

April 24, 1934.

H. A. GIFFORD

1,956,385

GRADER ATTACHMENT

Filed Jan. 2, 1932

2 Sheets-Sheet 1

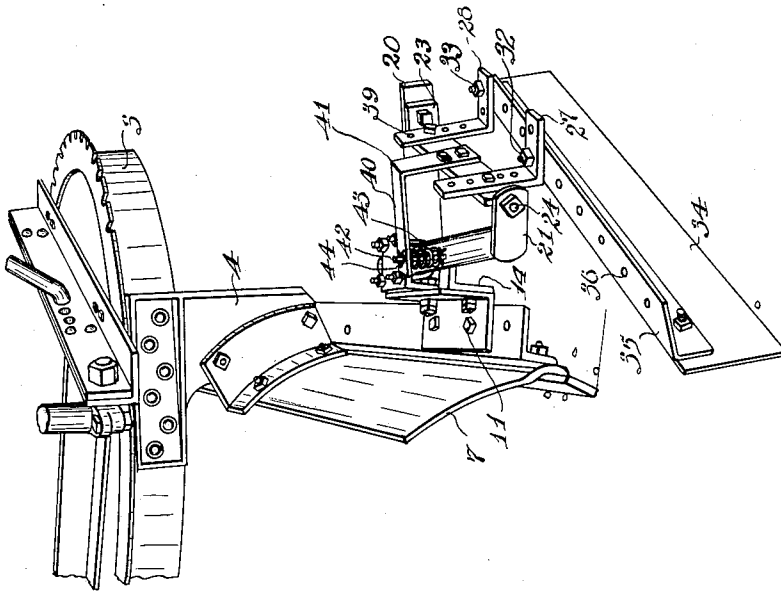


Fig. 2

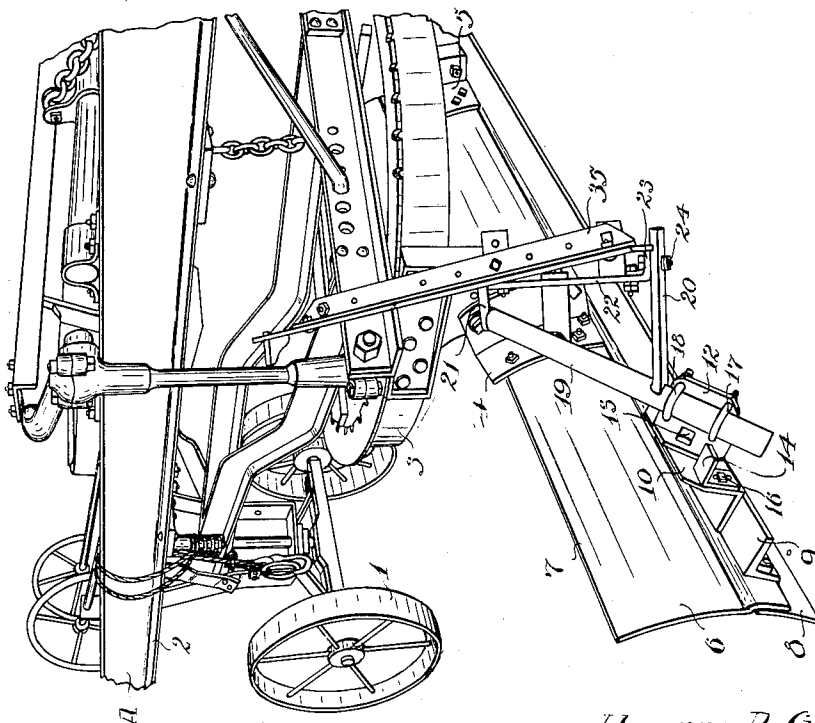


Fig. 1

Inventor

Harry A. Gifford

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W. Johnson

Attorney

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H. A. GIPFORD

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2 Sheets-Sheet 2

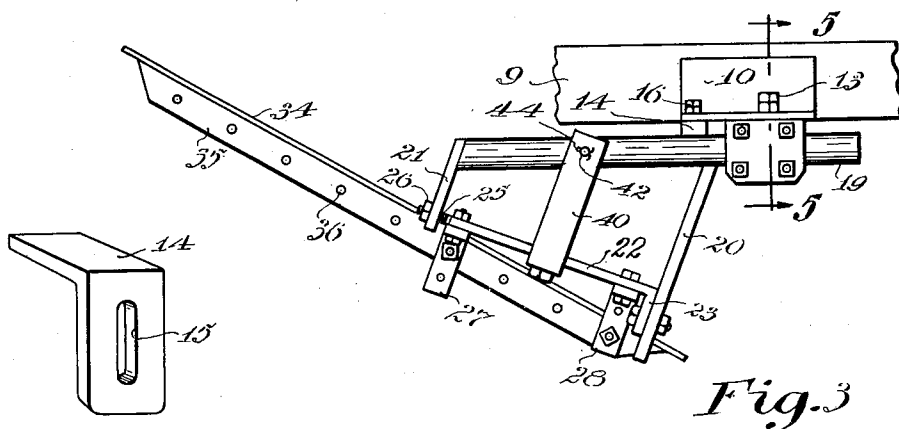


Fig. 3

Fig. 6

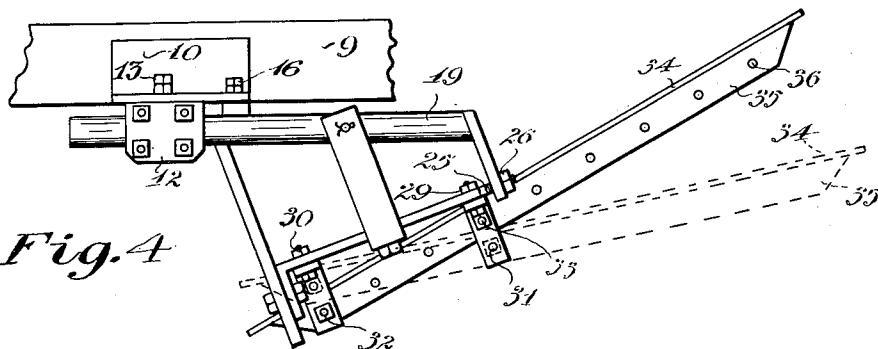


Fig. 4

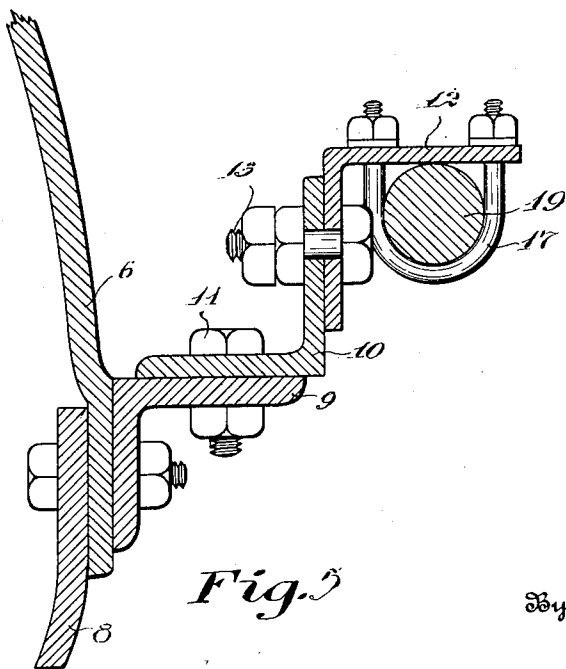


Fig. 5

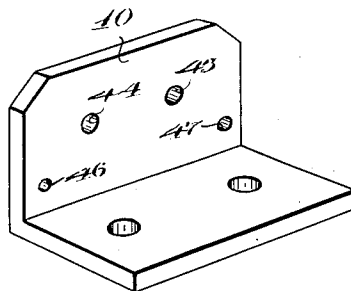


Fig. 7

Inventor

Harry A. Gipford

By

[Signature]

Attorney

UNITED STATES PATENT OFFICE

1,956,385

GRADER ATTACHMENT

Harry A. Gipford, East Ellsworth, Wis.

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3 Claims. (Cl. 37—143)

The present invention relates to a road grader or scraper attachment.

A large portion of the dirt roads in this country are kept in condition by drags or scrapers.

5 These devices all embody more or less the same basic principle of a blade mounted transversely to its direction of travel to scrape the surface of the road over which it travels, scraping off the high spots in the road and accumulating this
10 scraped material in front of the blade to fill in the low spots which the blade passes over.

The scraper blade is usually positioned at an angle slightly less than ninety degrees to the direction of travel and due to this the excess dirt and gravel which accumulates in front of the
15 blade is discharged principally from the rearward end of the blade.

It is customary in scraping or dragging a road with one of these mechanisms to use a blade less
20 than one-half the width of the road to be processed therewith and to travel first along one side of the road and back on the other side thereof, the blade or blades of the mechanism being adjusted to that the end thereof toward the mid-
25 dle of the road is slightly in rear of that toward the edge of the road. This tends to discharge the excess material scraped from the surface of the road in a row at or near the center of the road.

