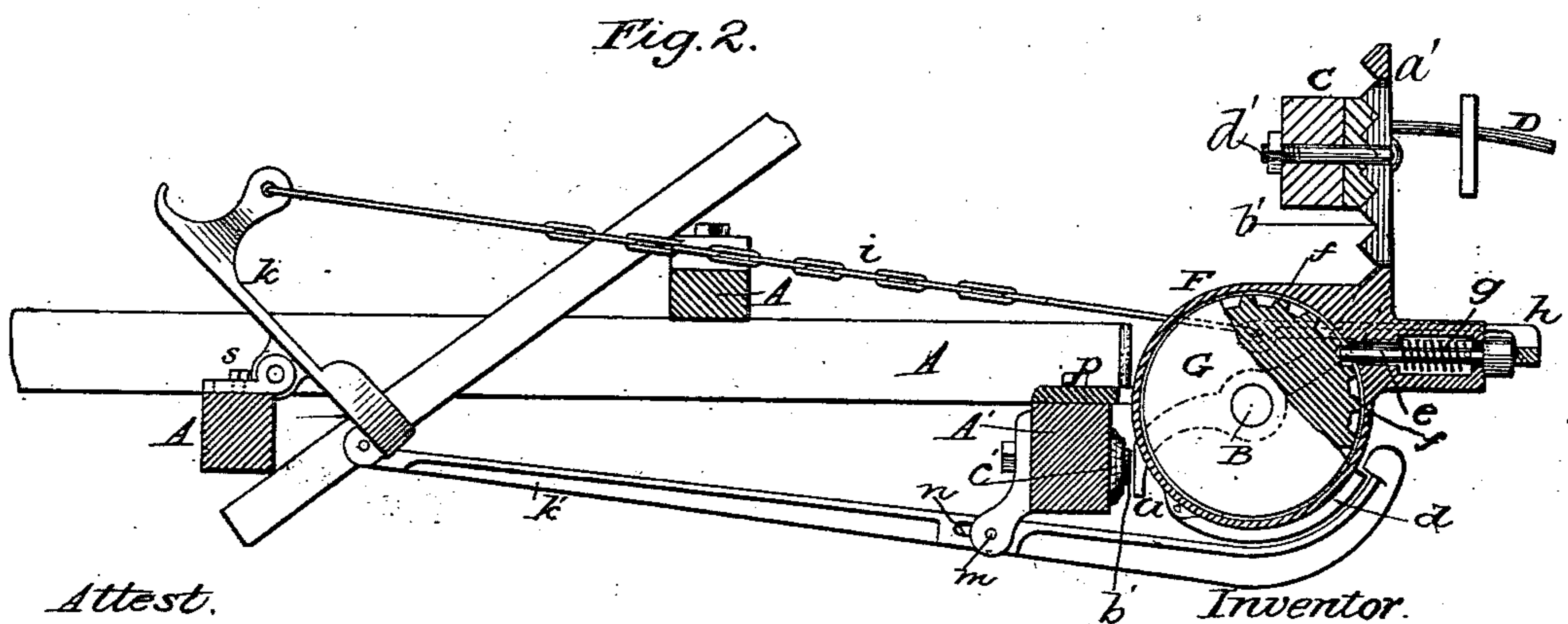
