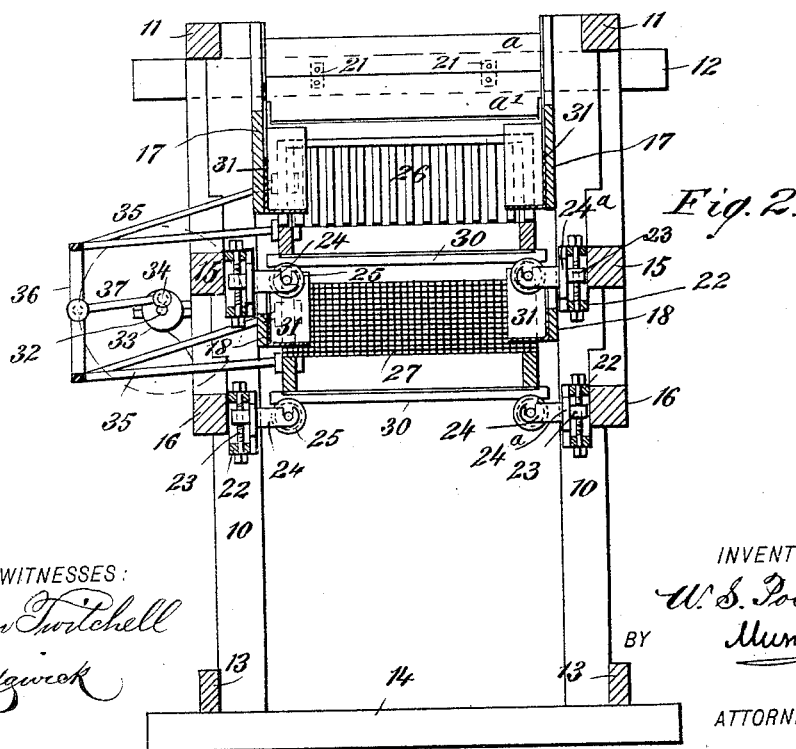
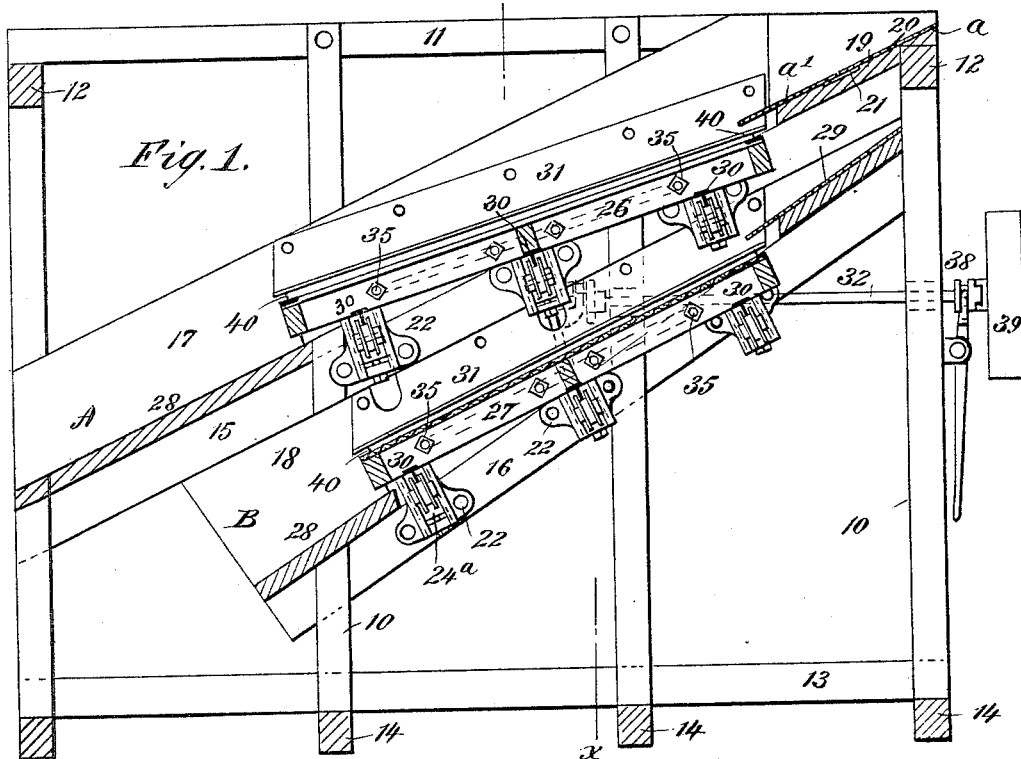


W. S. POLLITT.
SCREEN.

Patented June 23, 1891.



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WILLIAM SEDDON POLLITT, OF WALSENBURG, COLORADO.

SCREEN.

SPECIFICATION forming part of Letters Patent No. 454,526, dated June 23, 1891.

