(No Model.) 2 Sheets—Sheet 1.

C. J. CLARK.
STONE GATHERING MACHINE.

No. 491,984. Patented Feb. 21, 1893.

Fig. 1.

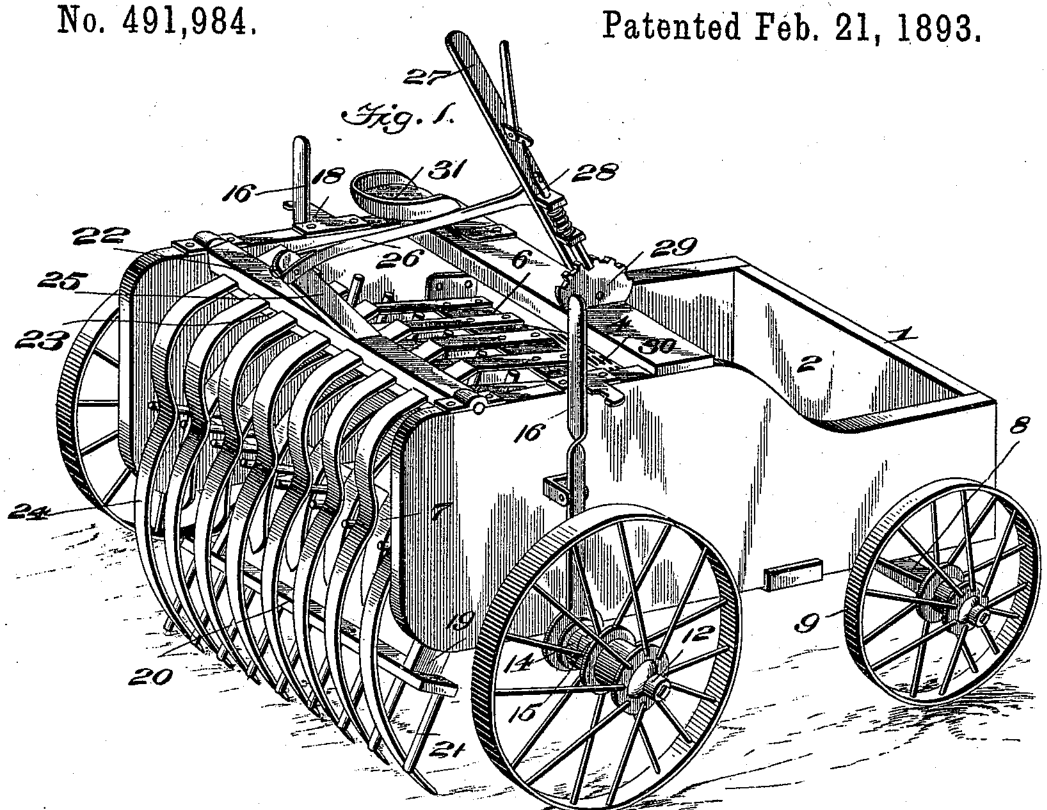
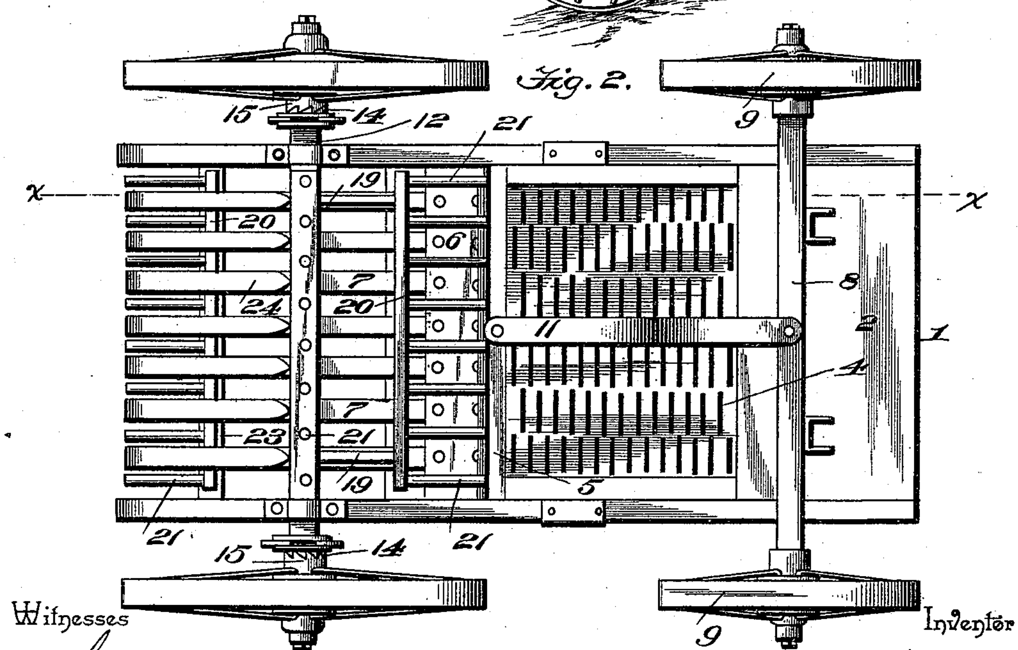


