

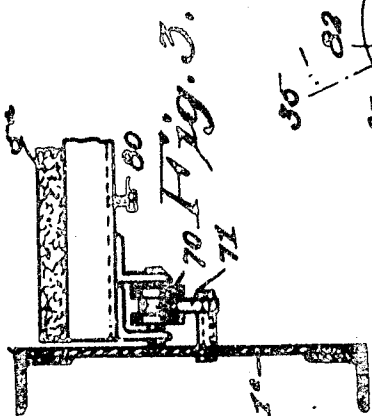
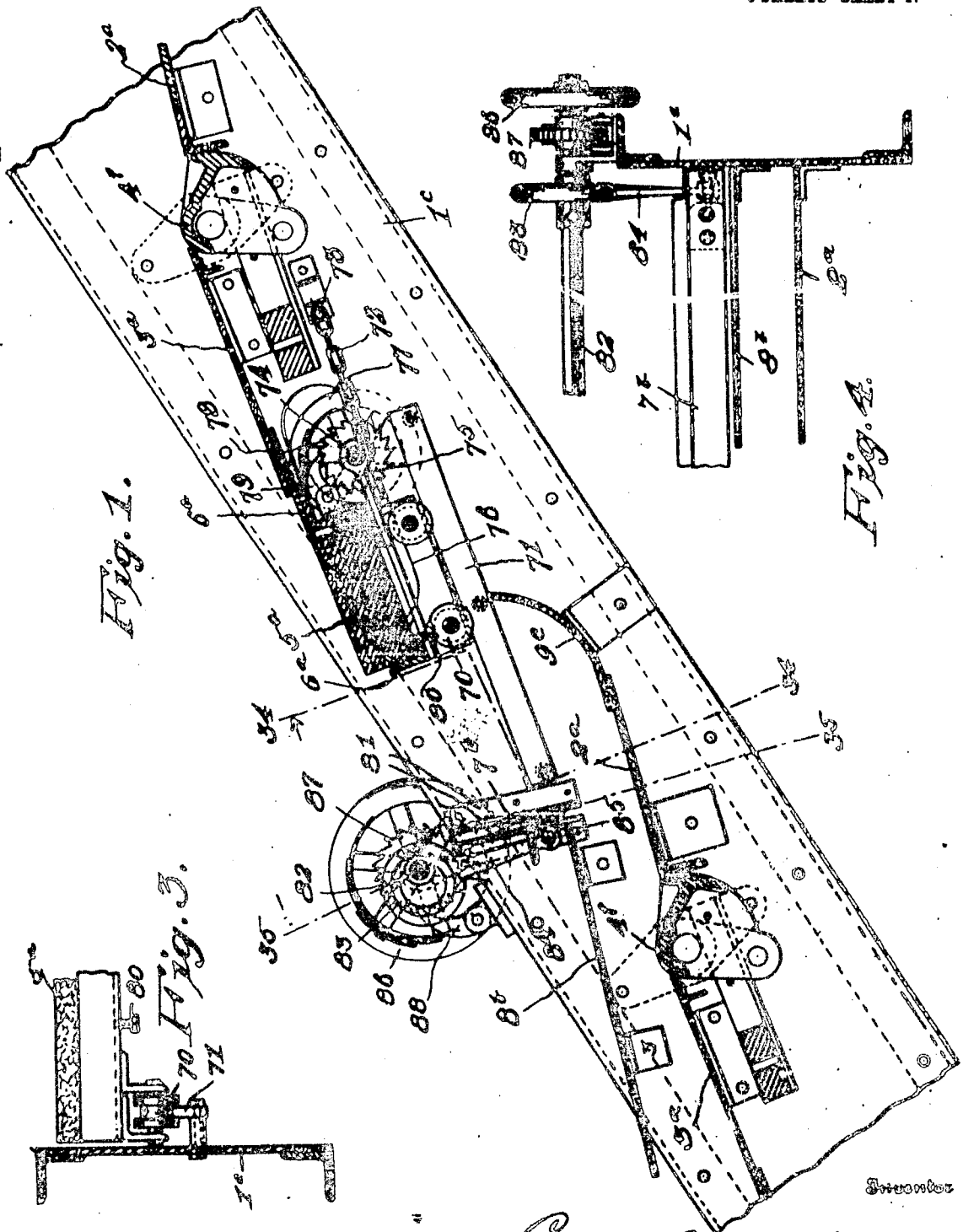
C. S. FARRER.
SLATE PICKER.

