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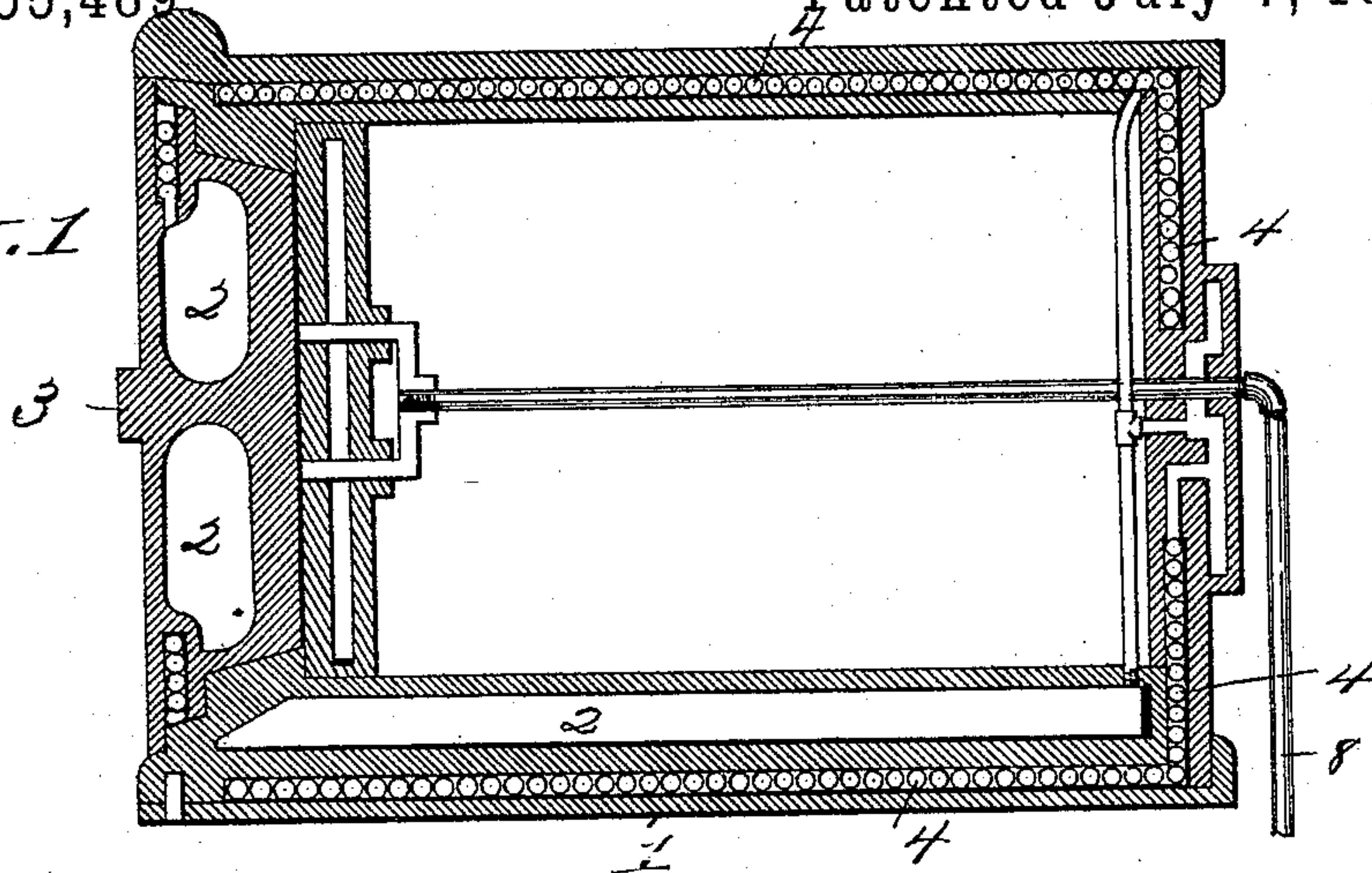
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J. J. E. H. PAYNE.  
SAFE OR VAULT.

