

Oct. 25, 1938.

S. P. SOWDER

2,134,240

SHAKER SCREEN

Filed Jan. 30, 1937

3 Sheets-Sheet 1

Fig. 1.

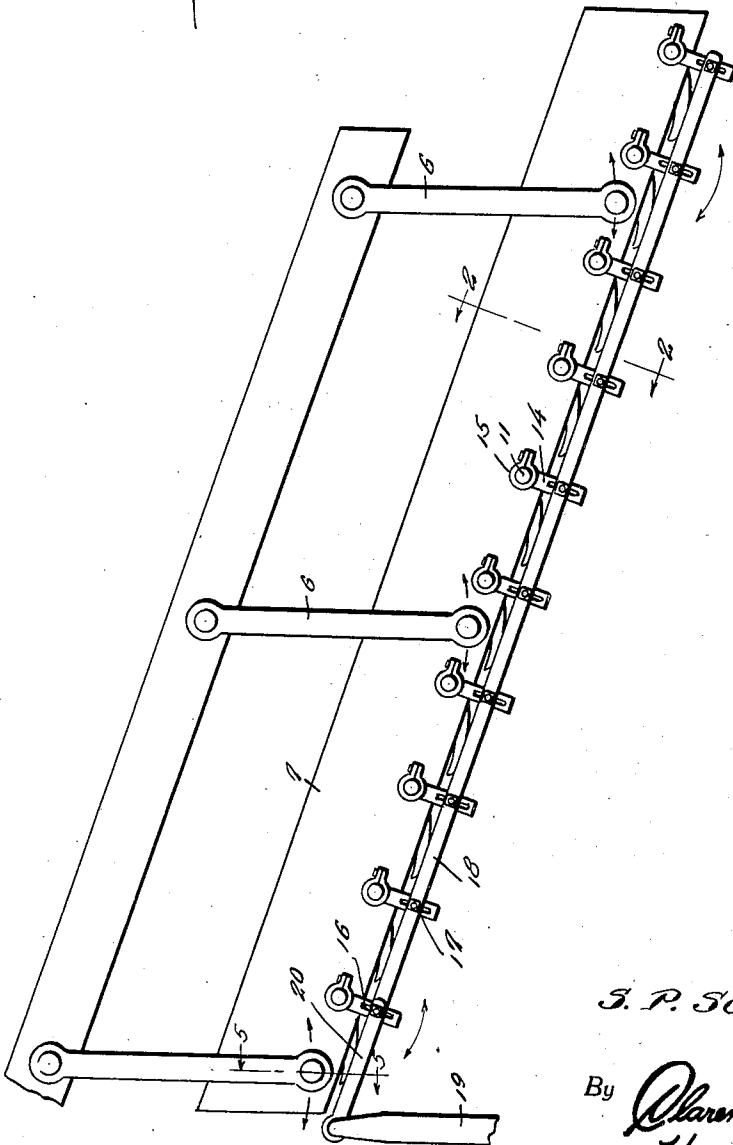
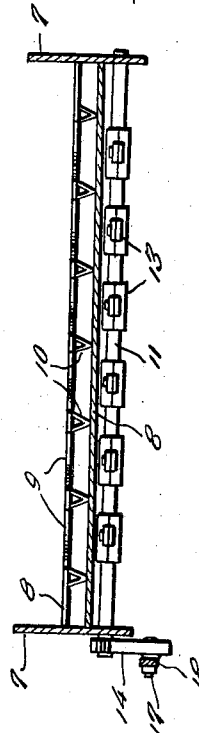


Fig. 2.



