

No. 735,904.

PATENTED AUG. 11, 1903.

W. H. PICHER & J. P. BOSS.  
SCREEN SYSTEM.

APPLICATION FILED AUG. 27, 1902.

NO MODEL.

FIG. 1.

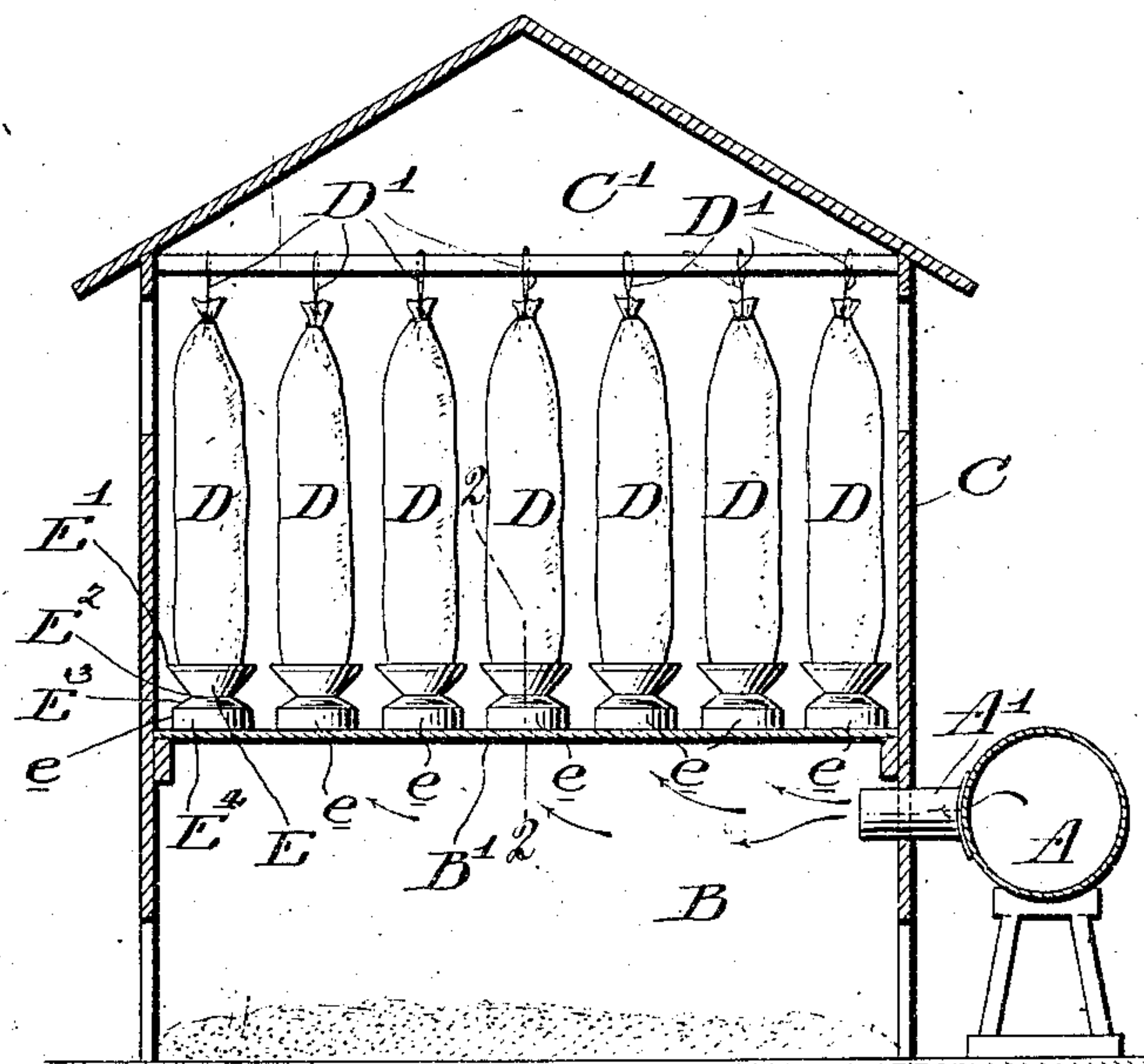


FIG. 2.

