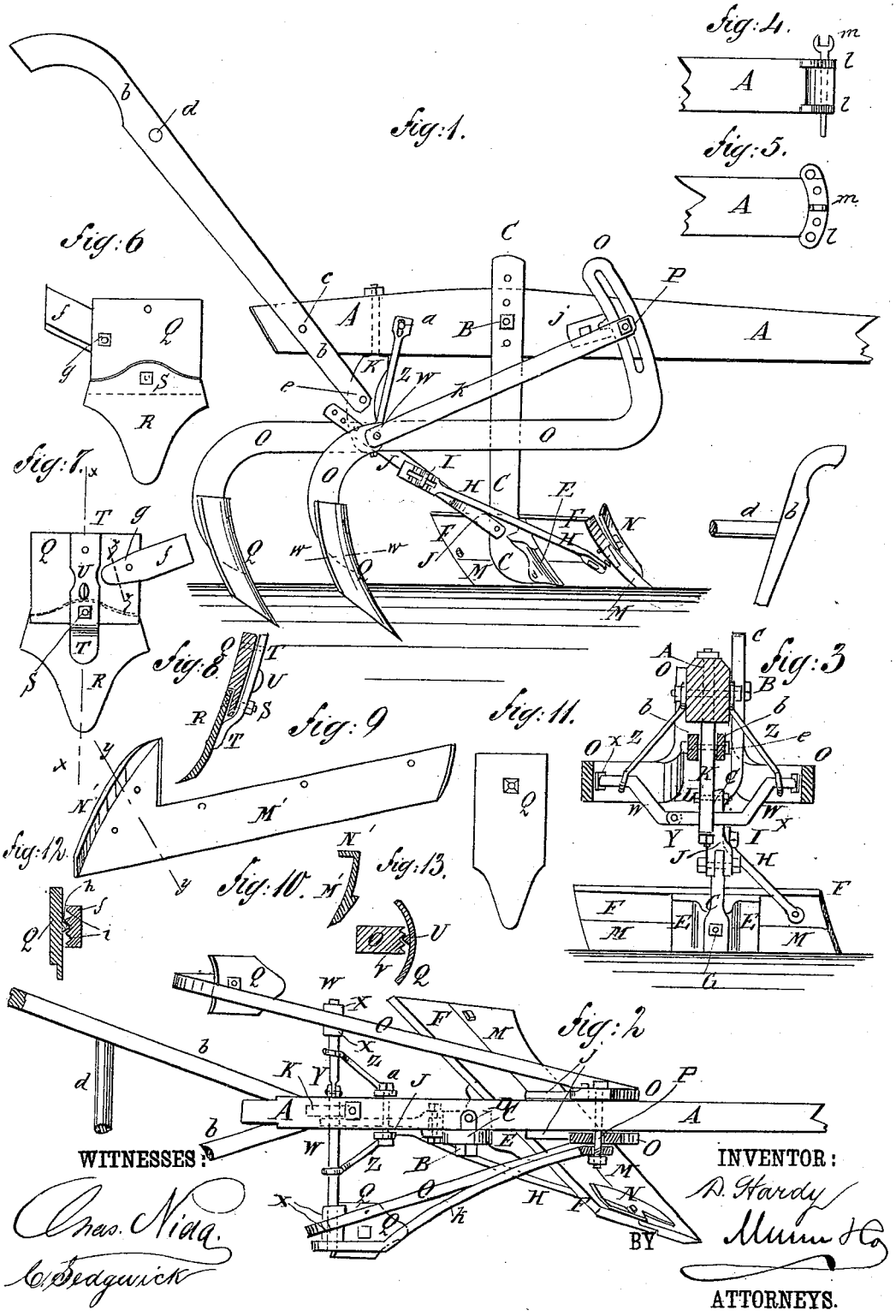
(No Model.)

D. HARDY.

COMBINED SCRAPER AND CULTIVATOR.

No. 262,408. Patented Aug. 8, 1882.



WITNESSES:

Chas. Nida.

C. Sedgwick

INVENTOR:

D. Hardy

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

DABNEY HARDY, OF MACFARLAND'S, VIRGINIA.

COMBINED SCRAPER AND CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 262,408, dated August 8, 1882.

Application filed April 25, 1882. (No model.)

