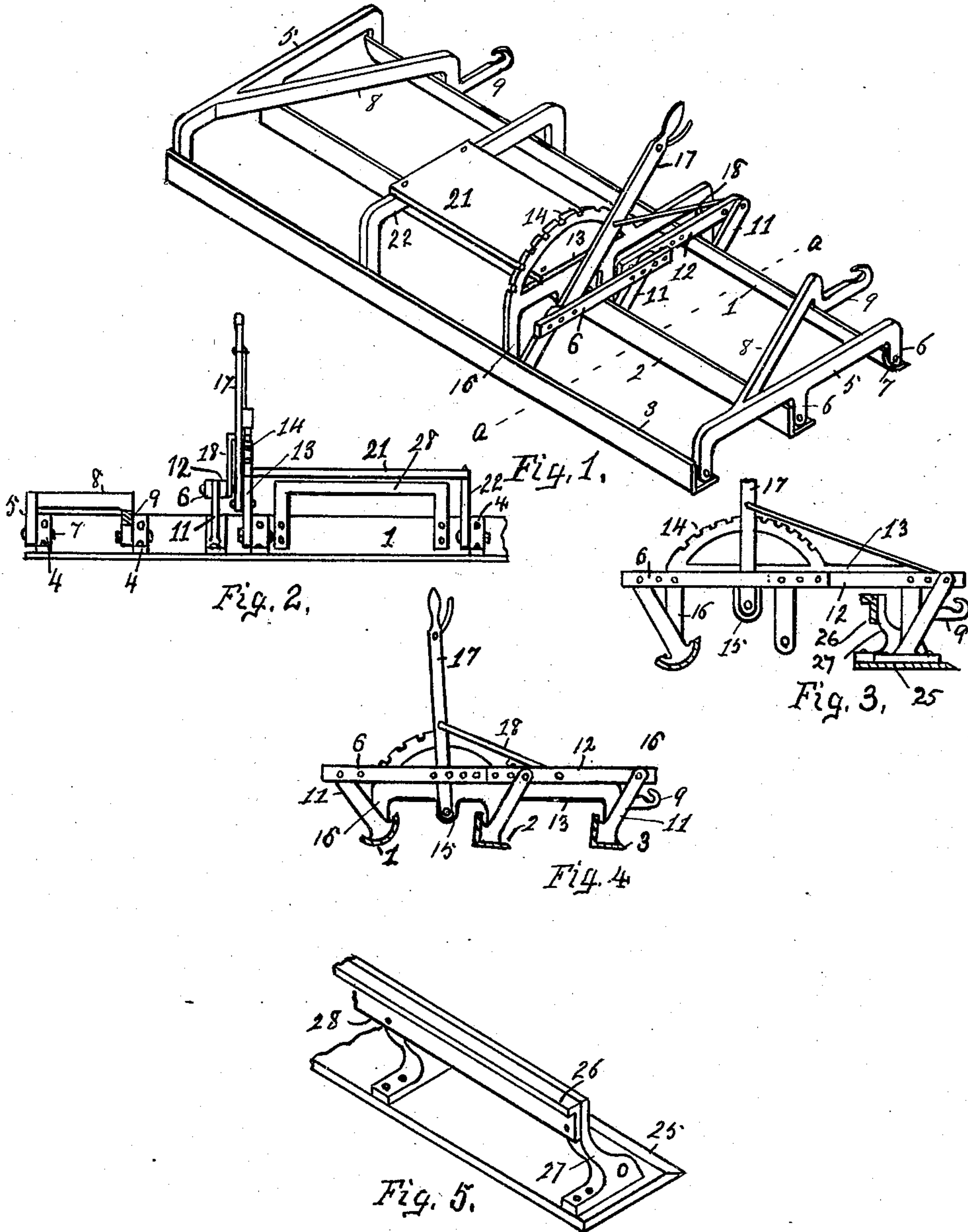


No. 843,025.

PATENTED FEB. 5, 1907.

F. MILLER.
SOIL PULVERIZER AND SMOOTHER.

APPLICATION FILED MAY 19, 1906.



Witnesses.

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By Robert S. Carr. *[Signature]*

UNITED STATES PATENT OFFICE.

FREDERICK MILLER, OF UNION COUNTY, INDIANA.

SOIL PULVERIZER AND SMOOTHER.

No. 843,025.

Specification of Letters Patent

Patented Feb. 5, 1907.

Application filed May 19, 1906. Serial No. 317,762.

To all whom it may concern:

Be it known that I, FREDERICK MILLER, a citizen of the United States, residing in Union county, Indiana, have invented a new and useful Improvement in Soil Pulverizers and Smoothers, of which the following is a specification.

