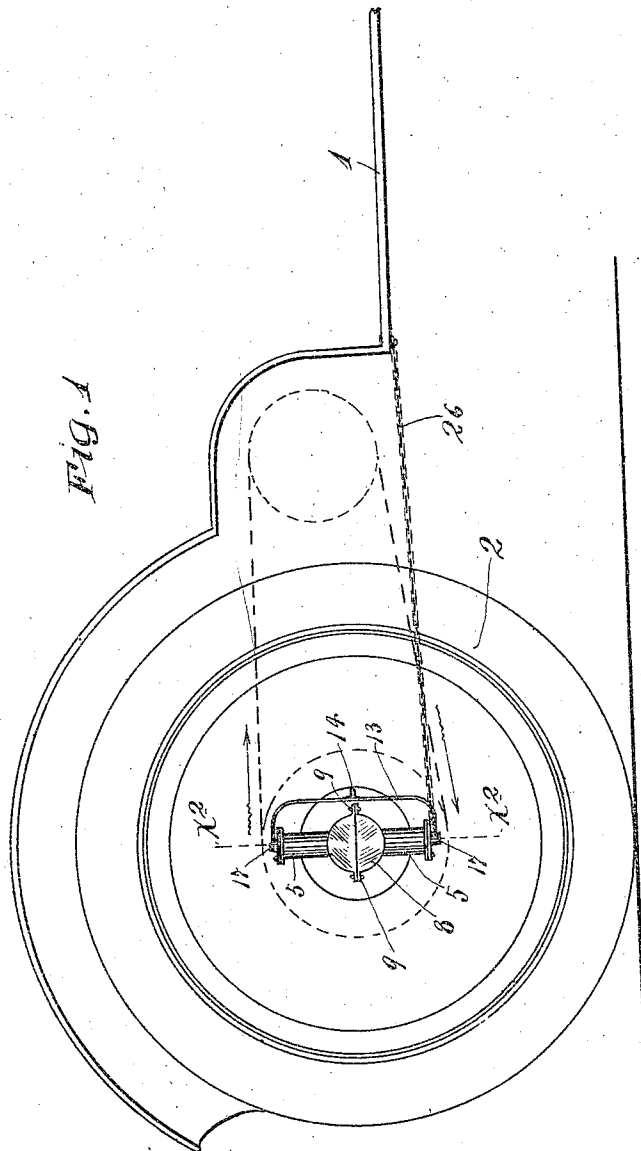


O. M. BERGSTROM.
PUMPING ATTACHMENT FOR AUTOMOBILES.
APPLICATION FILED MAY 3, 1909.

1,058,141.

Patented Apr. 8, 1913.

