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T. J. HOWE, D. J. AMES & H. N. LABARE.

CULTIVATOR OR GRAIN DRILL TOOTH.

(No Model.) (Application filed Aug. 23, 1899.)

FIG. 1.

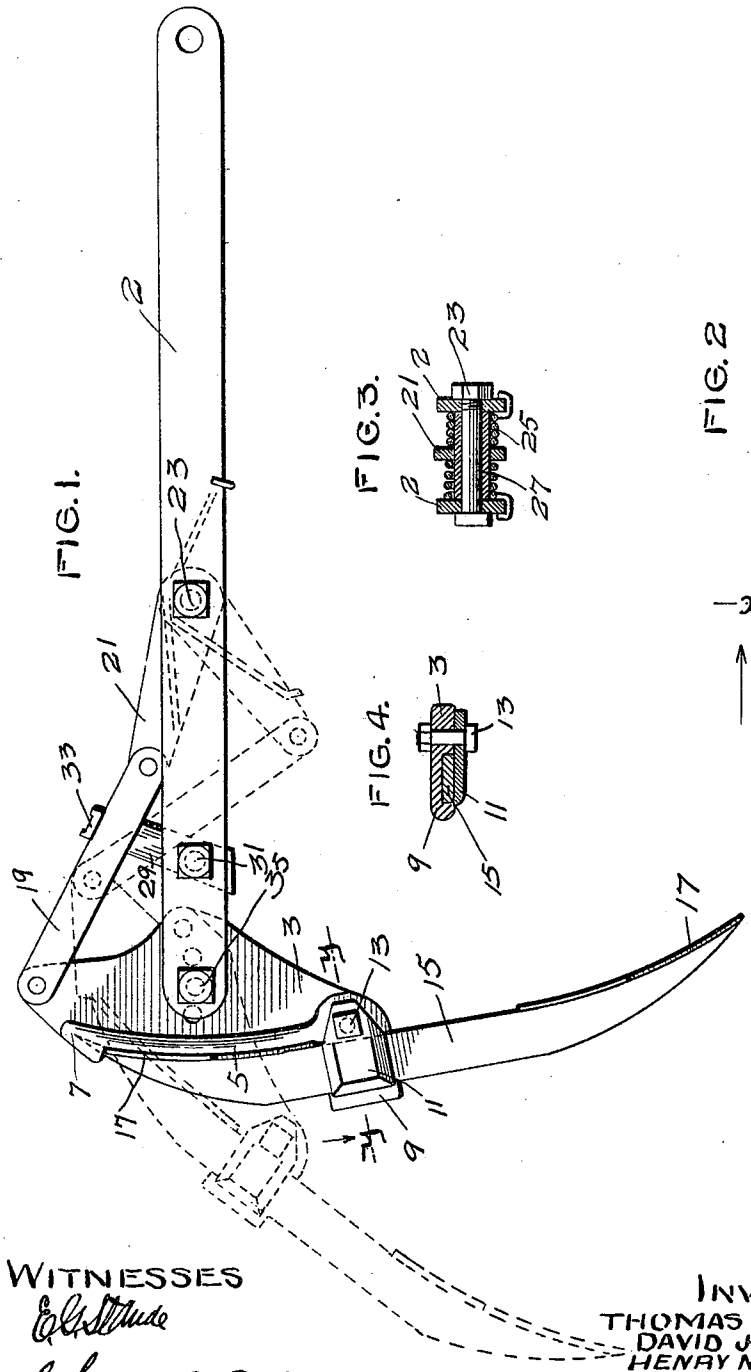
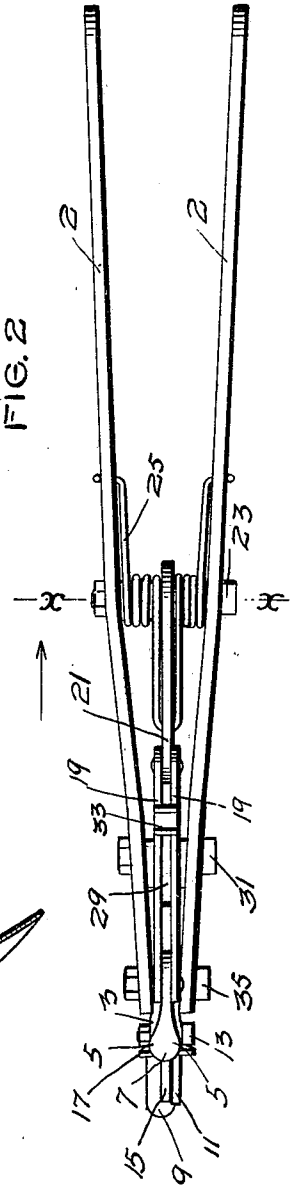


FIG. 3.

FIG. 4.

FIG. 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

THOMAS J. HOWE, DAVID J. AMES, AND HENRY N. LABARE, OF OWATONNA, MINNESOTA, ASSIGNORS TO THE OWATONNA MANUFACTURING COMPANY, OF SAME PLACE.

CULTIVATOR OR GRAIN-DRILL TOOTH.

SPECIFICATION forming part of Letters Patent No. 637,390, dated November 21, 1899.

Application filed August 23, 1899. Serial No. 728,249. (No model.)