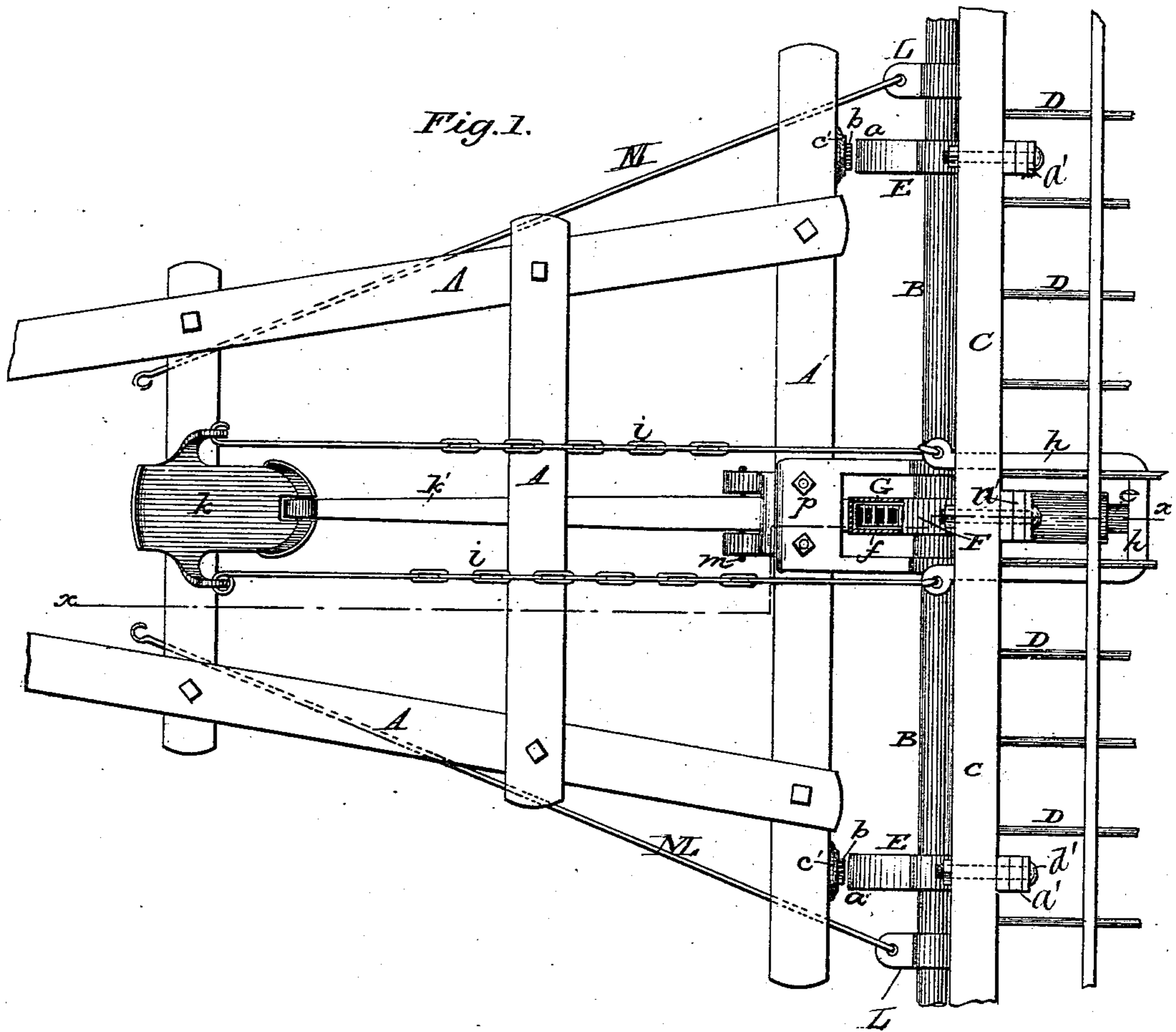


