Oct. 30, 1923. 1,472,439

C. J. SANDOE

SCREENING DEVICE

Filed Sept. 8, 1922

Fig. 1.

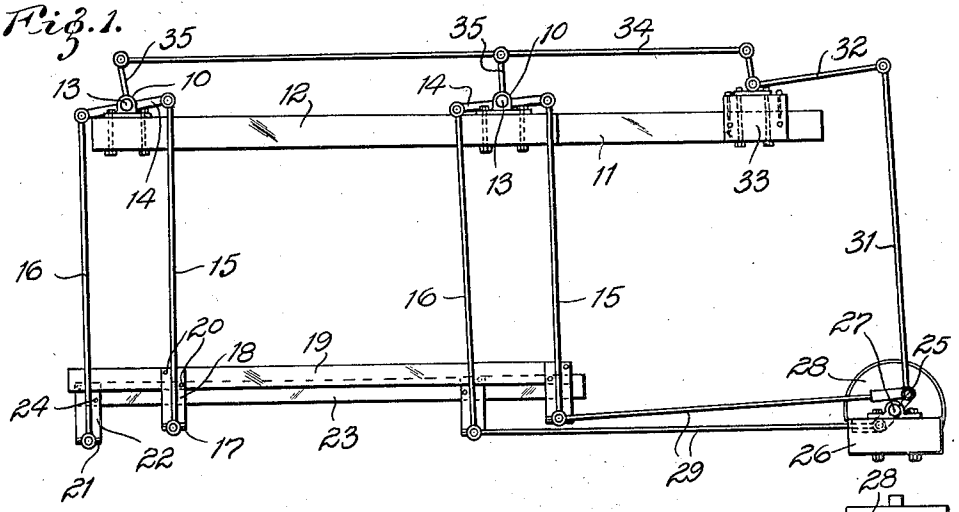


Fig. 2.

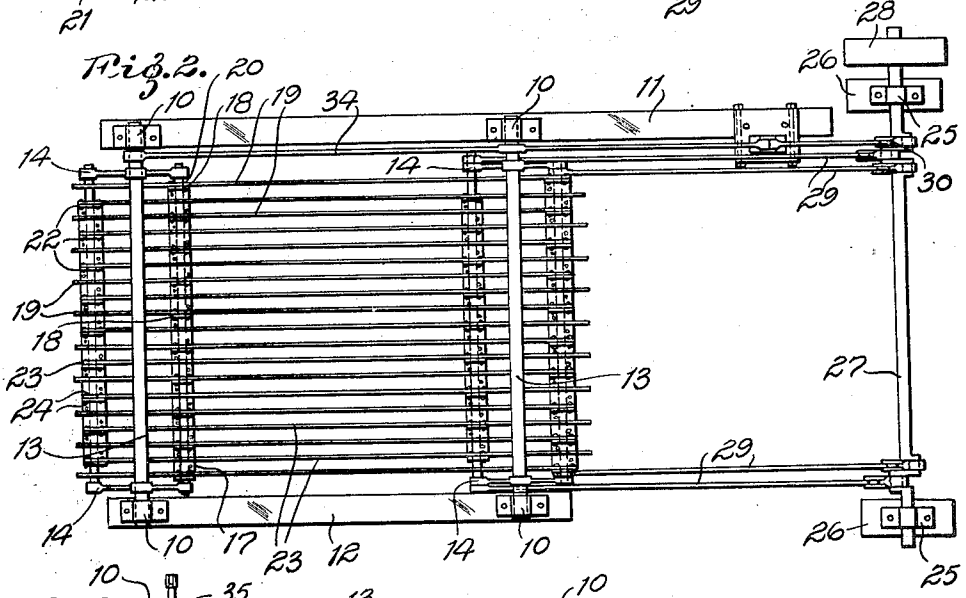
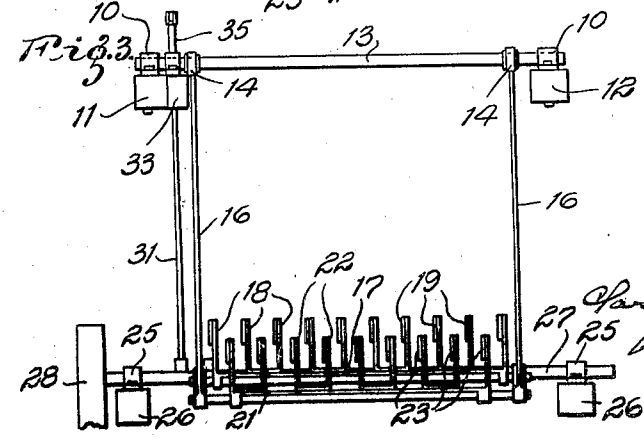


Fig. 3.



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UNITED STATES PATENT OFFICE.

CLARENCE J. SANDOE, OF ST. LOUIS, MISSOURI.

SCREENING DEVICE.

Application filed September 8, 1922. Serial No. 536,881.

To all whom it may concern:

Be it known that I, CLARENCE J. SANDOE, a citizen of the United States, resident of the city of St. Louis, State of Missouri, have invented a certain new and useful Improvement in Screening Devices, of which the following is a specification.

