

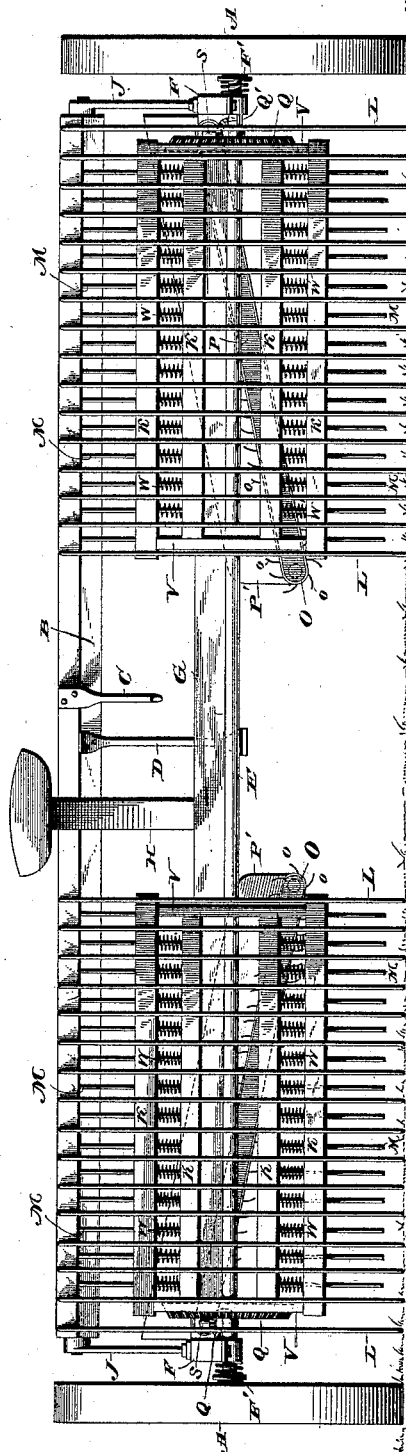
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4 Sheets—Sheet 1.

A. F. FAIRCHILD.
HORSE HAY RAKE.

No. 385,604.

Patented July 3, 1888.



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WITNESSES.
G. S. Elliott.
E. M. Johnson

Alton F. Fairchild.
INVENTOR,

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Attorney,

(No Model.)