Fig. 2.



Witnesses

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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STONE GATHERING MACHINE.

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Fig. 3.

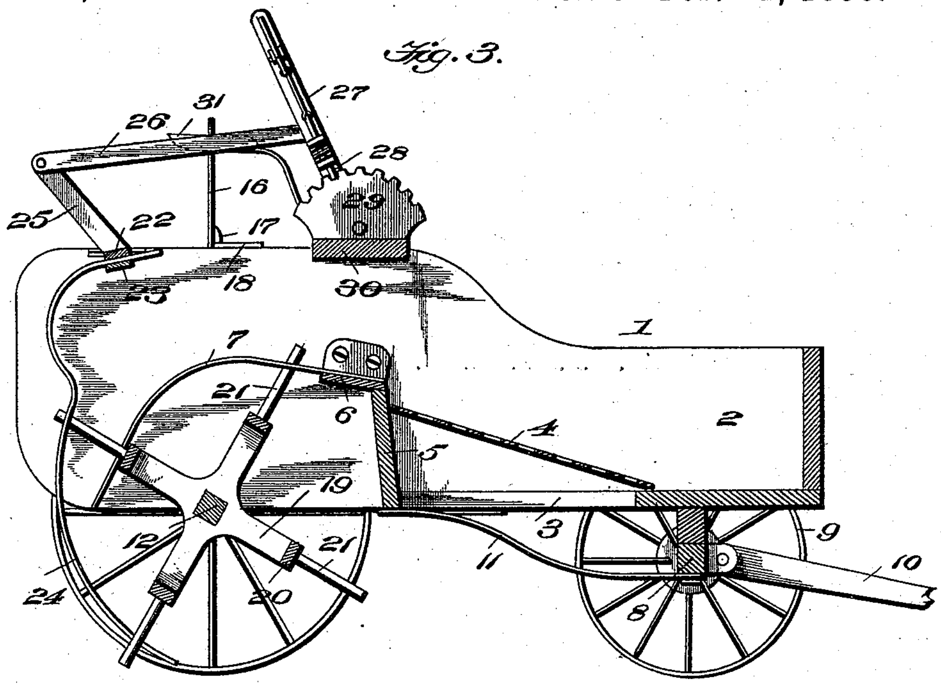
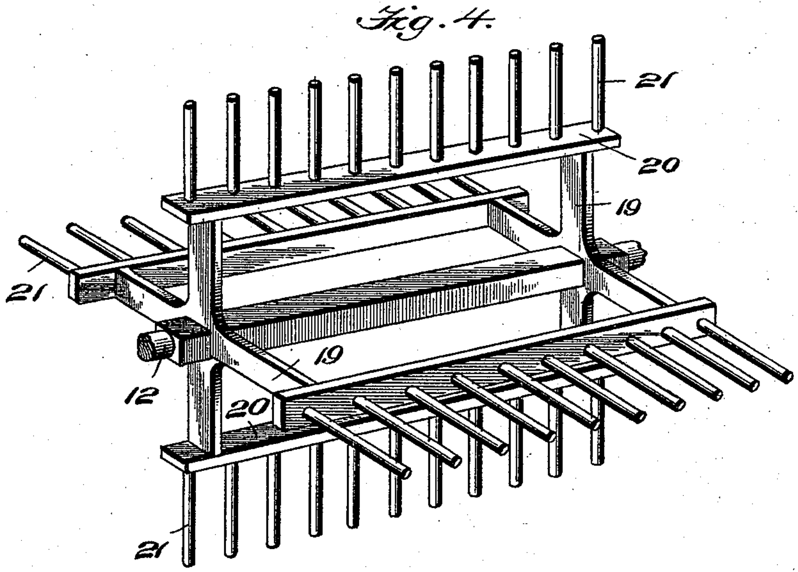


Fig. 4.



