A. AMOS.

Horse Hay-Rakes.

No. 144,305. Patented Nov. 4, 1873.

Fig. 1.

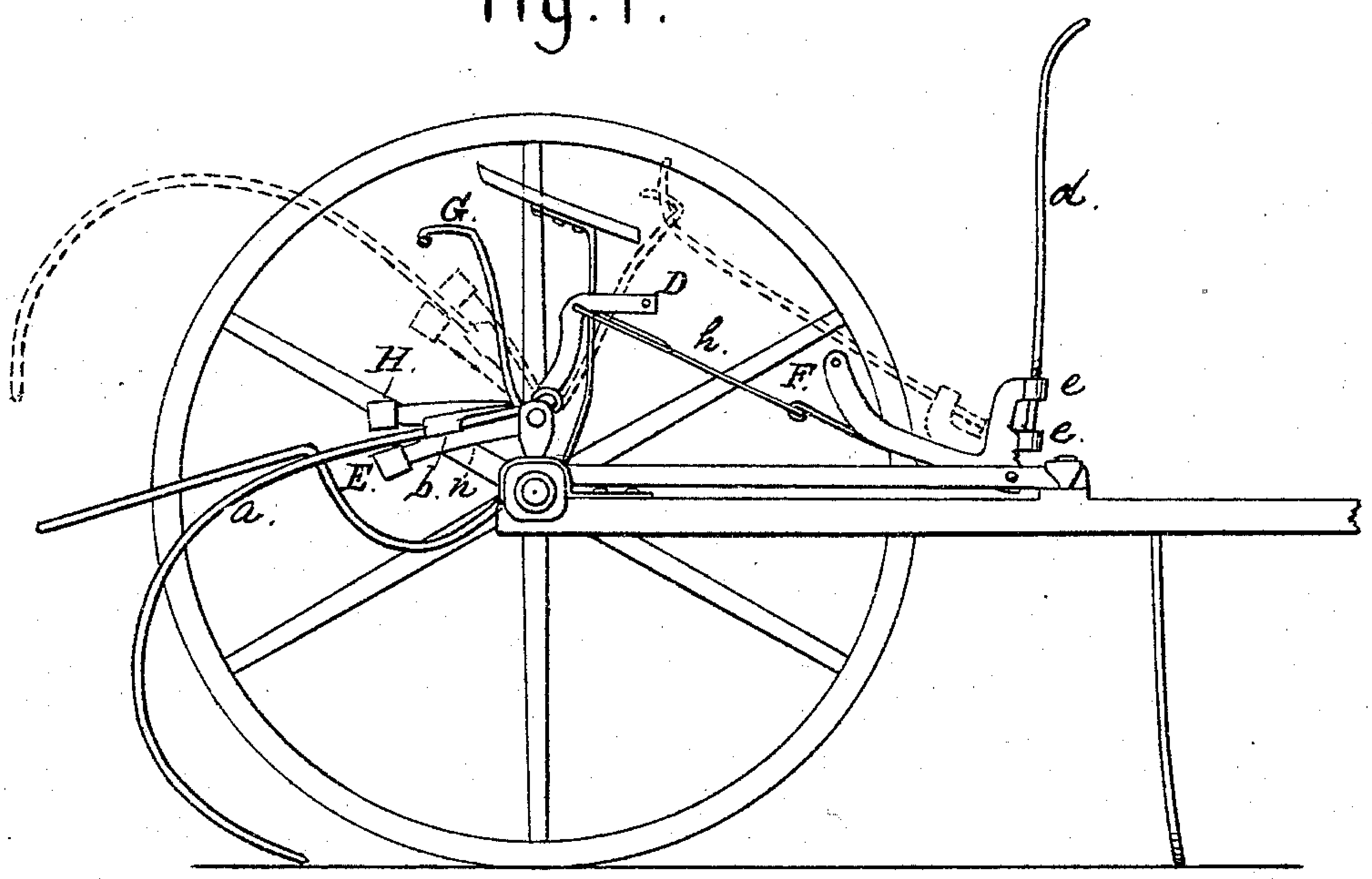


Fig. 2.