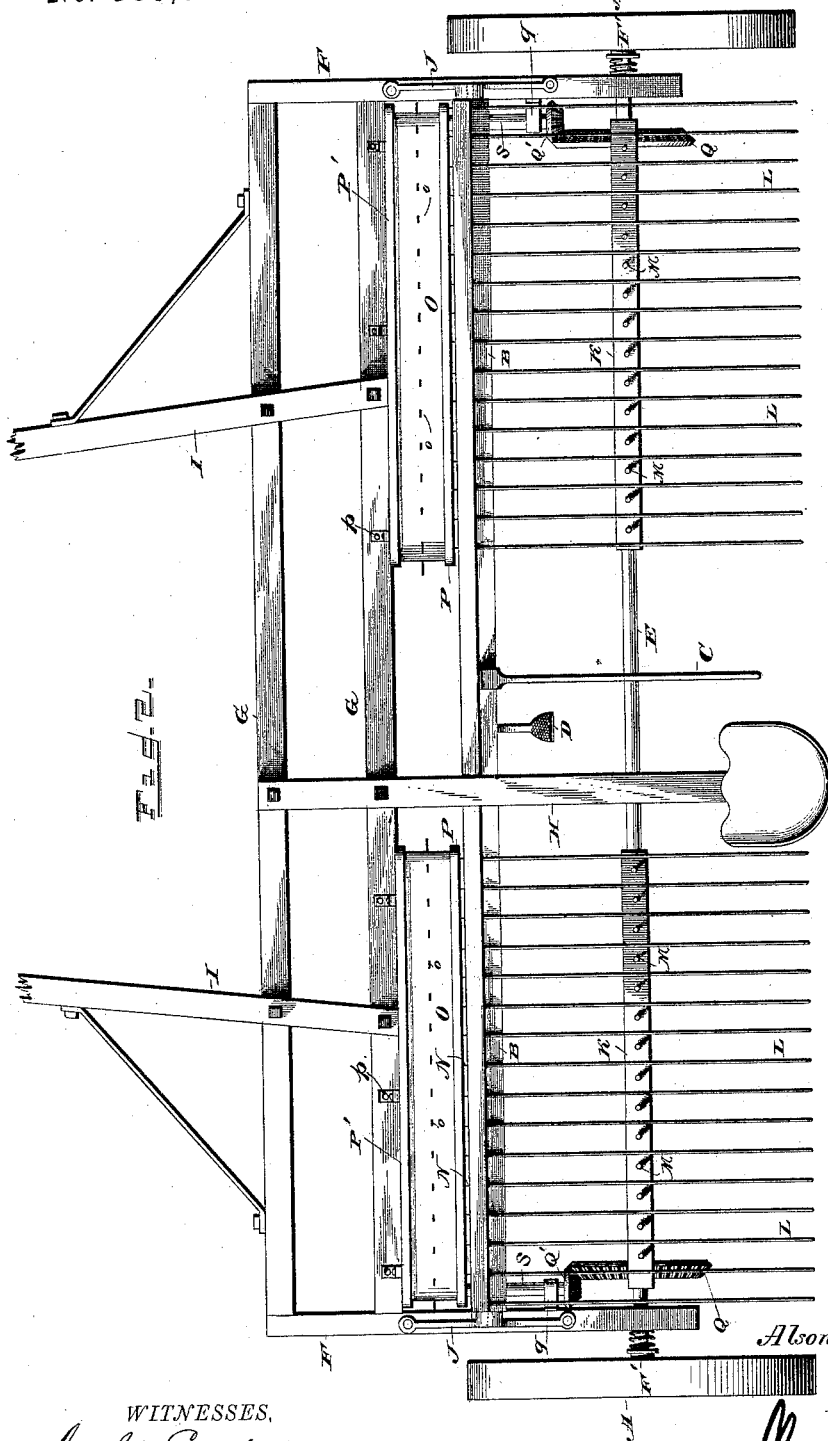
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Fig. 3.

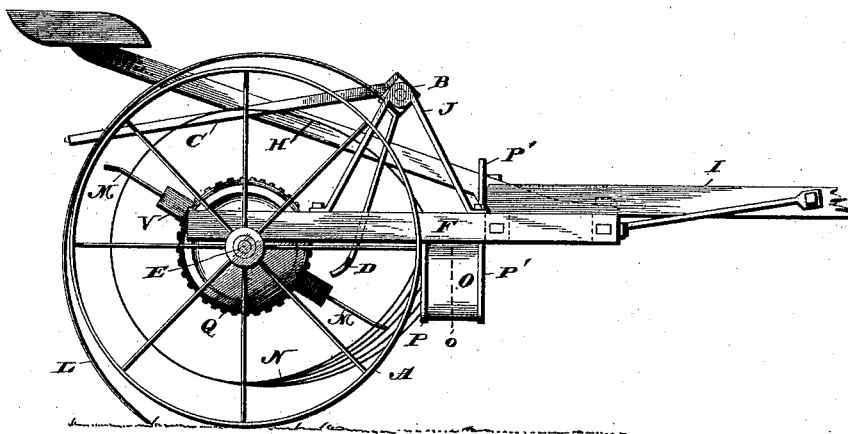
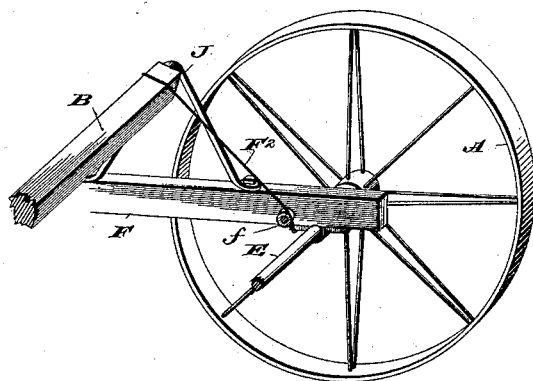


Fig. 4.