2 SHEETS—SHEET 1.



Witnesses
 Ref. P. Hicks
 Alice J. Swanson

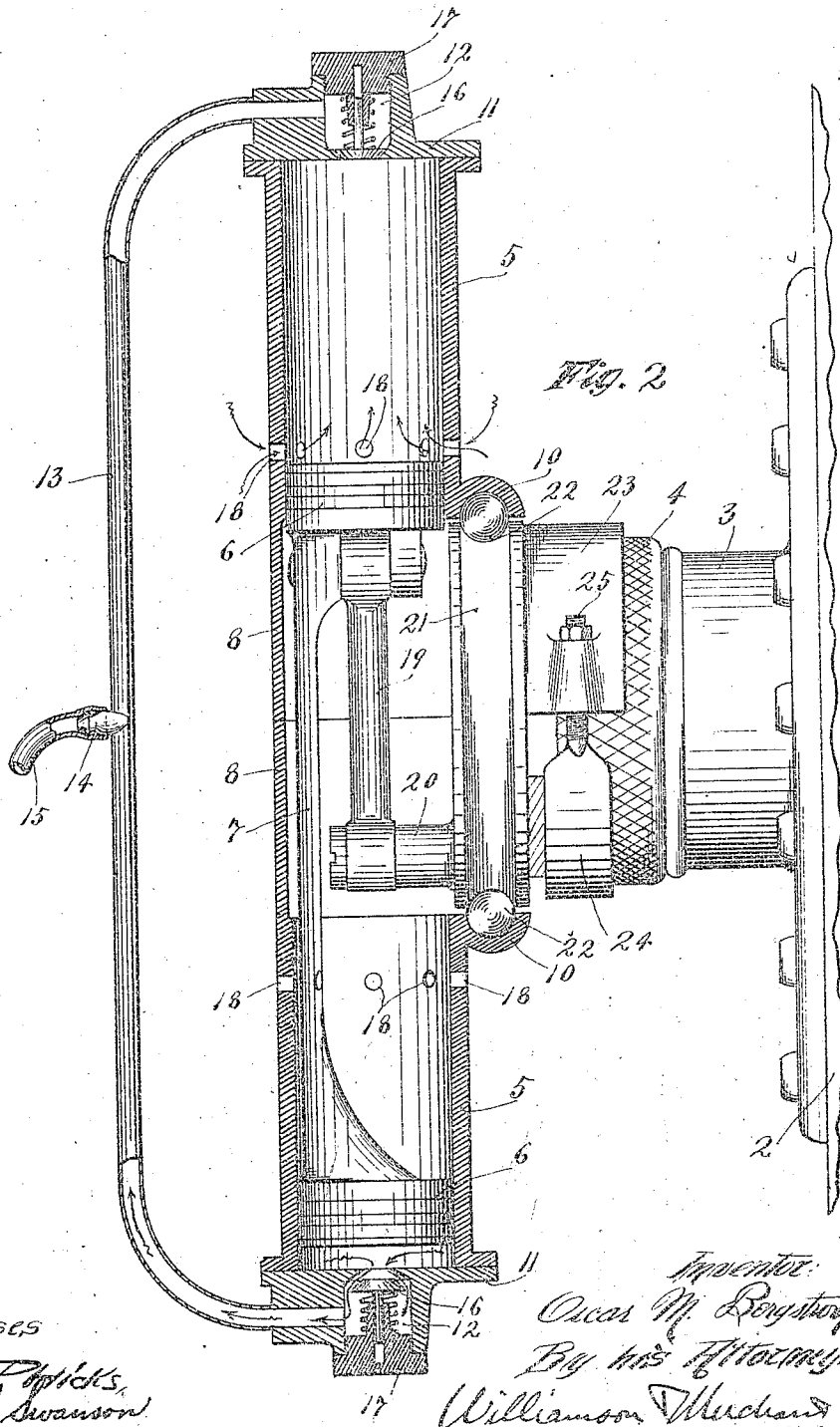
Inventor:
Oscar M. Bergstrom
By his Attorneys
William M. Merchant

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Rex P. Pickett,
Alice J. Swanson.

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UNITED STATES PATENT OFFICE.

OSCAR M. BERGSTROM, OF MINNEAPOLIS, MINNESOTA.

PUMPING ATTACHMENT FOR AUTOMOBILES.

1,058,141.

Specification of Letters Patent.

Patented Apr. 8, 1913.

Application filed May 3, 1909. Serial No. 493,495.

To all whom it may concern:

Be it known that I, OSCAR M. BERGSTROM, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Pumping Attachments for Automobiles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to provide a simple, convenient and highly efficient air pump adapted to be applied to and operated from one of the traction wheels of an automobile.

To the above ends, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings: Figure 1 is a diagrammatic fragmentary view, showing my improved pump applied to an automobile; and Fig. 2 is a view partly in elevation, and partly in vertical section on the line $x^2 x^2$ of Fig. 1, showing the pump and wheel hub on a larger scale than in Fig. 1.

Of the parts of the automobile, it is, for the purposes of this case, only desirable to particularly note the running board 1 and one of the rear or traction wheels 2, which latter is provided on its hub 3 with the customary hub cap 4.

My improved pump as preferably constructed, comprises two axially aligned cylinders 5 and two pistons 6, working one in each of said cylinders, and connected by a laterally offset tie bar 7 cast integrally therewith. The two cylinders 5, at their inner ends, are cast integral with the sections 8 of a crank shaft casing, which latter is provided with joint flanges 9 rigidly but detachably connected by suitable bolts or screws. The crank shaft casing 8, at its inner side, is formed with a laterally offset internally concaved flange 10, which constitutes an outer ball runway formed part in each section of the said divided crank shaft casing.

At their outer ends, the cylinders 5 are provided with rigidly secured heads 11 pro-

vided with air chambers 12, that are connected by an air discharge pipe 13. At its intermediate portion, the air pipe 13 is provided with a discharge nipple 14, to which an air delivery hose 15 is applied. The air chambers 12 are normally closed by outwardly opening spring closed check valves 16, the stems of which, as shown, are mounted in plugs 17 seated in the outer portions of the cylinder heads 11. The cylinders 5, near their inner extremities, are shown as provided with air inlet ports 18.

