Nov. 8, 1932. J. H. HORSTMAN 1,887,480

YARD BROOM

Filed Nov. 12, 1928

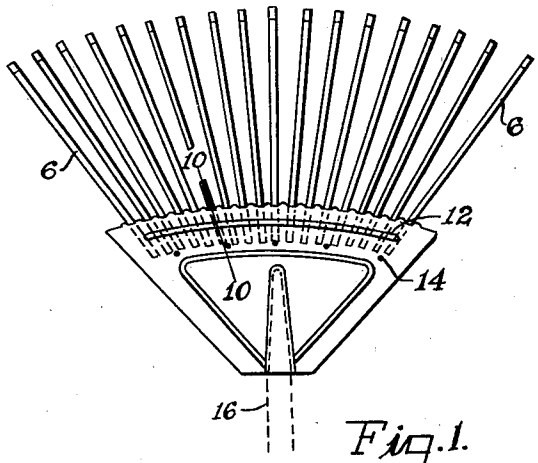


Fig. 1.

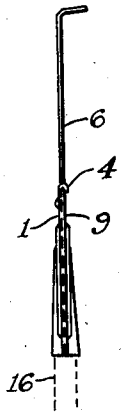


Fig. 2.

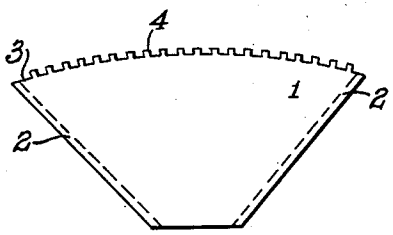


Fig. 3.

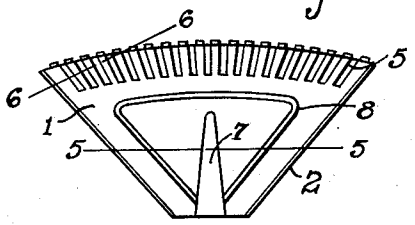


Fig. 4.

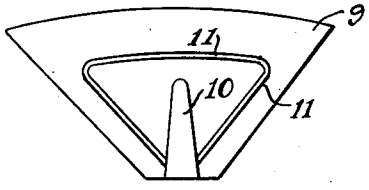


Fig. 7

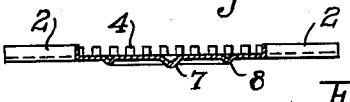


Fig. 5.

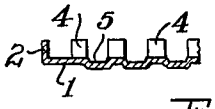


Fig. 6.



Fig. 8.

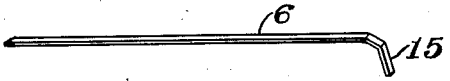


Fig. 9.

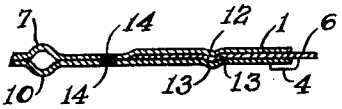


Fig. 10.

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Patented Nov. 8, 1932

1,887,480

UNITED STATES PATENT OFFICE

JOHN H. HORSTMAN, OF DAYTON, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE AMERICAN FORK & HOE COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO

YARD BROOM

Application filed November 12, 1928. Serial No. 318,612.

This invention relates to new and useful improvements in yard brooms.

It is one of the principal objects of my invention to provide for lawn, garden and other outdoor use, a firm, self-cleaning yard broom which is economically constructed by a small number of die operations.

It is another object of my invention to provide a yard broom in which the teeth are tightly held in the holder and rest uniformly on the ground.

Other important and incidental objects will be brought out in the following specification and particularly set forth in the subjoined claims.

In the accompanying drawing illustrating my invention, Figure 1 is a top view of my yard broom. Figure 2 is a side view thereof. Figure 3 is a plan view of the top part of the holder before it is formed. Figure 4 is a plan view thereof after the first forming operation. Figure 5 is a sectional view taken through the same on the line 5—5 of Figure 4. Figure 6 is a sectional view taken on the line 6—6 of Figure 4, and enlarged to show the grooves in the top blank to receive the radial teeth or blades of the device. Figure 7 is a plan view of the bottom part of the holder. Figure 8 is an end view of the same showing the reinforcing ribs and handle recess. Figure 9 is a perspective view of one of the radial teeth or blades. And Figure 10 is a sectional view taken through the holder on the line 10—10 of Figure 1, showing the method of anchoring the blades.

Referring to the accompanying drawing for a detailed description of my invention, the numeral 1 designates a suitable metal stamping which is substantially fan shaped and having flanged side edges 2 as indicated by the dotted lines in Figure 3. The outer edge 3 of the stamping 1 is slightly curved and from it there project radial ears 4.

