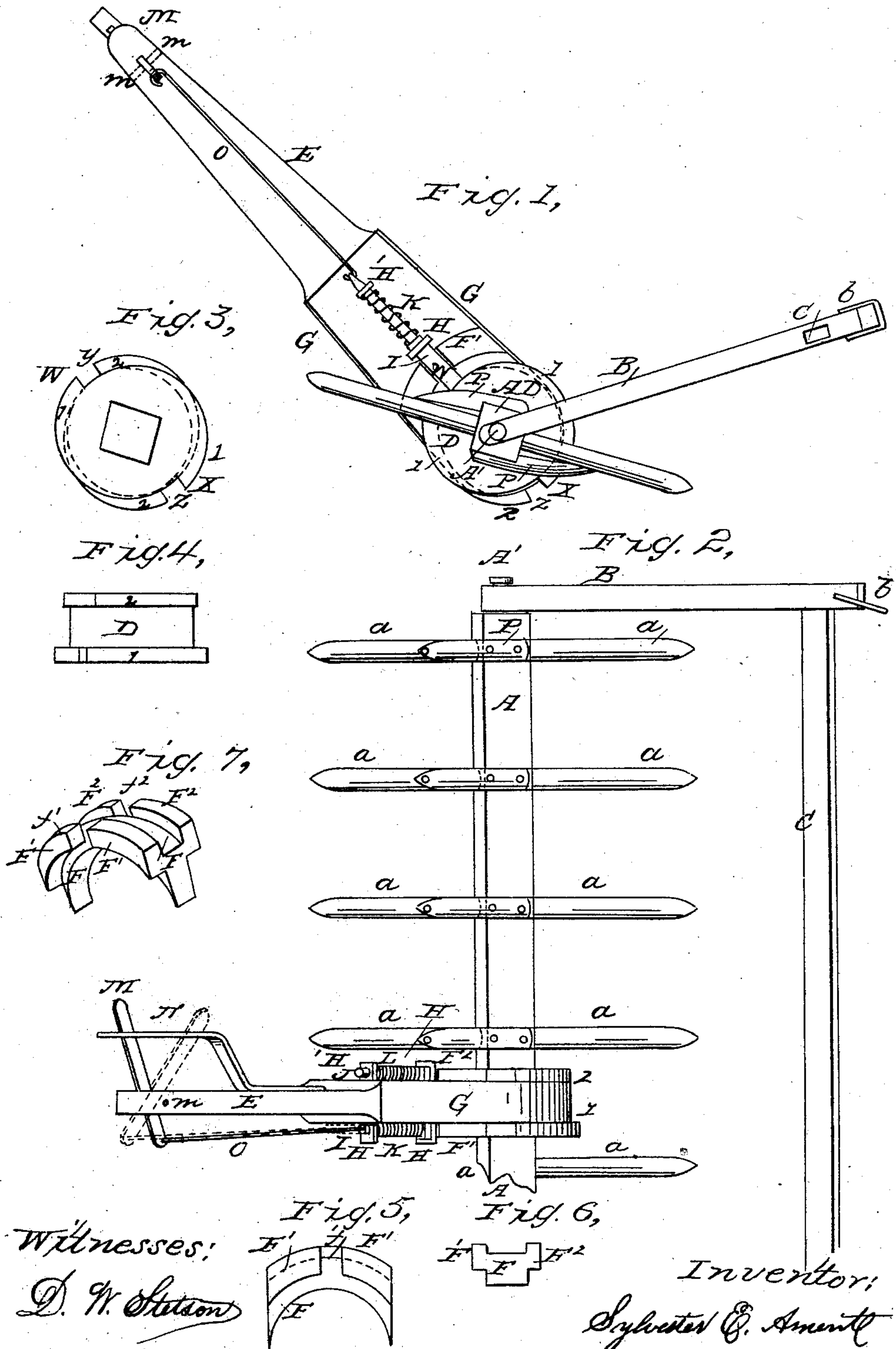


S. E. AMENT.
Revolving Rake.

No. 41,469.