Application filed May 13, 1890. Serial No. 351,665. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SEDDON POLLITT, of Walsenburg, in the county of Huerfano and State of Colorado, have invented a new and useful Improvement in Screens, of which the following is a full, clear, and exact description.

My invention relates to an improvement in screens, and has for its object to provide a simple and durable device especially adapted for screening coal and delivering the same to cars or to other vehicles placed to receive it; and a further object of the invention is to so construct the screen that the coal will pass slowly over said screens and be cleaned by laterally reciprocating the sieves.

Another object of the invention is to provide a means whereby any one of the screens or sieves may be removed and one of finer or of coarser mesh be substituted.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in both the views.

Figure 1 is a longitudinal section through the device, and Fig. 2 is a transverse section on line *x x* of Fig. 1.

The main frame of the device preferably consists of a series of uprights 10, spaced at suitable distances apart, the said uprights being connected at the top by side beams 11 and end beams 12, and in a similar manner at the bottom by side beams 13 and transverse base-beams 14.

To the uprights 10 downwardly-inclined or diagonal beams 15 and 16 are secured in any suitable or approved manner, the upper diagonal beams 15 being the longer and made to extend from one upper end of the main frame downward to a point at or near the center of the opposite end. The lower beam 16 is inclined more than the upper beam and is located some little distance beneath the said upper beam, the said lower beam being attached at its upper end to the same end of the main frame to which the upper beam is attached; but the said lower beam 16 termi-

nates before it reaches the opposite end, as is best illustrated in Fig. 1.

To the inner faces of the uprights 10, aligning the diagonal beams 15 and 16, side boards 17 and 18 are secured, which side boards extend practically from end to end of the beams. The upper side boards at their upper ends are preferably beveled off in such manner that they are flush with the upper side beams 11 of the main frame, and the lower side boards 18 are of such shape that they virtually close the spaces intervening the upper and lower diagonal beams, as is best shown in Fig. 1.

A bottom board 19 is preferably secured to the upper faces of the upper portion of the top diagonal beams 15, and upon said board a downwardly-inclined plate 20 is attached in any suitable manner, which plate extends from side board to side board. The plate 20 is ordinarily made in two sections *a* and *a'*, the said sections being connected by straps 21, as illustrated in Fig. 2, for a purpose hereinafter described.

Upon the inner faces of the upper diagonal beams 15 two or more, preferably three, brackets 22 are secured, which brackets usually consist of a box-like frame open in front and provided with lugs, whereby they are secured to the beams, and through the upper and lower walls of which an adjusting-screw 23 is passed, which adjusting-screw is preferably provided with a square head at the top or bottom and a nut at the opposite end, as is best illustrated in Fig. 2.

In connection with each bracket a bearing 24 is employed, which hanger usually consists of a plate 24^a, adapted to engage dovetail grooves formed in the side walls of the bracket-frame 22 and a horizontal lug extending into the bracket and provided with a threaded aperture, through which the screw 23 of the bracket extends. From the outer face of the plate projects a bifurcated arm slotted at its upper edge to receive the journals of a friction-roller 25, which friction-roller is provided with a grooved periphery and is held to turn between the members of the arm, as is illustrated in Fig. 2. Nearly beneath the brackets and hangers upon the upper diagonal beam 15 similar devices are attached to the inner faces of the lower diag-

onal beams. Over the brackets of both sets of diagonal beams sieves of any approved construction are located, the upper sieve 26 being of coarser mesh than the lower sieve 27. Both sieves are narrower than the space intervening the side boards attached to the upright beams, in order that the said sieves may be laterally reciprocated. The upper sieve 26 is of sufficient length to extend below the inclined supply-plate 19 and over the upper end of a board or plate 28, which extends from one side board 17 to the other and follows the inclination of the diagonal beams 15, upon which the said board rests. This board or plate 28, together with the lower portion of the side boards 17, constitutes a fixed chute A, adapted to deliver the screened coal to a car or other receptacle. The lower sieve 27 also extends at its upper end beneath the inclined supply plate or board 29, corresponding in position with the plate 20 above it and above the bottom of a fixed chute B, similar in construction to the chute A, heretofore referred to.

A series of guide-bars 30 is attached to the under face of each sieve-frame transversely of the same, which guide-bars are preferably T-shaped in cross-section and correspond in number to the friction-wheels 25 below the sieves. The said wheels are peripherally grooved to receive the vertical members of the guide-bars, as is best illustrated in Fig. 1. Above and around the plate 20 a hopper may be constructed, and to the side boards 17 and 18 above each sieve metal guard-plates 31 are pivotally attached; the said plates being practically L-shaped in cross-section, the horizontal members whereof extend inward above the sieves and cover the surplus space in which the sieves move. The said guard-plates thus serve to prevent the coal from gaining access to said spaces.