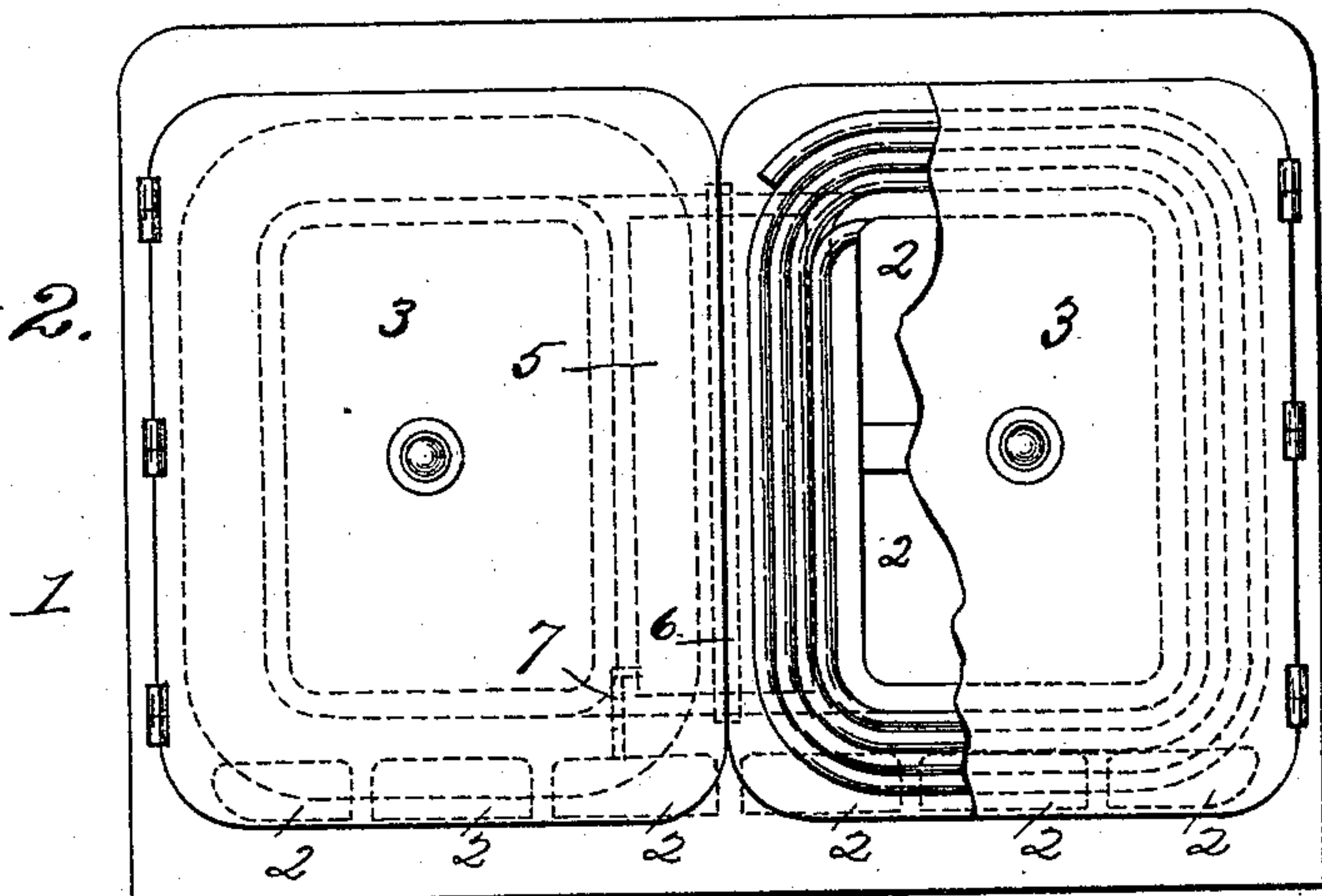
No. 455,489

Patented July 7, 1891.

