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ARTIFICIAL FUEL

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1 Claim. (Cl. 44—20)

This invention relates to improvements in artificial fuel, and has for its object to provide an artificial fuel in the form of logs, blocks, briquettes or the like preferably wrapped in a sealed cover so that the said fuel will be clean to handle and be convenient for use.

A further object is to manufacture the artificial fuel in the form of a log which will burn economically for a considerable period with a minimum amount of fumes or unburnt ashes.

With these and other objects in view the invention consists in the method of manufacturing blocks or briquettes of artificial fuel and consists in first mixing oil with the pulverised fuel and then adding preferably by spraying sodium chloride mixed with water; after these have been thoroughly mixed asphalt or shellac which has been reduced to a liquid is then sprayed on to the mixture and when the whole is thoroughly mixed, the mass is then divided, preferably weighed and moulded and then pressed by suitable pressure to form logs, blocks or briquettes of any convenient shape.

The invention further consists in wrapping the formed log, block or briquette in a covering of paper or other suitable material, which will, when ignited, cause immediate carbonisation to prevent the rapid escape of gas and vapourisation of the fuel.

The preferred method of forming artificial fuel according to this invention consists in pulverising a quantity of coal to a fine powder and placing this in any convenient type of mixing machine and then adding to the powdered coal, oil such as fuel oil or waste lubricating oil. This oil is preferably added by means of a spray during the mixing process. Sodium chloride is then mixed with water and sprayed on to the mixture of oil and pulverised coal in the mixing machine. The sodium chloride is preferably mixed with distilled water because the possible hardness of ordinary water might have a detrimental effect upon the burning qualities of the artificial fuel produced. When these ingredients are thoroughly mixed shellac or asphalt preferably reduced to a liquid is then sprayed in a fine mist into the mixing machine and the whole is thoroughly mixed together and then passed into preferably a smaller mixing machine from whence it is conveyed into suitable moulds. Each mould is adapted to contain a suitable weight of the mixture in the form of a plastic mass. The weighing process of the moulded material may be of any suitable or convenient form. The mixture in each mould is then compressed by any desired pressure depending upon the type of coal used and the shaped material may be in the form of a log of cylindrical, cubical or other convenient shape. The shaped fuel is then wrapped in a covering of paper or other like material such as waxed paper, glacé paper or Cellophane, and the covering material may be sealed in any convenient manner so that the block or briquette, such as in the form of a log, will be clean to handle. When the log is of cylindrical shape it is preferably wrapped in a substantially square piece of paper or like material of such size as to cover the log, and the extending ends of the paper are tucked in and sealed in any convenient manner either by applying heat or an adhesive or by sticking on the ends adhesive labels or the like of any desired shape or size. In use, the wrapped and sealed paper covering is not removed so that when this covering is ignited heat will be developed which will cause immediate carbonisation which will substantially seal the fuel and prevent rapid escape of gas and vapourisation of the fuel. It has been found that when, for instance, three or four of these blocks or logs are placed together in an ordinary domestic fireplace and lighted, a fire will be provided which will last for some hours and give a red glow and a desirable flame. The logs or blocks may be ignited by any suitable means either with or without the use of the usual paper or wood.

The proportion of the ingredients may be varied according to requirements, but preferably approximately 50% of the coal pulverised to a fine powder is arranged to pass a screen test of about 50 I. M. M., and the other 50% is adapted to pass a screen test of about 100 I. M. M. To this fine powdered coal is added preferably in the form of a spray about 10% of ordinary common fuel oil or waste lubricating oil. During the mixing of the oil and fuel the sodium chloride mixed with distilled water is added, preferably about 0.5% of sodium chloride is mixed with about 10% of distilled water, then about 2% of shellac residue, or about 3% of asphalt reduced to a liquid is sprayed on to the mass as previously described. The mixture is then pressed into the desired shape and a suitable pressure is from two to four tons per square inch depending on the type of coal used. It will be understood that when the block or briquette is subjected to pressure a certain percentage of water will be pressed out but such liquid will serve to coagulate the mass and form a solid block. It is important that while the briquette or log is under pressure provision should be made for the expulsion of all air which has become compressed in the mould.

Logs, blocks or briquettes of fuel manufactured according to this invention are found to be particularly efficient and economical in use and cheap to produce in comparison to efficiency.

What I claim is:

A method of manufacturing artificial fuel consisting in pulverising a quantity of coal to a fine powder, approximately half of which is adapted to pass a screen test of 50 I. M. M., and the remainder a screen test of 100 I. M. M., and mixing with this powdered coal substantially 10% of oil such as fuel oil or waste lubricating oil and then adding a mixture of about 0.5% of sodium chloride and approximately 10% of water preferably distilled water, when these ingredients are thoroughly mixed, substantially 3% of asphalt reduced to a liquid form is sprayed on to the mixed mass, after the mixing is completed the mass is pressed into any convenient form.

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