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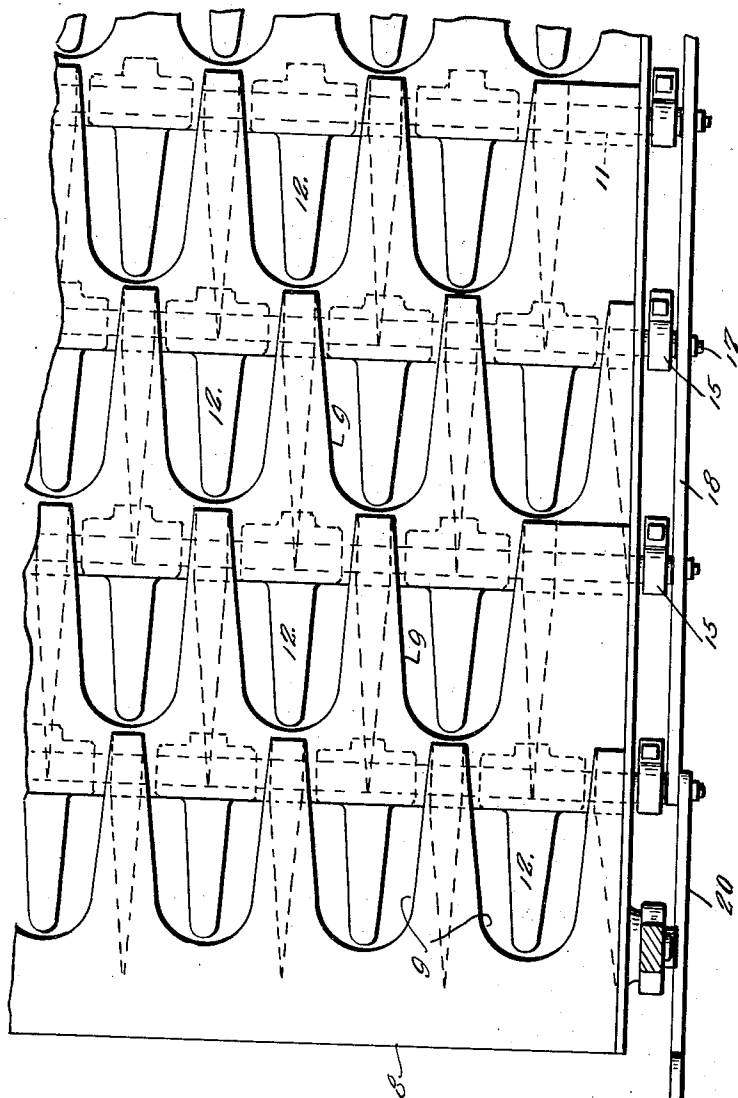
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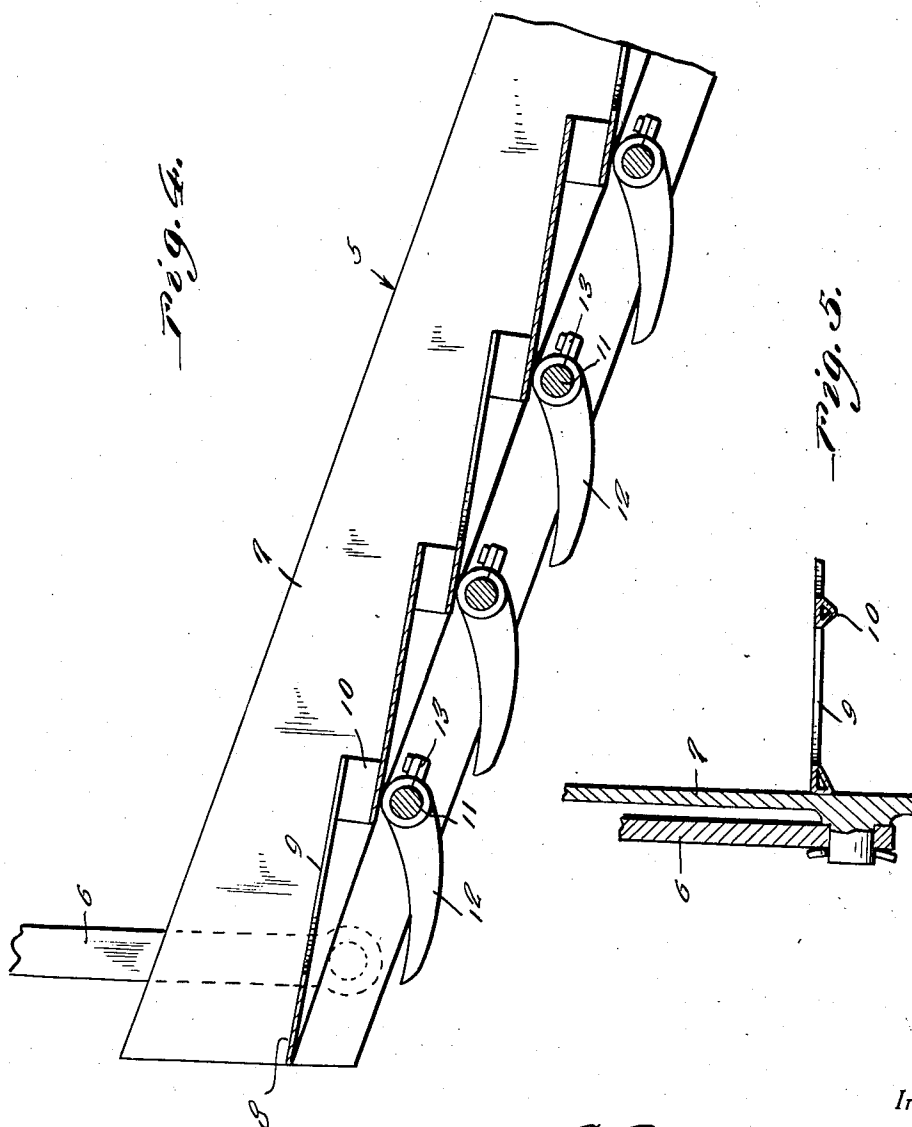
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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

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SHAKER SCREEN

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Application January 30, 1937, Serial No. 123,257

2 Claims. (Cl. 209—382)

This invention relates to shaker screens of the type used for screening coal.

An object of the present invention is to provide what is commonly known in the art as a "non-stop-up" screen, that is to say a screen which is so provided that lumps of coal will not be permitted to lodge in the openings or interstices of the screen as will preclude a proper screening of the coal.

