Dec. 8, 1925. 1,564,546

O. B. EVANS

FUEL SPREADER FOR GAS GENERATORS OR THE LIKE

Filed April 28, 1921 2 Sheets-Sheet 1

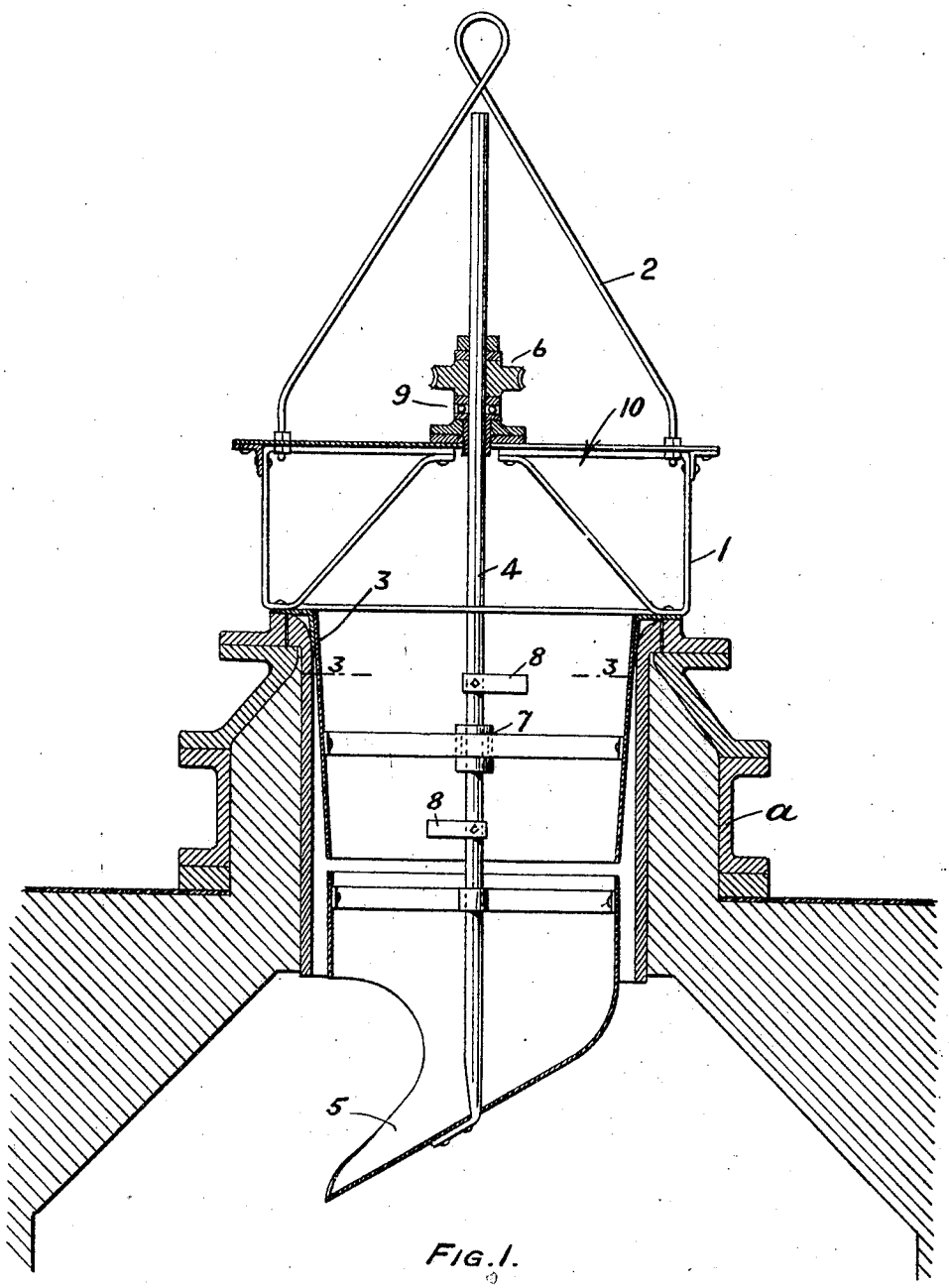


FIG. 1.

