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J. L. CHONG ET AL

1,816,210

CUTTING TOOL UNIT FOR GROUND WORKING IMPLEMENTS

Filed Sept. 29, 1930

Fig. 1

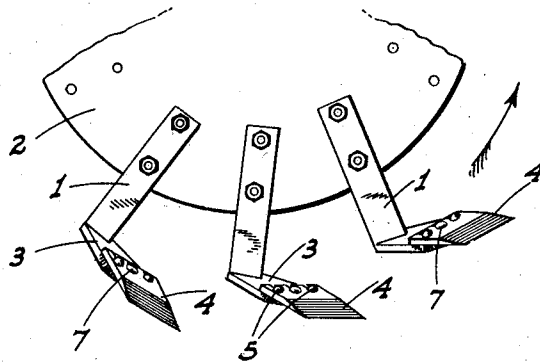


Fig. 2

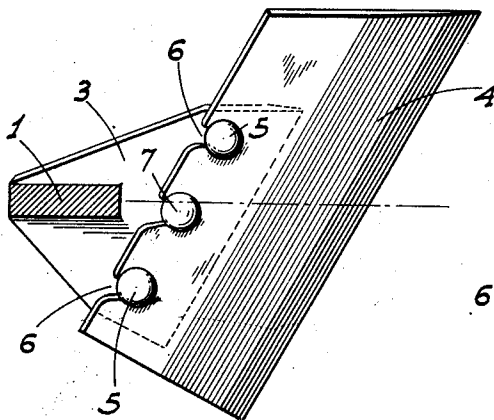


Fig. 3

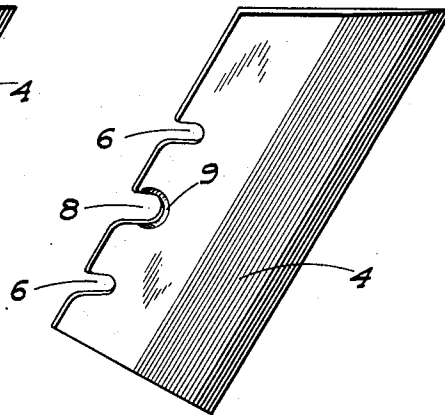


Fig. 4

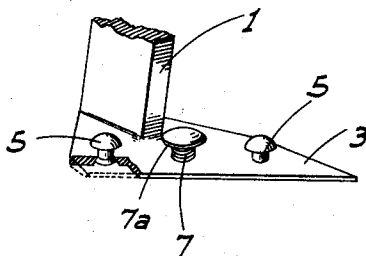
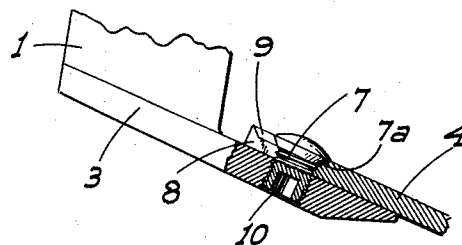


Fig. 5



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CUTTING TOOL UNIT FOR GROUND WORKING IMPLEMENTS

Application filed September 29, 1930. Serial No. 484,976.

This invention relates to ground working implements of the rotary type and particularly to the cutting or digging tools thereof, and the means to mount the tools in connection with the supporting standards. The present invention also particularly represents improvements over the structure for the same purpose shown in the patents of Miller and Leong, Nos. 1,699,151 and 1,699,152, dated January 15, 1929; and which patents are now owned by us.

In the previous implement it was contemplated to make the blades removable from the standards in order to facilitate the resharp-
ening or replacing of said blades, and to cut down the time and expense of such operations as much as possible. In the particular structure previously employed for thus removably mounting the blades, the locating rivets were so arranged that their heads quickly wore away, allowing the blades to drop off. This objectionable feature was aided by the arrangement of the holding or clamping means which maintained the blades snugly against the rivet heads rather than against the supporting pads on the standards.

Also the blades were disposed below or under said pads so that said rivet heads formed the sole support and holding means for the blades. Actual operation in the field with structures as above arranged soon showed up these defects, and the main aim of the present invention is to eliminate the same. This is done by reversing the relative setting of the blades and standard pads, and the setting of the locating rivets relative thereto; and by arranging the holding means so that the blades are clamped against the standard pads rather than against the rivet heads.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects we accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views:

Fig. 1 is a fragmentary side elevation of the standard supporting disc of a rotary implement, showing the mounting of our improved tools in connection therewith.

Fig. 2 is a top plan view of a tool unit with the standard in section.

Fig. 3 is a plan view of a blade detached.

Fig. 4 is a perspective view partly broken away of a standard and its blade supporting pad.