Patented Feb. 9, 1864.



Witnesses:
D. W. Stetson
J. H. Hendrickson

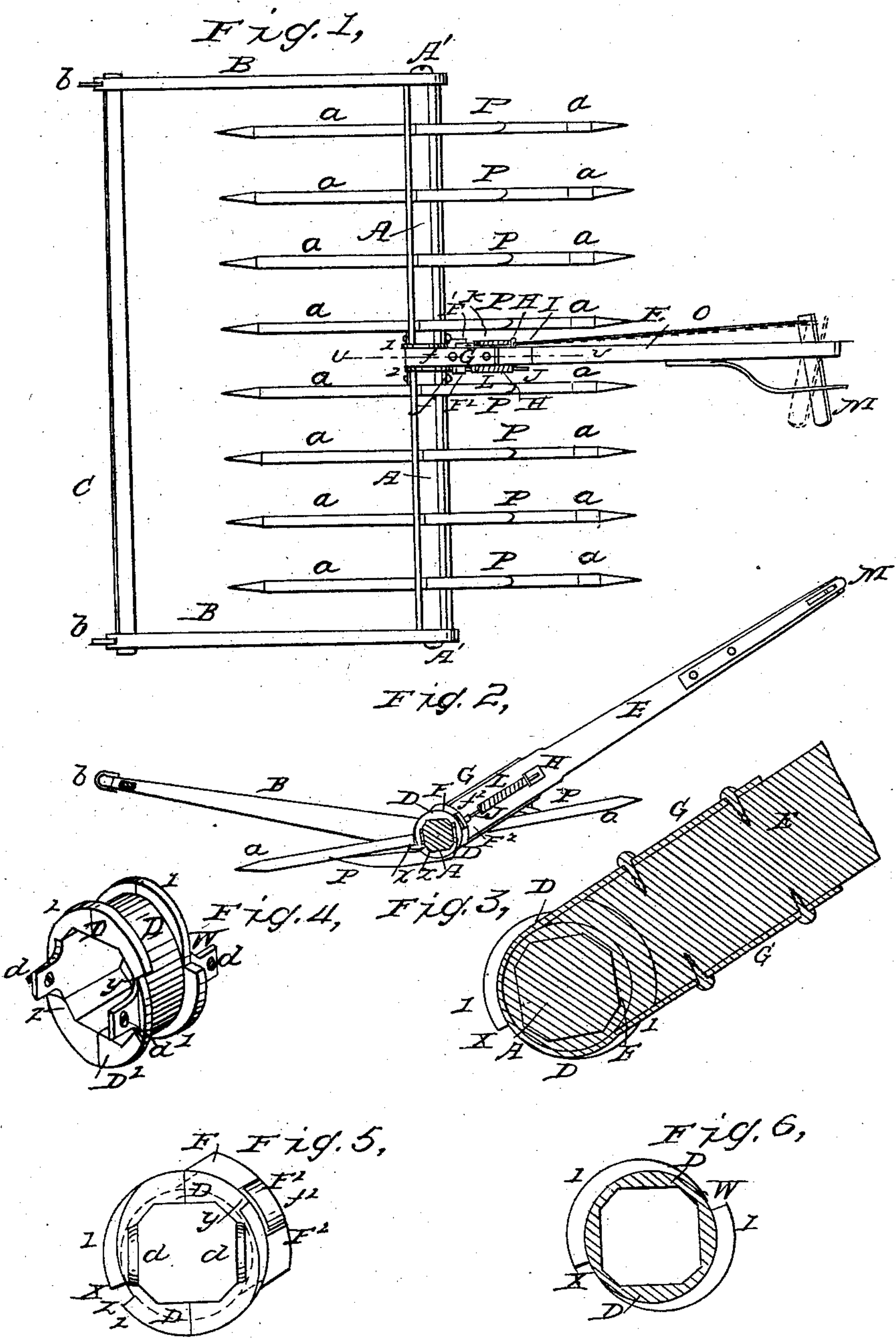
Inventor:
Sylvester E. Ament

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UNITED STATES PATENT OFFICE.

