Aug. 8, 1933. H. MORGAN 1,921,692

DEVICE FOR ILLUSTRATING PREPARATION OF COAL

Filed Oct. 26, 1931

FIG. 1.

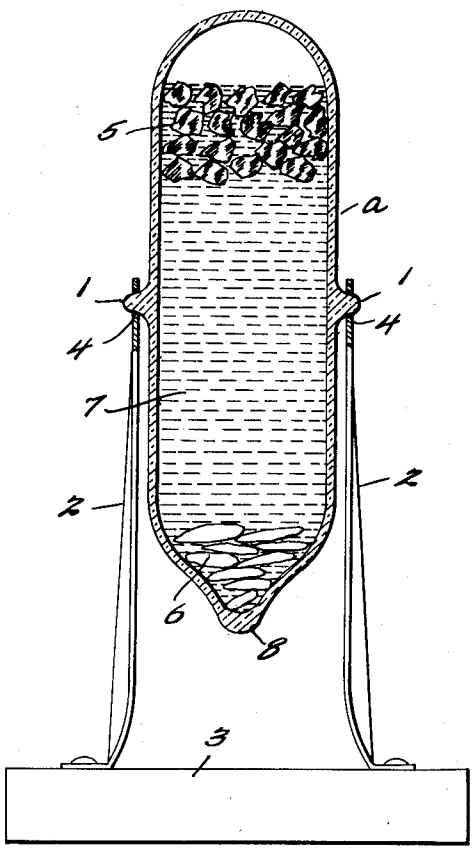


FIG. 2.

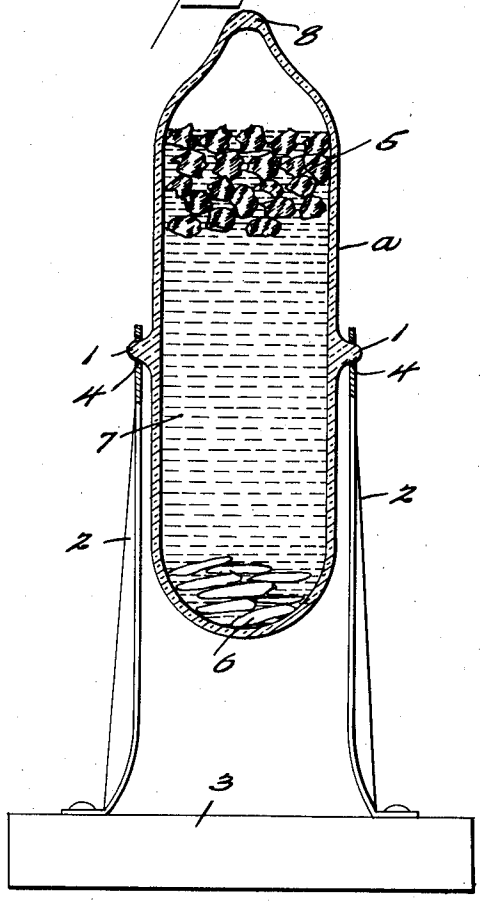
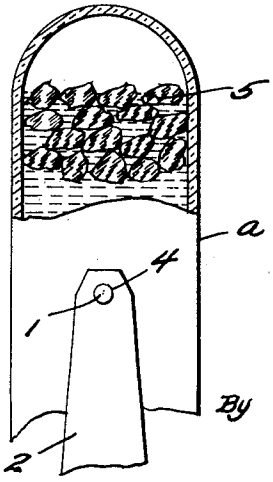


FIG. 3.



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DEVICE FOR ILLUSTRATING PREPARATION OF COAL

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2 Claims. (Cl. 35—16)

This invention relates to a device which is serviceable for illustrating the natural impurities in coal and a gravitational method of separating the impurities from the coal. The device comprises a glass container in which are enclosed particles of coal, particles of rock, such as slate, and a clear liquid of such density that the coal floats and the slate sinks in the liquid. The container is preferably in the form of a closed tube, and this is mounted in a support so that it may be rotated endwise in a vertical plane to cause the coal and slate to exchange places in the tube. The tube is mounted so that it can readily be taken out of its support and turned to any desired position to illustrate the separation of the materials.

In the accompanying drawing,

Fig. 1 is a longitudinal central section through the container showing the same mounted in its supporting means, the latter being shown partly in section;

Fig. 2 is a similar view showing the container inverted from the position shown in Fig. 1, and,

Fig. 3 is a side view showing part of one of the supports and part of the container, the latter being partly in section.

Referring to the drawing *a* indicates a glass container, preferably in the form of a tube, closed at both ends, as shown, and having integral glass pintles 1 which project from its opposite sides and midway of its length. Sheet metal uprights 2, secured to a suitable base 3, and spaced apart, are provided with perforations 4 to receive the pintles. The uprights can be sprung apart to insert the pintles in the perforations or to remove the tube from the supporting means. The tube, when mounted in the supports may be rotated endwise in a vertical plane.

The tube contains particles of anthracite coal 5 and particles of rock 6, such as slate, which is the impurity most commonly found in anthracite coal. Within the tube, and nearly filling the same, is a transparent liquid 7 of such density that the coal floats and the slate sinks therein. Preferably this liquid is a zinc-chloride solution, filtered to make it transparent. After the coal, slate and liquid have been inserted through an open end of the tube, the tube is closed, as by sealing it. In the drawing, the numeral 8 indicates the sealed end of the tube.

To illustrate the preparation of coal by gravitation and separation of its impurities, the tube may be turned about its axis, as illustrated by Figs. 1 and 2. In Fig. 1, the coal is shown at the top of the tube and the slate at the bottom. If the tube is inverted as shown in Fig. 2, the coal and slate will exchange positions in the tube, the slate going to the bottom and the coal rising to the upper part of the liquid. The tube may be taken out of its supports and operated in the same way, or it may be turned in any desired position and the slate and coal will quickly separate.

The zinc chloride solution is too expensive to use commercially in the separation of coal and slate, except for testing samples to ascertain the percentages of slate and coal therein, but the device illustrates, by means of the expensive clear liquid, the gravitational separation of coal from slate practiced commercially with relatively inexpensive fluids.

What I claim is:

1. A device for illustrating the gravitational separation of natural impurities from coal, comprising a closed transparent container, particles of coal, particles of rock, and a dense liquid in said container, the density of the liquid being such that the coal floats and the rock sinks therein.

2. A device for illustrating the gravitational separation of natural impurities from coal, comprising a closed glass tube, particles of coal, particles of rock, and a dense liquid in said tube, the density of the liquid being such that the coal floats and the rock sinks therein, and means for pivotally supporting the tube at its sides so that it may be rotated endwise in a vertical plane.

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