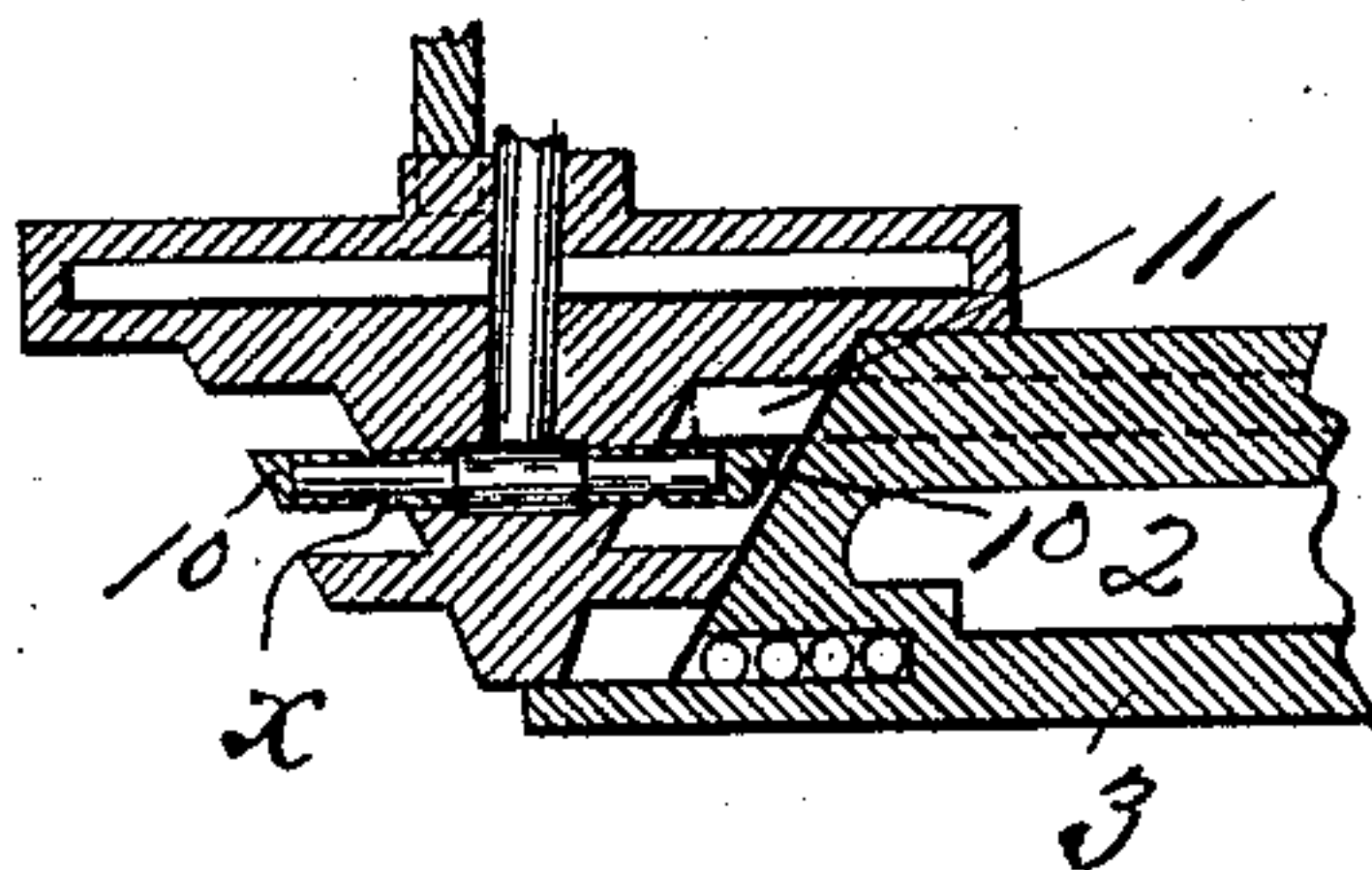
*Fig. 1*



*Fig. 2.*



*Fig. 3.*



WITNESSES:

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INVENTOR

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(No Model.)

