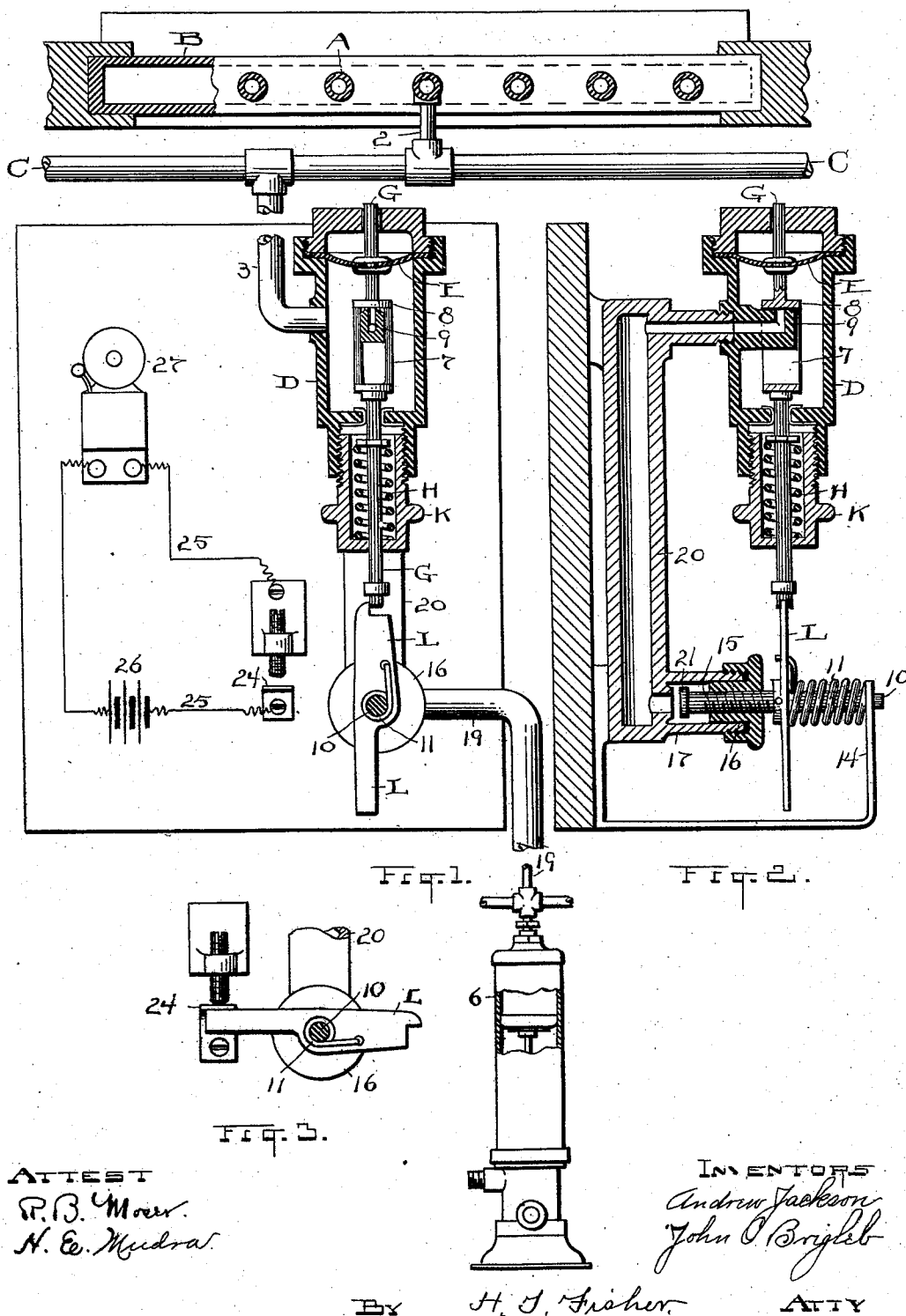


(No Model.)

A. JACKSON & J. C. BRIGLEB.
SAFETY APPLIANCE FOR PRISONS, &c.

No. 576,127.

Patented Feb. 2, 1897.



UNITED STATES PATENT OFFICE.

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SAME PLACE.

SAFETY APPLIANCE FOR PRISONS, &c.

SPECIFICATION forming part of Letters Patent No. 576,127, dated February 2, 1897.

Application filed November 22, 1895. Serial No. 569,786. (No model.)

