

## Improvement in Coal Screens.

No. 122,589.

Fig. 1.

Patented Jan. 9, 1872.

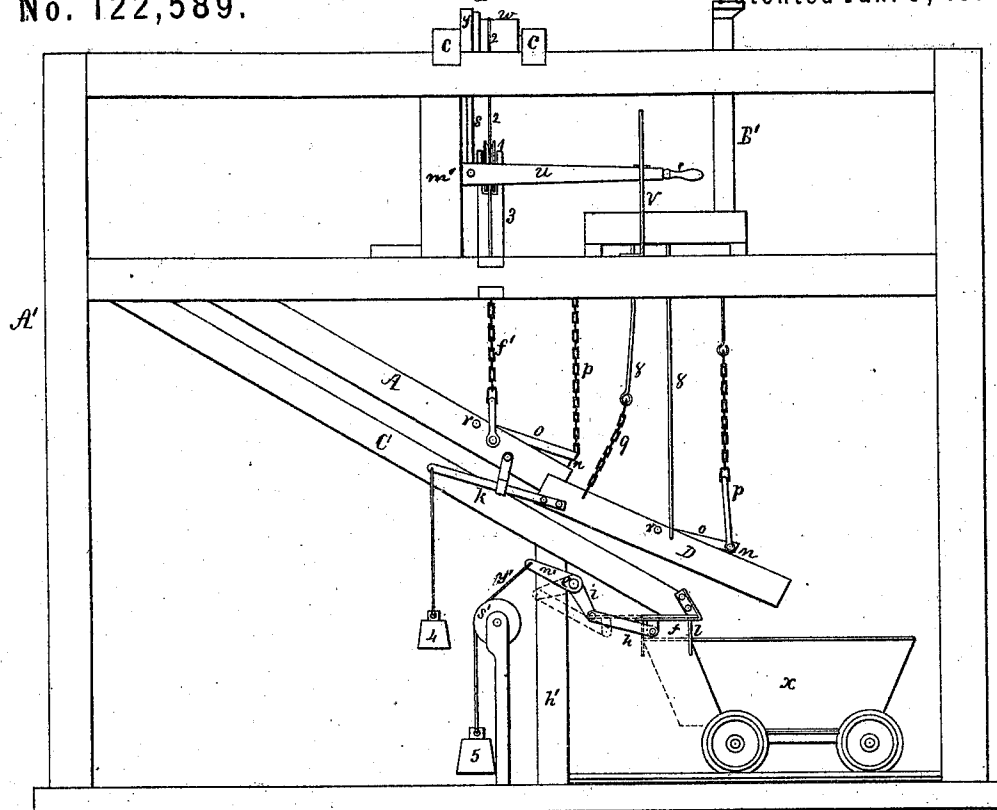
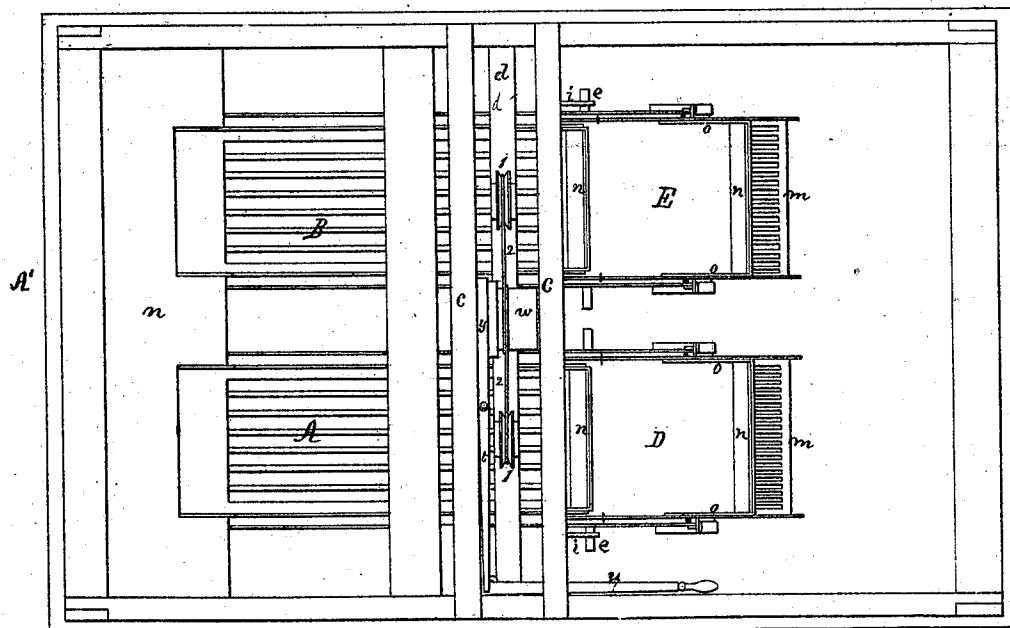


Fig. 2.



