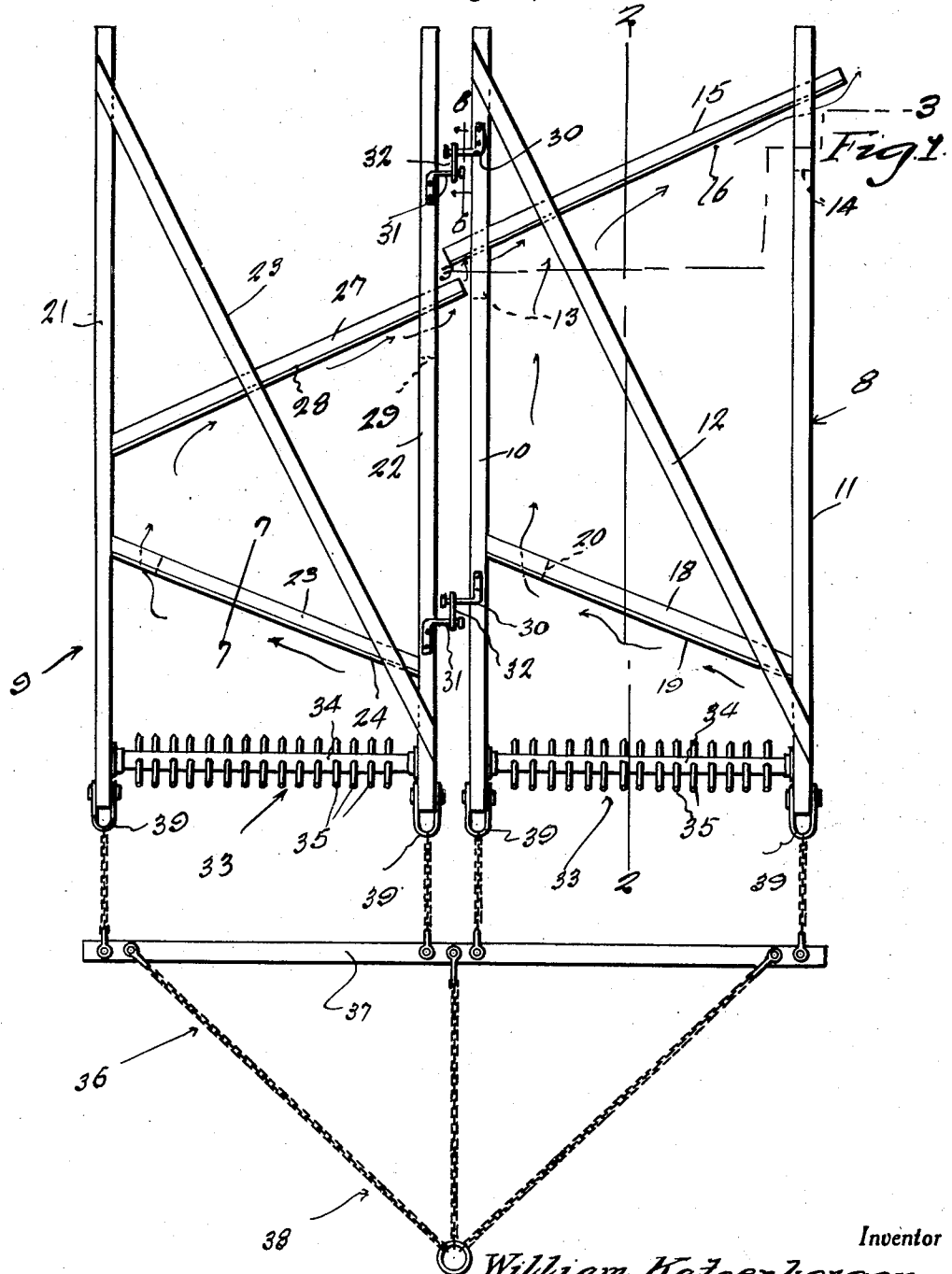
June 12, 1934. W. KATZENBERGER 1,962,990

ROAD DRAG

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Fig. 2.

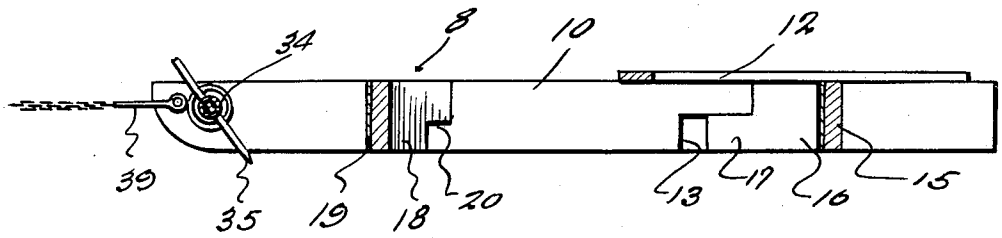


Fig. 4.

