

Nov. 19, 1935.

E. C. GLEDHILL ET AL

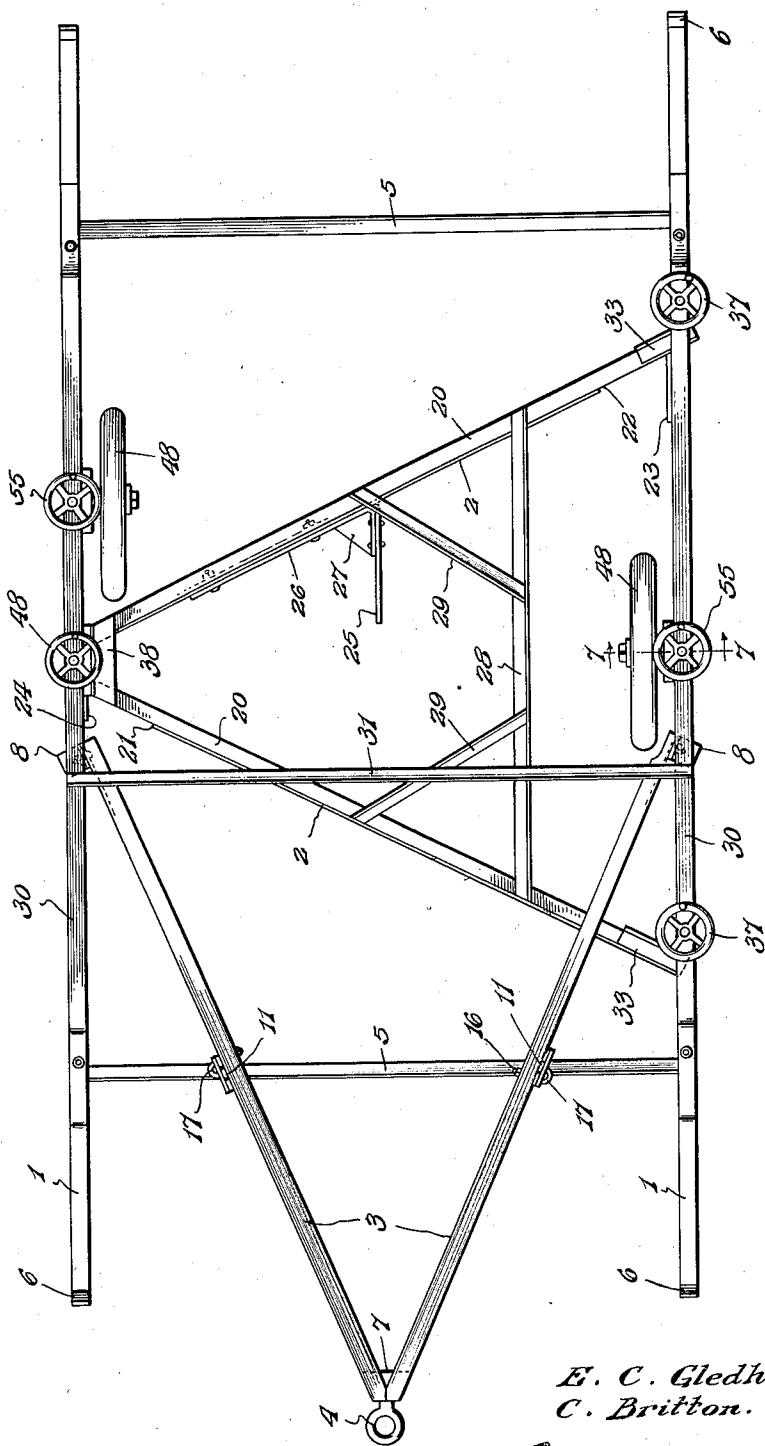
2,021,660

ROAD MACHINE

Filed Oct. 1, 1934

3 Sheets-Sheet 1

Fig. 1.



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Fig. 2.

