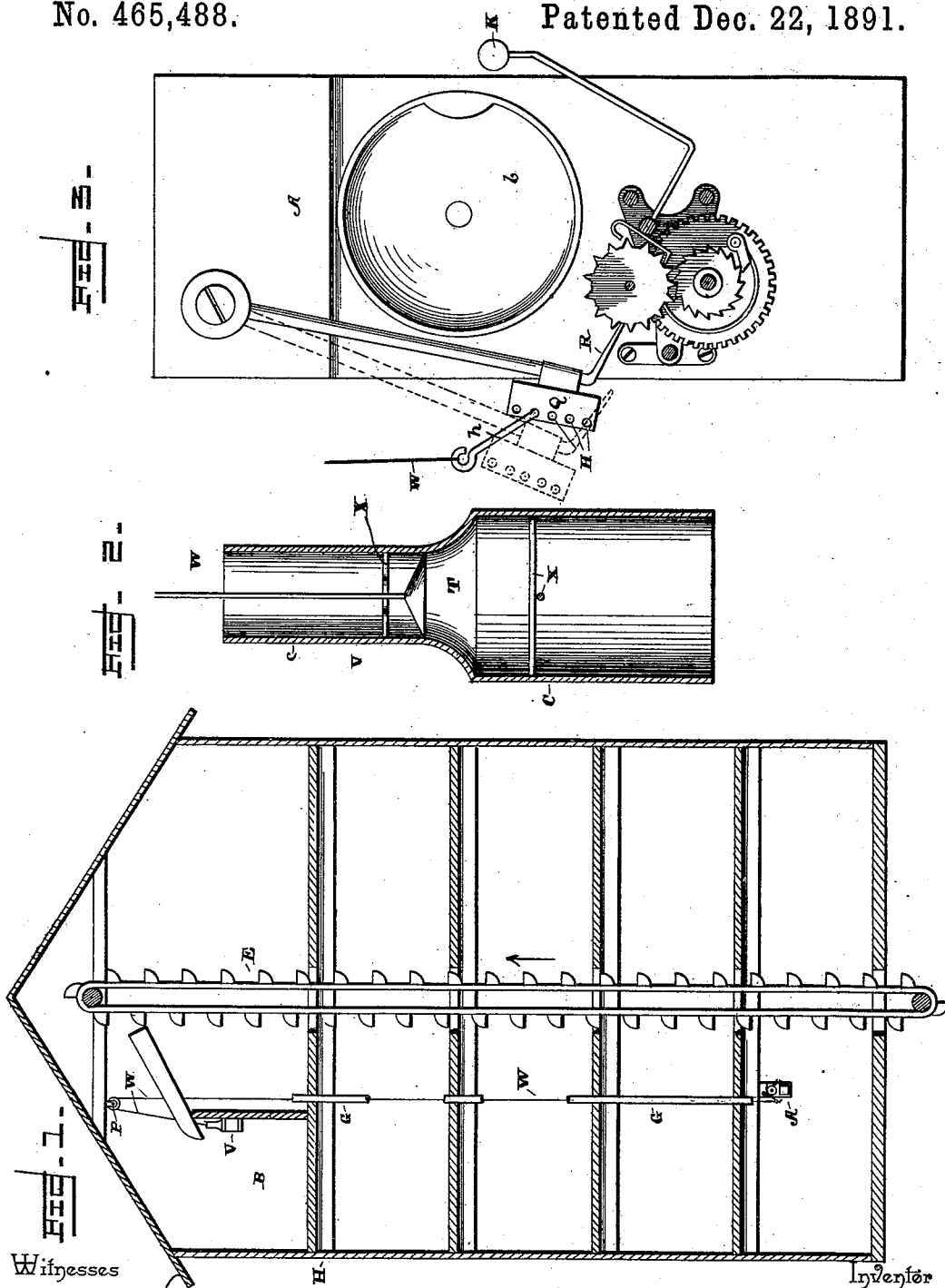


(No Model.)

J. H. NICHOLS.
GRAIN BIN ALARM.

No. 465,488.

Patented Dec. 22, 1891.



Witnesses

Inventor

E. S. Duwall, Jr. By his Attorneys,
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UNITED STATES PATENT OFFICE.

JOHN H. NICHOLS, OF SHELTON, IOWA.

GRAIN-BIN ALARM.

SPECIFICATION forming part of Letters Patent No. 465,488, dated December 22, 1891.

Application filed July 13, 1891. Serial No. 399,404. (No model.)

