H. D. JONES.

SCARIFYING ATTACHMENT FOR ROAD ENGINES.

APPLICATION FILED JUNE 23, 1915.

1,226,528.

Patented May 15, 1917.

2 SHEETS—SHEET 1.

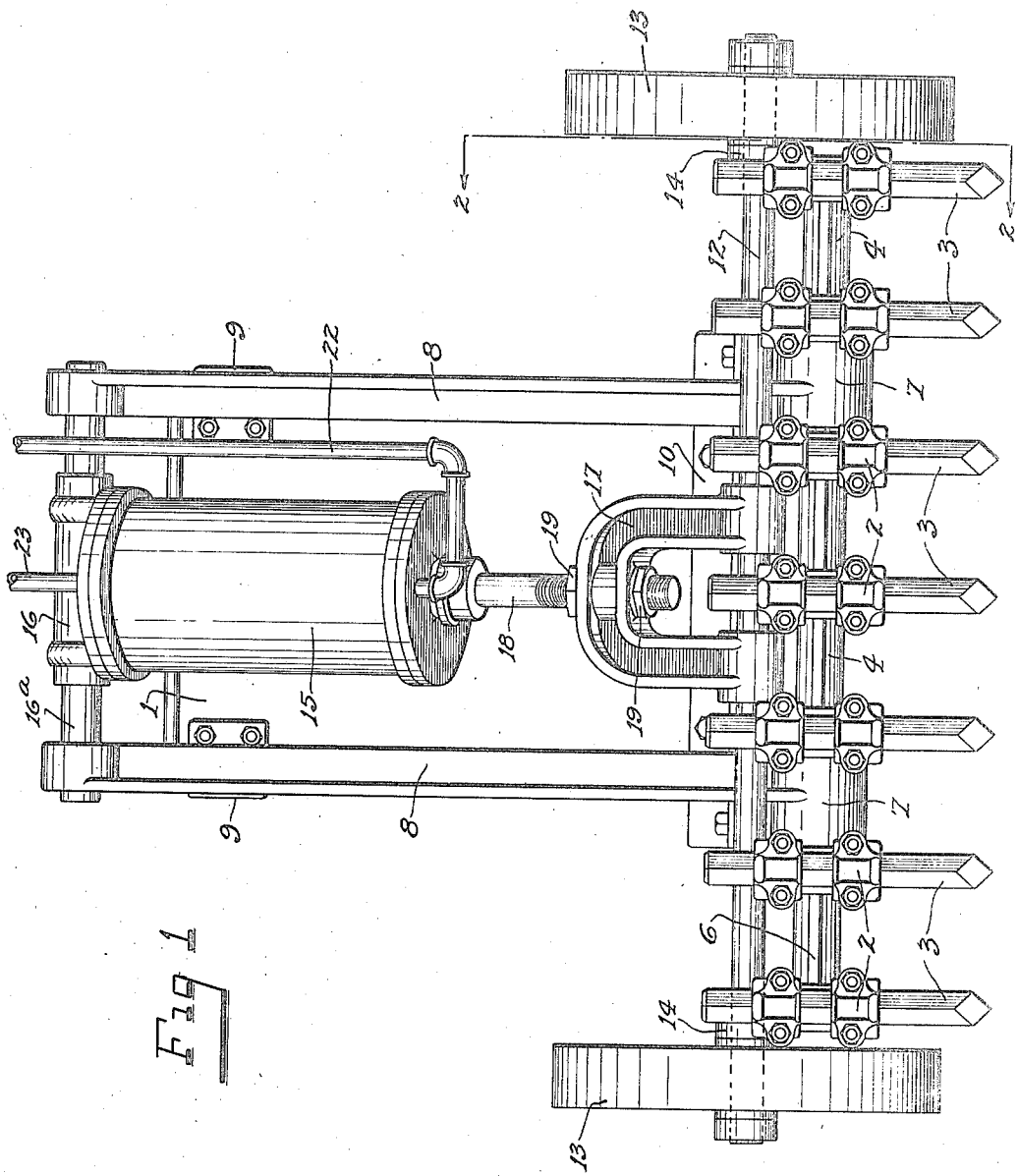


Fig 1

Witnesses

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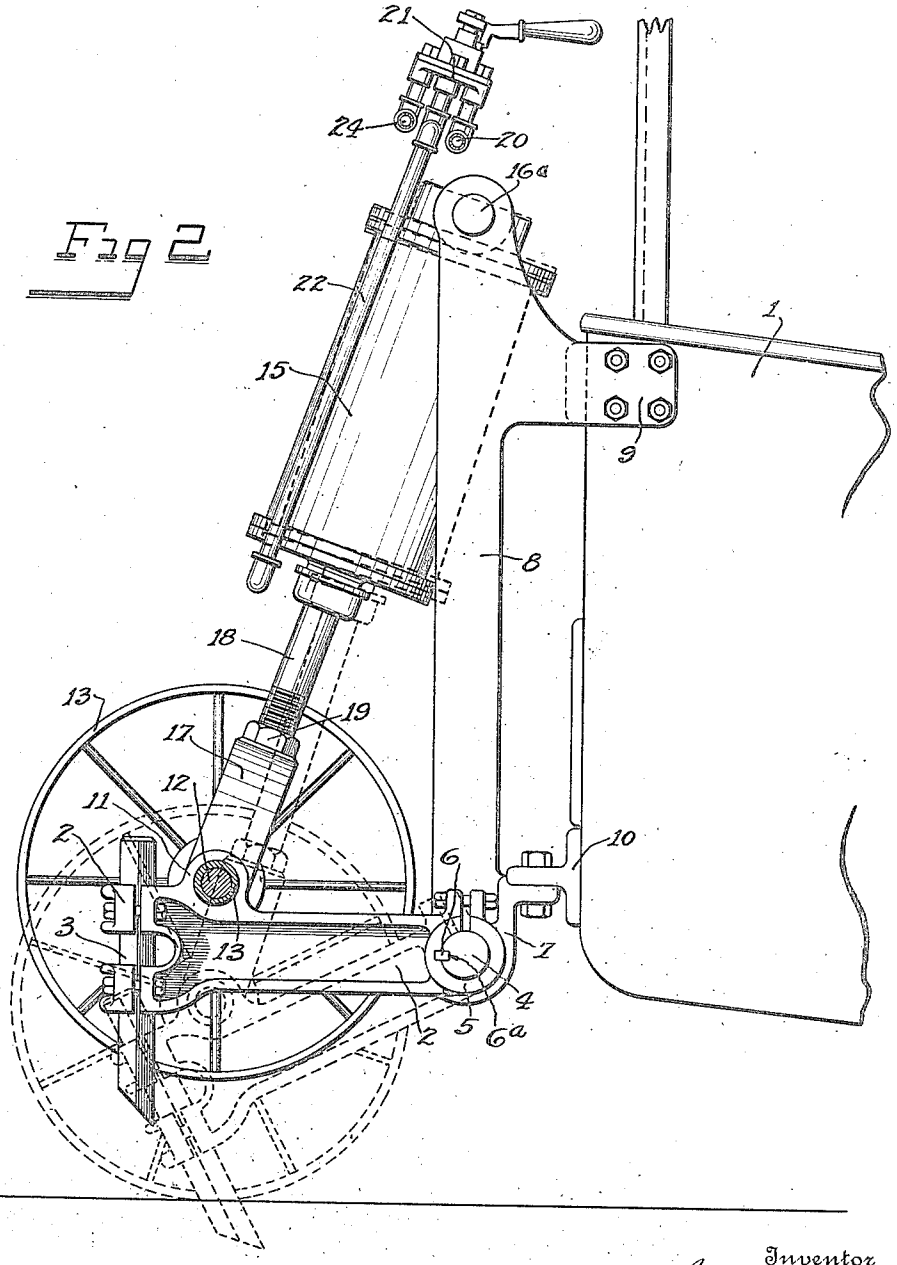
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2 SHEETS—SHEET 2.

Fig 2



Witnesses.

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UNITED STATES PATENT OFFICE.

HENRY D. JONES, OF SPRINGFIELD, OHIO, ASSIGNOR TO THE KELLY-SPRINGFIELD ROAD ROLLER COMPANY, OF SPRINGFIELD, OHIO, A CORPORATION OF OHIO.

SCARIFYING ATTACHMENT FOR ROAD-ENGINES.

1,226,528. Specification of Letters Patent. Patented May 15, 1917.

Application filed June 23, 1915. Serial No. 35,839.

To all whom it may concern:

Be it known that I, HENRY D. JONES, citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Scarifying Attachments for Road-Engines, of which the following is a specification.

This invention relates to improvements in scarifying attachments for road engines, and relates more particularly to devices of this character which employ a fluid pressure cylinder for raising and lowering the devices and applying pressure thereto in their working position.

The object of the invention is to provide a construction which will eliminate to a large degree intermediate connections between the piston of the fluid pressure cylinder and the scarifying devices, permitting the piston rod of the cylinder to be connected directly with said devices, thereby making a more simple, compact and effective construction.

A further object of the invention is to simplify the construction and make more effective the operation generally of devices of this character.

In the accompanying drawings:—

Figure 1 is a rear view of a portion of a road engine showing the improved scarifying devices applied thereto.

Fig. 2 is a side view of the same, the tool holder connecting rod or shaft, however, shown in section, the section being taken on the line 2—2 of Fig. 1.

In the said drawings, 1 represents a portion of a road engine, such for instance as the rear portion of the tank of an ordinary road roller, and to the rear end of this tank are connected all the parts which compose the scarifying attachment.

