

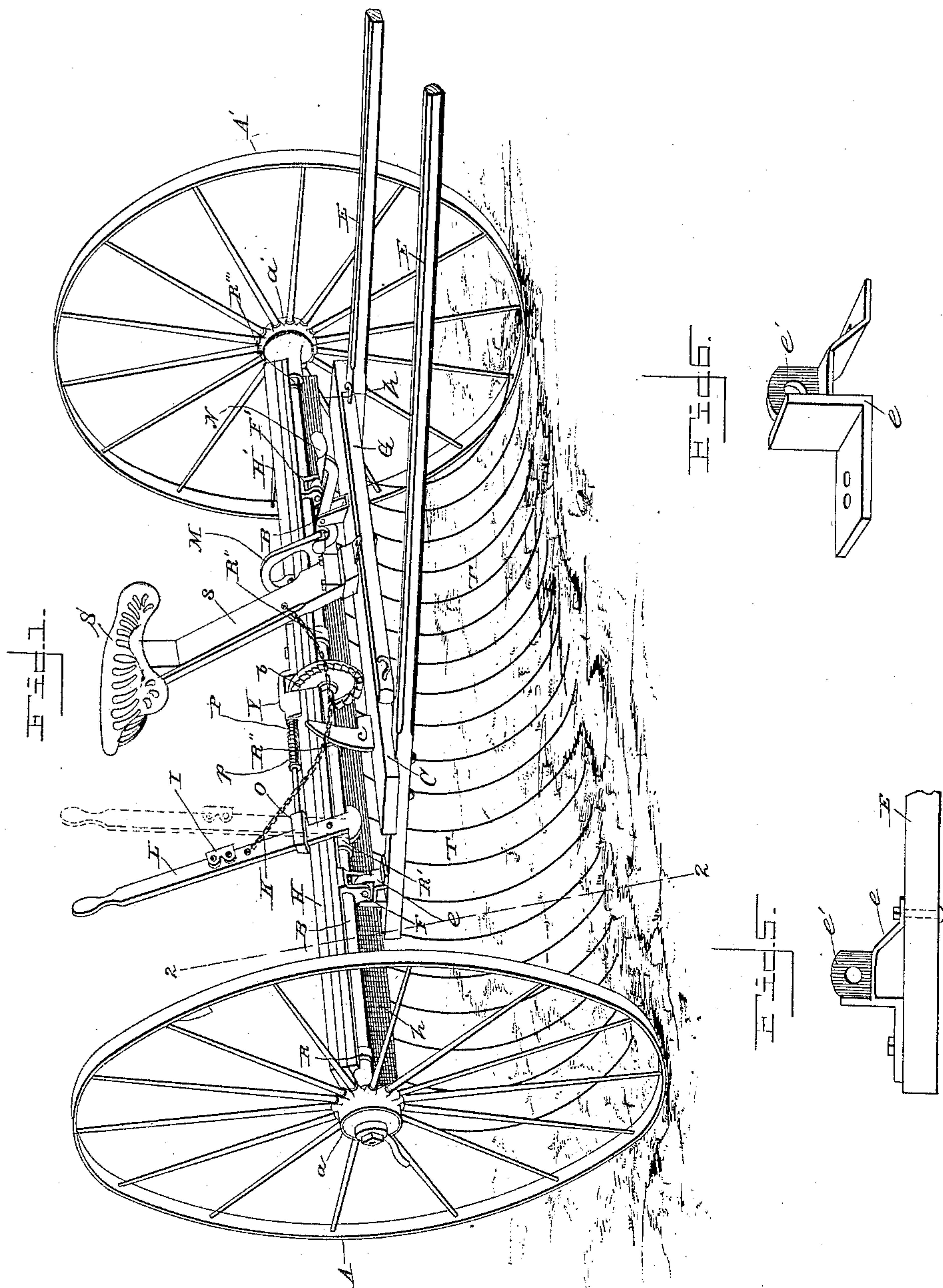
(No Model.)

2 Sheets—Sheet 1.

P. BLAKER.
HORSE RAKE.

No. 432,112.

