

(No Model.)

F. A. GRAHAM & A. R. GRIFFIN.
PLOW.

No. 511,135.

Patented Dec. 19, 1893.

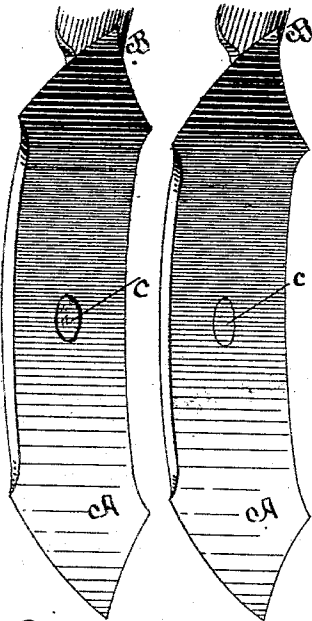


Fig. 1

Fig. 2

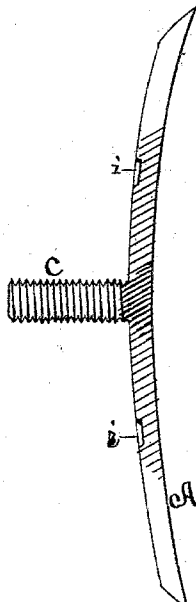


Fig. 3

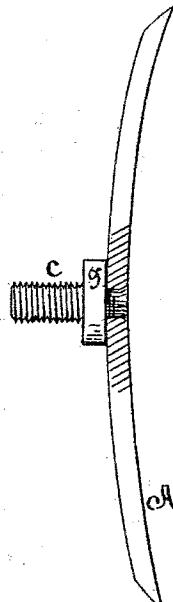


Fig. 4

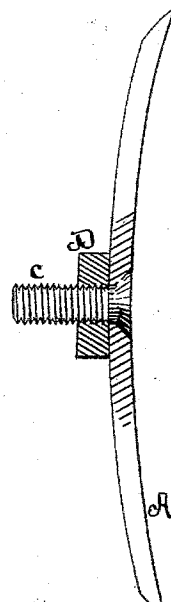


Fig. 5

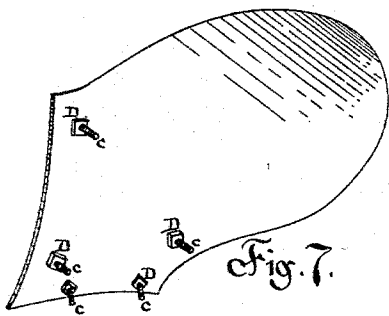


Fig. 7.

Fig. 6

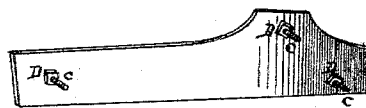
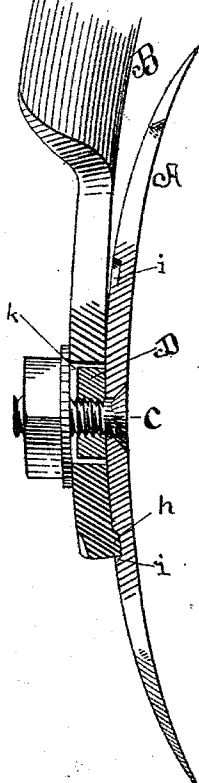


Fig. 8.

Attest

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UNITED STATES PATENT OFFICE.

FRED A. GRAHAM AND ALEXANDER R. GRIFFIN, OF MISHAWAKA, INDIANA.

PLOW.

SPECIFICATION forming part of Letters Patent No. 511,135, dated December 19, 1893.

Application filed March 31, 1893. Serial No. 468,551. (No model.)

To all whom it may concern:

Be it known that we, FRED A. GRAHAM and ALEXANDER R. GRIFFIN, both of Mishawaka, in the county of St. Joseph and State of Indiana, have invented new and useful Improvements in Plows; and I do hereby declare that the following is a full and accurate description of the same, reference being had to the accompanying drawings, wherein—

Figure 1 is a perspective view of a reversible cultivator tooth, as commonly made. Fig. 2 is a perspective view of the same according to our improvement. Figs. 3, 4 and 5 are sections of the same representing modifications. Fig. 6 is a longitudinal section of the tooth attached to its support. Figs. 7 and 8, as illustrations, represent a plow mold board and landside provided with fastening bolts according to our invention.