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Fig. 3.

Patented Jan. 9, 1872.

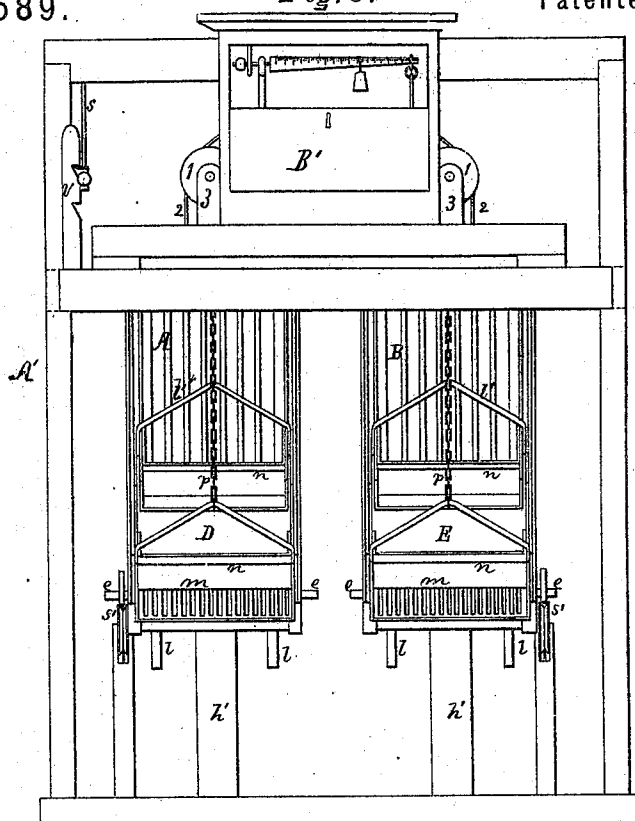
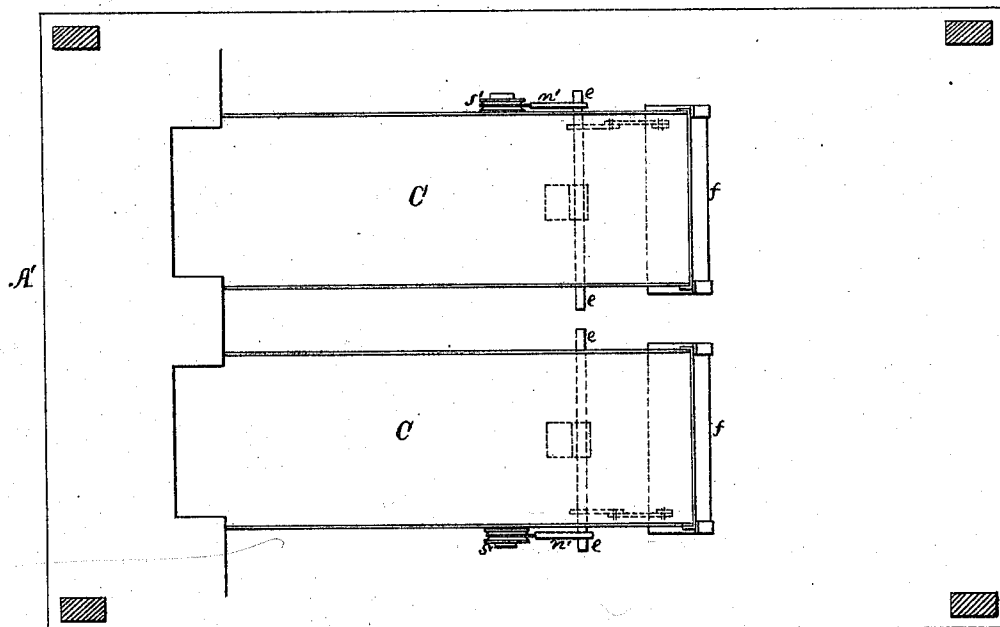


Fig. 4.



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## UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN COAL-SCREENS.

Specification forming part of Letters Patent No. 122,589, dated January 9, 1872.

*To all whom it may concern:*

Be it known that I, THOMAS FARROW, of Lincoln township, county of Allegheny, State of Pennsylvania, have invented a certain new and useful Improvement in Apparatus for Screening Coal; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon.

