(No Model.)

W. H. HALL.

HORSE HAY RAKE.

No. 292,218. Patented Jan. 22, 1884.

Fig 1.

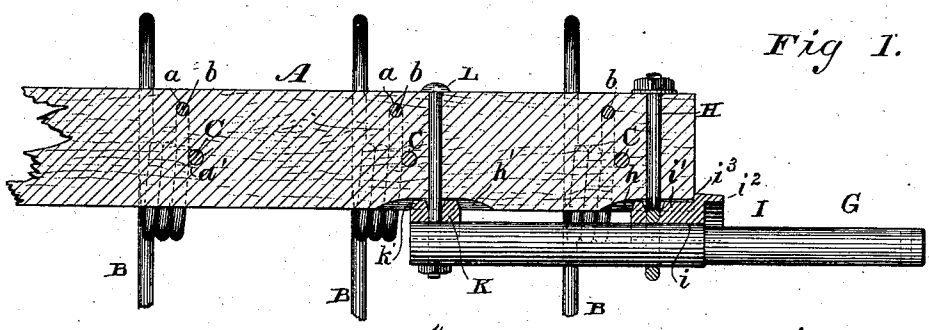


Fig. 2.

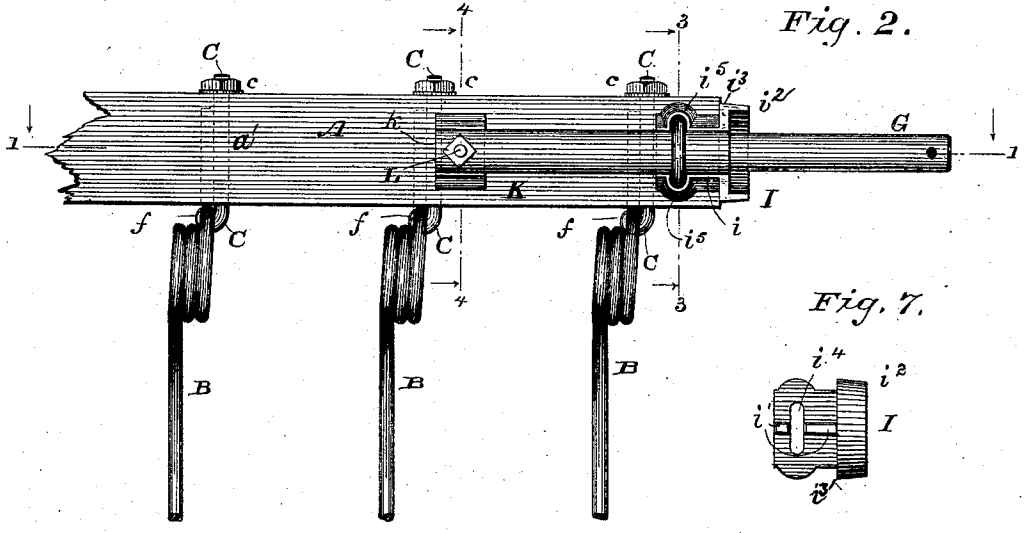


Fig. 7.

Fig. 3.

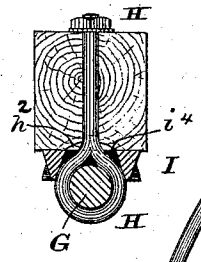


Fig. 4.

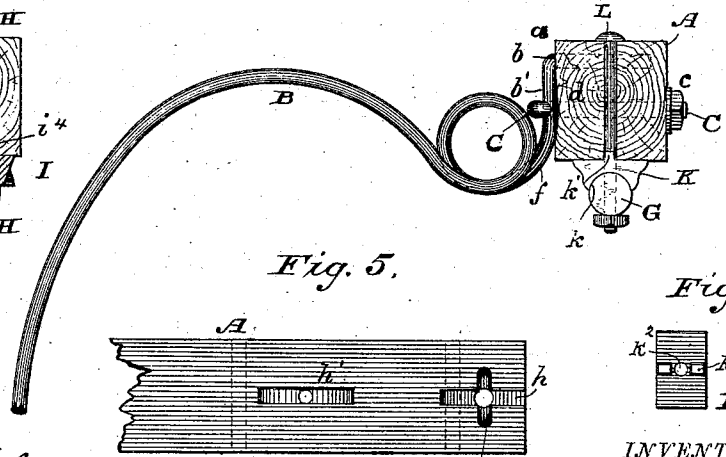


Fig. 5.

Fig 6

WITNESSES.

