

E. HUBBARD.
 COMBINED TRACTION STONE CRUSHER AND ROAD ROLLER.
 APPLICATION FILED JAN. 13, 1912.

1,042,230.

Patented Oct. 22, 1912.

3 SHEETS-SHEET 1.

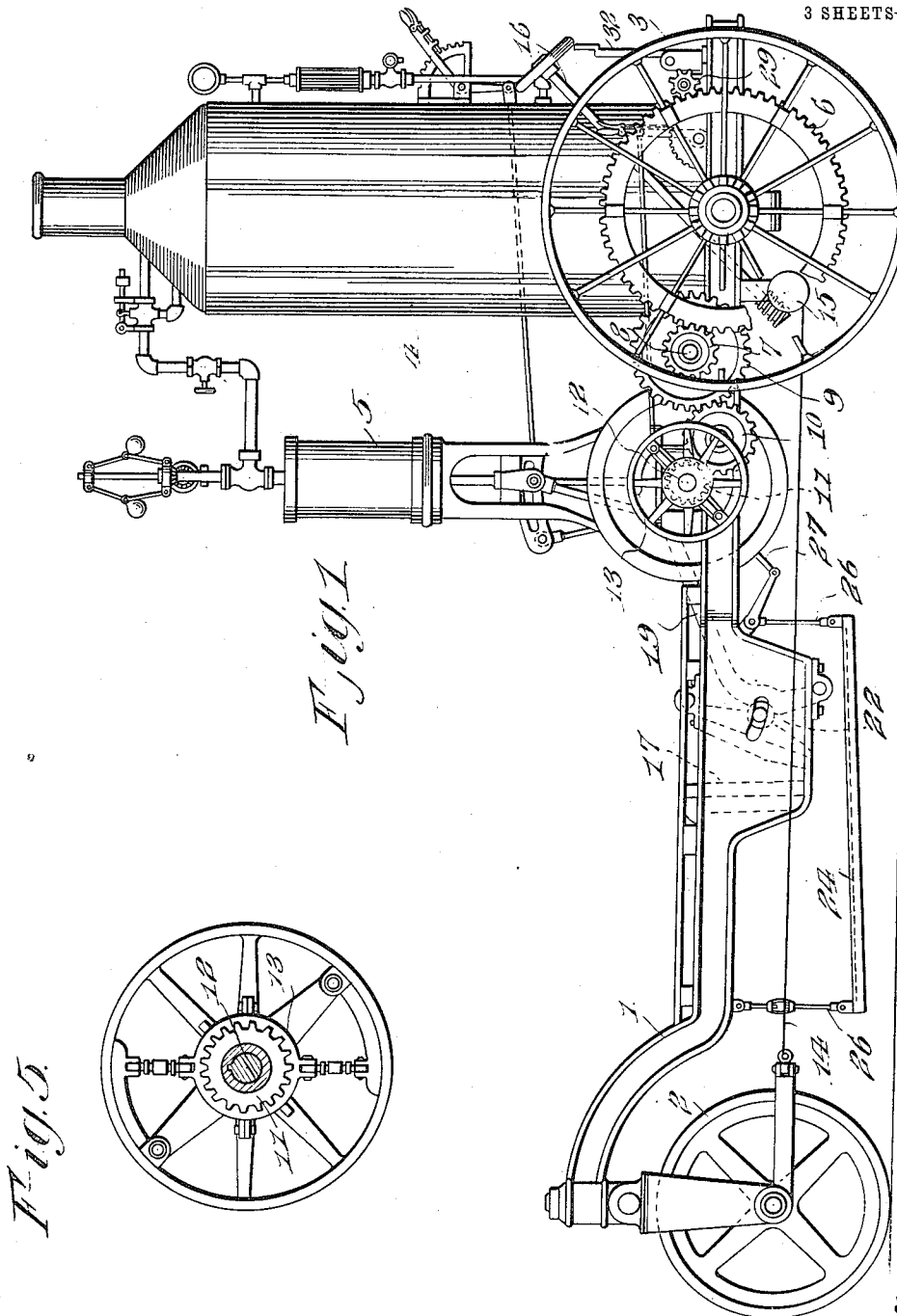


Fig. 5.

