Aug. 2, 1932. W. A. WEIKEL 1,869,446

ROAD MACHINE

Filed July 23, 1931 3 Sheets-Sheet 1

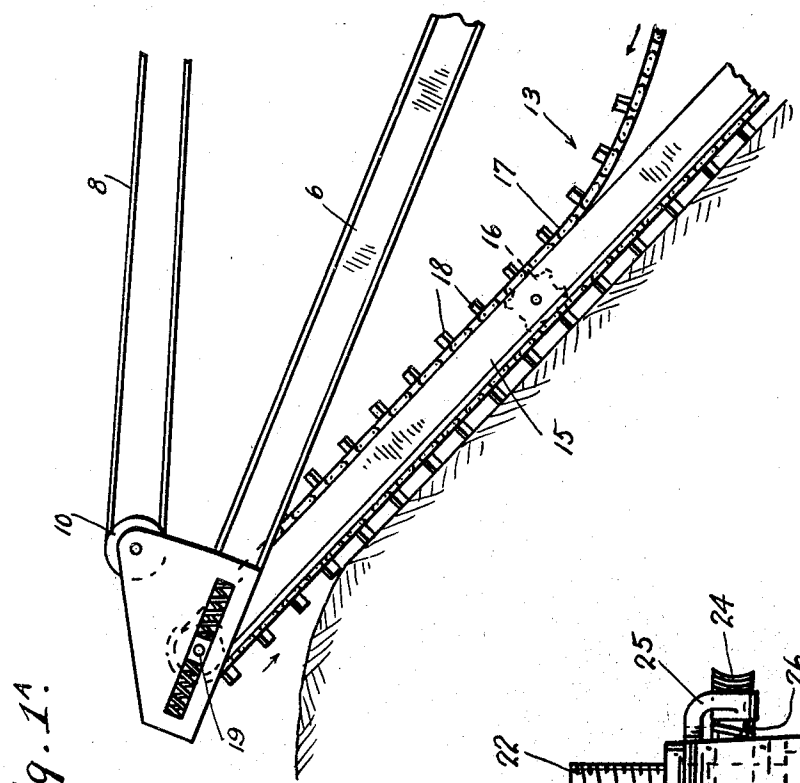


Fig. 1.

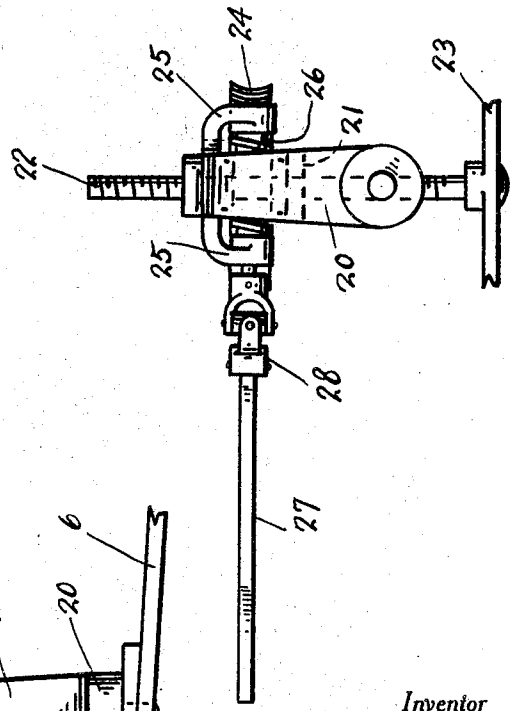


Fig. 5.