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UNITED STATES PATENT OFFICE.

CARSON J. CLARK, OF LESLIE, MICHIGAN.

STONE-GATHERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 491,984, dated February 21, 1893.

Application filed May 14, 1892. Serial No. 432,980. (No model.)

To all whom it may concern:

Be it known that I, CARSON J. CLARK, a citizen of the United States, residing at Leslie, in the county of Ingham and State of Michigan, have invented a new and useful Stone Gathering and Loading Machine, of which the following is a specification.

This invention relates to stone gathering and loading machines adapted for use on roadways, fields, or cultivated ground, or other places as may be found desirable and to which the same is applicable.

The essential features of the invention comprise a gathering rake, stationary guide teeth, and rotating conveying arms moving between the said guide teeth for forcing the stone upward thereover and into a wagon or carriage of suitable structure.

The object of the invention is to simplify the construction and arrangement of parts and operation of a device of the character set forth and produce a strong and durable connection of parts combined for facilitative service.

The invention consists of the construction and arrangement of the several parts as a whole and in detail as will be more fully hereinafter described and claimed.

In the drawings;—Figure 1 is a perspective view of the improved machine looking toward the rear end of the same. Fig. 2 is a bottom plan view thereof. Fig. 3 is a longitudinal section on the line x—x of Fig. 2. Fig. 4 is a detail perspective view of the conveying arms detached.

Similar numerals of reference are used to indicate corresponding parts in the several figures.

Referring to the drawings, the numeral 1 designates the body of a wagon, carriage or framework having the sides thereof suitably shaped to provide a proper support for the parts of the mechanism carried by the same, and also having a box or receptacle 2 at the front end thereof with an opening 3 in rear of the same over which is secured an inclined grate or screen 4 of suitable form. As shown however, the said grate or screen 4 consists of a metallic plate having a series of openings arranged in parallel rows therein and may be either cast or sheet metal as found best adapted for the intended use. At the rear termination of the said grate or screen 4, is a vertically disposed cross-strip 5 having an upper beveled edge to which is secured a metallic plate 6 which overhangs the said strip 5 at the rear, and the said metallic strip is formed with angularly bent ends which are secured to the sides of the vehicle carrying the mechanism. To the said metallic strip 6 is attached a series of stationary guide teeth 7 which are arranged parallel with each other and have intervening spaces between the same. The stationary guide teeth 7 extend backward in a straight plane at an angle of inclination parallel with the angularity or obliquity of the said metallic strip 6 and are then curved downward regularly and extend rearward at a slight angle of inclination to the rear open end of the body hereinbefore referred to. The said body 1 is provided with a front axle 8 having road wheels 9 and adapted for guiding the machine and being also provided with a tongue 10 and a reach-bar 11 which extends under the said body and connects to the framework at a suitable point. The said front axle 8 is stationary and at the rear portion of the said body is mounted a rotatable shaft or axle 12 having bearing in boxes 13 secured to the underside of the body, the said rotatable shaft or axle 12 being provided with clutch collars or sleeves 14 situated outside of the body and adapted to engage with the rear or inner serrated or tooth portions of the hubs of wheels 15. The said clutch collars or sleeves 14 have connected thereto yoked shifting levers 16, which are pivotally connected to the sides of the body and provided with lugs 17 adapted to engage a notched plate 18 situated on each side of the upper portion of the body, and whereby the said shaft or axle 12 may be rotated or operated through the traction of the wheels 15, when the said clutch mechanism is properly operated as will be understood. When the clutch mechanism set forth is released from connection with the wheels 15, the said shaft or axle 12 ceases to rotate and said wheels run freely on spindles on the ends of the said axle or shaft. On the said shaft or

axle 12 is stationarily secured a series of radial arms 19, arranged at an angle to each other and having horizontal bars 20 secured on the upper ends thereof which support and carry a series of parallel conveying arms 21. The said conveying arms 21, as shown, are arranged in four series, which are located diametrically opposite to each other and move close to or in contact with the ground according to the use to which the machine may be applied and rotate also between the stationary guide teeth 7 until they reach the termination thereof, or where they are attached to the strip 6 when the said conveying arms pass downward in their line of rotation under the said strip 6, which operation has the result of carrying the stones almost to the termination of the said guide teeth 7.