Witnesses

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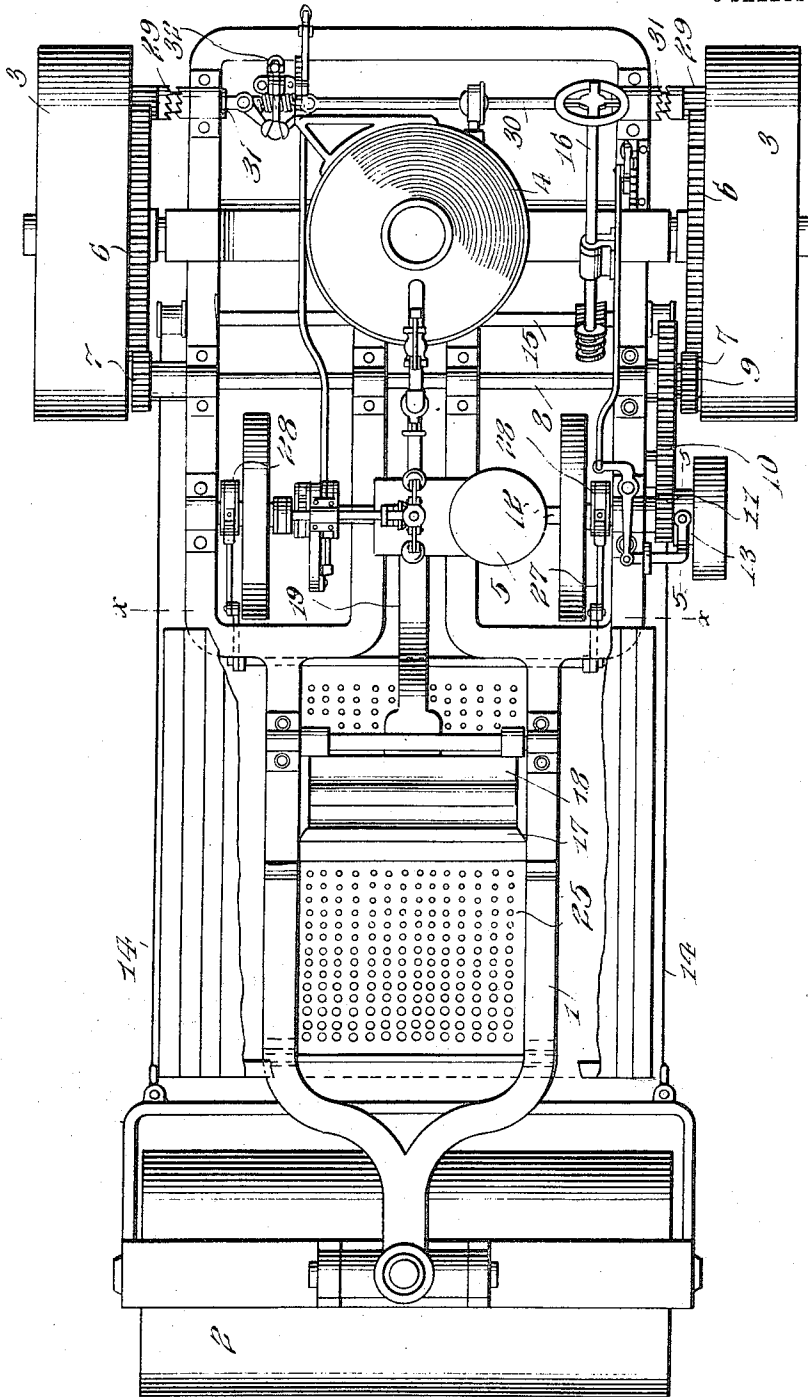


Fig. 2.

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3 SHEETS—SHEET 3.

Fig. 3.

