Jan. 17, 1956 E. J. RIMPLE 2,730,940

SCRAPER BLADE FOR REVERSIBLE DISC PLOWS

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Fig. 1

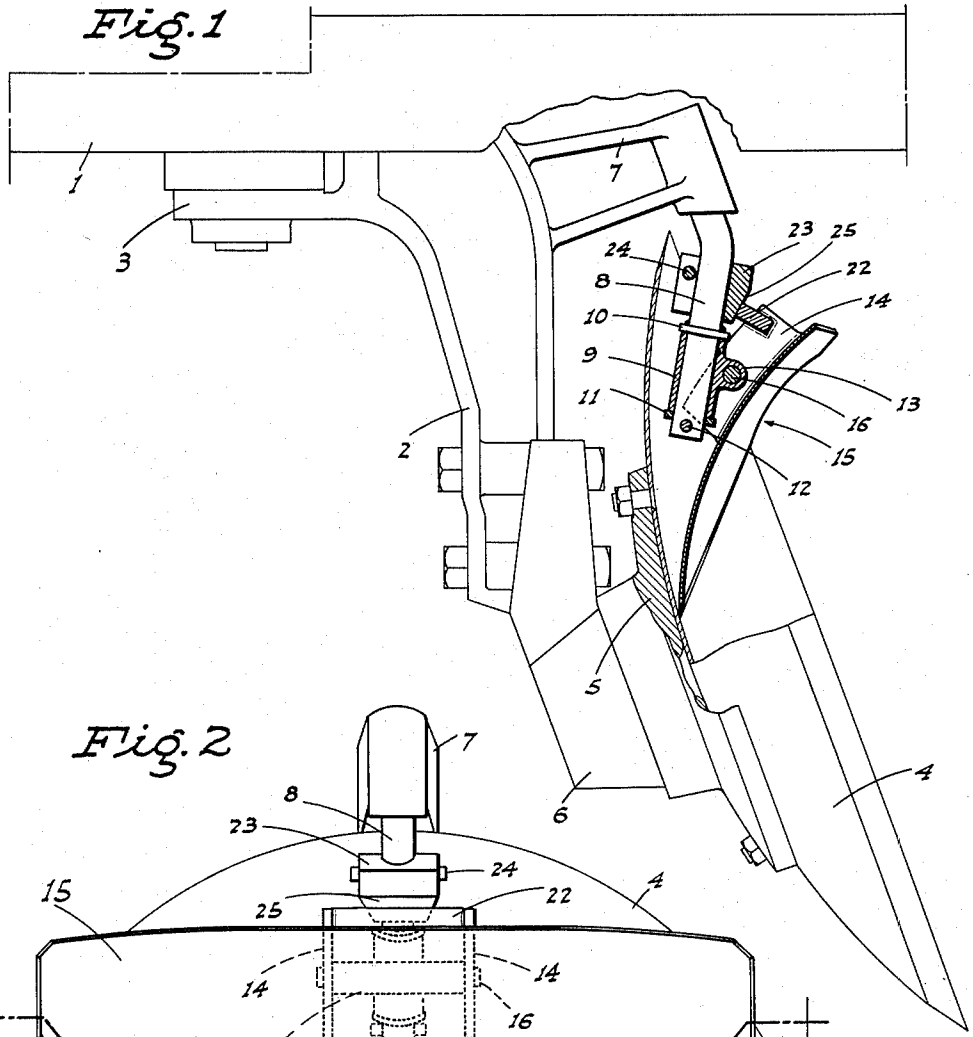
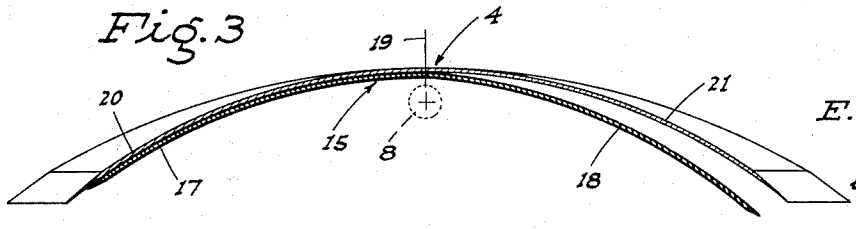


Fig. 2

Fig. 3



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SCRAPER BLADE FOR REVERSIBLE DISC PLOWS

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The present invention has, for a major object, the provision of a novel scraper blade for a reversible disc plow; the blade being disposed to work within the concavity of the disc, in engagement with the face thereof, to maintain the disc clean when in operation.

Another important object of the present invention is to provide a scraper blade, for the purpose described, which includes a novel mount, whereby such scraper blade is supported, for motion in unitary relation, with the disc as it is reversed; i. e., shifted from a right to a left working position, or vice versa.

An additional object of this invention is to provide a scraper blade and mount, as above, wherein the blade is double-ended, and the mount supports such blade for limited rocking motion about a central upstanding axis; the blade being shaped so that when it is automatically rocked in one direction or the other by the up-flow of dug earth on the right or left side of the working face of the reversible disc, the corresponding portion of the scraping edge of the blade matchingly contacts the disc face on said side, while the other or opposite portion of the scraping edge of the blade is spaced from the disc face on the related side. This latter feature is for the purpose of preventing interference with free rotation of the disc by reason of dug earth lodging between the disc and the non-working portion of the scraper blade.

