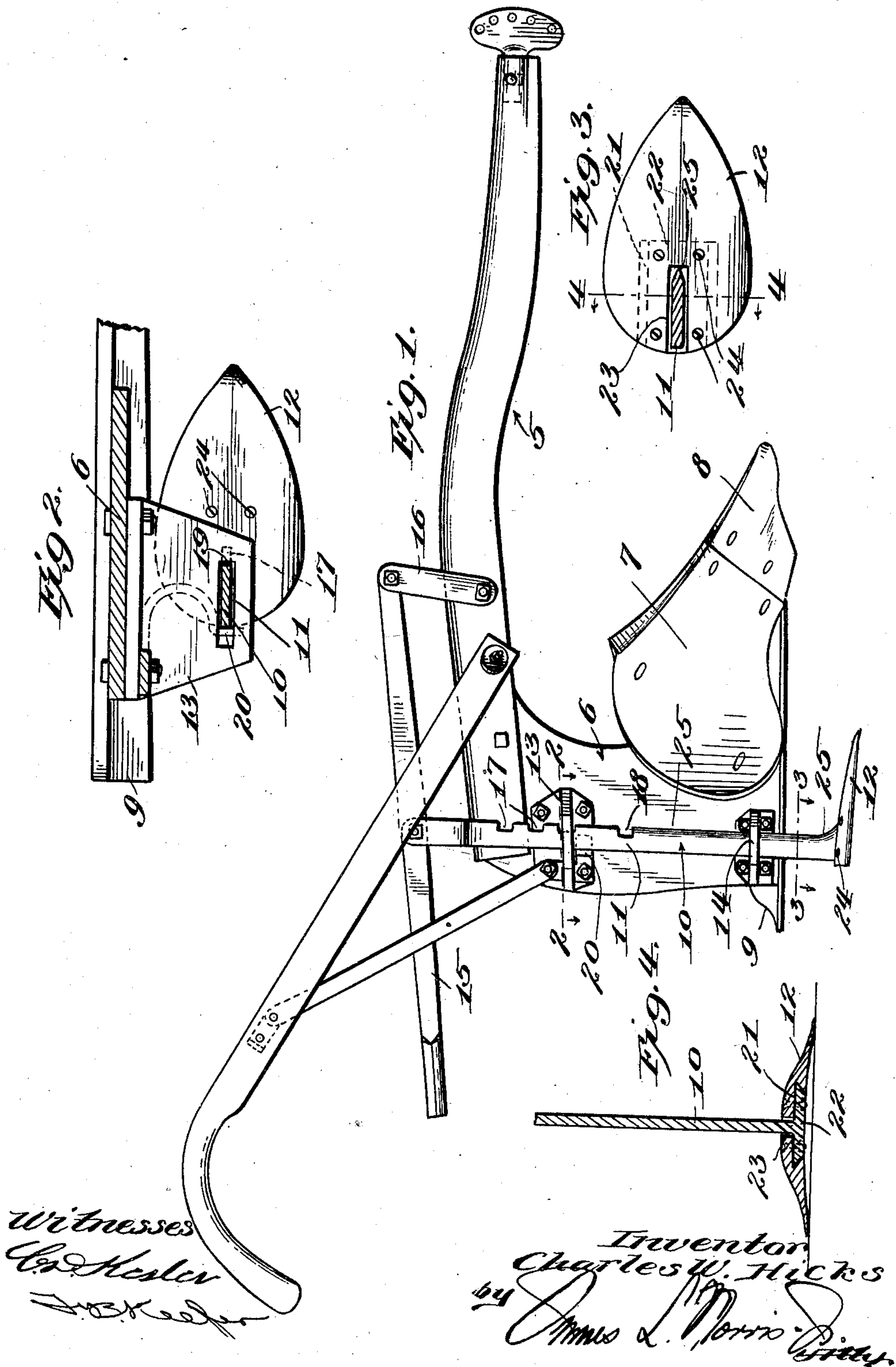


990,737.