30 Vehicles passing along the road gradually wear down this row of excess material, or, in some instances, the scraper is passed over the rows of material thus formed with the scraper blade slightly raised from the road surface to spread
35 this excess material over a larger area. When this material is left in rows, and even when the extra operation of spreading the material as above set forth is employed, it must be left in said rows until the return trip of the scraper,
40 this row of loose dirt and gravel down the center of the road constitutes a serious hazard. It is well known to automobile drivers that loose sand and gravel encountered at comparatively high speeds may throw a car completely out of control, and it has frequently happened that a car
45 being driven along a road recently processed in the above manner, and encountering this row of loose material in the road, has been thrown out of control with frequently serious results.

50 An object of the present invention is to spread excess material from a road surfacing mechanism over a wider area of road surface than said material would normally occupy.

In order to attain this object, there is provided,
55 in accordance with one feature of the invention, a spreader device mounted on an end portion of a blade of a road processing mechanism to spread material passing beyond the end of said blade.

60 This and other features of the invention will

be more fully brought out in the following description and the accompanying drawings, wherein:

Figure 1 is a view in perspective of a portion of a road scraper showing a spreader device embodying the present invention secured thereto, the spreader being shown as swung to an inoperative position. 65

Figure 2 is a view, also in perspective, showing the blade of the road scraper and a portion 70 of its supporting mechanism, with the spreader device illustrated in Figure 1 lowered to an operative position.

Figure 3 is a plan view of the spreader mounted on a fragment of a scraper blade brace member 75 to project beyond the left end of a scraper blade.

Figure 4 is a view similar to Figure 3 showing the device reversed to project beyond the right end of a scraper blade, the dotted lines showing the spreader adjusted to a different angle. 80

Figure 5 is a vertical sectional view on the line 5—5 of Figure 3, a portion of the scraper blade being broken away.

Figure 6 is a view in perspective of a mounting bracket employed in mounting the spreader device on a scraper blade; and 85

Figure 7 is a view, also in perspective, of another bracket used in mounting the spreader on a scraper blade.

Referring to the drawings in detail, a scraper 90 mechanism, generally referred to by A, and with the construction of which those familiar with the art are cognizant and which it will, therefore, be unnecessary to describe in detail in the present specification, is of a conventional type, comprising supporting wheels, adjustable supporting 95 frame 2, rotatably adjustable intermediate frame 3, and scraper blade supporting brackets 4 and 5. These supporting brackets have secured thereto in a well known manner, a scraper blade 6 comprising an upper portion 7, and a lower or scraping blade 8. An angle iron reinforcing member 9 is secured longitudinally of the blade to add to the rigidity thereof and provides a convenient mounting support for the spreader mechanism 105 comprising the present invention.

Holes are drilled through the horizontal flange of this angle iron member to receive an angle iron supporting bracket 10, which is secured to the reinforcing member 9, as by means of bolts 110 11. Secured to the vertical portion of this supporting bracket 10 is a second angle iron supporting bracket 12, which is bolted to the bracket 10 by means of a bolt 13 so as to be free for swivel movement thereon. An adjustable bracket 115 14 is of an angle iron member and has an elongated slotted opening 15 in one leg thereof. This bracket is secured to the vertical portion of the angle iron supporting bracket 10 as by means of a bolt 16 passing through the slotted opening 120

in the bracket 14 and through a hole drilled in the vertical side of the angle iron supporting member 10. Secured to the swiveled bracket 12 as by means of U-bolts 17 and 18 is a cylindrical supporting arm 19 having laterally disposed arms 20 and 21 fixedly secured thereto as by welding. The arm 20, which is the closer of the two to the bracket 12 is preferably somewhat longer than the outer arm 21 and these arms are mounted so as to be parallel with each other, but at an acute angle with respect to the cylindrical arm 19. A suitable angle for mounting these arms is indicated in Figures 3 and 4.

Supported transversely between the outer ends of the arms 20 and 21 is a strap iron member 22 having one end 23 thereof bent at an angle to lie in contact with the longer arm 20 and is secured thereto as by means of a bolt 24. The other end of this strap iron member 22 is rounded and threaded as at 25 and passes through an opening in the outer arm 21 and is held in position thereon as by means of a nut 26.