To all whom it may concern:

Be it known that we, ANDREW JACKSON and JOHN C. BRIGLEB, citizens of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Safety Appliances for Prisons and other Places; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to safety appliances for prisons and other places; and the invention consists in the construction and combination of parts, substantially as shown and described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a sectional elevation of all the parts and connections of a complete system or combined apparatus involving our invention, the view being in a measure diagrammatic, so as to show the parts in a simple and easily-traced relationship rather than in the positions in which they may be placed when in operation, it being understood that the several parts shown in this figure may be widely separated in the same building or in adjoining buildings, or upon different floors, and serve the same purpose, all as is hereinafter more fully described. Fig. 2 is a view of the exhaust-chamber and associated parts at right angles to Fig. 1. Fig. 3 is an elevation of a part of the trip and contact mechanism shown in elevation in Figs. 1 and 2, but in this instance with the contact-lever half rotated, as when the electric circuit is closed on the alarm-bell.

The invention as presented in the foregoing views is shown in connection with what may be termed a "prison-window," and the parts are connected up in such way as to give an alarm in the office if any one should so far tamper with the window as to perforate any one of the several tubes thereof or any of the connections leading to or from said window. It will, however, be understood that while the invention is illustrated here only in connection with a single window, and that presumably a prison-window, it is designed to

be used with all the windows of a prison or other place where security against escape or entrance is desired, and it may be extended so as to cover the entire wall and ceiling of a prison, and also to the prison-doors themselves, as well as to any and all places where it can be made useful, including repositories, safes, and the like.

To these ends and for the purpose of this illustration of the invention, we employ a series of tubes or pipes A in the window, said tubes or pipes taking the place of the usual heavy iron bars which are fixed in prison-windows to prevent the escape or breaking through of the prisoners, and these tubes may run vertically or transversely, or both, and may be arranged in any way that may seem best, provided that they be connected at at least one end with a connection common to all. In this instance we show the said tubes set into and hermetically sealed at their bottom in a box B, built firmly into the bottom of the window, said box likewise being hermetically closed to the outside air. A similar arrangement of boxing may be employed at the top of the window for the said tubes, though this is not necessary, and the tubes may be otherwise supported at the top, as may seem best. Now the window or windows thus built up and equipped are connected with the main office or other chosen place through the pipe C and short pipe 2 at the window and the connecting-pipe 3, which unites said pipes with the exhaust-chamber D. This chamber D is the operating-chamber in the system and stands guard over all the windows or other places where safety-tubes are erected and which may be connected up with this particular chamber. Such connections may be few or numerous. That is, each chamber may have a single window connection or serve for many windows, and it is immaterial how many, if the distribution of the same be not over too large a territory for safety. Said chamber is a vacuum-chamber in contradistinction of a fluid-chamber using a pressure agent.

A very material advantage is obtained in the use of vacuum over steam, water, or air, for the reason that with vacuum we avoid

all the objections arising from freezing, condensation, and contraction and expansion which are encountered in the use of fluids. Steam will condense, and water will freeze and paralyze the system, while air is liable to so much contraction and expansion that it is a very uncertain and unreliable agent, but by operating on the basis of vacuum none of these objections are encountered and a reliable action can be obtained at all times.

Any suitable means may be employed for producing vacuum, but in this instance we have shown a pump 6, which may be operated by hand or otherwise, and which is connected up with the vacuum-chamber D through a line of connections hereinafter described. Said chamber D is provided with a flexible diaphragm or piston near its top above the entrance of pipe 3, and this piston is firmly secured about its edges in the chamber D and is constructed and arranged to have a certain limited movement therein. A rod G passes through the ends of said chamber and has the said diaphragm fixed thereto. In this rod beneath the diaphragm is a yoke 7, having its top cross part fashioned to form a valve 8 for the air-inlet elbow 9, Fig. 2, and said valve 8 is designed to close when the vacuum exists and the apparatus is in use. Beneath the said chamber D is a spiral spring H, inclosed in the pocket or cup K and fixed at its upper end to the rod G, while the lower end bears on the bottom of said pocket or cup K, said spring thus serving to exert a constant upward pressure on rod G and diaphragm E. Hence when the diaphragm and its rod G are subject alone to the action of the spring they will be thrown upward, but when the diaphragm is subject to the exhaust it is drawn down against the spring into about the relation shown in Fig. 1. In the lower position, as shown, the electric contact-lever L engages the lower end of the said rod G and is held out of contact with the alarm connections. It may therefore be said that in this position the exhaust-chamber mechanism is set and ready to go off when air is admitted to any part of the system. If air be admitted in the slightest quantity, it will at once tell on the diaphragm E and relieve the exhaust in the chamber D and release the rotating contact-lever L. This lever or contact-maker is supported on a rotating shaft 10, carrying a spiral spring 11, fixed to said lever at one end and at the other to a supporting-standard 14. The inner portion of said shaft 10 is threaded, as at 15, and operates in a threaded bearing 16, supported by an elbow 17 on the pipe connection 20 between vacuum-pump 6 and vacuum-chamber D. The pipe 19, immediately connected with the pump, is connected at its other end with the elbow 17, and the shaft 10 has its inner end fashioned to form a valve 21 to close the passage from elbow 17 to pipe 20. The valve 21 is so close to its seat that a quarter-rotation of the lever

