G. W. HOLLEY.

Machine for Gathering and Loading Stone, Hay, &c.

No. 48,175. Patented June 13, 1865.

Fig. 1

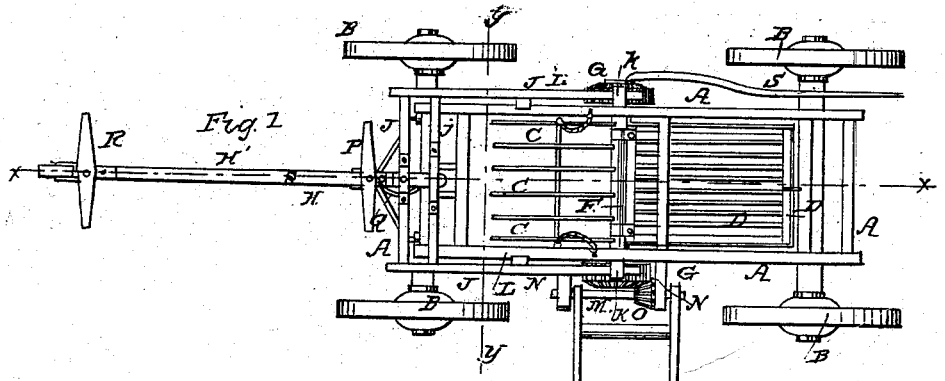

Fig. 2

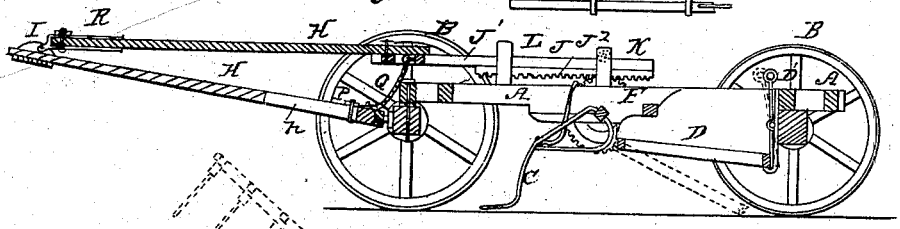

Fig. 3

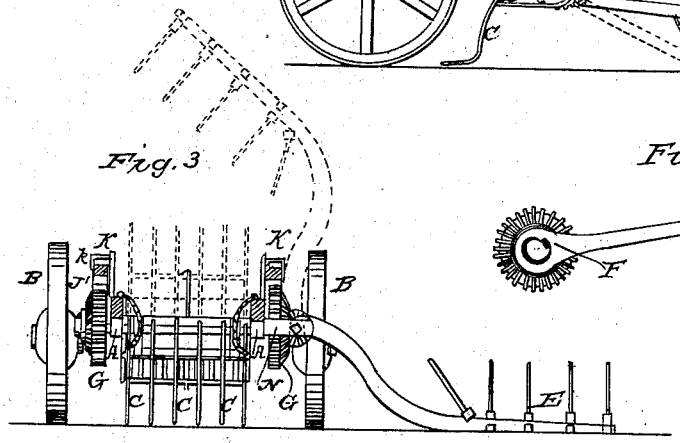

Fig. 4

WITNESSES.

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GEORGE W. HOLLEY, OF NIAGARA, NEW YORK.

IMPROVEMENT IN MACHINES FOR GATHERING AND LOADING STONE, HAY, &c.

Specification forming part of Letters Patent No. **48,175**, dated June 13, 1865.

To all whom it may concern:

Be it known that I, GEORGE W. HOLLEY, of the town and county of Niagara, State of New York, have invented a new and useful Machine for Gathering Stone and Loading 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, making part of this specification, in which—

Figure 1 is a plan of the machine with the hay-rake attached. Fig. 2 is a vertical longitudinal section thereof, the line *x x*, Fig. 1, indicating the plane of section. Fig. 3 is a transverse section on the line *y y*, Fig. 1. Fig. 4 is a detached view, showing the re-enforcing lever in elevation.