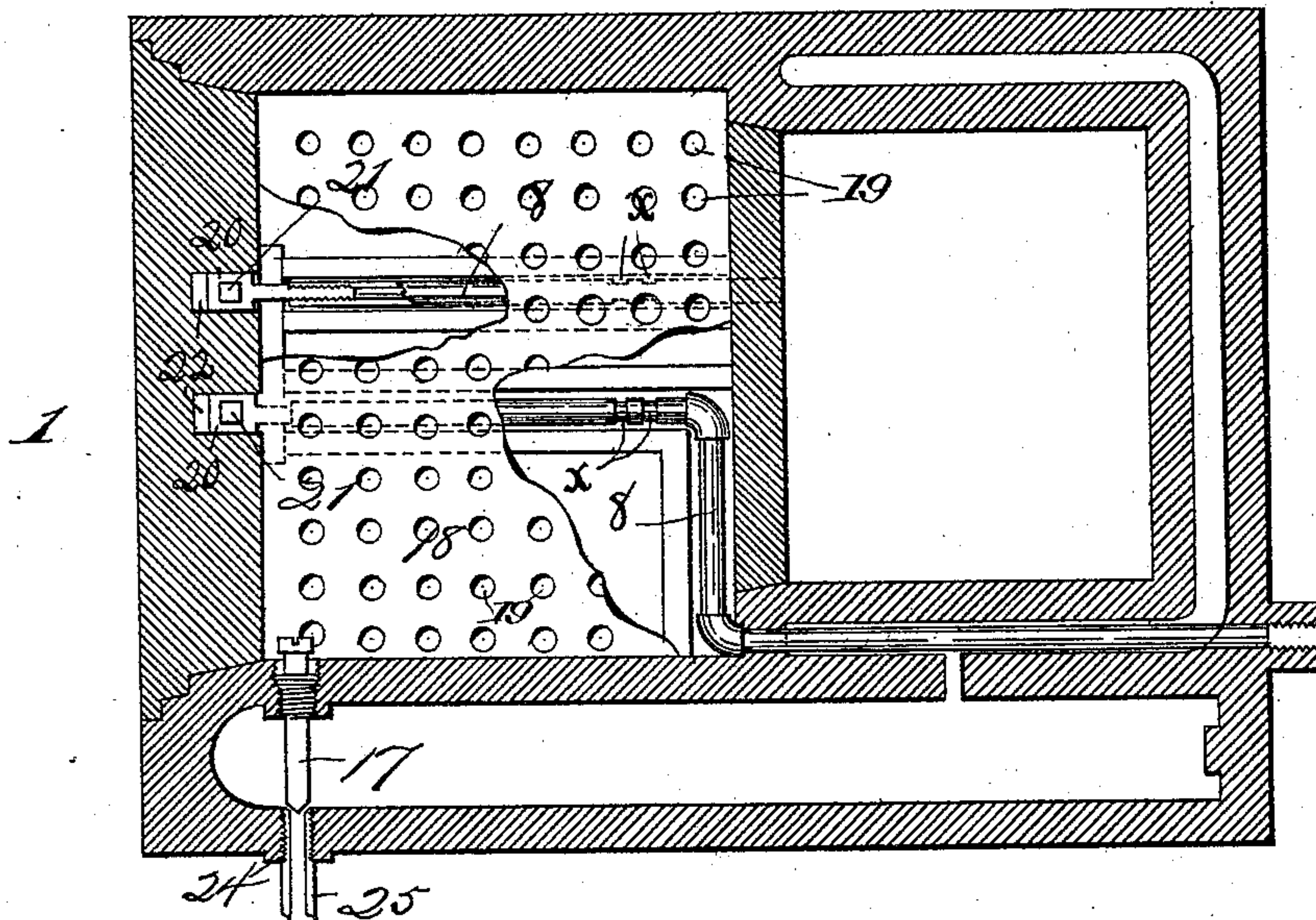
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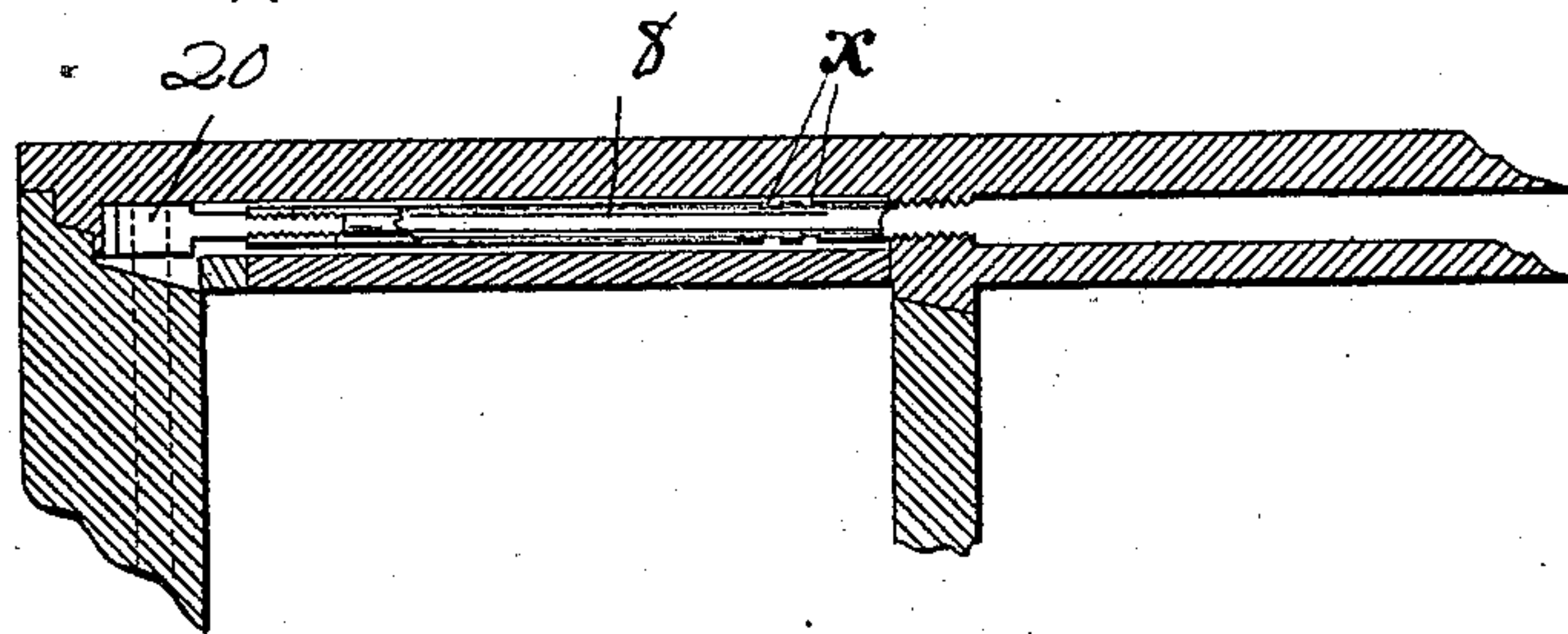
