P. FITZGERALD.

Hay Rake.

No. 21,664. Patented Oct. 5, 1858.

Fig. 1.

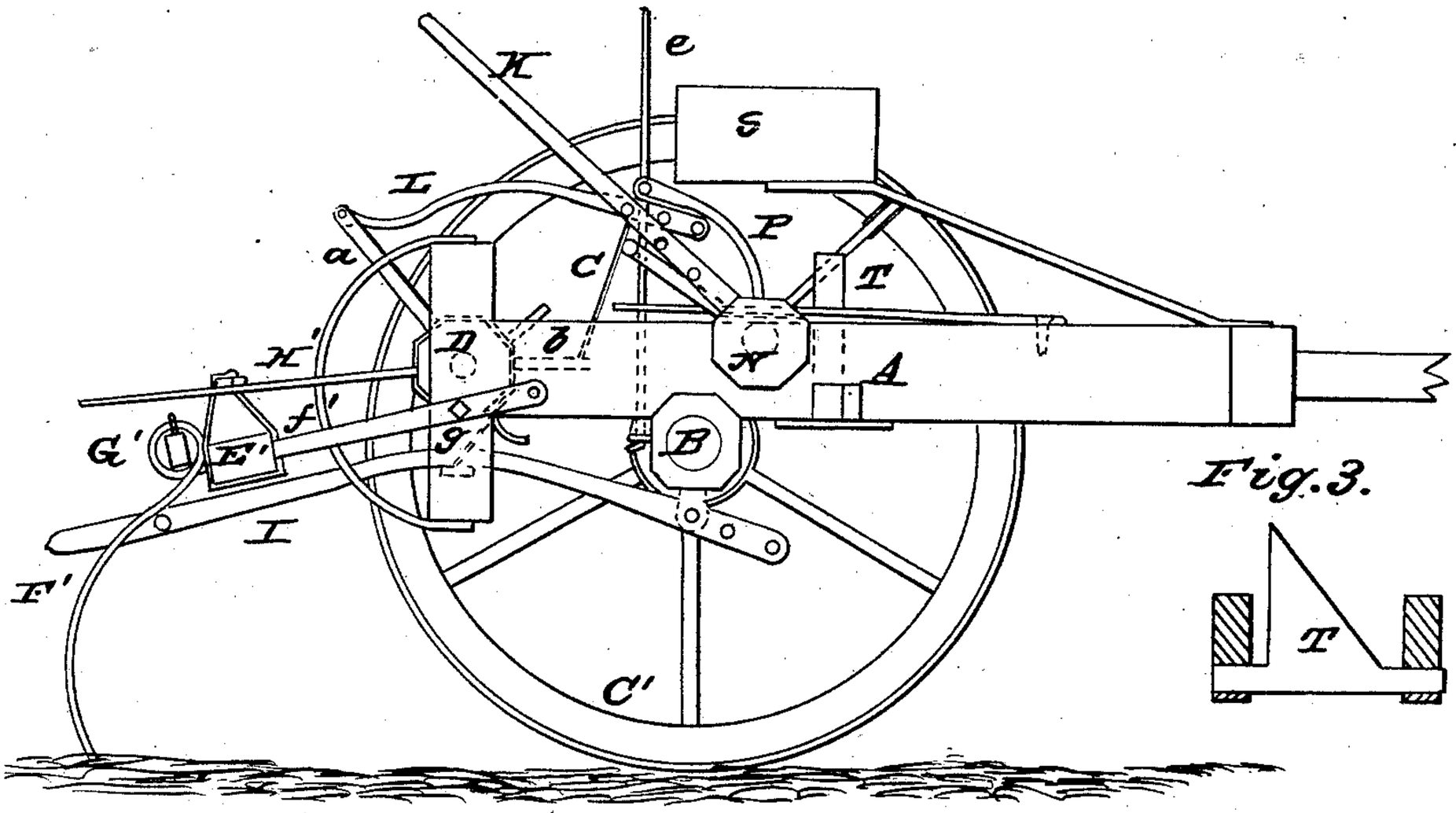
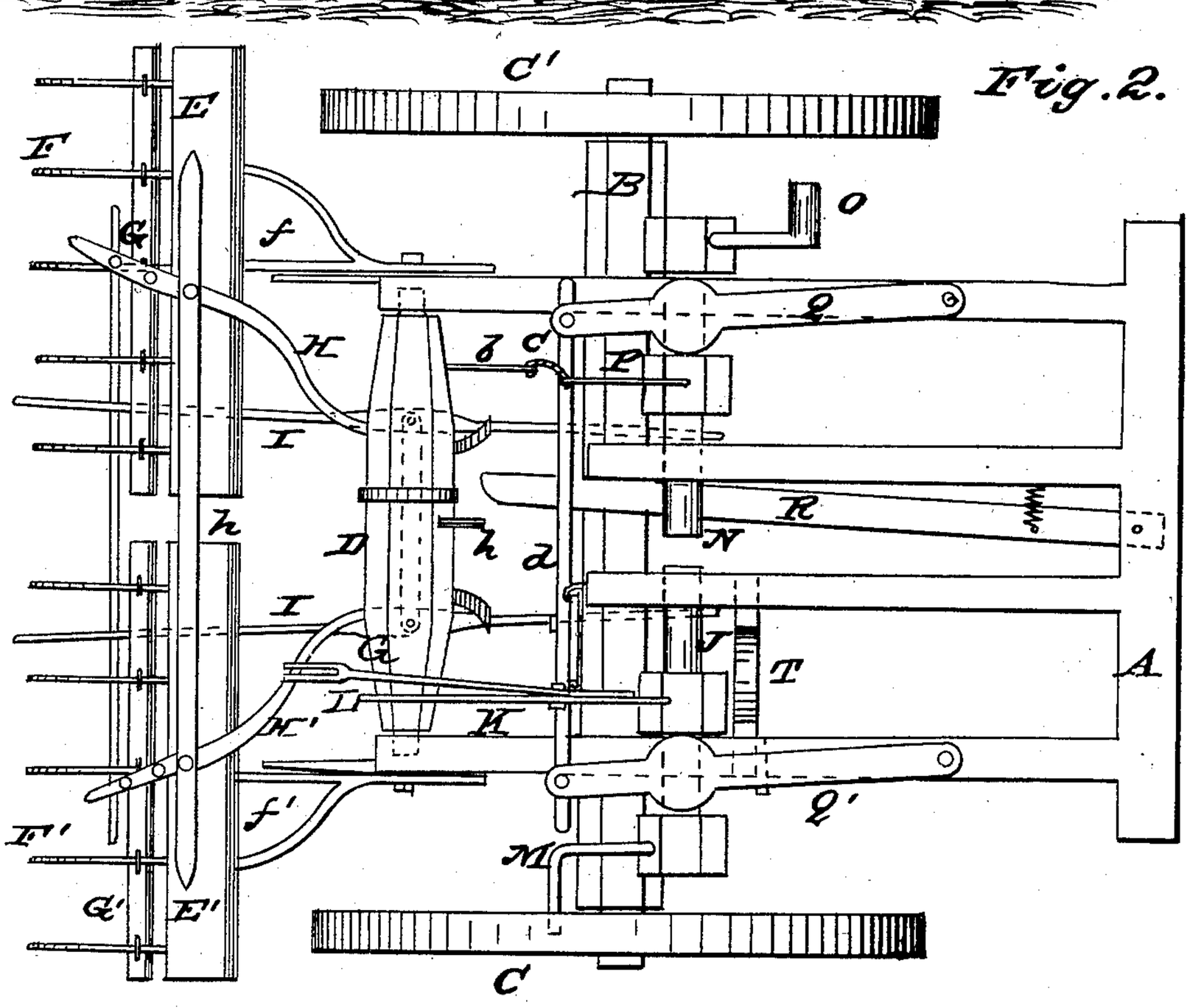


