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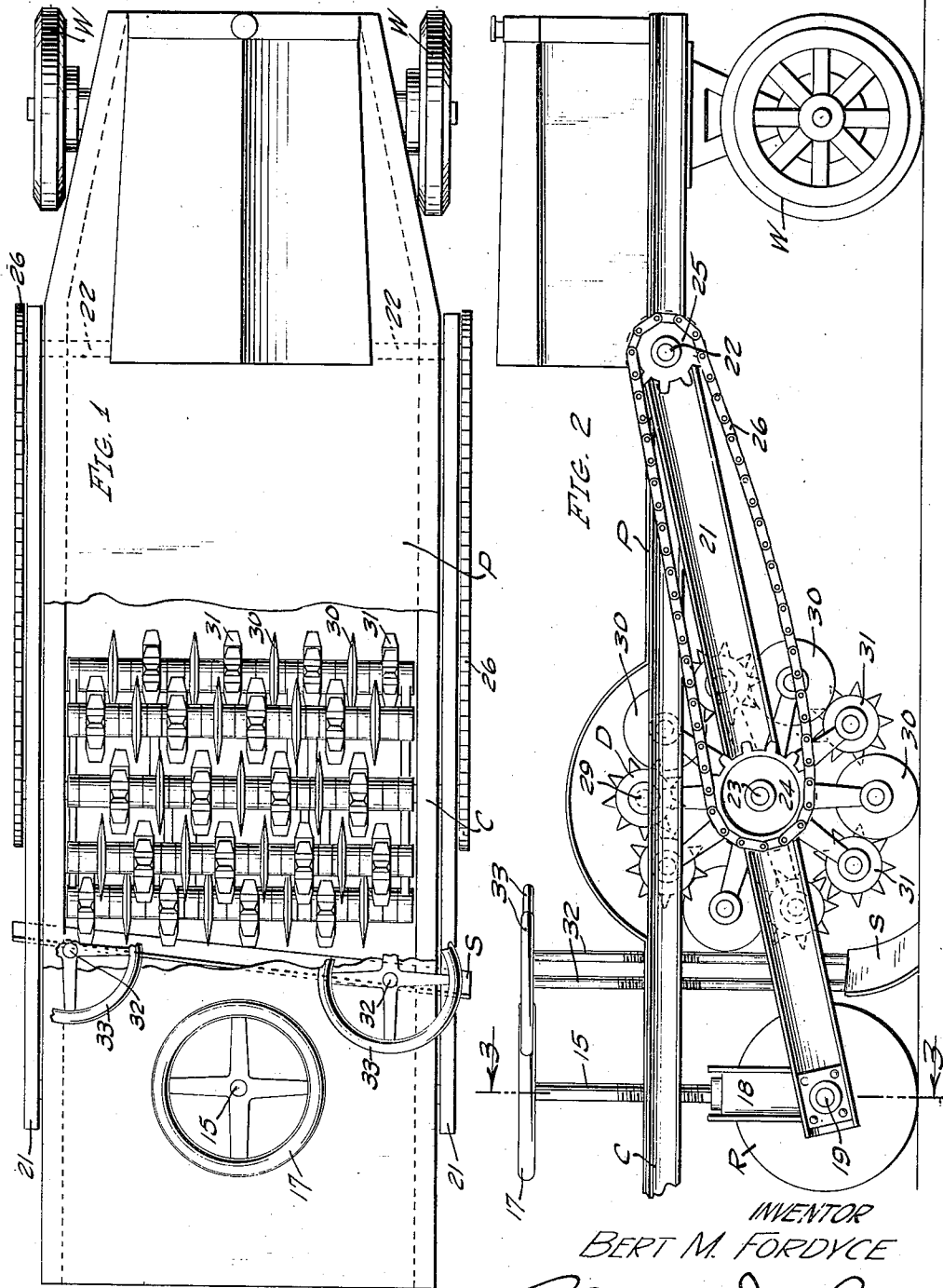
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DISINTEGRATING APPARATUS FOR ROAD SURFACING MATERIALS