APPLICATION FILED MAY 20, 1900.

Patented May 10, 1910.

SHEET 1.

957,320.



Witnesses

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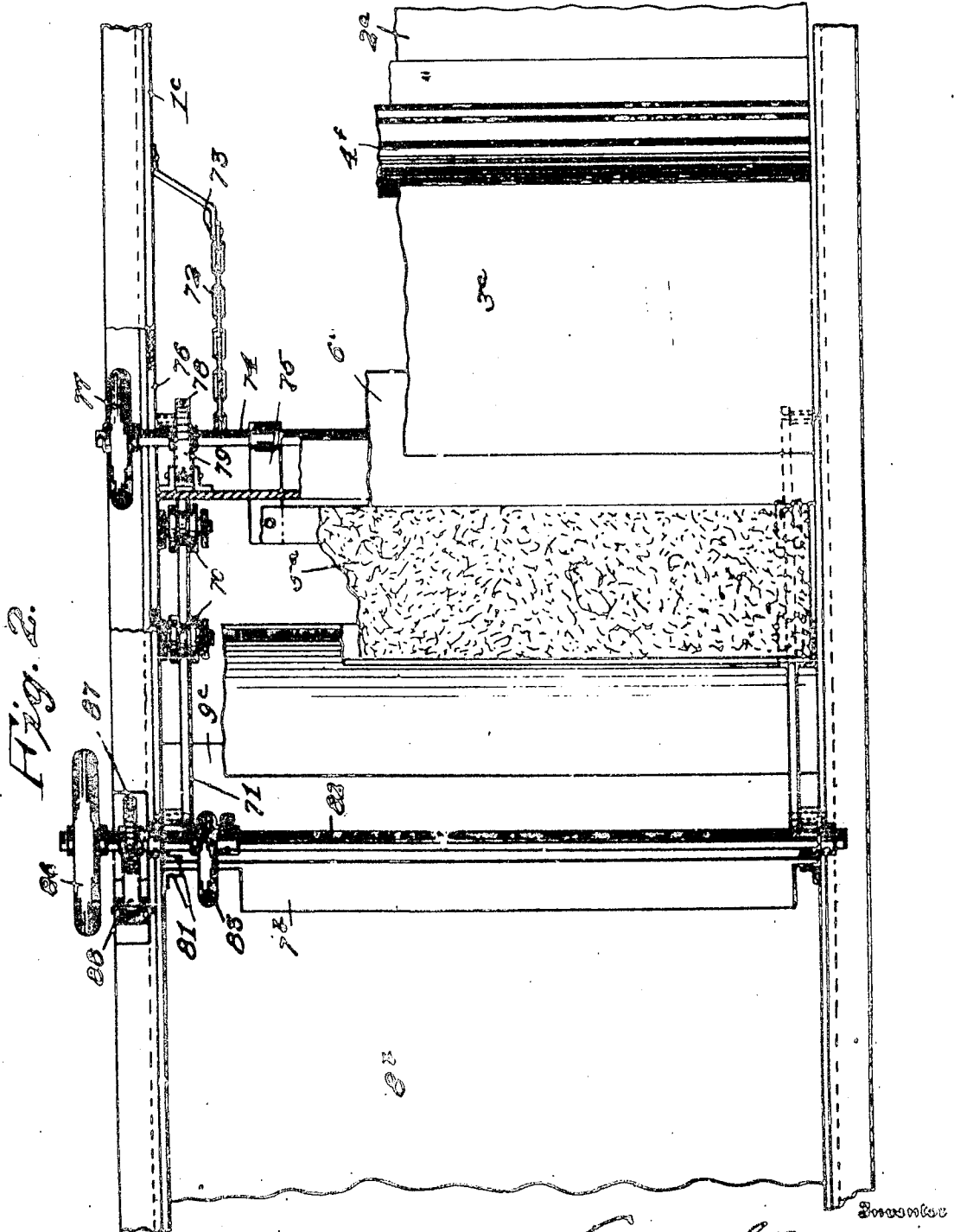
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5 SHEETS—SHEET 2.