Patented July 15, 1890.



WITNESSES

Walter H. Humphrey.
J. H. Brown

INVENTOR

Paul Blaker
by Butterworth, Hall, Brown
& Smith, his Attorneys

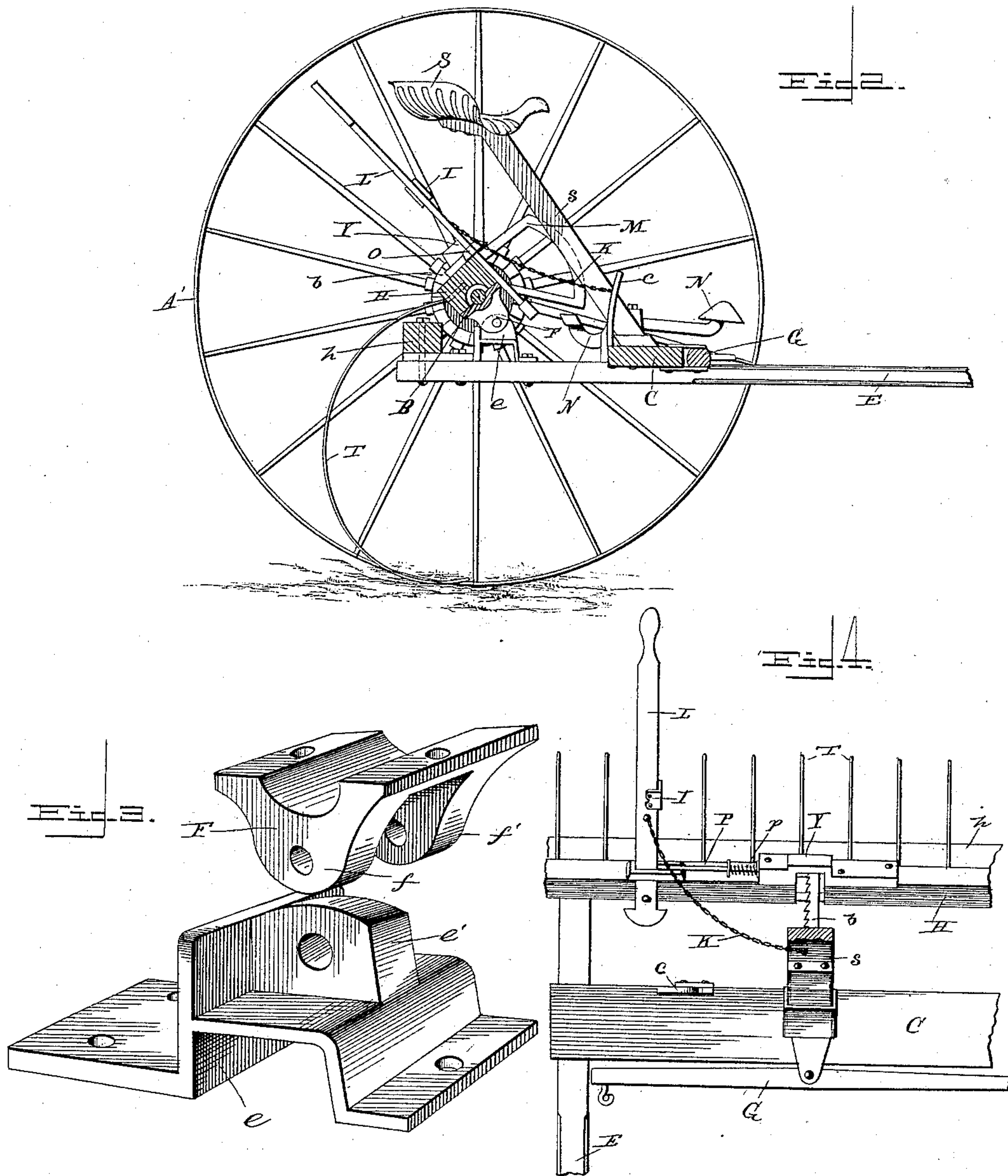
(No Model.)