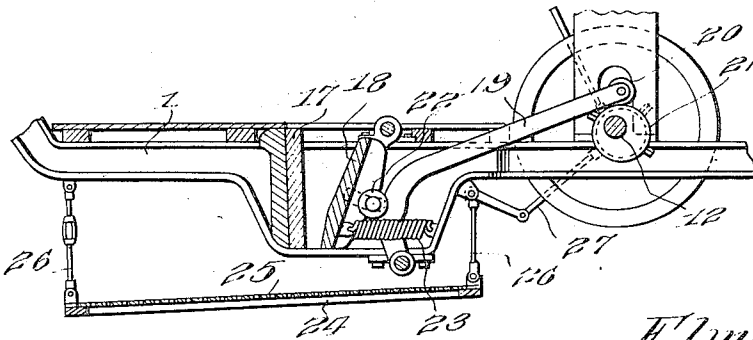
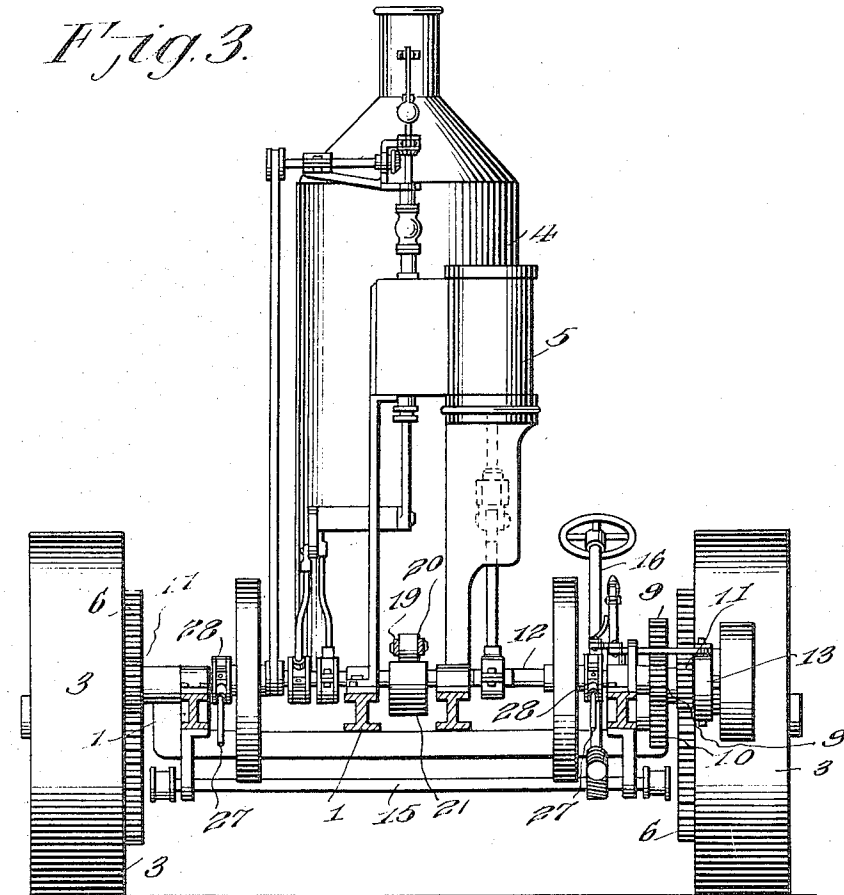


Fig. 4.

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UNITED STATES PATENT OFFICE.

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COMBINED TRACTION STONE-CRUSHER AND ROAD-ROLLER.

1,042,230.

Specification of Letters Patent.

Patented Oct. 22, 1912.

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To all whom it may concern:

Be it known that I, ELMER HUBBARD, a citizen of the United States, residing at Gilboa, in the county of Schoharie and State of New York, have invented new and useful Improvements in Combined Traction Stone-Crushers and Rollers, of which the following is a specification.

The purpose of this invention is the provision in a single machine of means whereby stone may be crushed for surfacing a roadway, the crushed stone graded and then deposited upon the roadway in layers of assorted sizes, means for rolling the roadway, and a machine which may be used as a traction engine for hauling loads or for performing any desired work requiring power.

The invention consists of the novel features, details of construction and combination of parts, which hereinafter will be more particularly set forth, illustrated in the accompanying drawings, and pointed out in the appended claims.

Referring to the drawings, forming a part of the specification, Figure 1 is a side view of a machine embodying the invention. Fig. 2 is a top plan view thereof. Fig. 3 is a vertical section on the line $x-x$ of Fig. 2. Fig. 4 is a sectional view of the stone crusher. Fig. 5 is a sectional detail on the line 5-5 of Fig. 2, showing the parts on a larger scale.

Corresponding and like parts are referred to in the following description, and indicated in all the views of the drawings, by the same reference characters.

The main frame of the machine is indicated at 1 and may be of any desired construction. The machine is supported upon a front roller 2 and rear traction wheels 3, the latter having broad treads and serving as rollers to compress the surface over which the machine may be propelled. A steam boiler 4 is mounted upon the main frame upon the rear thereof and may be of any design. An engine 5 is secured to the boiler and is supported thereby. The boiler and engine are provided with the usual adjunctive parts for safety. The traction wheels 3 besides serving as rollers constitute drivers for propelling the machine. Cog gearing 6 forms a part of or is fitted to each of the traction wheels and meshes with a pinion 7 upon a transverse shaft 8. A gear wheel 9 fastened to the shaft 8 is in mesh with an idler 10, which latter in turn is in mesh with

a pinion 11 on a crank shaft 12. The crank shaft 12 is connected with the engine 5 in the usual manner so as to be driven thereby. A suitable clutch 13 is employed for throwing the drive gearing into or out of action so that the machine as a whole may remain stationary while the stone crusher and separating mechanisms are in operation.