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4 Sheets—Sheet 4.

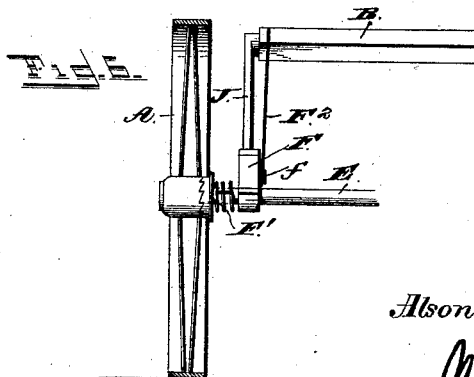
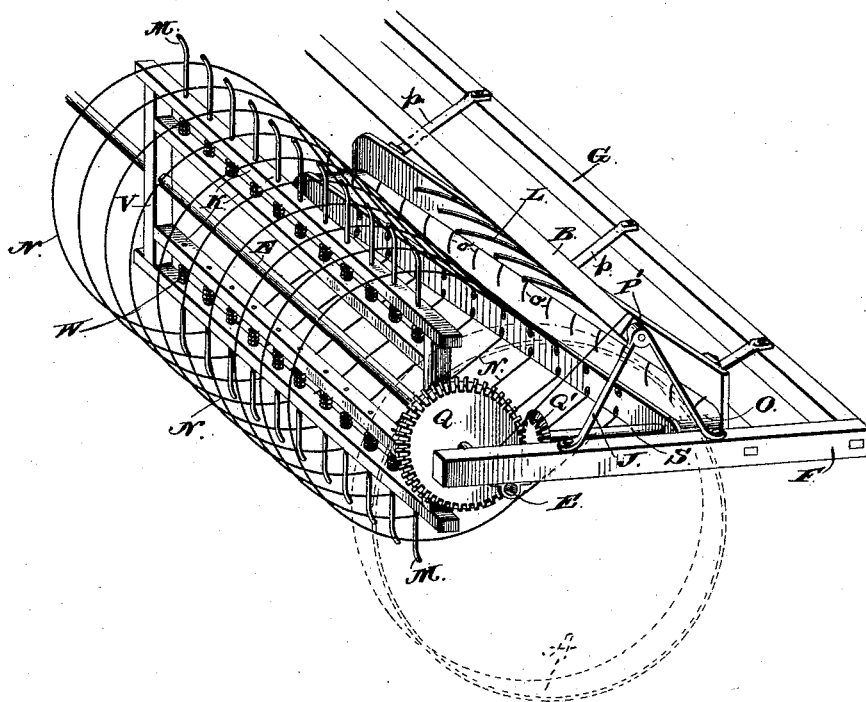
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Fig. 5.



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UNITED STATES PATENT OFFICE.

ALSON F. FAIRCHILD, OF MECHANICSVILLE, IOWA.

HORSE HAY-RAKE.

SPECIFICATION forming part of Letters Patent No. 385,604, dated July 3, 1888.

Application filed February 16, 1888. Serial No. 264,258. (No model.)

To all whom it may concern:

Be it known that I, ALSON F. FAIRCHILD, a citizen of the United States of America, residing at Mechanicsville, in the county of Cedar and State of Iowa, 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 appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to certain new and useful improvements in horse hay-rakes; and it consists in the novel construction and arrangement of the parts thereof, which will be more fully hereinafter described, and pointed out in the claims.

The primary object of my invention is to provide a rake with gangs of curved rake-teeth having a central intervening space between them, combined with revolving rakes provided with spring-actuated teeth coacting with conveyers to carry the hay to the middle intervening space to form a windrow.

The secondary object of my invention is to provide a rake of the character set forth, wherein the mechanism is of simple and effective construction and operation, strong and durable, easily handled and readily understood, positive in its result, and cheaply manufactured.

I attain these objects by the preferred form of construction illustrated in the accompanying drawings, wherein like letters of reference indicate similar parts in the several views, and in which—

Figure 1 is a rear elevation of my improved form of rake. Fig. 2 is a plan view thereof. Fig. 3 is a side elevation of the same. Fig. 4 is a detail perspective view of part of the mechanism. Fig. 5 is a perspective view of a part of my improved rake, showing one set of the cleaner-rods and the manner of attaching the same. Fig. 6 is a rear elevation, partially in section, of the parts shown in Fig. 4.

