S. RICHARDSON.

ROAD GRADER OR SCRAPER.

APPLICATION FILED JUNE 12, 1908.

916,199.

Patented Mar. 23, 1909.

Fig 1.

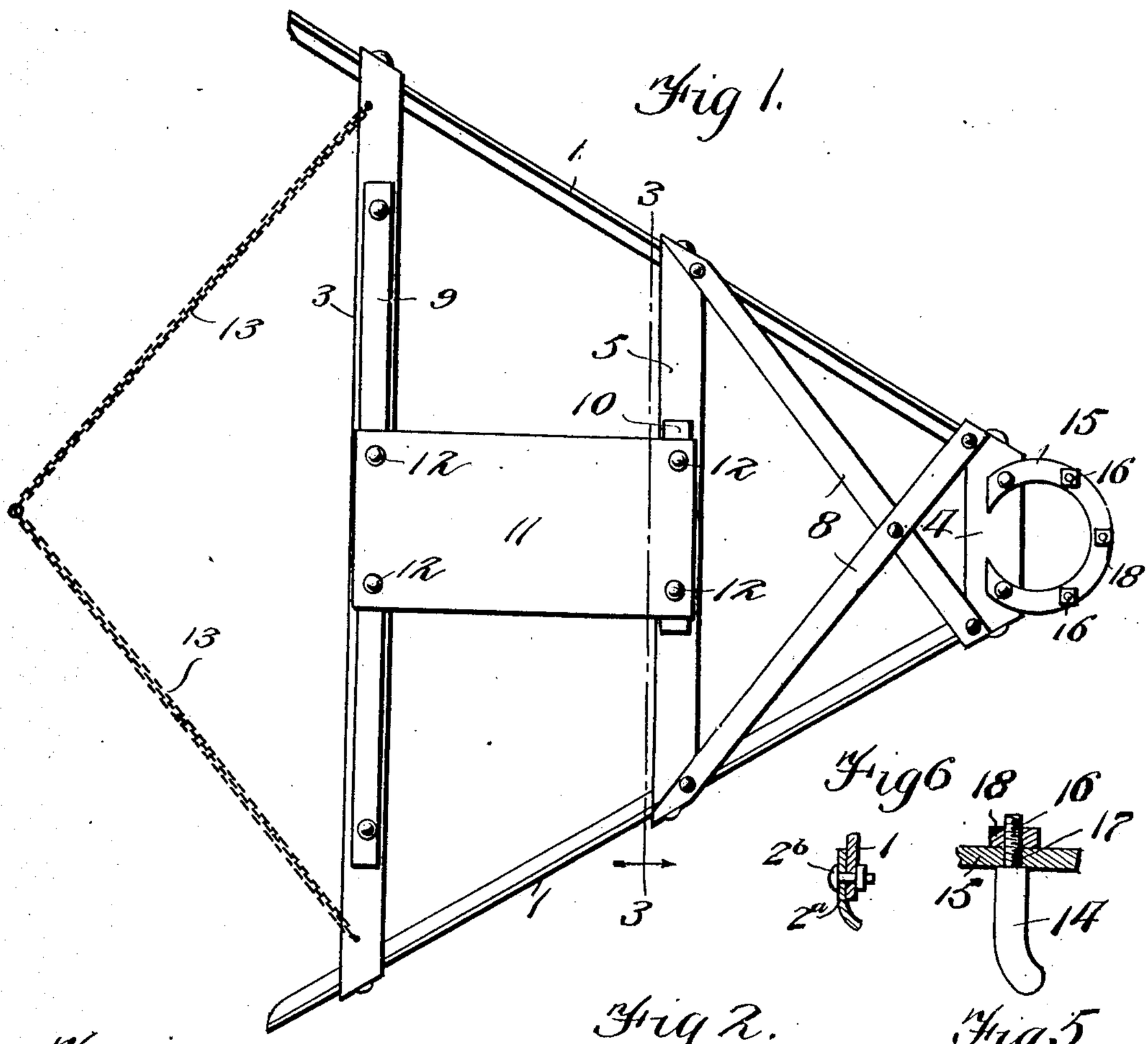


Fig 6

Fig 2.

