J. W. WATERMAN.

Teeth for Thrashing Machines.

No. 168,305. Patented Sept. 28, 1875.

Fig. 1

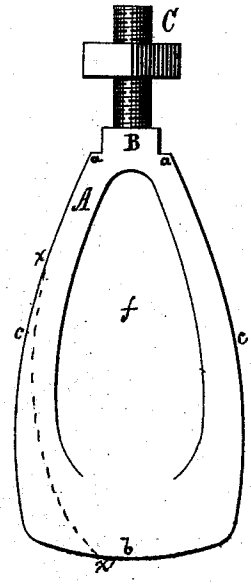


Fig. 2

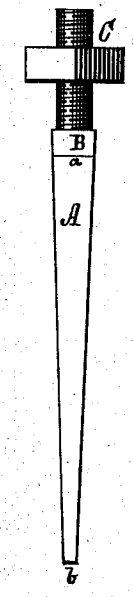
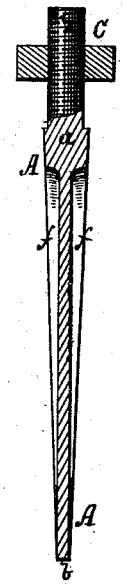


Fig. 3



WITNESSES

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JONATHAN W. WATERMAN, OF OREGON, WISCONSIN.

IMPROVEMENT IN TEETH FOR THRASHING-MACHINES.

Specification forming part of Letters Patent No. **168,305**, dated September 28, 1875; application filed July 16, 1875.

To all whom it may concern:

Be it known that I, JONATHAN W. WATERMAN, of Oregon, in the county of Dane and State of Wisconsin, have invented a new and valuable Improvement in Teeth for Thrashing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a side view of my device, showing the construction and form of the blade, the shank, and nut-bolt. Fig. 2 is an edge view of the same. Fig. 3 is a middle cross-section of the same, showing the re-entrant planes made in the sides of the blade, and their incline planes.

My invention is a thrashing and hulling tooth; and consists in the novel construction, arrangement, and operation of the same, embracing the following elemental features: A metallic, detachable, and reversible blade, with its sides tapering, like an ax, from its rectangular poll to its convex bit-edge, having the edges of said sides convexo-convex, and tapering back again from the said bit-edge to the said poll; also, having a portion of said sides each longitudinally planed backward from said bit-edge almost to said poll, so as to form in each side of said blade—a middle cross-section of which will be of uniform thickness—a re-entrant plane with a chamfered and deepening edge within and corresponding to the said convexo-convex edges; and, finally, having said poll formed and extended, all in one and the same piece, into a square shank and a nut-bolt, all of which and their purposes is hereinafter more fully described, and illustrated by the accompanying drawings, in which the same letters designate identical parts of my device in the different figures, respectively.

The letter A represents the blade of the said tooth, its sides tapering wedge-like from its poll *a*, which is rectangular to its bit-edge *b*, which is dull and convex, as shown. This formation is to allow the concave and cylinder of the thrashing-machine, into both of which said teeth are fixed, to be brought closely together when the thrashing of grass-seed, instead of oats or wheat, is required. The said edges *c* are made convexo-convex, and with the said backward taper from bit-edge to poll, for the purpose of allowing the thrashed straw to more readily release itself from the teeth, when the cylinder has revolved to the proper position. Again, this shape of double-convex edge, and also the said double taper, allows the said edges of said blade to be reversed whenever, in course of time, the engaging edge of said tooth, either in cylinder or concave, becomes worn away. This wearing causes said engaging edge to take the shape shown by the dotted line *x x'* in Fig. 1. The letter *f* represents the said duplicate parallel and re-entrant planes, made into each side of said blade A, so that their beveled edges, within and corresponding in their course to that of the said outside edges *c*, as shown, become deeper—consequently said depressions *f* in said sides, in the same proportion, become deeper—as said planes enter backward into the inclined planes of said sides.

These depressions or re-entrant planes serve to make the said teeth less weighty, while their strength is not diminished; at the same time they catch the seed when grass is thrashed, and also remove their hulls by trituration between the opposing sides of adjacent teeth in cylinder and concave. Said cavities *f* serve another equally if not more important purpose—that of drawing air into the feeding end of the thrashing-machine, and forcing it through and out of the tail end of the same, thereby carrying dust and other impurities out with the straw beyond the sifters.

The letter B represents a square shank, which, with the nut-bolt C is formed out of the same piece with the blade A, extended from its poll *a*. Said shank sits fittingly into a corresponding depression, countersunk into the outer surface of the cylinder on the inner surface of the concave, and there is securely held by said nut-bolt. This means of holding said teeth strongly and inflexibly in position is still further strengthened by the shoulders, which are formed by the poll *a* at the base of the said shank B. Therefore,

I claim—

The thrashing and hulling tooth A, having

tapering sides from the poll *a* to the convex bit-edge *b*, and the edges of said sides convexo-convex and tapering back again to said poll, and furthermore provided with the double concaves or re-entrant planes *f*, all substantially as and for the purposes specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

JONATHAN WESLEY WATERMAN.

Witnesses:

EDWIN R. SHEPHERD,

ALEXANDER CASHORE.