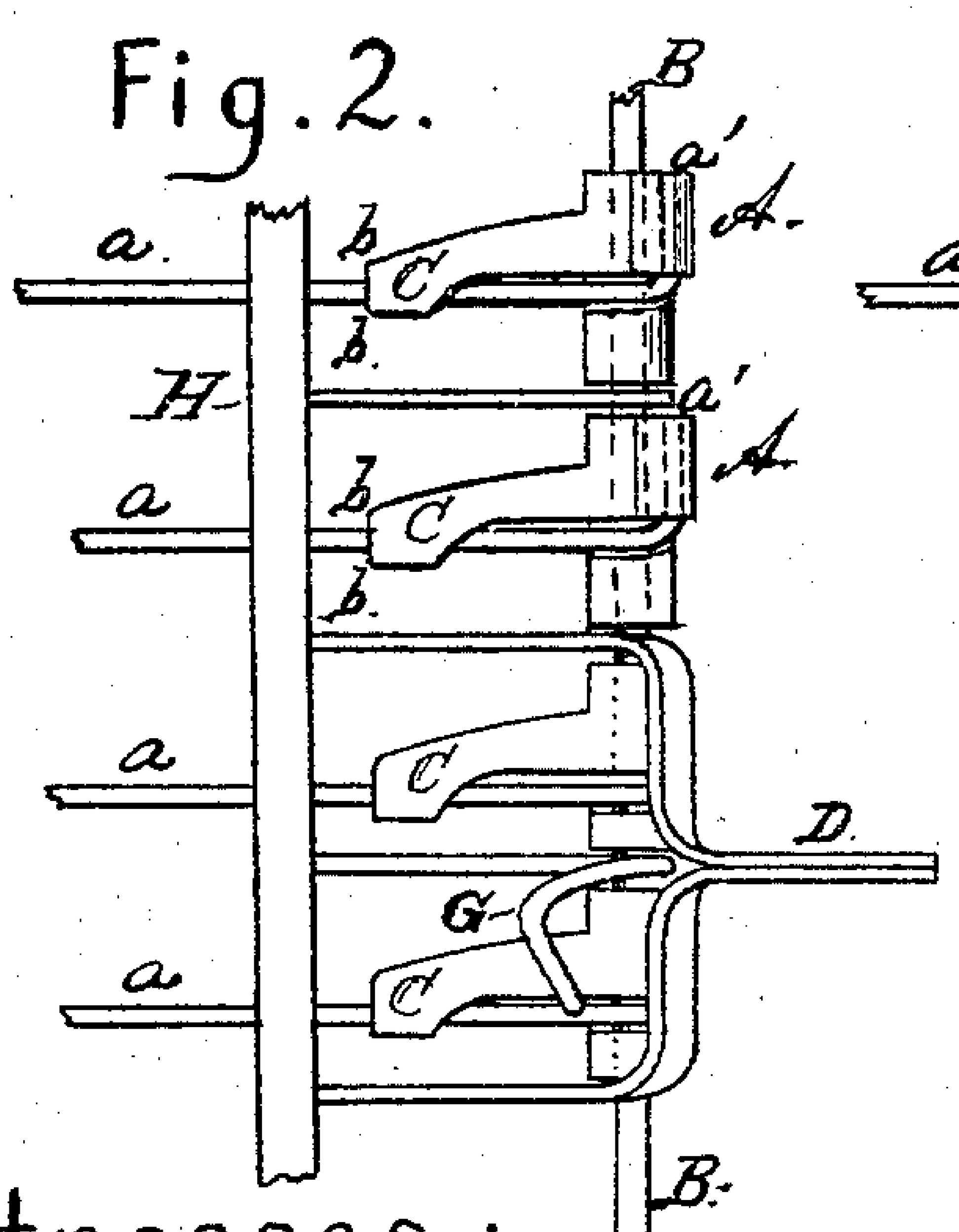


Fig. 3.

