(No Model.) 2 Sheets—Sheet 1.

W. M. FLATHERS.

PLOW.

No. 287,814. Patented Nov. 6, 1883.

Fig. 1.

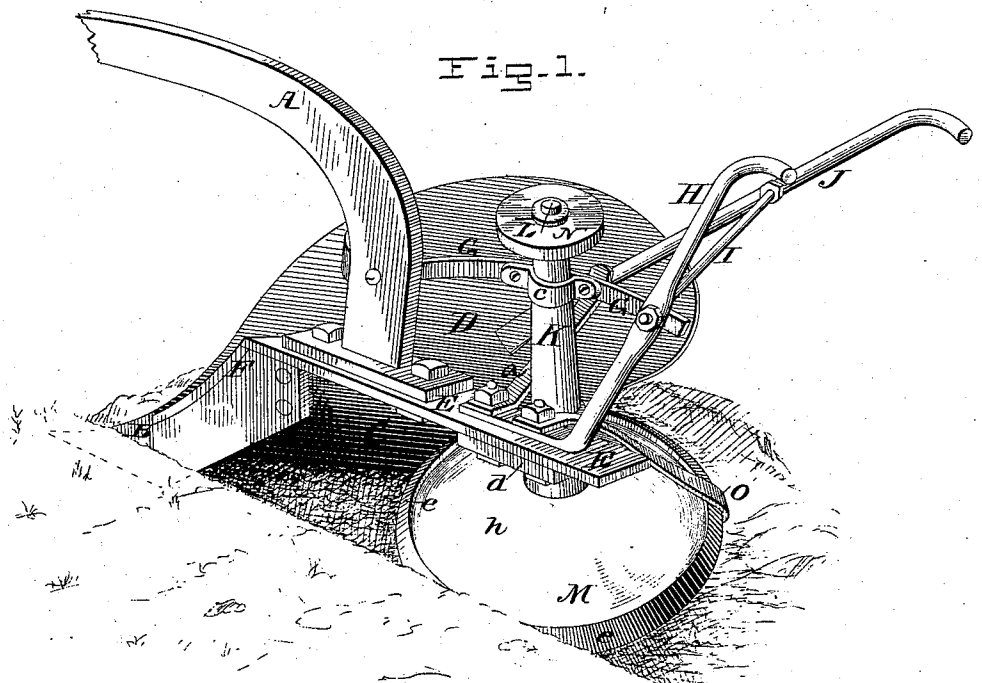
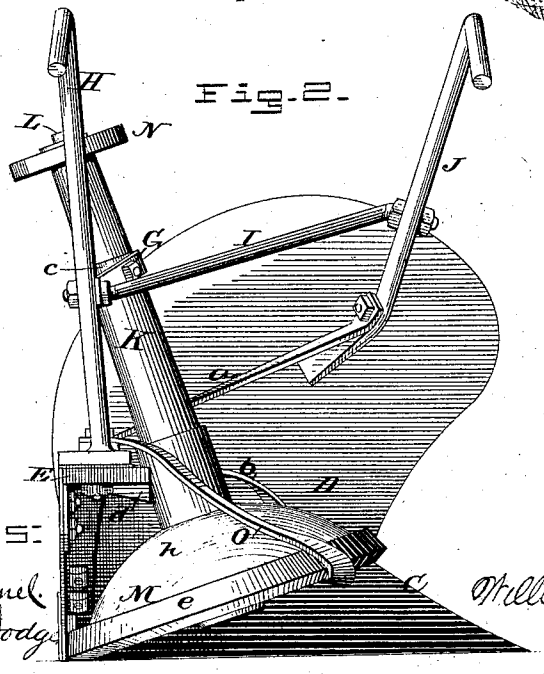


