

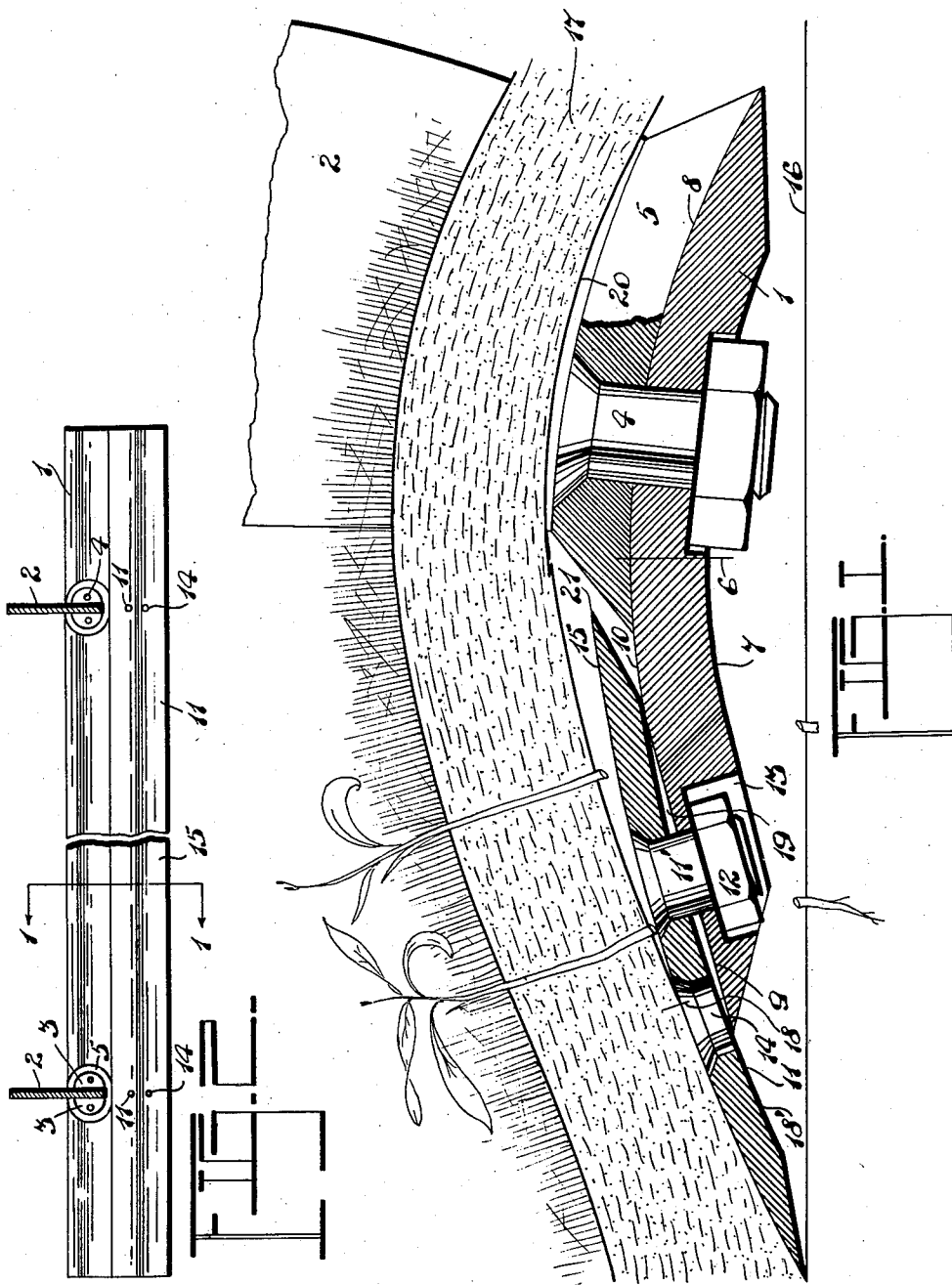
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CULTIVATING BLADE AND CARRIER

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CULTIVATING BLADE AND CARRIER

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6 Claims. (Cl. 97-207)

This application is a continuation-in-part of application Serial Number 360,686, filed Oct. 10, 1940.

This invention relates to improvements in cultivating blades and carriers, a principal object of the same being to provide a processing implement for use on land where moisture is scarce, which will eradicate weeds with a minimum disturbance of the ground surface and the stubble or trash remaining thereon, which stubble or trash serves a most useful purpose in holding snow and moisture against rapid evaporation.