A further object of this invention is to arrange the mount so that it also supports the scraper blade for swinging motion about a transverse horizontal axis, to the end that the working portion of the scraping edge of the blade may be disposed in proper contact with the related face of the disc; there being novel means urging the scraper blade about said transverse horizontal axis in a direction to maintain such contact.

It is also an object of the invention to provide a scraper blade, for reversible disc plows, which is designed for ease and economy of manufacture, convenience of installation, and positive operation.

Still another object of the invention is to provide a practical and reliable scraper blade for reversible disc plows, and one which will be exceedingly effective for the purpose for which it is designed.

These objects are accomplished 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:

Fig. 1 is a side elevation of a reversible disc plow embodying the scraper blade; parts of the assembly being broken away and partly in section.

Fig. 2 is a front elevation of the reversible disc plow, and the scraper blade as mounted in connection therewith.

Fig. 3 is a sectional plan view on line 3—3 of Fig. 2.

Referring now more particularly to the characters of reference on the drawings, the numeral 1 indicates, in part, the frame of a reversible plow implement, and a depending standard 2 is arranged in connection with the frame 1 by a reversible mount, indicated generally at 3.

A disc 4 is disposed ahead of the depending standard 2, and the hub 5 of such disc is journaled in connection with the standard 2 by a suitable attachment 6.

The foregoing is conventional; the mount 3, by mechanism not shown, being worked to swing the disc 4 to a right or left hand working position.

A bracket 7 is fixed on, and projects forwardly from, the upper portion of the depending standard 2, and a spindle 8 is secured to the front of the bracket 7, and depends therefrom into the upper portion of the disc 4 in spaced relation thereto.

On the lower end thereof the spindle 8 is fitted with a rotatable sleeve 9 which abuts at the top against a stop collar 10 on the spindle 8. At the lower end the rotatable sleeve 9 is supported by a washer 11 on the spindle 8, which washer rests on a cross pin or cotter key 12 which projects through said spindle.

At the front thereof the rotatable sleeve 9 carries, in rigid relation, a transverse tubular boss 13 which spans between upstanding, transversely spaced ears 14 fixed on the back side and adjacent the top of a scraper blade, indicated generally at 15. The ears 14 are disposed equidistantly on opposite sides of the vertical center line of the scraper blade 15, and a cross pin 16 spans between the ears 14 in relatively turnable relation in the transverse tubular boss 13.

The scraper blade 15 may be termed double ended, and extends horizontally with an inward and downward incline within the upper portion of the disc 4. The scraper blade 15 is forwardly concave and includes a convex, lower, scraping edge which comprises scraper edge portions 17 and 18 on opposite halves of the blade, i. e., on opposite sides of the center point 19. The scraping edge portions 17 and 18, on the opposite halves of the scraper blade 15, are generated on such curvature that each is adapted to engage—in matching contact—with the face of the disc 4 on the corresponding side (20 or 21), but only with one such edge engaging the disc at a time. This is by reason of the fact that the lower or scraping edge portions 17 and 18 are so formed and related that when one is in disc-face contact, the other is spaced from the disc face on the opposite side; the spacing increasing from the center point 19 to the outer end (see Fig. 3). The scraping edge of the scraper blade remains always substantially in contact, with the face of the disc 4 at the center point 19.

With the scraper blade 15, and its scraping edge portions 17 and 18 formed as above, such scraper blade is capable of limited rocking motion about the spindle 8 as an axis.

When the disc 4 is set so that the dug earth flows up the left side of the working face of such disc, such upflowing earth impinges against the corresponding side of the scraper blade 15, urging it rearwardly and swinging it about the spindle 8 until the scraping edge portion 17 rests in matching scraping engagement with said side of the disc, effectively cleaning the same as it rotates. At the same time, the opposite side or half of the scraper blade 15 is swung forwardly, spacing the scraping edge portion 18 from the disc; the advantageous purpose of this latter feature being that any earth which spills between the disc and such other or opposite half of the scraper blade 15 can freely escape, and does not lodge between the blade and disc, with possible interference with free rotation of the latter.

When the disc 4 is reversed so that the dug earth flows up the right side of the working face of such disc, there is an automatic reversal of the position of the double ended scraper blade 15; such blade then working as before, except that the scraping edge portion 18 is in operation, with the scraping edge portion 17 in clearance relation to the disc.

Thus, with reverse of the disc 4 to one working position or the other, the scraper blade 15 is carried with the

disc during the reversing motion, and automatically rocks to dispose the proper one of the scraping edge portions **17** and **18** in disc-face engagement for the purpose of disc cleaning.