The draft-frame consists of the two cross-bars G G, connected by side bars, F, which extend to the rear and provide a bearing for

the axle E, which has wheels A mounted on the ends thereof. The thills I are attached and braced to the cross-bars G, as shown.

On the middle portions of the side bars, F, brackets or standards J are secured, which have bearings formed at their upper parts for the trunnions of the rake-head B, which extends entirely across the machine.

The rake-head B has two gangs of curved rake-teeth, L, secured thereto at their upper ends, as fully shown in the drawings. The rake-teeth L have an intervening middle space between them, over which projects the seat-bar H, which is secured at its forward end to the cross-bars G, and at its rear end carries a seat for the driver's use, as fully shown.

The rake-head B has a depending lever or bar, D, secured thereto, which is slightly curved to the rear at its lower end for the purpose of engagement by the driver's foot to press the said bar in such a manner as to cause the rake-teeth L to extend firmly down against the ground. Said rake-head also has a hand-lever, C, secured thereto, which extends to the rear, adjacent to the driver's seat, and is adapted to rock the rake-head and to raise the teeth carried thereby from the ground, as desired.

Upon the revolving axle E a frame is secured having the end bars, V, united by apertured cross-bars K. This frame is substantially rectangular in form, and, if so desired, bars similar in arrangement and construction to the end bars, V, may be arranged at intervals between the lengths of the cross-bars K to further brace the revolving rake-frame, as just described. The cross-bars K are secured to the end bars, V, at a short distance inward from the ends of the arms, as fully shown in the drawings.

I preferably use four cross-bars, K, arranged in longitudinal parallel pairs on each side of and parallel with the shaft E, and provide a support for spring-actuated rake-teeth M. The frame composed of the cross-bars K, having end bars, V, together with the rake-teeth M, form a revolving rake having a relative action with the rake-teeth L.

As hereinbefore set forth, all of the cross-bars K are apertured and the teeth M are movable therethrough.

Between the pairs of cross-bars K, and en-

circling the rake teeth M, sliding in the bars K, coiled springs W are mounted, having bearing at one end against the inner bar of each pair of said bars and at their opposite ends attached to the teeth M. The springs W at all times have a tendency to project the teeth M an equal distance from the outer bars, K. The outer ends of the said rake-teeth M are slightly curved or bent, as shown in Fig. 3, in a reverse direction to the line of rotation of said teeth, and thereby allow the hay to readily clear itself therefrom.

Upon the axle E, adjacent to the ends thereof and outside of the end bars, a suitable bevel or miter gear, Q, is mounted, which meshes with a similar gear, Q', on the rear end of a counter-shaft, S, which has bearing in the frame of the machine and in the box g, secured to the side bars, F. The shaft runs through the outer end of a conveyer-frame, P, and the frame carries a roller at the opposite end thereof and over a suitable roller mounted on the shaft S, and over the roller, at the opposite end of the frame, as just described, a conveyer belt or apron, O, is mounted, having suitable teeth, o, arranged thereon in the manner shown in Fig. 1. This conveying-apron and the frame therefor are arranged at a downward incline from the ends of the machine to the open space hereinbefore set forth, and is provided with a front shield-board or extension, P', which prevents the hay from being thrown over the top of the said conveying-apron.

The frame P is supported by stay-rods p, attached to the guard P' thereof and to the beam G of the frame of the machine, as shown in Figs. 2 and 5. The conveyer-frames are downwardly inclined toward the middle intervening space between the gangs of rake-teeth L for the purpose of making the formation of a windrow more effective and certain, and at the same time decrease the resistance of the weight of hay or straw on the conveyer belts or aprons, which would be considerably less in a downward movement than in a horizontal movement.

Secured to the said conveyer-frame P, at its rear side and following the inclination thereof, are a series of iron wires or rods, N, which are curved and run around the revolving rake-teeth for the purpose of clearing the said rake-teeth.