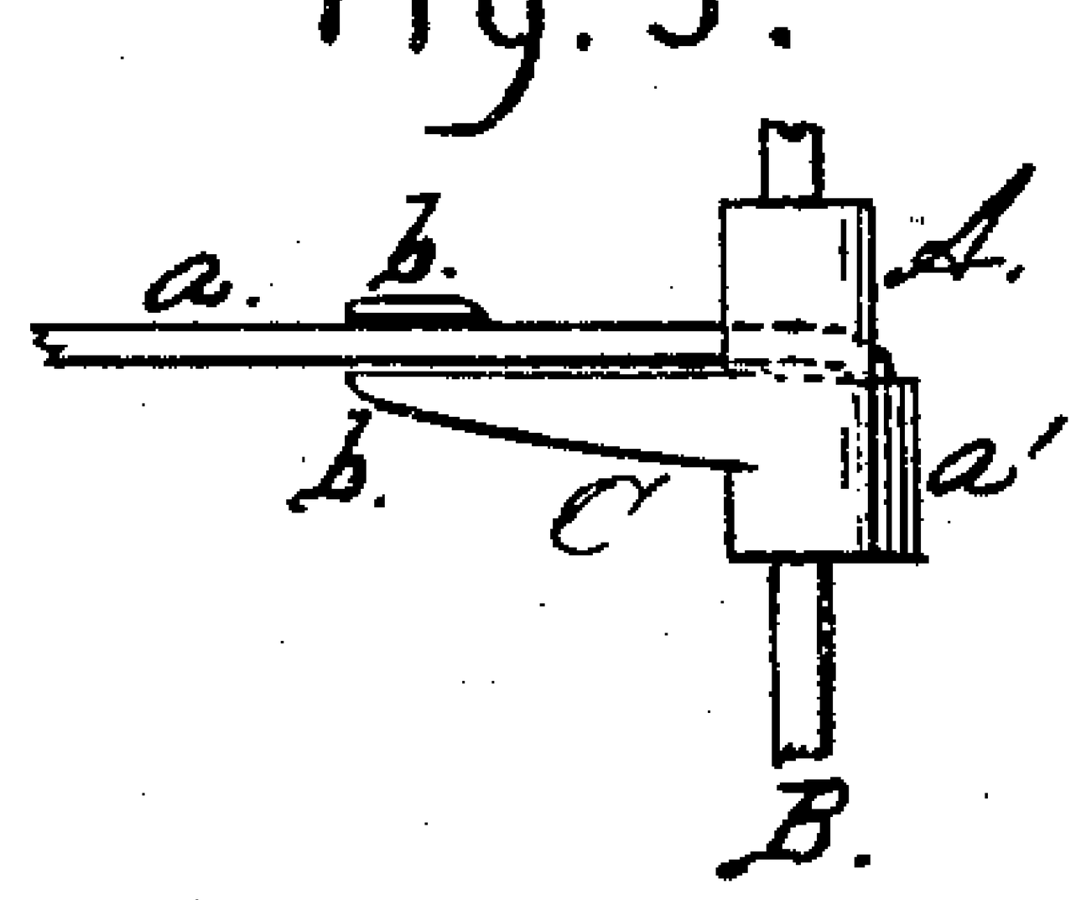
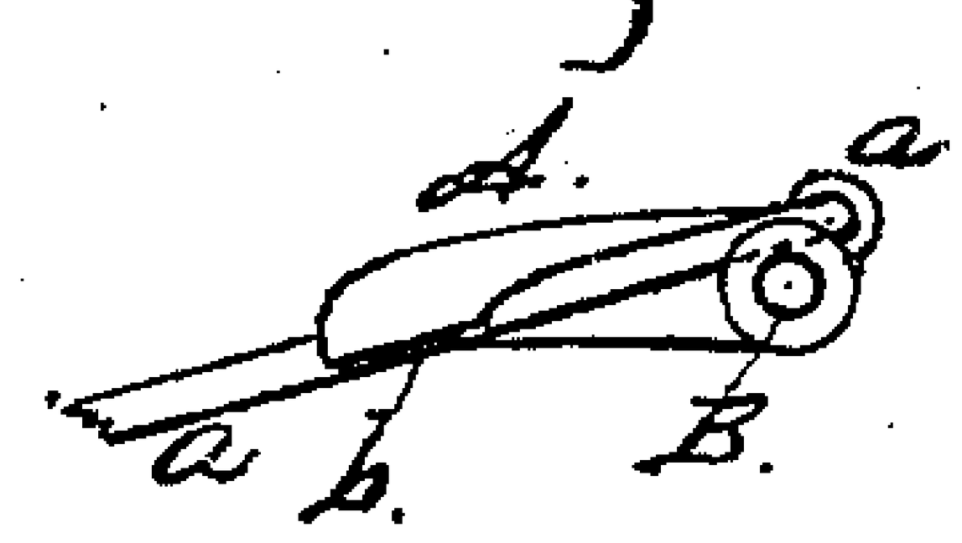


Fig. 4



Witnesses:

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Edwin P. Goodwin

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Alexander Amos.

By his Attorney G. B. Towles

AM. PHOTO-LITHOGRAPHIC Co. N.Y. (OSBORNE'S PROCESS)

UNITED STATES PATENT OFFICE.

ALEXANDER AMOS, OF POTSDAM JUNCTION, NEW YORK.

IMPROVEMENT IN HORSE HAY-RAKES.

Specification forming part of Letters Patent No. **144,305**, dated November 4, 1873; application filed June 3, 1873.