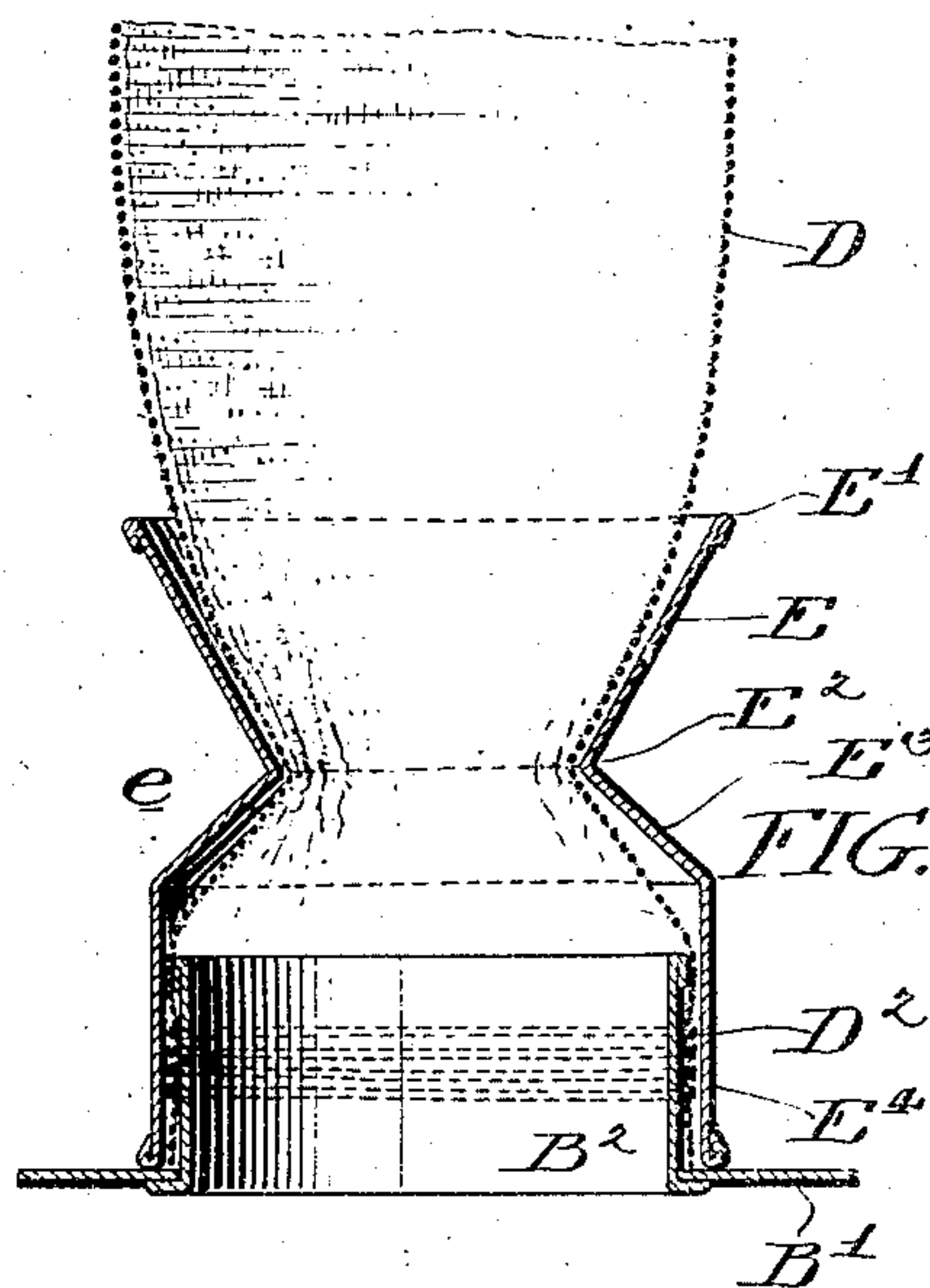
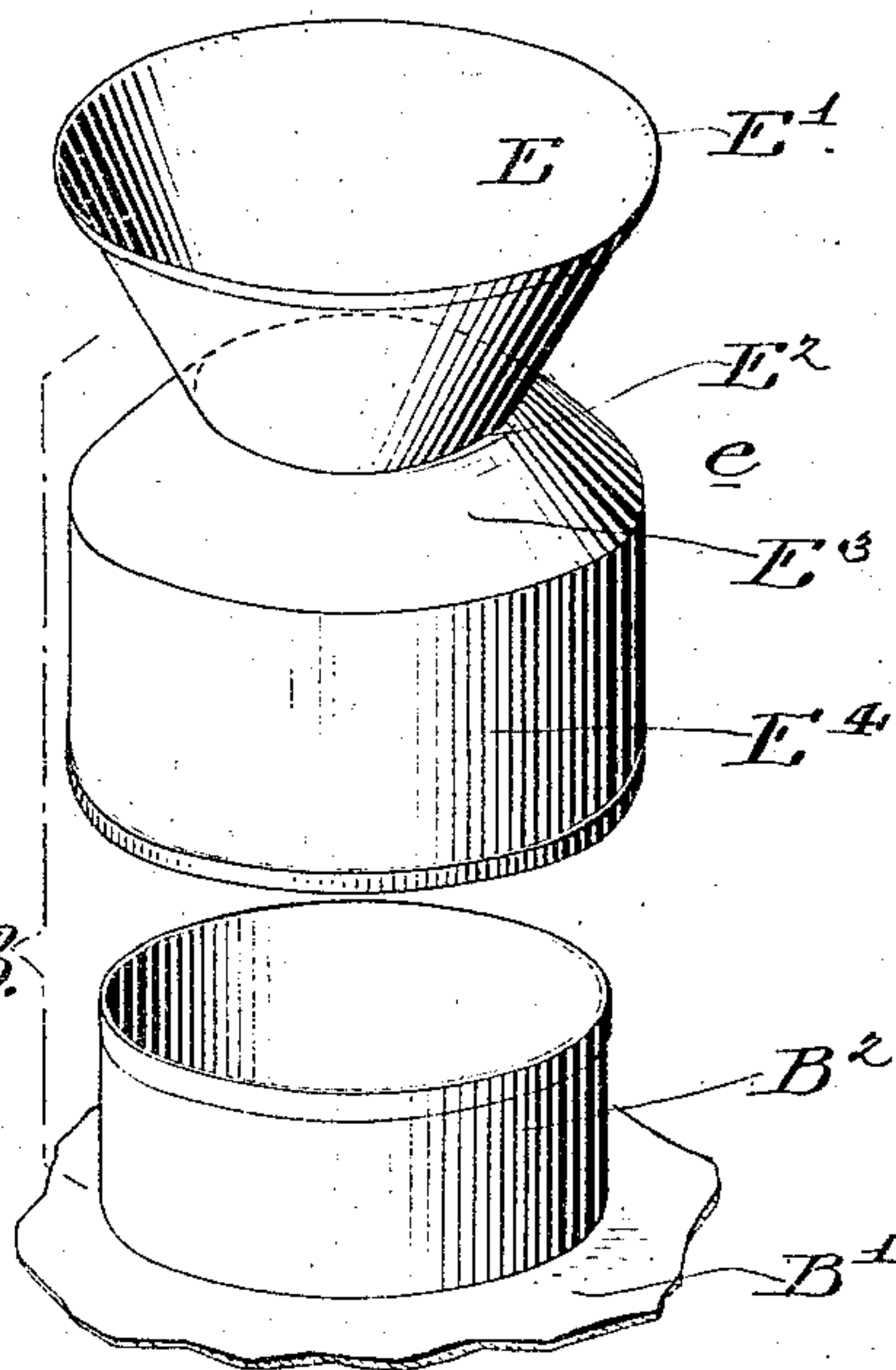


