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W. L. BEALL

CLAMP FOR CULTIVATOR TOOLS

Filed Feb. 16, 1920

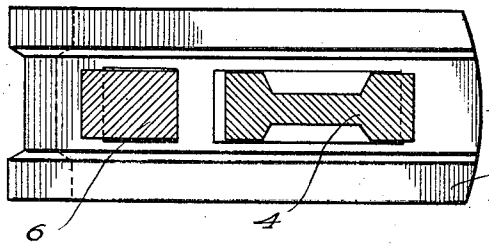



Fig. 2.

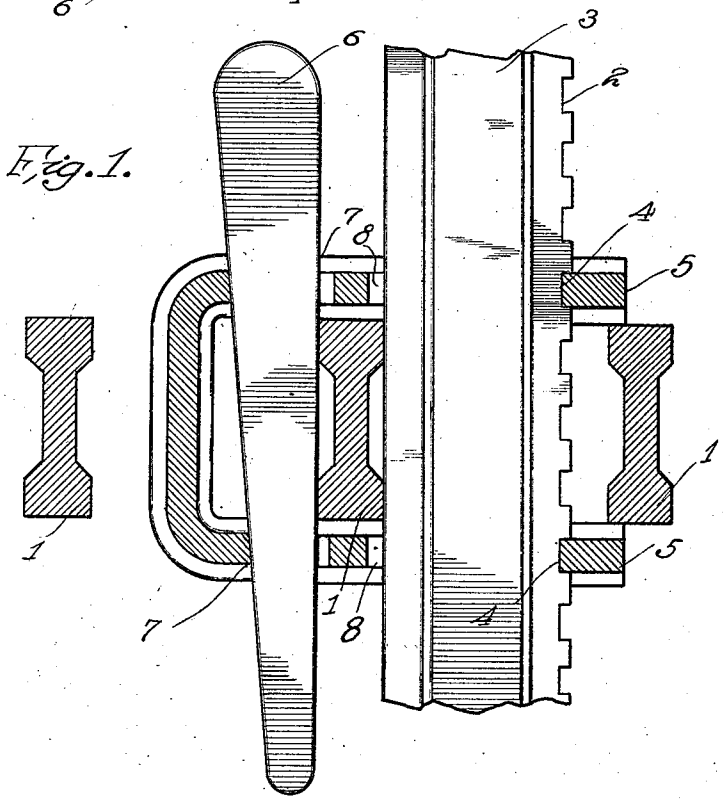



Fig. 1.

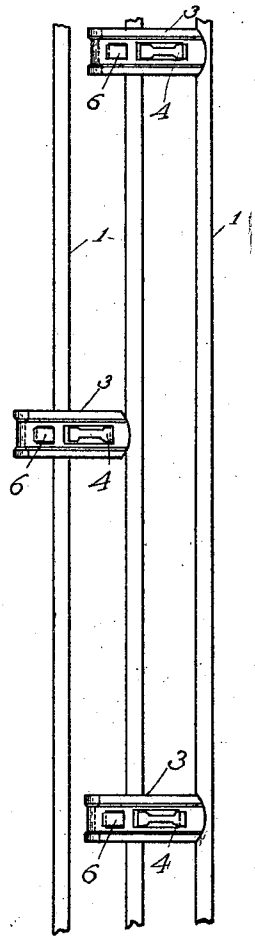



Fig. 3.

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# UNITED STATES PATENT OFFICE.

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## CLAMP FOR CULTIVATOR TOOLS.

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*To all whom it may concern:*

Be it known that I, WILLIAM L. BEALL, a citizen of the United States, residing at Chattanooga, in the county of Hamilton and State of Tennessee, have invented certain new and useful Improvements in Clamps for Cultivator Tools, of which the following is a full, clear, and exact specification.

This invention relates to clamping means for adjustably securing the shanks of cultivator tools to the supporting frame structure of the machine, and particularly to the type of cultivators which includes a plurality of relatively slidable tool supporting bars, for the purpose of regulating the distance between tools.

