Aug. 2, 1927.

D. ATKINS, JR., ET AL.

1,637,673

DITCH MAINTAINING DRAG

Filed July 19, 1926

2 Sheets-Sheet 1.

Fig. 1.

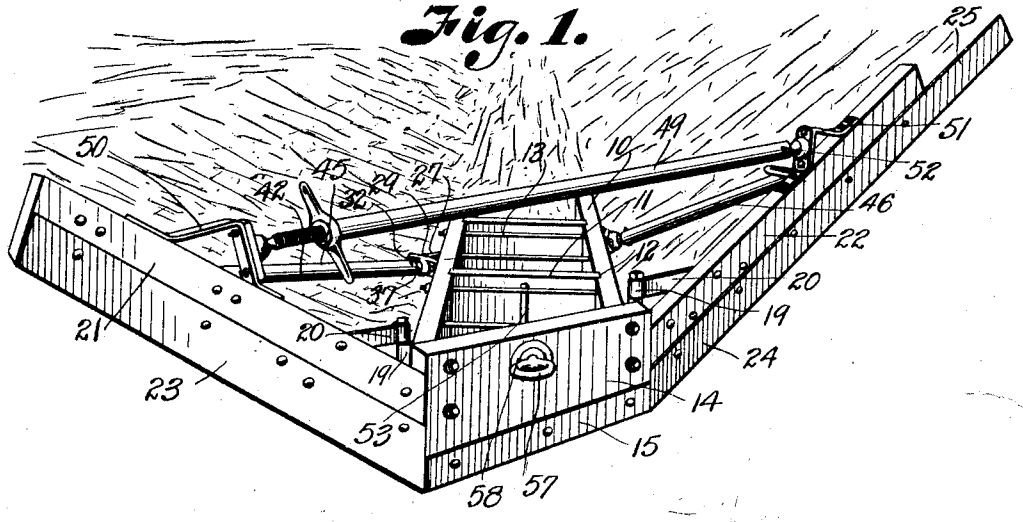
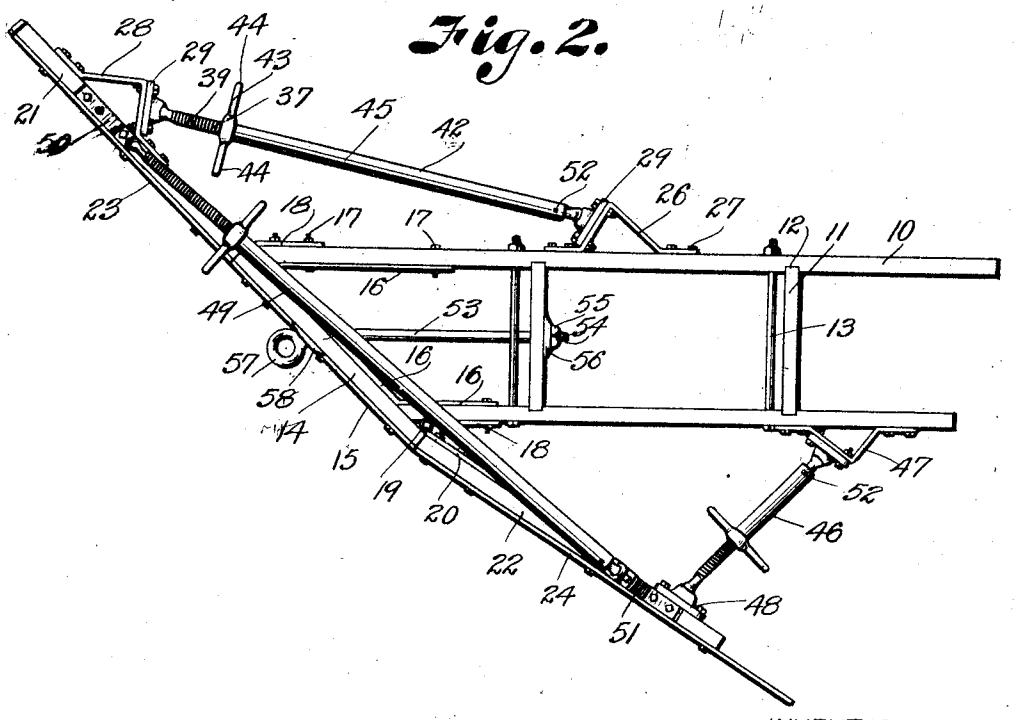


Fig. 2.



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Fig. 3.

