

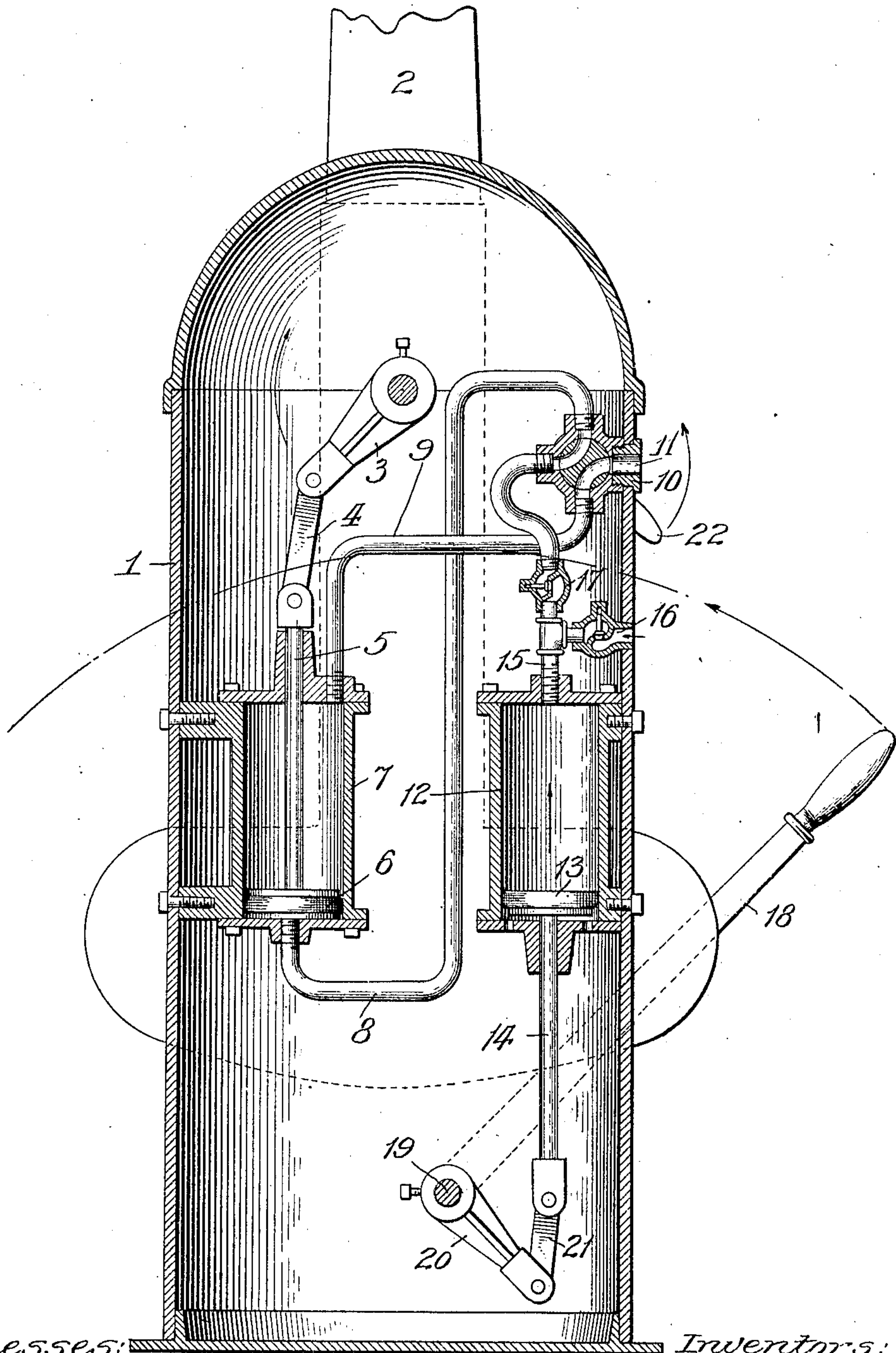
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PNEUMATIC GATE.

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UNITED STATES PATENT OFFICE.

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PNEUMATIC GATE.

No. 871,391.

Specification of Letters Patent.

Patented Nov. 19, 1907.

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To all whom it may concern:

Be it known that we, WILLIAM P. ELLIOTT and WILLIAM P. ELLIOTT, JR., citizens of the United States, residing at La Grange, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Pneumatic Gates, of which the following is a specification.