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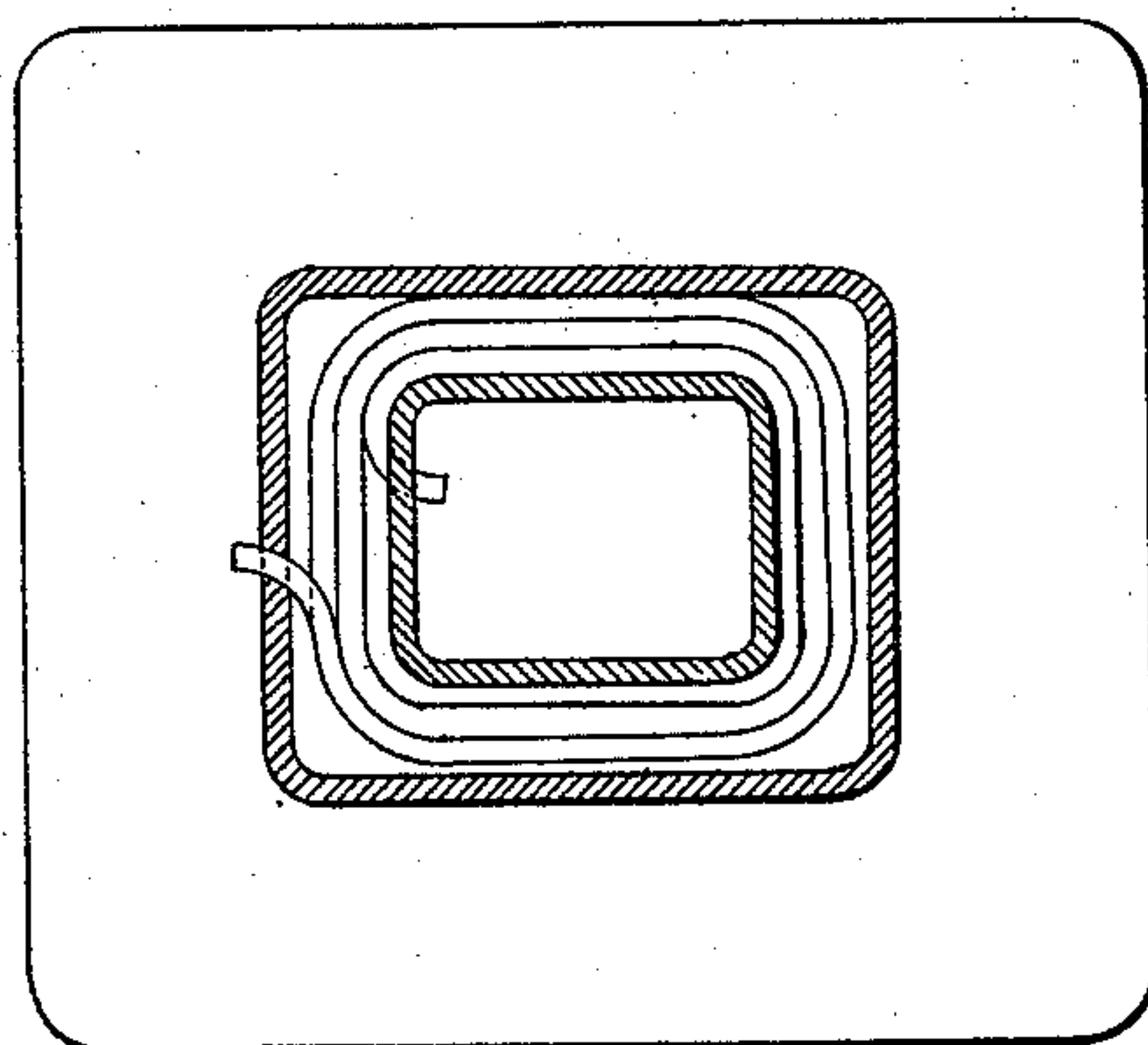
*Fig. 4.*