SYLVESTER E. AMENT, OF OSWEGO, ILLINOIS.

IMPROVEMENT IN REVOLVING RAKES.

Specification forming part of Letters Patent No. **41,469**, dated February 9, 1864.

To all whom it may concern:

Be it known that I, SYLVESTER E. AMENT, of Oswego, in the county of Kendall, in the State of Illinois, have invented certain new and useful Improvements in Revolving Rakes; and I do hereby declare that the following is a full and exact description thereof, prepared with a view to the obtaining of Letters Patent therefor.

The accompanying drawings form a part of this specification.

Figure 1 is a side elevation, and Fig. 2 is a plan view, of the machine, both having the several parts applied together for use. The parts at the center, connecting the handle and its locking-bolts to the shaft, are designedly represented larger in these figures than an adherence to strict proportion would permit, in order that their construction might be more plainly exhibited. When due regard is had for the proportion the teeth-braces prevent the parts from bearing on the ground, as will be readily understood. Fig. 3 is a side view, and Fig. 4 a plan view, of a portion detached from the machine. Fig. 5 is a side view, Fig. 6 a central cross-section, and Fig. 7 a perspective view, of another portion, also detached from the machine.

Similar letters of reference indicate like parts in all the drawings.

Tints are introduced to aid in distinguishing parts, and do not imply differences in the materials. A great proportion of the material may be hard wood. Certain parts which should be of iron will be distinctly described as such.

My improvements relate to rakes which slide upon the earth, the teeth bearing very nearly a horizontal position thereto and adapted to discharge the hay at the will of the operator by a partial rotation of the revolving parts.

To enable others skilled in the art to make and use my invention, I will proceed to describe it by the aid of the drawings, and of the letters of reference marked thereon.

A is the revolving shaft, and *a a* the teeth fixed therein. The bearings *A' A'* at the ends of A are carried in bars B B, and these are united by the cross-rail C, arranged as represented. Tugs (not represented) connect the horse to the links or clevises *b b* at the forward end of B B.

P P are straps or braces of wood having the form and arrangement represented, and secured by screws or otherwise directly to A and *a*, and are used upon each tooth for the purpose of keeping every tooth in the set from springing from its range.

In rakes of this character it is very important that no tooth becomes bent or warped, so as to stand out of the plane of its fellows. Braces applied to the exterior teeth of the set and indirectly connected through a post extending downward from the shaft have been before employed in revolving rakes; but they were not able to perform the effect of my invention, and were employed for another purpose—*i. e.*, to strengthen the outer teeth and form shoes on which the machine might slide. My braces, by reason of their direct union with A and their application to every tooth in the series, keep the points always and at all times in line.

On the middle of the revolving shaft A is fixed a cast box, D, having a cylindrical bearing, D', upon it, with a flange, 1, on the right-hand side, and a flange, 2, on the left-hand side, arranged as represented.

I prefer to make the casting D in two halves and apply it upon the shaft A by means of lugs and bolts. (Not represented, but which will be readily understood by mechanics.)

The handle E is, by means of a peculiar casting, F, and strap G, fitted upon the cylindrical bearing D', so as to allow the latter, with the parts on which it is fixed, to revolve freely except when it is prevented by other means.

The peripheries of the flanges 1 and 2 are not circular, but are each armed with two eccentric projections, as represented. Each projection has one face standing radial, or nearly so, to the axis of the shaft A. The other face of each projection is sloped away nearly to the perpendicular face of the next projection, so as to give the exterior of each flange a form described very nearly by two arcs of a volute curve or spiral; but there will be observed a very marked difference in the flanges 1 and 2. The perpendicular faces W X on the flange 1 are adapted to meet suitable stops to prevent the rake from rotating forward, and the faces Y Z on the flange 2 to meet suitable stops to prevent the rake from rotating backward.

