

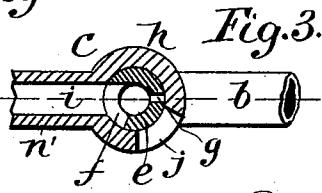
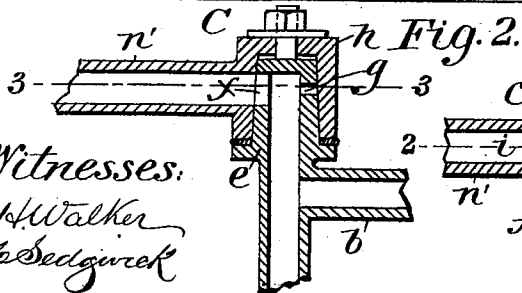
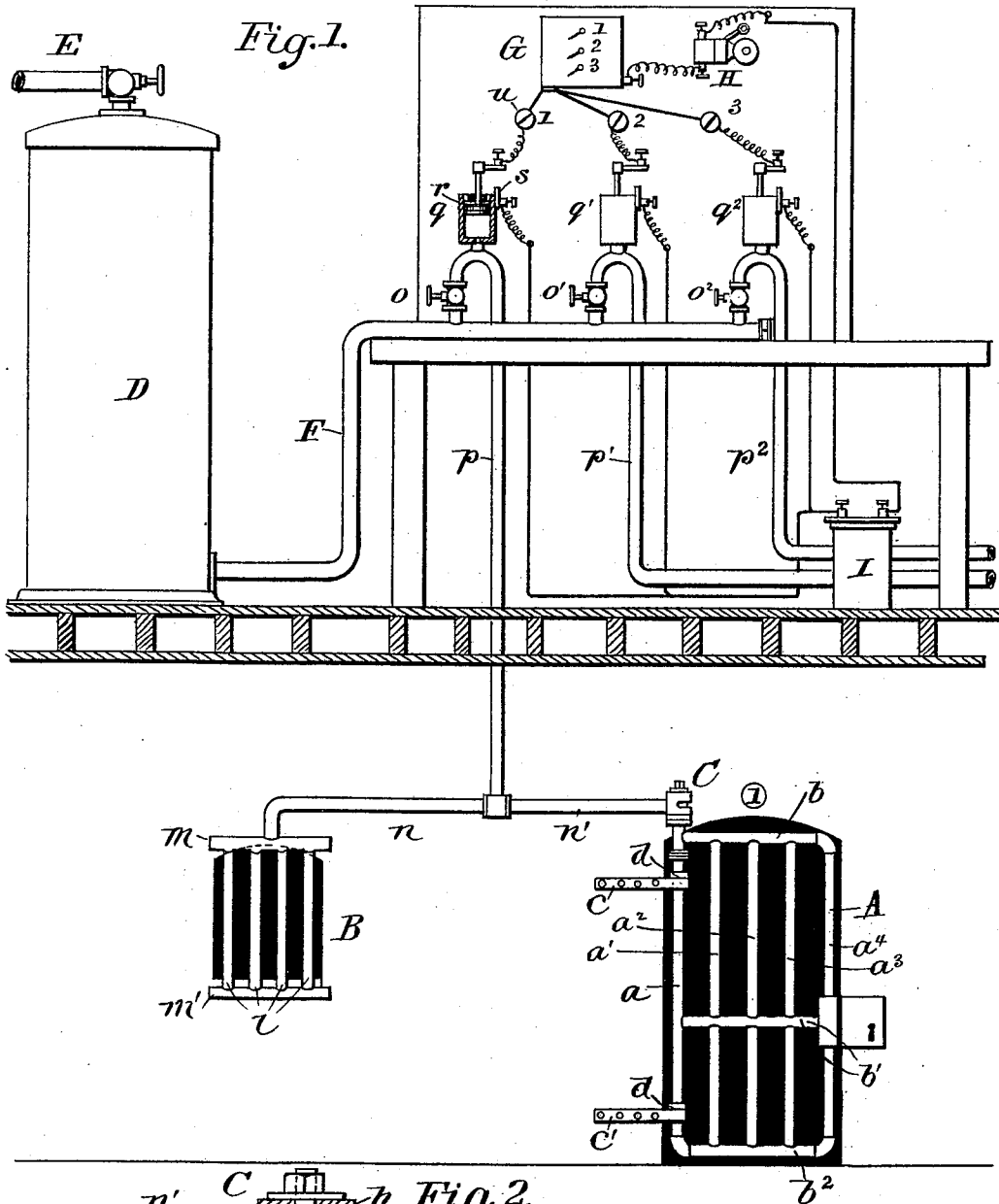
(No Model.)

E. S. CORBETT.

SYSTEM OF PNEUMATIC DOORS AND GRATINGS.

No. 583,405.

Patented May 25, 1897.



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UNITED STATES PATENT OFFICE.

ELIAS S. CORBETT, OF ALLEGHENY, PENNSYLVANIA.

SYSTEM OF PNEUMATIC DOORS AND GRATINGS.

SPECIFICATION forming part of Letters Patent No. 583,405, dated May 25, 1897.

