May 11, 1943. J. R. FELL 2,319,048

ADJUSTABLE HEEL SWEEP OR SCRAPE

Filed Aug. 21, 1940

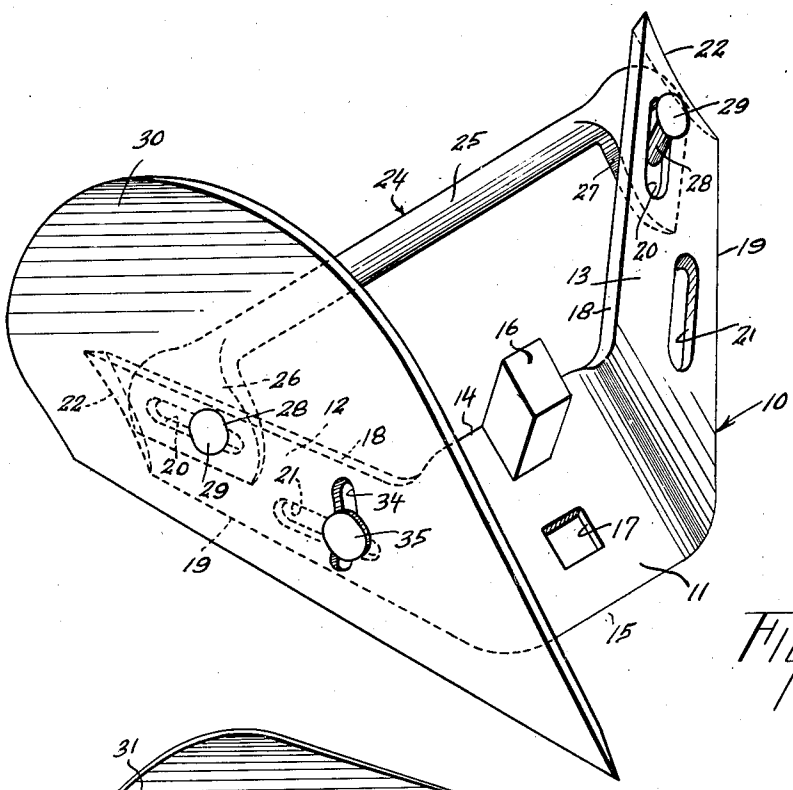

FIG. 1

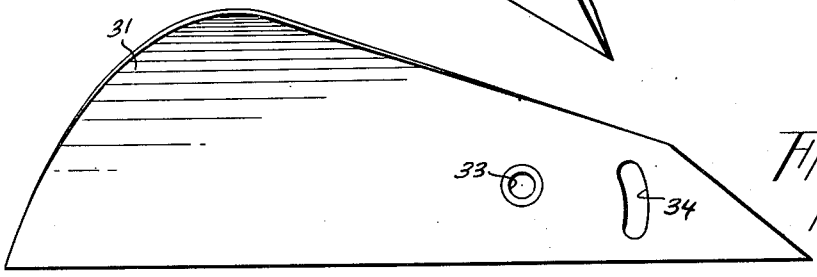

FIG. 2

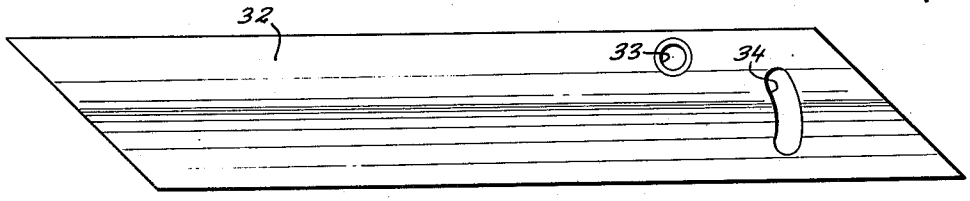

FIG. 3

James R. Fell
INVENTOR

BY Carl Miller
ATTORNEY

Patented May 11, 1943 2,319,048

UNITED STATES PATENT OFFICE

2,319,048

ADJUSTABLE HEEL SWEEP OR SCRAPE

James Richard Fell, Haleyville, Ala., assignor of fifty per cent to H. C. Hayes, Haleyville, Ala.

Application August 21, 1940, Serial No. 353,527

6 Claims. (Cl. 97—205)

This invention relates to heel sweeps and the attachment of sweep blades or turning wings thereon.

