H. U. EDZARDS.

SCRAPER.

APPLICATION FILED FEB. 15, 1908.

899,719. Patented Sept. 29, 1908.

2 SHEETS—SHEET 1.

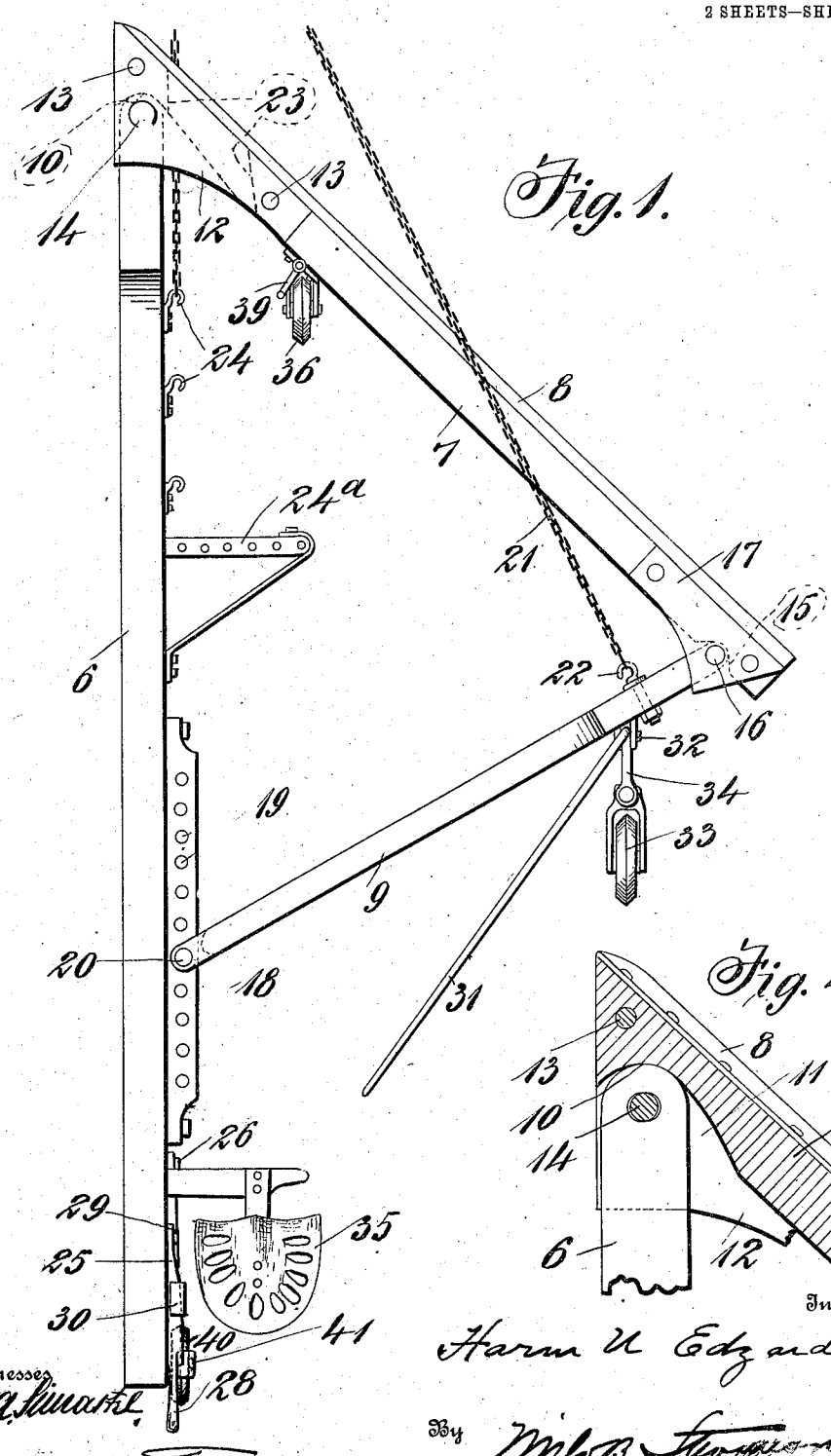


Fig. 1.

Fig. 4.

Witnesses,
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2 SHEETS—SHEET 2.