2 Sheets—Sheet 2.

P. BLAKER.
HORSE RAKE.

No. 432,112.

Patented July 15, 1890.



WITNESSES
Walter H. Humphrey.
J. H. Brown

INVENTOR
Paul Blaker
by Butterworth, Hall, Brown
& Smith, his Attorneys

UNITED STATES PATENT OFFICE.

PAUL BLAKER, OF NEWTOWN, PENNSYLVANIA.

HORSE-RAKE.

SPECIFICATION forming part of Letters Patent No. 432,112, dated July 15, 1890.

Application filed January 23, 1890. Serial No. 337,906. (No model.)

To all whom it may concern:

Be it known that I, PAUL BLAKER, a citizen of the United States, residing at Newtown, in the county of Bucks and State of Pennsylvania, have invented certain new and useful Improvements in Horse-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.

My invention consists in the improved horse hay-rake hereinafter to be described and claimed.

In the drawings, Figure 1 is a perspective view of the rake. Fig. 2 is a side view of Fig. 1 on section-line 2 2. Fig. 3 is a detail view of the bracket and hinge, connecting rake-head and shaft. Fig. 4 is a detail plan view showing the tripping mechanism. Fig. 5 is a detail showing bracket attached to the shaft, and Fig. 6 is a perspective detail of the bracket from a different point than from which Fig. 1 is taken.

My invention is designed as an improvement upon the horse hay-rake described in Patent No. 122,109, granted to James Comly, December 26, 1871. The difficulties encountered in this class of rakes have been that the employment of the stud-axle has rendered it necessary to have a very strong rake-head, which has necessarily increased the weight of the machine. At the same time the stud-axles were liable to get out of alignment through the warping of the rake-head, and were in many other ways an unsatisfactory construction.

The use of the ratchet-wheels attached directly to the carrying-wheels has rendered it necessary that the rake should be dumped by the action of one wheel only; which resulted in side draft, which is a most objectionable feature. If to avoid this a ratchet-wheel, was placed on each carrying-wheel, then the duplicate apparatus thus necessary became more complicated, and even then the engagement of the two pawls with the two ratchets was rarely simultaneous, and the action of the rake consequently jerky and uneven. To retain the various advantages of this construction, however, and at the same time to avoid the above disadvantages, I have designed the improved rake.

A A' are the carrying-wheels, and B a continuous iron axle. This axle turns with the carrying-wheels when they move forward through the action of the ratchets *a a'*, which are of the ordinary construction well known in machinery of this type. At the same time the wheels may revolve at unequal rates in turning corners, backing, &c., without in any way interfering one with the other. On this axle is mounted the rake-head, consisting of the two parts H H', united by the yoke Y, so as to form a practically continuous rake-head. This rake-head is mounted on and revolves about the axle B, being held thereto by the straps R R' R'' R''', and also by the hinges F F'. The shafts E are held together by the cross-bar C, carrying the whiffletree G, and are connected to the hinges F F' by means of the brackets *e*, which are bolted to the shafts, as shown in Figs. 1, 2, and 5.

Any suitable pin or rivet passing through the holes in the ears *e'* and *f f'* of the bracket and hinge-pieces will connect them together, so that the rake will be drawn forward by the shafts and will turn about the point at which it is attached to the same. The bar *h*, carried on the rear end of the shaft, as shown, serves, with the cross-bar C, to hold the same rigidly in position.

The tripping mechanism placed at the center of the rake consists of the ratchet-wheel *b*, mounted on the continuous axle midway of its length and has ratchet-teeth on its side face only, together with the sliding pawl P, mounted on the rake-head and guided by the groove O and the surrounding portion of the yoke Y, and is forced into engagement with the ratchet-wheel *b* by the lever L, pivoted at X, which can be reached by the hand of the driver riding on the seat S. The sliding pawl is retracted by means of the spiral spring *p*, as shown in Fig. 1, or by any other suitable arrangement of springs which might be substituted therefor. The seat S is supported on the bar *s*, attached to the cross-bar C.

