Dec. 16, 1941. E. L. FOX 2,266,542

SNOW CLEANER

Filed Aug. 23, 1939

FIG. 1

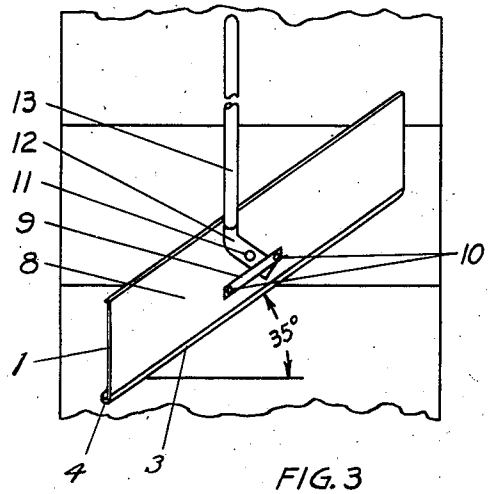


FIG. 2

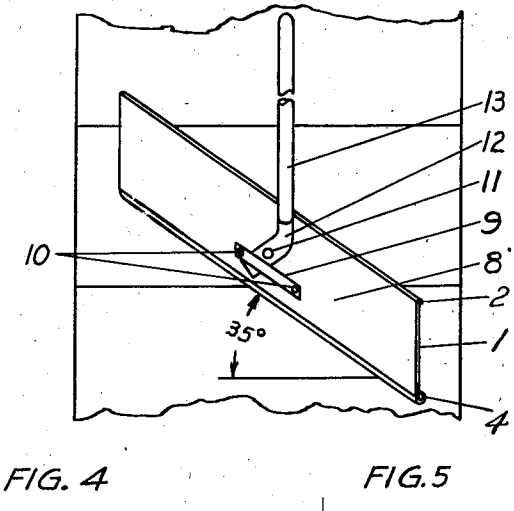


FIG. 3

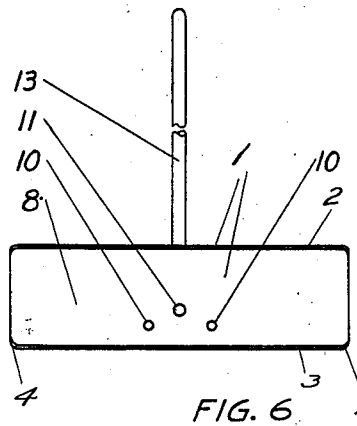


FIG. 4

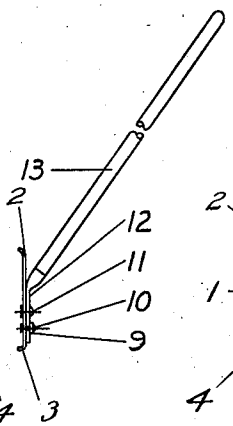


FIG. 5

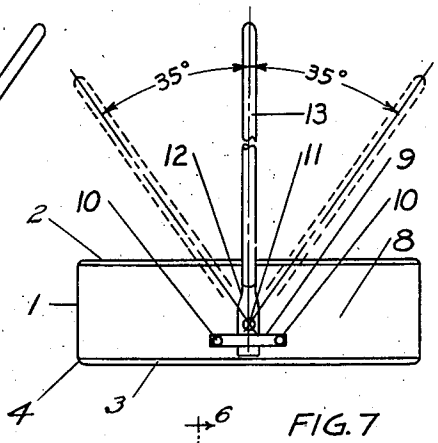


FIG. 6

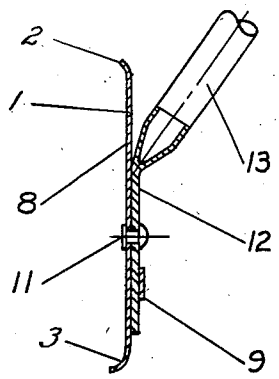
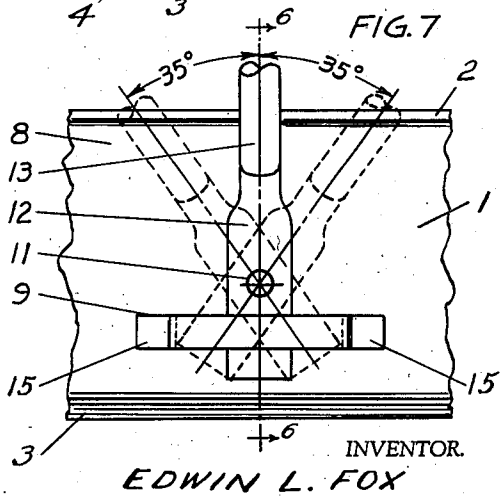


FIG. 7



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SNOW CLEANER

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8 Claims. (Cl. 37—53)

This invention relates to a snow cleaner, and, more specifically, to a tool or implement for cleaning snow from more or less smooth surfaces by hand.

