April 6, 1943. H. F. SIEG 2,315,743

PATH-MAKING DEVICE

Filed May 8, 1942

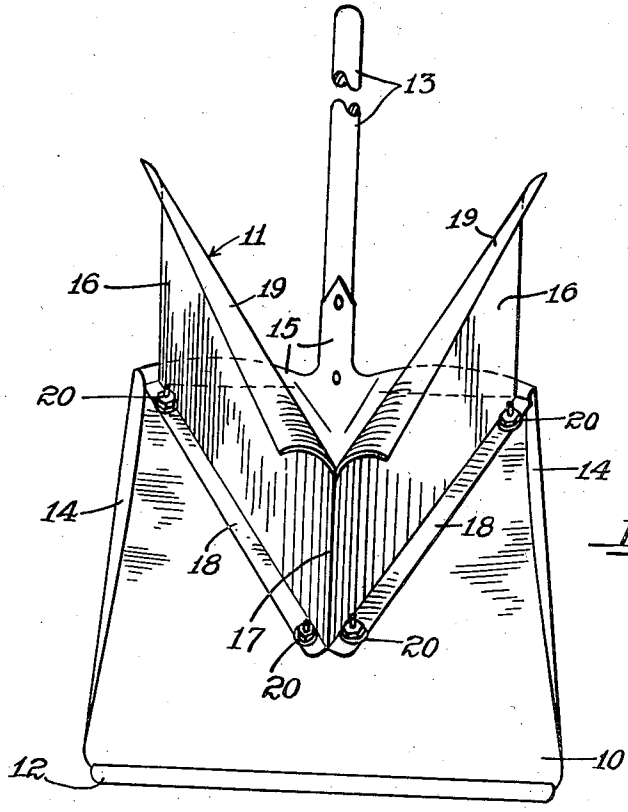


Fig. 1.

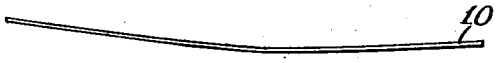


Fig. 2.

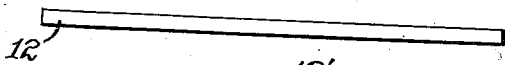


Fig. 3.

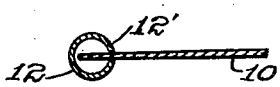


Fig. 4.

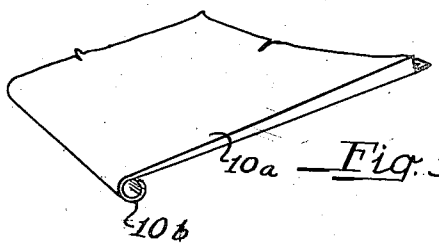


Fig. 5.

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Patented Apr. 6, 1943 2,315,743

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2,315,743

PATH-MAKING DEVICE

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5 Claims. (Cl. 37—53)

My present invention relates to the art of making paths through various types of flaky and granular material but more particularly to a hand plow adapted to form a path through snow.

There are on the market numerous snow shovels and other shovels both of the scoop and the pusher type and such are comparatively satisfactory for the purposes intended. These are commonly made either of metal or of wood reinforced with metal and in various sizes and shapes. In many cases, however, it is neither necessary nor desirable to lift and remove the snow and to deposit it in another place because frequently all that is required is to make a path snow-plow fashion. There is, however, so far as I know, no available, inexpensive and effective manual pathmaking device and while some proposals have in the past been made along this line no such device has fulfilled the necessary requirements.

In one particular instance a device has been patented in which that portion which would constitute the blade of the shovel has been formed with a complicated curvature having deflecting means starting at and in alignment with the forward edge of the shovel. The construction and arrangement thereof is of little practical utility and only under conditions such that the fall of snow was light and fairly dry. Such a device is difficult to use when the snowfall is heavy or wet and soggy as a large body of material would pile up ahead of the shovel. Since this particular shovel could not be employed like a normal shovel the disadvantage will be appreciated. Such shovel also lacks ease of operation and relatively rapidly causes expenditure of the energy of the user.

It is, accordingly, one of the objects of the present invention to produce a path-making device which is so constructed as to enable a much greater amount of work to be accomplished with a far less expenditure of energy and at the same time to produce a device which is very simple and inexpensive to manufacture.

Another object of this invention is to produce a path-making device which avoids the disadvantages of prior devices and which is so constructed that it can be disassembled readily, thus enabling the device to be used alternatively either as a path-maker or as a conventional shovel.