Fig. 5 is a vertical section of a blade and pad showing the special clamping screw used to hold the blade against the pad.

Referring now more particularly to the characters of reference on the drawings the numeral 1 denotes the tool supporting standards of the implement structure—rigid rectangular bars adapted to be bolted onto a rotatable supporting disc 2 in suitable circumferentially spaced relation. Projecting upwardly from the outer ends of the standards are rigid pads 3 which are disposed at an obtuse angle to the longitudinal plane of the post both transversely and lengthwise of the direction of rotation of the structure. Each pad forms the support for a blade 4 which is of relatively large area and rests on the pad in forwardly overhanging relation thereto.

Each blade is of substantially rectangular form with its front and back edges straight and parallel to each other, and it is disposed so that its cutting edge lies at an acute transverse angle to the line of travel; the forward edge of the pad being similarly angled so that it is parallel to the cutting edge of the blade. The blade also has an angular setting in a horizontal transverse plane, on account of the similar setting of the supporting pad. The blade therefore enters the ground with a double shearing action and thus functions very efficiently with a minimum of strain on the supporting structure and its operating mechanism. A pair of rivets 5 are secured in the pad in front of the standard and project inwardly therefrom or away from the ground engaging surface of the same; said rivets being disposed in parallel alinement to the front edge of the pad and being spaced apart transversely on the

pad substantially equal distances to the sides of the standard.

The heads of the rivets are spaced from the pad a sufficient distance to receive the blade thereunder; said blade being provided with slots 6 cut in from its back edge and of sufficient width to engage the body of the rivets but incapable of receiving the rivet heads therethrough. The slots are cut as shown in Fig. 3 so that they extend lengthwise of the line of travel of the blade rather than being at right angles to its back edge. This enables the blade to be mounted or withdrawn in a straight-line direction relative to the line of travel and prevents interference of any blade being thus manipulated with the blades of any adjacent transverse row of blades.

It may here be noted that the implement as a whole has a number of the discs 2, arranged in transversely spaced relation on a common shaft, with the standards of the different discs in circumferentially staggered relation to each other, similar to the arrangement in the above mentioned patents and for the same purpose. It is also to be noted that even though the blades are disposed at an angle to the disc abutting faces of the standards, a line extending across the blade from the standards and parallel to said faces, practically bisects the blades, as indicated in Fig. 2. This enables the discs to be set the same distance apart so that the holding bolts for the standards may be conveniently manipulated, and without the blades of one disc interfering with those of the adjacent disc, or on the other hand being spaced too far from the same in a transverse direction.

Centrally between the rivets and in alignment therewith a special clamping screw 7 is mounted in the pad. A portion of this screw projects inwardly of the pad and is adapted to engage a properly positioned slot 8 cut from the back edge of the blade parallel to the slots 6.

The upper edge of the slot 8 is chamfered as at 9 to engage the bevel formed on the under side of the head 7a of the screw, as shown in Fig. 5. The outer end of this screw terminates inwardly of the ground bearing surface of the pad, so that it will not be worn away by contact with the ground and is provided at said end with a rectangular socket 10 to receive a turning tool of suitable character. By means of the above arrangement it will be seen that when the blade is in place on the pad, a turning of said screw in the proper direction will cause the blade to be firmly clamped against the pad and the rivet heads are of course relieved of all strain. There is therefore no tendency in operation for the blades to pull off the rivet heads or to drop clear of the pads.

From the foregoing description it will be readily seen that we have produced such a de-

vice as will substantially fulfill the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described our invention what we claim as new and useful and desire to secure by Letters Patent is:

1. A tool unit for a rotary earth working implement comprising a standard adapted to be secured to a rotating member, a pad at the outer end of the standard, transversely spaced members projecting from the inner face of the pad, a blade to rest on the inner face of the pad and having slots cut in from its back edge to engage said members whereby to locate the blade on the pad, and additional means to detachably engage the blade and clamp the same against the pad.

2. A structure as in claim 1, in which said additional means comprises a screw threaded into the pad, and projecting inwardly beyond the same, and a head on the inner end of the screw to engage the inner face of the blade; the latter having an additional slot cut in from the back edge of the blade to receive the body portion of the screw between the head thereof and the pad.

3. A structure as in claim 1, in which the back and front edges of the blade are parallel to each other, the slots are the same depth, and the headed members are disposed in a line lying at an acute transverse angle relative to the plane of rotation.

4. A structure as in claim 1, in which the headed members are disposed in a line lying at an acute transverse angle to the plane of rotation, while the blade slots are cut so as to extend parallel to such plane.

In testimony whereof we affix our signatures.

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