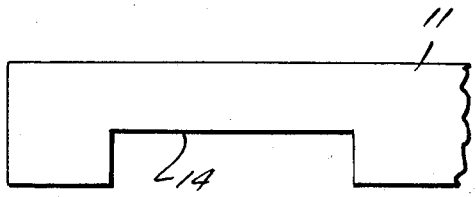


Fig. 3.

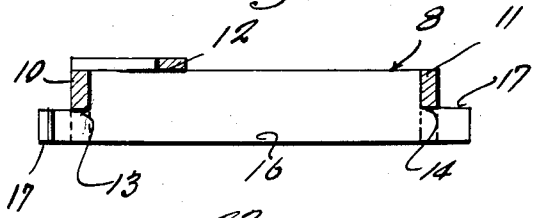


Fig. 7.

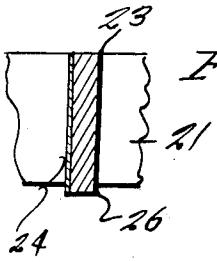


Fig. 5.

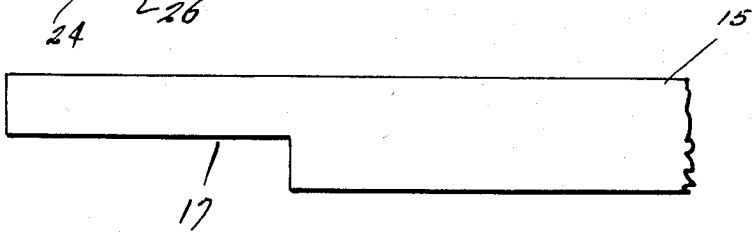
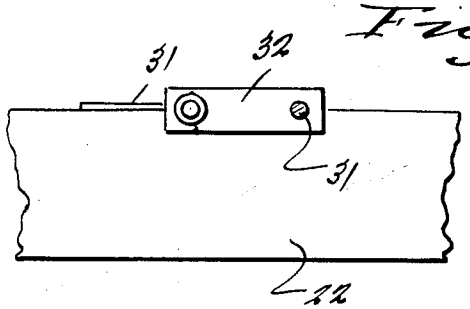


Fig. 6.



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ROAD DRAG

William Katzenberger, Industry, Ill.

Application August 22, 1933, Serial No. 686,283

6 Claims. (Cl. 37—151)

This invention relates to a surface levelling and conditioning structure generally referred to in the trade of the art as a road drag, the same being particularly adapted for resurfacing and grading the traction surface of a dirt road or highway.

Although the invention cannot be visualized as an innovation in view of the well developed state of the prior art to which it relates it is nevertheless a revelation of a structurally improved assembly characterized by certain features of refinement and distinction as to provide what may be typified as mechanically correct and systematically balanced whereby to promote more satisfactory and sensitive operation and to attain the results of expediency and simplicity sought after.

Stated otherwise I have evolved and produced a duplex or sectional road drag whose features of accommodation and adaptation are aptly fitted in type and style to provide requisite finishing and smoothing of the road surface and to uniformly distribute the loose dirt and gravel to practically eliminate unsatisfactory pits and irregular rut formations.

Briefly stated I have perfected a two-section road drag adapted to be drawn by suitable horse or motive power wherein the sections are joined together by flexible connecting means in spaced parallelism to be moved along opposite halves of the road in opposite direction, that is first down the road and then back the road, and wherein said sections are provided with coordinated surface conditioning members acting progressively to feed the loose dirt first outwardly toward the gutter then inwardly toward the center or crown of the road. Other features and advantages will become more readily apparent from the following description and drawings.

In the drawings:

Figure 1 is a top plan view of a duplex type of road drag constructed in accordance with the principles of the present invention illustrating by arrows the manner in which the dirt is handled.

Figure 2 is a longitudinal sectional view taken approximately on the plane of the line 2—2 of Figure 1.

Figure 3 is a section taken on the irregular line 3—3 of Figure 1.

Figure 4 is a fragmentary section of one of the longitudinal rails or runners.

Figure 5 is an elevational view of one end portion of one of the scraping blades.

Figure 6 is a detail section taken on the plane of the line 6—6 of Figure 1.

Figure 7 is a section on the line 7—7 of Figure 1.