My invention relates to soil pulverizers and smoothers adapted to use in preparing the soil for seeding, for smoothing the surface of race-tracks, and for other purposes; and the objects of my improvement are to provide a series of parallel cutter-bars adapted to shave the soil at different depths, to provide obstructions thereon for breaking the clods in their passage thereover, to provide lever mechanism for simultaneously moving and maintaining the bars with their edges in different vertical angles, and to provide durability and simplicity of construction, together with facility of operation and efficiency of action. These objects are attained in the following described manner, as illustrated in the accompanying drawings, in which—

Figure 1 is an isometrical view of a soil pulverizer and smoother embodying my improvement; Fig. 2, a front elevation with parts broken away; Figs. 3 and 4, transverse sections showing the substitution and different arrangements of the cutter-bars, and Fig. 5 a modified form of construction of cutter-bar.

In the drawings, 1 represents the front cutter-bar formed with a front cutting edge and representing in cross-section the segment of about one-fourth part of a circle. Cutter-bars 2 and 3, similar to each other, each consists of a bar of angle iron or steel having a front cutting edge. Hinge members 4 are secured within the angle of said bars near their respective ends and at intermediate points in their length. Said bars are interchangeably hinged on end pieces 5 by means of removable pintles or bolts 7. Braces 8, provided with draft-hooks 9, extend at an angle from the respective end pieces and are hinged on the front bar 1. Arms 11, rigidly secured to the respective cutter-bars at an intermediate point in their length, approximately bisect the angles of said bars and are adjustably connected together at their extremities by means of links 6 and 12. A fulcrum-bar 13 is provided

with a segmental rack 14, with a depending lever-bearing 15, and with depending hinge member 16, whereby it is removably hinged on the respective cutter-bars and adjacent to arms 11 thereon. A detent-lever 17, adapted to detachably engage with rack 14, is pivotally secured on bearing 15 and provided with a connecting-rod 18, which is pivotally secured to the front end of link 12.

A platform 21, adapted to support a seat, is mounted at one end on the fulcrum-bar and at the other end on an intermediate bar 22, which is similar thereto and serves to brace and strengthen the cutter-bars whereon it is removably hinged.

A modified form of cutter-bar is shown in Figs. 3 and 5, which may be substituted for either of the other cutter-bars above described. It consists of a steel blade 25, formed with a front cutting edge, and of a stiffening-bar 26, preferably of angle-iron, which is secured thereover by means of bracket hinge members 27 to form open slots 28 between them. Said bar 26 permits the pulverized soil to pass thereunder and intercepts and tumbles the clods in a forward direction until they are sufficiently pulverized. Said bar 26 may consist of different sections adapted to occupy only the spaces between the end pieces 5 and the cross-bars 13 and 22. Arch-bars 28 similar to bar 26, but formed with depending ends, may be removably secured to either or all of the other cutter-bars to perform the same purpose. The cutter-bars may all consist of either of the forms described, or bars of either form may be assembled with the others in any desired order which may be best adapted to the conditions of the soil. The device may be constructed with any desired number of cutter-bars, and it may consist of a plurality of sections movably secured together at their adjacent ends.

In operation the links serve to independently adjust the cutter-bars in the same or different vertical angles, as desired to act either as cutters or smoothers. The detent-lever serves to simultaneously adjust said bars. In the cutting position of a bar the pulverized soil is carried thereover and deposited on the surface, and the clods are carried forward and crushed by impact with each other or deposited in depressions to be crushed by the edges or weight of the succeeding bars.

Having fully described my improvement, what I claim as my invention, and desire to secure by Letters Patent of the United States, is—

- 5 1. The combination of end pieces, a series of angle-bars hinged thereto and each formed with a cutting edge, and lever mechanism adapted to rotatively adjust said bars simultaneously.
- 10 2. The combination of a series of interchangeable cutter-bars, means for removably connecting them together and parallel with each other, braces removably hinged on the front bar of the series, and lever mechanism removably supported on said bars and adapted to simultaneously move and maintain them in different positions of rotative adjustment.
- 15 3. The combination of a series of cutter-bars, each terminating its opposite edges in planes substantially perpendicular to each other, means for interchangeably connecting said bars together and adjustable lever mechanism mounted on said bars and adapted to simultaneously move and maintain them in different rotative positions.
- 20 4. The combination of a series of cutter-bars, arch-bars adapted to be secured thereover with a slot between them, means for interchangeably securing said cutter-bars together and parallel with each other, and ad-
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- 30

justable lever mechanism arranged to simultaneously move and maintain said bars in different rotative positions.

5. The combination with end pieces each provided with a brace, a series of interchangeable cutter-bars secured thereto, means for independently adjusting said bars with their edges in different vertical angles, lever mechanism for rotatively adjusting said bars, and draft connections detachably engaging with the front bar of said series.

6. The combination of a cutter-bar, and an arch-bar adapted to be removably secured thereto for the purpose specified.

7. The combination of end pieces, a cutter-bar provided with hinge members adapted to movably engage therewith, and a bar supported on said members a short distance thereover.

8. The combination of a series of cutter-bars, lever mechanism for simultaneously moving and maintaining them in different positions of rotative adjustment, and means maintaining said bars in different positions of rotative adjustment in relation to said mechanism.

FREDERICK MILLER.

Witnesses:

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