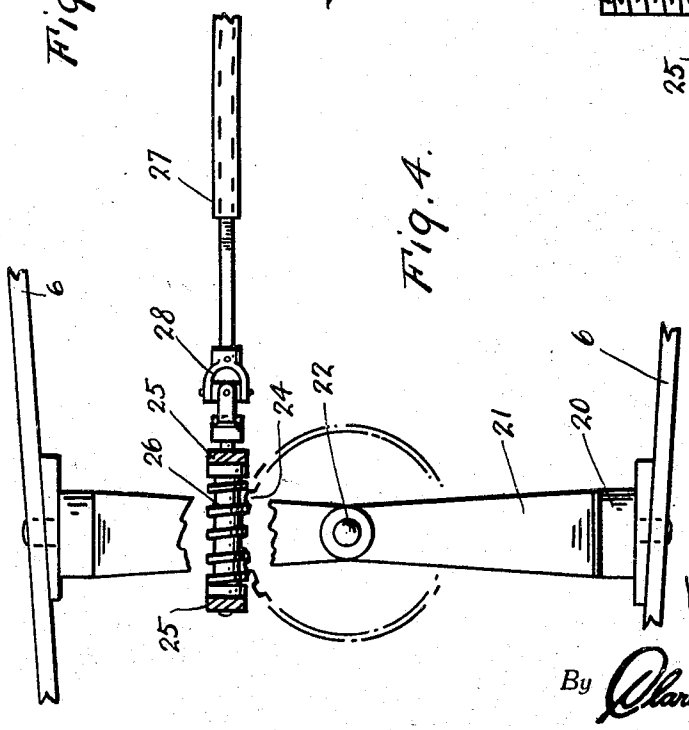


Fig. 4.