To all whom it may concern:

Be it known that I, DABNEY HARDY, of MacFarland's, in the county of Lunenburg and State of Virginia, have invented certain new and useful Improvements in Combined Scrapers and Cultivators, of which the following is a full, clear, and exact description.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of my improvement. Fig. 2 is a plan view of the same, partly in section. Fig. 3 is a sectional rear elevation of the same. Fig. 4 is a side elevation of the forward part of the plow-beam. Fig. 5 is a plan view of the same. Fig. 6 is a front elevation of a shovel having separable point and wing. Fig. 7 is a rear elevation of the same. Fig. 8 is a sectional side elevation of the same, taken through the line *x x*, Fig. 7. Fig. 9 is a perspective view of a modified form of scraper. Fig. 10 is a sectional view of the same, taken through the line *y y*, Fig. 9. Fig. 11 is a front elevation of another form of shovel. Fig. 12 is a sectional elevation taken through the line *z z*, Fig. 7. Fig. 13 is a sectional plan view taken through the line *w w*, Fig. 1.

The object of this invention is to promote efficiency in the operation of scrapers and cultivators, and also to facilitate the adjustment of the said scrapers and cultivators for the various operations required in the cultivation of plants.

The invention consists in the novel construction and combination of mechanism, whereby the operating parts are firmly and adjustably supported, and are made more effective in operation, as will be fully described in the specification and pointed out in the claims.

A represents the plow-beam, to the side of which, at a suitable distance from its rear end, is secured by a bolt, B, the upper part of the standard C. Several holes are formed in the upper part of the standard C to receive the bolt B, so that the said standard can be raised and lowered to cause the scraper or shovel attached to the lower end of the said standard to work shallower or deeper in the soil.

To the side of the beam A is attached an iron plate, D, to prevent the bolt-hole through the said beam from being worn too large by the bolt B.

In the standard C is formed an offset to bring the lower part of the said standard directly beneath the plow-beam A. The forward side of the lower part of the standard C fits into a groove in the rear side of the shoe E, which forms a seat for the scraper F. The scraper F and shoe E are secured to the standard C by a bolt, G. The scraper F is placed in an inclined position, as shown in Figs. 1 and 2, and its forward end is supported against the resistance of the soil by a brace, H, the forward end of which is bolted to the rear side of said forward end of the scraper F. The rear end of the brace H is slotted to receive the bolt I, that secures it to the side of the brace J, and is corrugated or roughened to give the head of the bolt a better hold upon it to prevent the said brace from moving. With this construction the inclination of the scraper F can be adjusted by loosening the bolt I. The forward end of the brace J is forked and is bolted to the standard C near the upper end of the shoe E, and its rear end is secured to the lower part of the standard K by a bolt, L. Several holes are formed through the rear part of the brace J to receive the bolt L, so that the said brace can be readily adjusted to regulate the pitch of the scraper F. The upper part of the standard K passes up through the beam A, and has a nut screwed upon its upper end. The scraper F is rabbeted upon the forward side of its lower edge to receive the upper edge of the blade or shear M, which is correspondingly rabbeted upon its rear side, and which is secured to the said scraper by bolts or rivets. The rear part of the forward edge of the blade M is curved forward slightly, as shown in Fig. 2, to prevent the said blade from slipping off any roots or vines it may strike against without cutting them.

To the forward side of the scraper F and blade M, at a little distance from their forward ends, is bolted a flange, N, to allow a little soil to be thrown around the plants by the scraper. When no soil is to be thrown around the plants by the scraper a flange, N′, can be formed upon the forward end of the blade M′, as shown in Fig. 9, the said flange N′ being so formed as to

project across and be secured to the forward end of the scraper F.

O are the shovel-plow standards, the middle parts of which are horizontal, or nearly so. The forward ends of the standards O are curved upward, and are slotted longitudinally to receive the bolt P, that secures them to the opposite sides of the plow-beam A, so that the said forward ends can be raised and lowered to adjust the shovels to work deeper or shallower in the ground. The standard O are of unequal length, and their rear ends are curved downward to bring them into proper position to receive the shovels Q, which may be made with separable points R, as shown in Figs. 6, 7, and 8, or in one piece, as shown in Figs. 1, 2, and 11, and of any desired size. In the former case the forward side of the lower edge of the shovel Q is rabbeted to receive the upper edge of the point R, so that the forward surfaces of the shovel Q and point R will be flush with each other, as shown in Fig. 8. The point R and shovel Q are secured to each other by a bolt, S, which passes through the overlapped edges of the said point and shovel, and through the bar T, placed at their rear sides. The lower part of the bar T is made with a forward offset, so that its lower end may set squarely against the rear side of the point R, and support the said point against the pressure of the soil. The upper part of the bar T is kept in place by the bolt that fastens the shovel Q to the standard O, and which passes through the upper end of the said bar T, as indicated by the bolt-hole seen in Fig. 7.

