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J. P. NORTHEY

SOUND SIGNALING INSTALLATION

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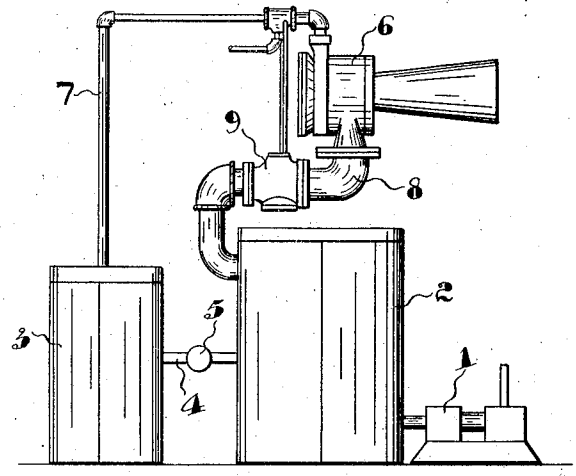

Fig. 1.

Fig. 2.

INVENTOR.

J. P. Northey.

BY J. Edward Maybee

ATTY.

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JOHN PELL NORTHEY, OF TORONTO, ONTARIO, CANADA.

SOUND-SIGNALING INSTALLATION.

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This invention relates to sound signaling installations of the type in which air is used to reciprocate a piston which controls the passage of air through a series of openings in the walls of a cylinder, thus producing a series of puffs of air of such frequency as to produce a musical note. Such devices require the use of storage tanks for air in which the pressure runs down when the signal is in operation, being restored by an air pump during the periods of rest. During the operation of the signal the pressure in the storage tank may run down considerably, as far as the sound producing air is concerned, without affecting materially the quality or loudness of the signal, whereas the pressure of the air must not drop greatly or the pitch of the sound is affected. Ordinarily therefore, it is essential to have a great storage capacity since it is not feasible to employ a compressor capable of compressing the air as rapidly as used.

My object therefore is to devise means for considerably reducing the air storage capacity of an installation without affecting its performance.

I attain my object by employing two separate storage systems, one for the driving air and the other for the sound producing air. Each system will be of such a capacity that the pressure therein will not drop below a predetermined minimum when the signal is in operation for its designed period of time. As only one tenth as much air is used for driving as for sound producing, the storage capacity for driving air may be less than that for sound producing air.

An air compressor is provided connected with each storage system and a check valve is provided preventing back flow from the smaller system to the larger when the pressure in the latter falls below that in the former.

The invention is illustrated in the accompanying drawings in which—

Fig. 1 is a side elevation in diagrammatic form of one embodiment of my invention; and

Fig. 2 a similar view showing its arrangement when the mast of a vessel is used for storage purposes.

In the drawings like numerals of reference indicate corresponding parts in the different figures.

1 is an air compressor of ordinary type, which is connected with the storage tank 2. This storage tank is connected with the smaller tank 3 by means of the pipe 4 in which is located the check valve 5 adapted to prevent return flow from the smaller to the larger tank.

6 is the sound producing siren of the type known as the "diaphone," which is driven by air derived from the tank 3 through the pipe 7. The pipe 8 connected with the tank 2 provides the sound producing air. The control of air is by means of mechanism of ordinary type, which need not be more fully described and is indicated diagrammatically at 9 in the drawings.

In Fig. 2 a hollow mast 10 is shown divided by the diaphragm 11 into two chambers, the lower chamber 2^a corresponding to the tank 2, the chamber 3^a corresponding to the tank 3. These chambers are connected by a pipe and check valve as in the form shown in Fig. 1, and the two chambers are connected respectively with the sound producing device by the pipes 7 and 8 corresponding to the similar pipes shown in Fig. 1. The compressor is shown as connected with the lower chamber 2^a. It will be understood, of course, that the storage capacity in the case of the marine installation may be increased by use of storage tanks below decks connected with the chambers formed in the mast.

It will be evident that if the communication between the tanks is of very small cross sectional area, a check valve is unnecessary since the back flow while air is being used will then be so small as to produce but little fall of pressure in the smaller tank.

What I claim is:

1. In sound signaling installations the combination of a sound producing device of the siren or diaphone type adapted to use air for driving and separately supplied air for sound producing purposes; separate air storage systems, one connected to the device to provide air for driving and the other connected to the device to provide air for sound producing; an air compressor adapted to supply compressed air to both systems and a direct communication between the two air storage systems adapted to permit air to pass from the sound producing air system to the driving air system and to prevent

equalization of pressure while the sound producing device is in operation and air is being used at a faster rate from the sound producing air system than from the driving air system.

2. A sound signaling installation as set forth in claim 1 in which the air storage space is provided in the hollow mast of a vessel which is divided into two compartments having a communication between them embodying the checking means.

3. In sound signaling installations the combination of a sound producing device of the siren or diaphone type adapted to use air for driving and separately supplied air for sound producing purposes; separate air storage systems, one connected to the device to provide air for driving and the other, of larger capacity, connected to the device to provide air for sound producing; an air compressor adapted to supply compressed air directly to the larger system and a direct communication between the two air storage systems adapted to permit air to pass from the sound producing air system to the driving air system and to prevent equalization of pressure while the sound producing device is in operation and air is being used at a faster rate from the sound producing air system than from the driving air system.

JOHN PELL NORTHEY.