*Fig. 5.*



*Fig. 6.*



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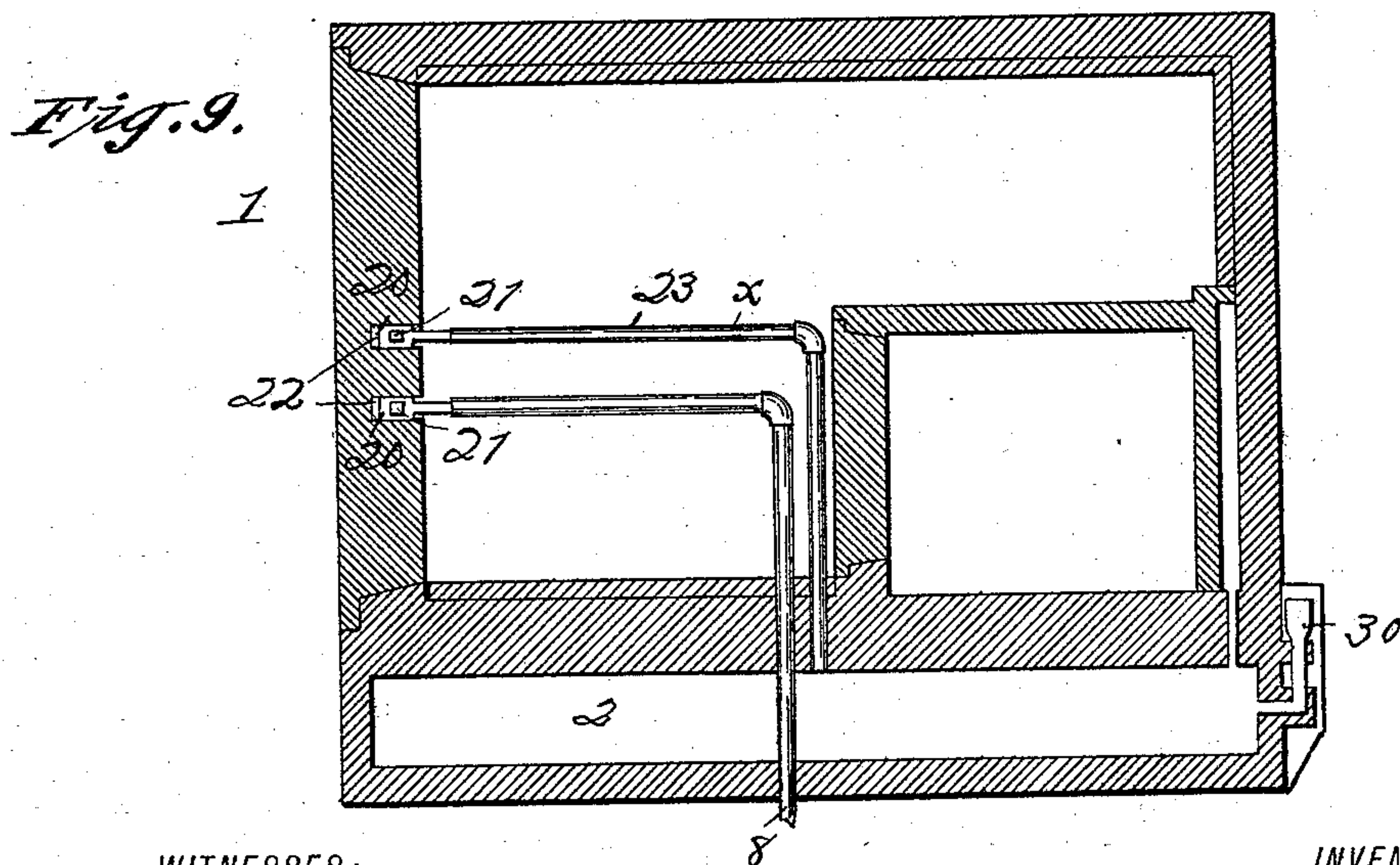
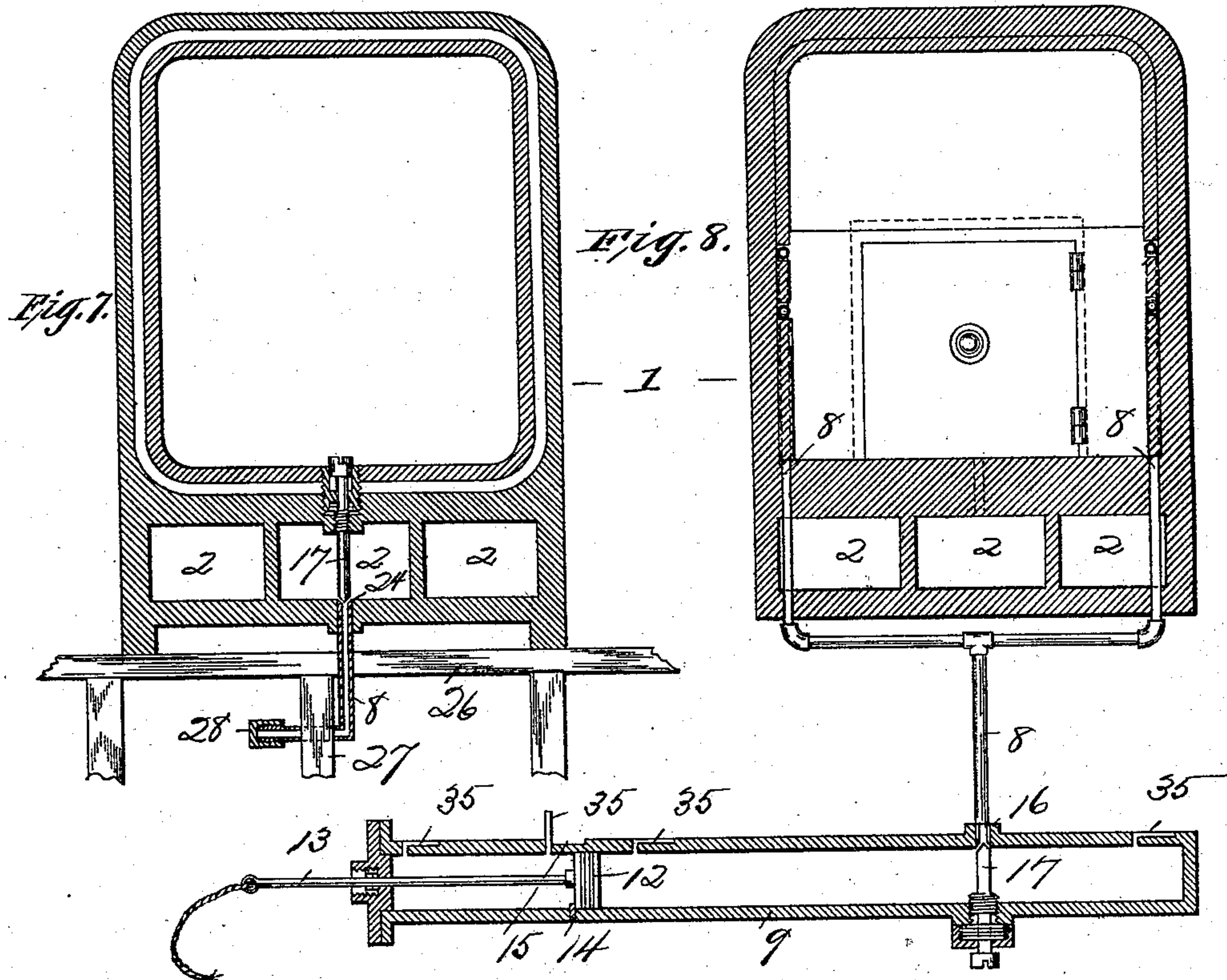
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# UNITED STATES PATENT OFFICE.