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

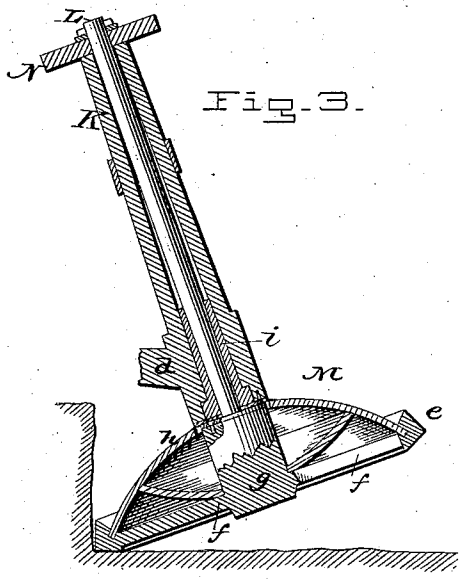
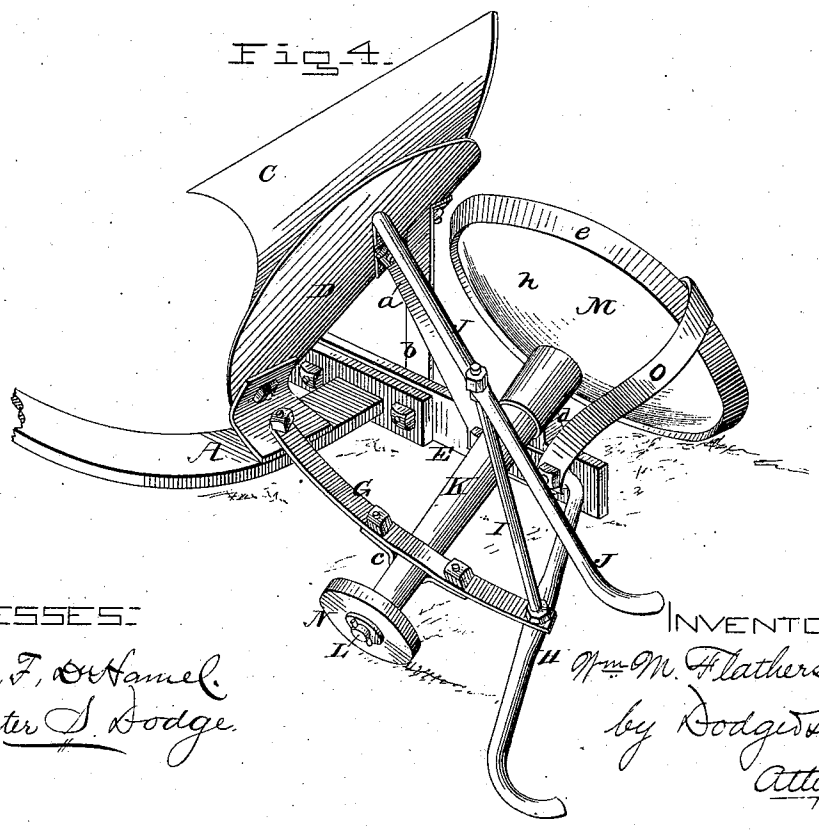


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM M. FLATHERS, OF SUMNER, MINNESOTA.

PLOW.

SPECIFICATION forming part of Letters Patent No. 287,814, dated November 6, 1883.

Application filed June 22, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. FLATHERS, of Sumner, in the county of Fillmore and State of Minnesota, have invented certain Improvements in Plows, of which the following is a specification.

My invention relates to that class of plows in which a wheel set at an angle and arranged to bear both at the bottom and at the side of the furrow takes the place of the ordinary landside; and the invention consists in a novel manner of mounting the wheel and its axle, whereby a long bearing and consequent firm support is secured for the axle; in a peculiar construction of the wheel; in providing the upper end of the axle with a second wheel, so that the plow may be turned over upon its side and caused to rest upon both wheels, upon which it may then be transported, as upon a truck; in a scraper for cleaning the wheels, and other features and details hereinafter explained.

Figure 1 of the drawings represents a perspective view of my improved plow; Fig. 2, a rear end view; Fig. 3, a section taken through the landside-wheel and the tubular box or sleeve in which its axle is mounted; Fig. 4, a perspective view of the plow turned over on its side.

The object of my invention is to strengthen and improve the construction and operation of plows of the class mentioned, and this end I attain by constructing and arranging the parts in the following manner:

A represents the beam, B the point, C the share, and D the mold-board, all of usual construction.

E represents a horizontal bar or support extending backward from the front brace or standard, F, stiffened and supported by braces *a b*, bolted thereto and to the mold-board.

G represents a second bar or support above and substantially parallel with the first, bolted at its forward end to the beam A, and at its rear end carried by the handle H, or by the rod I, which connects said handle with its companion J. The handle H is bolted firmly to the bar or support E, and the handle J is bolted or secured to the mold-board, as indicated.