The roller 2 is journaled in a frame which is mounted to turn about a vertical axis, said frame being movable by means of a cable 14, which is attached at one end to an end of the frame and has its opposite end attached to a transverse shaft 15 and adapted to wind thereon. The shaft 15 extends transversely of the machine and is adapted to be rotated. For convenience a shaft 16 is connected with the shaft 15 by means of worm gearing, said shaft 16 being adapted to be turned by the attendant. One of the cables 14 is adapted to wind upon the shaft 15 in an opposite direction to the other cable 14 so that as one cable is wound upon the shaft the other is unwound therefrom, thereby admitting of the roller 2 being turned to direct the machine in the desired direction when in motion over the road.

The crushing mechanism comprises a stationary jaw 17 and a movable jaw 18, the two jaws being upwardly diverged. A lever 19 is arranged to operate the movable jaw 18 and has a roller 20 at its outer end in contact with an eccentric 21 of the crank shaft 12. A fulcrum roller 22 is adapted to transmit power from the lever 19 to the jaw 18 and it is proposed to provide fulcrum rollers of different diameters so that the stone may be crushed to any degree of fineness. When a larger fulcrum roller is interposed between the lever 19 and the jaw 18 the distance between the lower ends of the crushing jaws is materially reduced, hence the stone is crushed to a comparatively fine degree. By substituting the fulcrum roller of less diameter the distance between the lower ends of the jaws 17 and 18 is increased, hence the size of the crushed stone is proportionately increased. It will thus be understood that by selecting a fulcrum roller of required diameter any desired degree of fineness of the stone crushed may be obtained. Springs 23 serve to retract the lower end of the movable crushing jaw 18.

A stone separator is arranged to receive the crushed stone from the crushing jaws and comprises a frame 24 and a screen 25,

the latter having meshes or openings varying in size. It is proposed to have the screen composed of material having different sized openings or meshes which gradually increase in size from rear to front. One screen may be replaced by another of different mesh. The frame 24 is suspended from the frame 1 by means of hangers 26 and is adapted to have a vibratory movement imparted thereto. Rods 27 connected at one end to the frame 24 have eccentric connection 28 at their opposite ends with the crank shaft 11. In the rotation of the crank shaft a vibratory movement is imparted to the separator, which facilitates the action thereof. The machine may be held on a grade, or prevented from backward and forward movement on a level surface, when in operation by means of pinions 29, mounted loose on a shaft 30 fastened to the boiler or other part of the machine, in mesh with the cog gearing 6 and adapted to be engaged by clutch sleeves 31 slidable on the shaft 30 and prevented from turning thereon. The shaft 30 is fixed and the clutch sleeves 31 are movable thereon by means of a lever 32.

From the foregoing description, taken in connection with the accompanying drawings, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention, together with the device which I now consider to be the embodiment thereof, I desire to have it understood that the device shown is merely illustrative; and that such changes may be made when desired as are within the scope of the claims appended hereto.

Having thus described the invention what is claimed as new, is:—

1. A combined road roller, stone crusher and separator comprising a main frame, rotary supports therefor having a broad tread and constituting the road rolling means, a stone crusher carried by the main frame, a separator for the crushed stone supported by the main frame in position to receive the stone from the crusher, an engine mounted upon the main frame, and connecting means between the engine and the stone crusher,

separator and rolling supports, whereby the machine may be simultaneously propelled over the road to apply crushed stone to the surface thereof and to roll the stone into the surface of the road.

2. A combined road roller, stone crusher and separator comprising a main frame, rolling supports for the main frame constituting the road rolling means, a stone crusher, a separator, an engine mounted upon the main frame, connecting means between said engine and the stone crusher and separator, and other connecting means between the engine and the rolling supports for propelling the machine over the road, the last mentioned connecting means including a clutch to admit of throwing the drive gearing into or out of action.

3. A combined road roller, stone crusher and separator comprising a main frame, a roller supporting one end of the main frame and mounted to admit of steering the same, traction wheels supporting the opposite end of the main frame, cog gearing secured to the inner sides of the traction wheels, a stone crusher and a separator mounted upon the main frame, an engine carried upon the main frame, a crank shaft, connecting means between the engine and crank shaft, other connecting means between the crank shaft and the stone crusher and separator, other connecting means between the crank shaft and the cog gearing of the traction wheels including a clutch, a fixed shaft, clutch members mounted upon the fixed shaft and adapted to have a longitudinal movement thereon only, gear elements loose upon the fixed shaft and in mesh with the cog gearing of the traction wheels and provided with half clutches to be engaged by the said clutch members, and means for throwing the clutch members into engagement with the half clutches and the gear elements to hold the machine stationary when the drive gearing is thrown out of action.

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

ELMER HUBBARD.

Witnesses:

H. E. CASE,
Mrs. G. H. RETTS.