A further object of my invention is to provide a device of the character herewithin described, by the use of which losses from drifting soil may be reduced, thereby increasing yields.

A further object of my invention is to provide a device of the character herewithin described which will accomplish the first, as well as all subsequent work, of preparing a fallow.

A further object of my invention is to provide a device of the character herewithin described which is designed to penetrate any land which a plow can penetrate, being also designed to eliminate the use of a plow or any other cultivating implement.

A further object of my invention is to provide a device of the character herewithin described, the blade of which is so shaped as to effect a soil crushing action, and to open up a "furrow slice" below ground level at any desired depth and parallel with the surface of the ground, the said slice being conducted over the blade and carrier in an easy polishing flow upwardly, with a minimum of draft, but in such a way as to effect the maximum possible weed kill.

A further object of my invention is to provide a device of the character herewithin described, both edges of which are bevelled upon the same surface so that the blade may be reversed when worn.

A further object of my invention is to provide a device of the character herewithin described in which no pulverizing of the surface of the land takes place, but which in spite of this, will eradicate weeds and sever the plants from the roots thereof, after which the latter will decompose upon the surface of the land far more rapidly than is the case when such weed growth is plowed under.

A further object of my invention is to provide a device of the character herewithin described, the use of which, when used for fall cultivation, will prevent weeds from drawing further moisture and producing seed, the said weeds being decomposed to afford a certain mulching and fertilizing value.

A further object of my invention is to provide a device of the character herewithin described, by the use of which the stubble is not broken down

as with other implements, but left erect to gather snow, the furrow at the roots of the stubble being, however, loosened to absorb better any fall, winter, or early spring moisture.

With the above more important objects in view and such other minor objects as may appear as the specification proceeds, my invention consists essentially in the arrangement and construction of parts all as hereinafter more particularly described, reference being had to the accompanying drawing, in which:

Figure 1 is a cross-sectional elevation on the line 1-1 of Figure 2, of my blade and carrier combination.

Figure 2 is a plan view of my blade and carrier combination and illustrating the loci of the supporting standards.

In the drawing like characters of reference indicate corresponding parts in the different figures.

By reference to the accompanying figures, it will be seen that my elongated transverse carrier 1 is secured to the lower ends of spaced hangers or standards 2 adjustably secured at the upper ends thereof as clearly described and illustrated in my United States Patent No. 2,323,412 of July 6, 1943, the actual details of attachment of the carrier 1 to the standards 2 consisting of the semi-circular brackets or wings 3 which project outwardly from the standards, being welded thereto; drilled and countersunk to receive the bolts 4, and being provided with bevelled surrounding edges 5.

The cross-sectional configuration of my carrier is clearly illustrated in the accompanying Figure 1, from which it will be seen that the same is downwardly arched, and for purposes of definition in the accompanying claims is to be considered as bisected by the longitudinal vertical plane 6, to the left of which is the leading side 7, and on the right the trailing side 8.

The advanced portion 9 of the upper surface 10 of the leading side is planar or flat, while the entire upper surface of the carrier to the rear of the planar portion thereof is arcuate. Overlying the planar portion 9 of the leading side 7, is a cultivating blade 11 also of downwardly arched cross-sectional configuration.

The blade 11 is secured to the carrier by means of the countersunk bolts 11' which project through drillings in the carrier, the nuts 12 being secured in the recesses 13 provided therefor in the underside of the carrier, and it will be noted that I provide transversely aligned pairs of countersunk apertures 14 for the said bolts so that the blade may be reversed when worn.

The upper or scouring surface 15 of the blade 11 is also arcuate but is struck to a radius of curvature considerably greater than the radius of curvature of the upper surface of the carrier, and

here I would explain that for practical purposes I consider a radius of 14 inches for the blade and 7 inches for the carrier to be the most suitable.

Such radii as set forth in the preceding paragraph provides the longest practicable curvature in the blade, and at the same time the greatest amount of curvature in the carrier consistent with keeping the assembly as shallow as possible as from the bed 15 of the furrow slice 17 so as to reduce the draft as far as possible and provide the maximum "throw" of the furrow slice as from the line 18 where it may approximately be said to leave the blade and remain in temporary suspension before subsiding back onto the surface 16.

