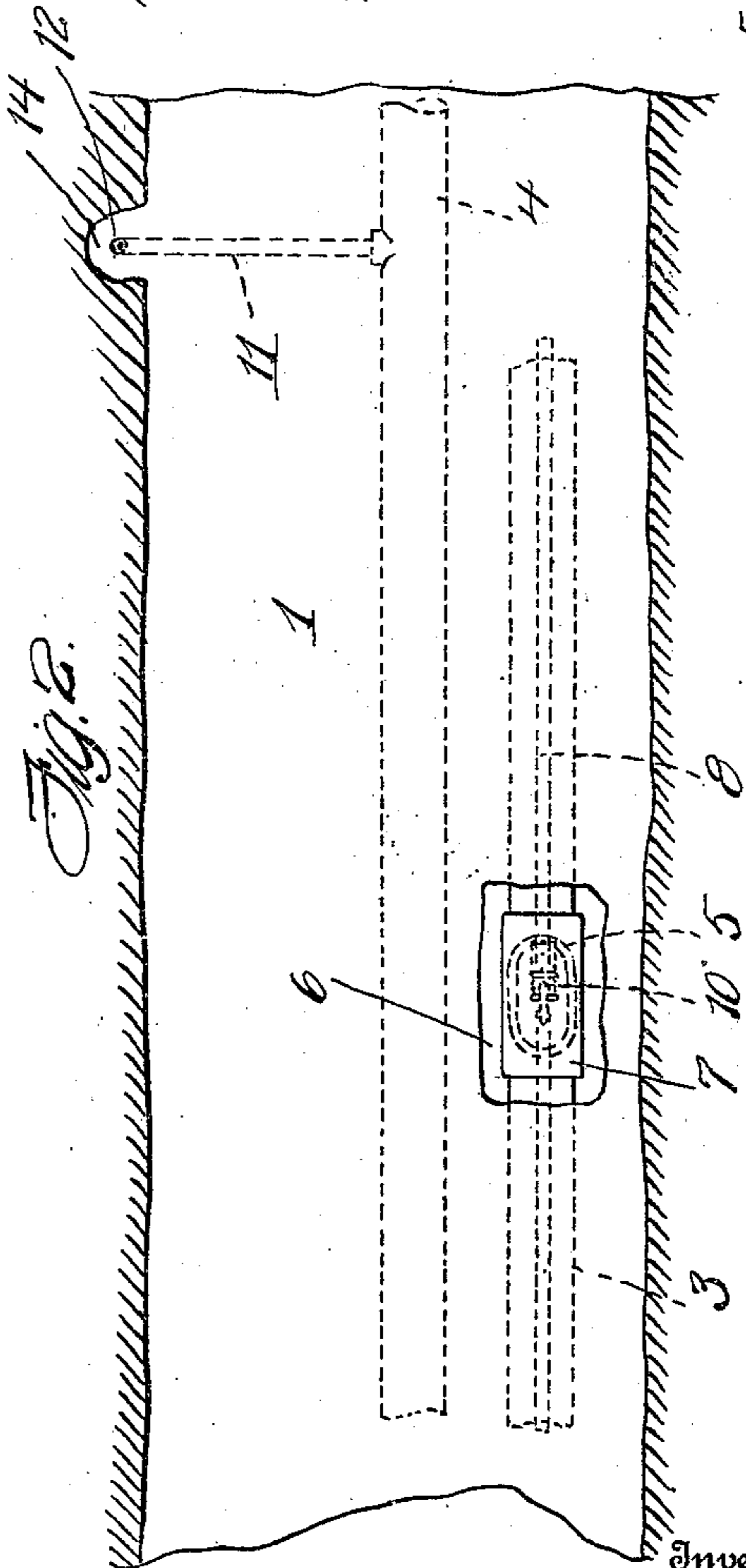
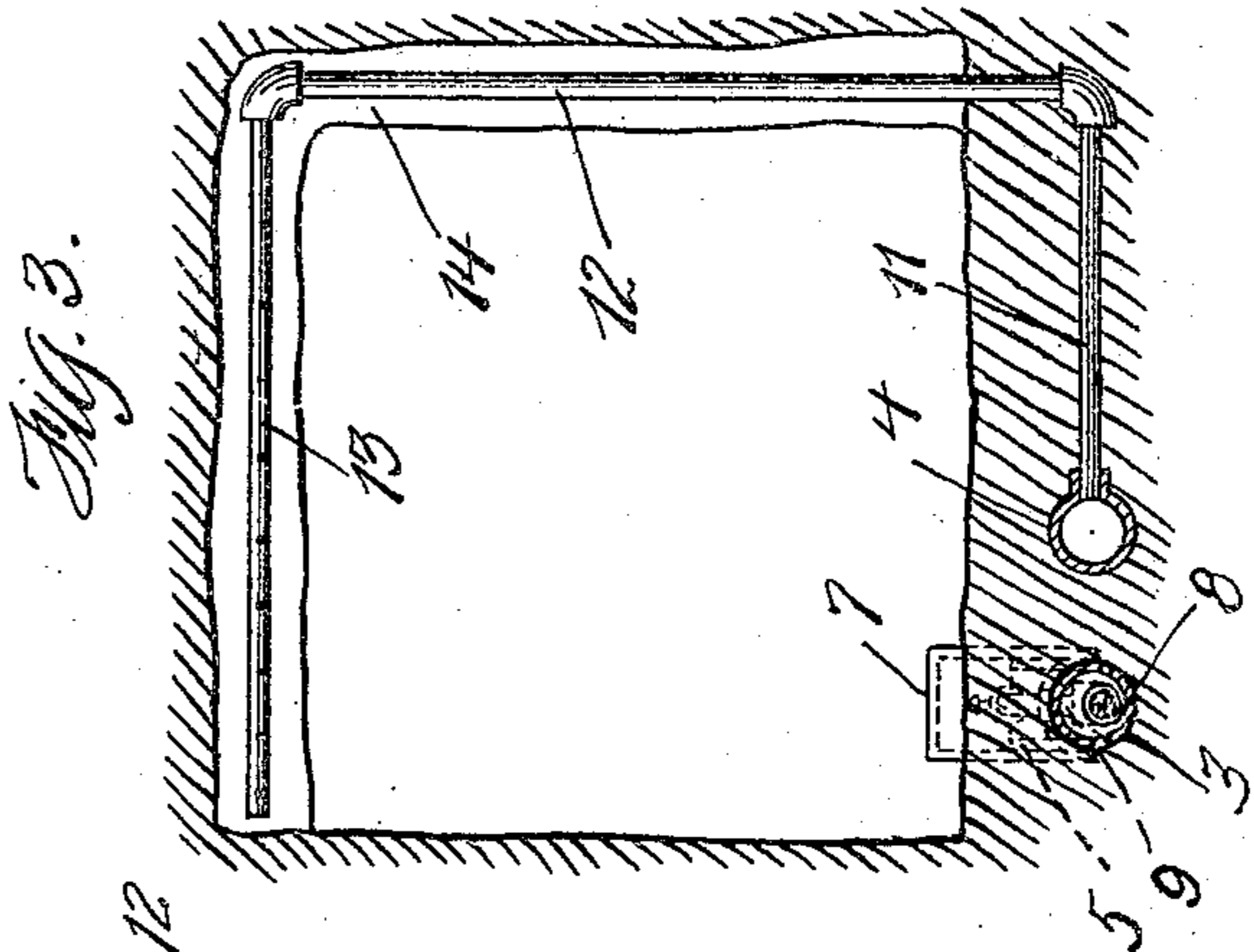