Inventor

William A. Weikel

By Clarence A. O'Brien

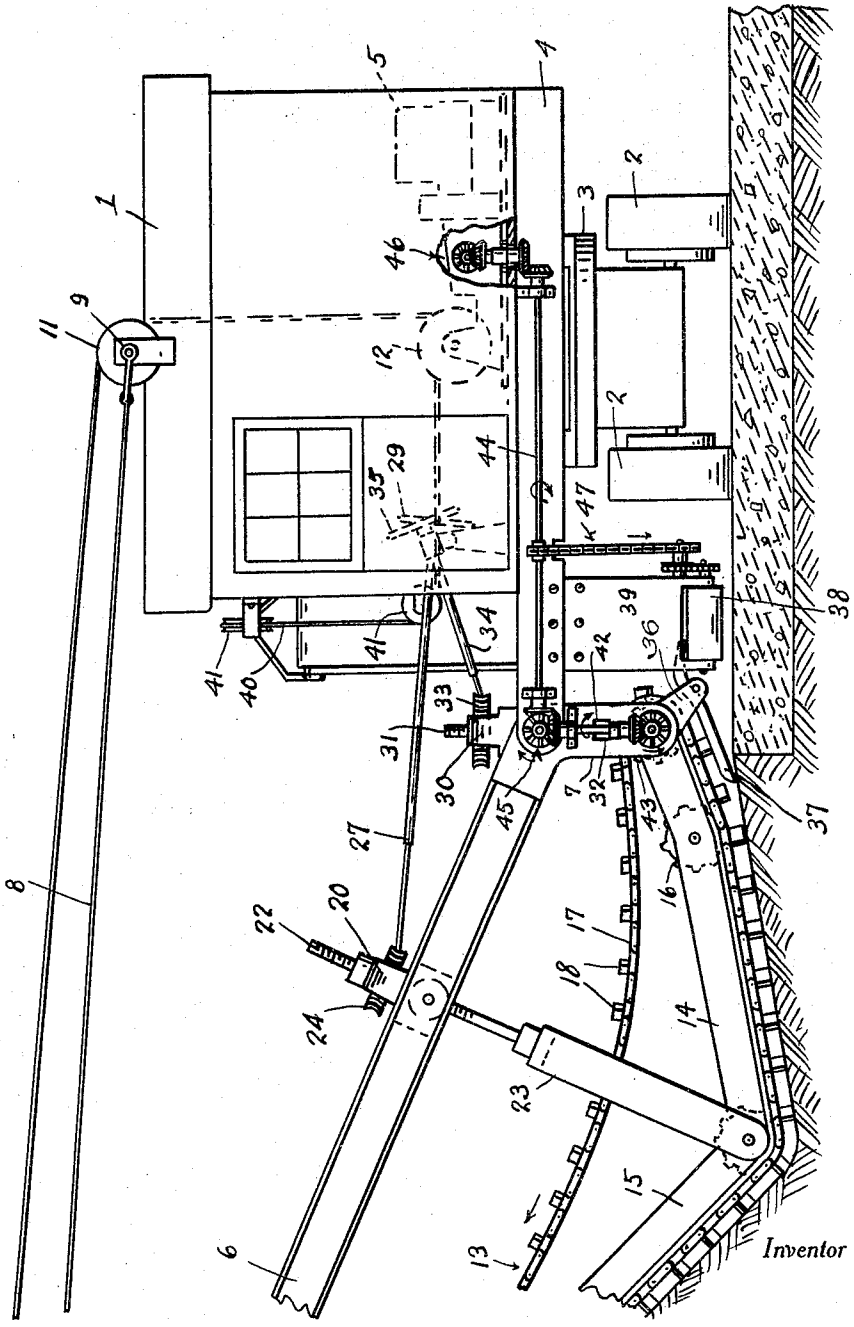
Attorney

Aug. 2, 1932. W. A. WEIKEL 1,869,446

ROAD MACHINE

Filed July 23, 1931 3 Sheets-Sheet 2

Fig. 2.