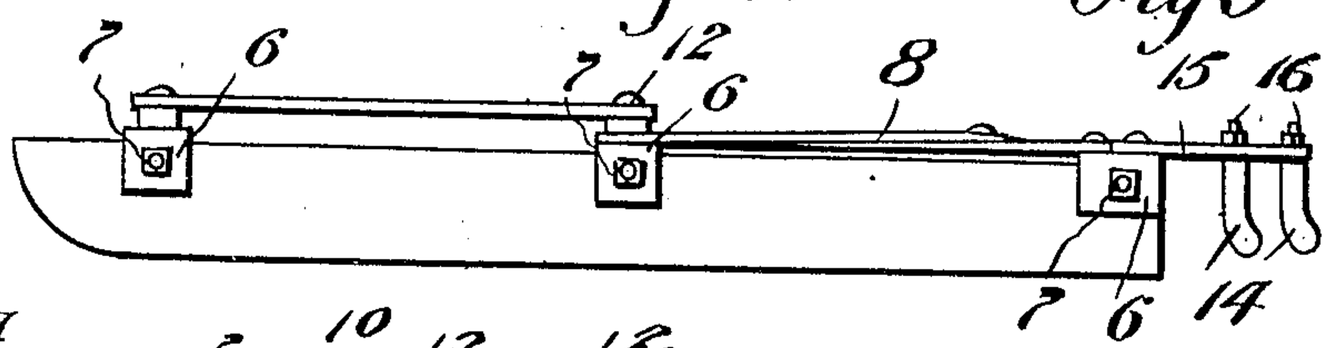
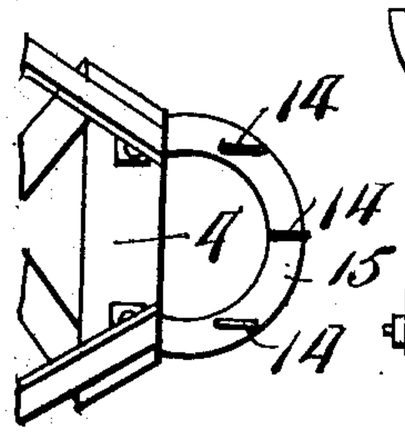


Fig 5

Fig 4.



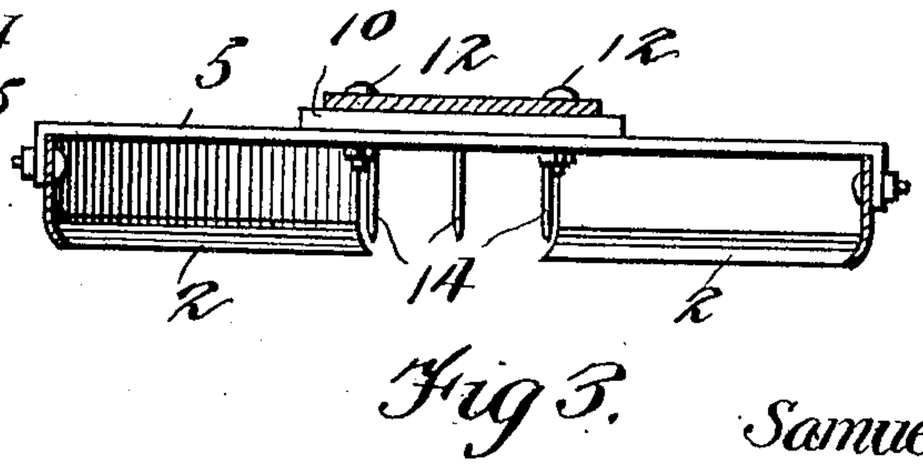


Fig 3.

Witnesses

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SAMUEL RICHARDSON, OF HOOVER, INDIANA.

ROAD GRADER OR SCRAPER.

No. 916,199. Specification of Letters Patent. Patented March 23, 1909.

Application filed June 12, 1908. Serial No. 438,202.

To all whom it may concern:

Be it known that I, SAMUEL RICHARDSON, a citizen of the United States, residing at Hoover, in the county of Cass and State of Indiana, have invented new and useful Improvements in Road Graders or Scrapers, of which the following is a specification.

This invention relates to road graders or scrapers of the drag type, the object in view being to provide a simple construction of device adapted for general grading, filling and scraping work, and susceptible of being economically manufactured and drawn by a minimum number of draft animals.

A further object is to provide a grader or scraper of the diverging scraper-blade type having auxiliary scraping teeth to work at the rear on a line between the convergent ends of the blades to throw the earth toward or from the center line and to also guide the apparatus in a straight line.

The invention consists of the features of construction, combination and arrangement of parts hereinafter fully described and claimed, reference being had to the accompanying drawing, in which:—

Figure 1 is a top plan view of a road grader or scraper embodying my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical transverse section on the line 3—3 of Fig. 1. Fig. 4 is a fragmentary bottom plan view showing the arrangement of the scraper teeth. Fig. 5 is a detail section through the curved supporting bar thereof, showing the mode of mounting the teeth. Fig. 6 is a detail section disclosing the modification in the construction of the scraping blades.