A further object of the invention resides in producing a path-making device which has a rounded forward edge constructed on a substantial radius and a body portion to which is applied a V-shaped deflector in which the apex of such deflector is set well back from the said rounded forward edge.

Other and further objects and advantages will be understood by those skilled in this art or will be apparent or pointed out hereinafter.

In the accompanying drawing wherein I have illustrated my present invention:

Fig. 1 is a perspective view of my new path-making device looking from front to rear thereof;

Fig. 2 illustrates in profile the forward edge of the shovel before the present invention is applied thereto;

Fig. 3 illustrates a tubular member by means of which a conventional shovel body is converted for use in the present invention;

Fig. 4 is a fragmentary sectional view through the converted shovel body; and

Fig. 5 is a fragmentary perspective view of a modified form of the invention.

Like numerals designate corresponding parts throughout the various views of the drawing.

Referring now to the drawing and describing the structural features of my invention in detail, it will be observed that the path-making device consists of four main parts, viz., a shovel body 10, a deflector portion 11, a tubular forward member 12, and a handle 13. The shovel body portion may be of various sizes and shapes but preferably includes a dished or concave member having raised marginal flange portions 14 and 15 along its sides and back, respectively. The side flange portions 14 gradually increase in height toward the back end thereof and generally are also of increasing angularity. The back flange portion 15 of the shovel is not an essential part of this invention and may equally well be omitted. The particular manner in which the handle 13 is fitted through and attached to the socket portion is likewise immaterial just so long as the arrangement is of adequate strength and rigidity.

It will be further appreciated that the parts so far described constitute a common type of shovel and that as a consequence such parts in themselves form no part of my present invention except only in so far as the same are employed in the new combination with the new and useful results hereinafter described and claimed.

To the member 10 I apply the V-shaped deflector 11. This consists of two wing portions 16 which extend rearwardly in diverging relation from their forward vertical common edge 17. Each wing is made up of a substantially vertical metal member having an outwardly bent mar-

ginal flange portion 18 extending from the lower edge thereof and a concavo-convex curved extension 19 at its upper edge, such extension diminshing or tapering in a rearward direction while at the same time having an increasing tilt imparted thereto. In other words, the curvature of each extension 19 is of a compound nature, being in effect "curled."

The deflector 11 is secured to the member 10 by means of any suitable fastening instrumentalities such as the bolt and nut assemblies 20 illustrated. It will be understood that appropriately located apertures are provided in the member 10 and that registering apertures are provided in the flanges 18. Where bolt and nut assemblies are employed I find it to be highly desirable to dispose the bolts in such manner that the rounded heads thereof are on the underside of member 10 and thus they do not in any way interfere with the use or effectiveness of the present device. While the bolts may be reversed such is somewhat less desirable but both arrangements are deemed to fall within the purview of the invention.

Further attention is directed to the fact that the common edge 17 of the deflector wings 16 is predeterminedly disposed well back from the forward edge of the member 10 so as to provide a substantial area (of M-shape) between the deflector and the side and forward extremities of said member. I also wish to direct attention to the fact that the angle formed between the wings of the deflector is in the neighborhood of 60°, although it is to be understood that this angle may be somewhat varied from a minimum of about 45° to a maximum of about 90°. As the angle increases it will be understood that the resistance to forward movement of the device increases but it is not desirable ordinarily to employ an angle much less than 45° lest the path produced be unnecessarily narrow. It is thus important that the angle between the wings of the deflector be such as will maintain the maximum path-making effect without unduly increasing the difficulty of making such path. In this connection also I wish to point out that the angularity may be different for different materials, the bulk, density and depth of the material being the primary factors to be taken into account.

Due to the fact that the profile of the forward edge of the member 10 is not a straight line (see Fig. 2), advantage is taken of that fact in maintaining tubular member 12 in place thereon in the position shown in Figs. 1 and 4. This tubular member 12 has a slit 12' along one side into which the forward edge of the member 10 is adapted to be forced, thus bringing about in effect a spring friction grip between these parts, the tendency of both of which to return to its normal position thus preventing accidental disassembly although the construction and arrangement is such that tubular member 12 can be deliberately removed with a moderate amount of pulling force. With the parts in the assembled condition it will be further apparent that in use there is no likelihood of the tubular member 12 becoming disassociated because the pressure is always in a direction which urges the tubular member toward the member 10.

The use of the tubular member 12 provides a device which has a comparatively blunt but rounded forward portion which readily passes over the surface on which the path is being made without catching upon the frequent small irregularities of such surface especially where that surface is concrete, stone, brick or the like and in connection with plank or board surfaces this device is the only practicable means which can be employed because other devices catch and stick, may damage the surface and are totally unsatisfactory. At the same time the radius of the forward portion of the device is not so great as to leave a film or layer of undesirable thickness in the wake of the device. My invention could be employed in some cases without member 12 as will be appreciated.