Similar letters of reference indicate corresponding parts in the several figures.

The subject of my invention is a machine adapted for gathering stone and hay, as may be desired. If used for gathering the former, the stone is first collected in a suitable receptacle on the wagon, and then deposited in a heap upon the ground when the proper point is reached. If used for gathering hay, it is piled up on the wagon until it is loaded in customary manner.

One of the prime features of novelty in my invention consists in effecting the requisite movement of the elevating-rakes or other devices by the backward movement of the horses. This I accomplish by employing two draft-tongues, one of which is capable of moving backward independently of the main portion of the machine during a corresponding or backing movement of the horses, said movable tongue communicating its movement to parts which transmit it to the operating devices.

The details as to the construction and functions of the several parts are given in the following description, which will enable a person skilled in the art to which my invention appertains to fully understand and use the same.

A A represent the various parts of the main frame of the machine, which is mounted upon four wheels, B B, thus constituting a common rectangular wagon-body.

C represents a stone-gathering rake; D, a dumping-platform upon which the stones are received from the rake C, and E is an elevating-fork extending out at the side of the wagon, for the purpose of collecting hay and loading the wagon therewith. I have thus mentioned the different working parts in a brief sentence, in order to a general understanding of their respective functions, before proceeding with a more particular statement as to construction and means of operation. The stone-rake and hay-fork, of course, do not operate at the same time. The teeth of the stone-rake C, at their rear ends, are made fast to the shaft F, to which the bevel cog-wheels G G are attached, one of said cog-wheels being on each end of the shaft, as seen in Figs. 1 and 2; but said rake-teeth may be attached to a piece of timber about six inches square, and which has a rabbet or groove two inches square taken out of one corner along its whole length. This rabbet or groove would set onto an iron shaft of the same size, which has two journals or bearings turned on it, said bearings being three feet apart and designed to fit into boxes of the proper size, which are made fast to the under side of the frame which carries the rake and fork. The ends of this shaft are also turned down—say to one and seven-eighths inch in diameter—so as to receive the cog-wheels G G and the clutches, which operate, in connection with levers, to assist in the elevation of either the hay-fork or stone-rake, and which will be hereinafter specifically alluded to.

H represents the usual draft-tongue, attached to the forward axle of the machine in customary manner; and H′ is a second tongue, located above the first, but connected therewith at the forward end by a slide, I, which is pivoted to the tongue H′ and embraces tongue H, so as to have a free longitudinal play upon the latter. The rear end of the tongue H′ is pivoted to what I term a "gallows-frame," which consists of two rack-bars, J J, running parallel with the sides of the machine, and connected at their forward ends by transverse pieces J′ J′. The racks J^2 J^2 on the under side of this gallows-frame rest upon the cog-wheels G G, and are held down thereupon by the metallic retainers K K, which are secured to the sides of the machine, and provided with small rollers *k k*, to avoid friction and cause the racks to move freely when in operation. The retainers also constitute guides for the bars J J, which purpose is also subserved by the upright pieces

L L. The two arms of the hay-fork E are attached to a shaft, M, which is journaled in two short shafts or supports, N N, projecting from the side of the machine. On the shaft M is a bevel-pinion, O, which is rotated by the wheel G, so as to throw up the hay-fork E in the manner shown in Fig. 3.

The horses are attached to the upper tongue, H′, by means of a neck-yoke, R, in order that when the horses are backed or make a retrograde movement a backward movement may be imparted to the gallows-frame J, whose motion is transmitted through the racks J^2 and cog-wheels G G to the shaft F and pinion O, thereby elevating the stone-rake C or hay-fork E, as the case may be. The stone-rake and hay-fork are designed to be made removable, so that either may be used at will. To admit of this backward movement of the horses the wagon hammer or bolt, which fastens the evener or double-tree P to the lower tongue, is placed in a slot, *h*, extending longitudinally a suitable distance along the tongue. While the horses are backing for the purpose spoken of, the evener and its appendages are retracted out of the horses' way by means of a cord, Q. After a little practice at this kind of work the horses will learn what is expected of them, and a word from the driver may be sufficient. A slight backward movement of the animals will suffice to give the necessary movement to the rake or fork, and the horses can exert astonishing strength when thrown back upon their haunches, which may at times be required.