The device comprises a pair of longitudinal scraping blades 1 arranged obliquely to the center line of the apparatus and converging toward their rear ends. These blades are preferably formed in entirety of sheet steel, and are formed with inwardly curved or bent lower scraping edges 2. These scraping edges 2 may be integral with the body portions of the scraping blades, or the latter may be provided, as shown in Fig. 6, with independent strips 2^a on which the scraping edges are formed, said strips being detachably secured to the blades by bolts or equivalent fastenings 2^b, thus allowing a worn scraping portion to be removed and a new one to be substituted therefor without the necessity of discarding the entire blade.

As shown, the blades are connected by front, rear and intermediate cross-bars or strips 3, 4 and 5, each of which is preferably formed of sheet metal and provided with downwardly bent ends or knee portions 6 bearing against the outer surfaces of the body portions of the blades and secured thereto by bolts or other equivalent fastenings 7. These braces connect and maintain the prescribed divergent relationship of the blades 1, which may be further connected and reinforced between the cross pieces 4 and 5 by crossed braces 8 united at their point of crossing to each other and at their ends to the blades or cross pieces. Bars or cleats 9 and 10 rest upon and are suitably secured to the cross pieces 3 and 5 and form sills or supports for a seat board 11 fastened in position by bolts or rivets 12. Draft chains 13 are connected at the opposite ends of the front cross bar 3 and are adapted for attachment to a suitable draft appliance for the application of the required number of draft animals.

It will be understood that in operation the grader or scraper may be employed for general grading, filling and scraping work, and is drawn across the surface to be graded so that the edges 2 of the blades will loosen up, scrape and conduct the earth toward the center of the road or the gulley to be filled, and thus remove all inequalities of ground surface, while at the same time, in the construction or repair of a road, imparting to the surface of the road the ordinary crown form.

In practice, all the parts of the scraper, except possibly the seat board, are made of sheet metal, thus giving lightness with strength and durability. In view of this fact and the fact that the construction of the apparatus permits it to be readily moved across the surface to be graded without material resistance from the ground or scraped material, it is apparent that the device may be dragged by the power of a comparatively small number of draft animals. In order to guide the apparatus in a straight path, as well as to loosen the soil on a line between the scraping blades and to deflect the soil to the right or left or in both directions simultaneously to facilitate the grading or scraping operation, auxiliary scraping devices are provided and arranged to operate at the rear of the apparatus on a line between the converging ends of the scraping blades 1. These auxiliary scraping

devices consist of a series of, preferably three, scraping teeth 14 carried by a curved or substantially horseshoe-shaped supporting bracket 15 secured to the cross bar or strip 4 and projecting rearwardly therefrom, one of said teeth being disposed in the line of draft of the machine and at a point a little in rear of the others which are disposed in alinement and on opposide sides of such line of draft. Each of said teeth is provided at its upper end with a threaded stem 16 projecting upward through an opening 17 in the bracket 15 and threaded for engagement with a clamping nut 18, by which it is adjustably fastened in position.

In practice, it will be understood that when the apparatus is drawn forward the teeth 14 will engage and act upon the surface of the ground, loosening and stirring up the soil at the center or crown of the road, and at the same time operating as resistance devices for preventing lateral deflection in either direction of the apparatus from the lateral pressure of the unequal resistances constantly encountered by the scraping blades, and which, in the absence of said teeth, tend to slue the apparatus sidewise. Through their adjustable mounting, the blades may be arranged to throw the earth laterally in either direction beyond the line of draft or toward the line of draft, or partly toward and partly from the line of draft, as will be readily understood, these results being secured by disposing the blades to set at different angles.

From the foregoing description, the construction, mode of operation and advantages of my invention will be readily understood and the advantages thereof appreciated, and it will be seen that the invention provides an apparatus of this character which is simple of construction and may be manufactured at a comparatively low cost.

Having thus fully described the invention, what is claimed as new is:—

1. A road grader or scraper comprising a pair of obliquely arranged blades, means for connecting and maintaining the relationship of the blades, and a series of scraping teeth arranged in the arc of a circle in rear of and on a line between the converging ends of the blades, said series of teeth including a tooth arranged in the line of draft and other teeth arranged on opposite sides of the line of draft, substantially as described.

2. A road grader or scraper comprising a pair of obliquely arranged scraping blades, means connecting and maintaining said blades in prescribed relationship, and a set of depending scraping teeth arranged on an arc in rear of and between the converging ends of the blades, said teeth being adjustable to operate at different angles to the line of draft.

3. A road grader or scraper comprising a pair of oblique scraping blades, cross bars uniting said blades, a U-shaped bracket secured to the rear cross bar and projecting beyond the same on a line between the diverging ends of the blades, a set of arcuately arranged depending scraper teeth carried by said bracket, and means adjustably securing said blades to the bracket, whereby the blades are adapted to be adjusted to work at different angles to the line of draft.

In testimony whereof I affix my signature in presence of two witnesses.

SAMUEL RICHARDSON.

Witnesses:

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