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5 SHEETS—SHEET 3.

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Fig. 7.

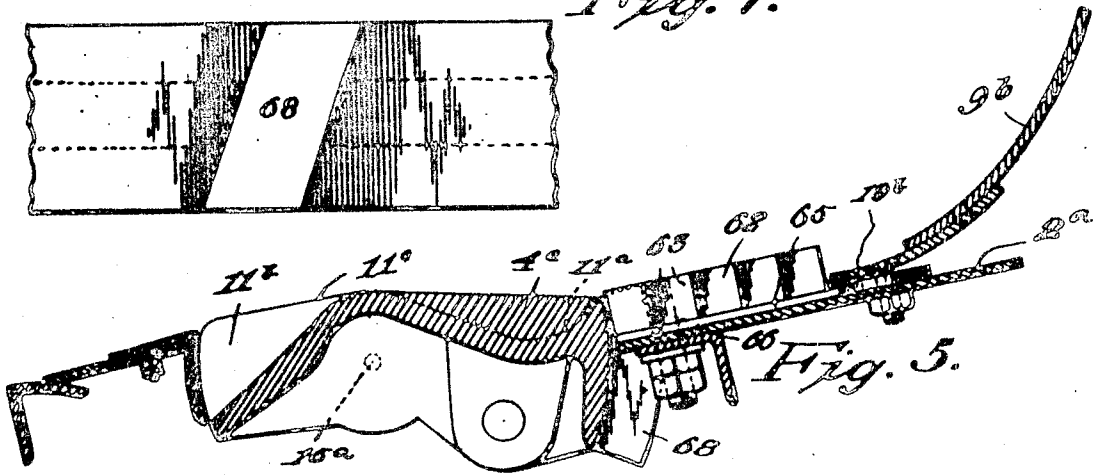
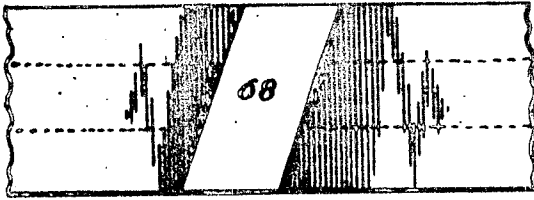


Fig. 5.