A pair of spreader blade supporting brackets 27 and 28 are formed of angularly bent strap iron and are secured to the strap member 22 as by means of bolts 29 and 30. The other arms of these two brackets are drilled with a plurality of openings 31 to receive spreader blade supporting bolts 32 and 33. A spreader blade comprises a sheet 34, of metal, preferably a good grade of steel, with an angle iron brace 35 secured longitudinally of the upper edge thereof. The portion of this brace member at right angles to the spreader blade is provided with a plurality of equally spaced drilled holes 36. Bolts 32 and 33 passing through the openings in the brackets 27 and 28 and through the openings 36 in the brace member 35 secure the spreader blade in position to these brackets.

Angular adjustment of the blade as indicated in dotted lines in Figure 4 may be accomplished by inserting the securing bolts 32 and 33 in different holes 31 in the brackets. The other arms of these brackets 27 and 28 are also provided with a plurality of drilled openings 39 (see Figure 2), so that the vertical position of the spreader blade 34 may be adjusted, as desired. A resilient spreader blade positioning member comprises a strap iron arm 40 bolted to the strap member 22 and being bent at an angle as at 41 (see Figure 2) and having an opening therein which receives a pin 42 rigidly secured to the cylindrical supporting member 19 as by welding.

A coiled compression spring 43 is inserted between the arm 40 and the supporting member 19, a cotter pin 44, or other suitable fastening means, limiting the upward movement of said arm. The strap member 22 is free for a limited pivotal movement of the bolt 24 and the rounded end portion 25 in the arms 20 and 21 so that when the spreader blade strikes an obstruction such as an imbedded rock or a piece of frozen ground the spreader blade may tilt to pass over said obstruction.

It will be noted in Figure 7 that the vertical portion of the supporting bracket 10 is provided with two large openings 44' and 45 to receive the pivot bolt 13 and two smaller openings 46 and 47 to receive the stop bracket supporting bolt 16. When the spreader blade is mounted on the left hand end of the scraper blade 6, as shown in Figures 1, 2, and 3, the pivot bolt 13 is mounted in the right hand opening 45 and the stop bracket bolt is mounted in the left hand opening 46. When it is desired to mount the spreader blade

on the right hand end of the scraper blade 6, the pivot bolt 13 is mounted in the left hand opening 44' and the stop bracket supporting bolt is mounted in the right hand opening 47, as shown in Figure 4. When changing the spreader blade from one end of the scraper blade to the other, it will be necessary to remove the brackets 27 and 28 and reverse their position, as shown in Figure 4. Thus, the spreader blade may be mounted on either end of the scraper blade, as desired, or one may be mounted on each end of the scraper blade and the one which it is not desired to use may be swung to an inoperative position, as shown in Figure 1.

By means of the various adjustments provided, namely, the adjustable stop bracket 14 and the vertical adjustment provided by the plurality of openings 39 in the vertical arms of the scraper blade support brackets 27 and 28, the spreader blade can be mounted at a desired height from the surface of the road, as determined by the lower edge of the scraper blade 8. Also, the angular position of the spreader blade with respect to the scraper blade may be adjusted within the necessary limits by inserting the bolts 32 and 33 in the required holes 31 to spread the excess material discharged from the end of the scraper blade and thereby prevent the formation of the dangerous and undesirable rows of loose gravel and sand ordinarily left after a scraping operation by a mechanism of the type referred to.

The device is simple in installation and operation and adjustment, and where one of these mechanisms is provided on each end of the scraper blade, when once mounted, forms substantially an integral part of the machine.

I claim:

1. An attachment for a road grader having a scraping blade, comprising a bracket adapted to be connected adjacent an end of said scraping blade, an arm pivotally connected to said bracket, a small blade carried by said arm and adapted to be positioned rearwardly of an end of said scraping blade to spread material displaced by said scraping blade, said arm being pivotally movable to swing said small blade upwardly to an inoperative position.

2. An attachment for a road grader having a scraping blade, comprising a bracket mounted adjacent an end of said scraping blade, an arm pivotally mounted on said bracket, adjustable stop means to limit the pivotal movement of said arm, a small blade carried by said arm and disposed at an obtuse angle with respect to said scraping blade, resilient means normally holding said small blade at a slight forwardly sloping position with respect to said road, and permitting rearward displacement of the lower edge of said blade upon striking an obstruction in a surface being scraped, said small blade being positioned rearwardly of an outer end of said scraping blade to spread material displaced by said scraping blade.

3. In combination with a main blade of a grading machine, a small blade located in rear of the inner end of the main blade and projecting beyond the inner end of the main blade for eliminating ridges of material formed by the main blade, and means for supporting the small blade entirely from the main blade, such means including means for adjusting the small blade to any desired angle and any desired height relative to the main blade.