The casting F and additional guides H H' on the sides of the handle E carry stout bolts I and J, each capable of sufficient end motion to meet or avoid the projections described. The casting F affords protection to the end of the handle E from friction with the bearing D', and also secures much strength and firmness to the connection between them. The thick flanges or cheeks F' F², cast upon each side of F, inclose or embrace the end of E between them. The bolts I and J traverse in deep rectangular notches f' f² therein, and are thus very strongly guided and supported. The offices of the deep notches f' f² may be performed by holes through the cheeks F' F² instead of notches, if preferred, and in such case the set H of additional guides for the bolts I J may be dispensed with. The bolts I and J are not connected together, but operate independently, and are provided with coiled springs K L, which urge each toward the center of the shaft A. When both the bolts I and J, by the tension of their respective springs, press upon the periphery of their respective flanges, the end of the bolt I on the periphery of the flange 1 and the end of the bolt J on the periphery of the flange 2, the rotation of the rake brings the perpendicular face W against the bolt I, which stops the revolution, and the bolt J at the same instant, by the action of the spring, L, drops down the perpendicular face Y on the opposite flange, 2. The revolving parts are by this means rigidly confined without liberty to turn in either direction within the lever E, so long as the parts I and J remain in such position.

The machine is used while the operative parts are thus adjusted and drawn along, accumulating the hay until the attendant wishes to discharge the load by a half-revolution of the revolving parts. At this juncture he operates a slight lever, M, and its connections, throwing the parts into the position shown by the red lines. This movement, through the connection O, draws the bolt I entirely out of contact with the flange 1, and allows the latter, together with all the parts attached, to perform a half-revolution and drop the hay at the point desired. During this half-revolution the operator draws back the lever M, so that the bolt I, under the influence of the spring K, presses again upon the periphery of the flange 1, and as it rotates travels down the inclined or volute surface to meet the next face, X, while at the same time the opposite bolt, J, is, by the inclined form of the flange 2, pushed back without offering any considerable resistance; but at the same instant that the bolt I meets either radial or perpendicular face on the flange 1 and compels the revolution to stop the bolt J drops off one

of the corresponding reversed faces on the flange 2, and guards against any retrograde movement or turning of the parts in the wrong direction.

The office of the bolt J, acting against the faces on the flange 2, is mainly important when the handle E is elevated to aid the revolving parts to commence their revolution.

Among the advantages of my improved construction of the parts herein described may be enumerated, first, the strength, firmness, and slight friction of the connection of the handle to the shaft; second, the durability of the rubbing parts, and also of the wood-work; third, the ease and certainty with which the parts may be operated by reason of the peculiar precision of form and unyielding character of castings as compared with wood and wrought-iron or sheet-metal work, and by reason of the fact that the strains cannot force any parts out of line and cause any part to bind; fourth, the small cost of the parts when constructed in large quantities, and the small cost of renewing the castings in case of any breakage; fifth, the small amount of skill, strength, or practice required to operate the machine properly; sixth, the diminished tendency to bend the teeth out of their proper range, due to the absence of any action of the locking parts upon the teeth except uniformly upon all the teeth through the medium of the shaft A.

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

1. The cast bearing-box D, with stops thereon and arranged relatively to one or more stops, I J, and to the operative parts of a revolving rake, substantially in the manner and for the purpose herein set forth.

2. In revolving rakes, the duplicate sliding bolts I and J, arranged relatively to one or more pairs of reversed stops, W Y, and to the eccentric sectional flanges 1 and 2, substantially in the manner and for the purpose herein set forth.

3. The cast bush F, formed with side cheeks, F' F², and with notches or holes f' f², arranged to serve in connection with the handle E and with sliding stops I J, substantially in the manner and for the purpose herein set forth.

4. Bracing the entire series of teeth by the employment of the series of braces P P, arranged to form an additional direct connection from the rigid shaft A to the teeth a, substantially in the manner and for the purpose herein set forth.

SYLVESTER E. AMENT.

Witnesses:

D. W. STETSON,

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