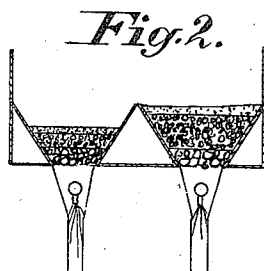
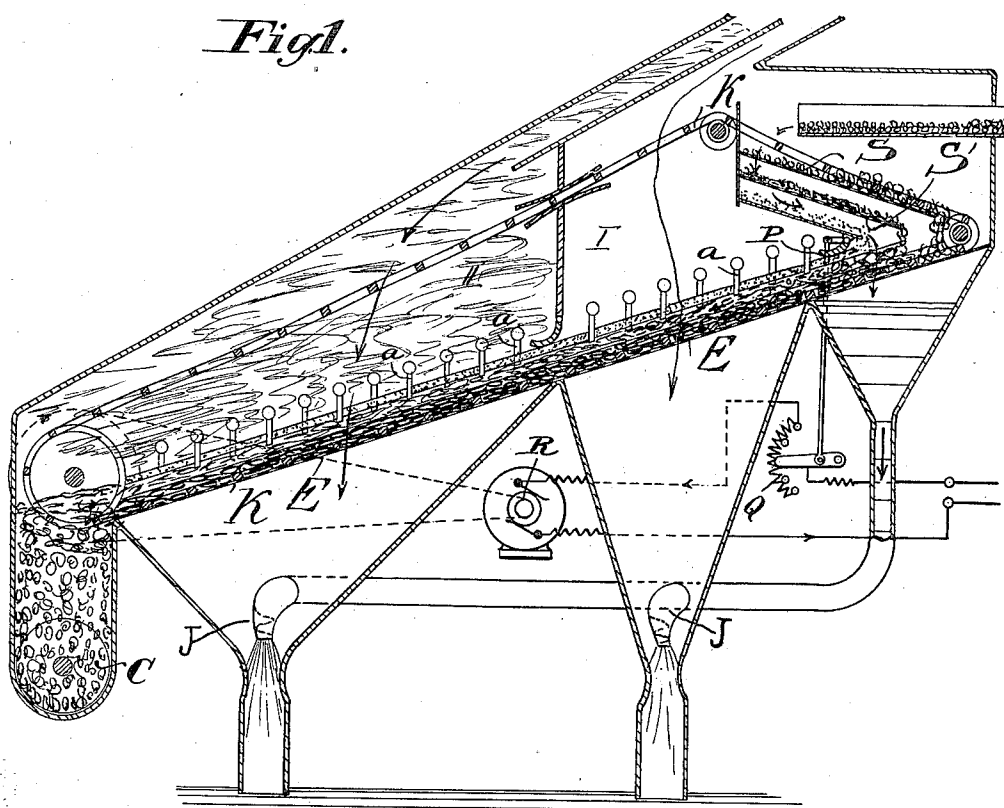


C. SIMON.
 PROCESS FOR FREEING SLACK COAL FROM WATER.
 APPLICATION FILED AUG. 6, 1912.

1,063,296.

Patented June 3, 1913.



Witnesses:

Helen Nuffer
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CHRISTIAN SIMON, OF ESSEN-ON-THE-RUHR, GERMANY.

PROCESS FOR FREEING SLACK COAL FROM WATER.

1,063,296.

Specification of Letters Patent.

Patented June 3, 1913.

Application filed August 6, 1912. Serial No. 713,621.

To all whom it may concern:

Be it known that I, CHRISTIAN SIMON, engineer, a subject of the German Emperor, residing at Essen - on - the - Ruhr, Germany, have invented certain new and useful Improvements in Processes for Freeing Slack Coal from Water, of which the following is a specification.

