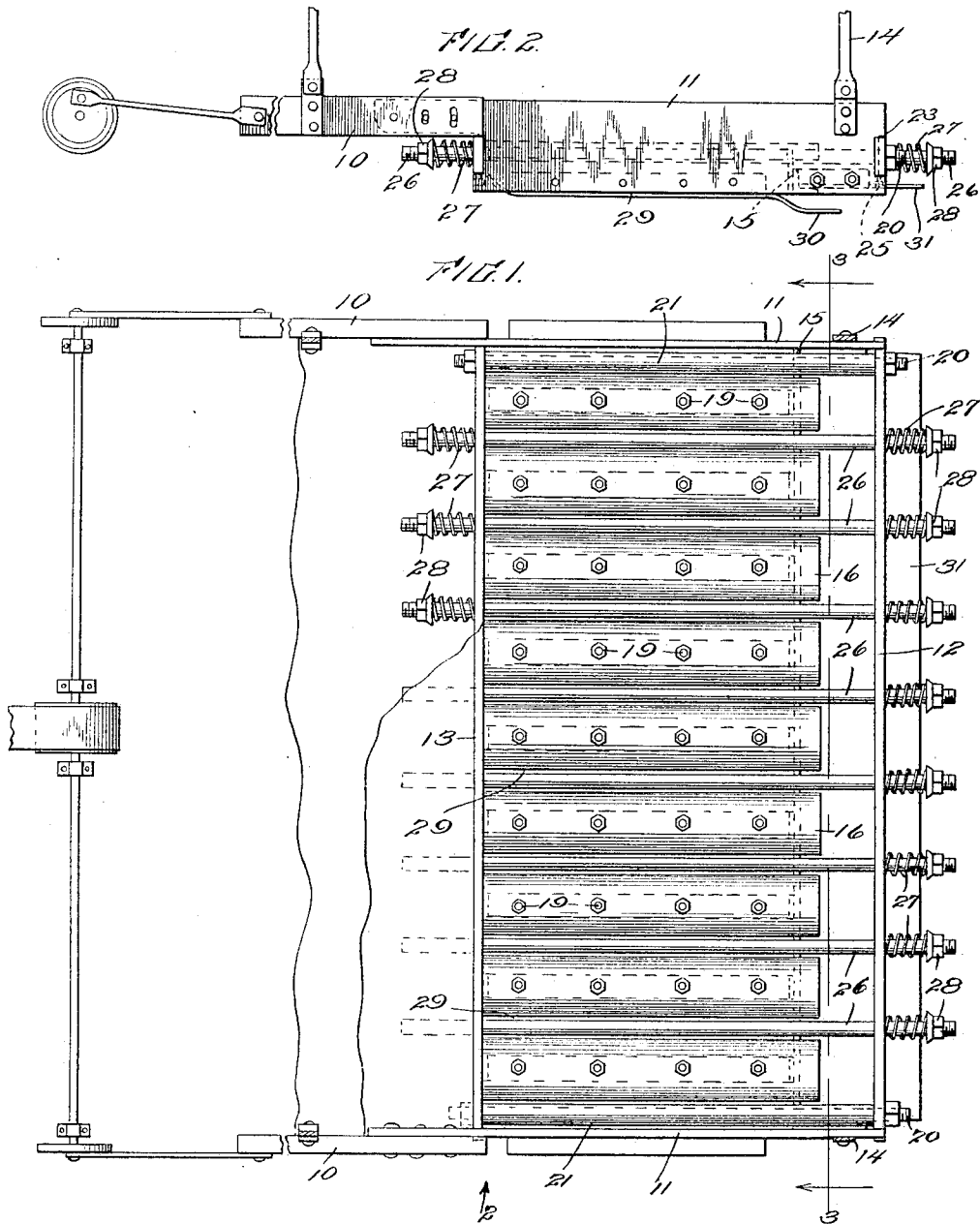


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SEPARATOR.
APPLICATION FILED MAR. 16, 1914.

1,117,876.

Patented Nov. 17, 1914.

