(No Model.)

D. A. DALY.

SHOVEL.

No. 450,449. Patented Apr. 14, 1891.

Fig. 5

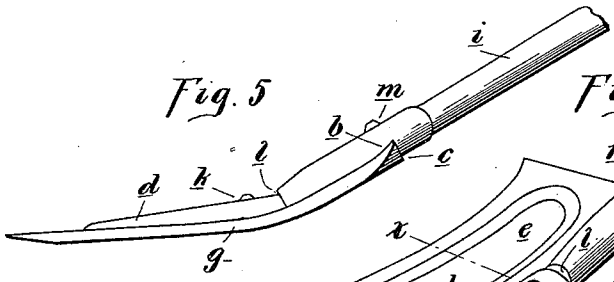


Fig. 1

Fig. 2

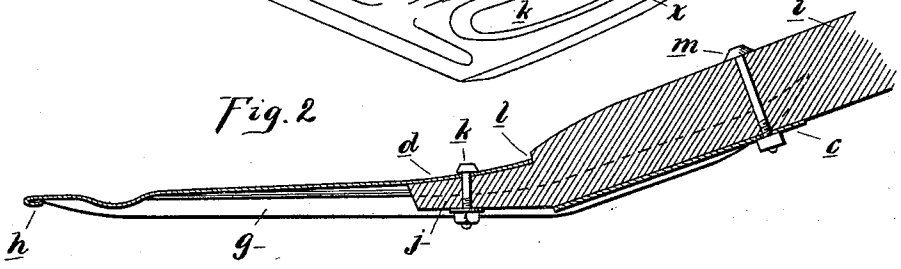


Fig. 4

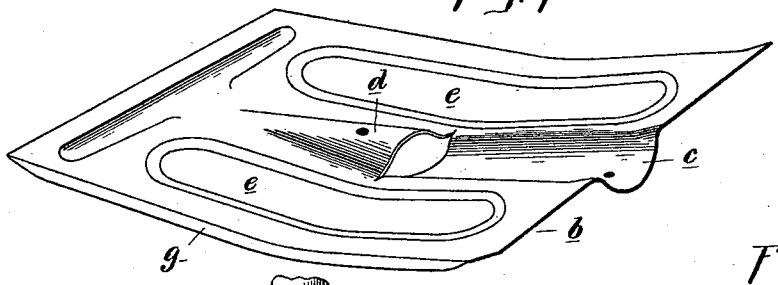


Fig. 3

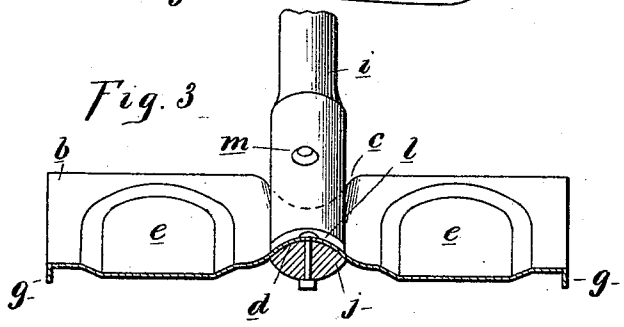
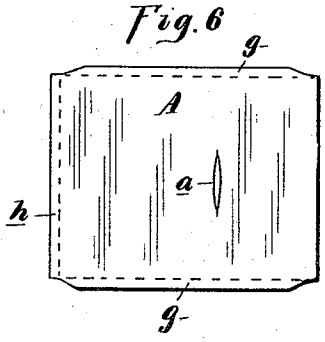


Fig. 6



Witnesses:
P. M. Hulbert
N. L. Lindop.

Inventor:
Daniel A. Daly
By Thos. G. Progner & Son
Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

DANIEL A. DALY, OF DETROIT, MICHIGAN.

SHOVEL.

SPECIFICATION forming part of Letters Patent No. 450,449, dated April 14, 1891.

Application filed July 10, 1890. Serial No. 358,346. (No model.)

To all whom it may concern:

Be it known that I, DANIEL A. DALY, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Shovels, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in shovels; and the invention consists in the peculiar construction of the shovel-blade, whereby the same can be economically manufactured of thin sheet metal, preferably steel metal plate, by means of dies, while at the same time it combines great strength with lightness and with especial adaptability for use as a snow-shovel or for other work where shovels of this character are employed.