Application filed October 29, 1891. Renewed May 3, 1897. Serial No. 634,965. (No model.)

To all whom it may concern:

Be it known that I, ELIAS S. CORBETT, of Allegheny, in the county of Allegheny and State of Pennsylvania, have invented a new and Improved System of Pneumatic Doors and Gratings, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a front elevation of my improved system of pneumatic doors and gratings. Fig. 2 is a longitudinal section of the swivel pipe-joint of the door, taken on line 2 2 in Fig. 3; and Fig. 3 is a horizontal section taken on line 3 3 in Fig. 2.

Similar letters of reference indicate corresponding parts in all the views.

The object of my invention is to construct a pneumatic alarm for attachment to doors and gratings of prisons and for guarding vaults and other inclosures.

My invention consists in the construction and combinations of parts hereinafter fully described and claimed.

In carrying out my invention I provide tubular grates and doors or gates, and where the gratings are stationary they are made of tubes connected together and permanently fixed in the position they are to occupy, but in the case of a hinged grating or door made up of tubes the connection with the system of pipes supplying air under pressure to the gratings is through a valve-joint.

In the present case, to illustrate my invention, I have shown a grated door A and a grating B for an opening or a window in the wall. The grating A is formed of the vertical pipes $a\ a'\ a^2\ a^3\ a^4$, which are connected with the horizontal pipes $b\ b'\ b^2$. The vertical pipe a is arranged to turn in loops $c\ c'$, attached to the wall, which, together with the pipe, form the hinges of the door. The weight of the door is sustained by collars $d\ d'$, secured to the pipe a and resting on the loops $c\ c'$.

The pipe a is prolonged above the top of the door and furnished with a valve-joint C, which allows air to escape when the door is open and confines the air to the pipes when the door is closed. The valve-joint C is formed of a hollow plug e , furnished with ports or openings $f\ g$, and the valve-casing h is fur-

nished with ports or openings $i\ j$. When the door is closed, the opening j is closed by the solid part of the plug e , and air passes through the ports $f\ g$, into the tubes of which the grated door is formed.

The port f is made of such width as to prevent it from being closed when the door is opened, so that when the door is opened the port g opens into the port j of the casing h and allows the air to escape from the ports, giving an alarm in the manner presently to be described.

The grating B is formed of vertical pipes l and horizontal pipes $m\ m'$, communicating with each other. At a point distant from the door or window is arranged an air-reservoir D, which is filled with compressed air through the pipe E. A pipe F leads from the reservoir D and communicates through valves $o\ o'\ o^2$ with the grates and grated doors, already described, through the pipes $p\ p'\ p^2$. In the present case the pipe p communicates through the pipe n with the grating B and through the pipe n' with the grated door A, while the pipes $p'\ p^2$ lead to other gratings or doors which are not shown.

Cylinders $q\ q'\ q^2$ communicate with the pipes $p\ p'\ p^2$ and are provided with pistons r . To the side of each cylinder is attached a contact-point s , and the rod of each piston r carries a contact-arm t . The contact-arm t is connected by a flexible connection with the binding-post u of the annunciator G, and the said annunciator is connected electrically with an alarm-bell H, which in turn is connected with one pole of the battery I. The remaining pole of the battery is connected with the contact-points s , attached to the cylinders.

So long as the air-pressure is maintained in the reservoir D the pipes, the tubular gratings, and grated doors, the pistons r are held in an elevated position, but when air is allowed to escape from the pipes, as in breaking the grating or opening the door, the air escapes from the system of pipes and allows the pistons r to descend, thereby bringing the contact-arm t into contact with the point s , closing the circuit of the battery I and giving the alarm by ringing the bell H, at the same time showing on the face of the annunciator

G the particular door, grating, or department disturbed.

It is obvious that I might employ a liquid—such as oil, water, or brine—in lieu of air.

5 Therefore I do not limit or confine myself to the use of air.

My improvement may be adapted to existing buildings by drilling the walls to receive suitable fastenings of the doors and gratings.

10 Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with the piping, provided with means for supplying a fluid under
15 pressure, and an alarm or signal, connected with said piping and adapted to be actuated by a certain diminution of the fluid-pressure, of a hinged and swinging door having a
20 swivel or pivot connection with the piping, and a fluid-discharge valve forming an attachment or part of such connection, and arranged substantially as shown and described, to operate as specified.

2. The combination, with a grated tubular door, of a valve-joint connected with the
25 hinged edge of the door, a pipe containing a fluid under pressure communicating with the joint, and an alarm connected with the said fluid-pipe, and operated by an exhaust of
30 the fluid through the valve when the door is opened, substantially as specified.

3. The combination with the pipe to contain a fluid under pressure, and an alarm or signal connected therewith, of a hinged door formed
35 of piping with the pipe at its hinged edge prolonged upward and terminating in a valve-plug *e* having ports *f g* and a valve-casing *h* in which the plug turns and with which the first-named pipe is connected; said casing having
40 ports *i j* with which ports *f g* register when the door is opened, substantially as set forth.

ELIAS S. CORBETT.

Witnesses:

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