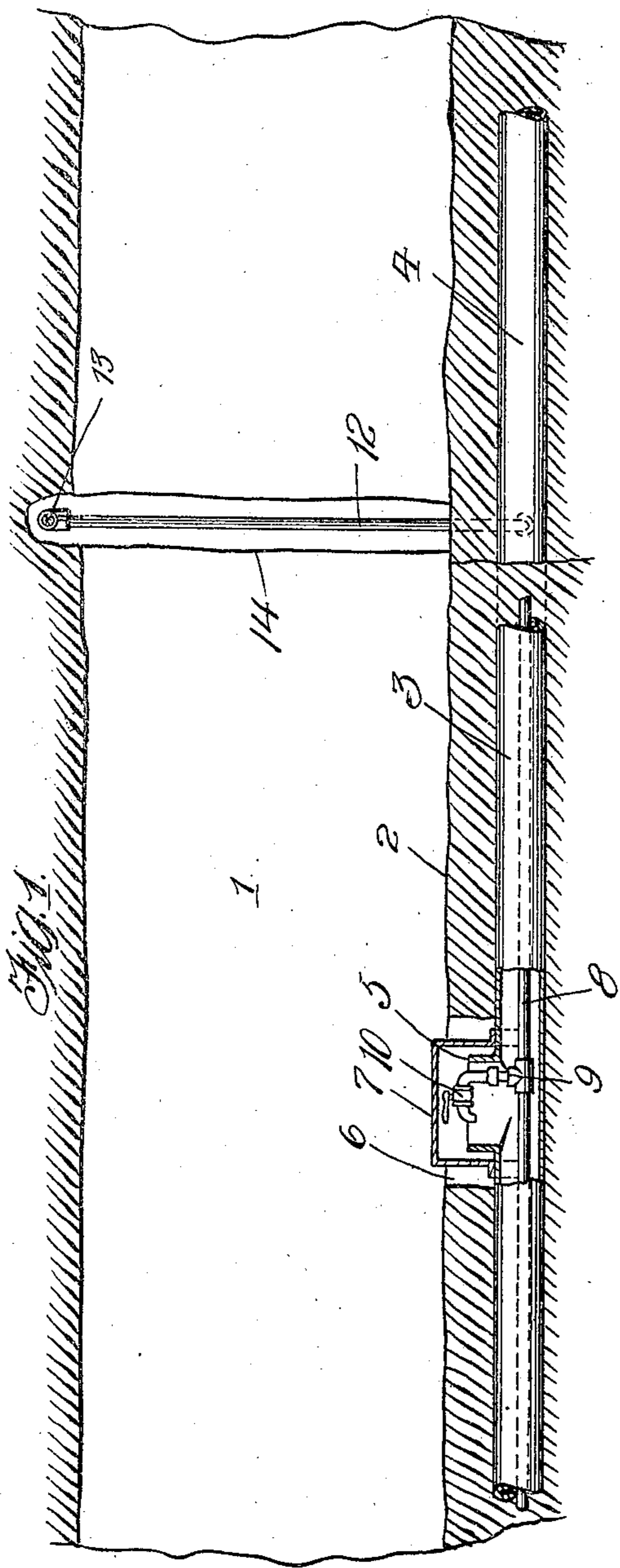


