W. R. HORNE.

BRUSH GRUBBER.

APPLICATION FILED DEC. 22, 1910.

1,013,939.

Patented Jan. 9, 1912.

3 SHEETS—SHEET 1.

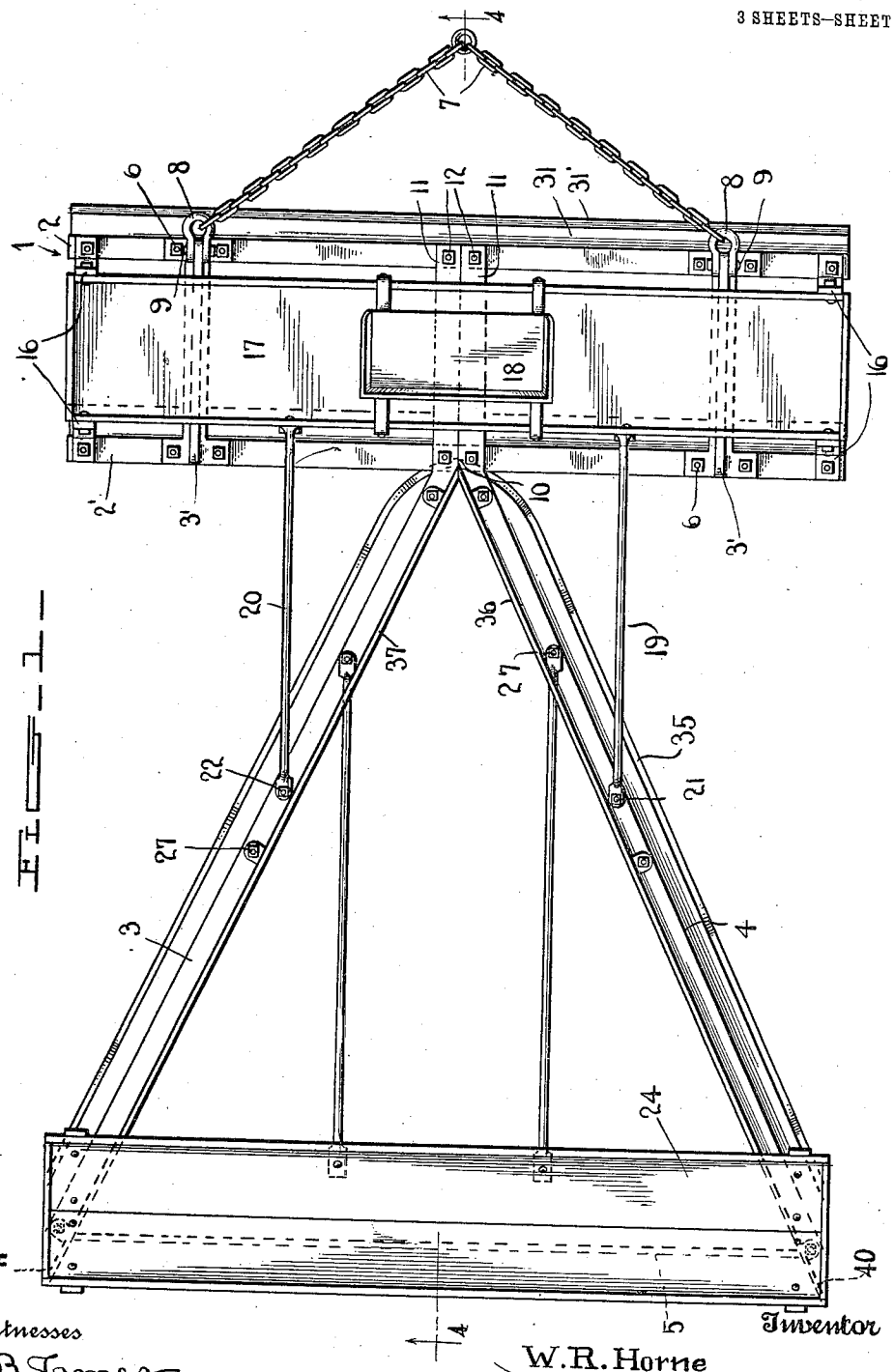

FIG. 1.

Witnesses

L. B. James

F. A. Howard.

Inventor

W. R. Horne

By Munn & Co.