The benefits arising from this method of depositing hay and stone upon the wagon will be obvious to those who may be engaged in such matters.

The advantage of giving the elevating devices their motion by means of the backward motion of the horses is that no ground is skipped by the machine, and hence the work does not have to be gone over or done over after the machine has once passed. This would not be the case were the elevating devices raised off the ground during the forward movement of the machine.

A suitable chain may be used to adjust the stone-rake to make its teeth run at a greater or less depth below the surface of the ground.

The operation of both the stone-rake C and hay-fork E is shown clearly in Fig. 3, though, as before stated, the two devices are not to be used together at the same time.

The forward end of the dumping-platform D, upon which the stones are deposited, is hinged to the shaft F, which, in turning, operates the stone-rake and hay-fork, the attachment of the platform being made in such a manner as not to interfere with the free rotation of said shaft. The rear end of the platform D is sustained by means of a rod, D′, which, for the purpose named, is hooked at its lower end.

The rod D′ may be turned round so as to move its deflected portion from beneath the platform, so as to permit the latter to fall, and thus dump the stones in a heap which may have accumulated thereon.

S represents a lever, the construction of which will be more quickly understood by reference to the detached view, Fig. 4. This lever operates somewhat like a wrench, and the notched eye in its end fits over a clutch, T, which is keyed on the outer end of the shaft F. By taking hold of the lever S and turning the same the driver, who stands on the rear end of the main frameway, assists in raising the weight which the hay-fork or stone-rake is elevating. If preferred, two of these levers S may be used, located one at each end of the shaft F, and hence on each side of the machine, in which case the two levers are connected at their rear ends by means of a broad flat board, upon which the driver may throw his weight. This latter arrangement is particularly desirable when the machine is used for gathering stone. It is also designed to attach a weight to the levers when heavy matters are to be raised, the said weight to be so disposed as to assist in the elevation of the contents of the fork. When the rake or fork has been emptied the horses start forward and the rake or fork falls to its normal position.

It is deemed unnecessary to dwell upon the advantages of the above-described machine, as they are self-evident. Neither will I venture a separate statement of the operation, since it has necessarily been introduced into the preceding description.

I will here remark that when the machine is used as a hay-loader the rake C is taken out and a bottom put in the machine in front of the shaft.

I do not wish to limit myself to the particular mechanical devices which I have described for operating the rake and fork when the horses are backed, but propose to substitute any other means that may suggest themselves. The stone-rake may be located in the same place and operated in the same manner as the hay-fork.

Having thus described my invention, the following is what I claim as new herein and desire to secure by Letters Patent:

1. Operating devices for elevating hay, stone, or substances of any kind by means of a backward or retrograde movement of the horses.

2. The use of two tongues to one wagon, as described, to permit the same to be drawn forward, as usual, and adapt the motion of the horses in backing to be transmitted to elevating devices, substantially as set forth.

3. The slot *h* in the lower tongue, H, in combination with the evener P and cord Q, the whole being employed in the manner and for the purpose stated herein.

4. In a machine constructed as herein described, the combination of the movable rack-frame J J′ J^2, the cog-wheels G G, the pinion O, and shaft F, the whole being constructed and arranged to operate in the manner and for the purpose explained.

5. The lever S, in combination with the clutch T, when employed to enable the attendant to assist in elevating the hay or stone, as set forth.

6. The neck-yoke R, employed to attach the upper tongue, H′, to the horses, so as to cause said tongue to undergo the backward movement of the horses, as and for the object specified.

GEORGE W. HOLLEY.

Witnesses:
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