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GEORGE E. GAIL, JR., OF PONTIAC, MICHIGAN, ASSIGNOR OF ONE-SIXTH TO HARRY A. SIBLEY AND ONE-SIXTH TO GEORGE A. BROWN, BOTH OF PONTIAC, MICHIGAN.

METAL-CHIP BRIQUETTE.

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To all whom it may concern:

Be it known that I, GEORGE E. GAIL, JR., a citizen of the United States of America, residing at Pontiac, in the county of Oakland and State of Michigan, have invented certain new and useful Improvements in Metal-Chip Briquettes, of which the following is a specification.

The invention relates to the manufacture of briquettes of finely divided scrap metal such as cast iron borings, turnings etc. The object of the invention is to produce a briquette adapted to be used in a cupola so that the scrap metal may be re-melted in a foundry instead of being returned to the blast furnace, the latter being the usual practice.

In order to provide a practical briquette for use in a cupola it is necessary to provide a suitable binding material which is capable of withstanding a very high temperature so that the briquette will retain its form until the metallic ingredients assume the molten condition. My improved briquette will fulfill the above requirements and in addition, is capable of being manufactured by a simple and cheap process so that a great saving is made by briquetting all of the scrap material and reintroducing the same into the cupola.

According to my invention the metallic chips are mixed with a diluted solution of commercial water-glass (silicate of soda) and then placed in suitable molds in which the metal is compressed by tamping or other suitable means. The briquette is then dried preferably by heating to a temperature of approximately 100° F. for from 15 minutes to an hour and then removed from the mold. In this condition it is ready for immediate use in the cupola.

As an example of the process which may be used in the practical preparation of the briquettes one ton of iron chips is mixed with a solution comprising one and one-half gallons of commercial water-glass 47° Baumé and ten gallons of water. This mixture may be molded to any desired size, but as an example, I prefer to form fifty pound briquettes since this has been found to be a good practical size for the cupola.

What I claim as my invention is:

1. A briquette adapted for use in cupolas comprising a dried compacted block of metallic chips and a binder incorporated therein consisting solely of diluted liquid water glass, said briquette being capable of withstanding high temperatures without premature disintegration.

2. A briquette adapted for use in cupolas comprising a dried compacted mixture of finely divided cast iron scrap metal and a binder consisting solely of diluted liquid water-glass said mixture being in substantially the following proportions, iron, one ton; commercial water-glass, one and one-half gallons; water, ten gallons.

3. The process of manufacturing briquettes comprising the mixing of metallic chips with a binder consisting solely of liquid water-glass, compressing the mixture in a mold, and drying the same.

4. The process of manufacturing briquettes comprising the mixing of metallic chips such as borings, turnings and the like with a binder consisting solely of diluted water-glass the mixture being in the proportions of substantially one and one-half gallons of commercial water glass and ten gallons of water to one ton of metal, compressing the mixture in a mold and heating to a temperature of substantially 100° F. for 15 minutes or over.

5. A briquette adapted for use in cupolas comprising a dried compacted block of metallic chips and a binder incorporated therein containing liquid water glass as the principal ingredient, said briquette being capable of withstanding high temperatures without premature disintegration.

6. A briquette adapted for use in cupolas comprising a dried compacted mixture of finely divided cast iron scrap metal and a binder of diluted water glass, said briquette being capable of withstanding high temperatures without premature disintegration, the binding action being due principally to the water glass.

7. A briquette adapted for use in cupolas comprising a dried compacted mixture of finely divided cast iron scrap metal and a binder containing diluted liquid water glass, said mixture being in substantially the following proportions, iron, one ton, commercial water glass one and one-half gallons, water ten gallons, the binding action in said mixture being due principally to the water glass.

8. A briquette adapted for use in cupolas comprising a dried compacted block of metallic chips and a binder incorporated therein containing liquid water glass, said briquette being capable of withstanding high temperatures without premature disintegration, the binding action being due principally to the water glass.

In testimony whereof I affix my signature.

GEORGE E. GAIL, JR.