C. W. HICKS.
SUBSOIL PLOW.
APPLICATION FILED NOV. 18, 1910.

Patented Apr. 25, 1911.



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UNITED STATES PATENT OFFICE.

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SUBSOIL-PLOW.

990,737.

Specification of Letters Patent.

Patented Apr. 25, 1911.

Original application filed September 24, 1910, Serial No. 583,628. Divided and this application filed November 18, 1910. Serial No. 593,047.

To all whom it may concern:

Be it known that I, CHARLES W. HICKS, a citizen of the United States, residing at Sutherland, in the county of Hillsboro and State of Florida, have invented new and useful Improvements in Subsoil-Plows, of which the following is a specification.

The present invention relates to improvements in subsoil plows, and is, substantially, a division of my co-pending application, filed September 24, 1910, Serial No. 583,628.

It comprehends, broadly, the attachment of an adjustable subsoiler to a turn plow of any type, so that the breaking up of the soil and the turning over of a furrow may be performed simultaneously.

More especially it resides in the provision of a subsoiler constructed in such a manner that the shoe or share portion may be lowered to the required depth in the ground, locked in adjusted position, and raised out of the ground and supported when its immediate use is not contemplated.

A structural embodiment of the invention is illustrated in the accompanying drawing, wherein—

Figure 1 is a side elevation of a plow with the improved subsoiler attached thereto; Figs. 2 and 3 are transverse horizontal sectional views taken, respectively, on the lines 2—2 and 3—3 of Fig. 1; and Fig. 4 is a transverse vertical sectional view taken on the line 4—4 of Fig. 3.

The plow depicted in said drawing is of the type shown and described in my prior application, above identified, to which reference may be had for detailed description. It is necessary, therefore, to state merely that such plow includes the beam 5, flat plate-like standard 6, mold-board 7, plow point 8, and land side 9.

The subsoiler, which is indicated generally by the numeral 10, is preferably connected to the standard and is located on the same side thereof as the mold board and point. It consists, essentially, of a vertical bar 11 which is provided at its lower end with a share or shoe 12. This bar is slidable through the upper and lower slotted guide brackets 13 and 14 fastened in the present instance to the standard, and is raised and lowered by means of a lever 15 fulcrumed at its forward end upon an up-standing link 16 which is pivoted, in turn, to the beam, the upper end of the bar being connected to the central portion of said

lever. In one edge of said bar there is formed a series of notches 17, below the lowermost of which is an additional notch 18. These notches are arranged to interchangeably receive the adjacent end wall 19 of the slot in the upper bracket 13, which wall thus constitutes a locking shoulder, the bar being normally forced toward said shoulder through the medium of a spring 20. Bar 11 is provided at its lower end with the shoe 12, as has already been stated. Said shoe is preferably detachable from the bar, in order to permit it to be removed, when worn or otherwise unfit for use, and replaced by a new one. This removability may be provided for in any suitable manner, but may advantageously be effected by forming the shoe with a longitudinal seat 21 which receives a foot 22 formed upon the bar end, said seat being preferably located in the under face of the shoe and opening out through the rear end thereof. The side walls of the seat are beveled in opposite directions, as shown in Fig. 4, and the side edges of foot 22 are correspondingly beveled, so that said foot dove-tails into its seat, as will be understood. There is also formed in the shoe a longitudinal slot 23 that opens into seat 21 throughout its entire extent, and receives the bar end. To hold the shoe securely in place, it may be fastened to the bar foot by screws 24 or the like, which are removed when the shoe is to be detached. The front edge of that portion of the bar which normally lies below the lower bracket 14 is preferably beveled or sharpened, as indicated by the numeral 25, to provide a cutting edge. The under faces of the shoe and foot are concaved, as shown in Fig. 4, so as to reduce friction as far as possible, when the plow is in use.