The scarifying devices proper consist of a series of tool holding bars 2, each of which has clamped in its rear end the tool, which in the present case is shown in the nature of a spike 3; the clamping means being one of any suitable form which will permit the tool to be adjusted relatively to the holder. The forward ends of the tool holding bars are secured to a transversely extending draft-bar 4, preferably by forming each bar with a clamping collar 5 to be clamped to the bar 4, and also preferably keying the collar and bar together by keys 6, fitting in the key-way 6^a in the draft bar and also a suitably formed key-way in the respective collars. The draft-bar 4 is rotatably mounted in bearings 7 which are preferably integrally formed with the lower ends of vertically extending supporting columns 8, arranged respectively at each side of the tank 1, the upper ends of these columns being secured to the sides of the upper portion of the tank by the flanges 9 and the lower ends being securely bolted to the draw-bar 10 which extends transversely across the lower end of the tank and is securely bolted thereto.

Near the rear end of each tool holder 2 there is provided an integrally-formed, upwardly-projecting perforated ear 11 and extending through the series of ears and connected therewith is a shaft 12, each end of which has loosely mounted thereon a gage-wheel 13, washers or collars 14 being provided to maintain the shaft and wheels in proper transverse relation with the tool holders.

Pivotally supported from the upper ends of the columns 8 is a fluid pressure cylinder 15, the upper end of said cylinder being provided with a bearing 16, journaled on a shaft 16^a stationarily secured in the upper ends of the columns 8. Pivotally mounted on the shaft 12 is a cross-head or yoke 17 into which is threaded the screwthreaded end of the piston rod 18 of the fluid pressure cylinder; locking nuts 19 being provided to firmly secure the head and rod in their proper adjusted positions.

The fluid pressure cylinder shown is one which employs steam from the boiler of the road engine, 20 representing the supply pipe connected to the four-way valve 21 from which lead pipes 22 and 23 connected respectively to the upper and lower ends of the cylinder so that the steam may be supplied to and exhausted from either end of the cylinder by suitable manipulation of the valve 21; the steam being exhausted through the exhaust pipe 24. Any suitable form of flexible connections may be employed in the pipe fittings to permit the necessary swinging movement of the cylinder. Any other suitable form of fluid pressure cylinder may be employed, however, such as an air pressure cylinder, which would be the prefer-

able form in the event that the scarifying devices were attached to a road engine of the gasolene type.

From the construction described it will be seen that a very strong, compact and simple scarifying attachment is provided, one of the most important advantages being that the fluid pressure cylinder is connected directly with the scarifying devices instead of through a more or less complicated system of toggles, crank arms and other forms of connections such as have heretofore been employed in devices of this kind.

By the use of the gage-wheels described, the depth of the penetration of the scarifying tools may be regulated which is of advantage when the apparatus is operating in soft ground.

Another advantage in the construction described is the utilization of the draw-bar 10 for the purpose of supporting the fluid pressure cylinder. This draw-bar forms a strong reinforce for the rear of the tank near the supporting frame thereof, and, as the most rigid and strongest part of the tank, constitutes the best point of support for the fluid pressure cylinder, the supporting columns 8 of which being connected to this draw-bar; the flanges 9, secured to the upper part of the tank, acting as stays or braces to furnish rigidity to the columns.

The scarifying device described, including the supporting columns 8, forms a complete unit in itself which can be readily attached to any road engine by simply making the connection between the draw-bar 10, with which all road engines are equipped, and also the connections between the upper portions of the tank and the flanges 9 of the standards.

It will thus be seen that this improvement has three distinct characteristics, in addition to the others. First, that the power is applied direct to the tool thereby eliminating complicated intermediate devices. Second, the attachment itself is compact and occupies a minimum amount of space in the rear of the machine or in other words the parts do not project at any great distance beyond the rear of the machine and the movement of the unitary structure tends to bring the attachment nearer to the machine itself except when being raised out of operative position. Third, the extreme simplicity of the mechanism due to the fact that the fluid operated devices are applied almost directly over the tool and operate not only to raise and lower the tool but to resist any tendency of the tool to be forced out of working position.

Having thus described the invention, I claim:—

In a scarifying apparatus, and in combination with a motor driven road engine, a scarifying attachment embodying a frame work detachably secured to the rear of the engine frame, a transverse shaft journaled in the lower end of said frame work, a series of scarifier tool holding bars rigidly mounted on said shaft and projecting rearwardly, scarifying tools removably mounted in the rear ends of said arms and projecting downwardly therefrom, a transverse shaft rigidly connecting said arms and located above the general plane of the bars whereby accumulations in front of the scarifying teeth may escape rearwardly between the bars, a motor cylinder and piston mounted in the upper portion of said frame-work, a rearwardly and downwardly extending piston rod, a yoke connected with said rod, connections intermediate the transverse shaft at the rear ends of the bars and the arms of said yoke, whereby downward pressure exerted through the piston and rod will be applied to said shaft at points spaced from each other, and manually operated elastic fluid controlling means for the cylinder.

In testimony whereof, I have hereunto set my hand this 16th day of June 1915.

HENRY D. JONES.

Witness:
CHAS. I. WELCH.