The inclination of the sieves is regulated by the adjusting-screws 23, and the proposed inclination is such that the coal will slowly pass over the screen-surfaces of the sieves. The sieves are laterally reciprocated in the same direction from a drive-shaft 32, which terminates at its inner end in a disk 33, provided with a wrist-pin 34, connection between the sieves and the drive-shaft being effected in the following manner: Two or more (preferably four) rods 35 are projected from one side of each of the sieves, and the outer ends of the rods of each sieve are made to meet and are rigidly secured to the extremities of a perpendicular bar 36, the rods of the upper sieves being attached to the upper end of said bar and the rods of the lower sieve to its lower end, as is best shown in Fig. 2, and a connecting-rod 37 unites the center of the bar 36 with the wrist-pin 34. By this means it will be observed that as the drive-shaft is revolved the sieves are laterally reciprocated both in the same direction.

A clutch 38 is held to slide upon the shaft, adapted for engagement with a loosely-

mounted drive-pulley 39, whereby the movement of the sieves may be stopped at the pleasure of the operator.

A transverse guide-bar 40 is secured to the under surface of the overhanging members of the guard-plates at each end thereof, adapted to bear upon the upper surface of the sieve-frames, as illustrated in Fig. 1.

In operation, if, for instance, the "run of the mine" is dumped upon the inclined supply-plate 20, it is conducted by said plate over the screen-surface of the upper sieve, and as said sieve is reciprocated the coal is cleaned and passes down the fixed chute A to a car or other receptacle or vehicle placed to receive it. If two sieves are employed, the coal falling through the upper and coarser sieve is caught by the lower sieve, and the very fine particles drop through the sieve to the bottom of the main frame at the rear thereof, the cleaned coal passing down and through the chute B, forming a pile at the forward or delivery end of the frame, and the tracks upon which the cars run may be so regulated that one car may be loaded with very coarse cleaned coal from the chute A and the other car with cleaned finer coal from the chute B. Either one of the sieves may be removed and sieves of a finer or a coarser mesh may be substituted. The lower screen and chute formed by the bottom and side boards are set at a greater incline than the upper ones, for the reason that the smaller coal which passes through the upper screen requires less screening than does the "run" which is dumped on the upper screen. By having the two chutes set at the angles shown, they will deliver exactly at the centers of the cars, which are run under them to receive the coal, and by having the two screens adjustable in bottoms of these chutes the angles of the screens may at any time be changed as occasion may require without interfering with the angles of the chutes, which are permanent. The plate 29 projects beneath the upper end of the upper screen and over the upper end of the lower screen. Thus coal falling through the upper end of the upper screen will be directed onto the lower screen and be prevented from falling through the space at the upper end of said lower screen as the lower edge of the plate forms a lap-joint with said upper end.

To remove the upper sieve the guards 31 are detached from the side boards and the lower section *a'* of the plate 20 is loosened and slid up upon the section *a*. To remove the lower screen the plate 29 is manipulated in the same manner, and the guard-plates 31 of both the upper and the lower sieve are removed. The upper sieve is then taken out and the friction-wheels in the upper hangers, and when this is accomplished the lower sieve may be readily lifted from its position and another one substituted.

With screens constructed as above described it will be seen that the peripherally-

grooved rollers receiving the ribs of the screens perform the function of guiding the screens in their reciprocating movements, steadying the same, and reducing the friction, and this feature will be found very desirable in this class of machines; also, the same rollers perform the additional office of affording the desired adjustment of the screens. The double functions thus performed by the rollers enable me to produce an efficient and economically-constructed apparatus.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The herein-described coal-screen, comprising an upright frame provided with the opposite downward-inclined upper and lower side boards 17 18, the bottom boards 28 28 at the lower ends of the boards 17 18, the bottom boards 19 29 at the upper ends of said side boards, the space between the bottom boards 28 being greater than that between the boards 19 29, and the transversely-reciprocating upper and lower sieves working, respectively, in the spaces between the two upper and the two lower bottom boards, transverse guide-bars on the lower sides of the sieves, and vertically-adjustable grooved rollers in which said bars work, substantially as set forth.
2. The combination, in a coal-screen, with

the upright frame, of brackets 22 at opposite sides of the interior of the frame and each having a vertical slot, a screw turning in the upper and lower walls of the brackets, bearings 24, sliding in said slots and each having an apertured lug entering the brackets engaged by said screws, and a bifurcated arm having open slots in the upper edges of its two parts, grooved rollers 25, mounted in said bifurcated arms with their axles turning in said open slots, and the transversely-reciprocating sieves having bars crossing their under sides and resting in the pulley-grooves, substantially as set forth.

3. The combination, with the upright frame and the inclined boards 19 28, extending in the same inclined plane at the receiving and discharging ends of the frame, of the transversely-reciprocating coal-sieve mounted in the space between the adjacent edges of said boards and inclined to correspond therewith, transverse bars on the under side of the sieve, and vertically-adjustable rollers on the inner sides of the frame, provided with grooves receiving said bars, substantially as set forth.

WILLIAM SEDDON POLLITT.

Witnesses:

DAVID BIGGORD CALDWELL,
WILLIAM CAMERON MARVIN.