The teeth of cultivators, the mold-boards and landsides of plows, &c., are usually made separate and separable from their supporting parts, and are fastened to such supporting parts by means of bolts which are usually loosely inserted through proper holes made in such detachable part. Said teeth, mold-boards, landsides and the like, required for working the soil require to be smooth and polished on their surfaces over which the disturbed soil is required to slide, otherwise they will not "scour," but the soil will stick and clog. When the parts referred to are fastened with through bolts, the holes for the heads of said bolts are countersunk and before grinding and polishing the scouring surface, the bolt is put in place and temporarily held while the head is ground away and polished along with said scouring surface, but such bolt when released and replaced when the part is attached to its support, seldom finds again exactly the same seat in the countersunk hole, and therefore will present a slight obstruction to the sliding soil, which therefore will tend to stick and clog at that point. So common and serious is this result that many makers overcome it by riveting or otherwise attaching to the back of said scouring part a kind of bracket to receive and hold the attaching bolt without passing the same through to the scouring surface. The brackets referred to are frequently employed on the backs of reversible teeth for cultivators

similar to those shown in the drawings referred to herein.

In all cases heretofore the attaching bolt has always been loosely placed in its seat and said looseness is the source of all the trouble which we obviate by our improvement, which essentially consists in permanently attaching said fastening bolt to said detachable part, before the scouring surface has been ground and polished; that is to say, said bolt is permanently attached and its head is ground away and polished along with the scouring surface, and said bolt is not afterward loosened in its seat. There are three ways of accomplishing said permanent attachment, first, by welding or otherwise making the bolt integral with the detachable part, as shown in Fig. 3; second, by riveting one end of said bolt in its seat in said detachable part, as shown in Fig. 4, and third, by means of a screw nut on said bolt jammed hard against the back of said detachable part, as shown in Figs. 2, 5 and 6. The bolts may be welded in with great ease by means of electricity. To rivet them in does not require special machinery nor much skill, but to fasten by a nut as shown in Fig. 5 is, in some respects most convenient, and is the mode which we have successfully practiced.

For convenience we will confine the following description to the named mode, without however intending to be limited thereto nor limited in application to the reversible cultivator tooth shown in the drawings.

A, is a reversible, or double end cultivator tooth.

B, is the supporting part, in this case a cultivator standard, and C is the attaching bolt, permanently attached by a jam nut D.

Fig. 1, shows the rough condition at the bolt head when attached in the way heretofore common, and Fig. 2 shows the smooth undisturbed surface when the bolt has been previously permanently fastened in place as heretofore described.

The nut D may be locked and rendered incapable of loosening, or the screw C may be fashioned with a square, rectangular or oval boss or head *g*, as shown in Fig. 4 integral with the bolt which may thereafter be fastened in place by riveting as in Fig. 4, or by welding as in Fig. 3. The nut D or the head

g, as the case may be, may then serve to prevent the tooth from rotating on its connection with its standard (B) by entering a proper correspondingly shaped hole k, in said standard, and the locking stud h and recess i or their equivalents separate from the bolt may be dispensed with.

Having described our invention, we claim—

1. The removable part A., provided with a fastening bolt C, the head whereof is on the front or polished side of said part A. and jam nut D. to permanently fasten said bolt to said part A. whereby when said bolt head has been ground off flush with the scouring front of said part A. it will not thereafter change its position.

2. The removable part A the bolt C and jam nut D whereby said parts A and C are permanently attached, for the purpose set forth.

3. The removable part A provided with a fastening bolt C and a jam nut surrounding said bolt at the back of part A combined with a standard provided with an orifice k corresponding with said jam nut for the purpose set forth.

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ALEXANDER R. GRIFFIN.

Witnesses:

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C. F. GAY.