

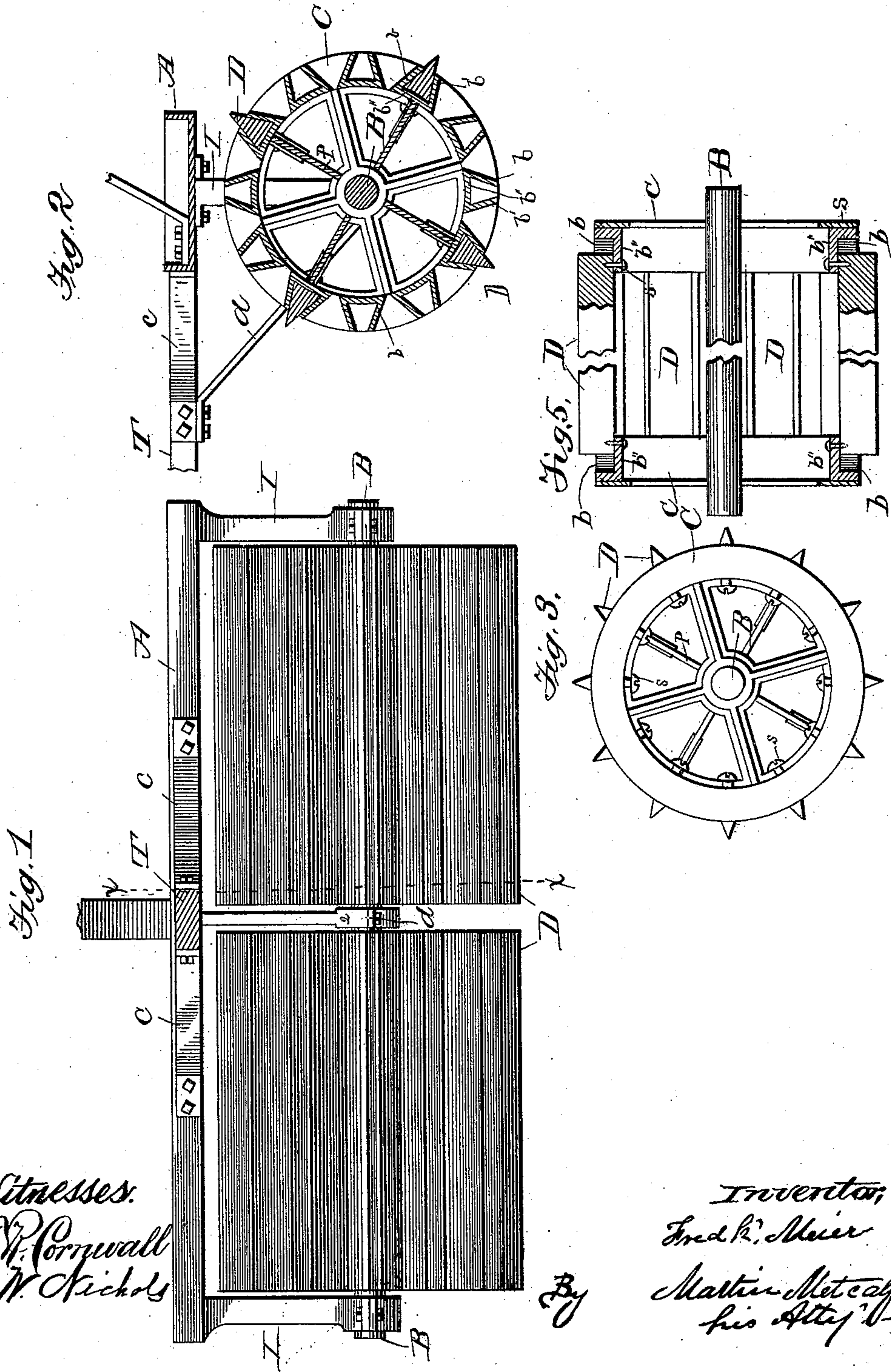
(No Model.)

2 Sheets—Sheet 1.

F. MEIER.
CLOD CRUSHER.

No. 466,356.

Patented Jan. 5, 1892.



Witnesses:
J. H. Cornwall
J. W. Nichols

Inventor,
Fred R. Meier
By
Martin Metcalf
his Atty.