In some instances for the sake of added strength it has been the practice in making snow shovels to fold the material of the shovel body back under on itself, and I wish to make it clear that the rounded forward portion of my new device is not in any sense for strengthening purposes or the equivalent of doubled material. The basic thought underlying the provision of a round forward portion on my device is for ease of sliding over the surface to be exposed.

After the path-maker enters the material it causes portions of it to flow up onto that part of the device which is rearwardly of the rounded front edge but forwardly of the deflector and then as this material flows back toward the deflector it becomes divided into two streams which are readily turned aside by the deflector and deposited just beyond the lateral sides of the path-maker as a whole, the particular angle of the deflector wings and the changing curvature of the upper portions 19 effectively contributing to the desired result. The fact that the apex of the deflector is rearwardly disposed with respect to the tubular member 10 is important and the relative positions are such that the amount of material which is permitted to be received by the forward portion of the device gives just the right balance to the device for most effective operation with the practical minimum of effort and once the device has been given a steady forward motion it continues to be highly effective and readily maintained under such forward motion. Thus, several times as much path can be cleared with my present device as with prior devices which stick and catch and which have to be stopped and started at relatively frequent intervals.

In some cases I prefer to modify the shovel blade itself to endow the same with the advantages of the the tubular member 12 and to accomplish this, the shovel blade 10a is initially fabricated with a rounded forward edge 10b as shown in the modification illustrated in Fig. 5 wherein the forward portion of the shovel blade is turned downwardly, rearwardly and then upwardly to form substantially a complete convolution. It will be understood that the deflector is applied to the modified shovel blade in the same manner as already described in connection with the preferred structure of Fig. 1. It will, of course, be understood that in the modified form of device only the deflector can be removed but that in the device of Fig. 1 both the deflector and the tubular member 12 can be removed.

It is further to be understood that the foregoing is presented as illustrative and not as limitative and that other and further additions, omissions, substitutions and modifications may be made without departing from the scope and principles of this invention which is rather that defined by the appended claims.

Having thus described my invention, what I

claim as new and desire to secure by Letters Patent is:

1. A device of the character described which comprises a shovel-like blade, a tubular member disposed on the forward edge of such blade, a deflector removably associated with such blade and having a pair of angularly disposed wings, the lower portions of which are securable to and detachable from said blade and the upper portion of each of which is in the form of a curved overhanging member diminishing in width in a rearward direction.

2. A device of the character described which comprises a shovel-like blade, a tubular member disposed on the forward edge of such blade, a deflector removably associated with such blade and having a pair of angularly disposed wings, the lower portions of which are securable to and detachable from said blade and the upper portion of each of which is in the form of a curved overhanging member diminishing in width in a rearward direction, the forward edge of said blade having a curved profile and said tubular member having a straight slit along one side into which said curved edge is forced.

3. A device of the character described which comprises a shovel-like blade, a tubular member disposed on the forward edge of such blade, a deflector removably associated with such blade and having a pair of angularly disposed wings, the lower portions of which are securable to and detachable from said blade and the upper portion of each of which is in the form of a curved overhanging member diminishing in width in a rearward direction, the wings of said deflector being disposed at an angle of approximately 60° to one another and the apex of said deflector being disposed a substantial distance rearwardly of said tubular member to provide a free surface having an area which is a substantial proportion of the total area of the shovel blade.

4. A device of the character described which comprises a shovel-like blade, a tubular member disposed on the forward edge of such blade, a deflector removably associated with such blade and having a pair of angularly disposed wings, the lower portions of which are securable to and detachable from said blade and the upper portion of each of which is in the form of a curved overhanging member diminishing in width in a rearward direction, the wings of said deflector being disposed at an angle of approximately 60° to one another and the apex of said deflector being disposed a substantial distance rearwardly of said tubular member to provide a free surface having an area which is a substantial proportion of the total area of the shovel blade and said shovel blade having marginal upwardly curved wall portions, the rearward extremities of which are in close juxtaposition with the rearward edges of said deflector wings.

5. A device of the character described comprising a handled shovel blade, a deflector detachably connected to said shovel blade a substantial distance rearwardly of the forward edge of such blade and a detachable tubular member into which the said blade edge projects, the tubular member being maintained in position by a spring friction grip on the shovel blade.

HERMAN F. SIEG.