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COMBINED SCRAPER AND GRADER

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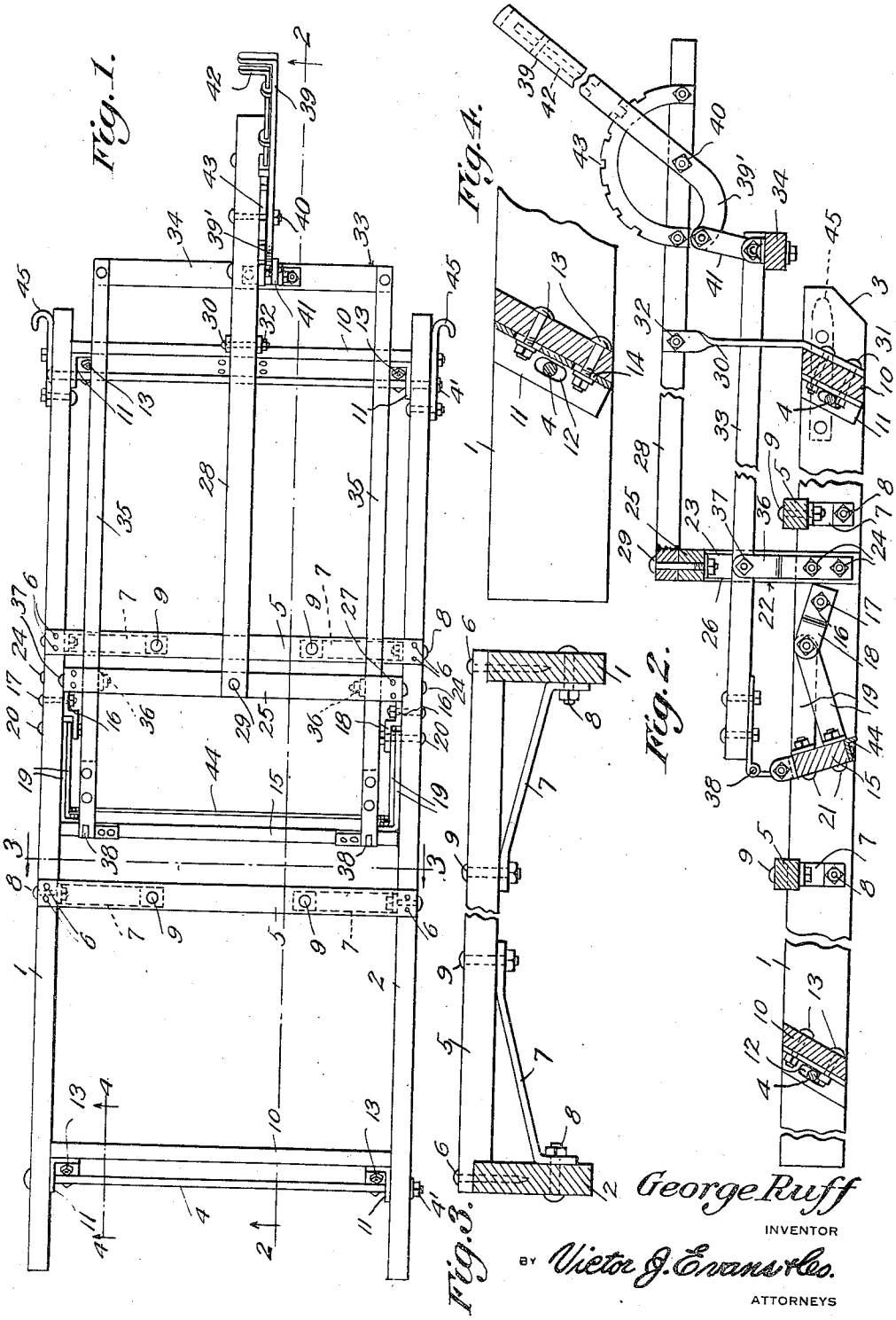


Fig. 1.

Fig. 4.

Fig. 2.

Fig. 3.

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COMBINED SCRAPER AND GRADER

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2 Claims. (Cl. 37—148)

My invention relates to improvements in combined scrapers and graders and the principal object thereof is to provide a simply constructed device of this character embodying a scraper and means for quickly and easily forcing the scraper into and out of the ground to pick up different size loads of earth and deposit the same in selected locations.

Another object is to provide a device of this character combining with such a scraper adjustable drags for breaking up the clods in advance of the scraper and leveling off the deposited loads.

Other objects are to provide a combined scraper and grader equipped for operation as above described and which is strong, durable and inexpensive to manufacture.

To the accomplishment of the foregoing, and subordinate objects presently appearing, a preferred embodiment of my invention has been illustrated in the accompanying drawing and described in detail and defined in the following description and claims, respectively.

In said drawing:

Figure 1 is a view in top plan of a combined scraper and grader embodying my improvements.

Figure 2 is a view in longitudinal section taken on the line 2—2 of Figure 1 looking in the direction indicated by the arrows.

Figure 3 is a view in transverse section taken on the line 3—3 of Figure 1 looking rearwardly, and

Figure 4 is a fragmentary sectional view taken on the line 4—4 of Figure 1 looking in the direction indicated by the arrows.

