Dec. 9, 1941. W. S. McGUIRE 2,265,443

HANDLE FOR LAWN MOWERS

Filed Aug. 4, 1940

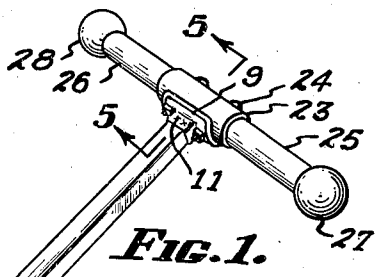

FIG. 1.

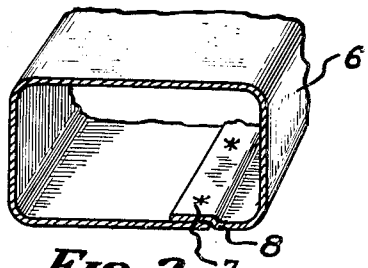

FIG. 2.

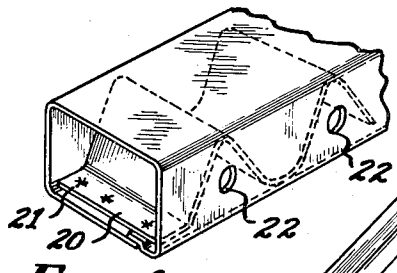

FIG. 4.

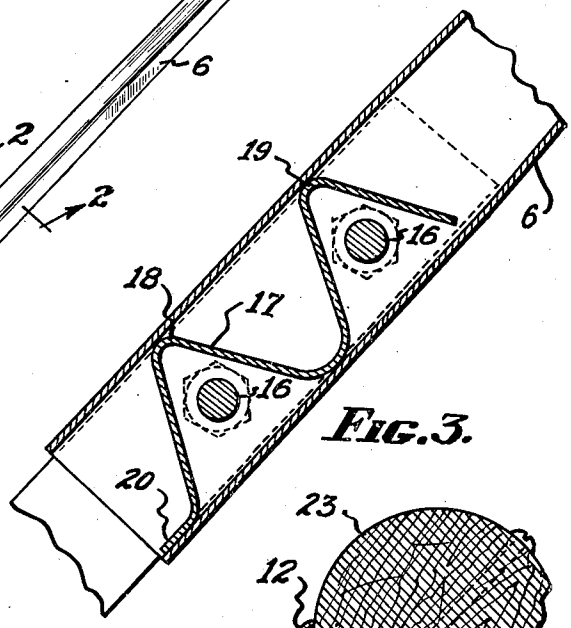

FIG. 3.

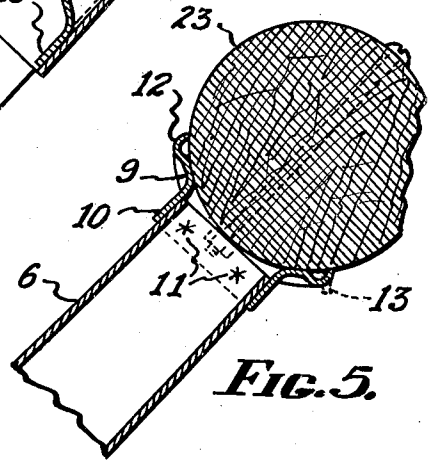

FIG. 5.

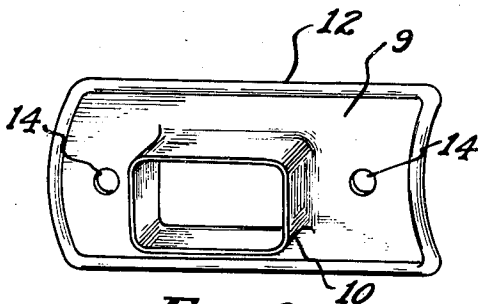

FIG. 6.

INVENTOR.
WHITNEY S. McGUIRE.

BY Allen & Allen

ATTORNEYS.

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2,265,443

HANDLE FOR LAWN MOWERS

Whitney S. McGuire, Richmond, Ind., assignor to Dille & McGuire Mfg. Company, Richmond, Ind., a corporation of Indiana

Application August 4, 1940, Serial No. 351,306

6 Claims. (Cl. 16—110)

My invention relates to the provision of an improved handle for lawn mowers.