The principal object of this invention is to provide a heel sweep in the form of a single casting adapted to furnish a support for different size sweep blades and turning wings designed particularly for use therewith, the heel sweep including means to provide a rigid connection with the foot of a plow frame as well as a separable brace means for reinforcing the sides of the heel sweep.

A further object of the invention is to provide a heel sweep adapted to mount varying sizes of blades and turning wings which may be used interchangeably and each of which is adapted for individual adjustment in various positions thereon to plow shallow or deep as desired, the heel sweep including means for rigidly locking the blades or turning wings in adjusted position. This adjustment of the sweep blades or turning wings is of so simple a nature that it may be done in the field while plowing or cultivating without the need of any special tools other than a wrench.

With the foregoing and other objects in view, the invention resides in the novel arrangement and combination of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed without departing from the spirit of the invention.

A practical embodiment of the invention is illustrated in the accompanying drawing, wherein:

Referring to the drawing:

Figure 1 shows in perspective a heel sweep formed in accordance with the invention and a sweep blade mounted on one of the sides thereof.

Figure 2 shows in elevation a modified form of sweep blade.

Figure 3 shows in elevation a cutter blade.

Referring to the drawing in detail, 10 denotes generally the heel sweep which is formed preferably as a unitary casting of malleable iron or steel and comprises a bight portion 11 and a pair of diverging side walls 12 and 13, the whole being in effect a V-shaped standard. The bight portion 11 constitutes the forward portion of the heel sweep 10 and is substantially rectangular in form, being arranged to lie in a plane inclined downwardly and forwardly with reference to the ground engaging surface (not shown). In other words the upper transverse edge 14 of the bight portion 11 lies in a vertical plane to the rear of the lower transverse edge 15. Formed integral with the bight portion 11 is a square lug 16 projecting normally from the surface of the bight portion, said lug 16 being disposed adjacent the upper transverse edge 14 substantially midway between the side edges of said bight portion. In line with the square lug 16 and between the same and the lower transverse edge 15, there is provided in the bight portion 11, a square hole 17, the square lug 16 is adapted to extend through a complemental opening provided therefore in the plow foot (not shown) to prevent turning movements of the heel sweep thereon, the heel sweep 10 being rigidly secured to said plow foot by a bolt (not shown) of the kind provided with a square shank adjacent the head thereof which bolt is adapted to extend through the opening 17.

Extending rearwardly in diverging relation from the bight portion 11 of the heel sweep and integral therewith are the side walls 12 and 13. Preferably the side walls 12 and 13 each taper in thickness from the top edge 18 thereof to the bottom edge 19. Each of the side walls 12 and 13 lie in a plane inclined in a downwardly and outwardly direction with reference to a vertical center plane intersecting the bight portion 11.

Formed in each of the side walls 12 and 13 are a pair of spaced elongated slots 20 and 21 extending lengthwise of the respective side wall. The outer slot 20 is positioned adjacent the upper edge 18 and the terminal edge 22 of each side wall, while the inner slot 21 is positioned inwardly with respect to the outer slot 21 and adjacent the lower edge 19 and bight portion 11.

A brace 24 comprising a bar portion 25 provided at each end with a flattened ear, 26 and 27, extends between the side walls 12 and 13 with the ears 26 and 27 adapted to respectively contact the inside surfaces of said side walls. Each ear, 26 and 27, carries a bolt 28 provided with a countersunk head 29 which bolts extend through the slots 20 for a purpose to be hereinafter described. Adapted for use with the heel sweep 10 are the sweep blades or turning wings 30 (Fig. 1) and 31 (Fig. 2), and scrape blade 32 (Fig. 3). Each blade is particularly adapted for a specific use as is well known in the art. The blades 30, 31 and 32 are formed in pairs, that is, a pair of blades of the form such as 30 (Fig. 1) comprises a left hand blade 30 for mounting on the heel sweep side wall 13, and a complemental right hand blade 30 for mounting on the side wall 12, as shown in Fig. 1. Thus, this

invention contemplates not only the use of such blades in like complemental pairs, but also the mounting on the heel sweep of a left hand blade of one pair and a right hand blade of another pair, as for example, with the right hand blade 30, Fig. 1. There may be used if so desired, a left hand blade 31 or a left hand blade 32. To permit such an interchangeable use of the several blades each blade is provided with a countersunk hole 33 and a vertical arcuate slot 34, the slot 34 defining an arc of a circle about the center of the hole 33 as a center. On each of the blades 30, 31 and 32 the relationship of the hole 33 and slot 34 is identical, which relationship is dependent on the relationship of the slots 20 and 21 in the heel sweep side walls 12 and 13, such that when a blade is positioned on a side wall, the bolt receiving countersunk opening 33 will register with the slot 20, while the arcuate slot 34 will register in cross-wise relation to the slot 21.

