

(No Model.)

E. SHEPARD.

FEED HOPPER AND BELL FOR BLAST AND OTHER FURNACES.

No. 274,667.

Patented Mar. 27, 1883.

Figure 2.

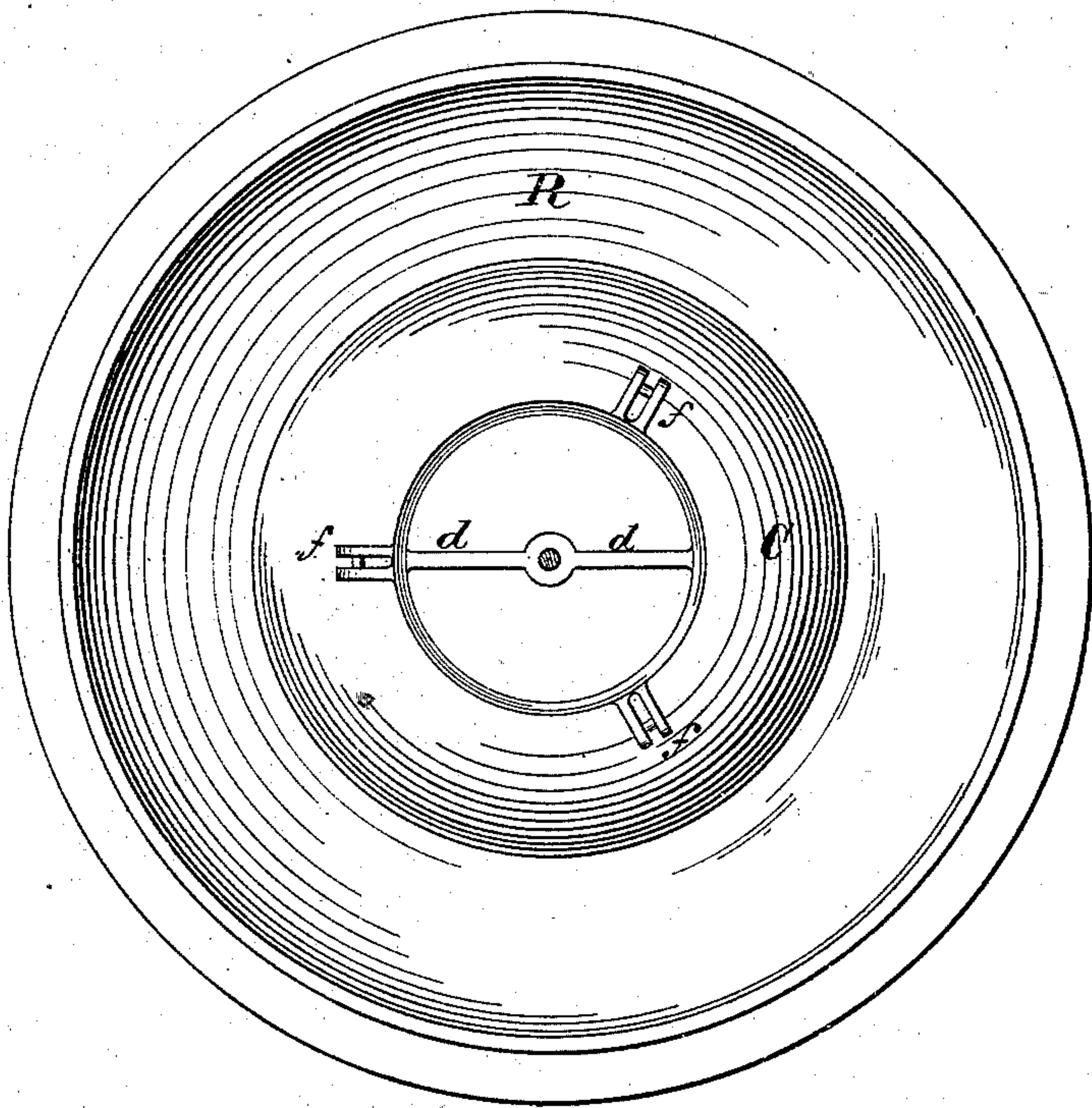
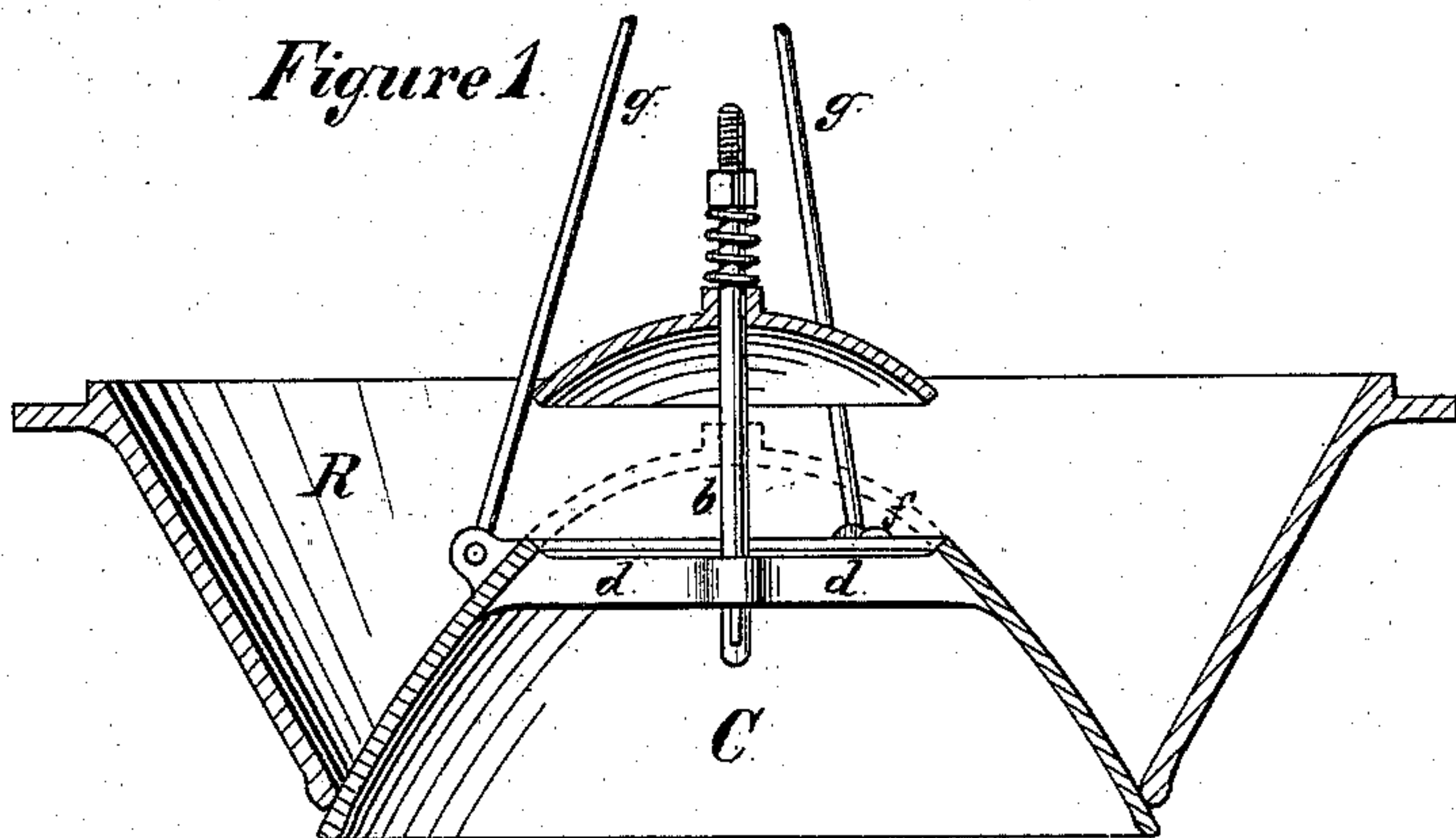