Inventor

William A. Weikel

By Clarence O'Brien

Attorney

Aug. 2, 1932. W. A. WEIKEL 1,869,446

ROAD MACHINE

Filed July 23, 1931 3 Sheets-Sheet 3

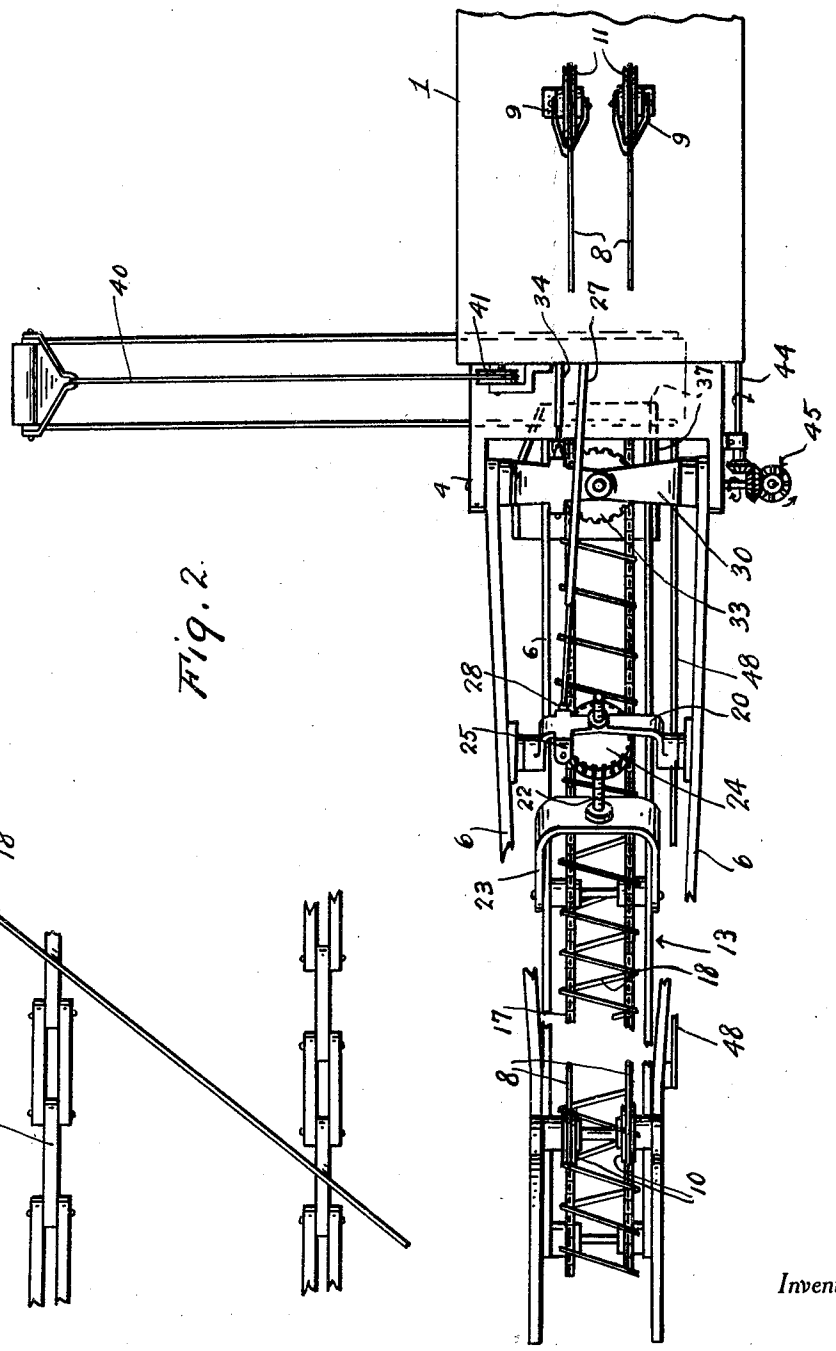


Fig. 2.

Fig. 3.

Inventor

William A. Weikel

By Clarence A. O'Brien

Attorney

Patented Aug. 2, 1932 1,869,446

UNITED STATES PATENT OFFICE

WILLIAM A. WEIKEL, OF POTTSVILLE, PENNSYLVANIA

ROAD MACHINE

Application filed July 23, 1931. Serial No. 552,715.

The present invention relates to new and useful improvements in road machines and has for its primary object to provide, in a manner as hereinafter set forth, a device of this character embodying a novel construction, combination and arrangement of parts through the medium of which a shoulder may be formed adjacent a highway and a bank which may be adjacent said highway may be simultaneously graded or sloped.

Another important object of the invention is to provide a road machine of the aforementioned type embodying a novel construction and arrangement whereby the endless scraper unit constituting an essential portion of the invention may be expeditiously adjusted as desired for sloping the bank at any desired inclination and for forming the shoulder as desired.

Other objects of the invention are to provide a road machine of the character described which will be simple in construction, strong, durable, efficient and reliable in operation and which may be manufactured at low cost.

All of the foregoing and still further objects and advantages of the invention will become apparent from a study of the following specification, taken in connection with the accompanying drawings wherein like characters of reference designate corresponding parts throughout the several views, and wherein:—

Figure 1[A] is a view in rear elevation of a portion of the machine.

Figure 1[B] is a view in rear elevation showing the portion of the machine which is omitted from Figure 1[A].

Figure 2 is a view in top plan of the road machine.

Figure 3 is a detail view showing the position of one of the scraper blades.

Figure 4 is a view partially in bottom plan and partially in section showing the means for adjusting the endless scraper.

Figure 5 is a view in elevation showing the means for adjusting the endless scraper.

Referring now to the drawings in detail, it will be seen that the reference numeral 1 designates a cab which is mounted for rotation on the supporting wheels or the equivalent 2 by a turn table 3. A chassis 4 is disposed between the cab 1 and the turn table 3. The reference numeral 5 designates an internal combustion engine located within the cab 1.

Mounted for swinging movement in a vertical plane on one end of the frame 4 is a boom 6 including side portions or bars, said boom having the downward extension 7 at its inner end. The boom 6 is raised or lowered through the medium of a cable 8 having one end anchored, as at 9, said cable being trained over pulleys 10 and 11 and being windable on a drum 12 which is operatively connected to the engine 5 for actuation thereby. As clearly seen, the pulley 10 is mounted on the free end portion of the boom 6 and the pulley 11 is mounted on the cab 1.