Upon the rear side of the middle part of the bar T is formed a point or tooth, U, which enters one of a number of grooves or recesses, V, formed in the forward side of the lower end of the standard to prevent the shovel from turning upon its bolt. The teeth U and recesses V also allow the shovels to be adjusted square with the line of draft when the rear parts of the standards O are adjusted wider apart or closer together, so that the said shovels will always operate properly.

The rear parts of the standards O are supported upon the crank-arms formed upon the end parts of the rod W, the middle part of which is secured to the lower end of the standards K by a hook or eyebolt or other suitable means. The crank-arms of the rod W pass through holes in the standards O, and have screw-threads cut upon them to receive the nuts X, which are placed one upon each side of each standard O, so that the said standards can be adjusted farther apart or closer together by adjusting the nuts X. As the standards O are of unequal length, their forward ends require an unequal adjustment to keep the shovels at the same level. To allow this unequal adjustment to be made, a hinge-joint, Y, is formed in the crank-arm of the rod W, that supports the longer standards O, as shown in Fig. 3. The crank-arms of the rod W are held in place by the braces Z, the lower ends of which have eyes formed in them to receive the said crank-arms, and have longitudinal slots in their upper ends to receive the bolt *a*, that secures the said upper ends to the opposite sides of the rear part of the beam A. The opposite sides of the rear part of the beam A have inclined rabbets formed in them to receive the handles *b*, which are secured in place by a bolt, *c*. The upper parts of the handles *b* are connected and held in their proper relative positions by a round, *d*. The lower ends of the handles *b* project beneath the beam A, and are secured to the opposite sides of the standard K by a bolt, *e*, so that the said handles will serve as braces to the said standard.

When it is desired to throw a large amount of soil around the plants wings *f* can be secured to the upper side parts of the shovels Q by bolts *g*. The wings *f* are kept from turning upon the bolts *g* by points or teeth *h*, formed upon the rear sides of the said shovels, and which enter grooves or recesses *i* in the forward sides of the inner ends of the said wings. Several recesses, *i*, are formed in the wings *f* to receive the teeth *h*, so that the wings *f* can be adjusted at a greater or less inclination as the work to be done may require.

The upwardly-curved forward ends of the shovel standards O are supported against the draft-strain blocks *j* bolted to the sides of the plow-beam A in the rear of the said standards.

Upon the end of the crank-rod W, next the plants, is screwed the rear end of a bar, *k*, the forward end of which is secured by the bolt P, that fastens the forward ends of the standards O to the said beam. The bar *k* is designed to serve as a guard to prevent the plants from being injured by catching upon the projecting end of the crank-rod W.

The forward end of the beam A is rounded, and is rabbeted upon its upper and lower sides to receive the curved bars *l*, which are secured in place by rivets or bolts passing through them and through the said beam. The ends of the curved bars *l* project beyond the sides of the beam A, and through the centers and ends of the said bars are formed holes to receive the forward bolt, *m*, of a clevis, so that the point of draft attachment can be adjusted by adjusting the said bolt *m* to cause the scraper or shovels to work closer to or farther from the plants, as may be desired.

With this construction the machine can be used as a combined scraper and cultivator, as shown in Fig. 1, or the standards O and their attachments can be detached and the machine used as a scraper, or the scraper may be detached and replaced by a shovel and the machine used as a three-plow cultivator, or the standard C and its attachments can be detached to form a two-plow cultivator, or the standards O and their attachments can be detached to form a single-plow cultivator, or any other adjustment can be made that the character of the work to be done may require.

Having thus fully described my invention,

what I claim as new, and desire to secure by Letters Patent, is—

1. In a scraper and cultivator, the combination, with the scraper F and blade M, of the separable flange N, substantially as herein shown and described, whereby a small amount of soil will be thrown around the plants, as set forth.

2. In a scraper and cultivator, the combination, with the plow-beam A and the standards K, of the standards O, having their forward ends curved upward and slotted, the jointed crank-rod W, and the braces Z, substantially as herein shown and described, whereby the said standards will be firmly supported and can be readily adjusted, as set forth.

3. In a scraper and cultivator, the combination of the beam A, standard C, brace J, standard K, cross-bar W, arms Z, scraper F, and stay H, substantially as and for the purpose set forth.

4. In a scraper and cultivator, the combination of the standard O, having recesses V, the separable point R, and the shovel O, having tooth U, and the strap T, substantially as shown and described, whereby said shovel and point are firmly and adjustably connected with the standard, as set forth.

DABNEY HARDY.

Witnesses:
S. HARVEY JOHNSON,
R. B. HARDY.