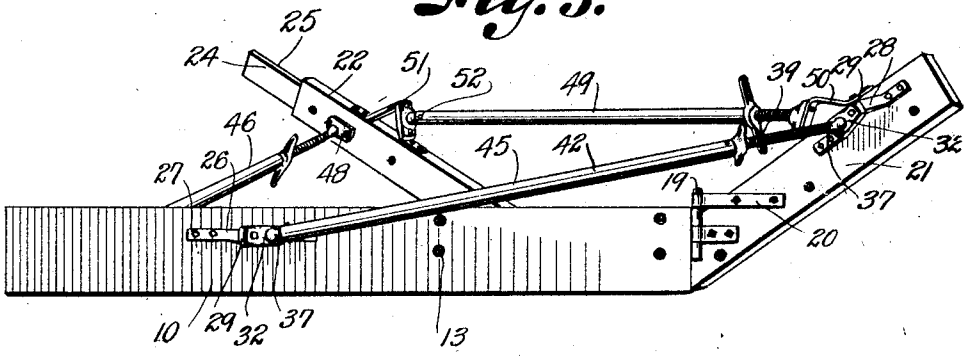


Fig. 4.

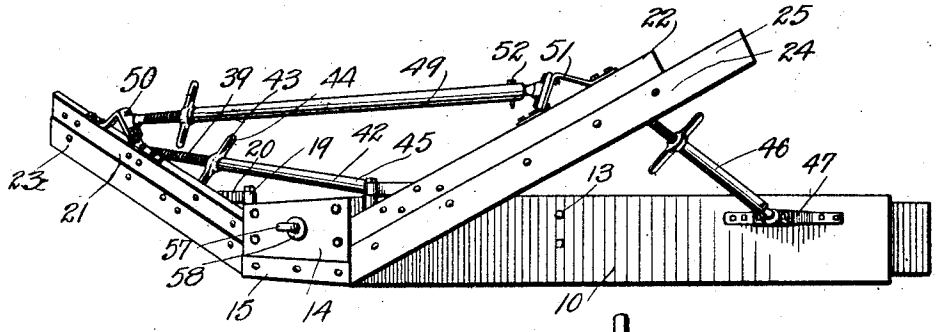


Fig. 5.

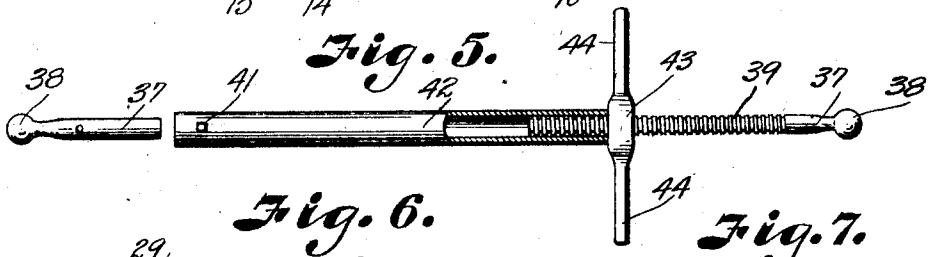


Fig. 6.

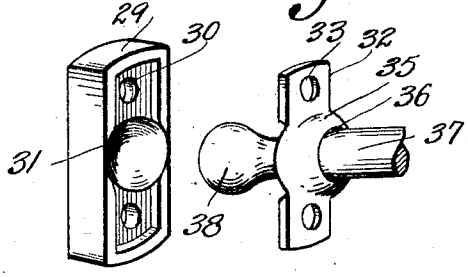
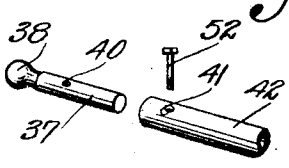


Fig. 7.



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UNITED STATES PATENT OFFICE.

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DITCH-MAINTAINING DRAG.

Application filed July 19, 1926. Serial No. 123,297.

Our invention relates to ditch maintaining drags and more particularly to an adjustable ditch maintaining drag.

In maintaining a roadway it is necessary to maintain the roadside ditches as well as the roadway itself. These ditches ordinarily have a bottom portion and two slopes, one being nearest the outer line of the right of way and being known as the back slope, and the other, the front slope, being on the side nearest the roadway and forming part of the main roadway embankment. These slopes are supposed to be substantially uniformly inclined planes. In constructing these ditches, large power pulled graders with adjustable blades are provided for excavating the ditches. After the same have been excavated, however, it is necessary to provide some economical means of keeping the same free of earth and plant growth and to replace the damage done by water in washing down the slopes and to provide means for bringing earth out of the ditch that has been blown or washed into the same and replacing the earth on the roadway. It is a purpose of our invention to provide means for doing this.

