(No Model.)

T. M. MOORE.

CULTIVATOR.

No. 582,301. Patented May 11, 1897.

Fig. 1.

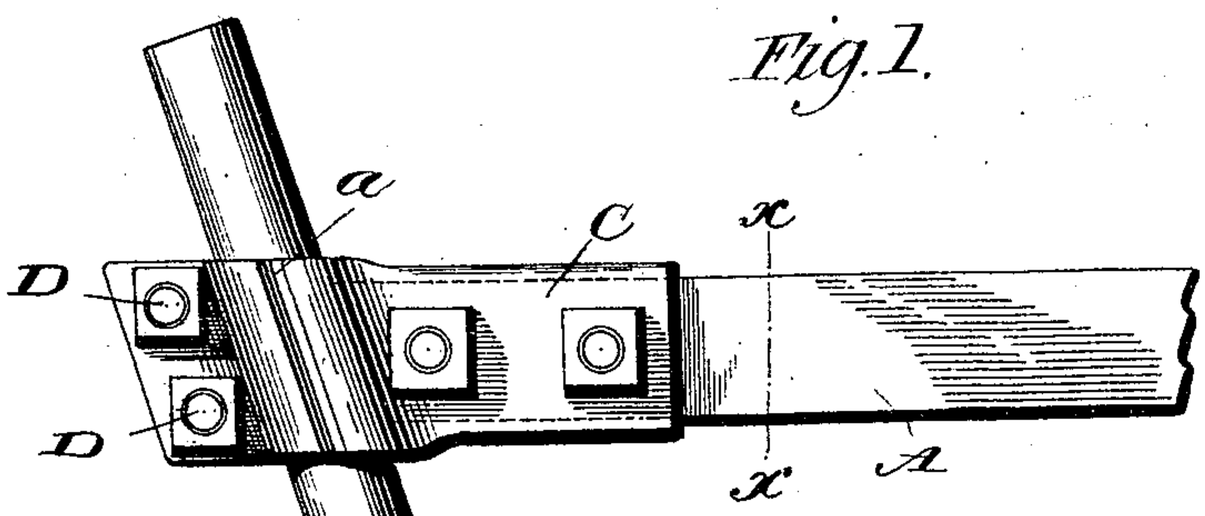


Fig. 2.

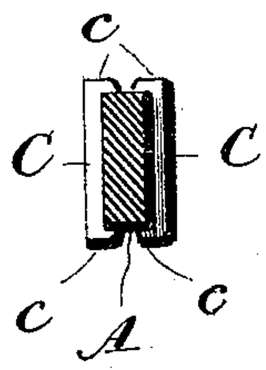
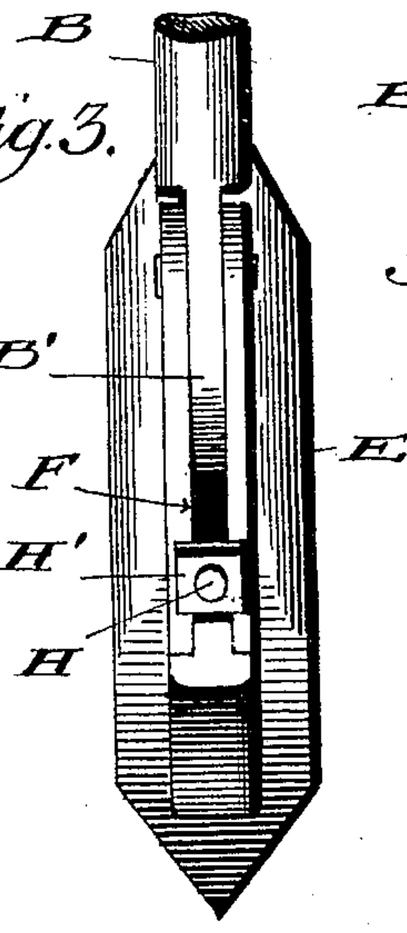


Fig. 3.