WITNESS:

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FUEL SPREADER FOR GAS GENERATORS OR THE LIKE

Filed April 28, 1921 2 Sheets-Sheet 2

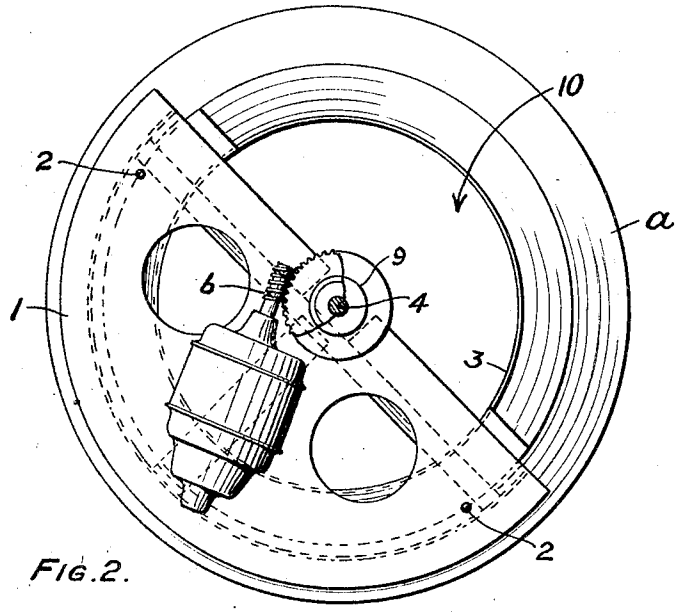


FIG. 2.

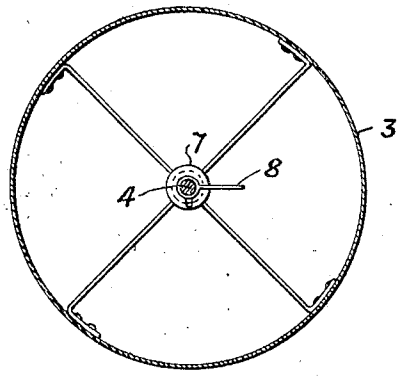


FIG. 3.

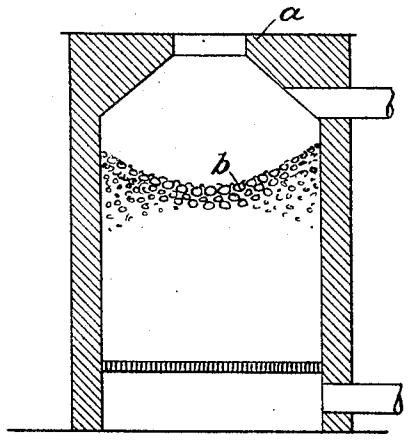


FIG. 4.

WITNESS:
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Patented Dec. 8, 1925. 1,564,546

UNITED STATES PATENT OFFICE.

OWEN B. EVANS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE U. G. I. CONTRACTING COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF DELAWARE.

FUEL SPREADER FOR GAS GENERATORS OR THE LIKE.

Application filed April 28, 1921. Serial No. 465,134.

To all whom it may concern:

Be it known that I, OWEN B. EVANS, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Fuel Spreaders for Gas Generators or the like, of which the following is a specification.

The principal objects of the present invention are, first, to provide for satisfactorily charging fuel by mechanical means and in such a way that the distribution of the fuel will be appropriate for blasting with either air or steam or both; and second, to provide a compact, efficient and reliable fuel spreader adapted to accomplish the purposes set forth. Other objects of the invention will appear from the following description and the invention itself will be claimed at the end hereof but first described in connection with the accompanying drawings forming part hereof and in which

Figure 1 is a view, principally in central section, illustrating a fuel spreader embodying features of the invention and showing the same in application to the charging inlet of a generator.