Referring to Fig. 1 it will be seen that the sweep blade 30 is attached to the side wall 12 by means of the bolt 28, the countersunk head thereof seating in the countersunk opening 33, and a bolt 35 which extends through the slots 34 and 21. The bolts 28 serve to clamp the brace 24 and the blades securely to the side walls, thus providing along with the bolts 35 an exceedingly rigid interconnection between the blades, heel sweep and brace. By virtue of the side wall slots 20 and 21, the blades may be adjusted lengthwise of the side walls 12 and 13 within the limits of said slots. Also with the bolt 28 as a pivot each blade may be angularly adjusted within the limits of the arcuate slot 34.

Thus the character of the work which the heel sweep 10 will do may be varied at will.

Having thus set forth and disclosed the nature of this invention, what is claimed is:

1. A heel sweep for a plow frame having a V-shaped frame formed as a one-piece casting and comprising a forward substantially rectangular flat bight portion and a pair of integral rearwardly diverging substantially flat side walls, said bight portion and each of said side walls lying in planes inclined downwardly and outwardly, upstanding non-circular lug means on said bight portion adapted to engage complemental means on said plow frame to center said heel sweep thereon and to prevent turning movements relative thereto, brace means extending between said side walls disposed adjacent the terminal ends thereof, an identical pair of elongated slots provided in each side wall extending lengthwise thereof, a blade element adapted to be adjustably mounted on each side wall, each blade element including a pair of bolt receiving openings adapted to register with the pair of slots in its associated side wall, bolt means extending through said openings and slots for clamping said blades to said side walls, one of said bolt means on each side wall further serving to connect an adjacent end of said brace thereto.

2. A heel sweep for a plow frame having a V-shaped frame formed as a one-piece casting and comprising a forward substantially rectangular flat bight portion and a pair of integral rearwardly diverging substantially flat side walls, said bight portion and each of said side walls lying in planes inclined downwardly and outwardly, upstanding non-circular lug means on said bight portion adapted to engage complemental means on said plow frame to center said heel sweep thereon and to prevent turning movements relative thereto, a square bolt receiving opening in said bight portion positioned in line with said lug adapted to receive a square shank bolt for securing said heel sweep to said plow, brace means extending between said side walls disposed adjacent the terminal ends thereof, and provided at each end with a perforated ear, an identical pair of elongated slots provided in each side wall extending lengthwise thereof, a blade element adapted to be adjustably mounted on each side wall, each blade element including a pair of bolt receiving openings adapted to register with the pair of slots in its associated side wall, bolt means extending through said openings and slots for clamping said blades to said side walls, one of said bolt means on each side wall further serving to connect an adjacent end of said brace thereto.

3. A heel sweep for a plow frame having a V-shaped frame formed as a one-piece casting and comprising a forward substantially rectangular flat bight portion and a pair of integral rearwardly diverging substantially flat side walls, said bight portion and each of said side walls lying in planes inclined downwardly and outwardly, upstanding non-circular lug means on said bight portion adapted to engage complemental means on said plow frame to center said heel sweep thereon and to prevent turning movements relative thereto, brace means extending between said side walls disposed adjacent the terminal ends thereof, an identical pair of elongated slots provided in each side wall extending lengthwise thereof, a blade element adapted to be adjustably mounted on each side wall, each blade element including a pair of bolt receiving openings adapted to register with the pair of slots in its associated side wall, bolt means extending through said openings and slots for clamping said blades to said side walls, one of said bolt means on each side wall further serving to connect an adjacent end of said brace thereto, one of said blade element bolt receiving openings being circular to snugly receive the shank of a bolt, the other bolt receiving opening being defined as an arcuate slot with the center of the first bolt receiving opening as a center, said bolt means connecting said brace extending through the circular opening of said blade and about which said blade may pivot, the arcuate slot in said blade element extending cross-wise with relation to the slot in the side wall registering therewith, the arrangement of said side wall slots and blade element openings being such that said blade may be adjusted both lengthwise of and angularly with relation to its associated supporting side wall.