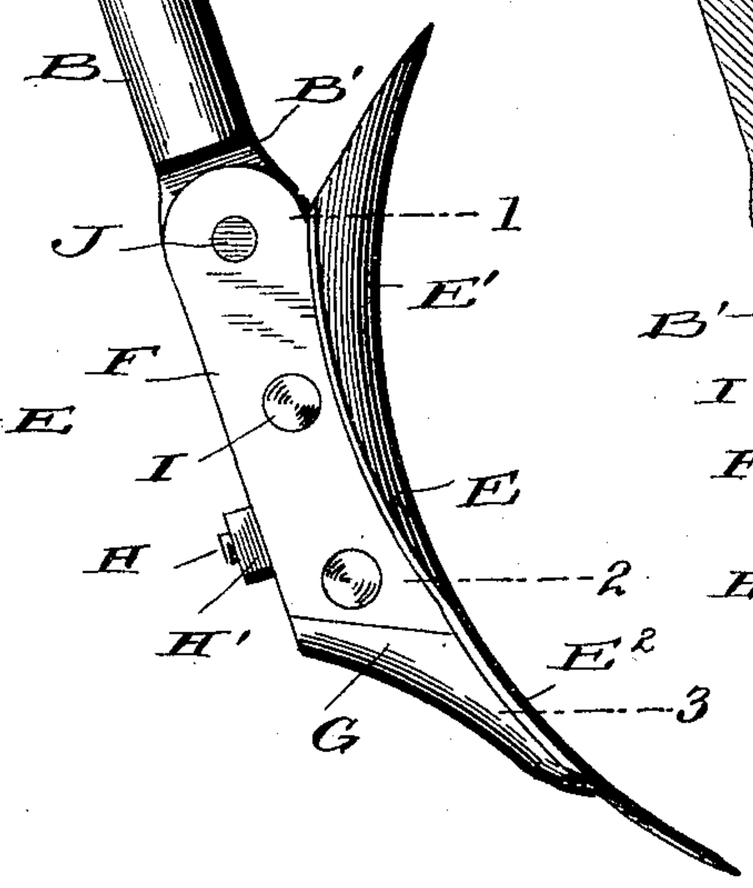


Fig. 4.

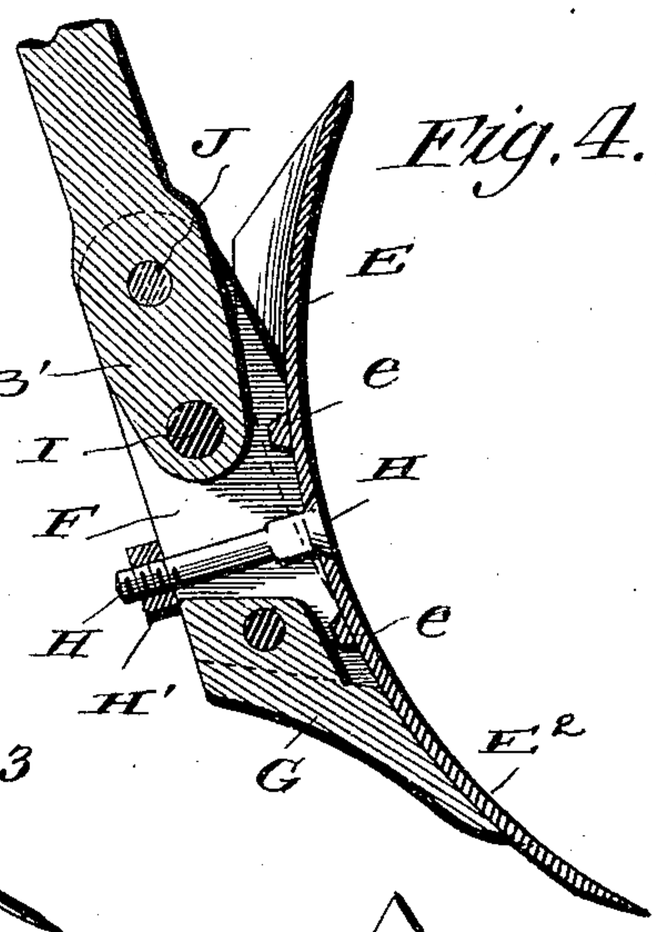


Fig. 5.