(No Model.)

W. Z. DAFOE.
Horse Hay Rake.

No. 239,604.

Patented April 5, 1881.



Attest.

Sidney P. Hollingsworth.
Nathan C. Lane.

Inventor.
W. Z. Dafee.
By Dodge & Son.
Attys.

UNITED STATES PATENT OFFICE.

WILLIAM Z. DAFOE, OF SYCAMORE, ILLINOIS.

HORSE HAY-RAKE.

SPECIFICATION forming part of Letters Patent No. 239,604, dated April 5, 1881.

Application filed November 3, 1880. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM Z. DAFOE, of Sycamore, in the county of De Kalb and State of Illinois, have invented certain Improvements in Horse Hay-Rakes, of which the following is a specification.

My invention relates to that class of machines wherein the series of teeth are attached to and raised by means of a rocking or rolling head, which latter is operated at the will of the attendant through the medium of devices which connect the head with a wheel secured upon the axle of the machine.

The invention consists in various improvements in the mechanism for connecting the axle and the rake-head, and more particularly in combining with a rocking foot-plate clutching devices and locking devices connected with opposite ends thereof; in providing the rake-head with a metal case inclosing the lifting-wheel on the axle, and provided with a catch to engage therein and with a shoulder to receive a locking-dog; in a sliding locking-dog connected with the foot-plate and arranged to engage over the shoulder on the gear-case; and in arms formed on the rake-head supports and arranged to strike against elastic buffers on the frame to check the descent of the rake-teeth.

Figure 1 represents a top-plan view of so much of a rake as is necessary to show my devices thereon. Fig. 2 represents a longitudinal vertical section of the same on the line *x x*.

In the general construction and arrangement of the frame, rake-head, axle, and wheels, the machine resembles those now in general use.

A *A'* represent the main or draft frame of the rake, sustained at the rear end by the revolving metal axle *B*, the ends of which will be carried in ground-wheels and connected therewith by pawls and ratchet-wheels in the usual manner, so as to impart a constant forward rotation to the axle when the machine is advancing.

C represents the rocking or rolling rake-head, to which the series of rake-teeth *D* are attached, and by which the teeth are raised to discharge the hay. This rake-head is sustained upon the axle by metal supports *E* at

the ends and a hollow metal case, *F*, at the middle. The supports *E* are journaled upon the axle, and are each provided with two arms, one of which is bolted to the rake-head to sustain the same, while the other, *a*, is extended downward to strike an elastic buffer, *b'*, on the frame, and thereby check the descent of the rake-head and teeth, in order to prevent the teeth from being driven into the ground and to prevent the parts from being broken by the shock. The buffers are seated in the rear cross-bar, *A'*, of the frame, and are secured by means of metal plates *c'*, as shown; but they may be applied and secured in any other suitable manner, provided they are arranged to act directly in connection with the rake-head and at the two ends thereof.

The central support or casing, *F*, is also journaled upon the axle *B*, and is provided with an upright arm secured to the rake-head, as shown. The casing is adapted to fit over and around a wheel, *G*, secured firmly on the middle of the axle, and is provided on the under side with a shoulder, *d*, and at the rear side with a sliding catch-pin, *e*, designed to engage in the wheel *G*. The wheel has continuous unbroken sides at the periphery, but a series of notches or teeth, *f*, in the middle of the periphery to receive the end of the pin or catch *e*. When the pin is engaged with the wheel the case is caused to turn with the wheel and axle, and thereby rock the rake-head forward so as to raise the teeth. It will be noticed that the lifting strain is transmitted from the axle through the catch-pin to the casing, and that, as the wheel and casing are both mounted directly on the axle and the locking-pin mounted in and sustained by the casing, there is no possibility of said parts separating, working loose, or being crowded out of their proper relative positions, as would be the case were the locking-pin sustained by means separate from the casing. The catch-pin is pushed outward and held normally out of action by a spiral spring, *g*, as shown. As a means of moving the catch-pin forward into action, a U-shaped plate, *h*, is connected at the middle to the rear end of the pin and its arms extended forward past the sides of the casing, as shown in Fig. 1. Two rods or chains, *i*, are connected to the arms of the plate *h* and extended thence forward to

arms or lugs on the upper end of a foot-plate, *k*, which is pivoted on the front of the main frame in position to be conveniently operated by the foot of the driver. By pressing or tipping forward the upper end of the foot-plate the rods are caused to draw the plate *h* and pin *e* forward, so that the pin will engage in wheel *G*, and thereby cause the elevation of the rake-teeth.