2 SHEETS—SHEET 1.



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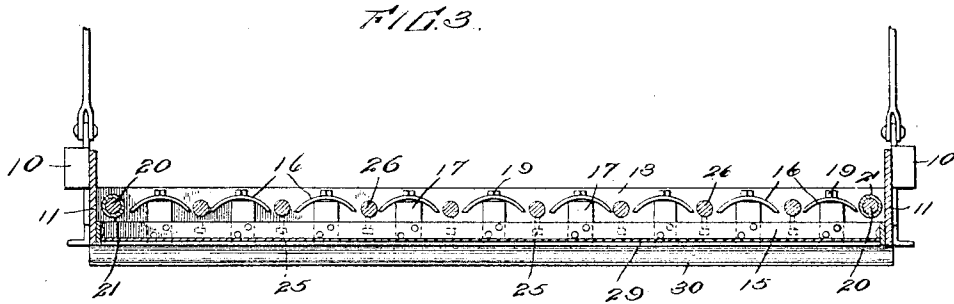
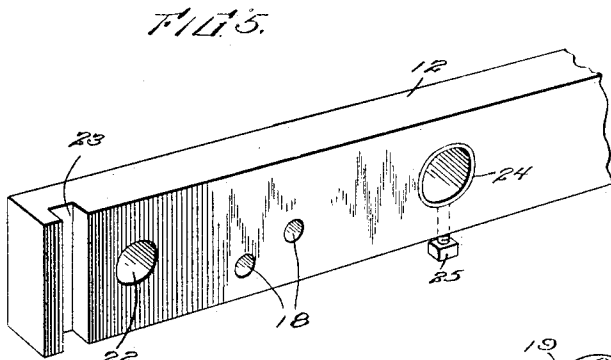
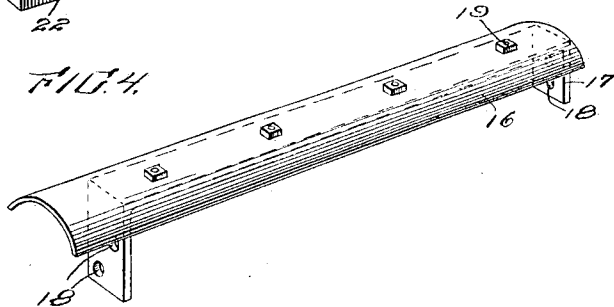
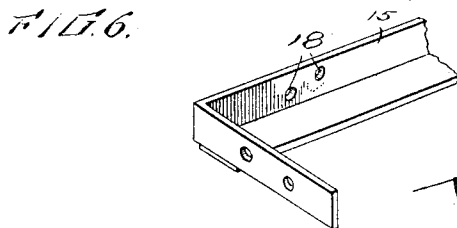
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2 SHEETS-SHEET 2.



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UNITED STATES PATENT OFFICE.

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SEPARATOR.

1,117,876.

Specification of Letters Patent.

Patented Nov. 17, 1914.

Application filed March 16, 1914. Serial No. 825,054.

To all whom it may concern:

Be it known that I, FRED H. MASON, a citizen of the United States, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Separators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to coal separators and has for an object to provide improved means for separating slate and the like from coal or similar materials.

It is well known that the slate in coal is found differing in formation from the coal in that the slate is usually found in flat thin pieces as distinguished from larger thicker pieces of coal.

The present invention therefore provides for turning the thin pieces of slate upon edge and permitting them to slide through restricted slots too narrow for the coal to pass through.

A further object of the invention is to provide in a coal separator curved plates upon and over which coal and slate mixture is discharged, such curved plates terminating at their lower edges as defining one side of a slot through which the thin pieces of slate are discharged but which prevent the passage of the coal.

A further object of the invention is to provide intermediate the lower edges of such curved plates above mentioned movable members which are given a yielding motion by the motion imparted to the separator as an organized structure whereby binding of the slate between such movable members and the edges of the curved plates is avoided.

With these and other objects in view the invention comprises certain novel constructions, combinations and arrangement of parts as will be hereinafter more fully described and claimed.

In the drawings: Figure 1 is a view of the improved separator in top plan, parts of the connecting shaker being broken away. Fig. 2 is a view of the separator in edge elevation as indicated by arrow 2 of Fig. 1. Fig. 3 is a sectional view through the separator taken on line 3—3 of Fig. 1. Fig. 4 is a perspective view of one of the curved plates. Fig. 5 is a detail view of a fragment of the frame showing the manner of mounting the mov-

able rods in the frame. Fig. 6 is a detail perspective view of the construction of the frame.