Filed July 3, 1928

2 Sheets-Sheet 1



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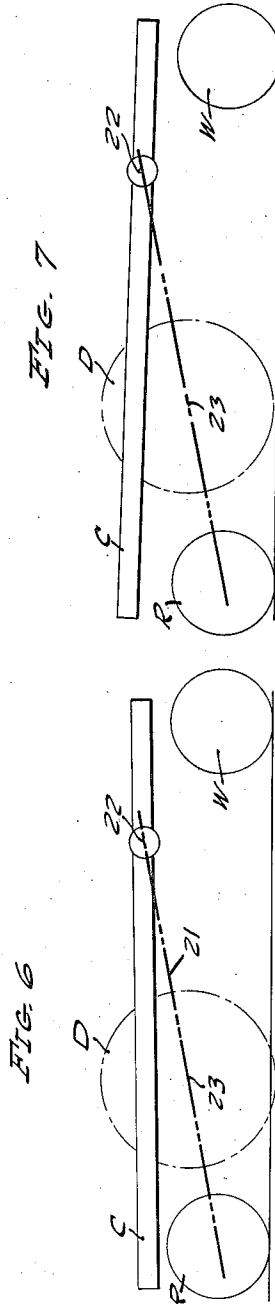
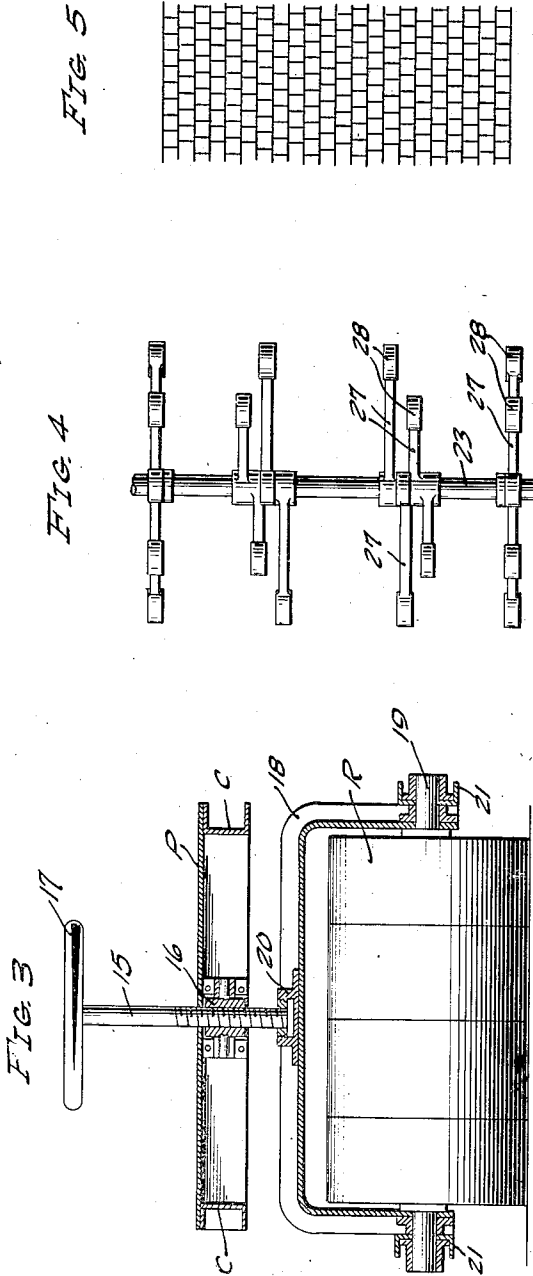
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UNITED STATES PATENT OFFICE

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DISINTEGRATING APPARATUS FOR ROAD-SURFACING MATERIALS

Application filed July 3, 1928. Serial No. 290,257.