Attorneys

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

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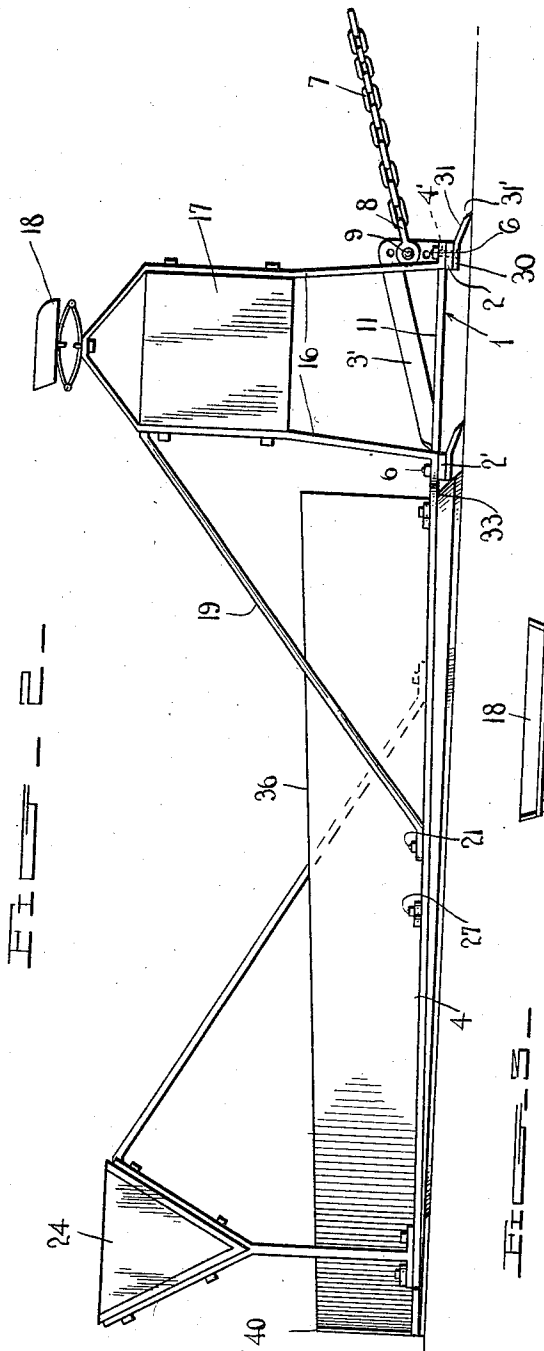

FIG. 2.

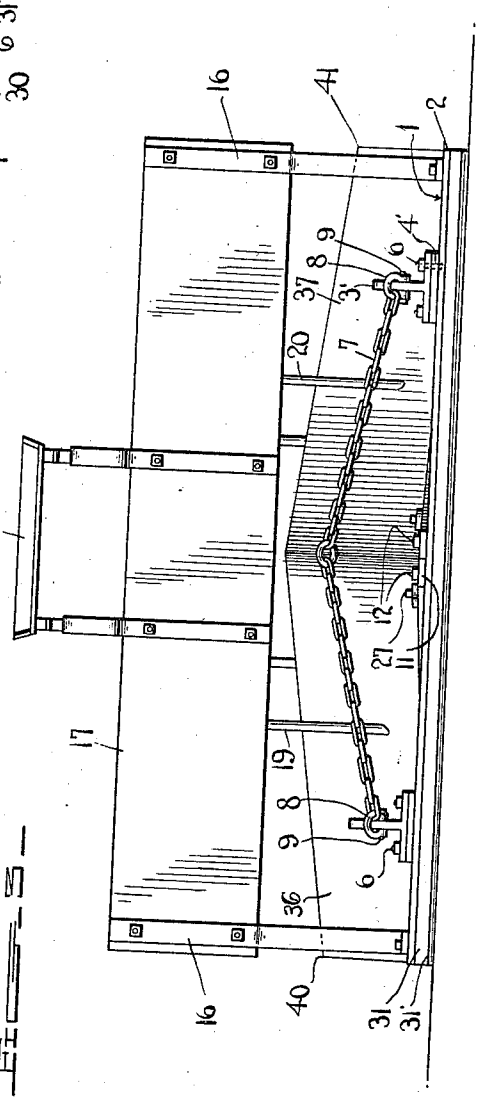

FIG. 3.

Witnesses

L. B. James

F. A. Howard.

Inventor

W. R. Horne

By Dowell & Dowell

Attorneys

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

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3 SHEETS—SHEET 3.