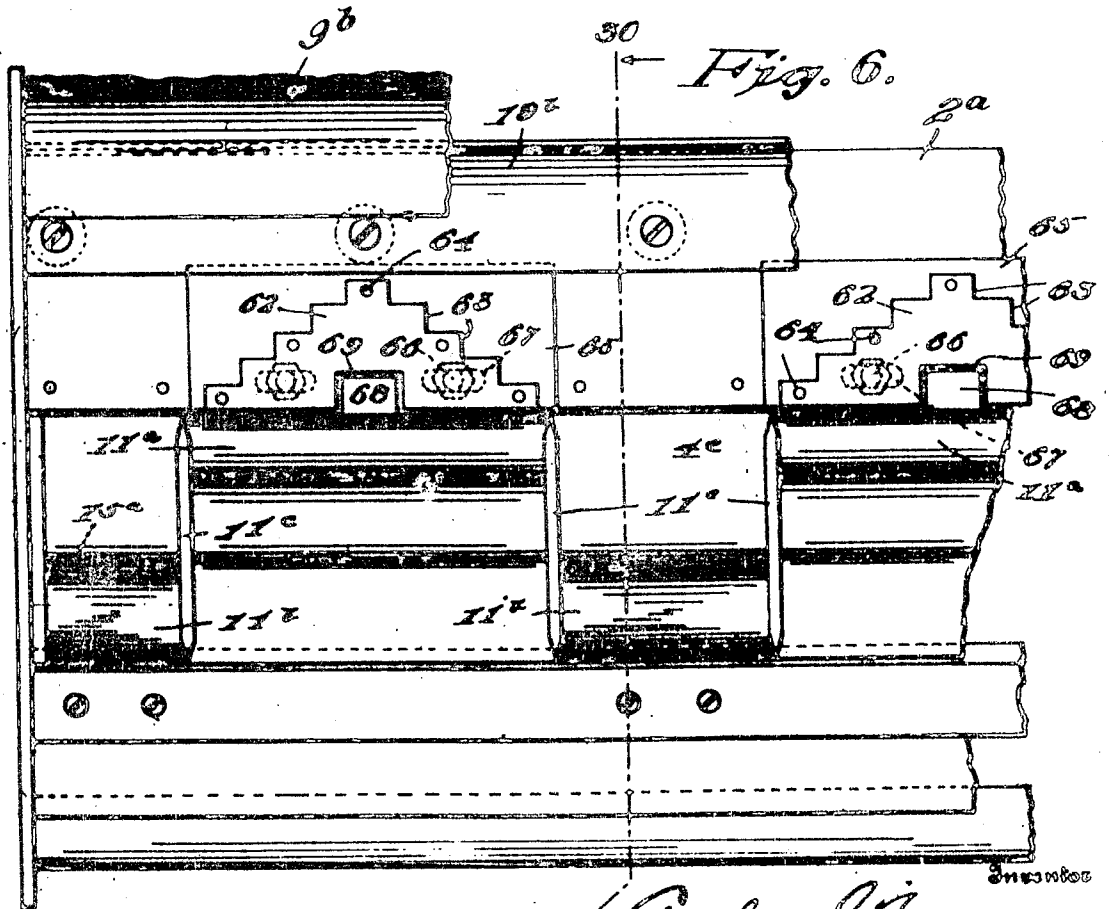


Fig. 6.

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3 SHEETS—SHEET 4.

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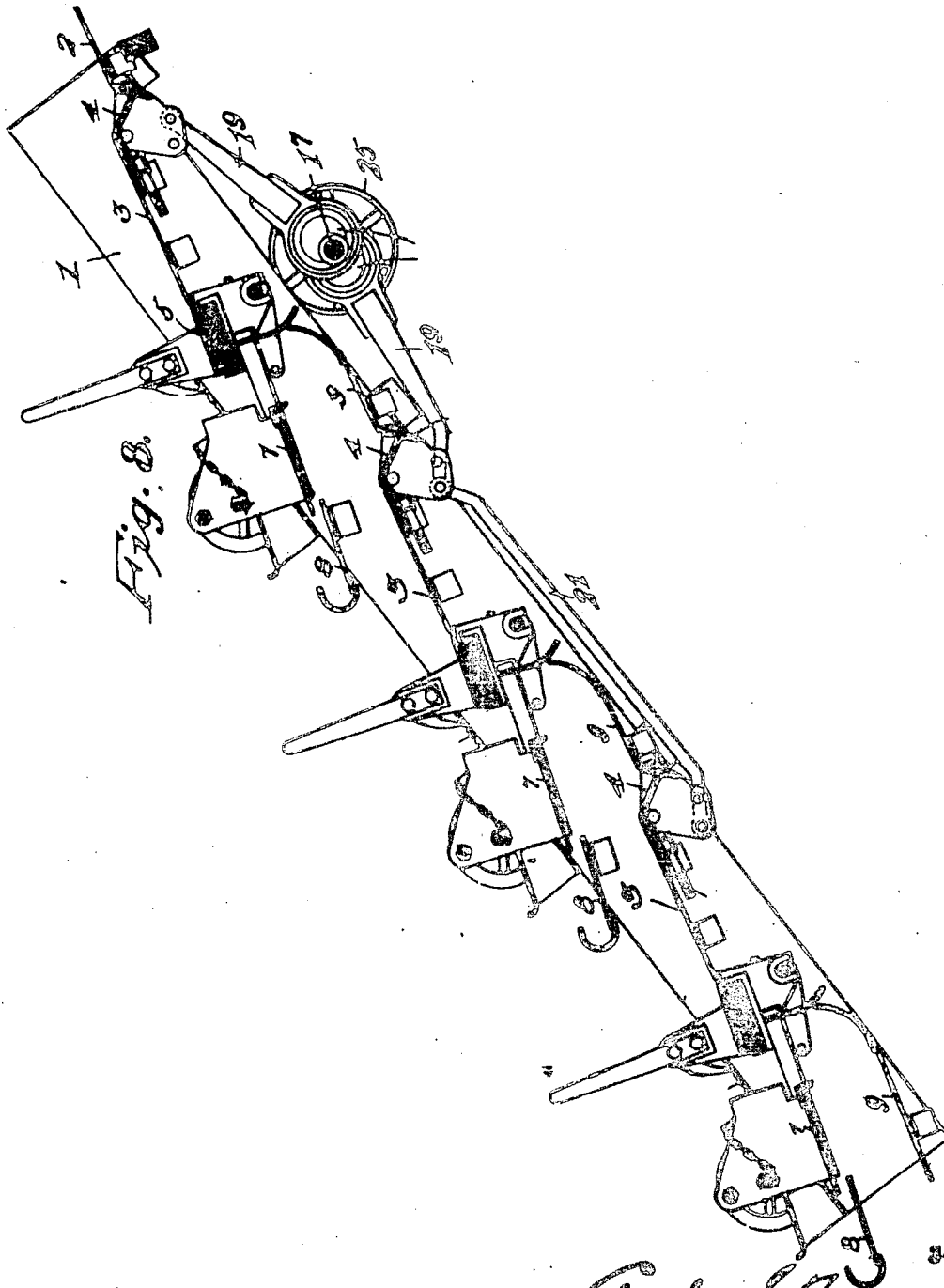


