S. Ladd,
Horse Rake.

No. 4421. Patented. Mar. 14 1846.

Fig. 1.

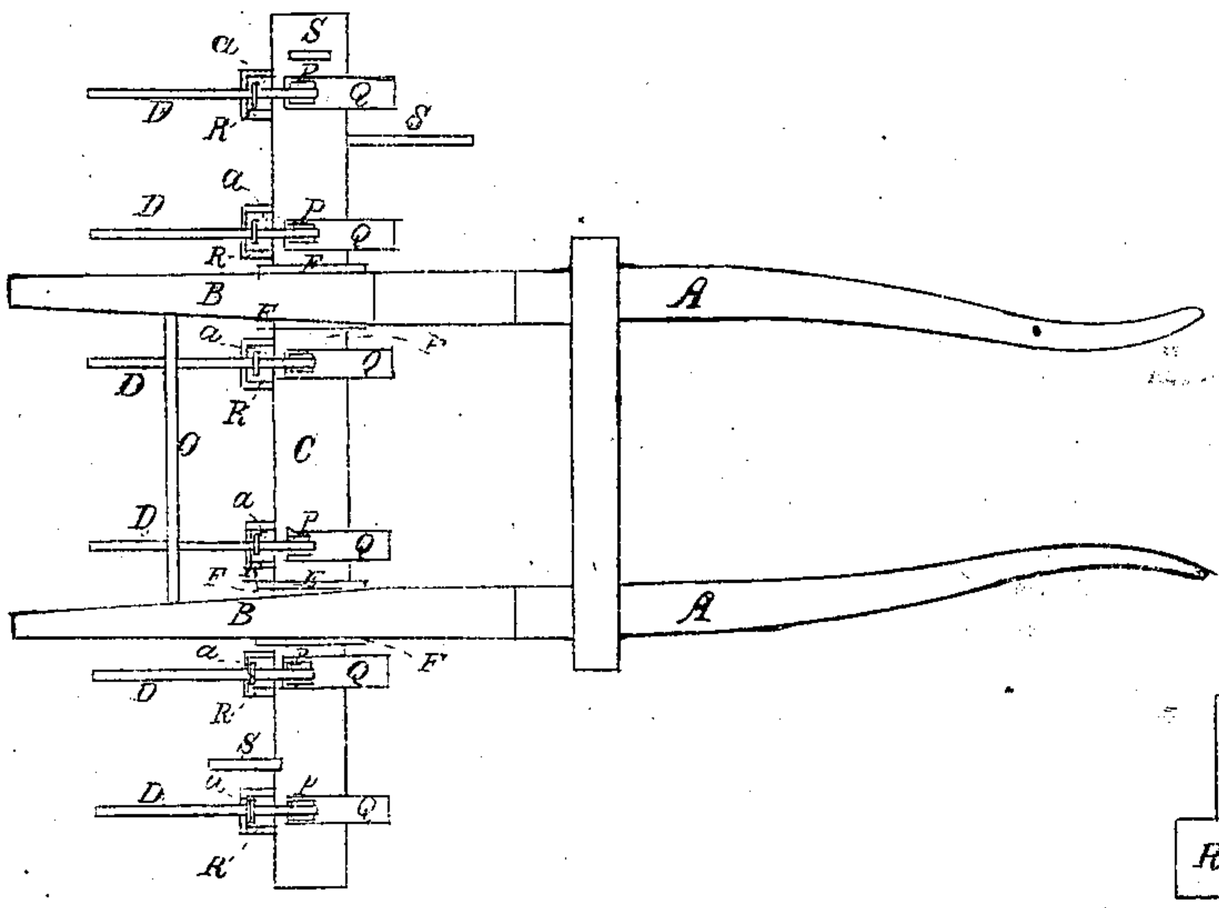


Fig. 2.

Fig. 3.