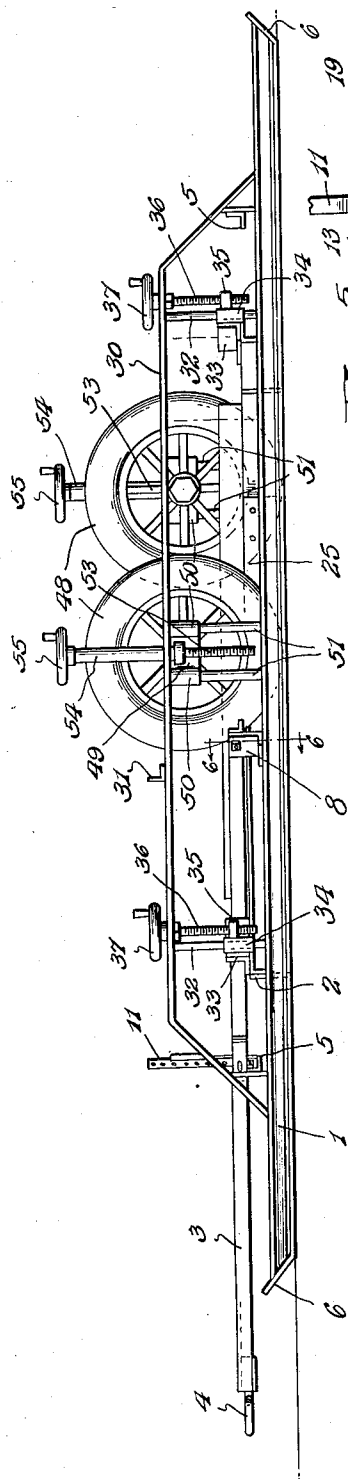


Fig. 5.

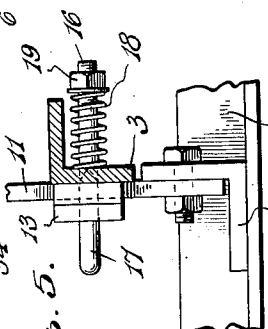


Fig. 4.

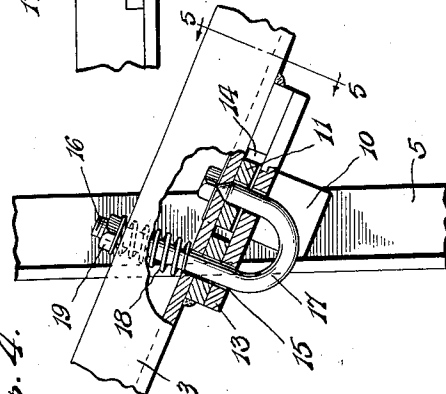


Fig. 3.

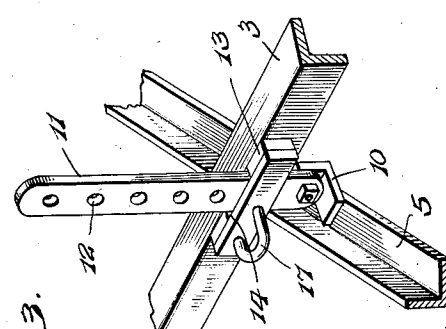
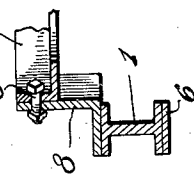


Fig. 6.



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3 Sheets-Sheet 3

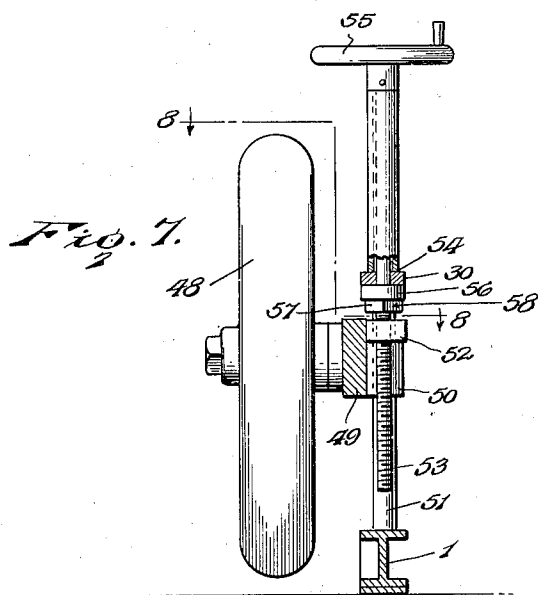


Fig. 8.

