PNEUMATIC DOORLOCK CYLINDER

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Inventor:

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By his Attorney - Davis & Davis
This invention relates in general to door locks and fluid pressure operating means for operating the lock.

One of the objects of this invention is the provision of a lock structure operated by fluid pressure means for use on the doors of vehicles such as, for instance, the gasoline busses of the parlor car type. It is, of course, evident that this structure could be used on any door in which these features would be desirable.

Another object of this invention is the provision of a special lock structure to adapt it for operation by a fluid pressure operated device.

Another object of my invention is the provision of a pneumatic door lock cylinder specially adapted for use in connection with locks.

A still further object of this invention is the provision of a new and novel structure of the above type which is simple and cheap to construct, and efficient in operation and maintenance.

This invention resides substantially in the construction, combination, arrangement and relative location of parts, as will be more fully described in the specification and illustrated in the drawings.

Referring to the drawings, in which the same reference numerals will be used throughout the several views to indicate the same or similar parts,

Fig. 1 is a side elevational view of the lock cylinder employed in my invention, with parts in cross section.

Fig. 2 is a detailed side elevational view, with parts broken away, of one application of my device.

Fig. 3 is a modified arrangement similar to that shown in Fig. 2.

It is within the purview of my invention to apply it particularly to motor vehicles in such a manner that the operator of the vehicle may, after the brakes are applied, supply fluid pressure to the lock cylinder to cause the bolt to slide back out of engagement with the door post, so that the passengers may readily open the door. I also contemplate, if desirable, so arranging the apparatus that on application of the brakes, which are of the pneumatic type, in the large parlor type of bus, fluid pressure may also be supplied to the lock cylinder, to slide the bolt to inoperative position to free the door for opening. Thus, by the mere application of the brakes, and only then, it becomes possible to also free the door for opening.

Referring to Fig. 1, the lock cylinder is shown comprising the casing 1, threaded at both ends to receive the threaded caps 2 and 3, which have extending through their walls at the center, the threaded opening 4, and the smooth bore 5, respectively. Extending into the cylinder and integral with the cap 2, is a tube 6, which serves to guide the longitudinally slidable piston rod 7 disposed therewithin. On the inner end of this rod 7 is a reduced threaded stud which receives the disk 8, the cup and metal washers 9 and 10 respectively, which are secured onto the rod 7 by means of the washers 11 and the nut 12. This piston structure is held at one extreme of its position by means of a long spring 14, interposed between the rod 7 and the cap 2, and surrounding the tube 6. The threaded opening 4 is to receive the pipe 15 leading to the fluid pressure source and the valve which controls it.

In Fig. 2, 16 is the door post, having a bolt socket 17, into which is to slide the bolt 18 of the lock 19, mounted on the door 20. Pivotally mounted at 23, on the bolt 18, is a lever 21, which is in turn pivoted at 22 to a suitable point on the door 20. The lever 21 may extend upwardly as shown, to form a handle 24, by means of which the lock may be operated by hand in case of accident to the fluid pressure operating means.

A transversely extending bar 26 is rigidly secured to the bolt 18, and against which press the springs 25 to hold the bolt in normally locked position. In the structure shown in Fig. 2, the lever 21 also extends downward, and has pivoted on it at 27, a rod 28, which is aligned with and abuts against the cylinder rod 7.

As fluid pressure is supplied through the pipe 15, against the piston structure, it will
be forced over against the action of the spring 14, carrying with it the rod 28, which
pivots about point 22, to swing the bolt 18 out of engagement with its socket in the
door post.

In the modification of Fig. 3, the cylinder 1 is shown in alignment with the bolt
18, and arranged so that the piston rod 7 abuts against the end of the bolt. This
structure is the same as that of Fig. 2, except that the pivoted lever 21 does not
extend below its pivot point 22. The bolt 18 is shown in engagement with a metallic
socket 17, mounted in the door post 16.

In this case, when fluid pressure is supplied to the cylinder 1, the rod 7 slides the lock
bolt 18 out of engagement with its socket, to free the door for opening. The structure
in Fig. 2 is sometimes preferred over that of Fig. 3, because as the parts wear, there
may be a tendency for them to get out of alignment and impair their proper opera-
tion.

It is, of course, evident that many
changes in details of construction may readily suggest themselves to one skilled in the
art, without resorting to invention, and it
is therefore my purpose not to be limited by
the structure used by the way of illustra-
tion, but rather to the principles and scope
of my invention, as I define it in the append-
ed claim.

What I claim, therefore, as new and use-
ful, of my own invention, and desire to se-
cure by Letters Patent, is:

A fluid pressure operated latch comprising a slideable bolt, a first spring normally
urging said bolt into a locking position, a
lever pivotally attached to said bolt terminat-
ing at one end in a handle for enabling
the latch to be opened solely against the
force of said first spring and terminating at
the other end in a pivotal connection with a
pusher rod, a fluid pressure motor having
a piston rod in alignment but normally
out of contact with said pusher rod, and a
second spring for normally maintaining
such piston rod in disconnected relation
with said pusher rod.

In testimony whereof I have hereunto set
my hand on this 23rd day of February,
A.D. 1926.

H. D. MALLISON.