Fig. 2.

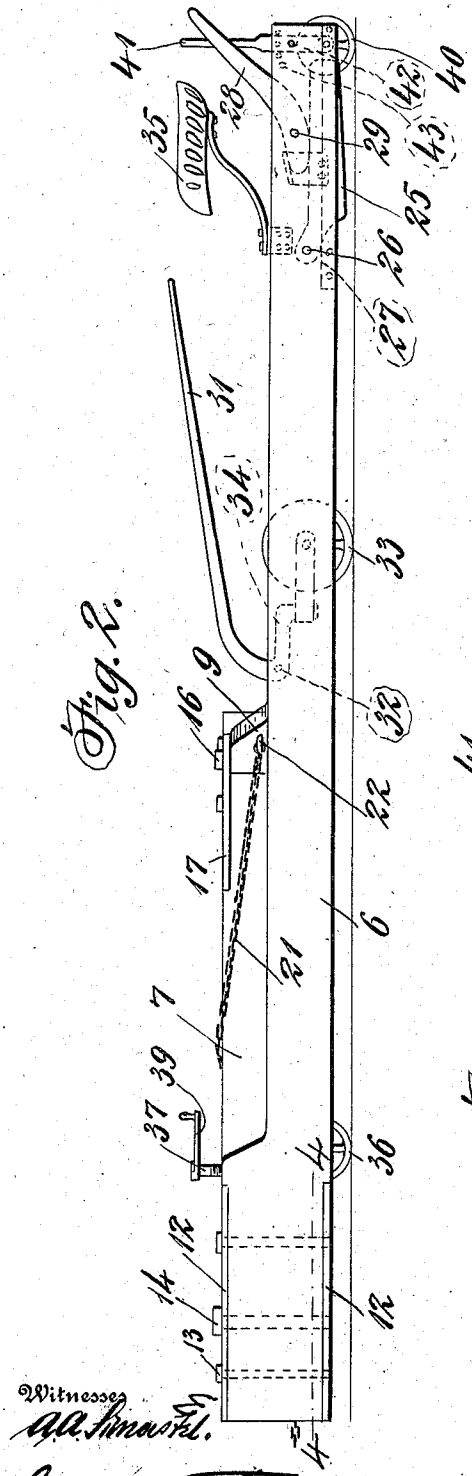


Fig. 3.

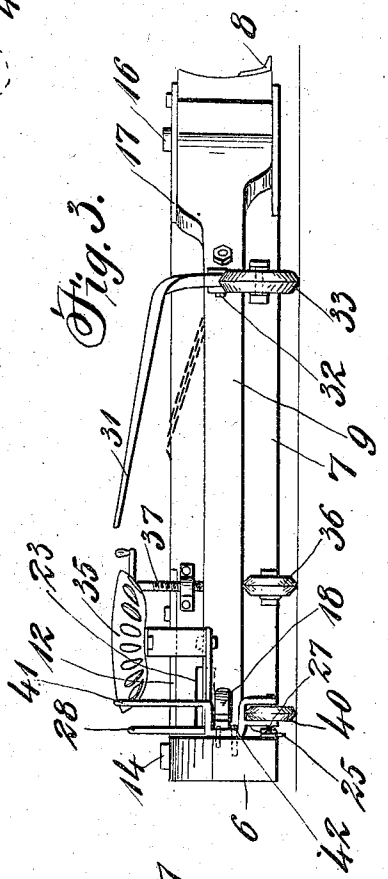
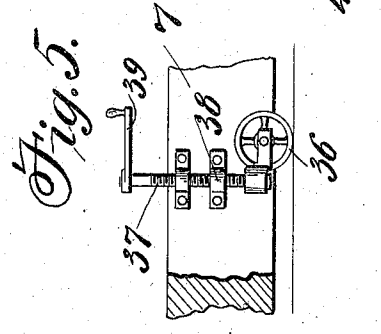


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

HARM UDEN EDZARDS, OF PARIS, TEXAS.

SCRAPER.

No. 899,719. Specification of Letters Patent. Patented Sept. 29, 1908.

Application filed February 15, 1908. Serial No. 416,048.