The first forming operation performed by a die upon the blank or plate 1 provides in it near its curved edge 3 radial grooves 5 to receive the ends of radial teeth 6. These grooves 5 come to the outer edge of the blank 1 between the ears 4. (See Figure 6.)

Also provided in the blank 1 by the first forming operation is a tapering radial handle-receiving recess 7. The latter is partially enclosed by a triangular reinforcing rib 8 provided in the blank by the same forming operation.

In Figure 7 I have illustrated the bottom part 9 of the holder. This part is a triangular metal stamping adapted to fit the outer blank 1 between its flanged edges 2, and formed with a handle-receiving recess 10 and a reinforcing rib 11 complemental to the recess 7 and rib 8 respectively in the blank 1.

When fitted one to the other over the inner ends of the teeth 6, the blanks or plates 1 and 9 are subjected to a final forming operation which turn the ears 4 and flange 2 over the outer and side edges respectively of the bottom blank 9. At the same time there is formed in the top and bottom blanks and in the teeth 6 held tightly between them, grooves 12 that provide interlocking ribs 13 on said members to assist in firmly anchoring them together. (See Figure 10.) As shown in this figure, the top and bottom blanks may be spot welded together at the points 14 to make a still firmer connection between them.

The radial teeth or blades 6 are bent at their outer ends, as shown in Figure 9, to form downwardly extending projections 15 to engage the ground. Thus, when a handle 16 as indicated by the dotted lines in Figures 1 and 2, is inserted in the complemental holder recesses 7 and 10, the device may be drawn over the ground to clean it of fine leaves, twigs, and other unsightly objects.

The construction of my yard broom is such that the teeth will all be on the ground at the same time and they will not work loose. It also lends itself to economic manufacture by reason of the few forming operations required.

Having described my invention, I claim:

1. A device of the type described, comprising a holder plate formed near its outer edge with a series of radial grooves, teeth fitted in said grooves, a second plate applied to the first plate over said teeth, means fastening said plates together, said plates formed with complemental handle-receiving recesses, and

ears formed on the outer edge of the first plate and bent over the outer edge of the second plate between the teeth.

2. A device of the type described, comprising a holder plate formed near its outer edge with a series of radial grooves, a second plate applied to the first plate over said teeth, means fastening said plates together, said plates formed with complemental handle-receiving recesses, ears formed on the outer edge of the first plate and bent over the outer edge of the second plate between the teeth, and anchoring ribs formed on the two plates and the teeth between them for the purpose specified.

3. A device of the type described comprising a substantially fan-shaped holder plate formed near its outer edge with a series of radial grooves, teeth fitted in said grooves, a second plate shaped similarly to the first plate and applied to it over said teeth, means fastening said plates together, said plates formed with complemental handle-receiving recesses, ears formed on the outer edge of the first plate and bent over the outer edge of the second plate between the teeth, and flanges formed on the side edges of the first plate to engage the side edges of the second plate, the plates and teeth being formed with a common die depression to assist in anchoring them together.

4. In a rake, a handle, a substantially flat thin sheet metal head supported on the handle, said head comprising a pair of sheet metal plate portions rigidly secured together in mutually superposed relation and terminating in a transversely extending forward edge, a plurality of thin elongated flat resilient tines fixed at one end to the head and extending by their free ends forwardly from said edge, the handle extending rearwardly from the head, said tines being laterally spaced from each other, each of said tines being immovably secured by its fixed end, flatwise between said plate portions, interlocking means projecting inwardly from at least one of said plate portions positively interlocking each tine fixed end with said plate portion to substantially prevent movements of said tine relative to said plate portion and to prevent lateral shifting of the free ends of the tines, the said fixed tine end being substantially entirely encased between the said head plate portions, and covered thereby.

5. The rake substantially as defined in claim 4, characterized by said interlocking means comprising inwardly offset portions of said one of said plate portions.

6. In a rake, a handle, a forwardly disposed thin flat head supported on the handle, said head comprising a pair of sheet metal plate portions rigidly secured together in mutually superposed relation, a plurality of thin elongated flat resilient tines fixed at one end to the head and extending by their free ends forwardly from the forward edge of the head in a direction generally opposite to that of said handle, and in laterally spaced relation to each other, the said tines being immovably and independently secured to the head, by their fixed ends, disposed flatwise and in independently laterally disposed relation between said plate portions, the said fixed tine end being substantially entirely encased, protected, and concealed between the said head plate portions.

In testimony whereof I have hereunto set my hand this 6th day of November, 1928.

JOHN H. HORSTMAN.