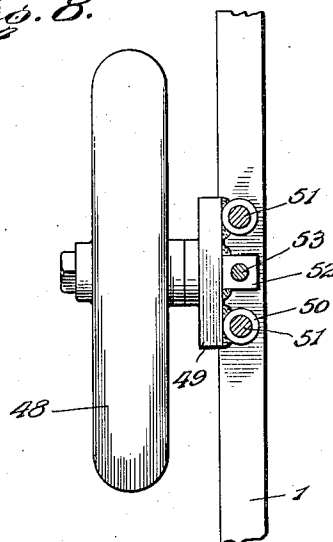
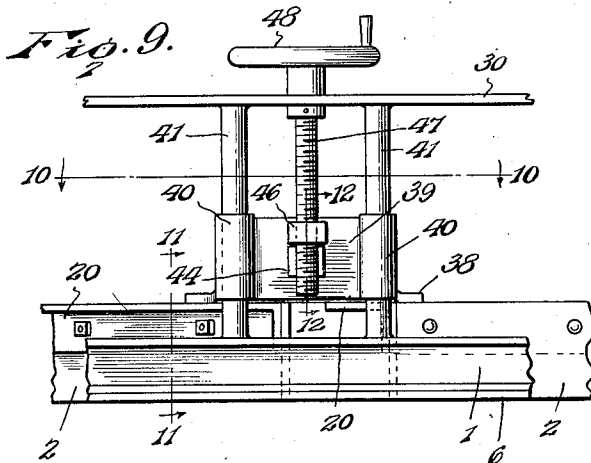


Fig. 11.

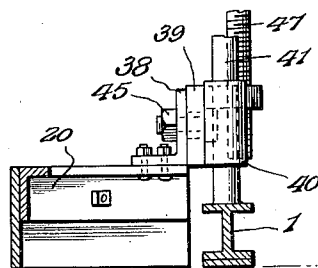
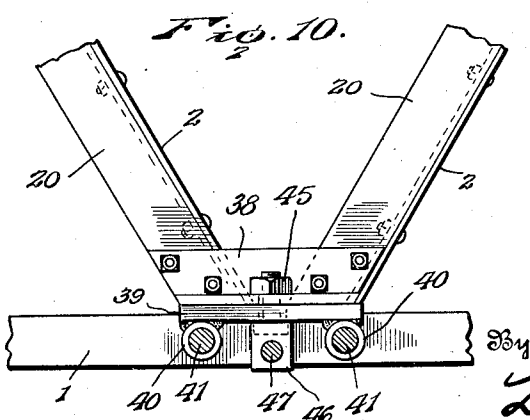
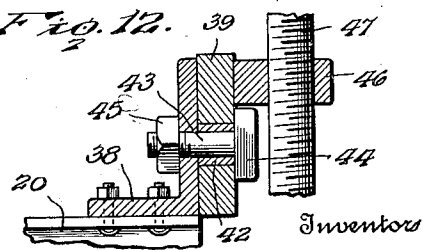


Fig. 12.



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UNITED STATES PATENT OFFICE

2,021,660

ROAD MACHINE

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Ohio, assignors to The Gledhill Road Machinery Company, Galion, Ohio, a corporation of Ohio

Application October 1, 1934, Serial No. 746,437

10 Claims. (Cl. 37—150)

This invention relates to road machinery and especially to a machine for adjusting the surface of a road and effecting an even distribution of the loose surface road material. A particular object of the invention is to provide means whereby the machine may be coupled to a tractor or other vehicle for transportation and the draft devices held rigidly so that the machine will follow directly behind the hauling vehicle. It is also an object of the invention to provide means whereby the draft bars may be permitted to rock relative to the other elements of the machine when the machine is in use and the machine thus permitted to accommodate itself to gross irregularities in the road surface and effect a proper distribution of the road material. It is also an object of the invention to provide means whereby when the machine is being transported it may be supported upon ground-engaging rollers and the material distributing elements held out of contact with the road surface. These stated objects, and other objects which will appear incidentally in the course of the following description, are attained in such an apparatus as is illustrated in the accompanying drawings and will be hereinafter fully described, and the invention resides in certain novel features which will be particularly defined in the appended claims.

30 In the drawings:

Figure 1 is a plan view of a road machine embodying the present invention.

Figure 2 is a side elevation of the same.