My invention relates to and has for a purpose the provision of a relatively simple, inexpensive, and durable apparatus by which concrete, asphalt, macadam or any other paving or surface material may be readily disintegrated as a whole and removed from a street, highway, or road incident to repaving or resurfacing thereof, or disintegrated only in part to remove high spots and other undulation-forming portions for the purpose of smoothing out or leveling the surface of the road or street.

It is also a purpose of my invention to provide a road surface removing apparatus of the above described character which embodies cutting members operable to disintegrate the road paving or surfacing material and a scraping means for removing from the road the material as disintegrated, the cutting members being adjustable to vary the depth of cut to suit the particular material being disintegrated.

I will describe only one form of disintegrating apparatus for road surfacing materials, and will then point out the novel features thereof in claims.

In the accompanying drawings:

Figure 1 is a view showing in top plan one form of disintegrating apparatus for road surfacing materials embodying my invention with a portion of the vehicle platform broken away to reveal the disintegrator;

Fig. 2 is a view showing the disintegrating apparatus in side elevation;

Fig. 3 is a vertical sectional view taken on the line 3—3 of Fig. 2;

Fig. 4 is a plan view of the carriage of the disintegrator shown in Figs. 1 and 2 but with the cutting elements omitted;

Fig. 5 is a fragmentary plan view of a section of road or street as it appears after being acted upon by the disintegrator;

Figs. 6 and 7 are semi-diagrammatic views illustrating the apparatus in side elevation and in two positions of adjustment.

Similar reference characters refer to similar parts in each of the several views.

In carrying out my invention, I provide a motor vehicle comprising a chassis C, the forward end of which is supported by wheels W adapted to be driven from the motor of the vehicle through any conventional mechanism and also capable of being steered to guide the vehicle in its traveling movements. As the driving and steering means for the front wheels constitute no part of my present invention, the construction of such means has not been illustrated. The chassis C supports and is spanned by a platform P, and the rear end of the chassis is supported for rolling movement by means of a roller R capable of vertical adjustment by means of a shaft 15 screw-threaded in a sleeve 16 (Fig. 3) secured to the rear transverse beam of the chassis.

This shaft 15 is provided with a wheel 17 by which the shaft can be rotated in one direction or the other to lower or elevate a U-shaped yoke 18 in which the ends of an axle 19 for the roller R are journaled. A connection 20 between the shaft 15 and the yoke 18 permits the former to be rotated independently of the latter yet maintaining an operative connection between the two to cause them to move vertically together.

A pair of beams 21 are pivoted at their forward ends on a driving shaft 22 operatively connected through any suitable mechanism (not shown) to the motor of the vehicle. The rear ends of the beams 21 are connected to the ends of the axle 19 so as to be movable vertically with the axle under any vertical adjustment of the roller. The beams 21 provide an adjustable support for a disintegrator, designated generally at D. This disintegrator essentially consists of a carriage preferably mounted for rotative movement, and a multiplicity of cutting elements adapted to have cutting engagement with the surface of a road or street in a manner to pro-

duce disintegration of the material of which a road or street is paved.

As shown in Fig. 4, the carriage of the disintegrator comprises a shaft 23, the opposite ends of which are journaled in the beams 21 and provided with sprocket wheels 24 operatively connected to smaller sprocket wheels 25 by endless chains 26, the sprocket wheels 25 being keyed to the shaft 22. The shaft 23 is provided with a plurality of spiders 27 fixed to the shaft and formed at their outer ends with bearings 28 in which axles 29 are journaled.

A plurality of cutting elements 30 and 31 are rotatably mounted on each of the axles 29, and, as shown in Fig. 1, the cutting elements for any one axle are arranged in alternate relation to each other and in staggered relation with respect to the cutting elements of an adjacent axle, all for the purpose of obtaining a prescribed cutting of the surface material of a road or street. The elements 30 are in the form of disks with their peripheries beveled to provide annular cutting edges. The cutting elements 31 are star-shaped in that they are formed with a circular series of teeth having their outer ends beveled to form cutting edges disposed in planes which intersect the planes of the disks.