The under surface 13' of my blade is struck to an arc of similar curvature to the upper surface, and thus it will be seen that when viewed in transverse cross-section, the adjacent surfaces 9 and 18' present a shallow segmental contour 19, which also provides a means whereby the blade can be secured very tightly to the carrier via the bolts and nuts 12, since a certain resiliency will exist as a result of the segmental space.

In conclusion, and of particular importance is the fact that my cultivating blade is secured in a step-lapped relationship to the carrier, in contrast to a flush-lapped relationship, whereby that part of the upper surface of the carrier which is to the rear of the blade, occupies a stratum of space definitely spaced from and underlying that occupied by the upper surface of the trailing portion of the blade. While in suitable soils, the furrow slice 17 leaves the blade at approximately the point indicated, it is to be understood that there are other and heavier types of soil which do not rise clear, and which tend to lay on the cultivating surfaces. Under such circumstances, if the upper surface of my carrier were flush with the upper surface of the blade, excessive and unnecessary friction would take place, materially increasing the draft required to draw the implement through the ground since it may roughly be said that even in the heaviest type of land, a certain amount of "free fall" can be attained, or in other words, a certain limited distance can be traveled before the under surface 20 of the furrow slice will make contact with the upper surface of the carrier after leaving the trailing edge 21 of the blade.

Since various modifications can be made in my invention as hereinabove described and many apparently widely different embodiments of same made within the scope of the claims without departing from such spirit and scope, it is intended that all matter contained in the accompanying specification shall be interpreted as illustrative only and not in a limiting sense and I desire only such limitations placed thereon as are specifically expressed in the accompanying claims.

What I claim as my invention is:

1. In an elongated cultivating blade and carrier combination wherein said carrier is secured directly to standards depending from a mobile superstructure, a blade having parallel leading and trailing sides on either side of a vertical plane to be considered as extending longitudinally and centrally therethrough, said blade being designed for overlapping attachment of the trailing side thereof to the upper surface of said carrier, at least the upper surface of said blade being convex when viewed in transverse cross-section, the upper surface of the overlapping side

thereof occupying a stratum of space spaced from and overlying that occupied by the upper surface of said carrier.

2. In an elongated cultivating blade and carrier combination wherein said carrier is secured directly to standards depending from a mobile superstructure, a blade having parallel leading and trailing edges, said blade and said carrier also having leading and trailing sides bisected by vertical planes to be considered as extending longitudinally through said blade and carrier respectively, said blade being designed for overlapping attachment to the upper surface of said carrier, the upper surface of the leading side of said carrier being planar and inclining forwardly and downwardly, the upper surface of the trailing side of said carrier being convex, at least the upper surface of said blade being also of convex cross-sectional configuration, the upper surface of that part of said blade which overlaps said carrier occupying a stratum of space overlying that occupied by the upper surface of said carrier.

3. The combination as defined in claim 2 in which the under surface of said blade is concave, said concave under surface overlapping the planar surface of said carrier and being adjacent thereto so that the said overlapping portion of the under surface of said blade and said planar surface present a shallow segmental contour when viewed in transverse cross-section.

4. In an elongated cultivating blade and carrier combination wherein said carrier is secured directly to standards depending from a mobile superstructure, a carrier of downwardly arched cross-sectional configuration, a blade also of downwardly arched cross-sectional configuration, said blade and said carrier each being considered as longitudinally and vertically bisected by planes extending through said blade and carrier respectively to define leading and trailing sides, said blade being secured to the upper surface of the leading side of said carrier in overlapping attachment such that at least the upper trailing surface thereof occupies a stratum of space overlying that occupied by the upper surface of said carrier, the leading side of said blade projecting forwardly beyond the leading edge of said carrier, the leading edge of said blade being below the leading edge of said carrier.

5. In an elongated cultivating blade and carrier combination wherein said carrier is secured directly to standards depending from a mobile superstructure, and wherein said blade and said carrier are each to be considered as longitudinally and vertically bisected by planes extending through said blade and carrier respectively to define leading and trailing sides, the trailing side of said blade being secured to the upper surface of the leading side of said carrier in wholly overlapping attachment such that at least the upper trailing surface of said blade occupies a stratum of space overlying that occupied by the upper surface of the trailing side of said carrier, the upper surface of said blade being convex, at least the upper surface of the trailing side of said carrier being also convex.

6. The combination as defined in claim 5 in which the convex upper surface of said blade, and the convex upper surface of the trailing side of said carrier are both arcuate, the radius of curvature of the upper surface of said blade being greater than that of the upper surface of the trailing side of said carrier.

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