35 Figure 3 is an enlarged detail perspective of the means for locking the draft bars rigidly to the frame of the machine or permitting them to move relative thereto.

40 Figure 4 is an enlarged plan view, partly in horizontal section of the structure shown in Figure 3.

Figure 5 is a section on the line 5—5 of Figure 4.

Figure 6 is a detail section on the line 6—6 of Figure 2.

45 Figure 7 is an enlarged transverse section on the line 7—7 of Figure 1.

Figure 8 is a section on the line 8—8 of Figure 7.

50 Figure 9 is an enlarged detail side elevation of the means for connecting the mold boards to the right hand runner.

Figure 10 is a section on the line 10—10 of Figure 9.

55 Figure 11 is a section on the line 11—11 of Figure 9.

Figure 12 is an enlarged section on the line 12—12 of Figure 9.

Stated generally, the machine embodying the present invention comprises a pair of runners 1, reversely disposed mold boards 2 arranged between and carried by the runners, and forwardly converging draft bars 3 which are attached at their rear ends to the runners and are provided at their front ends with an eye or clevis 4 whereby they may be connected with a tractor or other hauling vehicle. The runners are connected adjacent their front and rear ends by braces or cross bars 5, the cross bars and the draft bars being angle bars, while the runners are in the form of I-beams having shoes 6 on their under sides, the ends of the shoes being turned upwardly, as shown clearly in Figure 2, to facilitate the passage of the runners over the road. The clevis or draft eye 4 is fitted through a tube welded to the under side of a plate 7 which is firmly secured to the meeting front ends of the draft bars. The rear ends of the draft bars are connected with the runners near the centers thereof and are attached to brackets 8 which are welded upon the upper sides of the runners and project upwardly therefrom, as shown clearly in Figure 6, the runners being attached to the upwardly extending members of the brackets by bolts 9 inserted through said members and through the vertical webs of the draft bars so that the draft bars may have pivotal movement with respect to the runners and the brackets, as will be readily understood.

The left hand draft bar passes over the front mold board, as shown clearly in Figure 1, and both draft bars pass above the front brace or cross bar 5. Welded or otherwise rigidly secured upon the cross bar 5 are brackets 10 which have upstanding webs to each of which is pivotally attached a flat post or short standard 11 having a series of openings 12 therethrough. Secured upon the side of the draft bar immediately above the brace is a guide bracket 13 having a longitudinal slot 14 therein through which the post 11 is engaged and extending through aligned openings, indicated at 15, through the forward ends of the respective guide brackets, and the adjacent draft bars are inserted the shanks 16 of U-bolts 17, expansion springs 18 being wound about the shanks between the draft bars and nuts 19 mounted upon the shanks whereby the tension of the springs may be adjusted and the springs will act constantly to hold the free ends of the U-bolts against the sides of the respective guide brackets or in engagement therewith. Upon referring to Figure 4, it will be

noticed that the free end of the U-bolt is tapered and is adapted to pass through aligned openings in the bracket and the draft bar and through one of the openings 12 in the post 11 so that the draft bar will be held rigidly in a set position relative to the post and the cross bar or brace. When the machine is at work, the U-bolt will be retracted against the tension of the spring 18 so that it will be released from the draft bar and the post 11 and will then be swung about its shank pivotally so that the free end of the bolt will be out of alinement with the openings in the bracket and the draft bar, and the draft bar will be free to move pivotally about the bolt 9 thereby accommodating the vibration or oscillation of the machine as it moves over the road surface and acts upon the loose surface material to distribute the same so that projections will be leveled and hollows will be filled.