An object is to provide a snow cleaner which is readily adjustable so as to enable effective lateral movement of the snow selectively to the right and left and straight ahead, as may be desired. Another object is to provide a snow cleaner tool which can be operated by hand in a manner continuously and efficiently to move the snow to one side of the track over which the tool is moved without requiring any special attention in order to maintain a straight path.

A further object is to provide a simple, strong and inexpensive tool for accomplishing snow clearing as indicated above.

Other objects include the provision of a snow clearing, hand operated tool which is readily adjustable for right and left hand movement of snow off a track and in which the working face of the blade is entirely smooth and continuous, thereby to facilitate movement of snow thereover, notwithstanding considerable pressure of the snow against the working face.

A further object is to provide a blade shape which is unlikely to tend to dig into the track or be thrown out of the desired direction of movement when the tool is held in a natural position for operation by hand, and which will not be likely to injure caulking as on masonry stairs and the like.

Other objects and advantages will become apparent from the following description which refers to the accompanying drawing wherein:

Figs. 1 and 2 are rear perspective views of the tool in respective positions of adjustment for left and right hand movement of snow off, for instance a sidewalk; Figs. 3 and 4 are front and side views of the tool; Fig. 5 is a rear view showing, partly in dotted lines, three positions of adjustment of the handle relative to the blade; Fig, 6 is a vertical sectional view of the blade and attached end of the handle as indicated by the line 6—6 on Fig. 7; and Fig. 7 is a fragmentary rear view similar to Fig. 5, but in a larger scale.

The tool, in the form illustrated, comprises a blade 1 which is preferably one piece of sheet steel which can be (for example only) from 16 to 14 gage when made in lengths from 28" to 32", heavier stock being used as the blade length is increased. The blade is bent into generally channel form by providing upper and lower flanges 2 and 3, lending stiffness to the blade, forming a horizontal guiding means for the snow and, at the bottom, an increase in bearing surface on the walk or other surface to be cleared of snow. The upper flange may be of any shape and functions merely to prevent the snow from climbing over the blade, but the lower flange should be curved on a radius say of one half an inch, and with the free edge directed at about 92° with reference to the principal face of the blade formed by the central portion 8 of the blade. The blade is preferably flat from end to end and from flange to flange, or at least flat in the region of attachment of the handle for reasons which will be explained below.

In order to form the lower corner portions of the blade so that they will not catch on kerfs, etc., (or offset edges of paving sections) and will not damage caulking (as at the intersections of stair surfaces), the end portions of the flange 3 are rounded as at 4, preferably as cut from the metal stock and before bending of it to form the flange.

To attach the handle 13, which can comprise a wooden shaft and a socketed metal shoe 12, there is provided a metal stay bar or strap 9 in spaced relation to the flat part of the blade and parallel to the lower edge of the blade. The shoe, as suggested in Fig. 6, can be made from a metal pipe having a flattened end portion extending at an angle to the shaft-receiving socket, said flattened portion being maintained in broad face contact with the rear face of the blade. The shoe is pivoted to the blade, as by a rivet 11 (or a bolt), and the lower end of the shoe extends into and is guided by the slot provided between the stay bar and blade. The stay bar can be straight from end to end and secured as by shouldered rivets 10 to the blade, (or with plain rivets and sleeves) so that the ends of the bar are spaced from the blade the desired distance; but preferably the ends of the strap or stay bar are bent in Z-bar fashion, providing offset end portions 15 (Fig. 7) adapted, e. g., to be welded to the blade stock.