Preferably our improved ditch maintainer comprises a body portion that serves as a runner portion for guiding the ditch maintaining drag in the bottom of the ditch, and blade portions that extend obliquely relative to the runner portions transversely of the same, projecting from opposite sides thereof in a forward direction from the runner portion on one side thereof and in a rearward direction from the runner portion on the other side thereof. Means is thus provided for guiding the body portion along the bottom of the ditch, along with means for moving material from one side of the ditch toward the bottom, means for moving the material from the bottom of the ditch toward the other side thereof, and means for moving the material along said other side of the ditch away from the bottom of the ditch toward the roadway.

Preferably our improved ditch maintaining drag comprises a blade mounted in the forward end of the runner portion extending obliquely transversely of the same and a pair of adjustable blades extending one forwardly from said first mentioned blade and the other rearwardly therefrom at an oblique angle and also being inclined upwardly at an oblique angle relative to the runner portion. The blade on the runner portion thus cuts and fills the bottom of the ditch into a substantially horizontal plane surface, and the adjustable, laterally extending blades plane off the high places and fill in the lower places in the two slopes to thus smooth the same out into a pair of substantially uniform inclined planes.

Other objects and advantages of the invention will appear as the description of the accompanying drawings proceeds. However, we desire to have it distinctly understood that we do not intend to limit ourselves to the exact details shown or described, but that we intend to include as part of our invention all such obvious changes and modifications of parts as would occur to a person skilled in this art and as would fall within the scope of the claims.

In the drawings:

Fig. 1 is a perspective view of our improved ditch maintaining drag, showing the same in position in a ditch.

Fig. 2 is a plan view thereof.

Fig. 3 is a side elevation of the drag as viewed from one side thereof.

Fig. 4 is a view similar to Fig. 3, as viewed from the other side thereof.

Fig. 5 is a view partly in elevation and partly in section of one of the bracing elements employed in the device, showing the ball member at one end thereof spaced therefrom.

Fig. 6 is a perspective view of the socket member employed, showing the parts of the socket member separated and a fragment of a bracing member associated therewith, and

Fig. 7 is a fragmentary perspective view of the adjoining portions of one of the bracing members, showing the means for detachably connecting the same.

Referring in detail to the drawings:

Our improved ditch maintaining drag preferably comprises a body portion having the longitudinally extending runners 10 which are connected by means of the transversely extending bracing members 11 which may be seated in grooves 12 in the members 10 and held in position by means of the stay bolts 13. At the forward end of the runner 10 is provided a transversely extending member 14 which extends at an oblique angle to the members 10, the mem-

bers 10 being suitably beveled at the ends thereof to receive the flat face of the member 14. Said member 14 is preferably provided with a metallic facing 15 at the lower edge portion thereof to prevent undue wear on the member 14 and to provide a sharp scraping edge at the bottom corner thereof. The member 14 may be secured to the longitudinally extending members 10 by means of the strap iron member 16 which is secured to the members 10 and 14 by any suitable fastening elements 17. Certain of said fastening elements 17 also secure the strap portions 18 of the hinges 19 to the members 10, said hinges 19 also being provided with the strap portions 20 which are secured to the laterally extending wings 21 and 22 that extend on opposite sides of the main body portion of the drag, being swingingly connected with the members 10 by means of the hinges 19. The members 21 and 22 are provided respectively with metal plates 23 and 24 which extend to the lower edges thereof to reinforce the same and provide a sharp corner at the lower edge of said members. The member 24 preferably extends laterally beyond the end of the member 22 as indicated at 25 and the members 21 and 22 preferably extend upwardly at an oblique angle relative to the member 14 and the main body portion of the drag, the hinges 19 being applied in such a manner as to make this possible.

Mounted on the outer face of one of the members 10 is a bracket member 26 which may be made of strap iron and which is secured to the side face of the member 10 in any desired manner, as by means of the fastening elements 27. A bracket member 28 which is constructed in a similar manner and secured in a similar manner to the rear face of the member 21, is provided on said member 21 and is mounted in such a manner that a flat face on the bracket 28 extends toward a flat face on the bracket 26. Socket forming plates 29 are mounted on said flat faces of the bracket 28 and 26, being secured together by any suitable fastening means extending through the openings 30 therein and having a spheroidal recess 31 therein forming a part of a socket. Secured to the plates 29 are complementary plates 32 which have openings 33 aligning with the openings 30 and which have outwardly struck spherical portions 35 which are adapted to align with the recesses 31 to thus provide a socket member on each of the brackets 26 and 28 when the fastening means are passed through the openings 33 and 30. A central opening 36 is provided in each of the members 35 through which the stem portion 37 of a brace member extends, said portion 37 having a ball end 38 thereon that is adapted to turn in the socket described above so as to provide what is substantially a universal joint at each end of the brace member. One of the stem portions 37 of the brace member is provided with a screw threaded extension 39, while the other stem portion 37 is provided with an opening 40 that is adapted to align with an opening 41 in the tubular member 42, said tubular member being adapted to receive the screw threaded member 39 therein. A nut 43 screw-threadedly engages with the member 39 and is provided with the outwardly extending handles 44 for rotating the same.