For the purpose of removing the road surfacing material disintegrated under the action of the disintegrator D, and to the edge of the road or street for subsequent collection, I provide a scraper S arranged in trailing relation to the disintegrator D, as shown in Fig. 2, and supported for vertical adjustment by means of a pair of shafts 32 having screw-threaded connections with the chassis C and provided with wheels 33 by which the shafts may be rotated and thus move upwardly or downwardly within the chassis to elevate or lower the scraper S. As shown in Fig. 1, the scraper S occupies an oblique position with respect to the vehicle in order that under forward traveling movement of the latter it will function to not only scrape the disintegrated material from the road or street but to effect a lateral discharge of the material to one side of the apparatus.

In the operation of the apparatus, it is driven forwardly over the surface of a street or road, the disintegrator D being positively driven from the shaft 22 through the intervening chain and sprocket connections.

The relative diameters of the wheels 24 and 25 are such that the disintegrator revolves at a relatively rapid rate as compared to the forward travel of the vehicle in order that the cutting elements 30 and 31 may engage the surface material of the road or street in such rapid succession as to effectively disintegrate the material as the vehicle advances. In the operation of the disintegrator, rotative movement of the carriage causes the cutting elements 30 and 31 to be driven downwardly

and then upwardly with the cutting edges of the elements penetrating the surface material and thereby cutting the latter. The elements 30 function to cut the material along lines extending in the direction of travel of the vehicle, while the elements 31 cut the surface material along transverse lines and at such frequent intervals as to produce in conjunction with the cuttings of the elements 30 such disintegration of the surface material as to permit ready removal thereof by the scraper S. The cutting effect produced on the material by the cutting elements is illustrated in Fig. 5 and from which it will be observed that a relatively fine disintegration of the surface material is effected.

Under continued forward movement of the vehicle, the scraper S dislodges the disintegrated material from the road or street and delivers it to one side of the apparatus as has been described.

In actual practice, the disintegrator D can be adjusted vertically to vary the depth of cut of the elements 30 and 31 in respect to the surface material of the road or street in order that the surface material may be disintegrated to a predetermined depth.

Such adjustment is effected by manipulation of the shaft 15 which produces in reality an elevation or lowering of the chassis C in respect to the roller R, and as will be observed from consideration of Figs. 6 and 7 vertical adjustment of the chassis C causes the beams 23 to swing vertically about the roller R as a center, and as the disintegrator is carried by the beams its vertical position will be varied in accordance with the adjustment of the beams.

In accordance with the vertical adjustment of the disintegrator D, my apparatus may function to disintegrate all paving material on a road or street incident to a repaving thereof, or it may be employed to merely disintegrate and thus remove the high spots or other undulation-forming portions of the road or street incident to leveling the surface thereof.

Although I have herein shown and described only one form of disintegrating apparatus for road surfacing materials embodying my invention, it is to be understood that various changes and modifications may be made herein without departing from the spirit of the invention and the spirit and scope of the appended claims.

I claim:

1. In an apparatus of the character described, a disintegrator comprising a rotatable carriage having thereon disk-shaped cutting elements and star-shaped cutting elements arranged alternately with respect thereto.

2. An apparatus for disintegrating road surfacing materials, comprising a disintegrating element, means for mounting the ele-

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ment for rotative movement over a road, said
element comprising rotatable means for cut-
ting the surface material of the road on lines
extending substantially lengthwise of the
road, and rotatable means for cutting the sur-
5 face material at intervals along lines extend-
ing substantially transversely of the road-
way, the relative arrangement of said means
being such that by rotating the element the
surface material is cut along intersecting lines
10 and thus divided into sections.

Signed at Anaheim, in the county of
Orange and State of California, this 16th
day of June, 1928.

BERT M. FORDYCE.

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