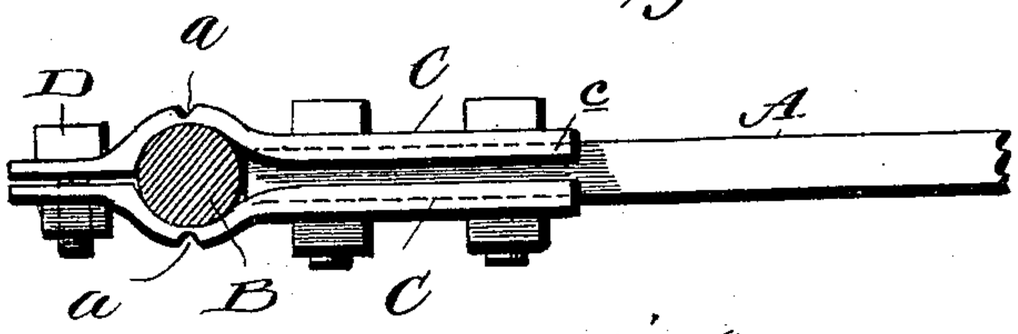
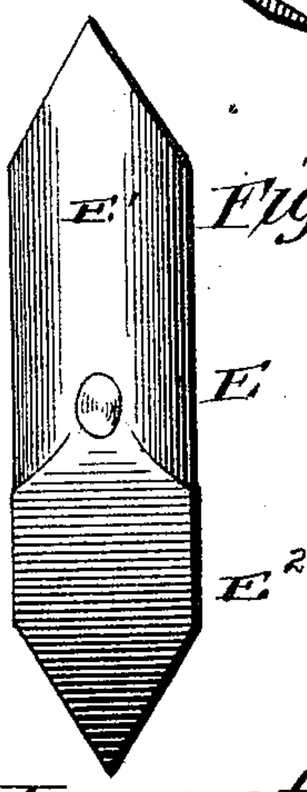


Fig. 6.

Fig. 7.



Witnesses:
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A. E. Hough

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UNITED STATES PATENT OFFICE.

THOMAS M. MOORE, OF SOMERVILLE, NEW JERSEY, ASSIGNOR TO JAMES S. SHERMAN, OF UTICA, NEW YORK.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 582,301, dated May 11, 1897.

Application filed February 21, 1896. Serial No. 580,242. (No model.)

To all whom it may concern:

Be it known that I, THOMAS M. MOORE, a citizen of the United States, residing at Somerville, in the county of Somerset and State of New Jersey, have invented certain new and useful Improvements in Cultivators; and I do declare the following to be a full, clear, and dexact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in cultivators; and it has particular reference to the provision of an improved form of reversible point or shovel adapted for use in soils of varying character and which may be readily reversed as occasion may require.

The invention has for a further object the provision of means for attaching the standard to the drag-bar, whereby proper adjustment of the standard vertically may be readily attained and a proper pitch or inclination of the standard maintained. The attachment being of a swivel nature admits of the ready rotary adjustment of the standard.

The invention further relates to the peculiar form of the point or shovel, whereby a perfect moldboard effect is secured and to the means whereby the shovel is attached to the standard, the shovel being capable of ready adjustment in the direction of the longitudinal curvature of the blade and also of lateral adjustment.

To these ends and to such others as the invention may pertain, the same consists in the novel construction and in the peculiar arrangement, combination, and adaptation of parts, all as more fully hereinafter described, shown in the accompanying drawings, and then specifically defined in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, like letters of reference indicating the same parts throughout the several views, and in which drawings—

Figure 1 is a perspective view of the rear end of a draw-bar with the cultivator-standard and my improved form of point or shovel attached. Fig. 2 is a section upon the line *x x* of Fig. 1. Fig. 3 is a rear view of the shovel attached. Fig. 4 is a central vertical section through the lower end of the standard and shovel. Fig. 5 is a top plan view of the drag-bar, showing the standard and its clamping mechanism. Fig. 6 shows transverse sections of the shovel-blade, the same being taken upon the lines 1, 2, and 3 of Fig. 1. Fig. 7 is a front elevation of the shovel-blade.

Reference now being had to the details of the drawings by letter, A designates a drag-bar of a cultivator, which at its rear end is beveled at the angle at which it is desired to set the standard carrying the point or shovel.

The standard B is held in place against the beveled or inclined rear end of the drag-bar by means of the clamping-plates C C, the body portions of which plates, which engage the side faces of the rear end of the drag-bar, have their upper and lower edges turned over to produce the flanges *c c*, overlapping the upper and lower edges of the drag-bar, as is clearly shown in Fig. 2 of the drawings.

The rear ends of the plates C extend a short distance to the rear of the standard B and are drawn together by means of clamping-bolts D D. In order to cause the clamping-plates C when thus drawn together to force the standard into close contact with the beveled or inclined rear end of the drag-bar and thus hold the standard against possible accidental rotary displacement, I provide the outer faces of the sides of the curved portions of the plates which embrace the standard with grooves *a a*, which permit the plates to bend sufficiently at these points to accomplish the object sought.