Now if the bend in the handle piece 12 is about as illustrated and the limits of swinging of the shoe provided by the stay bar end attachments (rivets 10 or offset ends 15) are about 35° from center position (see Figs. 5 and 7), the blade will assume approximately the most efficient pushing angle to the right or left (35°, see Figs. 1 and 2), as adjusted by the operator, at the limits of swinging of the handle.

Some assistance in maintaining the handle in

its two extreme positions, and/or the intermediate position, can be rendered by various means. For instance, the rivet or bolt **11** can bind the shoe **12** fairly tightly against the blade, or the lower end of the shoe can be frictionally held between the stay bar and rear blade face; or retaining projections (not shown) can be formed in the stay bar or blade so as to spring into sockets or holes in the shoe at the limits of swinging of the shoe or other desired positions.

Since the blade is flat where in contact with the flattened or shoe portion **12** of the handle, in all positions of said shoe portion, no difficulty is encountered in adjusting the handle to the different working positions indicated above. The entire adjustment means (save for the forward head portions of the rivets or bolts **10** and **11**, which can also be set flush with the blade, as by countersinking the latter), is at the rear of the blade, hence does not obstruct free movement of snow along the working face of the blade.

When the handle is held in a natural working position by an adult person of average height, or any person, depending on the distances from the blade at which the user grasps the handle, and the blade is in contact with the surface to be cleared, the blade stands nearly upright in the two extreme angled positions (Figs. 1 and 2) and in the central position (Fig. 6). In such positions the free edge of the flange **3** projects slightly downwardly so as to scrape the surface clean; but it can be prevented from digging in and deflecting the blade out of its forward path, as when by reason of roughness of the track a tendency to catch is observed, by slightly depressing the handle to cause the free edge of the flange to be raised out of contact with the surface. The flange cannot act as a skid or runner so as to tend to deflect the tool to one side in the angled positions most frequently used unless the edge digs in to some extent. Regardless of the condition of the snow (unless it is practically solid ice as when trodden down at nearly thawing temperatures), the tool can be used to clear sidewalks, stairs and the like very rapidly and with practically a minimum of exertion. The practical limits in the angular relationship of the free edge of the flange **3** and the face of the blade are about from 91° to 93°.

I claim:

1. A snow cleaner tool of the class described comprising a blade and an angularly adjustable handle having a shank portion pivotally attached to the rear side of said blade on an axis extending normal to the rear face of said blade at the region of attachment, said shank portion being operatively in planar face to face contact with the blade at a region of said portion lying a considerable distance along the handle shank portion and away from the point of pivotal attachment, and means on the rear side of the blade and positioned to engage said handle shank portion adjacent said region in a manner to limit the angular adjustment of the handle.

2. A snow cleaner tool of the class described, comprising a metal blade of flat form adapted to operate in generally upright position and having a lower flange projecting forwardly on a short radius and with its free edge approximately normal to the front face, and a rearwardly extending handle attached to the rear side of the blade and capable of pivotal adjustment into two positions such that, with the handle disposed in a plane approximately parallel to the desired path of movement, the blade can be positioned selectively oblique to said path right and left.

3. A tool according to claim 2 wherein the free edge of the blade projects downwardly at about 92° relative to the front face of the blade.

4. A snow cleaner tool of the class described, comprising a blade having a fixed horizontally extending strap in spaced relation to its rear face, and a handle having a downwardly bent end portion pivoted to the blade above the strap and with a free end secured against said rear face by the strap in a plurality of operating positions, said free end being swingably movable along the strap from one operating position to another, and means associated with the strap to limit the swinging movement of said free end.

5. A tool according to claim 4 wherein said means comprises offset end portions of the strap.

6. A tool according to claim 4 wherein the handle is limited to swing through approximately 70° about the pivot.

7. A tool according to claim 2 wherein the ends of the flange are generously rounded so that the flange tends to move the blade away from a vertical surface adjacent the track with a camming action.

8. A snow cleaner tool of the class described comprising a blade and an angularly adjustable handle having a shank portion pivotally attached to the rear side of said blade at the region of attachment, said shank portion being operatively in planar face to face contact with the blade for a considerable distance along the handle shank portion away from the point of pivotal attachment, means on the rear side of the blade and positioned to engage said handle shank portion remotely of the pivot in a manner to limit the angular adjustment of the handle, and means connected with the blade and overlying said shank portion and holding the latter snugly in said planar face to face contact in an operating position of the handle.

EDWIN L. FOX.