L, as from position in Figs. 1 and 2 to position in Fig. 3, will close said valve. This of course will also close the vacuum-chamber D from the pump.

Now the operation of the parts just described is as follows: Suppose, for example, that the pump 6 is connected for vacuum purposes with several distinct lines of safety-tubes, and it may be connected with one or more, it is desirable that operations with any given line should not affect the other lines which are on duty and in good working condition. Hence when the lever L is locked on piston-rod G, as in Figs. 1 and 2, the valve 8 is seated on elbow 9 and closes said chamber from all action by the pump, and the safety-tubes connected with said chamber are in no wise affected by the pump when once valve 8 is closed. This makes the respective lines independent and separate one from the other when they are set and in use, and the tapping of one line cannot affect the others. Again, suppose one of the safety-tubes A to be drilled or punctured. Instantly diaphragm E and piston G will go up, and in the same instant also the contact-lever L will be released and the valve 21 closed and the alarm be sounded on this line. Then also will this line be closed and cut off from the action of the pump, and the pump cannot affect its operations. From the contact-plate 24 the electrical circuit extends through line-wires 25, battery 26, and alarm-bell 27, or their equivalent. The short shaft 10 is purposely threaded, so that when turned to its seat it cannot be drawn open by the pump, but will remain closed until the operator opens the same by turning contact-lever L to working position.

A suitable gage may be connected up with this apparatus and attached, for example, to the exhaust-chamber in the office or guard-room to show the measure of exhaust that may exist on that line. Usually the same conditions will obtain on all the lines and the apparatus is so constructed and adjusted as to fix the limit of exhaust at any desired point and hold it there automatically.

It will be observed that a prison is absolutely proof against escapes wherever this apparatus is employed, because the moment that the vacuum is penetrated at any point by any means it will sound an alarm in the guard-room, and obviously such puncturing or penetration of the vacuum can in any case only mean a small beginning looking to an escape, leaving practically all yet to be done to make an opening large enough to permit a man to pass through and out.

We do not mean that the apparatus herein shown must be closely followed in its details of construction to work out the invention according to our ideas, but considerable latitude is allowed for varying said parts without departing from the spirit of the invention. Thus instead of a diaphragm-piston E any suitable piston may be used, and so, also, may

other parts be altered or substituted and serve the same purpose; and while we have described the invention in connection presumably with a prison-window it will be understood that this is only one of the very many different uses to which the invention may be applied.

Again, in lieu of the pipes or tubes A we may use a hollow wall, chamber, jacket, or the like, according to the place and the use. In some instances, as a vault or safe for valuables, the entire inclosure may be jacketed with an exhaust-space and connected up with the exhaust-chamber. Still other changes may be made and all be clearly within our invention.

What we claim is—

1. The combination described, of a series of tubes connected at one end by a passage common to all said tubes, a chamber connected by pipes with said passage, a piston in said chamber and an actuating-rod therefor, a pump connected with said chamber and a passage from said pump opening into said

chamber, and a valve in said piston-rod to close said passage, substantially as described.

2. The chamber and an air-pump, a passage-way from the pump to the chamber and a valve in said chamber to close said passage-way and a piston in said chamber to actuate said valve, substantially as described.

3. The chamber and the pump and a passage-way between them, a valve in said chamber to close the said passage-way, a piston to actuate said valve having a rod extending outside said chamber and a second valve outside said chamber in position to close said passage-way and operating mechanism connecting said valve with said piston-rod, substantially as described.

Witness our hands to the foregoing specification on this 21st day of October, 1895.

ANDREW JACKSON.
JOHN C. BRIGLEB.

Witnesses:

J. W. ROOF,
F. C. McMILLIN.