Fig. 8.

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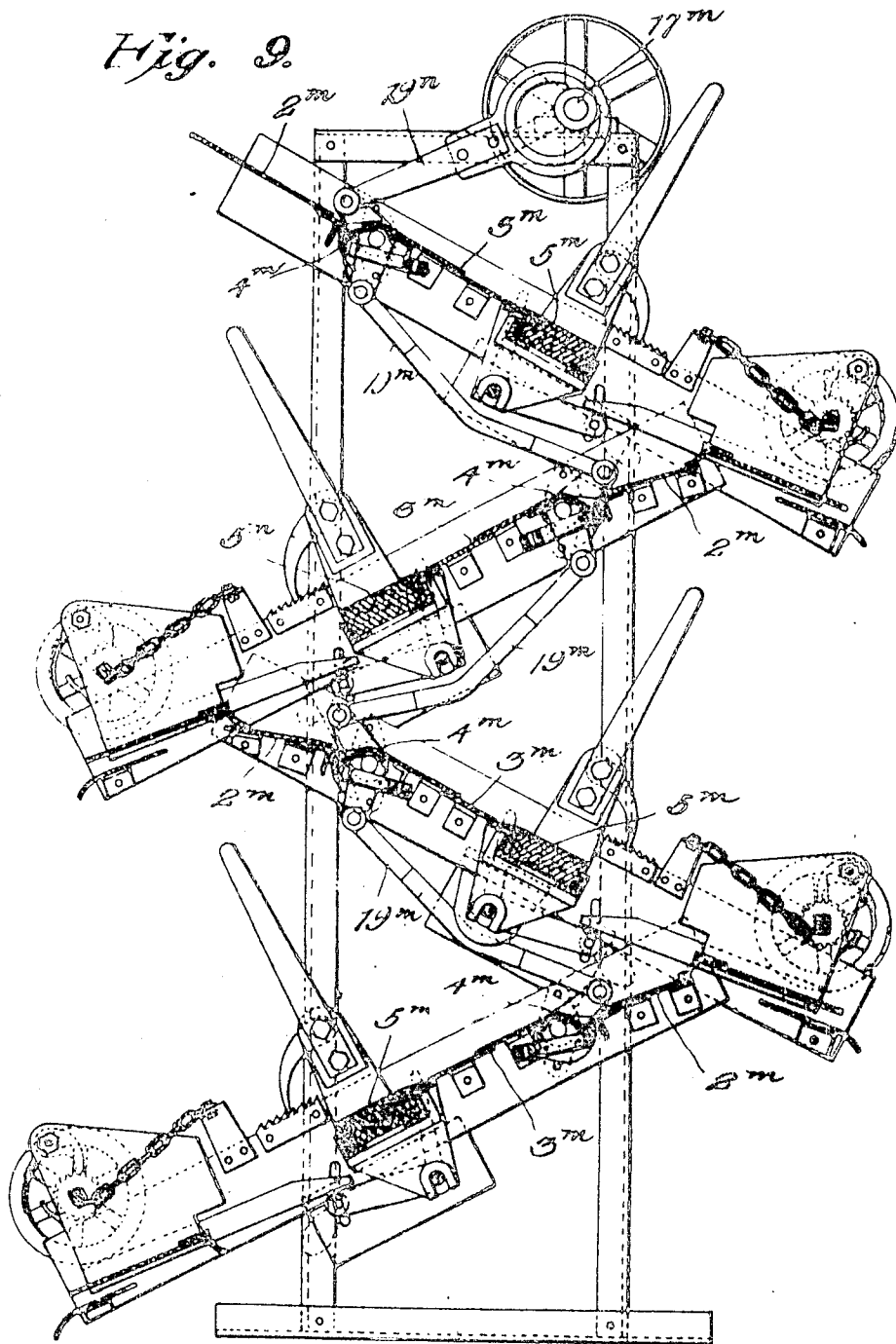
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5 SHEETS—SHEET 5.