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## SAFE OR VAULT.

SPECIFICATION forming part of Letters Patent No. 455,489, dated July 7, 1891.

Application filed December 2, 1890. Serial No. 373,299. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN JAMES EDWARD HENRY PAYNE, a citizen of the United States, residing at Springfield, in the county of Sangamon and State of Illinois, have invented certain new and useful Improvements in Safes or Vaults, of which the following is a full, clear, and exact specification.

My invention relates to the class of safes or vaults that are provided with chambers containing noxious gases; and it has for its object to cause said gas to be released or expelled or an alarm sounded should the safe be tampered with either by cracking its walls, forcing the door, or removing it bodily, as well as strengthening the safe.

The invention consists in the novel details of improvement and the combinations of parts that will be more fully hereinafter set forth, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part hereof, wherein—

Figure 1 is a central longitudinal section through a safe containing my improvements. Fig. 2 is a partly broken front elevation of the same. Fig. 3 is a horizontal sectional detail view through the central vertical partition and one of the doors of a safe having double doors. Fig. 4 is a central longitudinal section of my safe, showing means for causing the escape of gases when the door is forced open, and also when the safe is moved bodily. Fig. 5 is a horizontal detail view of the same. Fig. 6 is a sectional rear view of the safe shown in Fig. 1. Fig. 7 is a vertical cross-section showing the means for causing the escape of gases when the safe is removed. Fig. 8 is a similar view showing means for sounding an alarm when the safe is tampered with, and Fig. 9 is a central longitudinal view of the same.

In the accompanying drawings, 1 indicates a safe, which may be of suitable construction and provided with compartments 2 to contain a deadly or noxious gas condensed or liquefied, such as  $\text{SO}_2$  (sulphur dioxide or sulphurous-acid gas) or any other compressible or liquefied gas which is hurtful or objectional for human beings to breathe, which gas may be given a pungent or characteristic odor to indicate to persons at a distance that the safe has been tampered with. The door

3 is also provided with one or more compartments 2. 4 are tubes coiled around the safe within its walls and placed close together and entering the compartment 2 at one part. The back of the safe is also provided with coiled tubing communicating with the compartment in the back of the safe. The door is also provided with coiled tubing leading to its compartment. These tubes act as an extra protection against cracking the safe, while containing gas, and make a perfect shield against drilling.

In double safes or vaults the central front partition 5 is preferably provided with a compartment 6, which leads by a tube 7 to the compartment 2. (See dotted lines, Fig. 2.)

8 is a tube within the safe and which leads to a cylinder or compartment 9, situated at a distance from the safe and containing said gas. The tube 8, within the safe in Figs. 1, 2, and 3, leads along the partition 5, and has connected to it branch pipes 10, having closed ends and grooves  $x$  to weaken them. The closed ends of the branch pipes project into the path of the locking-bolts 11 when they are thrown forward, so that if the door be forced open while the bolts are thrown the ends of the branch pipes 10 will be broken off, and thus permit the gas to escape. If the walls of the safe be cracked or the coiled tubes broken, the gas will issue and drive the burglar away. The long tube or pipe 8 outside of the safe is preferably made of hard metal, so that if it is hammered or tampered with it will easily crack, and thus permit the gas to escape.