The mold board comprises angle bars 20 which extend along the upper edges of the blades and have the blades secured thereto, it being noted that the forward mold board is disposed diagonally with its left hand end in advance of its right hand end and the blade terminating short of the right hand runner, as indicated at 21, while the rear mold board has its right hand end in advance of its left hand end and the blade may terminate short of the left hand runner, as indicated at 22. In actual practice, we provide a supplemental blade which may be used to close the gap 22 or we provide an apron 23 upon the left hand runner whereby the loose road material may be caught and held to work under the edge of the blade and fill depressions along the central portion of the road surface. When the gap 22 is open the surface material working toward the left hand end of the mold board will escape in a very slight ridge along the road which may, under some circumstances, be desirable. At the right hand side of the machine there is provided an apron or shield 24 which may be secured upon the runner but is preferably secured to the rear mold board and arrest the movement of the road material which would work over the side of the road if the apron were not present. This road material is, consequently, directed through the opening 21 to be acted upon by the rear mold board so that the loose surface material will be worked back and forth over the road surface and all hollows in the road will be filled. It is often desirable to arrest the movement of the surface material along the rear mold board and for that purpose we provide an auxiliary apron 25 which is secured to the rear mold board by a bracket 26 having one arm bolted to the mold board and its other arm bolted to the apron, the bracket being reinforced by a bracing plate 27 at its angle, as will be understood upon reference to Figure 1. The bracket 26 may be set at any desired point along the rear mold board so that the movement of the material will be arrested as desired and will accumulate in the angle defined by the apron and the mold board to be worked into the hollows in the road as the machine progresses. The mold boards are braced by a longitudinal bar 28 secured to and extending between the mold boards parallel with the left hand runner and by supplemental braces 29 secured to the longitudinal brace and to the mold boards, as shown in Figure 1.

Upon each runner is secured a frame 30 which rises from the runner and in which are mounted means for adjusting the mold boards and the transporting wheels, these frames being connected by a transverse brace 31 so that rigidity

will be imparted thereto. In the right hand frame 30, adjacent the ends of the same, are posts 32 which extend between the subjacent runner and the top of the frame and are rigidly secured thereto by welding or otherwise. A bracket 33 is rigidly secured upon the left hand end of each mold board, as by welding or other suitable means, and this bracket carries a sleeve 34 which is loosely fitted around the adjacent post 32. A nut 35 is welded or otherwise rigidly secured on the side of the tube or sleeve 34 and a screw 36 is swiveled in the top of the frame 30 and has its lower portion inserted through and engaged in said nut 35 whereby if the screw be rotated the nut will be caused to ride up or down thereon and thereby raise or lower the end of the mold board, as will be understood. To effect rotation of the screw a hand wheel 37 is secured upon the upper end of the same, as shown. It will be readily understood upon reference to Figure 1 that the right hand ends of the mold boards are brought close together by their converging relation and upon said ends is secured a bracket 38 coupling the ends of the mold boards and against the outer face of said bracket is placed a plate 39 having sleeves 40 at its ends which slidably encircle posts 41 fixed to and extending between the runner and the top of the frame 30. The plate 39 is provided with an opening at its center which receives a bushing or spacer 42, and a bolt 43 is inserted through said bushing and an opening provided therefor in the coupling bracket 38 whereby the plate 39 will be pivotally supported upon the bracket, the head 44 of the bolt spanning the bushing and bearing against the outer side of the plate 39 and a nut 45 being mounted upon the bolt at the inner side of the bracket, as clearly shown in Figures 10, 11 and 12, whereby the parts will be firmly held together. A nut 46 is welded upon the outer side of the plate 39 and a screw 47 is inserted through and engaged with said nut, a hand wheel 48 being secured upon the upper end of the screw whereby to rotate the screw and effect vertical adjustment of the right hand ends of the mold boards in the same manner as the left hand ends have been said to be adjusted. It will be noted, however, that a pivotal connection between the right hand ends of the mold boards and the supporting frame is provided so that if the surface or grade of the road should be such that the forward ends of the two runners are not on the same horizontal plane, there will be no twisting strain placed upon the frame of the machine.

We provide ground wheels 49 which are brought into action when the machine is to be transported, one of said wheels being provided at the center of the left hand runner and the other of said wheels being provided at the rear of the center of the right hand runner but close to the center. These ground wheels may be of any preferred detail form and are generally provided with pneumatic tires, as indicated. The spindle of each wheel is attached to a plate 49 which is provided at its ends with rings or sleeves 50, encircling posts 51 extending between the runner and the top of the frame 30, and a nut 52 is welded or otherwise rigidly secured upon the said plate 49. A screw 53 is engaged through the nut 52 and has a smooth upper portion rotatably mounted in a sleeve 54 which rests at its lower end on the top of the adjacent frame 30. A hand wheel 55 is secured to the upper extremity of the screw 53 and rests upon the upper end of the sleeve 54 so that if the hand wheel be rotated, the nut 52 will be caused to ride up or

down upon the screw 53 and the wheel 48 thereby raised out of contact with the ground or lowered into engagement with the ground and the runner relatively lifted out of contact with the ground. The machine may then be coupled to a tractor or other hauling vehicle and drawn to the place of use. An antifriction thrust bearing 56 is provided around the screw and held against the under side of the frame 30 by a lock nut 57. After the nut is set it is held against turning by a cotter pin 58.