4. A heel sweep for a plow frame having a V-shaped frame formed as a one-piece casting and comprising a forward substantially rectangular flat bight portion and a pair of integral rearwardly diverging substantially flat rectangular side walls, said bight portion being of a greater width than said side walls such that the upper edge thereof extends above the upper edges of said side walls, and the lower edges of said bight portion and side walls lying in the same plane, said bight portion and each of said side walls lying in planes inclined downwardly and outwardly, upstanding non-circular lug means on said bight portion adapted to engage complemental means on said plow frame to center said heel sweep thereon and to prevent turning movements relative thereto, brace means extending between said side walls disposed adjacent the terminal ends thereof, an identical pair of elongated slots pro-

vided in each side wall extending lengthwise thereof in longitudinally spaced and laterally offset parallel relation, with the rearmost slot adjacent the upper edge of each side wall, a blade element adapted to be adjustably mounted on each side wall, each blade element including a pair of bolt receiving openings adapted to register with the pair of slots in its associated side wall, bolt means extending through said openings and slots for clamping said blades to said side walls, one of said bolt means on each side wall further serving to connect an adjacent end of said brace thereto.

5. A heel sweep for a plow frame having a V-shaped frame formed as a one-piece casting and comprising a forward substantially rectangular flat bight portion and a pair of integral rearwardly diverging substantially flat rectangular side walls tapering in thickness from the upper to the lower edges thereof, said bight portion being of a greater width than said side walls such that the upper edge thereof extends above the upper edges of said side walls, and the lower edges of said bight portion and side walls lying in the same plane, said bight portion and each of said side walls lying in planes inclined downwardly and outwardly, upstanding non-circular lug means on said bight portion adapted to engage complemental means on said plow frame to center said heel sweep thereon and to prevent turning movements relative thereto, a square bolt receiving opening in said bight portion positioned in line with said lug adapted to receive a square shank bolt for securing said heel sweep to said plow, brace means extending between said side walls disposed adjacent the terminal ends thereof, and provided at each end with a perforated ear, an identical pair of elongated slots provided in each side wall extending lengthwise thereof in longitudinally spaced and laterally offset parallel relation, with the rearmost slot adjacent the upper edge of each side wall, a blade element adapted to be adjustably mounted on each side wall, each blade element including a pair of bolt receiving openings adapted to register with the pair of slots in its associated side wall, bolt means extending through said openings and slots for clamping said blades to said side walls, one of said bolt means on each side wall further serving to connect an adjacent end of said brace thereto.

6. A heel sweep for a plow frame having a V-shaped frame formed as a one-piece casting and comprising blades, a forward substantially rectangular flat bight portion and a pair of integral rearwardly diverging substantially flat side walls, said bight portion and each of said side walls lying in planes inclined downwardly and outwardly, upstanding non-circular lug means on said bight portion integral therewith and normal to the plane thereof adapted to engage complemental means on said plow frame to center said heel sweep thereon and to prevent turning movements relative thereto, brace means extending between said side walls disposed adjacent the terminal ends thereof, an identical pair of elongated slots provided in each side wall extending lengthwise thereof in longitudinally spaced and laterally offset parallel relation, with the rearmost slot adjacent the upper edge of each side wall, a blade element including a pair of bolt receiving openings adapted to register with the pair of slots in its associated side wall, bolt means extending through said openings and slots for clamping said blades to said side walls, one of said bolt means on each side wall further serving to connect an adjacent end of said brace thereto, one of said blade element bolt receiving openings being circular to snugly receive the shank of a bolt, the other bolt receiving opening being defined as an arcuate slot with the center of the first bolt receiving opening as a center, said bolt means connecting said brace extending through the circular opening of said blade and about which said blade may pivot, the arcuate slot in said blade element extending crosswise with relation to the slot in the side wall registering therewith, the arrangement of said side wall slots and blade element openings being such that said blade may be adjusted both lengthwise of and angularly with relation to its associated supporting side wall.

JAMES RICHARD FELL.