As shown in Figure 1 there are two independently operable jointly acting sections or units 8 and 9 these being of somewhat duplicate construction but arranged for special coordinated progressive cooperation. They are in the nature of longitudinally elongated frames disposed in spaced parallelism. The section 8 may be said to embody a pair of spaced parallel longitudinal runners of wood or appropriate material 10 and 11, these being joined together by a diagonal brace 12. Adjacent its rear end the runner 10 is provided with a dirt accommodation notch 13 which is in effect a passage through which the dirt is shunted as the drag is drawn along the surface of the road. At a point spaced in staggered relation and arranged farther rearwardly the runner 11 is provided with a similar discharge notch 14. A somewhat diagonally disposed scraping blade 15 is associated with these notches 13 and 14. This blade is in the form of a strip of wood or equivalent material having its face protected by a metal plate or covering 16. The opposite end portions are formed with extensions 17 which extend through and beyond the slots or notches 13 and 14. This may be described as the rear blade. It is progressively coordinated with respect to the rearwardly converging or diagonally disposed front blade 18 whose working face is protected by a metal plate 19. At the left hand end this blade 18 is formed with a notch 20 through which the loose dirt passes in the direction of the arrows as indicated. It will be noted that while the blade 15 extends through and beyond the notches 13 and 14 of the two rails the blade 18 is confined between the rails. These two rails 11 and 12 constitute confining members for the dirt.

A unit or section 9 is approximately the same in fundamental construction but slightly different and will be described separately to avoid confusion. It comprises a pair of companion spaced parallel longitudinal runners 21 and 22 joined by a brace 23. The foremost or forward blade is differentiated by the numeral 23 and has its facing protected by a metal plate 24. Like the blade 18 this front blade 23 is formed at the left hand end with a clearance notch or passage 25 for the dirt. It is to be noted as shown in Figure 7 that the vertical height of this blade 23 is such that the lower edge portion thereof

depends slightly below the rail 21 as indicated at 26. The rear blade, whose lower edge is flush with the lower edges of the two rails 21 and 22 is denoted by the numeral 27 and is in diverging relationship with respect to the front blade 23. It is also faced with metal 28 and the left hand thereof is secured to the inner face of the rail 21 while the right hand end extends through and beyond a notch 29 in the inner rail or runner 22. This end portion overlaps the adjacent end portion of the first named blade 15 as shown in the drawings. The two runners 10 and 22 are fastened together through the instrumentality of suitable flexible unions. These may be described as comprising L-shaped brackets 30 and 31 fastened to the respective runners and hingedly connected together by a tie plate or cleat 32. There are two of these couplings or unions joining both sections 8 and 9 together in operative relationship and permitting the desired accommodation for compensating action between these two sections 8 and 9.

At their forward or front ends both sections are provided with scarifiers 33. Each scarifier embodies a transverse rod 34 carrying rearwardly inclined rake teeth or pins 35.

The numeral 36 designates a draft appliance embodying an equalizer bar 37 and a plurality of draft chains 38 and connecting chains between the equalizer bar and crevices 39 on the front end of the runners.

For sake of distinction section 9 is known as the outer section and the section 8 as the inner section. The drag action within the limit of each section is somewhat the same though the two sections are coupled together so that the dirt picked up by the outer section 9 is delivered into the section 8 by way of the registering notches 29 and 13 and the overlapping end portions of the two rearmost blades 27 and 15 respectively. The arrows in the drawings will serve to trace the movement of the dirt within the limit of the two sections and the transfer of the dirt from the outer to the inner section. This feature of transition of the dirt from one to the other section is important in that it serves to provide the desired progressive and completeness of action.

The gist of the invention resides in the provision of a duplex road drag whose outer section comprises spaced parallel runners with a pair of coacting converging or diagonally disposed blades 23 and 27 arranged therebetween and rearwardly of the scarifier 33; together with the complemental inner section 8 embodying the dirt confining runners 10 and 11 and the more widely spaced front and rear runners 18 and 15 and the registering notches 29 and 13 and the overlapping ends of the two blades 27 and 15 associated with these two notches. Thus the dirt on the outer or marginal portion of the road travels rearwardly along the surface 24 of the blade 23, passes through the notch 25 and is picked up by the blade 27. Then it is shunted laterally or somewhat rearwardly and transversely through the notch 29 in the runner 22. Here it is picked up by the projecting end portion 17 of the blade 15 and carried through the notch 13, moving along the face 16 of this blade and is discharged through the final notch 14. At the same time the dirt in the section 8 travels rearwardly and somewhat transversely along the face of the front plate 18 and discharges through the notch 20, is picked up by the blade 15 and passes out through the notch 14.

A careful consideration of the foregoing description in conjunction with the illustrative drawings will enable the reader to obtain a clear understanding of the purpose, features and advantages, the explicit construction, and the invention as hereinafter claimed.

It is to be understood that minor changes in shape, size, relative proportions, and materials may be resorted to in practice without departing from the spirit of the invention or the scope of the invention as now claimed.