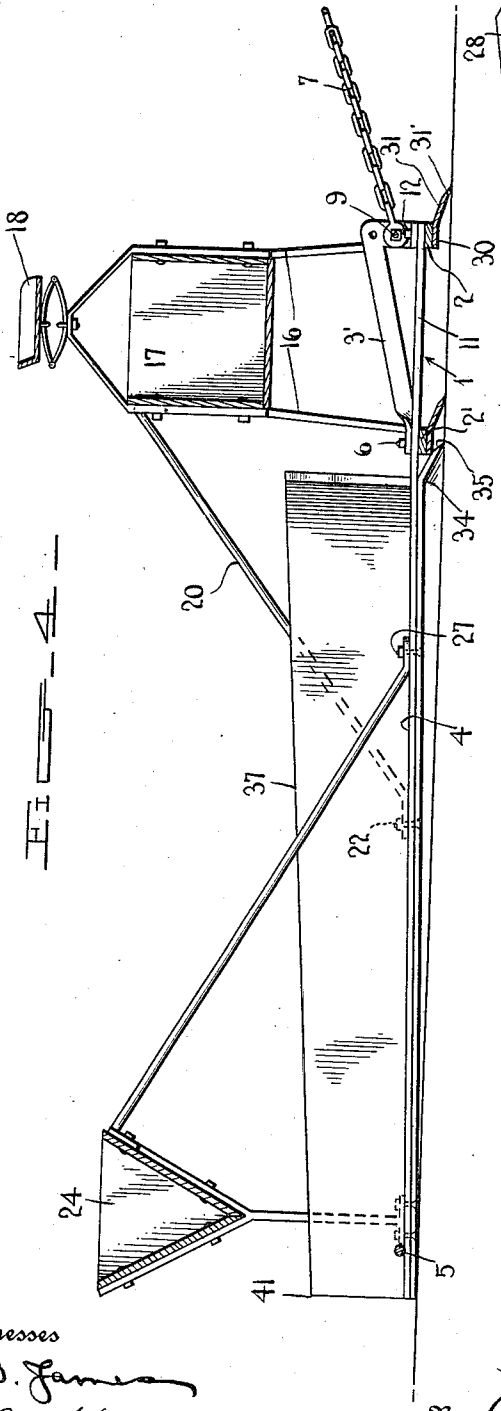

FIG. 4.

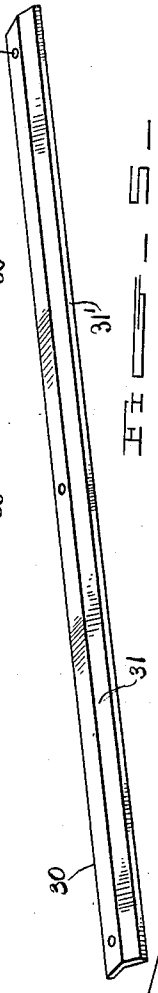

FIG. 5.

FIG. 6.

Witnesses

L. B. James

F. A. Howard.

Inventor

W. R. Horne

By Dyrenforth & Dyrenforth

Attorneys

UNITED STATES PATENT OFFICE.

WILL R. HORNE, OF GLADE, CALIFORNIA.

BRUSH-GRUBBER.

1,013,939. Specification of Letters Patent. Patented Jan. 9, 1912.

Application filed December 22, 1910. Serial No. 598,734.

To all whom it may concern:

Be it known that I, WILL R. HORNE, a citizen of the United States, residing at Glade, in the county of Lassen, State of California, have invented certain new and useful Improvements in Brush-Grubbers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in land clearing machinery, and more particularly to a brush cutter or grubber and my object is to improve the construction and increase the efficiency and utility of apparatus of this character.

A further object is to provide a form of brush grubber which will throw out the brush into windrows at the side as it is cut.

A still further object is to provide means whereby each portion of the ground will be subjected to a plurality of scraping or cutting operations.

With these and other objects in view, the invention consists primarily in a triangular knife-bearing framework, a second knife-bearing framework comprising a pair of spaced parallel members positioned in front of the point of said triangle, suitable load boxes carried over said knives and adapted to exert proper pressure to cause the same to cut, and means for drawing the cut brush off to the side of the grubbing apparatus.

The invention further consists in a certain construction, combination and arrangement of parts and details as is hereinafter more fully described, specifically pointed out in the appended claims, and illustrated in the accompanying drawings, which show a preferred embodiment of the invention.

Referring to these drawings which are attached to and form a part of this application, Figure 1 is a plan view of my improved grubbing machine. Fig. 2 is a side elevation of the same. Fig. 3 is a front elevation. Fig. 4 is a sectional view on the line 4—4 of Fig. 1. Fig. 5 is a detail perspective view of one of the front knives. Fig. 6 is a detail perspective of one of the triangle knives.