The boom 6 operatively supports an endless scraper designated generally by the reference numeral 13, said scraper 13 including a pair of comparatively short inner side members 14 hingedly mounted between the lower end portions of the extension 7 of the boom 6 and a pair of comparatively long outer side members 15 pivotally connected to the members 14. Sprockets 16 are provided in pairs between the members 14 and 15 of the endless scraper 13 and said sprockets are operatively engaged with the lower flights of the endless chains 17. Diagonally disposed scraper blades 18 are mounted on the chains 17 for engagement with the ground. The leading end of the blades 18 may be toothed to facilitate cutting through the ground when the machine is in operation. As clearly seen in Figure 1[A] of the drawings, the upper end of the endless scraper 13 is slidably supported on the boom 6, as indicated at 19.

A substantially inverted U-shaped bracket 20 extends between the side members or bars constituting the boom 6 and extending between the side portions of said bracket is a bar 21. A screw shaft 22 is operable through the bar 21 and the bracket 20 and has its lower end rotatably connected to a yoke 23. The lower end of the yoke 23 is pivotally connected to the members 14 and 15 of the

endless scraper 13 at the hinged joint of said members. A worm gear 24 is threadedly mounted on the screw shaft 22 between the bracket 20 and the bar 21. Bearings 25 are provided on the bracket 20 and journaled in said bearings is a worm 26 which is operatively engaged with the worm gear 24. A telescopic sectional shaft 27 has one end connected with the worm 26 by a universal joint 28 and mounted on the other end of the shaft 27 and located within the cab 1 is an actuating wheel 29. By actuating the worm gear 24 in a manner to raise or lower the yoke 23, the angle between the members 14 and 15 of the endless scraper 13 may be varied as desired for forming the shoulder and for sloping the bank at any desired inclination. The reference numeral 30 designates a substantially inverted U-shaped bracket mounted on the boom 6 at the inner or hinged end of said boom. A screw shaft 31 is operable through the bracket 30 and has rotatably connected to its lower end a yoke similar to the yoke 23 which, in turn, is connected at its lower end to the inner ends of the members 14. The innermost pair of the sprockets 16 are fixed on a shaft which extends through vertical slots 32 provided therefor in the depending portions 7 of the boom 6. A worm gear 33 is operatively mounted on the screw shaft 31 and, when actuated, constitutes means for raising and lowering the inner end of the endless scraper 13. A sectional telescopic shaft 34 has one end connected by a universal joint similar to the joint 28 to a worm similar to the worm 26 which is operatively engaged with the worm gear 33. Fixed on the other end of the shaft 34 within the cab 1 is an actuating hand wheel 35. Extending downwardly and inwardly from the inner end portions of the members 14 of the endless scraper 13 is a pair of arms 36 which support an inclined chute 37. It will be noted that the inner end portions of the members 14 extend upwardly at a slight angle sufficient to raise the scraper blades 18 in a manner to clear the lower end of the chute 37. An endless conveyor 38 is supported by any suitable means as at 39, on the frame 4, said endless conveyor extending forwardly and upwardly and having its lower end portion disposed transversely beneath the upper or discharge end of the chute 37 to receive the material from said chute. The conveyor 38 is mounted for vertical swinging movement and is adjustable through the medium of a cable 40 trained over suitable pulleys 41 and operatively connected with the upper end of the conveyor, said cable 40 being windable also on the drum 12. The conveyor 38 constitutes means for loading the material into a vehicle located forwardly of the machine.

The reference numeral 42 designates a vertically disposed shaft mounted on the depending extension 7 of the boom 6 and having splined on its lower portion a beveled gear fixed on one of the projecting end portions of the shaft which drives the chains 17. A shaft 44 is mounted on the frame 4 and has one end operatively connected to the shaft 42 by suitable gears designated generally at 45. The other end of the shaft 44 is operatively connected to the transmission of the engine 5 by a suitable shaft and gear connection designated generally by the reference numeral 46. The endless conveyor 38 is operatively connected with an intermediate portion of the shaft 44 through the medium of a chain and sprocket connection designated generally by the reference numeral 47. A plate 48 is mounted closely adjacent the rear side of the endless scraper 13 to prevent dirt from spilling over the graded slope or shoulder.