One of the objects of the invention is to provide a handle in which the shaft is of hollow metal construction and light and strong, but inexpensive to manufacture.

Another object is the provision of a new re-enforcement means for a hollow shaft to prevent collapse under the force of the bolts by which the brackets are attached, whereby the disadvantages of wooden filler blocks are avoided.

Another object of the invention is the provision of a new and improved combination of shaft and saddle.

Still another object of the invention is the provision of an improved pusher bar construction.

These and other objects of my invention which will be set forth hereinafter or will be apparent to one skilled in the art upon reading these specifications, I accomplish by that certain construction and arrangement of parts of which I shall now describe an exemplary embodiment.

Reference is made to the drawing wherein:

Figure 1 is a perspective view of my complete handle.

Fig. 2 is a sectional view of the shaft taken along the lines 2—2 of Fig. 1.

Fig. 3 is a longitudinal section of the lower portion of the shaft taken along the lines 3—3 of Fig. 1 and showing my re-enforcement means.

Fig. 4 is a perspective view of the lower end of the shaft showing the re-enforcement means largely in dotted lines.

Fig. 5 is a sectional view of the upper end of the shaft and the handle taken along the lines 5—5 of Fig. 1.

Fig. 6 is a perspective view of the saddle structure which I prefer to employ.

In the practice of my invention, the shaft proper indicated at 6 has a cross section such as that shown in Fig. 2 and is formed by bending relatively light sheet metal on a brake or in a die to a rectangular form with the edges overlapping on one side. The shaft so formed has its lapping edges welded or otherwise fastened together, and for this I prefer to spot weld it at intervals as indicated at 7. In order to give a more finished appearance to the handle, the inner lapping edge may be slightly offset as shown at 8 in Fig. 2 although this is not necessary. The seam will be located on the under side of the handle in use, and the relative thinness of the sheet metal of which it is made gives a seam which is not unsightly even when the inner edge is not offset. The bending of the sheet metal is done in such a way that the shaft, while retaining its rectangular form from end to end is tapered in conformation in one or both of its dimensions.

At the smaller end of the shaft, I fasten a saddle 9. This also is made of sheet metal but preferably of somewhat heavier structure. The saddle has a substantially rectangular body, curved to fit the handle. Centrally of the saddle I provide a collar 10. The saddle is thus given a neck which will fit relatively snugly over the smaller end of the shaft. It is fastened to the shaft by any means desired, but preferably by spot welding as at 11.

For re-enforcement about its edge, the saddle may be beaded as at 12 or more simply, may be formed with a turned over edge as at 13. It will also be provided with perforations 14 to receive the bolts by which the wooden handle is attached.

To the lower and larger end of the shaft, I attach the conventional brackets 15 by which the handle is engaged with the lawn mower mechanism. These brackets are attached, as is also conventional, by bolts 16 passing through the brackets and through the shaft, one of the brackets being located on each side of the shaft. Provision must be made, however, against the collapse of the lower end of the shaft due to the compressive action of the bolts or the loosening of the bolts due to gradual compression of the shaft in use. The employment of a wooden filler block is disadvantageous for many reasons; and I have devised a simple and inexpensive brace for the interior of the shaft. This is illustrated in Figs. 3 and 4 and comprises a metal strip 17 of a width to span the horizontal internal dimension of the shaft 6. The body 17 is corrugated as shown, whereby it is given greater compressive strength, two corrugations being indicated at 18 and 19. The body 17 is also provided with a tongue 20 which lies against the rear wall of the shaft and is spot welded to it or otherwise fastened as at 21. The corrugations may be so spaced and arranged that their depth is substantially the same as the internal depth of the shaft, which gives still further bracing, though this is not necessary since there is little strain in the direction. The corrugations are so spaced that the bolts 16 will each lie in one of the corrugations. The shaft in the space of each corrugation is perforated as at 22 for the passage of these bolts.

The metal portions of the handle thus far described form a unitary construction which may now be painted, enameled or otherwise decorated as desired.