Like characters of reference designate corresponding parts throughout the several views.

The improved coal separator which forms the subject matter of this application is adapted to be attached directly to a coal shaker shown conventionally at 10 and of substantially the usual and ordinary type. The coal shaker illustrated at 10 forms no part of the present invention except as it imparts motion to the separator. The separator comprises a frame composed of the side pieces 11, front bar 12 and rear bar 13. This frame is supported by supporting members 14 which permits the separator as an organized structure to be reciprocated by the shaker 10 to which it is directly attached. Extending also between the side pieces 11 is an intermediate cross-bar 15 and between such intermediate bar 15 and the rear bar 13 curved plates 16 are supported. These plates 16 may be supported in any approved manner but preferably by bending a supporting bar 17 downwardly at its opposite ends to form brackets as indicated more particularly at Fig. 4 and securing the brackets directly to the cross-bars 13 and 15 by means of bolts or rivets through the openings 18. The curved plates 16 are in turn secured to the bars 17 in any approved manner as by the bolts 19. It will be seen, therefore, that the curved plates 16 are rigidly secured to the frame of the separator and are spaced apart as indicated more particularly at Figs. 1 and 3. The frame is further preferably though not necessarily strengthened by means of rods 20 mounted in sleeves 21 and extending through openings 22 in the front and rear bars 12 and 13 which said bars are provided with any approved means for holding in proper relation as the mortises 23. The front and rear bars 12 and 13 are provided with alined openings intermediate the edges of the curved plates 16, which said alined openings are preferably bushed as shown at 24 in Fig. 5, such bushing being maintained in position in any approved manner as by the set screw 25.

Through the bushings 24 rods 26 are inserted, such rods being longer than the interval between the bars 12 and 13 and therefore extending at each end beyond such bars and being slidable in the bush-

ings 24. It is desirable that these rods be longitudinally movable to dislodge slate or other material wedged between the rods and the edges of the plates and it is also desirable to hold such rods normally yielding in position. To accomplish this purpose springs 27 are mounted upon the extremities of the rods and tension nuts 28 are provided for varying the resiliency of the springs. Beneath the curved plates 16 a decking 29 is positioned having its outer end preferably downwardly extending as indicated at 30 to form a chute to discharge the slate which passes between the edges of the plates 16 and the rods 26. Under the outer or terminal ends of the curved plates 16 a decking 31 is employed upon which the coal from the curved plates 16 is discharged and from which it is again discharged to any receiving chute.

As the device is reciprocated in conjunction with the shaker 10 the coal and slate from the shaker are discharged upon the curved plates 16 and by reason of the agitation and curved formation of such plates the thin flat pieces of slate slide over the plates to the lower edges and in such position are standing nearly in a vertical plane so that they are readily and easily discharged through the slot between the edges of such plates and the rods 26. The reciprocation of the rods 26 by reason of their slidable mounting in the frame and the resiliency of the springs 27 assists in the passage of such slate and prevents clogging due to the wedging action of the slate in such slots.

I claim:

1. In a coal separator, a frame; curved

plates mounted upon the frame with their convex sides uppermost; and rods mounted between the plates and adapted for yielding movement.

2. In a coal separator, a frame mounted to reciprocate; curved plates carried by the frame having their axes longitudinal with the line of reciprocation and their convex sides uppermost; and movable members mounted intermediate the lower edges of the curved plates.

3. In a coal separator, a frame mounted to reciprocate; curved plates carried by the frame having their axes parallel with the line of reciprocation of the frame and their convex sides uppermost, said plates being mounted in spaced relation; rods mounted between the plates and providing space between such rods and the edges of the plates; and means to permit yielding reciprocation of the rods incident upon the reciprocation of the frame.

4. In a coal separator, a frame mounted to reciprocate; curved plates mounted in spaced relation upon the frame with their axes in line with the reciprocation of the frame and their convex sides uppermost; rods longitudinally slidable interposed between the lower edges of the curved plates and providing intervals between such rods and such plates; and springs carried by the rods tending to hold such rods in yielding normal position.

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

FRED H. MASON.

Witnesses:

HARRY B. COLE,
JAMES ALLEN.

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