On the under side of the frame, as a means of locking the rake-head and teeth down, there is a sliding dog, *k'*. This dog, which is made in the form of a long bar with the rear end curved upward and fashioned into a hook to engage with the shoulder *d* on the casing, is pivoted at the forward end to the heel of the foot-plate and sustained near the middle by a pin, *m*, passing through a slot, *n*, and seated in a supporting-plate on the frame. The spring, holding the catch-pin *e* backward out of action, also serves through the intermediate parts to hold the dog *k'* forward in engagement with the shoulder *d*, as shown in Fig. 2, so as to hold the head and teeth down securely in their operative position. The rocking or tipping of the foot-plate to draw the catch or clutch-pin into action serves at the same time to move the dog *k'* backward, thereby unlocking the movable parts before the lifting devices commence their action. The form of the locking-dog may be modified, but the form represented in the drawings is considered the best.

The catch-pin or clutch may be actuated by a single chain or rod; but the use of the double connection, as shown, is advantageous in that the pin and its plate are drawn squarely forward thereby.

In order to prevent the shaft from springing and give additional rigidity to the machine, a forked plate, *P*, the two arms of which encircle the axle at the sides of the gear-casing, is bolted firmly on the frame, as shown.

The rake-head may be of any usual or suitable construction, and the teeth may be constructed and attached thereto in any approved manner.

In order to permit the proper adjustment of the foot-plate, it is pivoted to a plate which is slotted and secured to the frame by a bolt, *s*, as shown.

In order to secure the rake-head firmly in position and to permit a ready vertical adjustment of the same, the supporting-heads *E* and the central casing, *F*, are provided with upright slotted arms *a'*, the front faces of which are formed with transverse teeth or serrations *b'*, which engage with correspondingly-toothed plates on the rake-head. Bolts *d'* passed through the head, the plates and the arms hold said parts firmly together, and at the same time admit of the head being readily released

and adjusted higher or lower, as occasion may require.

Upon the ends of the axle, inside of the main wheels, there are loose collars *L*, from which draft-rods *M* extend forward, as shown, to receive the harness-traces or a draft-bar or equivalent device.

I am aware that a hand-lever has been arranged to actuate both the clutching and the locking mechanism of a rolling rake-head, and I lay no claim thereto. My invention in this regard consists in so constructing and arranging a foot-plate that the attendant can move the same positively in both directions, and thereby actuate the clutching and locking devices, leaving his hands free.

I do not claim herein the peculiar arrangement of the draft-rods or the manner of adjusting the rake-head vertically, as they will form subject-matter of another application.

Having described my invention, what I claim is—

1. In combination with the clutching and the locking mechanisms of a rolling rake-head, an actuating foot-plate common to both, said plate pivoted at or near its middle and adapted to be operated by pressure on the two ends alternately, whereby the forward pressure of the operator's foot is caused to operate the clutching and locking mechanisms with a positive movement.

2. The foot-plate adapted to rock upon a central support, and provided with the raised arms at the toe and the pin-seat at the heel.

3. In combination with the notched wheel, the casing, and the catch-pin, the U-shaped plate connected with the pin and the double connections from the plate to the foot-plate, as described and shown.

4. In combination with the rake-head, the casing provided with the shoulder and the sliding hooked dog connected to the foot-plate.

5. The rocking supports for the rake-head provided with arms arranged to strike the buffers on the frame, substantially as described and shown.

6. The casing adapted to encircle the toothed wheel, and provided with the shoulder, the socket for the catch-pin, and the arm to sustain the rake-head.

7. The combination of the shaft or axle having the toothed wheel thereon, the casing attached to the rake-head, the catch-pin, the dog arranged to engage with the casing, and the foot-lever connected with both the catch-pin and the dog.

WILLIAM Z. DAFOE.

Witnesses:

A. M. STARK,
JAS. L. MILLAR.