Slack coals have hitherto been freed from water by means of a flow of air; with the devices used heretofore, however, the trouble was felt that the draining screens were not covered all over or not in a uniform layer with the material to be drained. In consequence thereof the air escaped through the free apertures or passed only through scantily covered spots whereas those covered more abundantly practically never came in contact with it. In using drums the additional inconvenience exists that the upper strata are always mixed up again with the lower ones to which the moisture has gone. If, in using such devices, air, carrying dust-coal along is guided through the layer, there is still the liability of a great portion of the dust-coal being lost or, in using drums, of the dry dust-coal being always immediately mingled up with the wet coal, this then drawing in moisture in excess. In order to avoid these drawbacks the material is moved in such a manner over the screens and the like that the air made to pass across with a view to hurrying on the drainage meets with an always evenly thick layer, thus passing uniformly through all the material and freeing it from water. If however, the slack coal to be drained were constituted of a mixture of coarse and fine material the layer would be nearly impermeable to air and the forcing through of a flow of air would be rendered exceedingly difficult. To avoid such a drawback the material is sorted into various sizes of grains and deposited on the draining screen in layers in the manner in use with other draining systems, *i. e.*, preferably the coarse material at the bottom. More particularly the lower strata are now exceedingly porous, and the flow of air can easily pass through it entraining the moisture. The uppermost fine layer is, however, still nearly impermeable to air; thus with a view to allowing the passage of air, this layer is penetrated by means of pivot-shaped parts thereby securing a certain guide for the air-stream. Such pivots may also preferably be constituted of pipes by means of

which air is forced into the stratum to be freed from water. In this way the drainage is hurried on just as well, and the passage of the air through all the material to be drained secured. In order further to increase the draining effect, the air and, if necessary, the dustcoal, carried along thereby, is warmed. Likewise a portion of the slack coal is drawn off in any ordinary manner with air conveyance with the draining air-stream to the layer to be drained, the air then promoting the drainage and filtering of the dry dustcoal on the layer with resultant uniform admixture. In this manner devices for collecting the slack coal and special arrangements for mixing this with the damp coal can be dispensed with. Likewise this dry coal is mixed up with the upper slime layer, impermeable to air, rendering the same more penetrable to air and contributing in this way to the drying thereof. In addition, the dust coal is deposited more abundantly where the flow of air is passing the layer more quickly, having thus a regulating effect on the uniform distribution of the air-stream.

In the accompanying drawing, in which the same letters refer to the same parts throughout the several views, a form of construction is exemplified in Figure 1 which is a longitudinal sectional view. Fig. 2 is a transverse sectional view.

The coal washed in wet condition is conveyed with water to the screens S and S' the coarser material, being delivered from said screens to the draining screen so as to form the bottom of the layer thereon.

Due to the inclined position of the draining screen the coal glides in a continuous layer and in the primitive position of the stratum along on the screen and is regulated in its movement by the scraping belt K.

The flap P, to which a movement is imparted by the thickness of the coal-layer, operates by means of a resistance Q on an electromotor R, the thickness of the layer deposited on the draining screen thus being regulated by the altered movement of the scraping belt. Now first through this layer pure air is drawn into the compartment I, and through the portion of the layer therein thus effecting a preliminary drainage. Thereafter air, carrying dust-coal along, that is preferably drawn from the slack coal, is conveyed into the compartment II, and through the portion of the layer therein the

air then having a draining effect while the dust-coal is filtered off on the coal-stratum and added in this way uniformly.

5 The pivot-shaped parts *a* plow up or push through the upper layer, impermeable to air, and have the form of nozzles; they introduce air into the layer to be drained.

10 The total product of dry and wet coal is then intimately mingled up in the screw-conveyer C. The movement of the air is advantageously accomplished by means of the water dropping through the draining screen, that is conducted through injection nozzles J.

15 The draining screen itself will be advantageously divided up and formed into gutters by inclined side-walls, as shown in Fig. 2. Due to the cross sections growing narrower toward the bottom the resistance to

air is nearly the same even though the charge be somewhat less; likewise by warming the corresponding side walls drainage can be hurried on.

I claim:

A process for freeing slack coal from water consisting in forming and moving the coal in an evenly distributed layer having the coarser particles at the bottom, over a draining support, constantly loosening up the upper stratum of said layer and delivering air laden with dried coal to said layer and passing the air through said layer.

In testimony whereof, I affix my signature in the presence of two witnesses.

CHRISTIAN SIMON. [L. s.]

Witnesses:

HELEN NUFER,
ALBERT NUFER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