Figure 1.



Witnesses:

Robt. H. Duncan

W. H. Gaylord

Inventor

Edmund Shepard

by Saml. A. Duncan
Atty

UNITED STATES PATENT OFFICE.

EDWIN SHEPARD, OF GOSHEN, VIRGINIA.

FEED-HOPPER AND BELL FOR BLAST AND OTHER FURNACES.

SPECIFICATION forming part of Letters Patent No. 274,667, dated March 27, 1883.

Application filed November 24, 1882. (No model.)

To all whom it may concern:

Be it known that I, EDWIN SHEPARD, of Goshen, in the county of Rockbridge, State of Virginia, have invented certain new and useful Improvements in the Construction of Feed-Hoppers and Bells for Blast and other Furnaces, and also for Distributing the Stock; and I do hereby declare that the following is a full, clear, and accurate description of the invention, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to the construction of a bell used for closing the top and distributing the stock of a blast or other furnace, having for its principal object the obviating of the destructive effects of gas-explosions, which sometimes occur in furnaces, and which often prove disastrous to the structure.

The bell hitherto used is formed of cast-iron, or of cast and wrought iron combined, all parts or pieces of which are bolted or riveted together, so as to be perfectly tight, the bottom of bell closing tight on inside with bottom of hopper. Should an explosion of gas take place, it has no outlet at the most effective point—viz., that directly over the charge in furnace—and consequently it seeks other outlets, causing damage to the structure in so doing.

My invention consists in making the top of bell act as a large safety or explosion valve without interfering with its action for the purpose for which it is intended, at the same time allowing the bell to close tight on the under side of hopper from the inside in the usual manner.

In the drawings, Figure 1 is a sectional elevation of a bell, C, and hopper R; Fig. 2, a plan illustrating the bell, with any desirable

portion of the top serving as an explosion or safety valve. The bottom part of this top piece, as also its seat on the lower part of bell, should preferably be turned or faced, so as to insure its being tight when down. It can also be weighted, should it not be sufficiently heavy to keep on its seat under the ordinary pressure of the gases.

b is the spindle or guide, which is secured in the center of arms or rings *d*, in the lower part of bell C, by any of the ordinary methods. At the top of spindle or guide I prefer to place a spring to take up the shock.

I do not confine myself to any form of guides or guide, but would prefer the kind shown in drawings.

ff are lugs at or near top of lower part of bell C, to which lugs the adjustable rods *g g*, hanging the bell to a vibrating beam above in the usual manner, are attached.

This invention may be applied in different ways—to wit, in making the top of bell in the form of one or more flat lids working on hinges; but I have shown sufficient to illustrate the principle.

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

The combination, in a blast-furnace, of a hopper and a distributing-bell arranged to close the hopper from below, which is provided with a yielding valve for the escape of gases, substantially as shown, and for the purpose described.

In witness whereof I have hereunto affixed my signature, in presence of two witnesses, this 23d day of October, 1882.

E. SHEPARD.

Witnesses:

CHAS. SELDEN,
J. E. PERKINS.