An object of the invention is to improve the method of supporting cultivating tools, so that while such tools are rigidly secured against displacement by the clamping means, the latter by straddling a plurality of bars, ties them together to resist bending strains from the working tools.

A further object of the invention is to permit a less coarse than usual vertical adjustment of the tool, while the clamp may be of equal strength to clamps of this type which are ordinarily in use.

Another object of the invention is to provide an arrangement for preventing a U-shaped clamp from spreading at its open end.

These objects are accomplished by means of a U-shaped clamping member which is arranged to be supported by a plurality of tool supporting bars and the arms of which are of I or similar reduced cross section at the points where they engage a plurality of notches in the shank of the tool supported.

Fig. 1 is a view of a longitudinal vertical section of the clamp and includes a fragment of a tool shank, and shows the tool supporting beams in cross section;

Fig. 2 is a plan view of the clamp; and

Fig. 3 shows in plan the tool supporting bars, clamps and tool shanks.

U-shaped clamps of the general type shown in the drawings which are formed by punching and bending operations, are usually of uniform cross section, and in that case if the tool shanks which are secured by the clamp are notched to receive the clamp, the notches are necessarily coarse and prevent anything but a comparatively coarse vertical adjustment of the tool. The present clamp, being of other than uniform cross-section, makes it possible without sacrificing strength to utilize a reduced portion of the clamp for engagement with notches in the shank of a tool, thereby permitting more notches and providing for finer adjustment of the tool.

The type of cultivators for which this clamp is intended usually has three transverse tool supporting bars 1, the alternate tools being supported by different bars, and two of the bars being longitudinally adjustable so that the tools which come nearest the rows of plants may be adjusted toward or away from each other.

The function of the clamp is to secure the tools against displacement both longitudinally of the bars and also in a vertical direction. To provide against vertical displacement of the tool, it is preferable to cut or punch out notches 2 from one edge of the tool shank 3. The perforated web 4 of the U-shaped clamping member 5 fits two of said notches when in clamping relation with the tool shank. The U-shaped clamping member straddles at least two of the bars 1 for the purpose of being well supported and utilizing a plurality of such bars for resisting bending strains in one of the bars. The pin 6 and the tool shank 3, respectively, pass through the punched out openings 7 and 8 of web 4.

In the operation of the device, desired vertical adjustment of the tool shank 3 becomes possible by removing the tapered pin 6 and shifting the clamp to the right, Fig. 1, out of engagement with the notches in the tool shank.

When the pin 6 is driven down, the web 4 of the U-shaped clamping member engages two of the notches in shank 3, and draws the shank firmly against the side of the supporting bar 1 which is opposite to that engaged by the tapered pin 6. The pin, being located close to the inner end of the U, in its action, has little tendency to expand the clamp, as would be the case if the pin were located at the outer end of the clamp and the tool shank at the inner end of the clamp. The two arms of the clamp 5 are held in normal relation and against spreading by the tool shank 3 which at its notched surface engages each of the arms.

While there is shown and described but one embodiment of the invention, it is to be understood that it is capable of many modifi-

cations. Changes, therefore, in the construction and arrangement of parts may be made which do not depart from the spirit and scope of the invention, as disclosed in the appended claims.

I claim—

1. The combination with a notched shank of a cultivator tool, of a U-shaped clamp of the class described, said clamp having arms of non-uniform cross section whereby reduced portions thereof may engage notches in said shank, a supporting bar for said shank and clamp, and wedging means for drawing the clamp arms into notches in the shank and binding the shank against the supporting bar.

2. The combination with a notched shank of a cultivator tool, of a U-shaped clamp of the class described, said clamp having arms of I cross section, whereby the web portions of the arms may engage certain of the notches in said shank, a supporting bar for said shank and clamp, and wedging means for drawing said portions of the clamp arms into the notches of said shank and binding the shank against the supporting bar.

3. In a device of the class described, a U-shaped member formed of bent I stock, the web of the two arms of the U-shaped member being perforated, a wedge and tool shank passing through said perforations, said tool shank being notched to engage the web, and a supporting bar passing through the U member between the wedge and tool shank.

In testimony whereof I affix my signature.

WILLIAM L. BEALL.