When the gas is released from the cylinder 9, an alarm is to be given, and for this purpose I place a piston 12 within it, whose rod 13, passing out of the cylinder, connects with a suitable burglar-alarm, the piston 12, when the gas is released, moving forward in the cylinder to sound the alarm. On one side of the piston the noxious gas is placed, while on the other side gas or fluid under pressure is placed, so that when the gas from the main part escapes the piston will be pushed forward. A stop 14 limits the backward movement of the piston. To fill the cylinder, I have provided soft-metal tubes 35, that lead to the interior of the cylinder, through which the gas can be forced. After the cylinder is



charged the tubes are laid down into recesses 15, and there soldered or welded in place, which makes a gas-tight fit, although this can be accomplished otherwise. The cylinder 9, in room or place removed from "safe," has an opening 16, into which the tube 8 fits, said opening being normally kept closed by a valve or rod 17 within the cylinder, which is to be turned from the outside, say, by a screw-driver, wrench, or otherwise. Before the cylinder is charged with gas said valve is seated, and after the tube 9 is connected to the cylinder the valve is unseated to permit the gas to pass into the tube 8.

The tube 8 can be passed along the side walls of the safe, if desired, as in Figs. 4, 5, 8, and 9. In this case the tube 8 will be covered by a sheet of metal 18, which is provided with a series of apertures 19 to permit the escape of gas. The tube 8 is also provided with one or more grooves  $x$  to weaken it.

The tube 8 has connected to it a locking-piece 20, having an aperture 21 to receive the locking-bolt of the door. The locking-piece passes within a recess 22 in the safe-wall, in which it is permitted longitudinal movement. When the safe is locked, the bolt passes into the aperture in locking-piece 20, and if the door should now be forced open the locking-piece 20 would pull the tube 8 asunder at  $x$ , and thus permit the gas to escape, whereupon the piston in distant place will slide forward and cause an alarm to be sounded there.

To cause a plentiful escape of gas when the door is forced open, I connect another tube 23 with the compartment 2 of the safe, which tube 23 has a groove  $x$  and locking-piece 20, and is placed in the safe-wall similarly to tube 8, so that when the door is forced the tube will be severed and the gas escape.

To prevent the safe from being removed or carried away, I provide one of the compartments 2 with an opening 24, into which a pipe 25 can be screwed. Said opening can be closed by a valve 17, (similarly to that in the cylinder or compartment 9,) which leads to the interior of the safe. The pipe 25 passes through the floor 26 and into or through a joist or beam of hard metal 27, and has a cap 28 screwed on its end. To adjust these parts, the valve 17 is screwed down to prevent the escape of gas. The pipe 25 is screwed in place and passed through the floor and beam and its cap screwed on. The valve 17 is next screwed up to let the gas into the pipe. If now a person tries to carry away the safe, the pipe 25 will be broken and the gas permitted to escape.

In Fig. 9, 30 indicates a suitable safety-valve connected with the gas-compartments of the safe, so that if the pressure increases on account of heat the gas can escape, which

gas can assist in extinguishing fire. Of course the compartments and other parts can be variously arranged, and compartments for the reception of books, &c., can be suitably arranged in connection with the gas-compartments, as shown in the drawings.

Having now described my invention, what I claim is—

1. The combination, with a safe or vault, of a gas cylinder or tank, a piston in said tank, an alarm connected with said piston, and a tube extending from said tank, whereby when said tube is ruptured the gas will escape and cause an alarm to be sounded, substantially as described.

2. The combination, with a safe or vault, of a gas cylinder or tank, a piston therein and an alarm connected therewith, a tube extending from said cylinder or tank, a locking-piece connected to said tube, and the door-bolt to engage said locking-piece, substantially as described.

3. A gas cylinder or tank having an outlet and an internal valve to close said outlet, combined with a tube extending from said outlet, a piston in said tank, and an alarm connected with said piston and with a safe or vault, substantially as described.

4. A gas cylinder or tank having a flexible gas-inlet tube, a gas-outlet, and a valve to close said outlet, said flexible tube being pressed down and secured after the gas has been charged into the tank, combined with a safe or vault, substantially as described.

5. A safe or vault having an integral gas-compartment, an outlet for said compartment, and a valve to close said outlet, combined with a tube connected to said outlet and a rigid holder, as 27, outside of the safe, to which said tube is firmly connected, the valve being between said rigid holder and the outlet, substantially as described.

6. A safe having a gas-compartment and a tube connected thereto, and a locking-piece secured to said tube, combined with the safe-door and the locking-bolt to engage said locking-piece, substantially as described.

7. The combination of a safe, a gas-compartment, a tube connected thereto and passing along the wall of the safe, a weakened part in said tube, a perforated plate covering said tube, a locking-piece on said tube, a door, and the lock-bolt on said door, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 20th day of October, 1890.

JOHN J. E. H. PAYNE.

Witnesses:

E. L. CHAPIN,

ROBT. H. PATTON.