Witnesses

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SLATE-PICKER.

957,320.

Specification of Letters Patent.

Patented May 10, 1910.

Application filed May 20, 1909. Serial No. 497,191.

To all whom it may concern:

Be it known that I, CHARLES S. FARRER, a citizen of the United States, residing at Dunmore, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Slate-Pickers, of which the following is a specification, reference being had to the accompanying drawings.

10 This invention relates to improvements in machines for separating slate from coal, and more particularly those of the type set forth in my Patent Number 920,939, granted May 11, 1909.

15 The object of the present invention is to improve and simplify the construction and operation of machines of this character and thereby render them more efficient.

20 With the above and other objects in view, the invention consists of the novel construction, combination and arrangement of parts, hereinafter fully described and claimed, and illustrated in the accompanying drawings in which:—

25 Figure 1 is a vertical longitudinal section through a portion of a slate picking machine embodying my improvements; Fig. 2 is a plan view of the parts shown in Fig. 1, portions being broken away and in section; 30 Figs. 3 and 4 are detail sectional views taken respectively on the planes indicated by the lines 34—34 and 35—35 in Fig. 1; and Fig. 5 is a detail sectional view through a portion of a slate picker showing an improved 35 form of oscillatory feed member and a cooperating reciprocating separating member; Fig. 6 is a plan view of parts shown in Fig. 5, portions being broken away and in section; Fig. 7 is a detail edge view of the oscillatory feed member showing the cam 40 thereon; and Figs. 8 and 9 are vertical sectional views through two general forms of slate pickers in which my improvements may be employed.

45 Referring more particularly to Fig. 1 of the drawing, 1^a denotes the side plates or walls of a substantially rectangular frame disposed in an inclined position and within which may be arranged one or more groups 50 of separating mechanisms, each consisting of an upper receiving chute 2^a, a discharge chute 3^a, an oscillatory feed member 4^a between said chutes, an adjustably mounted retarding surface 5^a at the lower edge of the discharge chute, an adjustably mounted sep- 55 arating or dividing member 7^a and station-

ary over and under chutes 8^a and 9^a, the chute 9^a forming the upper portion of the receiving chute of the next lower group of separating mechanisms.

60 The retarding surface of member 5^a is here shown as in the form of a block of stone or other suitable material arranged in a slidable support or car 6^a provided with grooved supporting wheels 70 to travel on stationary track bars 71 secured to the inner faces of the side plates 1^a. The car or carriage 6^a has a body portion or frame forming a pocket to receive the block 5^a, and at its upper edge is a plate which slides be- 70 neath the chute 3^a when the car is adjusted, as will be understood on reference to Fig. 1. The car 6^a is adjusted by providing two chains or flexible elements 72 and anchoring their upper ends at 73 to the side plates 1^a 75 and attaching their lower ends to a transverse winding shaft 74 rotatable on bearing brackets 75 projecting from the car or carriage 6^a. One end of the shaft 74 projects through an opening 76 in the adjacent plate 80 1^a and has fixed to it a hand wheel 77. Also fixed on said end of the shaft within the frame, is a ratchet wheel 78 with which coacts a pawl 79 pivoted on the car as shown.

As above stated, the car or carriage 6^a 85 may be of any form and construction, but it is preferably constructed of angle metal bars as indicated, and in order to dispose the upper surface of the block 5^a at a slight angle or inclination when necessary or desirable, set screws 80 may be provided in the 90 lowermost angle bars to impinge against the bottom of the block 5^a. This block may be carbondum, emery, stone or other material which will tend to retard the downward 95 movement of the slate.