On the cross-bar C is mounted a curved horn *c*, which, when the rake-head is revolved through the engagement of the sliding pawl P with the ratchet-wheel *b*, strikes the lever L upon the iron shoe I, provided for the purpose of reducing the wear on said lever, and, forcing the lever backward, withdraws the

sliding pawl from its engagement with the ratchet-wheel *b* and permits the rake-head to fall back into operative position.

The chain *K*, attached to the lever *L* at one end and at the other end attached to any rigid portion of the rake-frame—such, for instance, as the seat-supporting brace, as shown in Fig. 1—may be used to operate the same by pressure of the driver's foot.

The combination of the levers *M* and *N* shown in Figs. 1 and 2 is the ordinary arrangement for holding the rake down to its work when it becomes necessary to do so.

The method of operation of my rake is evident. When a sufficient amount of hay or straw has collected in the rake-teeth and it is desired to dump the same, the lever *L* is drawn toward the center, either by hand or foot pressure upon the chain *K*. This causes the sliding pawl to engage with the ratchet-wheel *b* and practically locks the rake-head to the continuous axle. As a result, the rake-head revolves with said axle and the teeth are lifted from the ground, dumping whatever is contained in them, and this motion continues until the lever *L* is forced back into its original position by engagement with the curved horn *c*, whereupon the rake-head drops back into operative position, and the operation may thus be repeated indefinitely. The advantages of this construction rest in the fact that the dumping motion is positive and even, while the use of the chain *K* is without shock and with equal certainty.

The arrangement of ratchets in the carrying-wheels and at the center of the axle does away with side draft and enables the tripping mechanism to operate evenly and upon all occasions, whether the rake is turning or even backing on one side. There is sufficient forward motion of the other wheel to give the necessary rotating action to the rake-head. The use of this particular arrangement of mechanism permits the ratchet-teeth to be on the side of the wheel, so that there is no danger of them catching in the clothing of the driver or of accumulating dirt, which would tend to interfere with the operativeness of the dumping mechanism.

A special advantage arising from the construction of hinge and axle (shown best in Figs. 2 and 3) lies in the fact that the parts *H H'* of the rake-head, being hollowed out in the form of a semicircular channel in the lower part to receive the iron axle *B*, fit

closely over the same and prevent any straw or other dirt from getting in to choke the bearing and interfere with the easy rotation of the rake-head when the tripping apparatus locks. This is rendered possible by the fact that the hinge-pieces *F F'*, to which the shafts are attached, are separate and distinct from the axle, and, being clamped to the rake-head, operate, as shown, to hold the axle in its bearing under the rake-head. This feature of having several pivotal points for the shaft attachment and the rake-head and axle-connection is also of value, in that it causes the direct pull of the shafts upon the projecting lugs or brackets *e* below the center, about which the rake-head oscillates to operate to keep the rake in position upon the ground, and to prevent its being lifted up by the accumulation of hay or straw within it or by meeting with any obstruction.

Having therefore described my invention, what I claim as new, and desire to protect by Letters Patent, is—

1. In a horse-rake, the combination of the rake-head, which has a semicircular channel on its under side, the iron axle which fits into said channel, the hinge-bracket which has a corresponding semicircular channel in its upper face and is attached to the rake-head, thereby surrounding the axle, and the shafts pivoted to said hinge-bracket, substantially as described.

2. In a horse-rake, the combination of the carrying-wheels, the continuous axle, the ratchets in the wheels, by which the axle is caused to revolve with them when turning forward, the rake-head mounted on said axle and having a semicircular channel in its lower face, whereby it fits over the continuous axle above mentioned, the ratchet-wheel which is rigidly mounted on the axle midway of its length and has teeth upon its side face, the sliding pawl mounted on the rake-head and capable of engagement with the ratchet-wheel, the hinge-bracket having a semicircular channel in its upper face and attached to the rake-head, thereby surrounding the axle, and the shafts pivoted to said hinge-bracket, substantially as described.

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

PAUL BLAKER.

Witnesses:

SUE BLAKER,
JOSHUA C. BLAKER.