To all whom it may concern:

Be it known that we, THOMAS J. HOWE, DAVID J. AMES, and HENRY N. LABARE, of Owatonna, county of Steele, and State of Minnesota, have invented certain new and useful Improvements in Cultivator or Grain-Drill Teeth, of which the following is a specification.

This invention relates to improvements in yielding teeth for cultivators, grain-drills, or other like implements; and the object of the invention is to provide a reversible tooth of simple construction that will yield when it comes in contact with rocks, stumps, or other fixed objects, but which will only yield after considerable strain has been applied to the tooth, so that stones or objects that are not fixed will be pulled up and loosened by the tooth instead of causing the tooth itself to yield. After the tooth has passed the obstruction which has caused it to yield it will be automatically caused to resume its original or normal position.

Another object of the invention is to provide a tooth of this character which can be adjusted for any desired pitch of the tooth without changing the tension thereof.

Other objects of the invention will appear from the following detailed description, taken in connection with the accompanying drawings, in which—

Figure 1 is a side elevation of a cultivator or grain-drill tooth embodying our invention. Fig. 2 is a plan view of same. Fig. 3 is a section on line *x x* of Fig. 2 looking in the direction of the arrow in said figure. Fig. 4 is a section on line *y y* of Fig. 1 looking in the direction of the arrow in said figure.

In the drawings, 2 represents the draft-bar, each bar being formed of two members, which are separated a suitable distance to receive between them the tooth-carrier and coöperating parts, as hereinafter described. This draft-bar is of any ordinary or preferred construction. Pivoted between the two members of the draft-bar, at or near the rear end thereof, is the tooth-carrier 3. This tooth-carrier consists, preferably, of a suitable casting adapted to have the forward part of a reversible tooth lie against its rear edge, as shown in Fig. 1, being provided with a rib 5 on each side, forming a broad bearing-surface for the front side of the tooth. At the upper end of the rib 5 there is preferably a projection 7, having a recess or socket in its lower end into which the end of the tooth projects, as shown by the dotted lines in Fig. 1. At its lower end the tooth-carrier 3 is provided with the rearwardly-extending projection 9, having a recess in the side thereof through which the shank of the tooth passes, as shown in Figs. 1 and 4. A clamping-plate 11 is adapted to be secured by a bolt 13 on the side of the tooth-carrier, thereby locking the tooth in position on the tooth-carrier. We provide a tooth 15, that is preferably reversible, being provided with a share or point 17 at each end. By removing the clamping-plate 11 the tooth may be quickly removed from the carrier and reversed. After the teeth have become worn it is particularly advantageous to be able to reverse them, and with the construction here shown this may readily be done by the user in the field by simply removing the clamping-plate 11. To the upper end of the tooth-carrier 3 is pivoted one end of one member of a toggle-joint lever. This member 19 is preferably formed in two parts, extending on either side of the tooth-carrier 3, while the other member 21 is formed as a single bar, its rear end being pivoted between the two parts of the forward end of the member 19, as shown in Fig. 2. The forward end of the member 21 of the toggle-joint lever is pivoted upon a bolt 23, extending between the two members of the draft-bar 2. A spring 25 passes centrally under the member 21 of the toggle-joint lever, is carried several times around the bolt 23, and has its ends hooked under the two parts of the draft-bar 2. A sleeve 27 is preferably provided upon the bolt 23 and forms a bearing for said spring and for the end of the lever 21. A stop 29 is secured between the two members of the draft-bar, near the rear end thereof, by means of a bolt 31. This stop is provided with a head 33, and the stop passes between the two parts of the member 19 of the toggle-joint lever, and when in its normal position the lever is held against said stop by the tension of spring 25. We prefer to provide several holes in the tooth-carrier 3, all equidistant from the point

where said toggle-joint lever is pivoted to said tooth-carrier, as shown in Fig. 1 of the drawings. A bolt 35 passes through the end of the draft-bar and through one of the holes in the tooth-carrier. This bolt may be passed through any one of the holes in the tooth-carrier, and thereby the tooth may be adjusted to any desired pitch without changing the tension on the toggle-joint levers or the position of said levers relatively to said tooth-carrier.

It will be seen that this device is exceedingly simple in construction; that a reversible tooth may be used in connection with it; that the position of the toggle-lever in reference to the tooth-carrier always remains the same, and hence the same amount of pull on the tooth is always required to cause the tooth to yield; that the tooth-carrier may be adjusted so as to give the tooth any desired pitch, and that the tooth is, in fact, absolutely rigid until sufficient pull is exerted thereon to overcome the locking action of the toggle-joint lever and spring.

We claim as our invention—

1. The combination, with a suitable draft-bar, of a tooth-carrier secured to said draft-bar by an adjustable pivot, a detachable tooth and means for securing said tooth to said carrier, a toggle-joint locking-lever pivoted to said tooth-carrier and to said draft-bar, a spring engaging said lever and a stop for said lever, for the purpose set forth.

2. The combination, with the draft-bar 2, of the tooth-carrier 3, adjustably pivoted to said draft-bar, the toggle-joint lever 19 21 pivotally connected to the upper end of said tooth-carrier and to said draft-bar, a spring engaging said lever, a stop 33 for said lever, the reversible tooth 15, and means for clamping said tooth upon said tooth-carrier, substantially as described.

In testimony whereof we have hereunto set our hands this 16th day of August, 1899.

THOMAS J. HOWE.
DAVID J. AMES.
HENRY N. LABARE.

In presence of—
MINNIE E. AMES,
FRANK LABARE.