The separating or dividing member 7^a is here shown as mounted for vertical sliding movement and in the form of an angle metal bar disposed adjacent the upper edge of the 100 chute 8^a. Said member or bar 7^a has the ends of its vertical flange slidably arranged between spaced angle metal guide strips 81 secured on the inner opposing faces of the side plates 1^a. Said member or bar 7^a is ad- 105 justed by providing on a transverse shaft 82 eccentrics 83 which have strap arms 84 pivotally connected by means of brackets 85 to the member or bar 7^a. The shaft 82 is mounted in suitable bearings on the upper 110 edges of the side plates 1^a and has on one end a hand wheel 86 by means of which it may

be rotated to cause the eccentrics to raise or lower said member or bar 7^a. To retain the latter in adjusted position a ratchet wheel 87 is fixed to the shaft 82 and engaged by a pawl 88 pivoted on the adjacent side plate 1^a.

The oscillatory feed member 4^a may be constructed as shown in Fig. 1 and have pockets on one side only of its pivot, but I preferably make it double as shown at 4^a in Figs. 6 and 7 and employed in connection with it are laterally reciprocating slate deflecting members 62. One or more of the members 62 may be provided in advance of each of the feed members 4^a and they are mounted for lateral reciprocatory movement so that they resemble shuttles. Each of the members or plates 62 is comparatively thick so that it projects a sufficient distance above the plane of the upper surface of the chute 2^a or 9^a, to stop the pieces of slate which are usually flat, but not sufficiently large to stop pieces of coal, the latter being of polygonal shape and hence bound over the plate or plates 62. These plates 62 are also preferably of triangular shape and are arranged with their apexes turned upwardly and the inclined portions of their front or upper edges are preferably notched as shown at 63, so that as they reciprocate they will stop the pieces of slate and push them laterally into the pockets formed in the feed member 4^a. Said shuttle plates or members 62 are secured by rivets 64 or the like to plates 65 arranged for sliding movement on the top of the chute 2^a. Guide pins 66 in the form of bolts, project from the plates 62, 65, through guide slots 67 formed in the chute or other support, whereby said plates 62 will be guided in their reciprocatory movement transversely of the device. The shuttle plates 62 are preferably reciprocated by angularly arranged cams 68 provided on the upper edge of the oscillatory feed member 4^a and adapted to work in recesses 69 formed in the rear or lower edges of said plates 62, 65. It will be seen that as such member 4^a oscillates vertically, the cams 68 will reciprocate the shuttle plates 62 laterally. The oscillatory member 4^a has its pivots 15^a arranged intermediate its front and rear edges, and along its front edge in its top are formed pockets 11^a which are separated by ribs or partitions 11^b from similar pockets 11^b formed in the upper surface of said member adjacent its lower or rear edge.

My improvements above described may be embodied in various kinds of separating machines but they are particularly adapted for use in machines such as set forth in my prior patent above mentioned, and in the well known types of slate picking machinery shown in Figs. 8 and 9 of the drawings. In Fig. 8, 1 denotes the side plates of the frame, 2 the receiving chutes, 3 the discharge chutes, 4 the oscillatory feed members, 5 the

retarding surfaces, 7 the separating or dividing members and 8 and 9 the over and under chutes. The machine shown in Fig. 8 is a three drop slate picker, and the oscillatory feed members 4 of the two uppermost groups of separating mechanisms are connected to eccentric straps 19 operated from a main drive shaft 17 which may contain a belt wheel 25; and the member 4 of the lowermost group of separating mechanisms is connected by a link 21 to the member 4 of the intermediate group.

In Fig. 9 the slate picking machine is of the zigzag type, each group of separating mechanisms being disposed above the next lower group and inclined in an opposite direction, and the oscillatory feed members of the several groups being connected by links and driven from a main drive shaft at the top of the supporting frame. In Fig. 9, 2^a denotes the receiving chutes, 3^a the discharge chutes 4^a the oscillating feed members, and 5^a the retarding surfaces. The several feed members 4^a are connected to each other by links 19^a and the uppermost member 4^a is connected to an arm 19^a extending from an eccentric on the main drive shaft 17^a. It is thought that the application of my improvements to this machine, and also to the one shown in Fig. 8 will be readily understood without further explanation.

