Aug. 7, 1945. M. S. ARIENS 2,381,330

ROAD SURFACE WORKING MACHINE

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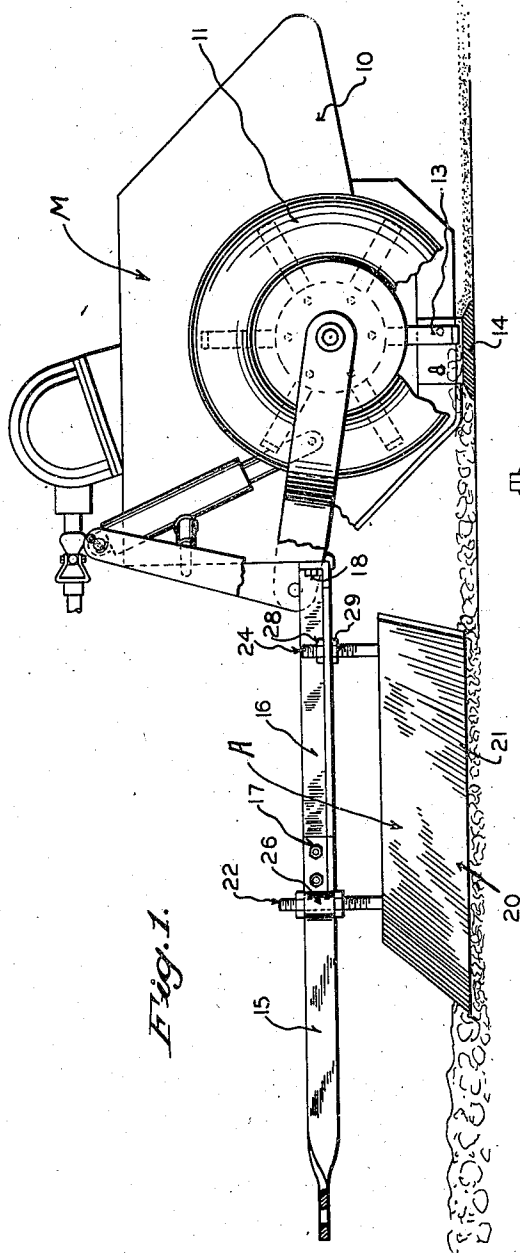



Fig. 1.

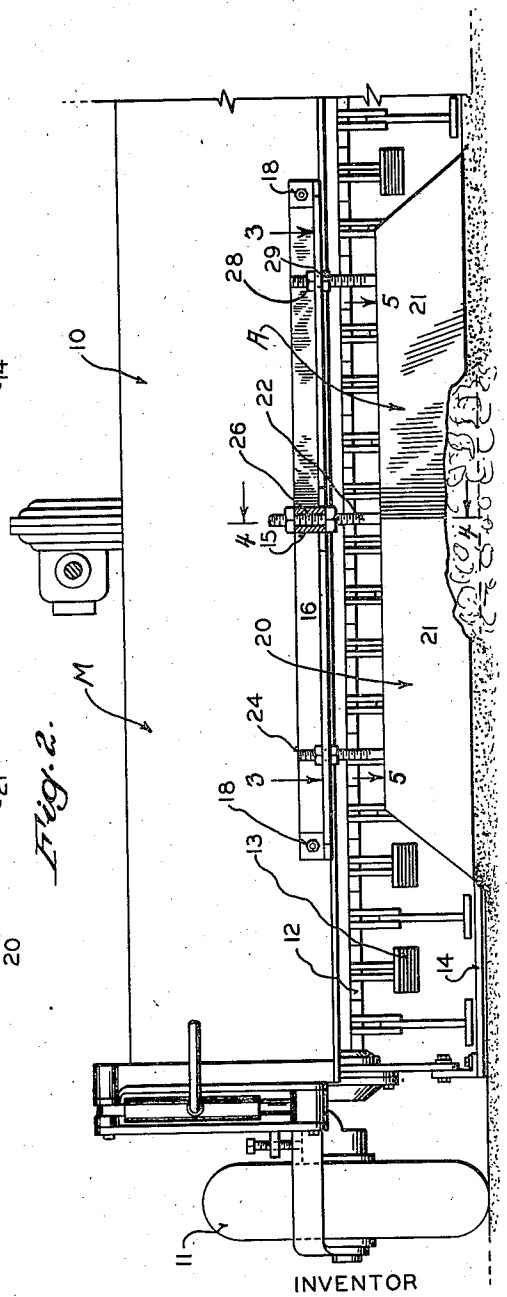



Fig. 2.