The nature of my invention consists in a series of screens and chutes provided with gates, said screens and gates so arranged with relation to each other that in screening the coal the slack shall be separated from the lump-coal and the screens automatically reset themselves and close their gates.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

In the accompanying drawing which forms part of my specification, Figure 1 is a side elevation of my improvement in apparatus for screening coal. Fig. 2 is a top view or plan of the same, representing the floor upon which the weighing-scales rest removed. Fig. 3 is an end view of the apparatus, representing one of the upper end timbers of the frame-work removed. Fig. 4 represents the upper portion of the frame-work cut away, showing a top view of the slack-chutes.

In the accompanying drawing, A' represents the frame-work of the apparatus, to which, at one end, are pivoted the screens A and B, the front ends of which are suspended to the cross-timber *d* by means of chains *f'*, their front ends extending over the back ends of the weighing-chutes D and E, which are suspended to the platform of the weighing-scales B' through the medium of rods 8 and chains 9. The screens A and B and weighing-chutes D and E are provided with gates *n*, which are suspended to the frame-work A' by means of chains *p*. The gates *n* are provided with arms *o*, which are pivoted to the sides of the screens A B and the chutes D E. The screens A and B are provided with bales *l'*, to which is attached rope 2, which pass up over pulleys 1 pivoted in standards 3, which rope is wound around drum *w*, which is pivoted between cross-timbers *c*, and is provided with a brake-band, *y*, attached to

a lever, *t*, pivoted to one of the cross-timbers *c*. To the outer end of the lever *t* is attached a rod, *s*, the lower end of which is attached to a brake-lever, *u*, pivoted at *m'*, the forward end of the lever being held in the desired position by a ratchet, *v*. The front end of the chutes D and E are provided with screens *m*, and to the back end of them are attached arms *k*, to which are suspended weights 4. C represent the slack-chutes, the front ends of which are supported on uprights *h'*. The lower ends of the chutes C are provided with sliding-gates *f*, the front edge of which is provided with arms *l*, which project downward. To their back edge are attached levers *k*, which are connected to levers *i* arranged on shafts *e*, which have their bearings secured to the uprights *h'*. To one end of the levers *n'* are attached ropes *y'*, which pass over pulleys *s'*, and to their lower end are attached weights 5. The screens A and B and chutes D and E are constructed of heavy sheet-iron. The slack-chutes C may also be constructed of sheet-iron, where durability is desired. *x* represents a coal-car.

The operation of my improvement in apparatus for screening coal is as follows: The pit-car passes onto the platform *n*, and the coal is dumped into the screen A, and, passing down the inclined screen, the slack is separated from the lump-coal and falls into the slack-chute C; and the lump-coal, leaving the screen A, falls into the weighing-chute D, the greatest weight of the coal being in the front end of the chute. A second car of coal from the pit, passing onto the platform *n*, is dumped into the screen B, and the weight of the coal falling on the chute will, through the medium of the rope 2 and pulleys 1, elevate the front end of the screen A, which will allow the front end of the chute D to drop down from its gate *n*, and thereby allow the screened lump-coal to run out of the chute, and the weights 4 attached to arms *k* will raise up the front end of the chute so as to close up against its suspended gate *n*. (The coal, prior to leaving the chutes D and E, is weighed through the medium of the scales B', to the platform of which the chutes are suspended.) The coal which was dumped into the screen B has now passed down into the chute E; a third load of coal being emptied into screen A, its weight will press down the screen

and raise up the front end of screen B, which will allow the front end of the chute E to drop down from its gate, and allow the screened lump-coal to pass out of the chute, after which it will reset itself, as described in the first instance—in the discharge of coal from the chute D—and thus the apparatus will continue to work. The coal being dumped into screen A will raise up the front end of screen B and allow the coal to be discharged from the chute E, as described; and coal being dropped into screen B will raise up the front end of screen A and allow the screened coal to be discharged from chute D. The motion of the drum *w* is controlled through the medium of the brake-lever *u* and the braking attachments connected therewith. The slack is discharged from the chutes C by backing in a coal-car, which, coming in contact with projecting arms *l*, will shove back the gate *f* and allow the slack to run out of the chute into the car, which, being drawn away, will allow the weights 5 connected to levers *n'* to again close the gate.

Having thus described my improvement, what I claim as my invention is—

1. A coal screening apparatus, consisting of

a series of screens and chutes provided with gates, and operating with relation to each other, so that the "slack" shall be separated from the lump-coal, in the manner substantially as described.

2. The combination of the screens A and B with the "slack-chute" C, substantially as shown and described.

3. The "slack-chute" C, provided with an automatic gate, operating, with relation to the coal-car, substantially as described.

4. The combination of the screens A and B with the chutes D and E, constructed so that the coal can be discharged from the chutes at the will of the operator and automatically reset themselves for a second operation, substantially as described.

5. The screen A, chutes C and D, each provided with gates which automatically open and close themselves, said screen and chutes being made operative, substantially as herein described, and for the purpose set forth.

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Witnesses:

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