In order to assure that the scraping edge portions **17** or **18** maintain effective and positive contact with the face of the disc **4** when in working position, the following arrangement is provided:

A transverse, horizontal bar **22** is fixed in connection with, and extends between, the ears **14** above the boss **13**, and a weight block **23** is slidably mounted on the spindle **8** above the stop collar **10** in spaced relation to the latter. The weight block **23**, which is slotted and held in place on the spindle **8** by a cross pin **24**, is formed—at the front—with a downwardly and inwardly inclined or tapered cam face **25** which rides against the adjacent edge of the bar **22**. This results in such bar **22**, and consequently the upper portion of the scraper blade **15**, being urged forwardly, which in turn urges said scraper blade at its lower or scraping edge toward the face of the disc **4**. Thus, the continual tendency of the weight block **23** to lower is employed as the force-means to maintain the scraping edge portions **17** or **18**—whichever is in operation—in proper contact with the face of the disc.

The block **23** also has taper faces on its sides; the taper of all the faces being different so that a great range of adjustment is had by merely turning the desired face for contact with bar **22**. The block **23**, being freely slidable on spindle **8**, can be readily lifted and turned to present any desired taper face for engagement with bar **22**.

From the foregoing description it will be evident that there has been provided, by the instant invention, a very effective type of scraper blade for a reversible disc plow; and that there has been provided such a device as will substantially fulfill the objects of the invention, although in detail such deviations therefrom may be resorted to as do not form a departure from the spirit 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 the invention, the following is claimed as new and useful, and upon which Letters Patent are desired:

1. In a reversible disc plow which includes a forwardly facing, concave disc, and a movable standard rotatably supporting the disc from the rear for reversing between right and left hand positions; a scraper blade unit for the disc comprising an element fixed in connection with the standard and depending in spaced relation in front of the top of the disc, a double-ended scraper blade extending adjacent said element, and a mount securing the double-ended scraper blade intermediate its ends on said element for limited turning motion about an upstanding axis and for scraping engagement with the face of the disc; said scraper blade having lower scraping edge portions corresponding to and adapted to matchingly engage the face of the disc on opposite sides thereof, each edge portion of the blade having the same transverse curvature as that of the disc but the centers of curvature of such portions being offset so that when either scraping edge portion is caused, by the dug, up-flowing earth impinging on and turning the blade, to engage with the face of the disc on the corresponding side, the other scraping edge portion is spaced from the face of the disc on the opposite side thereof; the blade, at adjacent ends of said scraping edge portions, remaining at all times substantially in contact with the face of the disc.

2. In a reversible disc plow which includes a forwardly facing, concave disc, and a movable standard rotatably supporting the disc from the rear for reversing between right and left hand positions; a scraper blade unit for the disc comprising an element fixed in connection with the standard and depending in spaced relation in front of the top of the disc, a double-ended scraper blade extending adjacent said element, and a mount securing the double-ended scraper blade intermediate its ends on said element for limited turning motion about an upstanding axis and for scraping engagement with the face of the disc; each edge portion of the blade having the same transverse curvature as that of the disc but the centers of curvature of such portions being offset so that when either scraping edge portion is caused, by the dug, up-flowing earth impinging on and turning the blade, to engage with the face of the disc on the corresponding side, the other scraping edge portion is spaced from the face of the disc on the opposite side thereof; said mount securing the double-ended scraper blade on said element for free swinging about a transverse axis independently of said turning motion about an upstanding axis; and said transverse axis being related to the blade so that the latter tends to swing rearwardly at the bottom without restraint.

3. A scraper blade unit, for a reversible disc plow, as in claim 2, including force means cooperating with the blade and operative to enhance said tendency of the same to swing rearwardly at the bottom.

4. A scraper blade unit, for a reversible disc plow, as in claim 3, in which said force means comprises a weight slidable downward on said element, and a cam assembly between the weight and blade.

5. In a reversible disc plow which includes a forwardly facing, concave disc, and a movable standard rotatably supporting the disc from the rear for reversing between right and left hand positions; a scraper blade unit for the disc comprising a spindle fixed in connection with the standard and depending in spaced relation in front of the top of the disc, a double-ended scraper blade extending transversely in the disc in front of the spindle, a sleeve turnably supported on the spindle, a transverse tubular boss rigid with the sleeve at the front, a cross pin turnable in the boss and projecting therefrom, and transversely spaced ears on the back of the scraper blade at the central portion thereof, the boss spanning between the ears and the cross pin being attached at the ends thereto, the blade being turnable with the sleeve about the spindle as an axis and swingable independently with the cross pin as an axis; said scraper blade having lower scraping edge portions corresponding to and adapted to matchingly engage the face of the disc on opposite sides thereof, each edge portion of the blade having the same transverse curvature as that of the disc but the centers of curvature of such portions being offset so that when either scraping edge portion is caused, by the dug, up-flowing earth impinging on and turning the blade, to engage with the face of the disc on the corresponding side, the other scraping edge portion is spaced from the face of the disc on the opposite side thereof.

6. A scraper blade unit, for a reversible disc plow, as in claim 5, in which the scraper blade inclines down and rearwardly into the disc relative to said cross pin; a weight slidable downward on the spindle above the sleeve, said weight having a downwardly and rearwardly sloping cam face, and a member on the blade at the rear, and above said boss, against which said cam face rides whereby the weight acts on the blade in a manner tending to swing it rearward at the bottom.

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