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UNITED STATES PATENT OFFICE.

WILLIAM H. HALL, OF TIFFIN, OHIO.

HORSE HAY-RAKE.

SPECIFICATION forming part of Letters Patent No. 292,218, dated January 22, 1884.

Application filed August 1, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. HALL, of Tiffin, in the county of Seneca and State of Ohio, have invented certain new and useful Improvements in Horse Hay-Rakes, of which the following is a specification.

My invention relates particularly to the rake-tooth and its fastenings and to the mode of attaching the metallic stub-axle to the wooden rake-head or through-axle; and it consists in forming the rake-tooth with an elongated bend in its coil, which bend rests against the back of the rake-head to set the main coil out from the head; in forming the rake-tooth with an elongated bend in its coil to set the main coil out from the back of the rake-head, and carrying the shank beyond said bend vertically up along the rear face of the rake-head, and then bending it in to afford a tang to enter a socket in said rake-head and securing it by a hook-bolt; in forming the rake-head with sockets in its face near its top to receive the bent upper end or tang of the rake-tooth, perpendicular grooves beneath these sockets to receive the shank, and perforations to one side of the grooves to receive a hook-bolt, whereby the fastening is rendered complete; in seating the stub-axle in a casting at the end of the wooden axle or rake-head, positioned by means of a rib or flange taking into a groove in said head, and also at its rear end in another casting likewise positioned and aligned with the first, and securing axle and castings by means of an eyebolt snugly inclosing the axle and passing through the first-mentioned casting, and of a straight bolt passing directly through the axle and second casting, and both into and through the rake-head; in an end casting for the wooden axle or rake-head, formed with a socket for the stub-axle, a rib or ribs to enter grooves in the wooden head and determine its position, a shoulder to abut against the end of the head, and a sand-band to protect the hub of the wheel, and in the various other combinations and details of construction hereinafter set forth and claimed.

In the drawings, Figure 1 is a front elevation, partly in section, of a rake-head, stub-axle, and accessories embodying my invention; Fig. 2, a bottom plan view of the same; Fig. 3, a section on line 3 3 of Fig. 2; Fig. 4, a section on line 4 4 of Fig. 2; Fig. 5, a bottom plan view of a rake-head or wooden axle, as the case may be, with its attachments removed; Figs. 6 and 7, details of castings used in the attachment of the stub-axle.

So far as my invention relates to the rake-tooth and the mode of securing it, the rake-head A may be attached to the rake carriage or frame in any suitable manner and occupy any suitable position—as, for instance, it may be hinged above the fixed axle, or behind it, or to the frame, or may itself serve as the body part of an oscillating axle, the latter being the form which I have chosen for illustration. In the rear face, and near the upper side or top of the head, is formed a series of sockets, *a*, one socket for each rake-tooth B, to receive the bent upper end or tang *b* of said tooth, and lower down, and far enough to one side of each socket to let the shank *b'* of the tooth stand perpendicular, is bored a hole, *a'*, of suitable size to receive the hook-bolt C, which on the opposite face of the head is secured by a nut, *c*, or otherwise, as may be desirable. Beneath each socket, and in line therewith, is preferably cut a shallow groove or channel, *d*, in which the shank rests when in proper position. As the shank portion leaves the head the tooth is bent outwardly and upwardly into a coil of one or more turns, the first bend being elongated, so that it will overset the return bend and succeeding coils at *f* sufficiently to hold them out away from contact with the rear face of the head when the shank is drawn tight by the hook-bolt in completing the fastening.

In assembling the parts as thus far described, one tooth is taken at a time, its tang inserted in the socket, and its shank laid in the groove. The hook-bolt is then put in place and clamped down upon the shank by means of its nut, and the attachment is secured. Strains upon the tooth when in use will come upon the hook-bolt, which can at any time be tightened, instead of upon the tang. Broken teeth can readily be replaced by temporarily loosening or removing the bolt.