Having thus described the invention, what is claimed is:

1. In a machine of the character described, the combination of a flat, downwardly inclined, chute, transverse guides upon the chute, a plate slidably engaged with said guides for reciprocatory movement transversely of the chute to engage slate or other flat material and deflect it laterally, an oscillatory feed member in the chute, and means actuated by the latter for reciprocating said deflecting plate.

2. In a machine of the character described, the combination of a chute, a slate deflecting plate mounted for transverse reciprocatory movement in the chute and having its front or upper edge inclined and notched, an oscillatory feed member in the chute having pockets to receive slate deflected by said plate, means for actuating said feed member, and means for actuating said deflecting plate from said feed member.

3. In a machine of the character described, the combination of a chute, transverse guides upon the chute, a plate slidably engaged with said guides for reciprocatory movement transversely of said chute to engage slate or other flat material and deflect it laterally, an oscillatory feed member, and a cam upon the latter for reciprocating said plate transversely of the chute.

4. In a machine of the character described, the combination of a chute, trans-

verse guides upon the chute, a plate slidably engaged with said guides for reciprocatory movement transversely of said chute to engage slate or other flat material and deflect it laterally, an oscillatory feed member having pockets to receive slate deflected by said plate, means for actuating said plate, and means for actuating said feed member.

5. In a machine of the character described, the combination of a chute, an oscillatory feed member arranged therein and provided with pockets, a laterally reciprocating slate deflecting member arranged on said chute in advance of the feed member and actuated by the latter, and means for actuating said feed member.

6. In a machine of the character described, the combination of a chute, a vertically oscillating feed member arranged therein and having pockets, a laterally reciprocating slate deflecting plate arranged on the chute in advance of the feed member and having its front or upper edges inclined and notched, a cam upon said feed member to engage and reciprocate said deflecting plate, and means for actuating said feed member.

7. In a machine of the character described, the combination of a chute, a transversely disposed feed member arranged in said chute and pivoted intermediate its ends, said feed member being formed adjacent to both its front and rear edges with pockets, and means for actuating said feed member.

8. In a machine of the character described, the combination of a chute, a triangular shaped slate-deflecting plate mounted for transverse reciprocatory movement on said chute and having its two diverging upper edges notched, and means for reciprocating said plate.

9. In a machine of the character described, the combination of chute sides, a chute bottom between said sides, a separating member, track rails secured to, and spaced from, the inner faces of said sides and disposed beneath said bottom, a car carrying a retarding surface, grooved wheels upon the car to travel on said track rails whereby the retarding surface is slidably arranged at the

lower end of the chute bottom, bearing brackets upon the car and disposed beneath said chute bottom, a transverse shaft in said bearing brackets and having one end extending through an elongated opening in one of the chute sides, a handle on said extended end of the shaft, flexible elements attached to and wound upon said shaft and having their upper ends anchored to said chute sides, a ratchet wheel fixed to said shaft, and a pawl upon said car to engage said ratchet wheel.

10. In a machine of the character described, the combination of a chute, a separating member, an adjustable support at the lower end of said chute, a block arranged in said support and having its top forming a retarding surface for the lower end of said chute, and set screws in said support for adjusting said block angularly.

11. In a machine of the character described, the combination of a support having side walls, an upper receiving chute between said side walls, an adjustable retarding surface at the lower edge of said receiving chute, under and over chutes arranged beneath said receiving chute and its retarding surface, pairs of parallel angle metal guide strips secured to the inner faces of said side walls adjacent the upper end of said over chute, a transversely arranged angle metal separating bar having the ends of its upright flange slidable between said pairs of angle metal guide strips, and its other flange extending over the upper edge of said over chute, bearings upon the upper edges of said side walls, a transverse shaft rotatable in said bearings, eccentrics on said shaft, eccentric straps on said eccentrics and having a depending arm pivotally connected to said angle metal separating bar, a ratchet wheel on one end of said shaft, and a pawl pivoted on one of the side walls and engaged with said ratchet wheel.

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

CHARLES S. FARRER.

Witnesses:

HOWARD D. CHAMBERLAIN.

C. M. FARRER.