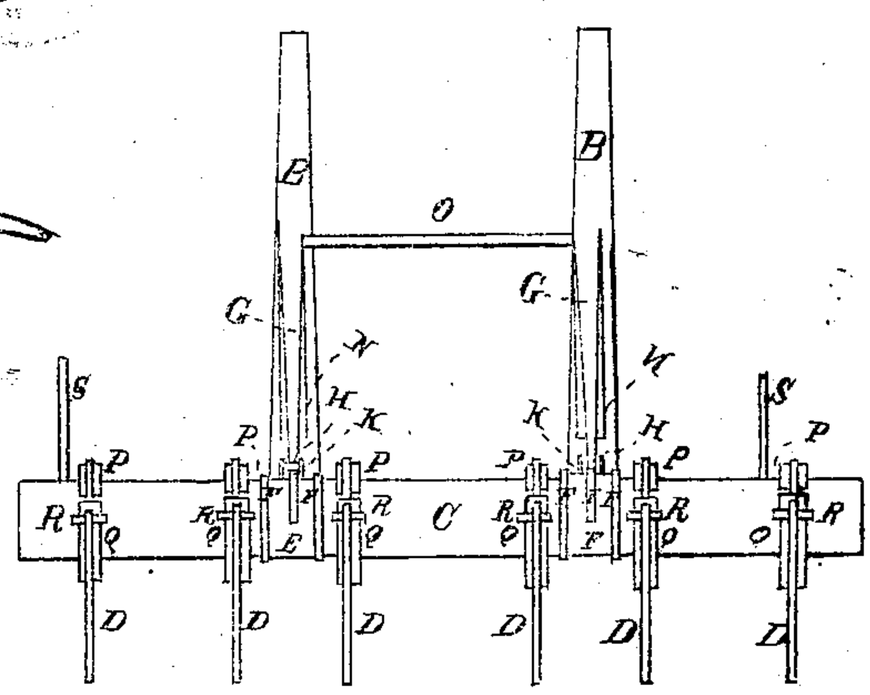
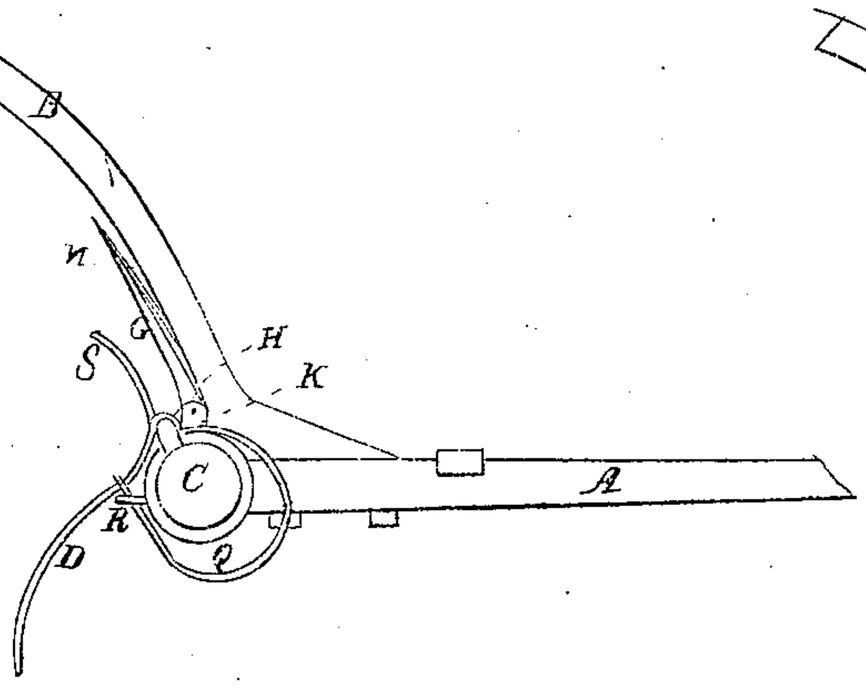
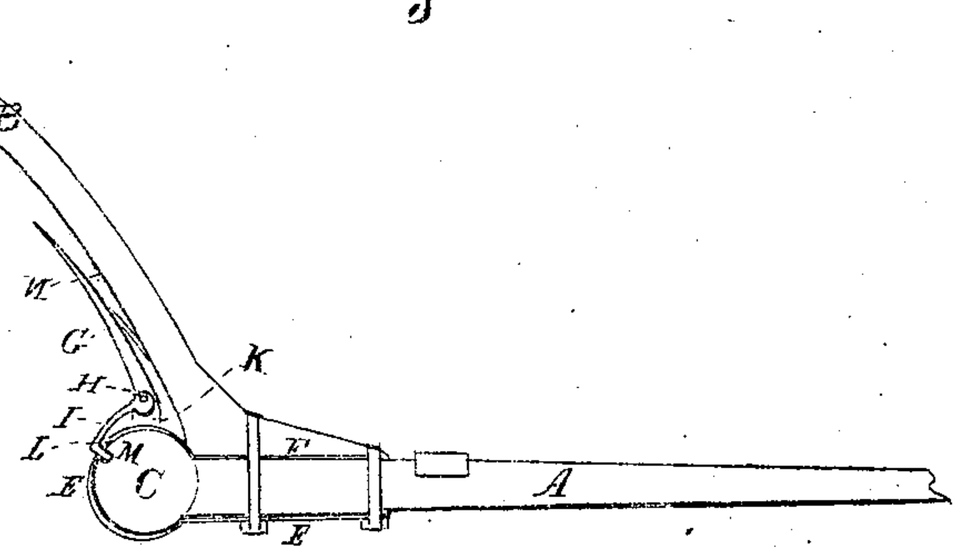


Fig. 4.