To all whom it may concern:

Be it known that I, ALEXANDER AMOS, of Potsdam Junction, in the county of St. Lawrence and State of New York, have invented certain new and useful Improvements in Horse Hay-Rakes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

Figure 1 is a side elevation of the rake. Fig. 2 is a top view in section. Fig. 3 is an underside view of thimble with tooth attached, in section. Fig. 4 is a side view of thimble with tooth attached, in section.

Like letters in the different figures of the drawing indicate like parts.

This invention consists in a peculiar construction and combination of devices, as will be hereinafter more fully explained, and pointed out in the claims.

A are the thimbles, which are arranged and allowed to turn freely on the bar B in the usual manner, and provided each with a shank, C, and socket *a'*, the latter running parallel with and to the front of the bar B. Each shank has a lateral projection provided with a groove, *b b*, on the under side. The teeth *a* have their ends or heads bent at right angles, and each tooth is secured to a thimble by inserting its bent end in the socket and bringing it down across the bar, which latter forms a fulcrum to give the tooth a leverage or purchase upon, when it is then sprung into the grooves *b b*. Thus all liability of the tooth becoming accidentally released is avoided, as each tooth will have a constant upward spring pressure in the grooves, and of course the harder the teeth are drawn upon the tighter will they be held in the same; and it will be seen that no side strain can release or spring the teeth out, as the teeth will lie squarely against the shanks on one side, while on the other the strain would be in a direction contrary to the bend or angle in the ends of the teeth. It is immaterial whether the grooves be put in the upper or lower side of the shanks, so that a fulcrum is obtained for the teeth on the bar B, which will of course depend upon the location of the sockets in the thimbles—as, for instance, if the grooves be put on the upper side of the shanks, and the sockets be made in the thimbles so as to come a little above the under side of the bar, the teeth in that case would be sprung into the grooves from below the bar instead of above, and would have a downward pressure in the same instead of an upward one, as in the other case. In case a tooth should break, it can be easily removed and another attached by pressing it out from the lips and turning it up and back, and then pulling it out of the socket. D is a lever having two arms made to branch off from an angular or foot-like projection and connected with the thimble-bar B and lifting-bar E, the lever having its fulcrum upon the thimble-bar. F is a curved lever having a pivotal connection with the forward part of the machine, and provided with a handle, *d*, for operating it, which handle is made so that it can be readily attached and detached from the sockets *e e* at the front of the lever. The levers D and F are connected by a chain, *h*, the front end of which is attached to the lower part of the lever F, which latter is made with a groove on its back edge for the chain to work in when pressing the lever F down, the object of the curved lever being to give as much leverage or purchase as possible in dumping the hay. The rear end of the chain is attached to a pin placed in a hole made in the angle or bend of lever D, there being another hole at the opposite end, by means of which the pin can be adjusted from one hole to the other, so as to raise or lower the teeth, as circumstances may require in smooth or rough raking—as, for instance, when the pin is adjusted in the hole in the angle of the lever, the teeth can be raised up enough so as to glide over the ground, and thus rake smoothly without picking up dirt or stones, and, when adjusted in the hole at the opposite end, the teeth will then be permitted to bear upon the ground, and in that position they are intended for rough raking. G is a hooked lever having a pivotal connection with the center of the thimble-bar and in between the branching arms of lever D, and made so as to extend out from the thimble-bar and connect rigidly with the center of the presser-bar H, which latter lies across the teeth and immediately over the lifting-bar, being secured near its ends to the

thimble-bar by arms *n*, which have a pivotal or hinged connection with the last-named bar. This lever is designed to hold the teeth down while doing heavy work by its being made to press the bar down on the teeth. The teeth are held up off of the ground while traveling over the field by hooking the handle of lever F with the hook part of lever G. (See dotted lines of Fig. 1.)

Having thus fully described my invention, what I claim therein as new, and desire to secure by Letters Patent, is—

1. The thimbles A, having the sockets *a'*, made to run parallel with and to the front of bar B, so as to obtain a fulcrum on the latter, by which the teeth can be sprung into the grooves *b b*, in connection with the shanks C, constructed so as to permit the teeth to lie squarely against the same, substantially as and for the purposes set forth.

2. The curved lever F, having sockets *e e* to receive the removable handle *d*, in combination with the hooked lever G, presser-bar H, lever D, having an angular arm provided with holes, and lifting-bar E, the whole constructed and arranged substantially in the manner and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 31st day of March, 1873.

ALEXANDER AMOS.

Witnesses:
THOMAS N. MURPHY,
SYLVESTER N. JUDD.