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COAL SCREEN AND WASHER

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In the recovery of fine coal from river beds, it is customary to mount a pump and a screen upon a barge, the latter being allowed to drift down the stream while the pump sucks the accumulation of mud and coal from the bed of the river and discharges it onto the screen, with a stream of water. All foreign matter which is of little or no value is then returned to the river and the screened material discharges onto a second barge. It often happens, when recovering coal in this manner, that the operators will encounter streaks of clay-covered coal from which the clay cannot be washed or otherwise removed, without a great deal of difficulty. Such streaks or runs materially decrease the value of the recovered coal if discharged with that which is of good quality, and it is the object of my invention to provide a new and improved screen structure in which novel provision is made for permitting the streaks of clay-covered coal to discharge back into the river, whenever they are encountered.

With the foregoing in view, the invention resides in the novel subject matter herein-after described and claimed, the description being supplemented by the accompanying drawings.

1. Fig. 1 is a top plan view of a screen embodying my invention.
2. Fig. 2 is a longitudinal sectional view on line 3--3 of Fig. 2.
3. Fig. 3 is a vertical transverse section on line 2--2 of Fig. 1.
4. Fig. 4 is a fragmentary view similar to a portion of Fig. 2 but illustrating the screen conditioned to discharge the clay-coated coal back into the water.

The numeral 5 designates a main inclined screen frame in which a main screen 6 is mounted, said frame having upstanding side members 7 which rise to a desired extent above said screen. Above the screen 6 and between the side members 7 is a coarse screen 8 upon which the pump discharges, and below said screen 6 are a number of dump pockets 9 which may be opened and closed by any desired means, said means preferably having a hand lever 10.

The general construction so far briefly described, is shown in my U. S. Patent No. 1,542,697, but I have in the present application, disclosed certain improvements over this patented construction. It will be observed that the main screen 6 terminates short of the lower end of the main frame 5. The space thus formed between said main screen and said lower end of the frame 5, is occupied by an auxiliary screen frame 11 which carries an auxiliary screen 12, this screen being normally flush with the screen 6. The frame 11 has its lower end hinged at 13 to the lower end of the frame 5, and provision is made for raising said frame 11 and its screen 12, whenever clay-coated coal is discharged from the pump. Thus, with the screen 12 and frame 11 raised as seen in Fig. 4, this clay-coated coal may discharge into an outlet spout 14, with which the frame 5 is provided, under said parts. As soon as the pump inlet has passed the streak of clay-coated coal, the screen 12 and frame 11 are again lowered to the position of Fig. 2 and the screening operation then proceeds as before.

The details described below may well be used for raising and lowering the frame 11 and the screen 12 and it will be observed that this may be quickly accomplished.

A transverse metal bar 15 is secured to the upper end of the frame 11 and is provided with upstanding ends 16. Links 17 are pivoted to these upturned bar ends, and the upper ends of said links are pivoted to a pair of arms 18. These arms are secured to and project from a rock shaft 19 which is placed above the screen 12, said rock shaft being mounted in bearing openings in the upper ends of a pair of standards 20. These standards, in the present showing, are secured at 21 to the side members 7 and they project a suitable distance above said side members. One end of the shaft 19 is provided with a hand lever 22, rigidly attached thereto, so that by moving this lever, the screen 12 and frame 11 may be quickly and easily raised or lowered, as circumstances may dictate.

To hold the shaft 19 in any position at which it may be set, I provide suitable means such as a dog 23 and rack 24.

Attention is invited to the fact that the bar 15 is secured upon the upper end of the auxiliary screen 12. Hence, this bar protects the upper end of this screen against tearing loose, as well as providing effective means to which to connect the links 17.

As excellent results may be obtained from the general structure shown and described,
it is preferably followed. However, within the scope of the invention as claimed, variations may of course be made.

I claim:

1. A screen comprising a main inclined frame, a main screen secured in said frame and terminating short of its lower end, an auxiliary screen extending from said main screen to the lower end of said main frame, an auxiliary frame upon which said auxiliary screen is secured, said auxiliary frame being hinged at its lower end to the lower end of said main frame, a metal bar extending transversely across the upper end of said auxiliary frame, resting upon the upper end of said auxiliary screen and secured to said upper end of said auxiliary frame, said bar having upturned ends, and means connected to said upturned ends for swinging the auxiliary frame and screen upwardly when desired, said bar serving to protect the upper end of the auxiliary screen against tearing loose and also affording means to which to connect said means for swinging the auxiliary frame and screen.

2. A screen comprising a main frame embodying inclined longitudinal side bars, a lower transverse end bar and an additional transverse bar upwardly spaced from said end bar, a main screen secured to said main frame and having its lower end secured to said additional bar, an auxiliary rectangular frame between the aforesaid longitudinal bars and filling the gap between said end bar and said additional transverse bar, an auxiliary screen secured upon the upper side of said auxiliary frame, means hingedly connecting the lower end bar of said auxiliary frame with said lower end bar of the main frame, and means connected to the upper end bar of said auxiliary frame for swinging the latter and the auxiliary screen upwardly, said upper end bar of said auxiliary frame having its lower portion beveled to prevent interference with discharge of material from the main screen when said auxiliary frame and auxiliary screen are upwardly swung.

In testimony whereof I have hereunto affixed my signature.

WILLIAM F. MARTIN.