K represents a long sleeve or tubular bearing supported at its upper end by a metal strap or band, *c*, bolted to the bar or support G, and at or near its lower end by a plate or flange, *d*, cast upon or attached to the sleeve, and bolted or otherwise secured to the support E, said sleeve being inclined at an angle of, preferably, about sixty to seventy degrees, as indicated. This sleeve forms a bearing for an axle, L, carrying at its lower end the landside-wheel M, which is firmly secured upon the axle and rotates therewith. Said wheel is of peculiar form, being provided with a rim or peripheral flange, *e*, the upper and lower faces of which meet each other at a right angle, and are inclined relatively to the central axis of the wheel, so that when the wheel is in its inclined position the upper face of the rim stands in a vertical position at the depressed side of the wheel, and the under face of said rim, at the same side, stands in a horizontal position, the vertical and horizontal faces being brought to the exact position occupied by the corresponding faces of the ordinary landside, which in this case is omitted. The wheel is thus caused to bear upon the lower or depressed side of the wheel, which rests upon the lower face of the flange, and at the same time bears against the upper or outside face thereof, said face being pressed firmly against the upright wall of the new furrow by the side pressure commonly taken by the landside. This will be readily understood by referring to Figs. 2 and 3. In this way rolling, instead of sliding friction, is secured, and much less power is required to draw the plow in consequence of this change. The construction of this wheel is important, since it is required to withstand severe strain, and to work efficiently should be so constructed as to prevent the soil from falling into and clogging it, thereby impeding its movement. I therefore construct said wheel, as shown in Fig. 3, with the rim *e*, spokes *f*, and hub *g* cast in one piece, and with a convex or dome-shaped cap or shield, *h*, secured at its periphery to the flange *e*, and at its central portion to the hub *g*, being re-enforced and supported by an interior convex plate set with its convex side down, and having its edge firmly jointed to the inner face of the cap or shield *h*. The arching form of cap or shield *h* causes it to greatly stiffen and strengthen the wheel, and, receiving and trans-

mitting the strain in a plane more nearly vertical than the plane of rim *e*, materially lessens the danger of dishing or crushing down said wheel. The shield also prevents clods of dirt, stones, sticks, &c., from falling into the wheel between its spokes, and thereby impeding its progress.

It will be seen that the wheel may be cast complete, or made in parts, and of any suitable materials, and that while the spokes are preferable, because adding to the strength and stiffness of the wheel, they are not essential; but that the rim *e* may be formed directly upon the periphery of the cap or shield *h*.

For the purpose of facilitating the transportation or removal of the plow from one point to another about the farm, the upper end of axle L is extended above and beyond the sleeve K, and furnished with a loose wheel, N, of such diameter that when the plow is thrown over upon its side, as in Fig. 4, the plow will be raised clear of the ground, and be supported and carried upon the wheels M and N, as indicated, when it may be readily pulled or pushed to any point with ease and speed.

In order to prevent the wheel M from becoming clogged by adhering earth, and being thus thrown out of its proper line of travel, a scraper, O, is attached to the bar or support E, and arranged to remove the adhering soil from the wheel as its rim travels past the scraper.

The foregoing description shows the plow substantially as it will be made when a metal beam is used, and illustrates the essential features of construction for a wooden-beam plow, though of course the manner of supporting the sleeve or tube K and other parts will need to be somewhat modified to adapt them to a wooden beam.

I contemplate applying this invention not only to new plows, but also to plows already in use, it being only necessary, in doing so, to remove or cut away the landside and bolt or otherwise secure the sleeve or tube K and scraper O in proper position.

The long sleeve or bearing K and correspondingly long axle L, firmly secured in the wheel, cause the latter to be supported against all strains that may be brought upon it, and afford a ready means of securing the bearing *i* against working loose. This thimble or bearing *i* in the lower end of the sleeve or tube K may be made of any suitable wearing metal and secured in place by means of a set-screw, or in any other usual and convenient manner, thus permitting said thimble to be removed and replaced by a new one when worn out.

I am aware that it is not new to replace the ordinary landside with a wheel set at an angle and arranged to bear at the bottom and side of the new furrow, and hence I make no broad claim thereto.

Having thus described my invention, what I claim is—

1. In combination with a plow, a landside-wheel formed with a hub and spokes, and provided with a cap to prevent the entrance of dirt and trash between the spokes, said wheel being mounted substantially as shown and described, whereby it is caused to bear at the angle formed by the side and bottom of the furrow, and thus to support the plow vertically and laterally.

2. In a plow, a landside-wheel consisting of rim *e*, spokes *f*, hub *g*, and shield or cap *h*, all constructed and combined substantially as shown and described.

3. In combination with a hand-plow, a landside-wheel arranged, substantially as shown, to take the place of the ordinary landside, and a second wheel located in position to clear the ground when the plow is at work, but to rest upon the ground when the plow is turned upon its side, substantially as explained, whereby the two wheels are caused to support the plow and facilitate its transportation when the plow is thus turned over.

4. In combination with a plow, a landside-wheel, M, provided with axle L, and loose wheel N, mounted upon the upper end of said axle, substantially as and for the purpose set forth.

5. The combination, with the beam A, mold-board D, and bars or supports E F G, of sleeve K, axle I, and wheels M N, all constructed, combined, and arranged to operate substantially as explained.

WILLIAM M. FLATHERS.

Witnesses:
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JOHN YATES.