To all whom it may concern:

Be it known that I, HARM UDEN EDZARDS, a citizen of the United States, residing at Paris, in the county of Lamar and State of Texas, have invented certain new and useful Improvements in Scrapers, of which the following is a specification.

This invention is a scraper or grader suitable for road or field work, and adapted especially for ditching and grading.

The invention is characterized by various novelties of construction as applied to a grader having a mold-board and land-side which are adjustable to vary their angle with each other.

One novel feature of the device is an improved socket joint and hinge between the land-side and mold-board, and also between the mold-board and cross brace.

Another feature is a novel connection of draft chain, so arranged that in addition to the forward pull on the chain it exerts a downward pressure on the mold board to hold the same down in the ground; and the draft chain connections have the further advantage that they are adjustable so that they may be varied according to the angle of the mold-board, to avoid or correct the side draft.

Another feature of the invention is the means for raising or lowering the scraper, either for a brief period, as in dumping or in lifting the mold-board over rocks or the like, or for a longer period, as in transporting the device. The implement also has a novel rudder device, to prevent side slip or swing of the scraper.

The invention is illustrated in the accompanying drawings, in which

Figure 1 is a top plan view of the implement. Fig. 2 is a side elevation. Fig. 3 is a rear elevation. Fig. 4 is a detail in section on the line 4—4 of Fig. 2, showing the socket joint between the land-side and the mold-board. Fig. 5 is a detail in elevation showing the swiveling wheel on which the mold-board is mounted.

Referring specifically to the drawings, 6 indicates a land-side consisting of a board or piece of timber standing edgewise, and conveniently about ten feet long, ten inches high and four inches thick. This is pivotally connected at its front end to the mold-board 7, which may be about six feet long, sixteen inches high and four inches thick. The face of this board is preferably concave, and it has a metal blade or edge 8 at the bottom, to cut into the land. The mold-board is connected at its rear end to the land-side by an adjustable cross brace 9, which for the dimensions given above will be about five feet long.

The front end of the land-side 6 is rounded, as indicated at 10, and is set in a socket or recess 11 formed in the front end of the mold board behind the point thereof, the curvature being such that the front end of the land-side will be in contact with the front wall of the recess at all ordinary adjustments. This gives a direct pressure or support for the mold board against the front end of the land-side, so that the hinge is to a large extent relieved from the strain. The hinge or pivotal connection is formed by means of top and bottom plates 12 which are substantially triangular in outline and which are attached to the mold-board by bolts 13 and to the land-side by a pivot bolt 14 which extends through the front end of the land-side, said front end projecting into the space formed by said upper and lower plates. The curvature of the wall of the recess 11 is concentric with the bolt 14, and said bolt is preferably somewhat loose in the land-side, so that the mold-board may back directly against the land-side and not against the pivot.

The pivot connection between the rear end of the mold-board and the brace 9 is formed in a similar manner, the rounded end of the brace fitting in a curved socket 15 formed in the rear end of the mold-board, and being held by a pivot bolt 16 extending through upper and lower angular plates 17 bolted to the mold-board. The thrust on the mold-board by the means indicated is thus supported by the ends of the land-side and cross brace.

The adjustable connection between the land-side and the brace 9 is effected by means of a cleat 18 which is fastened to the inner side of the land-side and which has a series of holes 19 to receive a bolt 20 inserted through the corresponding holes in the forked end of the brace 9. By shifting the brace the angle of the land-side and mold-board will be varied in an obvious manner, and accordingly the width of the ditch or furrow will be varied.

The draft means consist of a chain 21. One end of this is connected to a hook 22 on

the front side of the brace 9, near the outer end thereof, and the chain extends thence over the rear end of the mold-board, upon which it rests or bears down when the draft is applied. The other end of the chain extends through a horizontal slot 23 in the mold-board, near the front end thereof, and is hooked to one of a series of hooks 24 fixed at intervals along the inner side of the land-side or in one of a series of holes in a clevis-head 24^a attached to inner side of the land-side. By changing the hitch of the chain to various hooks or holes the angle of draft may be varied or adjusted in proper manner to prevent side draft and to accord with the angle at which the mold-board is set.