FIG. 3.



Witnesses:

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# UNITED STATES PATENT OFFICE.

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## SCREEN SYSTEM.

SPECIFICATION forming part of Letters Patent No. 735,904, dated August 11, 1903.

Application filed August 27, 1902. Serial No. 121,185. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM H. PICHER and JAMES PHILLIP BOSS, both citizens of the United States of America, residing in Joplin, in the county of Jasper and State of Missouri, have invented a certain new and Improved Screen System, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part thereof.

Our invention relates to apparatus used for screening gases, particularly furnace-gases, with a view of separating from the gases the solid particles suspended therein. In devices of this kind as heretofore constructed it has been customary and approved practice to lead the furnace-gases into a series of chambers or hoppers having communicated with their tops openings to which are attached the lower ends of fabric bags suspended from their tops and serving as the screen for separating the solid and gaseous material, the solid particles collected in the bags falling therefrom into the bottom of the hopper-chambers. A great deal of solid material remains attached to the material of the bag, greatly adding to its weight and frequently causing it to sag at the bottom to one side or other, forming a pocket in which the solid material accumulates to a very considerable and injurious extent, not only tending to break the bag away from its fastening or to cause a tearing in the fabric, but also having a very marked tendency to bring about the destruction of the bag by burning.

The object of our invention is to obviate the above-noted difficulties in the use of bag-screens and accomplish this by surrounding the bag a short distance above its attachment to the top of the chamber or hopper by a funnel-like collar having its lower and smaller diameter considerably less than the normal diameter of the bag, so that the bag is contracted at this point and its portion immediately above this contracted neck supported on the flaring funnel-like walls of the collar. By preference the funnel-like collar is supported on top of the hopper and upon a foot extension or stand which flares outwardly from the contracted portion of the collar, so

as to permit the bag to expand to its full diameter below the contracted neck.

