

UNITED STATES PATENT OFFICE.

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COAL SCREEN AND SLATER.

No. 798,382.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRANÇOIS ALLARD, a citizen of Belgium, residing at Châtelineau, in the Kingdom of Belgium, have invented a new and useful Improvement in Coal Screens and Slaters, of which the following is a specification.

The present invention relates to a coal screen and slater; and its object is more particularly to arrange means for producing simultaneously the grading of the coal, the elimination of the slate contained in each grade, and the separation of the smaller coal lumps eliminated together with the slate. These objects are attained by the arrangement, in a suspended rocking frame, of a sieve or screen having round or square holes with a system of grate-bars having longitudinal interspaces or openings and arranged to form a prolongation of the first-mentioned screen, and with a second screen situate beneath the grate and having also round holes, but of a smaller diameter than those of the first screen.

The annexed drawings show, by way of example, a practical construction of a coal-screening and stone-eliminating apparatus arranged according to my invention.

Figures 1 and 2 are a side view and a plan of the apparatus. Fig. 3 is a side view of a detached grate-bar, and Figs. 4 and 5 are sections along the lines 1 2 and 3 4 of Fig. 3.

The same letters refer to similar parts throughout the several views.

a is the screen having round holes and being followed by the grate *b* and the discharge-chute *e*, whereas the screen *c* is situate under the grate and provided with round holes of a smaller diameter and a discharge-chute *f*. The grate *b* is secured upon cross-pieces *g* within a rectangular frame, together with the two screens *a* and *c*, and consists of a series of bars *d*, Figs. 3, 4, and 5, having the section of an inverted **V** the angle of which gradually diminishes toward the fore end, so as to leave between them gradually-widening interspaces for the purpose of preventing sticking of the material. The bars run parallel with their upper edges, but increase in height toward the fore end, so as to allow the coal lumps to pass without touching the cross-pieces *g*. The frame is conveniently suspended and actuated by means of cranks *h* and connecting-rods *i*, Fig. 1, in order to impart to it the necessary rocking motion either in a longitudinal or in a transverse direction.

The working of the apparatus is as follows: The coal charged upon the screen *a* by a supply-chute *K* is first graded and then passes along the grate-bars, as along gutters, and arriving at their ends is discharged on the chute *e*, whereas the slate or flat stones are caused by the particular shape of the bars to assume a more or less vertical position and to pass through the bar interspaces onto the screen *c*, which on its turn operates the separation of the coal particles dropped through the grate together with the slate. This latter operation is very important, as a certain amount of small coal is carried along with the bigger coal lumps and eliminated by the grate together with the slate. The coal and slate fallen through the two screens *a* and *c* are received upon a similar screener and slater, (not indicated in the drawings, but placed below and being differently sized,) the number of these screening and eliminating devices being variable, according to the different grades of coal to be obtained.

I am aware that prior to my invention coal screens and grates have been in general use, but they have not been combined with the view of performing simultaneously three operations. Therefore I do not claim a coal-screen or a grate, broadly; but

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

An improved coal screen and slater, consisting of the combination within an inclined, rectangular rocking frame, of an upper coal-grading screen *a* having round holes, with an adjacent slater *b* comprising first, a series of parallel bars *d* having the section of an inverted **V** the angle of which diminishes toward the fore end, by still increasing in height, so as to leave convenient interspaces for the easy separation of the slate; and secondly, a subjacent slate-receiving and coal-eliminating screen *c* having round holes, both *d*, *c* being provided with chutes *e*, *f* for carrying away the graded coal and the separated slate respectively, whereas the coal passing through the screens *a*, *c* is conveyed to a similar coal screen and slater situate below, but being differently sized, all substantially as described and shown.

FRANÇOIS ALLARD.

Witnesses:

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GREGORY PHELAN.