For preventing side slip or swing the rear end of the land-side is provided with a rudder which comprises a blade 25 which is pivoted at 26 to the land side and which works under a strap 27 fixed thereto. The blade may be raised or lowered by a lever 28 which is pivoted at 29 to the land-side, above the blade. When the front end of the lever is turned down it bears as a cam upon the top edge of the blade 25 and forces the blade below the edge of the land-side and into the ground, and by setting the lever in vertical position the blade is held down in that position. To raise the blade, the handle of the lever may be swung down and back, and its front edge will engage under a hook 30 and so lift the blade out of the ground.

For quickly raising or dumping the scraper the cross brace 9 is provided with a bent lever 31 which is fulcrumed on the brace as at 32 and at its lower end has a caster wheel 33 which travels on the ground and which will swivel to adjust itself to the line of draft. The lower arm of the lever is formed with a crank, as seen at 34, and when the lever is swung down the crank action causes quick lift of the rear end of the mold board and the adjacent parts. This is also useful in turning the scraper in small space. This lever, as well as the rudder 28, can if desired be manipulated from a seat 35 supported on a suitable bracket at the rear end of the land-side.

To raise or lower the whole scraper with respect to the ground, the mold-board is provided with a caster wheel 36 which is carried by a screw 37 extending through a threaded bracket 38 fastened to the rear side of the mold board. The screw is large enough to support a proportion of the weight of the mold board and is provided at the top with a crank 39 whereby it may be turned to raise or lower the wheel.

When the mold-board is to be used in the ground the wheel is raised to relatively lower the board, but when the device is to be transported the screw is turned down to lift the mold board from the ground. For the same purpose the rear end of the land-side is provided with a wheel 40 carried by a lever 41 which is fulcrumed at 42 on the inner side of the land-side and which may be swung to raise or lower the wheel, and which when adjusted can be fixed in either position by a bolt in one of the holes 43 in the land-side.

By connecting the chain as shown a very effective draft is produced which does not interfere in any way with the operation of the mold board. The rear end of the mold board, which has a tendency to ride, is held down by the pressure of the chain thereon, and the draft by means of the socket joints above described is communicated directly to the mold board. Various adjustments are permitted by the row of hooks 24, and by the holes in the clevis head 24^a, and of course the whiffle-tree connections can be shifted along the chain as desired. The wheels all have V-shaped rims to avoid side slip and the concave face of the mold-board serves to turn the furrow slice and carry the same down to the rear end of the board.

The invention is capable of various modifications within the scope of the following claims.

I claim:

1. A scraper having a land-side and a mold-board pivotally connected together at their front ends, the mold-board having a curved recess in the rear side thereof at the front end and the land-side having a rounded front end which fits against the wall of said recess at the various angles.

2. A scraper having a mold-board and land-side with a pivotal connection at their front ends, said connection comprising top and bottom plates fixed to the upper and lower edges of the mold-board, and a bolt connecting said plates and extending through the front end of the land-side.

3. A scraper comprising a mold-board, land-side and rear cross brace pivotally connected together, the mold-board abutting against the front end of the land-side and the outer end of the crossbrace, and having curved sockets receiving said ends.

4. A scraper having a land-side, mold-board, and rear cross brace, and a draft chain connected at one end to the cross brace and extending over and bearing down upon the mold-board.

5. A scraper having a land-side and a slotted mold-board, and a draft chain extending through said slot and connected at the end to the land-side.

6. A scraper having a land-side, mold-board and rear cross brace adjustably connected together, and a draft chain connected at one end to the cross brace near the outer end thereof and below the upper edge of the mold-board and extending thence over the mold-board, and bearing down thereon and adjustably connected at the other end to the inner side of the land-side.

7. A scraper having a land side and a rud-

der device at the rear end thereof, comprising a vertically-swinging blade pivoted to the side of the land-side and a cam lever fulcrumed on the land-side and arranged to bear upon the blade.

8. A scraper having a land-side, mold-board and rear cross brace connected together and a lifting lever fulcrumed on the cross brace and having a ground wheel at the lower end.

9. A scraper having a mold-board, and means to raise or lower the same comprising a vertical screw mounted in threaded supports on the mold-board and having a caster wheel at its lower end and a crank at the upper end.

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

HARM UDEN EDZARDS.

Witnesses:

JNO. F. PETTIGREW,

GEO. R. HANCOCK.