The shovel E is double-ended and adapted to be turned upon the bolt H, which passes through its center and by which it is screwed in position, so as to bring either end into use, as may be desired. The end E^2 is curved so as to present a convex face and having its edges turned backward. This end of the shovel is slightly narrower than the other flat ends E′. This curved end of the shovel acts as a double moldboard and the earth displaced

by it rises toward the center of the shovel, where the convex surface gradually merges into the flat one and where the earth drops off equally toward both sides, as from a double moldboard. The flat end E′ when in use causes the displaced earth to rise toward the bolt H and then to drop directly back toward the point where it is swept to one side. The upper portion of this flat end forms a triangular flat surface, the point of which triangle merges into the point of a like triangle upon the surface of the curved end of the blade. Upon reference to Fig. 7 of the drawings this peculiar form of the shovel-blade will be readily seen, the flattened end of the blade being shown at E′ and the concavo-convex portion being indicated at E^2.

The shovels E are attached to the standard as follows: The extreme lower end of the standard is flattened, as shown at B′, and to the opposite faces of this flattened portion are secured plates F F, the lower ends of said plates being secured to the foot-piece G. A bolt H, passed through the longitudinal center of the shovel-blade, is held in place by a nut H′, which has a bearing against the rear edges of the side plates F, and upon the rear face of the blade E at points above and below the bolt-opening therein are provided lugs *e e*, which, bearing against the side plates F, prevent the possible lateral displacement of the shovel, as will be readily understood.

In order to provide against possible breaking of the point or shovel in the event of sudden contact with stones or other unyielding substances, I provide, in addition to the securing-bolt I at the lower end of the standard, a break-pin J, as is common in this class of cultivators.

In operation, if the ground is hard and dry the flattened end of the shovel is brought into contact with the ground and the earth that is thrown up is brought into contact with the convex upper end of the shovel, where it is separated, the effect being more or less the same as that produced by an ordinary double moldboard. In case the ground is soft, sandy, or mellow the tooth is reversed, so as to utilize the convex end of the shoe, and the earth that is thrown into contact with the flattened end of the shoe which is then uppermost will be thrown directly forward with a rolling motion and thoroughly pulverized, instead of being thrown directly to the sides, as is the case with an ordinary convex sleeve.

It will be seen that by the construction above described provision is had for the ready and perfect adjustment of the standard, both as to its vertical as well as rotary movement. The shovel is readily adjusted upon the arc of the circle of which it forms a part, and the shovel, capable as it is of being readily reversed, is equally well adapted for use in soils of various character.

By the construction herein described not only are decided advantages gained by the several features of adjustment, but better effects are secured in operation in any character of soil than could be secured by the use of shovel-blades either flat or convex throughout their entire length, or by non-reversible shovels, or shovels which are materially irregular upon their lateral edges.

Having thus described my invention, what I claim to be new, and desire to secure by Letters Patent, is—

1. A reversible shovel for cultivators of a uniform width from point to point, the same having one of its ends flat and its opposite end convex, the flat portion merging into the convex one in substantially straight lines from each outside edge thereby forming of the flat portion a diamond shape, substantially as shown.

2. A point or shovel for cultivators of a uniform width from point to point, the same having one of its ends flat and its opposite end convex, the flat portion merging into the convex one in substantially straight lines from each outside edge, thereby forming of the flat portion a diamond shape, combined with means, substantially as described, for detachably securing the shovel through its longitudinal face center to the standard, substantially as shown and described.

3. A shovel for cultivators of a uniform width from point to point, the same being formed upon the arc of a true circle, and having one end flat and the other convex, the flat portion merging into the convex one in substantially straight lines from each outside edge thereby forming of the flat portion a diamond shape, substantially as described.

4. A shovel for cultivators of a uniform width from point to point, the same being formed on the arc of a circle, and having one end flat and the other convex, in cross-section, the flat portion merging into the convex one in substantially straight lines from each outside edge thereby forming of the flat portion a diamond shape, combined with means for attaching and adjusting the pitch of the shovel at its longitudinal center, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS M. MOORE.

Witnesses:
A. L. HOUGH,
FRANKLIN H. HOUGH.