It is the more usual practice to operate the pneumatic gates at a railway crossing from a tower containing the operating pump and the valve mechanism for directing the air-pressure to lower and raise the swinging gate-arm; but it is not always possible, at the installation of a crossing-gate to locate the tower in a position that will afford to the operator the necessary commanding view of the crossing, so that it becomes necessary to enable the gates to be operated from one of the posts to enable such commanding view to be had.

The object of our invention is to provide novel and simple means, to supplement or supplant the means for the same purpose provided in the operating tower, for pneumatically operating the gate or gates at a gate-post; and to this end our invention consists in the construction and combinations of parts hereinafter described and shown in the accompanying drawing.

The drawing illustrates, by a broken view in sectional elevation, a pneumatic gate consisting of a single swinging arm on a gate-post containing the pneumatic arm-actuating mechanism including an air-pump with our improved means for working it.

The post 1, which may be of any usual or suitable form of construction, has journaled upon it, in the ordinary manner, a counter-balanced gate-arm 2, having connected with a crank-arm 3 on its fulcrum, through the medium of a link 4, the rod 5 of a piston 6 in an air-cylinder 7 stably supported in the post. Air-pipes 8 and 9 lead, respectively, into opposite ends of the cylinder 7 from a valve-device 10, of the four-way variety, in or on the post, and having an exhaust port 11 leading to the atmosphere. An air-pump, consisting of a cylinder 12 vertically supported in or on the post and containing a piston 13 on a rod 14, communicates from its upper end controllably through the valve-device 10 with the pipes 8 and 9, through a pipe 15 equipped with an air-inlet check-valve device 16 and containing above said device, a check-valve device 17. A pump-operating

lever 18 is fulcrumed on the post 1 near the base thereof at 19, the fulcrum pin carrying a crank-arm 20 connected at its free end with the lower end of the piston-rod 14 through the medium of a link 21.

To operate the gate, the handle 18 is turned, back and forth, from one side to the other of the post, to work the pump 12, each downstroke of the piston 13, through its connection with the operating lever, sucking atmospheric air through the valve 16 into the pump-cylinder and each up-stroke of that piston forcing the air through the pipe 15 into the cylinder 7 against one side or the other of the piston therein, depending on the condition of the valve 10 to which it is brought by a handle 22 provided for operating it. The gate-arm 2 is lowered from the raised position in which it is illustrated, with the valve-device 10 in the condition represented in the drawing, by working the pump 12 to compress air through the pipe 15, past the valve 10 and through the pipe 8, against the under side of the piston 6; and the air ahead of that piston will exhaust through the pipe 9 and valve-port 11 into the atmosphere. Preparatory to raising the gate-arm, the valve 10 is turned to connect through it the pipe 9 with the pipe 15, whereby the pipe 8 communicates with the exhaust-port 11, whereupon by working the air-pump, the actuating air is compressed against the upper side of the piston 6 and the air ahead of it in the cylinder 7 is exhausted through the pipe 8 to the atmosphere by way of the port 11.

As will be understood, while our invention is illustrated, for the sake of simplicity, in connection with a single gate-post and arm, it is the same in construction and operation where additional posts are provided, as is more usually the case at a crossing, each carrying a swinging gate-arm to be actuated by the air-pressure generated in the pump 12.

What we claim as new, and desire to secure by Letters Patent, is—

1. In a pneumatic gate, the combination of a post carrying a swinging gate-arm, an air-cylinder containing a piston having its rod connected with said arm for swinging it, air-pipes leading into said cylinder at opposite sides of the piston, an air-pump on the post containing a piston on a piston-rod, a pump-operating lever fulcrumed on the post and provided with a crank-arm extending

from its fulcrum, said crank-arm having a link-connection with the piston-rod of the pump, a pipe leading from the discharge-end of the pump-cylinder and containing an intake check-valve and a second check-valve, and a valve-device for controlling communication with said pipe of said air-pipes and of said air-pipes with the atmosphere.

2. In a pneumatic gate, the combination of a post carrying a swinging gate-arm, an air-cylinder on the post containing a piston having a crank-arm connection between its rod and said gate-arm for swinging it, air-pipes leading into said cylinder at opposite sides of the piston, an air-pump comprising a cylinder supported on the post and con-

taining a piston on a piston-rod, a pump-operating lever fulcrumed at one end on the post and provided with a crank-arm extending from its fulcrum, said crank-arm having a link-connection with the piston-rod of the pump, a pipe leading from the discharge-end of the pump-cylinder and containing an intake check-valve and a second check-valve, and a valve-device having an exhaust-port and interposed between the pump-discharge pipe and said air-pipes.

WILLIAM P. ELLIOTT.

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In presence of—

RALPH SCHAEFER,

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