To all whom it may concern:

Be it known that I, JOHN HENRY NICHOLS, a citizen of the United States, residing at Shelton, in the county of O'Brien and State of Iowa, have invented a new and useful Grain-Bin Alarm, of which the following is a specification.

This invention relates to signals, and more especially to that class adapted to sound an alarm; and the object of the same is to provide an alarm to indicate automatically when a grain-bin is full.

To this end the invention consists of an alarm constructed substantially as herein after more fully described and claimed, and as illustrated on the sheet of drawings, wherein—

Figure 1 is a section of a grain-elevator with my alarm applied. Fig. 2 is an enlarged vertical section of the valve. Fig. 3 is an enlarged elevation of the alarm.

Referring to the said drawings, the letter H designates the elevator building or house, and B is the bin therein near the top of the building, the endless elevator E being shown as carrying grain from the cleaning-floor F upwardly and delivering it into said bin. It is well known to those in this business that the operator who is on the floor attending to the cleaners has no means of knowing when the upper bins are full, and consequently he must from time to time climb the stairs and inspect them, or else they will run over and either mix the grain with other bins or clog the elevators.

The object of the present invention is to provide means for sounding an alarm on the cleaning-floor when the upper bin or bins have become filled, and this object I accomplish by the following devices.

The letter V designates a valve located in the bin near its top, and this valve comprises a cylindrical casing C, having a reduced upper end c, within which latter moves a conical or upwardly-tapering valve T, suitable cross-rods X being provided to prevent dislocation of the valve. From the apex of this valve a wire W leads upwardly over pulleys P in the roof of the building and downwardly through a gas-pipe G or other casing to the cleaning-floor.

A is an alarm which comprises a clock mech-

anism driven by a coiled spring or weight, as usual, and to whose escapement is connected a clapper K, adapted to strike the bell b when the mechanism moves.

R is a retaining-pawl whose tip normally engages one of the wheels of the clock mechanism, as shown in full lines, and to the back of this pawl, near its tip, is secured a plate Q, having a number of holes H.

h is a hook secured to the lower end of the wire W and engaging one of the holes H, as seen.

The valve being located in the top of the bin and the alarm in the building on the cleaning-floor, when the grain rises in the bin sufficiently to flow into the reduced end c of the casing it falls onto the valve T and bears the same downwardly, thus drawing on the wire W, raising the retaining-pawl and allowing the alarm to run. Audible notice is thereby given the operator to stop the elevator, because the bin is full. The holes in the plate Q are obviously for adjusting the hook to tighten the wire when it becomes slack. The conical upper face of the valve permits the grain to run off the same and around the edges thereof through the larger lower end C of the casing, whereby the valve is relieved of its weight and is ready for renewed operation.

Although I have shown but one valve V and wire W, it will be understood that there may be, and preferably are, several in the elevator-building, each similarly arranged and each wire having a hook H, and after one bin has been filled the hook of its wire is disconnected from the plate Q of the bell and the hook of a wire leading to another bin engaged therewith. In this manner one bell will answer for all the bins in the building.

An alarm of this character will serve a useful purpose in an elevator-building and save the operator many steps, and it is not liable to get out of order or become clogged.

I do not confine myself to the exact details of construction, as considerable change may be made therein without departing from the spirit of my invention.

I claim as the salient features of this invention—

1. The combination, with a grain-elevator and a bin to which said elevator delivers, of a valve located near the top of said bin, a wire

leading from said valve upwardly over pulleys and downwardly to the floor of the building, a pipe surrounding said wire, an alarm mechanism, and an independent retaining-pawl therefor, to which said wire is connected, as and for the purpose set forth.

2. In a device of the character described, the combination, with a cylindrical casing having a reduced upper end and located near the top of a grain-bin, cross-rods in said casing at its upper end, and a conical valve moving in the reduced portion between said rods, of an alarm and a wire leading from said valve to the trip-lever of the alarm, as and for the purpose set forth.

3. In a device of the character described, the combination, with a bin, a valve located near the top thereof and operated by the grain

when the bin is nearly filled, and a wire leading from said valve, of a clock mechanism having a clapper secured to its escapement, a bell which said clapper strikes, a pivoted retaining-pawl independent of the clapper, whose tip normally engages one of the gear-wheels of said mechanism and prevents the movement of the latter, a plate on the rear of said pawl having a number of holes, and a hook on said wire engaging one of said holes, as and for the purpose hereinbefore set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JOHN H. NICHOLS.

Witnesses:

B. HUTCHINSON,
E. L. WARNER.