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Fig. 3.

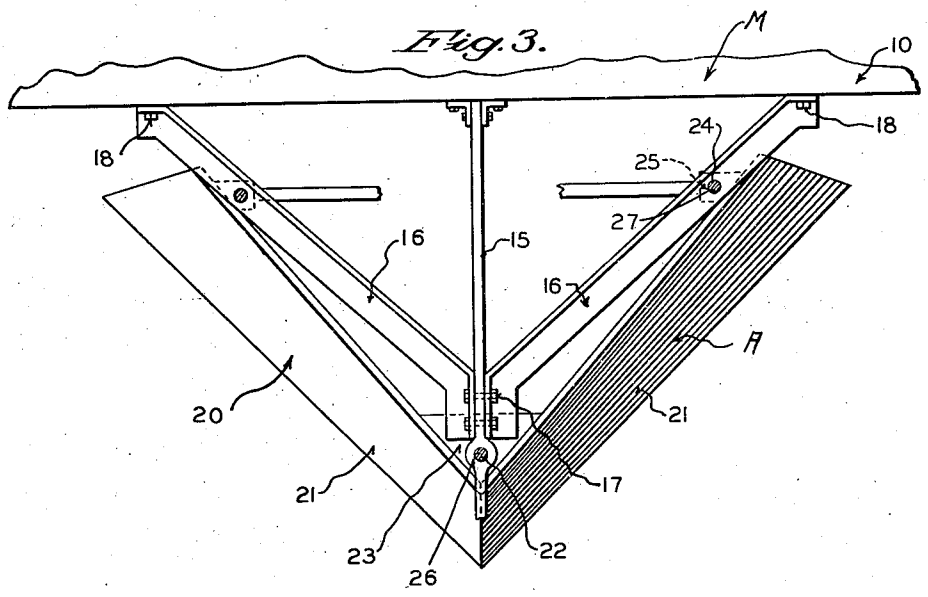



Fig. 4.

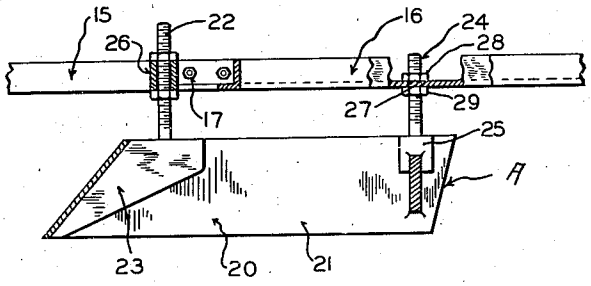
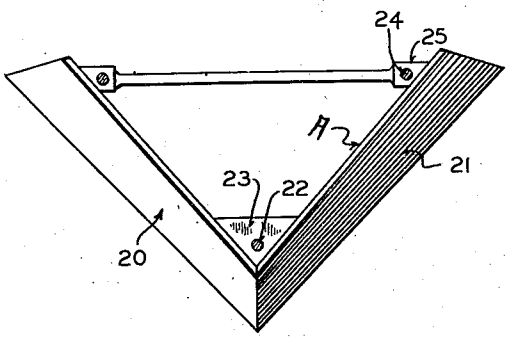



Fig. 5.




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# UNITED STATES PATENT OFFICE

2,381,330

## ROAD SURFACE-WORKING MACHINE

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Application October 6, 1941, Serial No. 413,813

2 Claims. (Cl. 94—44)

This invention appertains to road surface-working machines, and is an improvement on my pending applications Serial No. 298,639 and 336,207, filed, respectively, October 9, 1939, and May 20, 1940, the latter application having been issued as Patent No. 2,357,374 on September 5, 1944.