The nature of our improvements will be best understood as described in connection with the drawings, in which they are illustrated, and in which—

Figure 1 is a sectional elevation of screen-house provided with bag-screens and equipped with my improvements. Fig. 2 is an enlarged sectional elevation taken through the center of one of the perforations in the chamber or hopper, showing the flange to which the bag is attached and the collar and collar-supporting devices; and Fig. 3 is a perspective view of the collar, collar-supporting devices, and one of the flanged perforations in the chamber or hopper.

A indicates a flue leading from the furnace or other point from which the gases are drawn and connect through connections A' with hopper-chambers B B', indicating the top of the hopper-chamber, through which are formed perforations bounded by upwardly-extending annular flanges, as indicated at B<sup>2</sup>, Figs. 2 and 3.

C indicates the bag-house from beams C', extending across the top of which are suspended a series of fabric bags, (indicated at D D,) the tops of the bags being tied and connected with the beams C' by cords, (indicated at D'.) The bottoms of the bags D are slipped over the annular flanges B<sup>2</sup> and tied to them by a cord, (indicated at D<sup>2</sup>.)

E is the funnel-shaped collar, having its upper and larger edges (indicated at E') preferably of somewhat greater diameter than the normal diameter of the bags and its lower contracted edge (indicated at E<sup>2</sup>) of considerably less diameter than the normal diameter of the bags. By preference the collar E is connected by an outwardly-extending flange E<sup>3</sup> with a cylindrical base E<sup>4</sup>, adapted to surround the annular flange B<sup>2</sup> and rest on the top B' of the hopper-chamber, as indicated in Figs. 1 and 2.

In assembling the apparatus the collars E with their supporting-frames (the whole device being indicated at e) is slipped over the bag, which is preferably suspended from the beam C', and then the lower end of the bag



is drawn over the flange B<sup>2</sup> and fastened to it and the collar moved down until its base E<sup>4</sup> rests upon the top of the hopper-chamber, as shown in Figs. 1 and 2.

5' In operation the solid particles going into the bag-house accumulate to a considerable extent on a portion of the bags resting in contact with the funnel-shaped collar detach themselves from time to time by their own weight and fall through the collar into the hopper. The collar supports the weight of this accumulated material, preventing any injurious strains on the bags and preventing any tendency of the bag to sag at the bottom to one side, and a material improvement both in the operation and life of the bags has been found to follow upon the use of our device.

Having now described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a screen system, the combination with a chamber or hopper into which the gases to be screened are led and in which the screenings are collected, of one or more screen-bags extending above the hopper and opening into it at their lower ends and a funnel-shaped collar, having an opening at its lower and smaller end of less diameter than the normal diameter of the bag, secured at the lower end of the bag.

2. In a screen system, the combination with a chamber or hopper into which the gases to be screened are led and in which the screenings are collected, of one or more screen-bags extending above the hopper and opening into it at their lower ends, and a funnel-shaped collar, having an opening at its lower and smaller end of less diameter than the normal diameter of the bag, surrounding and contracting the bag at its lower end but not directly attached thereto.

3. In a screen system, the combination with a chamber or hopper into which the gases to be screened are led and in which the screenings are collected, of one or more screen-bags extending above the hopper and opening into it at their lower ends and a hopper-stand adapted to rest on the top of the hopper and supporting a funnel-shaped collar E surrounding and contracting the lower end of the bag.

4. In a screen system, the combination with a chamber or hopper into which the gases to be screened are led and in which the screenings are collected, said hopper having upwardly-extending collars B<sup>2</sup> surrounding perforations in its top, of one or more screen-bags secured at bottom to the collars B<sup>2</sup> and extending above the hopper and opening into it at their lower ends, and a funnel-shaped collar having an opening at its lower end of less diameter than the normal diameter of the bag secured at the lower end of the bag above the collars B<sup>2</sup>.

5. In a screen system, the combination with a chamber or hopper into which the gases to be screened are led and in which the screenings are collected, said hopper having upwardly-extending collars B<sup>2</sup> surrounding perforations at its top, of one or more screen-bags secured at bottom to the collars B<sup>2</sup> and extending above the hopper and opening into it at their lower ends and a hopper-stand adapted to rest on the top of the hopper and supporting a funnel-shaped collar E surrounding and contracting the lower end of the bag.

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