UNITED STATES PATENT OFFICE.

LOUIS STERNE, OF LONDON, ENGLAND.

PROCESS OF TREATING LIGNITE.

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To all whom it may concern:

Be it known that I, LOUIS STERNE, a citizen of the United States of America, residing at Donnington House, Norfolk street, Strand, London, England, have invented a new and useful Process of Treating Lignite; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

The form of coal designated "lignite" or "lignite coal" to which this invention relates contains moisture, and when exposed to the air this moisture evaporates and the lignite disintegrates or crumbles very soon after it is removed from the mine, such evaporation and consequent disintegration being termed "weathering." The moisture present in the freshly-mined "lignite," so called, serves the purpose of a binder, and the removal of this moisture by evaporation or otherwise causes it to crumble or disintegrate rapidly. This disintegration of lignite makes it very difficult to transport and use as a fuel, and attempts have been made to overcome this difficulty by combining various binding materials with the lignite and compressing it into briquets, which, however, is always expensive and not always convenient or practicable.

I have discovered that by subjecting the "lignite," so called, when freshly mined, to a coating of oil before it is materially "weathered" the moisture will be retained in the coal as a binder, and the weathering with its consequent disintegration is practically prevented for a long time. Experiments conducted under my direction have demonstrated thus far that lignite treated according to my process and which has been exposed for four months remains intact with little or no weathering or disintegration.

In carrying out my process I take lignite as it comes from the mine and after screening it coat it with crude petroleum, which is cheap and easily obtainable, either by sprinkling the oil over the lignite or immersing the lignite in a bath of petroleum and removing it, permitting the surplus oil to drain back into the bath.

In order to obtain the best results, I prefer to expose the lignite to the action of the air for a brief period, in order to allow the external portions to dry slightly, and thus become more porous, so that the surface of the coal particles will absorb the oil more readily and more perfectly seal and protect the inner portions from evaporation and disintegration.

On a large scale my process can be carried out by conveying the lignite in a suitable conveyer provided with apertures for draining the surplus oil under a sprinkling apparatus, which sprays the oil over the lignite, and collect the surplus oil for reuse, or the conveyer may be arranged to carry the lignite into and through a bath of petroleum and then out of the bath, suitable arrangements being made to permit the surplus oil to drain off from the lignite and return to the bath or tank. The effect of thus coating the lignite with oil is remarkable, in that it closes the pores of the coal, prevents the evaporation of the contained moisture, and therefore prevents any material disintegration. The lignite coal after being so coated may be shipped any distance and used like ordinary fuel. The oil also adds materially to the calorific quality of the coal when it is burned, and the lignite treated by my process is a far better fuel than lignite which has not been so treated.

I prefer to use crude petroleum to coat the coal, as before stated, owing to its cheapness and availability; but I do not limit myself to that particular material, as other materials might be used at certain places and under peculiar conditions where desirable.

What I claim, and desire to secure by Letters Patent, is—

1. The herein-described process of treating lignite, which consists in coating it when freshly mined with a material which will prevent the evaporation of contained moisture, and preserve it from disintegration.

2. The herein-described process of treating lignite which consists in coating it when freshly mined with oil, to prevent evaporation of contained moisture, and disintegration of the particles.

3. The herein-described process of treating lignite, which consists in coating the lumps

or particles thereof when freshly mined with crude petroleum to prevent the evaporation of contained moisture, and disintegration.

4. The herein-described process which consists in taking lignite as it comes from the mine, exposing it to the air sufficiently only to dry the surfaces of the particles and render them porous, then treating the lignite with a coating of crude petroleum to prevent the evaporation of contained moisture and consequent disintegration of the particles.

LOUIS STERNE.

Witnesses:
JOHN E. BOUSFIELD,
C. G. REDFERN.