During the preparation of the roadway, windrows of the material to be acted upon by the above-mentioned machines are piled on the roadway, and sometimes a hard center ridge is left in the roadway. With my above-mentioned machines, only a small number of the rotary hammers or tines, as the case may be, engage the material, and, hence, the material is not effectively worked. Great difficulty is experienced in leveling the windrows or center ridge and in properly distributing the material from the windrow or ridge equally over the roadway.

This is particularly true in machines of my type where the material passes over an adjustable leveling blade and is pulverized by rotary hammers acting on the material as the same passes over the blade. Obviously, it is essential that the material be evenly distributed throughout the length of the leveling blade to permit the same to be effectively acted upon by the hammers.

It is, therefore, one of the primary objects of my invention to provide means associated with the front of a road surface-working machine for quickly leveling the windrow or center ridge and distributing the material substantially throughout the entire width of the machine, whereby all of the working elements of the machine can effectively act on the material and pulverize and distribute the same over the roadway.

Another salient object of my invention is the provision of an attachment for road surface-working machines embodying a V-shaped scraper blade mounted directly on the draft or pull rigging of the machine in front of the rotary road-working members, the blade functioning to quickly scrape and level the road and distribute the material toward the sides of the road and to said rotary earth-working members.

A further important object of my invention is the provision of means for associating the scraping blade with the draft or pull rigging, whereby the blade can be easily and quickly adjusted up or down relative to the road surface.

A still further object of my invention is to provide means whereby a road-scraping blade can be readily and quickly associated with or removed from a standard road surface-working machine.

With these and other objects in view, the invention consists in the novel construction, arrangement, and formation of parts, as will be hereinafter more specifically described, claimed, and illustrated in the accompanying drawings, in which drawings:

Figure 1 is a side elevation view of a road surface-working machine with my improved appliance associated therewith, parts of the machine being shown broken away and in section.

Figure 2 is a fragmentary front elevational view of a road surface-working machine, showing my scraping blade incorporated therewith.

Figure 3 is a horizontal sectional view taken substantially on the line 3—3 of Figure 2, looking in the direction of the arrows, illustrating one form of the means employed for connecting the scraper blade with the machine.

Figure 4 is a vertical sectional view taken on the line 4—4 of Figure 2, looking in the direction of the arrows.

Figure 5 is a view similar to Figure 3, but taken on the line 5—5 of Figure 2, looking in the direction of the arrows, the view being on a smaller scale than Figure 3.

Referring to the drawings in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter M generally indicates a road surface-working machine, and A my novel appliance or attachment therefor.

The machine M is of the type shown in my pending application Serial No. 336,207, and, hence, the same will not be described in detail. It is to be noted, however, that the same includes a protecting housing or casing 10, which is adapted to extend transversely across a roadway. This casing is rigidly and strongly constructed and forms the main frame of the machine, and the frame is supported by independently adjustable ground wheels 11.

The frame also carries the longitudinally extending operating shaft 12, and the shaft can be driven in any preferred manner, such as from the power take-off of the pulling tractor (not shown). This shaft carries a plurality of swinging hammers 13, which are adapted to work upon the material as the material passes over the leveling blade 14. Thus the material to be compacted rides between the blade 14 and the hammers 13. This blade is also supported from the frame of the machine.

The front of the frame of the machine has

rigidly connected thereto the centrally disposed, forwardly extending tongue or beam 15, which is adapted to be connected to the drawbar of the tractor. This tongue or beam 15 is braced by angle bars or side beams 16, and these beams 16 are rigidly connected, as at 17, to the opposite sides of the tongue or central beam 15 adjacent the forward end thereof. The side brace beams 16 diverge from the front of the central beam or tongue 15 and extend back toward the frame or casing 10 of the machine. The rear ends of these side beams or angle bars 16 are rigidly secured, as at 18, to the frame or casing 10.