One of the pistons is directly pivoted to one end of a crank rod 19, which rod at its other end, is pivoted to a wrist pin 20 of a crank disk or ring 21. This crank disk 21 is provided with a peripheral groove which constitutes an inner runway for bearing balls 22 arranged to work in the same, and in the internal groove of the flange 10 of the divided crank shaft casing 8. This crank disk 21 is formed with a laterally projecting semi-cylindrical clamping flange 23 that is adapted to fit the exterior surface of the hub cap 4. A U-shaped clamping bolt or yoke 24 is provided with reduced threaded ends that work through lugs of the clamping flange 23, and are provided with nuts 25, which when tightened, clamp the yoke 24 and flange 23 rigidly onto the hub cap 4, and thereby rigidly but detachably secure the crank disk 21 to the wheel hub 3.

As is evident, if the wheel 2 be rotated while the pump is held against rotation, said pump will be thrown into action and air will be pumped from the cylinders outward through the pipe 13 and tube 15, which latter at its free end, will, in practice, be provided with a suitable coupling, not shown, for connection to the nipples of the pneumatic tires. The entire pump, is, of course, supported directly by the crank disk 21 and through the latter by the wheel hub 3. As a simple and convenient means for anchoring the pump cylinders against rotation, a chain 26 is attached at one end to one of the cylinder heads, and at its other end to the running board 1 or other convenient part of the machine.

When the pump is to be used, the wheel to which it is applied, and from which it is driven, must be raised from the floor or ground, while the opposite driving wheel should be left on the ground or floor to afford the proper base of reaction for driving the raised wheel by means of the auto-

mobile engine and transmission mechanism. When the pump is applied to one of the traction wheels, the tire of any one of the other three wheels may be charged from the pump, provided, of course, that the tube 15 is of sufficient length. If the tires of both traction wheels are to be charged, the pump must be first applied to one thereof and then to the other.

10 In practice I have found that by the use of my improved pump applied as illustrated, an automobile tire may be charged in a very few seconds, whereas with an ordinary hand operated pump, it will frequently require as much as twenty minutes 15 of hard work to charge the same tire to the same or even a less pressure. The two cylinders and pistons, of course, act alternately or under reverse piston movements 20 to compress the air, so that a practically continuous pumping action is produced when the pump is in action. For this reason, the duplex alternately acting pump is much more efficient than a single cylinder 25 and piston pump. Nevertheless, the use of a single cylinder and piston pump, in lieu of the duplex pump, would be within the scope of this invention.

What I claim is:

30 1. A tire charging pump for automobiles comprising a cylinder, a piston working therein, a crank disk rotatively connected to said cylinder, operatively connected to said piston and provided with means for rigidly 35 but detachably connecting the same directly to the hub of a traction wheel, the said crank disk thereby affording a support for said cylinder and means for anchoring said cylinder against rotation, the said parts 40 constituting a self-contained portable structure.

2. A tire charging pump for automobiles,

comprising a pair of cylinders having crank shaft case sections rigidly but detachably 45 connected with each other, the said crank shaft casing having a ball runway, a crank disk having a ball runway, bearing balls in the runways of said crank casing and said crank disks supporting said casing and 50 cylinders from said crank disk, but permitting rotation of the latter, rigidly connected pistons working in said cylinders, a crank connecting said pistons to said crank disk, 55 valved air discharge passages extending from said cylinders, means for rigidly but detachably connecting said crank disk to the hub of a traction wheel, and means for anchoring said cylinders against rotation with the said crank disk.

3. The combination with a traction wheel 60 of an automobile, of a crank disk having a grooved periphery, and a segmental hub clamping flange, a nut equipped U-bolt co-operating with said clamping flange to rigidly but detachably secure said crank 65 disk to the hub of said wheel, a pair of aligned cylinders having crank shaft case sections detachably but rigidly connected to each other, and provided with an internal ball runway, bearing balls interposed be- 70 tween said internal ball runway and the peripheral groove of said crank disk, said cylinders having air intake ports and valved air discharge ports, a pair of rigidly connected pistons working one in each cylinder, 75 and a crank rod connecting said pistons to said crank disk.

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

OSCAR M. BERGSTROM.

Witnesses:

ALICE J. SWANSON,
HARRY D. KILGORE.