Fig. 2 is a top or plan view with parts omitted.

Fig. 3 is a sectional view taken on the line 3—3 of Figure 1, and

Fig. 4 is a diagrammatic view illustrating the way in which the fuel is spread.

In the drawings 1 is a portable frame shown as provided with a bale 2 by means of which the device can be moved by means of an overhead hoist and trolley, not shown because too well understood to require illustration. 3 is a tubular guide carried by the frame and adapted for cooperation with the charging opening of a generator *a*. 4 is a distributor spindle turnably depending from the frame and provided with a radially and downwardly arranged chute 5. 6 are means on the frame for turning the distributor spindle 4, and they are shown to comprise an electric motor and its worm and worm wheel. 7 is a bearing carried by the guide 3 and arranged for co-operation with the distributor spindle 4. 8 are stirrers on the distributor spindle and arranged above the chute 5. 9 is a bearing from which the spindle 4 depends.

In use the spreader is, by means of its guide 3, arranged in the charging opening and the chute 5 is rotated while the rest of the spreader remains at rest. Fuel is fed through the space 10, Fig. 2, and into the rotating chute 5, which distributes it radially outwards and downwards so that it assumes the position indicated in Fig. 4 in which the top *b* of the fuel bed is concave and the larger particles of fuel are at the center which is a good distribution of fuel for blasting in that it induces the blast to travel centrally through the fuel bed.

The fuel used in gas generators is of varying size and in some cases may contain fine material known as breeze.

In the ordinary method of charging through the centrally located charging opening the fuel collects in a heap and the larger pieces, which have a smaller angle of repose than the fine particles, roll to the sides while the fine particles remain in the center where they fall. This results in the top of the fire assuming a conical form in which the large lumps are close to the walls and the fine material is in the center. Moreover friction between the walls and the descending fuel tends to keep the fuel bed open and porous at this point; so that, even with an absolutely uniform distribution of fuel throughout the bed, there would be a tendency for a larger percentage of blast to pass up next to the walls than through the center of the fire. In practice this condition was accentuated, because near the walls there is not only lumpy material, but also a shallower fire, and at the center the material is fine and the fire is deep.

In the present invention the material charged into the generator is thrown through the distributor centrifugally, so that most of the fuel is deposited around the walls. The large lumps then tend to roll towards the center and the fine material to stay around the walls where it was first placed. The result of this is that the fire depth is less at the center than at the walls and that the center of the fire contains the lumpy material whereas the fine material has been deposited close to the walls. The combination of increased fire depth at the walls and an increased quantity of fine material at this point tends to neutralize the loosening action of the walls, and the natural result is that there is established a fuel bed of appreciably uniform resistance throughout its cross-sectional area. The

spreader of this invention does not aim to give a uniform distribution, but aims to put the fine material on the periphery and the coarse material in the center and to put more material around the periphery than in the center.

It will be obvious to those skilled in the art to which the invention relates that modifications may be made in details of construction and arrangement without departing from the spirit of the invention which latter is not limited as to such matters or otherwise than as the prior art and the appended claims may require.

I claim:

1. A fuel spreader for generators comprising the combination of a portable frame, a tubular guide carried by the frame and adapted for co-operation with the charging opening of a generator, a distributor spindle turnably depending from the frame and provided with a radially and downwardly arranged chute, means on the frame for turning the distributor spindle, a bearing on the guide for the distributor spindle, and stirrers on the distributor spindle and above the chute, substantially as described.

2. A fuel spreader for gas generators including a rotary chute arranged to discharge onto and against the side wall of the generator, thereby compelling coarse pieces of fuel to rebound from the walls to the center and fine pieces of fuel to remain at the walls.

3. A fuel spreader for gas generators including a chute directed to discharge onto the side wall of the generator, and means for rotating the chute at a speed appropriate for developing a centrifugal discharge against and onto and a rebound from the side wall of the generator.

OWEN B. EVANS.