I have further devised an improved hand grip or pusher bar for my construction. This pusher bar comprises a cylindrical, central portion **23** so shaped as to fit the saddle and to be held thereto by bolts **24**. At the ends of this cylindrical member I provide cylindrical extensions **25** and **26** of somewhat smaller diameter but of a diameter to be conveniently grasped by the hands and of a length not shorter than the breadth of the average human hand. At the outer ends of these cylindrical extensions, I provide spherical grips **27** and **28**. The entire pusher bar may be turned from hard wood or may be made of any other substance of suitable strength. I find that this type of pusher bar is superior to the hand grips hitherto devised, in that it relieves fatigue and facilitates the operation of the mower. The mower may be pushed by grasping the cylindrical portions **25** and **26** and, when this position tires the operator, he may shift his hands until the balls **27** and **28** rest in the palms thereof, thereby relieving the fatigue caused by the first position.

Modifications may be made in my invention without departing from the spirit of it.

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

1. In a lawn mower handle a hollow metallic shaft formed of sheet metal bent to a rectangular cross section, and tapered from end to end with a lapped seam on one face, the larger end of said shaft having an internal re-enforcement comprising a corrugated sheet metal member of a width equivalent to one internal dimension of the shaft, the depth of the corrugations being equivalent to the other internal dimension of the shaft, said shaft being perforated for the attachment of bolts for brackets in such relationship to the said corrugations that said bolts will pass through said handle each in a different corrugation.

2. In a lawn mower handle a hollow metallic shaft formed of sheet metal bent to a rectangular cross section, and tapered from end to end with a lapped seam on one face the larger end of said shaft having an internal re-enforcement comprising a corrugated sheet metal member of a width equivalent to one internal dimension of the shaft, the depth of the corrugations being equivalent to the other internal dimension of the shaft, said shaft being perforated for the attachment of bolts for brackets in such relationship to the said corrugations that said bolts will pass through said handle each in a different corrugation, said corrugated metal member having a tongue conforming to one internal face of said shaft and being fastened thereto whereby the member is retained in position.

3. In a lawn mower handle a hollow metallic shaft formed of sheet metal bent to a rectangular cross section, and tapered from end to end with a lapped seam on one face, the larger end of said shaft having an internal re-enforcement comprising a corrugated sheet metal member of a width equivalent to one internal dimension of the shaft, the depth of the corrugations being equivalent to the other internal dimension of the shaft, said shaft being perforated for the attachment of bolts for brackets in such relationship to the said corrugations that said bolts will pass through said handle each in a different corrugation, said corrugated metal member having a tongue conforming to one internal face of said shaft and being fastened thereto whereby the member is retained in position, said shaft at its other end being fastened to a saddle, said saddle having a metal body curved to fit a pusher bar and connected by an upstanding member fitting over the smaller end of said shaft and fastened thereto.

4. In a lawn mower handle a hollow metallic shaft formed of sheet metal bent to a rectangular cross section, and tapered from end to end with a lapped seam on one face, the larger end of said shaft having an internal re-enforcement comprising a corrugated sheet metal member of a width equivalent to one internal dimension of the shaft, the depth of the corrugations being equivalent to the other internal dimension of the shaft, said shaft being perforated for the attachment of bolts for brackets in such relationship to the said corrugations that said bolts will pass through said handle each in a different corrugation, said shaft having at its smaller end a saddle comprising a metal body curved to fit a pusher bar and having a member centrally struck up therefrom in a rectangular formation and fitting over the smaller end of said shaft and fastened thereto as by spot welding.

5. In a lawn mower handle, a hollow metal shaft and means for re-enforcing said shaft for the attachment of brackets, said means comprising a strip of sheet metal of a width substantially the same as one internal dimension of said shaft, said strip being bent for transverse stiffness into stiffening convolutions, said convolutions being of a depth substantially equal to the other internal dimension of said shaft, said strip so configured being inserted in said shaft, said shaft being perforated for the reception of bolts, at least one of said bolts adapted to pass through a convolution of said strip.

6. In a lawn mower handle, a hollow metal shaft and means for re-enforcing said shaft for the attachment of brackets, said means comprising a strip of sheet metal of a width substantially the same as one internal dimension of said shaft, said strip being bent for transverse stiffness into stiffening convolutions, said convolutions being of a depth substantially equal to the other internal dimension of said shaft, said strip so configured being inserted in said shaft, said shaft being perforated for the reception of bolts, at least one of said bolts adapted to pass through a convolution of said strip, said strip having a fastening tongue and said fastening tongue lying along an internal face of said shaft and fastened thereto.

WHITNEY S. McGUIRE.