Having thus described my invention, what I claim as new is:

1. A road drag of the class described comprising a drag section embodying a pair of spaced parallel runners provided at their forward ends with a multiple scarifying device, a front levelling blade arranged transversely between corresponding portions of said runners and formed at its outer end with a dirt passage notch, the outermost runner being provided adjacent its rear end with a notch, the innermost runner being provided with a similar notch arranged rearwardly of said first named notch, and a second rear levelling blade arranged diagonally between said runners and in diverging relationship with respect to the first named runner, the opposite end portions of said rear blade being reduced and extending through and beyond the adjacent runner notches in the manner and for the purposes described.

2. A road drag of the class described comprising a pair of companion sections, each section embodying spaced parallel runners for confining the loose dirt therebetween, pairs of forward and rear levelling blades between the runners of the respective sections, the runners and blades being apertured and arranged to progressively feed the dirt rearwardly and inwardly toward the crown of the road as the drag is moved over the surface of the road.

3. A road drag of the class described comprising a pair of companion sections, each section embodying spaced parallel runners for confining the loose dirt therebetween, pairs of forward and rear levelling blades between the runners of the respective sections, the runners and blades being apertured and arranged to progressively feed the dirt rearwardly and inwardly toward the crown of the road as the drag is moved over the surface of the road, and coupling devices securing the innermost runners of the two sections together, said coupling devices being of a flexible nature to permit the desired relative freedom of movement between the two sections.

4. A road drag of the class described comprising a pair of complemental drag sections, each section embodying spaced parallel longitudinally extending dirt confining surface engaging runners, draft means secured to the front ends of said runners, multiple toothed individual scarifying devices arranged transversely between the forward ends of the runners of the respective drag section, L-shaped brackets secured to the innermost runners of the two sections, cleats adjoining the respective brackets together to provide flexible connections between the two sections permitting said sections to have requisite freedom of movement with respect to each other, means between the runners of the outermost section for delivering the dirt progressively rearwardly and outwardly and then rearwardly and inwardly, means between the adjacent runners of the two sections causing the dirt to be conveyed

from the outer section between the runners of the inner section, means between the rear end portion of the inner section for conveying dirt transferred rearwardly and inwardly toward the crown portion of the road, the innermost runner of the inner section being provided with a discharge opening for said dirt.

5. A road drag of the class described comprising a pair of complemental drag sections, each section embodying spaced parallel longitudinally extending dirt confining surface engaging runners, draft means secured to the front ends of said runners, multiple toothed individual scarifying devices arranged transversely between the forward ends of the runners of the respective drag section, L-shaped brackets secured to the innermost runners of the two sections, cleats adjoining the respective brackets together to provide flexible connections between the two sections permitting said sections to have requisite freedom of movement with respect to each other, means between the runners of the outermost section for delivering the dirt progressively rearwardly and outwardly and then rearwardly and inwardly, means between the adjacent runners of the two sections permitting the dirt to be conveyed from the outer section between the runners of the inner section, means between the rear end portion of the inner section for conveying dirt transferred rearwardly and inwardly toward the crown portion of the road, the innermost runner of the inner section being provided with a discharge opening for said dirt, means between the front portions of the two runners of the inner section for delivering the dirt rearwardly and outwardly and releasing the dirt to be picked up by the dirt levelling means between the rear end portions of said runners.

6. A road drag of the class described comprising a pair of distinguishable companion inner and outer drag sections, each section embodying spaced parallel longitudinally extending runners, a multiple toothed transversely arranged scarifying device located between the front ends of the runners of the respective sections, draft means connected with the front end of the runners, a front levelling blade arranged transversely and inclined rearwardly between the runners of the outer section, said blade being provided at its outer end with a dirt clearance notch, a rear levelling blade arranged transversely between the rear end portions of the runners of said outer section and disposed in diverging relationship to the front blade and located to pick up the dirt discharged through the clearance opening in said front blade, the inner runner of the outer section being provided adjacent its rear end with a dirt discharge notch and the adjacent end of the cooperating blade extending through and beyond said notch, the two runners of the inner section being provided with dirt conveying notches, the innermost notch being in registration with the notch in the inner runner of said outer section and the notch in the inner runner of the inner section being disposed rearwardly thereof, a rearwardly inclined rear blade arranged between the runners of said inner section having its end portions extending through and beyond the complemental notches, the inner ends of the second named and third named blades being disposed in overlapping relationship, and a fourth blade constituting the front blade for the inner section, said fourth blade being arranged diagonally between the frontal portions of the two runners of the inner section and being provided at its outer end with a dirt accommodation notch.

WILLIAM KATZENBERGER.