Fig. 3.

Fig. 2.



UNITED STATES PATENT OFFICE.

PETER FITZGERALD, OF CONSTANTIA, OHIO.

IMPROVEMENT IN HAY-RAKES.

Specification forming part of Letters Patent No. **21,664**, dated October 5, 1858.

To all whom it may concern:

Be it known that I, PETER FITZGERALD, of Constantia, in the county of Delaware and State of Ohio, have invented certain new and useful Improvements in Carriage or Wheeled Horse-Rakes for Raking Hay; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, in which—

Figure 1 is a vertical and longitudinal section, and Fig. 2 a plan view, of the machine, and Fig. 3 a detached side view of the adjustable cam-plate T.

The nature of my invention consists in raising the rake-teeth of a carriage-rake, to empty them of the hay collected by them, by the movement of the truck-wheels of the machine, and in an arrangement of parts by which the rake-teeth are kept in contact with the ground when raking, or held and kept suspended above the ground when the machine is moved from place to place, as may be required; also, in an arrangement of parts by which the rake-teeth are cleared of their gathered load and by which the windrow is compressed and packed into a smaller place and space.

A is the frame of the machine, resting upon and secured to the axle-tree B. It has a tongue or pole or a pair of shafts attached to its front end, to which the team by which it is moved and propelled is secured.

C C′ are a pair of wagon or truck wheels of ordinary construction, which revolve upon and are secured to the outer ends of the axle-tree B in the usual manner, and which may be constructed especially for the purpose; or the axle-trees may be fitted to any wheels that may belong to vehicles adapted to other purposes, if it is desired to save the extra expense of a separate and special set of wheels.

D is the rake-shaft, working in the rear end of the frame A, by which the rakes are elevated through the arms H H′ and the cross-bar *h*.

E E′ are rake-heads jointed or otherwise connected together at their inner ends, and suspended from the cross-bar *h* by chains, straps, or other flexible connections, so that the rake-teeth can follow the sinuosities of the ground over which they are operated. They are made of a length greater than the width of the track of the truck-wheels of the machine to allow the rake-teeth to operate close up to fences, stumps, and other obstructions, and are attached to the outer sides of the back end of the frame A by the arms *f f′*, which arms can be raised or lowered, and can be expanded to a greater or less degree on the frame to alter the inclination of the rake-teeth or to adapt the machine to the varying height of the different truck-wheels which may be used upon and with it, as set forth above.