When the machine is in operation, the ground wheels 48 are, of course, raised above the surface of the road and the machine travels upon the runners 1, the depth of the cut being determined by the adjustment of the mold boards vertically relative to the runners, and this adjustment of the mold boards may be very easily and rapidly accomplished by the rotation of the adjusting screws as has been described. When the mold boards have once been adjusted they will remain in the set position until the screws are again deliberately rotated. When the draft bars have been locked in a set position, the machine will be then adjusted to be carried by the ground wheels and may be coupled to a tractor without being apt to oscillate to such a degree as would bring the ends of the runners into contact with the road surface with possible digging thereinto.

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

1. A road machine of the type set forth including parallel runners, mold boards disposed between the runners and converging toward one of the runners, and an apron mounted upon the rear mold board between the ends of the same.

2. A road machine comprising parallel runners, mold boards disposed between and carried by the runners and converging toward one of the runners, a bracket adjustably secured upon the front side of the rear mold board, and an apron secured to the inner end of the bracket and projecting forwardly from the mold board on a line parallel with the runners.

3. A road machine of the type described comprising parallel runners, mold boards carried by and between the runners, a cross bar secured to the runners, draft bars pivoted at their rear ends upon the runners and converging forwardly therefrom and extending over said cross bar, posts erected on the cross bar, and means carried solely by the draft bars for directly engaging the posts and releasably locking the draft bars to said posts.

4. A road machine of the type described comprising parallel runners, mold boards carried by and between the runners, a cross bar secured to the runners in advance of the mold boards, brackets secured upon the runners, draft bars having their rear ends pivoted to said brackets and converging forwardly therefrom, posts secured to and rising from the cross bar and having openings therethrough, guide brackets on the draft bars engaged around the posts, locking devices pivotally mounted in the brackets and the draft bars and having terminals engageable

through the brackets and the openings in the posts to hold the draft bars in set relation to the posts, and yieldable means resisting release of said locking members.

5. In a road machine of the type described, the combination of a runner, a ground-engaging element, a plate secured upon the ground-engaging element, a sleeve on said plate, a post on the runner encircled by said sleeve, a nut on the plate, and a screw swiveled above the runner and engaged through said nut whereby rotation of the screw will effect vertical adjustment of the ground-engaging element.

6. In a road machine of the type described, the combination of a runner, mold boards converging toward the runner, a coupling bracket secured on the ends of the mold boards, a coupling plate pivotally mounted upon said bracket, a nut on the side of said plate, posts rising from the runner at opposite sides of the nut, sleeves on the plate slidably encircling the posts, and a screw swiveled above the runner and engaged through the nut whereby to effect vertical adjustment of the mold boards relative to the runner.

7. A road machine of the type set forth comprising parallel runners, and mold boards extending transversely between the runners and converging toward one runner, the mold boards having their spaced ends connected with one runner and held against turning movement relative thereto and having their converging ends pivotally connected with the other runner whereby the second runner may have vertical rocking movement without distorting the mold boards.

8. A road machine of the type set forth comprising a pair of runners, mold boards extending transversely between the runners, and having their ends connected with one runner at points spaced from each other longitudinally thereof, said mold boards converging toward the other runner, a coupling rigidly connecting the converging ends of the mold boards, and a pivotal connection between said coupling and said other runner.

9. A road machine of the type set forth comprising parallel runners, mold boards extending transversely between the runners, the mold boards being connected with one runner in spaced relation to each other longitudinally thereof and held against turning movement relative thereto and converging toward the other runner, means for pivotally connecting the converging ends of the mold boards with the other runner, and means for adjusting the mold boards vertically relative to the runners.

10. A road machine comprising a runner, front and rear mold boards extending transversely from the runner and converging away from the runner, a bracket carried by the rear mold board and adjustable longitudinally thereof, and an apron secured to the bracket and projecting forwardly from the rear mold board.

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