It will be apparent from the foregoing that the subsoiler may be raised and lowered by means of lever 15, thereby enabling the shoe to be set at the proper depth in the ground or to be held at an appreciable distance thereabove, according to the particular notch wherein the locking shoulder 19 is engaged. The employment of the spring 20 results in the automatic engagement of said shoulder in the notches, when the latter are brought into alinement therewith, the connection of the operating lever to the swinging link 16 providing for the necessary play of bar 11 incidental to such adjustment.

The lower guide bracket 14 is located in close proximity to the lower edge of the standard, as shown in Fig. 1, this arrangement tending to relieve the strain upon bar 11 to a very great extent, and to hold shoe 12 in level running position.

While the subsoiler has been shown and described as applied to the type of plow which forms the subject of my prior application, it is to be understood that it may, with equal facility, be attached to any conventional turning plow, so as to provide for a breaking-up of the soil to a depth suitable for the particular strip of ground to be treated.

I claim as my invention:

1. In a plow, the combination, with a beam, a standard, and a furrow-turning device attached to the latter; of a pair of guides fastened to said standard; a notched bar slidable in said guides; a shoe attached to the lower end of said bar; a link pivoted to said beam; a lever pivoted at one end to said link and intermediate its ends to the upper end of said bar for adjusting the position of the latter; and means provided upon one of said guides for engagement with the notches of said bar, to hold the same in adjusted position.

2. In a plow, the combination, with a beam, a standard, and a furrow-turning device secured to the latter; of a pair of guides secured one above the other to said standard, one of said guides being provided with a shoulder; a vertical bar slidable in said guides and formed along one edge with a series of notches interchangeably engaged by said shoulder; a shoe located on the lower end of said bar; and means for raising and lowering said bar.

3. In a plow, the combination, with a beam, a standard, and a furrow-turning device secured to the latter; of a pair of guides secured one above the other to said standard, one of said guides being provided with a shoulder; a vertical bar slidable in said guides and formed along one edge with a series of notches interchangeably engaged by said shoulder; means for forcing said bar toward said shoulder, to effect such engagement; a shoe located on the lower end of said bar; and means for raising and lowering said bar.

4. In a plow, the combination, with a beam, a standard, and a furrow-turning device secured to the latter; of a pair of guides

secured one above the other to said standard; a lever pivoted to said beam; a bar slidable vertically in said guides and formed along one edge with a series of notches, said bar having its upper end pivoted to said lever; a locking shoulder provided upon one of said guides and arranged for interchangeable engagement in said notches; means for forcing said bar toward said shoulder to effect such engagement; and a shoe located on the lower end of said bar.

5. In a plow, the combination, with a beam, a standard, and a furrow-turning device secured to the latter; of a pair of guides secured one above the other to said standard, one of said guides being provided with a locking shoulder; a link pivoted to said beam; a lever pivoted at one end to said link; a bar slidable vertically in said guides and formed along one edge with a series of notches arranged for interchangeable engagement by said shoulder, said bar having its upper end pivoted to said lever intermediate the ends thereof; means for forcing said bar toward said shoulder to effect such engagement; and a shoe located on the lower end of said bar.

6. In a plow, the combination of a beam; a standard to which said beam is rigidly connected, and by which it is carried; a pair of guides secured one above the other directly to said standard; and a vertical bar slidable in said guides and provided at its lower end with a shoe, one of said guides being located at the lower end of said standard, to relieve the strain upon said bar.

7. In a plow, the combination of a beam; a standard to which said beam is rigidly connected, and by which it is carried; a vertically-movable bar provided at its lower end with a shoe; means for raising and lowering the bar; a pair of guides wherein said bar is slidably secured directly to said standard, one of said guides being located at the lower end of said standard, to relieve the strain upon said bar; and means carried by the other bracket for retaining said bar in adjusted position.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

CHARLES W. HICKS.

Witnesses:

M. E. McDADE,

H. C. MacCARTENEY.