Referring to the drawing by numeral, the illustrated embodiment of my invention comprises a pair of runners 1 and 2 having beveled front ends 3 to facilitate drawing the same over the ground, front and rear transverse tie rods 4 connecting the runners 1 and 2 together adjacent their front and rear ends, respectively, and a pair of transverse tie bars 5 spaced apart upon opposite sides of the transverse center of the runners 1 and 2. The runners 1 and 2 and the tie bars 5 are preferably formed of wood and the latter are secured to the upper edges of the runners 1 and 2 as by nails 6 and the strap iron brackets 7 bolted to the runners and to said bars as at 8 and 9, respectively. Adjacent the front and rear ends of the runners 1 and 2 are transversely extending drags in the form of transversely extending bars 10, preferably of wood. The drag bars 10 are mounted on the tie rods 4 for pivotal and sliding adjustment into different angular and vertical positions, respectively. For this purpose the ends of the drag bars 10 are secured to the tie rods 4 by means of angle brackets 11 each having a slot therein as at 12, through which the appropriate tie rod 4 extends. The angle brackets 11 are bolted to the drag bars 10 by means of nutted bolts 13 extending through slots 14 in said brackets.

The tie bars 10 are adapted to be clamped between the runners 1 and 2 in any adjusted position by means of the tie rods 4 and nuts 4' threaded onto one end of said rods. The bolt and slot connection 13 and 14 of the drag bars 10 to end brackets 11 provides for adjustment of the drag bars to compensate for wear at the lower edge of said bars.

A scraper blade 15 is mounted intermediate the tie bars 5 and the runners 1 and 2 in a transversely extending position and connected to the runners 1 and 2 for vertical swinging movement. The aforesaid connection comprises a pair of brackets 16 bolted as at 17 to the inner sides of the runners 1 and 2, respectively, in opposed relation and each formed with an inwardly offset rear end 18. At each end of the scraper blade 15 is a pair of bar-like arms 19 pivotally mounted at one end between the end 18 of the adjacent bracket 17 and the adjacent runner 1 or 2 by means of a bolt 20 passing through the runner and the bracket thereon. The opposite ends of the bars 19 of each pair are bolted as at 21 to the top and bottom edges of the scraper blade, respectively, to form a brace for the latter. The arms 19 of each pair are of different length so that the scraper blade 15 inclines fowardly and downwardly. Intermediate the brackets 17 and the front tie bar 5 is an upright frame 22 comprising a pair of standards 23 bolted to the runners 1 and 2, respectively, as at 24, and a cross bar 25 secured to the standards 22 by angle brackets 26 and bolts 27. A beam 28 is secured at one end to the cross bar 25 as by the bolt 29 to extend forwardly of the runners 1 and 2 midway between the latter. A standard 30 having its lower end bolted to the front drag bar 10, as at 31, and a bifurcated upper end bolted to the beam 28, as at 32, supports the latter intermediate its ends. The standards 22 and 30 together with the cross bar 25 and the beam 28 form a support for scraper adjusting means as follows. The scraper adjusting means comprises a horizontally disposed U-shaped frame 33 formed of a front transverse bar 34 and side bars 35 the latter pivotally mounted on the standards 22 for vertical swing-

ing movement. Preferably said bars **35** are pivotally mounted by means of brackets **36**, secured to said standards by the aforementioned bolts **24**, and pivot bolts **37** passing through said brackets, bars and standards. The rear ends of the side bars **35** are pivotally connected to the scraper bar **15** by means of strap hinges **38** suitably connected to said bars and blade. The frame **33** is adapted to be rocked upon its pivot **37** by means of a hand lever **39** pivotally mounted as at **40** upon the front end of the beam **28** and having a short lever arm **39'** connected by a link **41** to the front bar **34** of said frame. The usual detent **42** and detent sector **43** are provided for holding the lever **39** in adjusted position. It will be noted that the lever arms of the frame **33** in front of the pivot **37** are much longer than the lever arms in the rear of said pivots and the hinge connection between said frame and the scraper blade is directly over the upper edge of the latter. These features all contribute to obtaining a long leverage exerted directly against the scraper blade whereby the latter may be easily forced into the ground by manipulation of the hand lever **39**. To further contribute to easy operation of the scraper blade in the direction indicated said blade may be provided at its lower edge with a sharpened shoe **44** shown in the present instance as having the form of an angle bar which may be attached to the blade in any suitable manner.

Suitable clevises **45** are secured to the front end of the runners **1** and **2** for the attachment of the draft to said runners.

As will be understood, in the use of the described scraper and grader the front drag bar **10** breaks up the clods and the scraper blade **15** cuts down the mounds and hummocks and carries the earth scraped therefrom for deposit in hollow places, the rear drag bar **10** leveling off the earth so deposited. By adjusting the scraper blade **15** and bars **10** the grading and scraping operations may be facilitated when working under different conditions as for instance on fairly level ground or ground that is rough and uneven.

Although my invention has been described in the foregoing as embodying certain specific details of construction it is to be understood that the present disclosure is illustrative rather than restrictive and that right is herein reserved to modifications of such details falling within the scope of the claims appended hereto.

What I claim is:

1. A drag comprising a pair of parallel spaced apart runners, a pair of transversely extending parallel drag bars disposed between said runners, angle bars secured to the ends of said bars, each of said angle bars having an elongated slot in the side thereof confronting a runner, and a combined tie rod and drag bar adjusting rod for each drag bar extending through the slots of opposed angle bars and through said runners to maintain said drag bars in adjusted angular and vertical relation with respect to said runners.

2. A drag comprising a pair of parallel spaced apart runners, a pair of transversely extending parallel drag bars disposed between said runners, angle bars secured to the ends of said bars, each of said angle bars having an elongated slot in the side thereof confronting a runner, a combined tie rod and drag bar adjusting rod for each drag bar extending through the slots of opposed angle bars and through said runners to maintain said drag bars in adjusted angular and vertical relation with respect to said runners, a scraper blade disposed between said drag bars, means for swingably mounting said scraper blade transversely of said runners and between said drag bars, a blade adjusting lever, means connecting said lever to said blade, and means maintaining said lever in adjusted position.

GEORGE RUFF.