My invention relates to screening devices such as are used in screening coal and has for its principal objects to devise a simple and easily operable device that will rapidly, economically and accurately separate the finer materials from the large and that will also feed the large materials toward a point of delivery.

The invention consists principally in mounting two independent sets of screen bars so that they are movable up and down and also back and forth, the motion of one set of bars being opposite to that of the other. The invention further consists in mounting screen bars in such a way that they are given a combined vertical and longitudinal movement. The invention further consists in the parts and combinations and arrangements of parts hereinafter described and claimed.

In the drawings which form part of this specification and wherein like reference numerals indicate like parts wherever they occur,

Fig. 1 is a side elevation of a screening mechanism embodying my invention;

Fig. 2 is a top plan view thereof; and

Fig. 3 is an end elevation thereof.

Mounted at one end in bearings 10 on a support 11 of wood or other suitable material and at the other end in similar bearings 10 on a similar but preferably shorter support 12 are shafts 13. Fixed on said shafts 13 to rock therewith are arms 14. Pivotally secured to one end of each of said arms 14 is a rod 15 and pivotally secured to the other end of each of said arms is a similar rod 16. Secured to the lower ends of said rods 15 are bars 17 that are provided with upstanding members 18 to which are secured screen bars 19 as by rivets 20.

Secured to the ends of the other hanger rods 16 are bars 21 that are provided with upstanding members 22 to which are secured screen bars 23 as by rivets 24. Thus, the device comprises two sets of shaker bars 19, 23 that are mounted on suitable frames independent of each other.

Mounted in journal bearings 25 on supports 26 is a crank shaft 27 that is provided at one end with a pulley 28 that may be connected with any suitable source of power. At each end the crank shaft 27 is provided with oppositely disposed crank arms 29. One of said crank arms 29 is connected with the bar 17 that supports one set of shaker bars 19 and the other crank arm 29 is connected with the bar 21 on which are mounted the other shaker bars 23. Thus, as the crank shaft rotates said shaker bars are given a backward and forward movement, one set moving forward and the other set moving backward. The crank shaft 27 is also provided with a crank arm 30 to which is secured an upstanding crank rod 31. The upper end of the crank rod 31 is pivotally secured to one arm of a bent lever 32 that is pivotally mounted on a block 33 secured to the support 12. Pivotally secured to the other arm of said bent lever 32 is a rod 34 that extends lengthwise of the device and is pivotally connected to short links 35 that are fixed on the rock shafts 13. Thus, as the crank shaft rotates the rotary motion thereof is converted by the mechanism above described into a rocking movement of the shafts 13. The rocking of the shafts 13, in turn, is converted into an up and down movement of the respective sets of shaker bars.

It will be seen that each set of shaker bars is always subject to two forces, one operated by the crank arms tending to move the rods forward or backward and the other, operated through the crank rod and its connections, tending to move the bars up or down, the resulting movement is, of course, a combined forward and upward or downward and backward movement, one set of bars moving in one direction while the other set is moving in the other direction.

The screening mechanism above described feeds the heavy pieces forward at the same time that it is separating out the finer pieces. The materials being screened are thoroughly agitated and the fine particles are screened out. The screening devices may be used in series if desired, one set feeding to the other.

Obviously, numerous changes may be made without departing from my invention and I do not wish to be limited to the precise construction shown.

What I claim is:

1. A screening device comprising a support, two sets of elongated hangers suspend-

ed therefrom in such manner that their lower ends are movable horizontally, a separate set of bars for each set of hangers, means for reciprocating said hangers vertically, and means for reciprocating said bars endwise, said means being adapted to move the bars of one set oppositely relatively to the movement of the bars of the other set.

2. A screening device comprising two sets of parallel bars, cross-bars secured beneath said screen bars to hold them together, hanger rods pivotally secured to said cross-bars and having their upper ends pivotally secured to the ends of rocker arms, means for working said arms to cause up and down movement of said hanger rods and screen bars and means for simultaneously moving said cross-bars and said screen bars forward and backward.

3. A screening apparatus comprising two sets of parallel screen bars, cross-bars secured beneath said screen bars to hold them together, a pair of rock shafts disposed above the screen bars, arms secured to said shafts, hanger rods pivotally secured to said arms and to said cross-bars, the rods on one side of the shafts being connected to one set of cross-bars and the rods on the other side being connected to the other set, and means for rocking said shafts together, to raise and lower the screen bars and means for simultaneously moving the screen bars forward and backward.

4. A screening apparatus comprising two sets of parallel screen bars, cross-bars secured beneath said screen bars to hold them together, a pair of rock shafts disposed above the screen bars, arms secured to said shafts, hanger rods pivotally secured to said arms and to said cross-bars, the rods on one side of the shafts being connected to one set of cross-bars and the rods on the other side being connected to the other set, and means for rocking said shafts together, to raise and lower the screen bars and means for simultaneously moving the screen bars forward and backward said means comprising a crank shaft having a crank arm operatively connected with said rock shafts and having crank arms disposed at an angle of 180 degrees with each other and operatively connected respectively with said sets of screen bars.

Signed at St. Louis, Mo., this 6th day of September, 1922.

CLARENCE J. SANDOE.