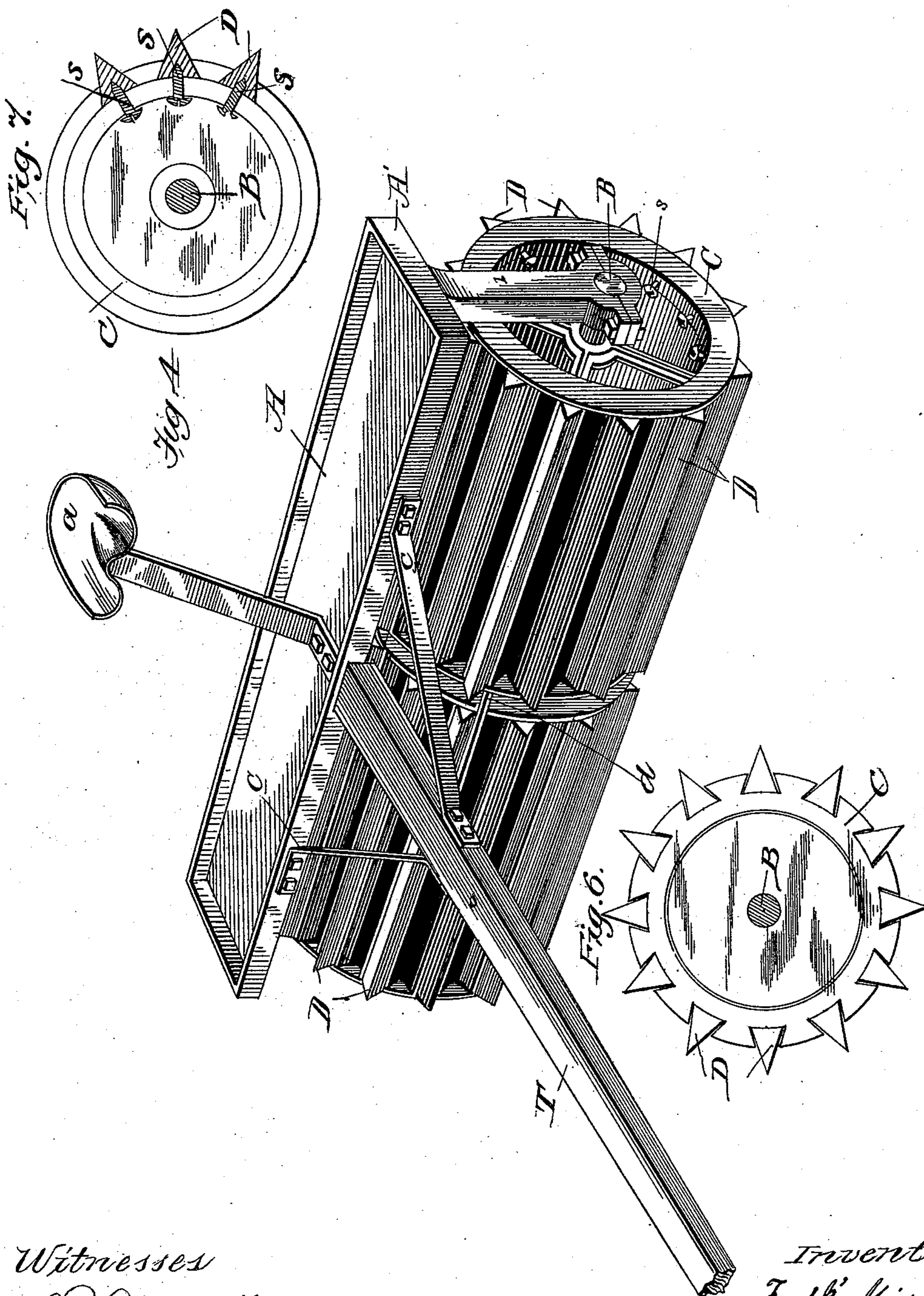
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UNITED STATES PATENT OFFICE.

FREDERICK MEIER, OF BATTLE CREEK, MICHIGAN.

CLOD-CRUSHER.

SPECIFICATION forming part of Letters Patent No. 466,356, dated January 5, 1892.

Application filed December 11, 1890. Serial No. 374,274. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK MEIER, a citizen of the United States, residing at Battle Creek, in the county of Calhoun and State of Michigan, have invented certain new and useful Improvements in Land Lump and Clod Crushers, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

10 The object of this invention and mode of its operation will be readily discovered by those skilled in land cultivation by a mere inspection of the drawings. Further than that, among its objects are the following: first, 15 to cut the hard clods and lumps of baked soil to pieces instead of simply crushing the same, as heretofore attempted, by the mere weight of the implement; second, to let the severed parts pass between the cutter-bars to the interior of the roller-cylinder, where they are 20 alternately lifted and let fall from bottom to top, and vice versa, of the roller by means of centrally converging plates suitably provided therein, whereby the severed lumps and 25 clods are carried and thoroughly pulverized, as is evident.

In the drawings, Figure 1 represents a front view of my novel invention having the tongue and driver's seat broken away and removed. 30 Fig. 2 is a vertical cross-section thereof, drawn on line *x x* of Fig. 1, showing the manner of fastening the cutter-bars to the roller-heads, with four of the said bars in place. Fig. 3 represents the opposite or outside face of one of 35 the roller-heads with all the bars in place. Fig. 4 represents the completed implement in perspective elevation, mounted and ready for work in the field. Fig. 5 is a longitudinal section through one of the roller-heads, show- 40 ing one construction by which the bars may be removed independently the one of the other; and Figs. 6 and 7 are respectively an inner face view and an outer face view of the roller-head, and shows another construction 45 adapted to permit independent removability of the bars.

