

# UNITED STATES PATENT OFFICE.

WILLIAM PRESCOTT, OF LONDON, AND DOUGLAS FITZGERALD WORGER, OF BANSTEAD, ENGLAND, ASSIGNORS TO PRESGER BRIQUETTE COMPANY, LIMITED, OF LONDON, ENGLAND, A COMPANY OF GREAT BRITAIN.

## FUEL BRIQUETTES AND PROCESS OF MAKING THE SAME.

No Drawing.

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*To all whom it may concern:*

Be it known that we, WILLIAM PRESCOTT and DOUGLAS FITZGERALD WORGER, both subjects of the King of England, and residents, respectively, of London, in England, and Banstead, in the county of Surrey, England, have invented certain new and useful Improvements in Fuel Briquettes and Processes of Making the Same, of which the following is a specification.

This invention relates to briquettes which are made of coal dust with glue as a binding material.

One of the difficulties hitherto met with in the use of briquettes made from small coal or coal dust has been that after a certain amount of storage, even under cover, but more especially when exposed to damp, rain, snow, or sun, the briquette has gradually become disintegrated and the advantages of a briquette have become lost.

According to this invention, briquettes are made by the admixture of (a) small coal or duff, either bituminous or anthracite or both, (b) crushed limestone or carbonate of lime, (c) glue, (d) formaldehyde, and (e) water.

We prefer to use a mixture of bituminous and anthracite coal, either 10 per cent bituminous and 90 per cent anthracite or 10 per cent anthracite and 90 per cent bituminous.

The coal amounts to from 91.5 per cent to 93 per cent of the total weight of the briquettes. To this is added from about 0.15 per cent to 0.20 per cent by weight of crushed limestone or carbonate of lime, and from about 1 per cent to 1.10 per cent by weight of glue.

The whole is mixed together with from 6.0 per cent to 7.0 per cent by weight of water. To this mixture is added a 40 per cent solution of formaldehyde to the extent of from about 0.15 per cent to 0.20 per cent of the weight of the finished briquette.

The formaldehyde may be added in bulk, as vapour, or by spraying under pressure. It is essential that this shall be the last operation after the other constituents have been thoroughly mixed together and immediately before the complete mixture is passed into the press for forming the briquettes.

The glue may be dissolved in the water before it is mixed with the other ingredients, or it may be added in the form of powder

to the other solids before the water, and in this case it is best to mix the glue and limestone together before they are added to the coal dust.

Crude glue that has not passed through the usual clarifying and refining processes may be used.

The briquettes can be formed by the press into any shape or size most suitable for the purpose for which they are required, for instance, anthracite briquettes can be made to suit the furnaces of domestic, greenhouse and central heating boilers that are made for anthracite nuts and beans.

The briquettes do not produce smoke, and large deposits of soot, and have the further advantages that they do not fuse or produce a glazed clinker when burnt in a furnace but a very open and friable ash.

They retain during combustion the size and shape in which they are made, and will withstand rough handling, shovelling or transport without chipping. It is also found that their presence in a room acts as a disinfectant, and keeps a room clear from flies and other vermin.

What we claim as our invention and desire to secure by Letters Patent is:—

1. The process of making a briquette which consists in mixing not less than 90 per cent of small coal with under 0.25 of lime, approximately one per cent of glue and 6 per cent of water and finally adding a 40 per cent solution of formaldehyde to the mixture in the proportion of not more than 0.20 per cent to each briquette immediately before the pressing and moulding operation.

2. The process of making a briquette which consists in mixing bituminous and anthracite small coal to form 90 per cent of the total weight of the briquette, adding thereto not more than 0.25 per cent of crushed limestone, approximately one per cent of glue and 6 per cent of water mixing all these ingredients together and finally adding a 40 per cent solution of formaldehyde to the mixture in the proportion of not more than 0.20 per cent to each briquette immediately before the pressing and moulding operation.

3. The process of making a briquette which consists in mixing not less than 90 per cent of small coal with under 0.25 per cent of lime, approximately one per cent of glue in powdered form and 6 per cent of

- water and finally adding a 40 per cent solution of formaldehyde to the mixture in the proportion of not more than 0.20 per cent to each briquette immediately before the pressing and moulding operation.
- 5 4. A briquette consisting of a mixture of small coal, crushed limestone, glue and water to which is added formaldehyde prior to the mixture being pressed.
- 10 5. A briquette composed of 90 per cent of small coal, one per cent glue, approximately 6 per cent water and not more than 0.20 per cent of lime mixed together and treated with a 40 per cent solution of formaldehyde immediately before being pressed in the proportion of 0.20 per cent to each briquette.
- In testimony whereof we have signed our names to this specification:
- WILLIAM PRESCOTT.  
DOUGLAS FITZGERALD WORGER.