No. 773,992. Patented November 1, 1904.

UNITED STATES PATENT OFFICE.

CARL FRIEDRICH SCHLICKEYSEN, OF STEGLITZ, GERMANY.

PROCESS OF MANUFACTURING PEAT FUEL.

SPECIFICATION forming part of Letters Patent No. 773,992, dated November 1, 1904.

Application filed January 3, 1903. Serial No. 137,718. (No specimens.)

To all whom it may concern:

Be it known that I, CARL FRIEDRICH SCHLICKEYSEN, manufacturer, a subject of the King of Prussia, German Emperor, residing at No. 6 Friedrichstrasse, Steglitz, near Berlin, in the Kingdom of Prussia, German Empire, have invented a new and Improved Process of Manufacturing Peat Fuel, of which the following is a specification.

This invention relates to a process for the manufacture of peat fuel—that is to say, peat sods or briquets; and the object of my invention is to prevent the sods from receiving rents or cracks when they are exposed to the open air for being dried.

The aforementioned sods are supposed to be such as are delivered by a peat-machine within which the natural peat, as it comes from the soil, is subdivided and transformed into a homogeneous paste, which then is pressed by the machine through a die and formed into bars which, in their turn, are cut into pieces forming the sods. These sods are dried in the open air, and while being dried they become more or less full of rents or cracks, which is a drawback that must be sought to be overcome. I overcome this difficulty by the process hereinafter described.

The natural peat before being turned into sods is mixed with small soft or hard particles of a material, such as sharp sand, granulated blast-furnace slag, comminuted anthracite, mineral coal, brown coal, pulverulent coke, sawdust, dry peat rubbish, charcoal, wood fiber, &c. The mixing of the peat with the particles of the material, as above stated, is carried out at the same time that the peat is comminuted in any ordinary or desired peat-machine, the wet or undried peat being for this purpose introduced together into the peat-machine. The cutters or agitators of the peat-machine in this operation tear the fibers of the peat and liberate the natural peat cement or adhesive, (pentosane,) which adhesive in the mixing operation surrounds and embraces the solid particles of the material introduced into the native peat before treatment. The solid particles thereby serve as a support for the adhesive or cement and after the peat has dried will serve as a strong binding medium for the peat sods or briquets in a somewhat similar manner to that in which the granular parts or fragments in concrete or artificial stone assist the adhesive action of the cement. The size of the particles of the material chosen may vary from one-half to five millimeters, and the proportion of the material with respect to the peat may vary from ten to twenty-five per cent. I prefer to employ several materials at a time and also several sizes of particles at a time, because I have found that this is advantageous for the result desired.

The effect of the inclusion of the particles is this: The natural peat consists, as is known, of a conglomeration of small capillary tubes, each of which contains probably one hundred parts of water to one part of the organic substance. These tubular vegetable parts are minutely subdivided in the peat-machine, and the finer and thinner filaments thus obtained when afterward shrinking together within the drying sods in the open air become interlaced not only with each other, but take from all sides into and around the embedded particles of the soft or hard material. Each particle affords thus a hold to its neighboring vegetable filaments, and as the particles are practically uniformly distributed through the peat mass the sods receive not a few large rents or cracks, but a large number of very fine rents or cracks which are not capable of materially impairing the proper coherence of the whole sod. From the above it will be seen that the most essential feature of this invention resides in the comminution of the wet or moist peat, coupled with the addition thereto and mixture therewith of coarsely-comminuted particles of dry or relatively dry material. When the sods have reached this state or condition, each single sod is subjected to a powerful pressure in a mold, the object of this second pressing operation being, first, to compress all the particles of the air-dry peat, and particularly, however, those particles which have become separated from each other by the numerous small rents and cracks; second, to cause the air-dry outer layer or layers of each sod to get intermixed with the less dry inner part or parts of the peat, so that a practically uniform mass is obtained,

and, third, to give the sods smooth surfaces. The third result can be attained in a higher measure by dipping the sods before the second pressing operation into an oily or fatty liquid, preferably a combustible one. In this case the pressed sods can be more easily removed from the molds.

Having now described my invention, what I desire to secure by a patent of the United States is—

1. The process for the manufacture of peat fuel which consists in mixing comminuted wet native peat with coarsely-subdivided dry matter, and forming into briquets.

2. The process for the manufacture of peat fuel which consists in comminuting and mixing moist native peat with coarsely-subdivided combustible matter, and forming into briquets.

3. The process for the manufacture of peat fuel which consists in comminuting and intimately mixing peat in its wet native condition with solid particles of other combustible matter, forming into briquets, partially drying the latter, and subjecting to pressure.

4. The process for the manufacture of peat fuel which consists in comminuting the native peat, intimately mixing the same while moist with comparatively dry particles of sufficient size to serve as nuclei for the peat mass, forming into briquets, partially drying, subjecting to pressure and finally air-drying the product.

5. The process for the manufacture of peat fuel, consisting in comminuting native peat, forming it into bars, cutting the latter into briquets, drying the latter, dipping them into an oily liquid, and compressing thereafter each briquet singly.

6. The process for the manufacture of peat fuel, consisting in comminuting native peat, forming it into bars, cutting the latter into briquets, drying the latter, dipping them into an oily combustible liquid, and compressing thereafter each briquet singly.

7. The process for the manufacture of peat fuel, consisting in comminuting native peat, mixing it with particles of dry peat rubbish adapted to afford a hold to the filaments of the peat, forming the mixture into bars, cutting the latter into briquets, drying the latter, and compressing thereafter each briquet singly.

8. The process for the manufacture of peat fuel, consisting in comminuting native peat, mixing it at the same time with particles of other substances adapted to afford a hold to the filaments of the peat, forming the mixture into bars, cutting the latter into briquets, partially drying the latter, and compressing thereafter each briquet singly.

9. The process for the manufacture of peat fuel, consisting in comminuting native peat, mixing it with particles of another substance adapted to afford a hold to the filaments of the peat, forming the mixture into bars, cutting the latter into briquets, drying the latter, dipping them into an oily liquid, and compressing thereafter each briquet singly.

10. The process for the manufacture of peat fuel, consisting in comminuting native peat, mixing it at the same time with particles of the other substances adapted to afford a hold to the filaments of the peat, forming the mixture into bars, cutting the bars into briquets, dipping the latter into an oily combustible liquid, and compressing thereafter each briquet singly.

11. The process for the manufacture of peat fuel, consisting in comminuting native peat and mixing it with another substance or other substances the particles of which are adapted to afford a hold to the filaments of the comminuted peat, forming the mixture into bars, cutting the latter into briquets, drying the briquets in the open air long enough to let each briquet consist of a moist core with an air-dry envelop, dipping the briquets into an oily combustible liquid, and compressing thereafter each briquet singly.

In witness whereof I have hereunto set my hand in presence of two witnesses.

CARL FRIEDRICH SCHLICKEYSEN.

Witnesses:
WOLDEMAR HAUPT,
HENRY HASPER.