On the upper rear portion of the body 1 is pivotally mounted an oscillating bar 22 to which is bolted another bar or strip 23 located against the underside thereof. The said bar 22 is formed with a series of recesses in which are fitted the upper ends of the teeth 24 of a gathering rake and clamped in secured position by the strip or bar 23. An arm 25 is secured to the bar 22, and has a connecting rod or strip 26 attached to the same and to a shifting lever 27, supplied with a spring-actuated dog 28, adapted to engage a toothed sector 29 vertically supported on a strip 30 on the upper edges of the sides of the body. By this mechanism the said gathering rake may be adjusted in operative position or lifted clear of the ground as may be desired. A seat 31 is supported by the strip 30 in convenient position to the shifting lever 27. The teeth 24 of the gathering rake are elongated and formed in compound curved contour, and the feeding arms hereinbefore referred to in their rotation pass between the said teeth until they reach the end or termination of the rear portion of their arc of rotation as shown in Fig. 1.

In operation the vehicle or carriage supporting the operating mechanism is moved over the ground and the gathering rake draws the stones forward therewith and backs the same up to be elevated by the conveying arms 21 which carry the same up between the said gathering rake and over onto the guide teeth 7 from whence they fall onto the grate or screen 4 to allow the dirt to be sifted therefrom and then roll into the box 2. This operation becomes successive and is very rapidly carried on according to the time or speed of movement of the machine entire. It will be understood that as the stones are being elevated by the conveying arms 21 the dirt will fall from the same, and owing to the inclination of the teeth 7 together with the grate or screen 4 a chute is formed to direct the stones into the box 2. A slight fall or dropping action is produced upon the stones when they pass from the front terminating ends of the guide teeth 7 onto the grate or screen 4, the latter being slightly depressed at its rear upper end below the said guide teeth, and by this means the dirt clinging to the stones will be shaken therefrom.

The advantages and conveniences of the machine hereinbefore set forth will be readily understood by those skilled in the art to which the same appertains, and it is obviously apparent that many minor changes in the details of construction might be made and substituted for those shown and described without in the least departing from the nature or spirit of the invention.

Having thus described my invention, what is claimed as new is—

1. In a stone gathering and loading machine, the combination of non-rotatable stationary guiding teeth, rigid rotatable conveying arms and a gathering rake, said parts being carried by a suitable framework, substantially as described.

2. In a stone gathering and loading machine, the combination of non-rotatable stationary guiding teeth, a series of rigid rotatable gathering arms, movable between said teeth a grate or screen in front of said guiding teeth, and a gathering rake in rear of said parts, substantially as described.

3. In a stone gathering and loading machine, the combination of a framework having a box or receptacle in the front portion thereof with an opening in rear of the same, a grate or screen supported at an angle over said opening, stationary guiding teeth in rear of said grate and arranged at an angle of inclination as set forth, a series of rotatable conveying arms moving between the said guiding teeth, and an adjustable gathering rake in rear of said guiding teeth and said arms, substantially as described.

4. In a stone gathering and loading machine, the combination of a series of stationary guiding teeth having their front portions arranged at an angle of inclination, and their rear parts curved downward and extended at a slight angle of inclination, a grate or screen arranged at an angle of inclination in front of the said guiding teeth, a series of conveying arms rotatably mounted and moving between said guiding teeth, and an adjustable gathering rake having elongated teeth, substantially as described.

5. In a stone gathering and loading machine, the combination of the guiding teeth, conveying arms, the gathering rake, and a grate or screen arranged at an angle of inclination in front of the guiding teeth and below the level of the same to provide a drop for removing the dirt from the stones gathered, substantially as described.

6. In a stone gathering and loading machine, the combination, of a body having an opening in the bottom thereof with a screen or grate arranged thereover at an angle of inclination, a strip in rear of said grate or screen having a metallic plate on the top portion

thereof arranged at an angle of inclination, curved guiding teeth having their front ends secured to said metallic plate, a series of diametrically arranged conveying arms rotatably mounted to move between the said teeth, and a gathering rake with curved elongated teeth, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CARSON J. CLARK.

Witnesses:

HENRY C. BARDEN,

LINFRED G. TORREY.