Referring more specifically to these views, in which similar reference numerals designate corresponding parts throughout, 1 indicates in general the frame of the device, which comprises the spaced parallel transverse members 2 and 2′, the diverging frame members 3 and 4, and the rear transverse member 5, which connects the outward ends of the members 3 and 4. All of these members are preferably constructed of rolled bars of open-hearth steel and with the exception of the bar 5 are rectangular in section and positioned with the broader faces in horizontal planes. The two front transverse members 2 and 2′ are connected by castings 3′ which, as clearly shown in Fig. 2, are angular in shape and provided with the horizontal foot lugs which are perforate as at 4′ and secured by bolts or rivets 6 to the transverse members. The vertical legs of the castings 3′ form securing means for draft chains 7 which are linked to pivoted clevises 8 secured to the vertical casting legs as before mentioned by pivot bolts 9. The divergent frame members 3 and 4 are bent to a sharp V-shaped point shown at 10 and the bent terminals 11 are extended forwardly over the front transverse members 2 and 2′ and secured to the upper faces thereof by means of bolts, rivets, or the like, 12. The forward ends of the members 3 and 4 are connected by the front transverse members 2 and 2′ and supported thereon by means of the four corner standards here designated 16 is the front weight box designated as a whole by 17. This box is as shown of rectangular section and serves the additional purpose of forming a support for the driver's seat, here shown at 18. An additional securing means for the box 17 is formed by the two brace rods 19 and 20, the bent terminals of which are secured as at 21 and 22 to the upper edge of the box 17 and to the flat faces of the divergent frame members 3 and 4, respectively. A rear drag weight box of triangular section transversely is shown at 24, being braced to the members 3 and 4 by a construction similar to that above described. The outward ends of the divergent members 3 and 4 are connected by the rear transverse member 5.

To the frame above described is secured a plurality of cutting or scraping knives shown in perspective in Figs. 5 and 6. Referring to the sectional view of Fig. 4, the front transverse members are seen to be armed on their under faces with a knife of the type shown in Fig. 5. The upper flat surface of the knife contacts with the under face of the transverse member and is secured thereagainst by means of clamp bolts 27 passing through

drilled apertures 28. This upper portion of the knife which will be here designated as 30 is bent at an angle to the true cutting portions shown at 31. This latter portion is inclined forwardly and downwardly the cutting edge being produced by grinding a bevel as at 31′. The knife of the member 2′ is precisely the same as that of the front member. The knives of the divergent frame members 3 and 4 however are of the peculiar formation shown in Fig. 6. This construction comprises a relatively wide plate of suitable steel bent along a line parallel to one longitudinal edge and at a gradually increasing angle toward the forward end. The axis about which this bending occurs is shown at 33 in Fig. 6 and it will further be seen from this view that the point or forward end of the knife has a double curve being also bent about an axis 34 forming a right angle with the line 33. The cutting edge of this knife is also ground to a bevel as shown at 35. Referring to Fig. 2 it will thus be seen that the angle of the cutting edge with the face of the ground increases toward the forward end of the knife. Referring to the plan view of Fig. 1 it will be seen that the curved portion or points of the knives, when they are secured in position to the divergent frame members, form a continuous cutting edge. Secured to the upper faces of the divergent frame members 3 and 4 and adjacent the inner edges thereof, are the vertical thrust boards, 36 and 37 respectively. Referring to the plan view of Fig. 1 it will be seen that these boards converge to a sharp point at 10, diverge rearwardly, terminating at the points 40 and 41 in longitudinal alinement with the outermost portions of the cutting edges of the divergent knives.

The operation of the brush grubber above described is as follows. The drag weight boxes are filled with weights, stones found in the field to be cleared may be conveniently used, and tractive force is applied to the draft chains 7. As the grubber is drawn over the face of the ground, the brush or material to be cut will be subjected to the successive actions of the front and rear transverse knives and to the drawing cut of the divergent knives, all of which are held in close contact with surface of the ground by the weight of the structure. The relatively high thrust boards will throw the cut brush to the side of the grubber, and the windrows thus formed may be burned off, thus completely clearing the ground.

The improved device may be made in any desired size and of any preferred material, as dictated by personal judgment or manufacturing requirements. It is simple in construction and is believed to fulfil satisfactorily the requirements of efficiency and durability.

Although I have shown and described a particular form of weighting structure, it will be understood that the same may be modified to meet the requirements of the locality in which the device is designed to be used.

What I claim is:

1. In a brush grubber, a substantially horizontal frame, a pair of spaced parallel knives secured on the under surface of said frame and transversely of the line of draft, a V-shaped knife also secured to the under surface of said frame and rearwardly of said first named knives, the point of said "V" lying adjacent said first named knives, the angle between the cutting edge and the plane of the frame decreasing as the outward extension of the legs of the V, and means for applying tractive effort to said frame.

2. In a brush grubber, a frame comprising a pair of spaced parallel transverse members, a pair of longitudinal members secured to said first named members adjacent their middle points and having divergent extensions, a rear transverse member connecting the outward points of said extensions, downwardly and forwardly directed cutting elements secured to the under faces of said frame members, and means for applying tractive effort to said frame.

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

WILL R. HORNE.

Witnesses:
J. H. WILLIAMS,
MONA M. WILLIAMS.