When the machine is in use, the diagonally disposed blades 18 travel beneath the sprocket wheels 16 and scrape the dirt from the slope and shoulder adjacent the highway over the chute 37 and deposit the same on to the endless conveyor 38 which carries the material forwardly and upwardly and deposits said same in a vehicle located beneath the discharge end of the conveyor. By operating the hand wheels 29 and 35 the inclination of the shoulder and the slope may be regulated as desired and, as before stated, the entire endless scraper may be swung upwardly or downwardly through the medium of the cable 8 connected to the boom 6. An important feature of the invention resides in the construction and arrangement whereby the angle of the endless scraper may be varied as desired to form the shoulder or the slope at any inclination which may be desired.

It is believed that the many advantages of a road machine constructed in accordance with the present invention will be readily understood, and although the preferred embodiment of the invention is as illustrated and described, it is to be understood that changes in the details of construction and in the combination and arrangement of parts may be resorted to which will fall within the scope of the invention as claimed.

What is claimed is:—

1. A road machine comprising a mobile support, a boom mounted on the support, an endless scraper operatively mounted on the boom, said scraper including inner and outer hingedly connected side members, sprockets mounted on the side members, endless chains trained on the sprockets, scraper blades mounted on the chains, means pivotally connecting the inner side members, at their inner ends to the inner end of the boom, means adjustably connecting the hingedly connected ends of the side members to the boom, remotely controlled means for actuating the adjustment and means for actuating the endless scraper.

2. A road machine comprising a mobile support, a boom mounted for vertical swinging adjustment on the support, means for swinging the boom on the support, an endless scraper operatively mounted on the boom, said scraper including inner and outer hingedly connected side members, sprockets mounted on the side members, endless chains trained on the sprockets, scraper blades mounted diagonally on the chains, means connecting the inner side members, at their inner ends, to the inner end of the boom for swinging and vertical movement on said boom, means adjustably connecting the hingedly connected ends of the side members to an intermediate portion of the boom, and means slidably connecting the outer ends of the outer members to the free end portion of the boom, and means for actuating the endless scraper.

3. A road machine comprising a mobile support, a boom mounted for swinging movement in a vertical plane on the support, an endless scraper operatively mounted on the boom, said scraper including inner and outer hingedly connected side members disposed at an angle with respect to each other, sprockets rotatably mounted on the side members, endless chains trained on the sprockets, scraper blades mounted on the chains, means connecting the inner members, at their inner ends, to the inner end of the boom for swinging and vertical sliding movement, means adjustably connecting the hingedly connected ends of the side members to the boom for varying the angle between said inner and outer side members, means slidably connecting the outer ends of the outer side members to the free end portion of the boom, an endless conveyor mounted on the support adjacent the inner end of the endless scraper, a chute disposed beneath the inner end portion of the endless scraper and extending therefrom over one end portion of the endless conveyor for carrying material on to said endless conveyor, means for actuating the endless conveyor, means for actuating the endless scraper.

4. A road machine comprising a mobile support, a boom mounted for swinging movement in a vertical plane on the support, an endless scraper operatively mounted on the boom, said scraper including inner and outer hingedly connected side members disposed at an angle with respect to each other, sprockets rotatably mounted on the side members, endless chains trained on the sprockets, scraper blades mounted on the chains, means connecting the inner members, at their inner ends, to the inner end of the boom for swinging and vertical sliding movement, means adjustably connecting the hingedly connected ends of the side members to the boom for varying the angle between said inner and outer side members, means slidably connecting the outer ends of the outer side members to the free end portion of the boom, an endless conveyor mounted on the support adjacent the inner end of the endless scraper, a chute disposed beneath the inner end portion of the endless scraper and extending therefrom over one end portion of the endless conveyor for carrying material on to said endless conveyor, means for actuating the endless conveyor, means for actuating the endless scraper, manually operable means connected to the first named means for raising or lowering the inner end of the endless scraper, and manually operable means connected to the second named means for raising or lowering the intermediate portion of the endless scraper.

In testimony whereof I affix my signature.

WILLIAM A. WEIKEL.