In connection with the construction of the shovel-blade I have also devised an improved fastening for the handle, all as more fully hereinafter described, and shown in the accompanying drawings, in which—

Figure 1 is a perspective view of my shovel. Fig. 2 is a vertical central longitudinal section thereof. Fig. 3 is an end elevation with the shovel-blade shown in section on line *x x* in Figs. 1 and 2. Fig. 4 is a detached perspective view of the shovel-blade when ready to be secured to the handle. Fig. 5 is a side elevation of Fig. 1. Fig. 6 is a diagram plan of the sheet-metal blank from which the shovel-blade is formed.

The shovel-blade is formed from a sheet-metal blank A, preferably of steel plate, substantially as of form shown in Fig. 6. In this is formed centrally near one end thereof a cross cut or slit *a*, and then between suitable dies this blank is converted into the form of the shovel-blade shown in Fig. 4, in which the rear portion of the blade is bent or curved upwardly in relation to the front portion of the blade and with the rearmost portion *b* preferably bent at a slightly-larger angle. The central portion of the blade in rear of the slot *a* is depressed to form a rounded bearing *c* for the under side of the handle. The portion of the blade in front of the slit *a* is bent upwardly to form a nose *d*, under which the front end of the handle is adapted to engage. On each side of the central portion of the blade is formed the depressions *e*, which extend nearly the entire length of the blade, and a similar depression is formed crosswise of the blade near the front edge thereof and extend centrally the whole width of the blade. The depressions are made relatively narrower and of such easy cross-section that, while they materially contribute to increase the transverse and longitudinal stiffness of the blade, they can be readily formed by compressing the blank between dies without the least injury to the material and without forming a lodgment for any material on the face of the shovel when used. The longitudinal edges of the blade are re-enforced by the depending guard-flanges *g*, which extend the whole length of the blade at a uniform width, or nearly so, and are beveled off at the ends toward the front edge of the blade, the blank having been formed of the proper outline to produce such formation of flange by the action of the dies alone. The upper edge of the blade may or may not be re-enforced, according to the peculiar work for which the shovel is designed.

For some work I provide the blade with a re-enforced front edge formed by doubling under a small portion *h* on the front edge. This materially stiffens the blade and is especially desirable for shoveling snow on wooden or other uneven walks, where a sharp edge is liable to catch. This re-enforcement for the front edge is also provided for in the blank, and the peening under is readily accomplished by suitable dies or in any other suitable manner.

The handle *i* is preferably made of wood, suitably heavier at its lower end and terminating in the nose *j*. The upper side of this nose is adapted to project under and fit under the nose *d* of the shovel-blade, with the lower side of the nose beveled off to correspond with the changing angle of the blade to keep it from touching the ground when the shovel is used. A bolt *k* passes through this nose and shovel-blade and secures it firmly thereto. This nose at its rear upper end forms a shoulder *l* for the nose of the blade to abut against. The portion of the handle engaging into the bearing *c* of the blade is suitably formed on its under side to fit said bearing, and a bolt *m* passes through the handle and bearing near the rear end of the shovel-blade firmly securing the parts together. The holes for the bolts *m*

and *k* have been preferably provided for in the shovel-blank before bending it between the dies. It will be seen from this description that my construction is especially adapted to permit of forming the whole shovel-blade from a suitably-prepared blank by a single operation of dies, or perhaps two operations, in case the peened-over front edge is provided for, and the further work and labor of completing the shovel are reduced to a minimum, while at the same time great strength and lightness are obtained by the peculiar means of re-enforcing the blade and of fastening the handle to the blade, and as an article of manufacture my shovel is adapted to come in successful competition with the inferior class of so-called "snow-shovels" in which the blade is wholly or partly constructed of wood.

What I claim as my invention is—

1. In a shovel, a sheet-metal blade having a straight front portion, a bent rear portion, and re-enforcing side flanges integral therewith, extending below the blade and along its entire length, substantially as described.

2. In a shovel, the combination, with a blade having a transverse slot therein, of an upward-extending nose forward of the slot, a depressed bearing in the rear of the slot, extending to the edge of the blade, a handle having its end extending through the slot, and bolts passing through the blade and handle, substantially as described.

3. In a shovel, a blade having longitudinal side depressions and a transverse end depression, a central nosing, and depending side flanges extending below the plane of the depressions, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

DANIEL A. DALY.

Witnesses:
M. B. O'DOGHERTY,
P. M. HULBERT.