With each of the wheels A, mounted upon the axle E, is a suitable spring-actuated clutch, F', of any preferred form of construction, which has a cord, chain, or wire cable, F'', secured thereto, which passes under the end or side bars, F, and over a sheave or pulley, f, secured to the inner side of said bar, and thence up over the rake-head, where it is secured. The clutch releases or engages the operating mechanism from the ground-wheels A, which will either cause a cessation or continuation of operation.

The operation of my improved rake is as

follows: The clutches F' being in connection with the wheels A, causes the rake-teeth M and their carrying-frame to revolve, taking up the hay collected by the rake-teeth L. When the said revolving rake elevates the hay, it throws it upon the conveying belt or apron O, which in turn carries it down to the middle space between the rakes. This operation causes the formation of the windrow, as will be readily understood. When the rake-teeth M strike any inequalities or stones, they yield themselves to said inequalities through the spring-connections, and by said construction are prevented from breaking. When the rake-head B is raised, the movement thereof draws upon the cord F'', which in turn draws the clutches F' away from the wheels A on the axle E, and the rake-teeth M and their carrying-frame are caused to cease revolving.

The cheapness of construction of my improved rake, together with its effectual operation in the formation of a windrow in the central portion thereof, renders it of great value and utility.

Having thus described my invention, I claim—

1. In a horse hay-rake, the combination, substantially as set forth, of the draft-frame having a rotatable axle with ground-wheels thereon, the rake-head having gangs of rake-teeth with an intervening middle space between the same, the revoluble frames carrying spring-yielding rake-teeth secured to said axle, the conveying-aprons arranged at right angles to the line of draft and inclined downward toward the middle intervening space between the gangs of rake-teeth, to convey the hay thereto to form a windrow, and means for revolving said axle and aprons.

2. In a horse hay-rake, the combination, substantially as set forth, of the draft-frame carrying a rotatable axle with suitable ground-wheels on the ends thereof, the rake-head supported by suitable brackets above the draft-frame and having gangs of rake-teeth secured thereto and arranged with an intervening middle space between the same, the rake-frame secured to the axle in front of the aforesaid gangs of rake-teeth, carrying spring-yielding rake-teeth, the inwardly-projecting downwardly-inclined aprons adapted to deposit the hay to form a windrow in the middle space between the gangs of rake-teeth, the clearer wires or rods secured to the rear sides of the frames of the conveying-aprons and encircling the revolving rakes between their teeth, and means for revolving said axle and the aprons.

3. In a horse hay-rake, the combination, substantially as set forth, of the gangs of rake-teeth having an intervening middle space between them, revoluble rakes in front of said gangs, and conveying-aprons in front of the revoluble rakes arranged at right angles to the line of draft.

4. In a horse hay-rake, the combination,

substantially as set forth, of the draft-frame, the rotatable axle carrying ground-wheels, the rake-head carrying gangs of rake-teeth with an intervening middle space between them
5 and adapted to be raised and lowered by a lever adjacent to the driver's seat, the revolving rakes having spring-yielding teeth, conveying-aprons acting to deposit the hay in the middle space between the gangs of teeth, the
10 clutches on the axle adapted to engage the ground-wheels, and a cord secured at its lower end to the said clutches passing over a sheath or pulley and secured at its upper end to the rake-head.

15 5. In a horse hay-rake, the combination, substantially as set forth, of the draft-frame, the gangs of rake-teeth with an intervening middle space between the same, the rotating

axle, the revolving rakes mounted thereon, the bevel or miter gear mounted upon the said 20 axle, a counter-shaft journaled in the draft-frame and carrying at its rear end a similar miter-gear meshing with the bevel or miter gear upon the axle and at its front end extending through the conveyer-frames and carrying 25 a roller therein, the conveyer-frames arranged at right angles to the line of draft having rollers in their inner ends, the front shields for said frames, and the conveying-aprons traversing said frames.

In testimony whereof I affix my signature in 30 presence of two witnesses.

ALSON F. FAIRCHILD.

Witnesses:

T. H. WILLIAMS,
E. S. JAMES.