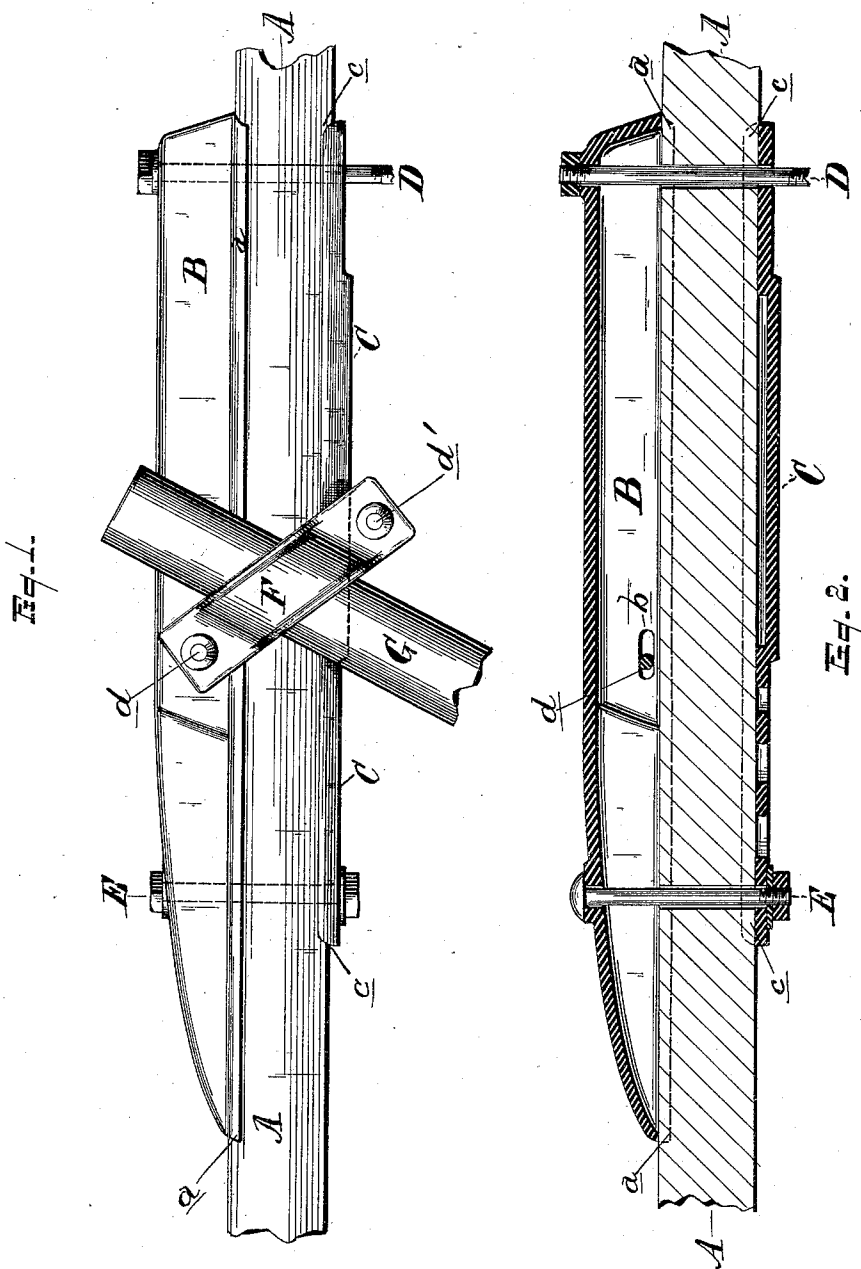


(No Model.)

N. W. WILLIAMS.
PLOW BEAM.

No. 409,623.

Patented Aug. 20, 1889.



WITNESSES.

Geo. St. Lincoln.
A. Van Vliet

INVENTOR.

Norman W. Williams.
by H. F. Eberts,
ATTORNEY.

UNITED STATES PATENT OFFICE.

NORMAN W. WILLIAMS, OF DETROIT, MICHIGAN, ASSIGNOR OF ONE-HALF TO
CHARLES H. GALE, OF SAME PLACE.

PLOW-BEAM.

SPECIFICATION forming part of Letters Patent No. 409,623, dated August 20, 1889.

Application filed October 24, 1887. Serial No. 253,262. (No model.)

To all whom it may concern:

Be it known that I, NORMAN W. WILLIAMS, 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 Plow-Beams, of which the following is a specification.

The object I have in view is to so construct a plow-beam as that it shall have the strength of an iron beam, with less weight and without its liability to break or become permanently flexed; that it shall have the resilience or elasticity of a wood beam, with greater strength and less bulk, and to provide a means for more securely and conveniently attaching a jointer or colter than heretofore.

To these ends, my invention consists in making the beam of a small, square, and straight bar of wood, strengthened or trussed between a superposed box-like malleable casting and a lower channel-plate of like material, both extending over the weak points in the ordinary beams, the whole secured by a single bolt, in addition to the usual draw-bolt, rising from the standard, as more fully hereinafter set forth; also in providing the said box-casting with a transverse slot adapted to receive the top-bolt of a pair of short grip-straps, whereby the shank of a jointer or colter may be adjustably secured to the beam.

Figure 1 is a side elevation of the middle portion of my improved beam. Fig. 2 is a longitudinal vertical section of the same.

In the drawings, A is a straight wooden bar, two and one-half inches square, and of proper length for the kind of plow to which it is to be attached.

B is a malleable cast-iron box, open at the bottom, where its edges *a* are flared to embrace the top corners of the bar A from a point back of the draw-bolt D toward the clevis far enough to resist and overcome any tendency of said bar to spring or bend upward under working stress.

C is a channel-plate of the same material, whose edges or flanges *c* embrace the lower corners of the bar A. It is interposed between said bar A and the shoulder of the landside-standard, all being secured together by the ordinary draw-bolt D in the usual manner, while an extra bolt E binds their fore parts. This channel-plate has openings

cored in its main web to lighten it, as seen in Fig. 2.

A pair of grip-straps F have a bolt *d*, which passes through a transverse slot *b* in the box B, and another *d'* through eyes at their pendent ends. The "land" grip-strap F is made with a circular curve where it passes the beam, to permit the insertion of the shank G of a colter or jointer, which shank should be the section of a cylinder in cross-section. This construction will permit of easy adjustments for height or depth and inclination for "pitch," as will readily be seen.

As compared with an all-iron beam, the present construction is about ten pounds lighter, costs less, and is better adapted to resist flexing-strains, which would break or bend the former. Wood beams are usually made from three by six inch stock, sawed to shape, which brings flexing-strains diagonally across the grain in a portion of their length.

It is well known that wood beams do warp, besides being bulky and clumsy, made so by the necessity of guarding against the weakness caused by the large hole for the draw-bolt, which cuts away one-third of their thickness. In my improved construction the straight small wood bar is trussed and clamped between flanged castings, the whole being well adapted to resist torsional or flexing stresses in all directions. Particularly is this the case with relation to strains resulting from the plunging or upward jerking of the team where the casting B is made with deep sides—in effect becoming a strong girder.

One or more transverse webs may be molded in said box-casting to prevent the thin webs or sides from buckling.

Steel castings or drop-forgings can, of course, be used in lieu of malleable castings, if preferred.

What I claim as my invention is—

The metallic girder-box B, having the transverse slot *b*, adapted to receive the bolt *d* of the grip-straps F, in combination with the channel-plate C and straight wooden bar A, substantially as set forth.

NORMAN W. WILLIAMS.

Witnesses:

MARIE J. EBERTS,
H. S. SPRAGUE.