UNITED STATES PATENT OFFICE.

SENECA LADD, OF DANVILLE, VERMONT.

IMPROVEMENT IN HORSE-RAKES.

Specification forming part of Letters Patent No. 4,421, dated March 14, 1846.

To all whom it may concern:

Be it known that I, SENECA LADD, of Danville, in the county of Caledonia and State of Vermont, have invented a certain new and useful Improvement in the Horse or Grain Rake; and I do hereby declare that the nature of my invention and the manner in which it operates are fully described and represented in the following description, accompanying drawings, letters, figures, and references thereof.

Figure 1 of the said drawings denotes a top view, Fig. 2 a side elevation, and Fig. 3 a rear end elevation, of my improved rake. Fig. 4 is a vertical and longitudinal section taken through one of the handles and shafts, to be hereinafter described.

In the said drawings, A A exhibit the two shafts, between which the horse is placed and to which he is attached in the usual manner.

B B are the handles, which spring upward from the rear ends of the shafts, and to which (handles) the agriculturalist applies his hands when the machine is put in operation.

C is the beam to which the teeth D D, &c., are applied, the said beam being usually affixed firmly to the shafts, so as to be immovable thereon. In my improved rake the beam C is supported and revolves upon its axis in bearings or straps E E, bolted to the thills or rear ends of the shafts in the positions as seen in the drawings. The said beam is prevented from moving laterally by collars F F, &c., or other mechanical equivalents applied to it and against the bearings in a suitable manner.

Each bearing E has a bent spring-lever, G H I, secured to it, the fulcrum of the said lever being at H, on a stud, K, projecting from the bearing. The end I of the arm H I is bent downward at right angles to the rest of the arm, and passes through a hole or aperture corresponding in size to it, and made through the bearing, as seen at L. The said bent end of the lever enters into a cavity, M, formed in the cylindrical beam C, and adapted to receive it, and when therein prevents the beam from revolving upon its axis and in its bearings. The upper end of each lever is thrown forward or away from the rear side of the handle over it, by means of a spring, N, one end of which is fastened to the upper end of the lever, while the other end bears against the handle. The two upper ends of the levers are joined to a cross-rod, O.

Each tooth D of the rake is bent or curved, as seen in the drawings, and is jointed or hinged at one end to one of a series of projections, P P, &c., (which extend from the beam C, as seen in the drawings,) and passes through one end of one of a series of curved springs, Q Q, &c. Each of the said curved springs is secured at one end to the beam C, is curved and passed through one of a series of staples, R R, inserted in the beam, and receives the tooth through it above the staples, as seen in the drawings. The spring thus draws the tooth connected with it down upon the staple.

In or near each end of the beam C, I insert one or more auxiliary teeth, S S, in the positions as seen in the drawings.

I am aware that the teeth of a rake, whether a horse or common hand rake, have been applied to the beam or head in such manner as to readily spring back, and therefore I do not consider this as making any part of my invention, which consists in the peculiar manner of supporting each of the teeth by which it is made to operate in a manner far superior to what it has heretofore operated—that is to say, I support it by jointing it to the beam C and applying to it and the beam a spring and staple, as above described. The spring permits the tooth to freely spring back, while the staple prevents any injurious lateral motion of the tooth or spring and always preserves the teeth in their correct positions with regard to each other and the beam. The object of making the beam to revolve is to enable the person using the rake to discharge the hay or grain from it at any time, or to throw the teeth upward at any time, for any purpose. By simply elevating the upper end, G G, of the levers G H I, the force of traction will cause the beam to revolve in its bearings, and thus throw the teeth upward. As the beam revolves the points of

the auxiliary teeth will be brought into contact with the earth and aid in completing the revolution of the beam.

I claim—

The above-described mode of applying each of the teeth to the beam or head of the rake—viz., by the joint spring and staple, in combination with each other and acting together, as specified.

In testimony whereof I have hereto set my signature this 25th day of September, A. D. 1845.

SENECA LADD.

Witnesses:

SAM. B. MATTOCK,

CHAS. J. DAVIS.