F F′ are sets of spring rake-teeth of ordinary construction, which are inserted in the rake-heads E E′, the teeth being kept in position with each other by being attached and fastened to the bars G G′.

I is a cleaner, attached at its inner ends to the axle-tree of the machine by pins or bolts, so that its outer end can be raised or lowered and connected to the rake-shaft D by the flexible connection *g*, so that is lowered to clean and disengage the gathered load from the rake-teeth when the teeth are raised from the ground, and raised out of the way of the hay to be gathered when the teeth are lowered to the ground, and which further serve to compress and pack the hay collected by the rake-teeth into a windrow by its weight when passing over it.

J is a shaft working in suitable boxes in the frame A, and having a sliding movement endwise, as well as a rotary movement, to which the handle K is attached, by which the rakes can be lifted and depressed by hand, and by which the rakes are depressed, as hereinafter described, when they are lifted by the wheel of the machine, through the connection L, attached to the lever *a* on the rake-shaft D.

M is a clutch attached to the outer end of the shaft J, which is thrown in contact with the spokes of the wheel C by the operator to lift the rakes when they have gathered a sufficient quantity of hay and require to be emptied of their load.

N is a shaft constructed and worked in a similar manner to the shaft J and placed on the opposite side of the frame A, which has the friction-brake O attached to its outer end, which retains and holds the rake-teeth in contact with the ground, when the brake is pressed against the inner side of the rim of the wheel C′ by the operator, through the lever P, connected to the arm *b* on the rake-shaft by the flexible connection *c*.

Q Q′ is a pair of levers connected together

by the bar *d* and operated by the handle *e*, by which the clutch M and brake O are moved simultaneously, one inwardly and the other outwardly, for the purposes described.

R is a stop-bar acting upon the pin *h* on the rake-shaft D, by which the rakes are kept suspended when the machine is moved from place to place and when the rake-teeth are required to be kept inoperative. It is worked and operated by the foot of the driver, who sits in the seat S to guide and direct the team and to control and regulate the operation of the machine.

T is an adjustable cam-plate, against the edge of which the handle K comes in contact, when the rakes are elevated by the wheel C, for the purpose of withdrawing the clutch M from the spokes of the wheel C to allow the teeth of the rakes to fall to the ground after they have deposited their gathered load. It is made adjustable by sliding it to or from the side of the machine to allow the rakes to be lifted to a greater or less degree, in proportion to the weight and quantity of the crop to be gathered, by allowing the handle K to strike its angling edge sooner or later.

To operate the machine, the rakes are dropped so that the points of their teeth come in contact with the ground. The team is then started, the brake O being kept in contact with the wheel C′ to prevent the teeth of the rake rising from the ground by the weight of the hay being gathered acting against them, and when a sufficient quantity of hay has been collected by the rakes to form a windrow of proper size the clutch M is thrown in contact with one of the spokes of the wheel C by the handle K, moved by the operator, and the rakes are lifted by the rotation and movement of that wheel at the same time that the clearer I operates to discharge and clear from the rakes their gathered load, and to compress and pack the hay in the windrow to prevent it being blown about by the wind. When the rakes are lifted through the movement given to the handle K, as described, the friction-brake O is at the same time withdrawn from contact with the wheel C. The action of the wheel C upon the clutch M revolves the handle K, and brings it in contact with the beveled edge of the cam T, and withdraws the clutch from the wheel, and allows the rake-teeth to fall to the ground, and the friction-brake to be acted upon by the wheel C′, as before. When the machine is to be moved from place to place, and the rakes are required to be inoperative, they are raised from the ground, as when they are unloaded, and the stop-bar R is moved over the pin *h* on the rake-shaft by the foot of the operator, and they are kept thus suspended until they are released by removing the bar from off the pin.

By forming the rakes in sections and connecting them together at the point of division they can be used on rough or uneven ground as perfectly as on level and even ground, and by extending the rakes beyond the lines of the truck-wheels the ground can be raked close up to fences, stumps, or other obstacles.

By depressing or holding the rake-teeth in contact with the ground by the friction-brake acting upon one of the truck-wheels, I am enabled to dispense with the loading or weighting down of the rakes to keep them from rising when gathering their load, which would otherwise require to be used, and which would render the elevation of the rakes more difficult and require the exercise of more power to effect it; and by elevating the rakes, when loaded, by the action of the other wheel in stead of raising them by a lever worked by the operator, I not only lessen the labor of the operator, but also enable the machine to be worked and tended by a boy, as the most laborious portion of his attendance upon the machine would be the management and control of the team drawing it.

I do not claim attaching to a wheeled vehicle rakes to be used to rake hay, nor the construction of the rake-teeth nor their attachment to the rake-heads; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

The combination of the shafts J and N and the clutch M and brake O with the levers Q Q′, bar *d*, handle *e*, and cam T, for the purpose of putting the brake and clutch in operation, as described, and for the objects set forth.

PETER FITZGERALD.

Witnesses:
H. W. HOAR,
CHAS. E. HOAR.