Referring now particularly to the letters and numerals of reference designating different portions of the drawings, wherein similar let- 50 ters and figures refer to the same parts in all the views. *A* is a platform inclosed by an upwardly-projecting border *A'*, which forms a conven-

ient box or receptacle wherein may be carried stones or other obstructions from the field, and also for use in weighting the implement 55 according to the ever-varying conditions of soil, &c. Depending vertically from the extreme ends of the platform or from its border *A'* are the roller-supports and bearings 1 1, and centrally between the same depends a 60 similar support 2, and from the said platform (or the tongue) rises the usual support for the driver's seat *a*, and diagonal lateral braces *c c* attach at their rear ends to the platform, and at their forward ends are firmly fixed to the 65 tongue *T*, and a similar brace *d* reaches from the under side of said tongue to the central vertical support 2, as seen in Figs. 1, 2, and 4.

B is the roller-shaft, which may be made in two parts, so that the rollers, of which two are 70 preferably used, revolve independently, or the said shaft may be continuous throughout, as may be preferred.

C represents the roller-head, provided on its inner annular face with flanges *b*, *b'*, and *b''*, 75 arranged in series, as shown, said flanges *b* and *b'* inclining toward each other, thus forming receptacles in shapes similar to a truncated cone, the base of each being formed by the flange *b''* and the sides by the flanges *b* and 80 *b'* to receive the ends of the bars *D*, which are triangular or V-shaped in cross-section, and are secured to the heads by means of set-screws *S* engaging with suitable countersinks 85 or holes in the base of said bars. The bars are removable independently the one of the other without removing or displacing the roller-heads. Many constructions to permit of such removability of the bars will readily suggest themselves to those skilled in the art 90 to which this invention appertains, and I therefore do not wish to be understood as limiting myself to any particular construction for the purpose. Two examples are shown in the drawings. 95

In Fig. 5 the bars are shown as made somewhat shorter than the space between the heads, so that they will have an endwise movement between said heads when the bolts holding them are loosened of a little more than 100 the amount of projection inward of a flange, so that by simply loosening the bolts holding a bar and moving said bar until one end is in contact with the inner surface of a head the

opposite end is free to drop down out of engagement with the flange, when the bar can be removed.

In the construction shown in Figs. 6 and 7 the heads are or may be solid and the ends of the bars reach through the same to the outermost faces thereof. With this construction by simply turning back the set-screws at either end or head the bar will be permitted to slide in its V-shaped horizontal channel, so as to allow of its removal. Plates P are provided reaching from the base of two or more of the cutter-bars D, say, about one-half way therefrom toward the central shaft, the office of which is to alternately lift and let fall the hard lumps of soil that pass between the cutter-bars to the inside of the roller. These plates may be attached to the heads or to the base of said bars, or to both, so that they be firmly fixed and run longitudinally of said roller, whereby a much more perfect pulverization and commutation of the soil is secured than by any means heretofore employed, as is evident. I prefer to have the openings between the cutter-bars aggregate about one-quarter or one-third the entire periphery of the roller at the base of said bars, though this is a matter of no great moment, provided considerable openings are provided between each of the longitudinal bars for the entrance of the severed lumps and exit of the pulverized soil.

Having thus fully described and illustrated my invention, and pointed out its more distinguishing features and novel mode of operation, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a land-roller, the periphery thereof, formed of cutter-bars and open spaces between the same communicating with the interior of the roller, said bars having holes or countersinks in their bases, and set-screws

engaging said holes or countersinks for removably securing the bars in place, substantially as described.

2. In a land-roller, the roller-heads, in combination with independently-removable cutter-bars and set-screws engaging said cutter-bars and serving to hold the same rigidly in the place described.

3. In a land-roller, the periphery thereof, consisting of alternate longitudinal cutter-bars and open spaces between the same communicating with the interior of said roller, in combination with longitudinal plates within the roller, all substantially as described, and for the purpose specified.

4. In a land-roller, the periphery thereof, formed of cutter-bars and open spaces between the same, said cutter-bars having broad bases or rear ends and tapered therefrom to a point and formed in their rear ends with holes or countersinks, in combination with set-screws engaging said holes or countersinks and securing said cutter-bars rigidly in place, but permitting their removal, as specified.

5. In a land-roller, the periphery thereof, consisting of alternate longitudinal cutter-bars and spaces between the same communicating with the interior of said roller, longitudinal plates reaching the length of said bars and depending therefrom, but about half the distance from the base of said bars to the roller-shaft, and set-screws *s*, and flanges *b b'* *b''*, arranged in series, as shown, for the purposes set forth.

In testimony whereof I hereunto affix my hand and signature, this 31st day of October, A. D. 1890, in the presence of two attesting witnesses.

FREDK. MEIER.

Attest:

F. H. GRAY,
O. S. CLARK.