It will thus be seen that a brace is provided between the brackets 26 and 28 that is adjustable by means of the member 43 so as to hold the member 21 at any desired oblique angle relative to the member 10. Said brace is indicated as a whole in Figs. 1 to 4 inclusive by the numeral 45. A similar brace 46 extends between the similarly constructed bracket member 47 and the socket forming member 48 on the member 22, and another similar brace adjustable in a similar manner and indicated by the numeral 49 extends between a bracket member 50 on the upper edge portion of the member 21 and to a similar bracket member 51 on the upper edge portion of the member 22, the ball and socket joint at the ends of said brace member being constructed in the same manner as described above and the adjustment being obtained in a similar manner to that described above. The openings 40 and 41 are aligned when the device is assembled, and a pin 52 is extended through said openings to detachably secure the parts of the bracing members together. In case it is desired to pass some obstruction such as a culvert, along the ditch, all that is necessary is to remove one or more of the pins 52 to permit the swinging of either the member 21 or the member 22 or both of the same into substantially parallelism to the side members 10.

An eye bolt 53 which is provided with a threaded end portion 54 extending through one of the members 11 and which is held in position by means of the nut 55 engaging against the washer 56, extends through the member 14, the eye 57 thereon lying on the outside of said member substantially midway between the members 10 so as to be substantially on the center line of the device, and a washer 58 being mounted between the eye and the member 14. The eye 57 is provided for attaching any desired draft means thereto, such as horses or a power operated means, although preferably the device is horse drawn, as it is light in construction and can be readily pulled by horses.

It will be obvious that by adjusting the members 43 on the braces 45, 46 and 49, any desired angularity of the members 21 and 22 relative to the body portion of the device can be obtained, with the member 21 always

extending at an oblique angle forwardly of the member 14 and the member 22 always extending at an oblique angle rearwardly from the member 14, the brace 49 along with the members 45 and 46 preventing upward tilting of the members 21 and 22 and also maintaining the desired angular relation between the same.

What we claim and desire to secure by Letters Patent is:

1. In a device of the character described, a longitudinally extending runner portion having an obliquely extending blade at the forward end thereof, a blade on one side of said runner portion extending laterally and forwardly at an oblique angle to said runner portion and a blade on the other side of said runner portion extending laterally and rearwardly from the forward end of said runner portion at an oblique angle.

2. In a device of the character described, a longitudinally extending runner portion having an obliquely extending blade at the forward end thereof, a blade on one side of said runner portion extending laterally and forwardly at an oblique angle to said runner portion and a blade on the other side of said runner portion extending laterally and rearwardly from the forward end of said runner portion at an oblique angle, said laterally extending blades being inclined upwardly from said runner portion.

3. In a device of the character described, a longitudinally extending runner portion having an obliquely extending blade at the forward end thereof, a blade on one side of said runner portion extending laterally and forwardly at an oblique angle to said runner portion and a blade on the other side of said runner portion extending laterally and rearwardly from the forward end of said runner portion at an oblique angle, said laterally extending blades being inclined upwardly from said runner portion at an oblique angle, the angularity of said laterally extending blades being adjustable.

4. In a device of the character described, a longitudinally extending runner portion having an obliquely extending blade at the forward end thereof, a blade on one side of said runner portion extending laterally and forwardly at an oblique angle to said runner portion, a blade on the other side of said runner portion extending laterally and rearwardly from the forward end of said runner portion at an oblique angle, braces extending between said runner portion and said laterally extending blades and braces between said laterally extending blades.

5. In a device of the character described, a longitudinally extending runner portion having an obliquely extending blade at the forward end thereof, a blade on one side of said runner portion extending laterally and forwardly at an oblique angle to said runner portion, a blade on the other side of said runner portion extending laterally and rearwardly from the forward end of said runner portion at an oblique angle, adjustable braces extending between said runner portion and said laterally extending blades and adjustable braces between said laterally extending blades.

6. In a device of the character described, a longitudinally extending runner portion having an obliquely extending blade at the forward end thereof, a blade on one side of said runner portion extending laterally and forwardly at an oblique angle to said runner portion, a blade on the other side of said runner portion extending laterally and rearwardly from the forward end of said runner portion at an oblique angle, braces extending between said runner portion and said laterally extending blades and braces between said laterally extending blades, said braces having universal connections with said blades and runner portion.

In testimony whereof we affix our signatures.

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