For the purpose of attaching the stub-axle

G to the rake-head or wooden axle, as the case may be, the latter has a couple of longitudinal grooves, h and h', the first near its end, and the second farther inward, but in line with the former. The casting I is formed with a semi-cylindrical seat, i, to receive the body of the stub-axle, a rib, i', to take into the groove h in the wooden beam or head and determine its position relatively thereto, a sand-band, i^2, to cover and shield the inner end of the wheel-hub, and, preferably, a shoulder, i^3, to abut against the end of the beam or head and serve as an additional means of steadying. It is also bored or transversely slotted, as at i^4, to receive the shank or neck of an eye or hook bolt, H, and has bulges i^5 on each side of the bore, to admit the body part of the ring or eye of said bolt. Another casting, K, is also formed with a semi-cylindrical seat, k, to receive the inner end of the stub-axle, a flange, k', to enter into the groove h' and position the casting and align its seat with the seat in the foregoing, and is bored at k^2 for the passage of the straight bolt L diametrically of the axle. These castings being first put in place, the eye-bolt is slipped over the body of the stub-axle, closely embracing it, then passed through the bore in the first casting, and through an auger-hole in the wooden head or axle, and clamped tight by means of a nut, as shown, its neck drawing into a transverse groove, h^2, in the head, securing the stub-axle in its seat, and at the same time securing the casting I solidly to the wooden part against both longitudinal and lateral displacement. The straight bolt L is then passed through the wooden head, the casting K, and a hole in the inner end of the axle, and also drawn tight and clamped by a nut, securing at once the inner end of the axle and the casting in which it is seated, and the fastening of the stub-axle is completed.

It is obvious that the grooves in the rake-head beneath the tang-sockets are not strictly essential to the securing of the rake-teeth, yet they add largely to the beneficial character in this, that without them the perpendicularity of the shank and consequent alignment of the tooth would depend upon the hook-bolt, and the holes for the latter must therefore be nicely spaced with reference to the socket; but with them the tooth will be properly located, even should the hole for the bolt be a little out of the way. It is also apparent that the sand-band on the casting at the end of the wooden rake-head or axle may be omitted without impairing the efficacy of said casting in its function as a means of securing the stub-axle to the head. I do not limit my invention, therefore, so far as to require absolutely the presence of such grooves or of the sand-band in the respective constructions; but

I claim—

1. A rake-tooth of the form shown—that is, having the inwardly-bent upper end or tang to enter a socket in the rear face of the rake-head, the perpendicular shank to lie vertically along said rear face beneath the socket, the coil, and the body part or tine.

2. A rake-tooth formed with a straight shank to lie against the rear face of the rake-head, and with the first bend of its coil elongated to overset the return and succeeding bends.

3. The wooden rake-head having sockets in its rear face near its top, to receive the tang of the tooth, and perforations lower down and to one side of a perpendicular line from the corresponding sockets to receive a hook-bolt, whereby the shank of the tooth is firmly clamped.

4. The wooden rake-head having sockets in its rear face near its top, to receive the bent upper end or tang of the tooth, perpendicular grooves beneath these sockets to receive the shank of the tooth, and perforations to one side of the grooves to receive a hook-bolt, whereby the fastening is rendered complete.

5. The combination of the wooden rake-head having sockets and perforations along its rear face, in the relative arrangement set forth, the rake-tooth having the bent upper end or tang, perpendicular shank and coil, and the hook-bolt, substantially as described.

6. The combination of the rake-head or wooden axle, grooved at its ends, as described, the castings having ribs to take into said grooves, and seats for the body or shank of the stub-axle, the eyebolt fitting over the stub-axle and passing through the end casting and wooden head, and the straight bolt passing through the inner end of the axle, the second casting, and the head.

7. The combination of the rake-head or wooden axle longitudinally grooved near its end, the castings having ribs which enter said grooves, and also seats to receive the metallic stub-axle, the eyebolt fitting over said axle and passing through the transverse slot in the end casting and through the wooden head, its neck being drawn into a transverse groove in said head, and the straight bolt passing through the inner end of the axle, the underlying casting, and the wooden head, substantially as described.

8. The end casting having a seat for the reception of the stub-axle, a bore or slot for the passage of a bolt attaching stub-axle and casting to the wooden head, and a sand-band for the protection of the inner end of the wheel-hub.

9. The end casting formed, substantially as described, with a seat for the stub-axle, a rib to take into a longitudinal groove in the wooden head, and a sand-band to cover and protect the inner end of the wheel-hub.

10. The end casting formed, substantially as described, with a seat for the metallic stub-axle, a rib or flange to take into a longitudinal groove in the wooden head, and a shoulder to abut against the end of said head.

11. The end casting formed, substantially as described, with a semi-cylindrical seat for the reception of the metallic stub-axle, a rib or flange to take into a longitudinal groove in the wooden head, a shoulder to abut against the end of said head, a sand-band to cover and protect the inner end of the wheel-hub, and a bore or transverse slot for the reception of a bolt to secure it and the stub-axle to the head.

WILLIAM H. HALL.

Witnesses:
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M. MYERS.