10 Briefly, the invention consists in the provision in a shaker screen of the character mentioned of means for dislodging lumps of coal that may become lodged within the interstices of the screen; and the invention together with its objects and advantages will be best understood from a study of the following description taken in connection with the accompanying drawings wherein:—

20 Figure 1 is a side elevational view illustrating the application of the invention to a shaker screen.

Figure 2 is a transverse sectional view taken substantially on the line 2—2 of Figure 1.

25 Figure 3 is a fragmentary detail view mostly in top plan.

Figure 4 is a longitudinal sectional view through the screen and

30 Figure 5 is a fragmentary detail vertical sectional view illustrating certain structural features hereinafter more fully referred to.

Referring to the drawings by reference numerals it will be seen that 5 indicates generally the shaker screen, the same in the present instance being suspended through the medium of hanger rods 6 for reciprocatory movement to effect a screening of the coal or the like placed on the screen 5. Obviously any suitable mechanism may be employed for reciprocating or agitating the screen 5.

40 In the present instance the screen 5 is shown as consisting of a pair of side members 7 between which are mounted a plurality of stepped bottom plates 8.

45 The plates 8 at their lapping ends are provided in alternation with relatively large openings or interstices 9 formed therein, and depending lugs 10 that rest on the lapped edges of the plates 8 as clearly shown in Figure 4.

50 From the above, it will be understood that as the screen 5 is reciprocated the smaller pieces or lumps of coal pass through the openings or interstices 9 while the larger lumps of coal progress from one end to the other end of the screen to discharge from the last mentioned end of the screen.

In accordance with the present invention there are mounted between the sides 7 of the screen 5 and disposed directly beneath the lapped edges of the bottom plates 8 a plurality of shafts 11.

Each shaft 11 is equipped with a plurality of 5 knocker arms 12. Each arm 12 is provided at one end with a split clamp 13 through the medium of which the arm is secured to its shaft 11 at the desired angular position of adjustment relative to the shaft.

10 The arms 11 on the respective shafts are positioned so as to work through the openings or interstices 9 for the purpose of dislodging lumps of coal that may become lodged or wedged within the interstices thus detracting from the 15 effective operation of the screen.

On at least one end thereof the shafts 11 are provided with crank arms 14 and as clearly shown in Figures 1 and 2 the arms 14 at one end are provided with split clamps 15 through the medium 20 of which the arms 14 are secured to their respective shafts 11 at any desired position of angular adjustment.

25 The arms 14 are provided with elongated slots 16 that accommodate bolts 17 through the medium of which a connecting rod 18 is operatively connected with the arms 14. This slot 16 and bolt 17 connection between the rod 18 and the respective arms 14 permits of an adjustment between the rod 18 and the respective arms 14 30 whereby the stroke of the members 12 may be varied as found desirable.

Pivotal connecting one end of the rod 18 to fixed member 19 is a link 20, so that as the shaker screen reciprocates rod 18 will impart 35 oscillatory motion to the shafts 11 for oscillating the shafts in unison to the end that the arms 12 are continuously swinging in a vertical plane for dislodging lumps of coal as may become lodged within the interstices or openings 9.

40 In connection with the above, it will be understood that in operation the coal on the shaker screen progresses forwardly on the forward stroke of the screen while on the return stroke of the screen the arms or knockers 12 move upwardly 45 through the openings or interstices 9 for dislodging any lumps lodged within said opening or interstices.

Having thus described the invention, what is claimed as new is:—

50 1. In a shaker screen for coal, a screen proper suspended for reciprocatory movement and consisting of sides and a series of stepped bottom plates extending between said sides, said bottom plates being provided with rows of openings, the 55

openings in alternate bottom plates being staggered with respect to the openings in intermediate bottom plates, a plurality of transverse shafts supported between the sides of the screen and
5 beneath said bottom plates, knocker arms on said shafts for movement through the openings in the respective bottom plates for dislodging coal lumps settling in said openings, mechanism for oscillating said shafts, said mechanism including crank
10 arms at corresponding ends of said shaft, said crank arms being provided with clamps embracing said shafts for securing the arms on the respective shafts at the desired angular position of adjustment, said crank arms being also provided with slots, a rod for connecting said crank
15 arm, and bolts carried by said rod and engaging in the slots of the crank arms whereby a connection, permitting of an adjustment of the stroke of said shafts, is provided for between said rod
20 and said crank arms.

2. In combination, a screen for sizing coal suspended for endwise reciprocating movement and having a bottom provided with transversely extending rows of openings therein, and means for clearing said openings comprising a plurality of
5 transverse rock shafts related to said rows of openings, respectively, and mounted on said screen beneath the related rows, each shaft having fast thereon a plurality of bar-like rocker
10 arms swingable under rocking movement of the shaft into and out of the related row of openings, to clear the same, said arms, forming together with said openings a grate constantly open to the passage of coal therethrough, and means
15 to effect rocking movement of said shafts as an incident to reciprocating movement of the screen and including devices for varying the degree of rocking movement thereof.

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