My attachment A is adapted to be associated with and carried by the central beam or tongue 15 and the side brace beams 16. While I have shown my attachment incorporated with a particular type of road surface-working machine, it is to be understood that the attachment can be used with other types of road-making machines, such as machines embodying rotary tines, as shown in my prior Patent No. 2,025,494, issued December 24, 1935.

The attachment A includes a V-shaped scraper blade 20, and this V-shaped scraping blade 20 includes diverging side wings 21, and the entire scraping blade 20 is arranged in front of the frame and under the draft rigging, as is clearly shown in Figures 1 and 3. The point of the scraping blade 20 is arranged directly at the center of the machine M.

The scraping blade 20 is preferably connected to the draft rigging in such a manner that the same can be adjusted up and down toward and away from the road surface, and I also prefer to make this means of a simplified type whereby the scraping blade can be easily and quickly connected to the draft rigging.

As an example of one means for adjustably connecting the scraping blade 20 with the draft rigging, I can employ a front upstanding standard or rod 22. This rod is rigidly connected to or formed on a solid central brace block 23, which is arranged at the front of the scraper blade directly in rear of the point thereof. This block also engages the inner faces of the wings 21. Similar upstanding standards or rods 24 can be carried by the rear ends of the wings 21, and these rods 22 are also rigidly secured to or formed on blocks 25. These blocks 25 are formed on or secured to the inner faces of the wings 21. All of the standards or rods 22 and 24 are threaded, for a purpose which will be more fully set forth.

The center beam or tongue 15 of the draft rigging can be provided with an eye or sleeve 26 to receive the front standard or rod 22, and the flanges of the angle bars or side brace beams 16 can be bored to provide guide openings 27 to receive the standards or rods 24. All of the standards or rods have threaded thereon upper and lower nuts 28 and 29, and by adjusting the nuts into firm engagement with the beams of the draft rigging, the scraper blade 20 can be firmly secured to said rigging. Also, by adjusting the nuts, the scraper blade can be raised and lowered.

In use of my attachment, the scraper blade is arranged in front of the operating shaft 12, the hammers 13 and the leveling blade 14 in the manner shown and described, and during the pulling of the machine, the blade will effectively act on the windrows and cut and level hard ridges in the road, and the wings 21 of the blade will distribute the material from the windrows or ridges toward the sides of the road, and as the wings angle back toward the leveling blade 14 and terminate short of the ends of the machine, the material from the windrows or hard ridges will pass over the leveling blade. Thus, the hammers 13 can effectively act upon and pulverize this material.

Hence, my attachment cooperates directly with the adjustable leveling blade 14 and the swinging hammers 13 in that the material is equally distributed throughout the length of the blade 14, so that the hammers can evenly pulverize the material. The scraper blade 20 can be adjusted up or down relative to the leveling blade 14 to suit varying conditions. Where ridges are left in a roadway, the scraper blade 20 is placed on the machine and used to level these ridges and the material from the ridges will be pulverized by the side hammers 13. However, a certain amount of the material will escape under the blade 20, and this material will be acted on by the intermediate hammers as the material passes over the leveling blade 14.

From the foregoing description it can be seen that I have provided an exceptionally simple and durable appliance for effectively bringing about the cutting and leveling of hard ridges and windrows in a roadway and for permitting the material from the ridges and windrows to be effectively pulverized.

Changes in details may be made which do not depart from the spirit and scope of my claims, and what I claim as new is:

1. A forwardly projecting draft rigging for a road surface working machine comprising, a frame including a central beam and diverging brace beams, a V-shaped ridge leveling and scraping blade disposed below the frame for leveling and distributing material throughout the width of the road surface working machine, upwardly extending standards carried by the blade, and means adjustably connecting the standards to the central and side beams.

2. A draft rigging for a road surface working machine comprising, a frame including a longitudinally extending central draft beam projecting forwardly from the surface working machine and side diverging brace beams secured to the central beam, a V-shaped leveling and scraping blade disposed below the frame, a front upwardly extending standard carried by the forward end of the leveling and scraping blade, side upwardly extending standards carried by the rear ends of the leveling and scraping blade, means adjustably securing the front standard to the central draft beam, and means adjustably securing the side standards to the side brace beams adjacent to their rear ends.

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