R. C. DAWSON.  
SYSTEM FOR VENTILATING AND RENDERING FIRST AID TO ENTOMBED MINERS.  
APPLICATION FILED MAY 28, 1909.

956,306.

Patented Apr. 26, 1910.



Witnesses

Samuel Payne.  
W. H. Butler

By

H. C. Dawson

Attorney

Inventor  
Robert C. Dawson

# UNITED STATES PATENT OFFICE.

ROBERT C. DAWSON, OF WAMPUM, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO  
HARRY BARTOW, OF SEANOR, PENNSYLVANIA.

SYSTEM FOR VENTILATING AND RENDERING FIRST AID TO ENTOMBED MINERS.

956,306.

Specification of Letters Patent.

Patented Apr. 26, 1910.

Application filed May 28, 1909. Serial No. 498,910.

*To all whom it may concern:*

Be it known that I, ROBERT C. DAWSON, a citizen of the United States of America, residing at Wampum, in the county of Lawrence and State of Pennsylvania, have invented certain new and useful Improvements in Systems for Ventilating and Rendering First Aid to Entombed Miners, of which the following is a specification, reference being  
10 had therein to the accompanying drawing.

This invention relates to systems for ventilating and rendering first aid to entombed miners, and the object of my invention is to provide a novel ventilating system, which  
15 while suited generally for ventilating compartments is especially adapted to meet the requirements and exigencies of removing dangerous gases, fumes, and foreign matter from the entries and rooms of coal mines.

Among the special objects of my invention is to provide the entries and rooms of a mine with exhaust pipes located in pockets or recesses where dangerous gases generally accumulate. Each exhaust pipe is placed  
20 in position as the workings within the mine progress, and a strong suction is maintained within the pipe for rapidly conveying gases from the mine to the exterior thereof, where the gases can be collected, separated and  
25 utilized for various purposes.

A further and special object of my system, is to provide the workings of a mine with conduits for conveying fresh air and liquid food to different parts of the mine, in order  
35 that entombed miners can be kept alive until released from that part of the mine in which an explosion has occurred and entombed the miners.

It is a well known fact that explosions  
40 and accidents frequently occur in coal mines, endangering, if not killing, miners employed in a mine. These explosions are due principally to the accumulation of gases within the mine. For instance, in natural gas which  
45 is liberated in coal mines, lies a danger made doubly so by reason of a small percentage of phosphin or arsin being generated by the action of strong acid in mine water, contacting with the shale and limestone, which  
50 is found in strata adjacent to the coal. The phosphin or arsin produced by this chemical action explodes upon contacting with pure air, but is generally kept blanketed or surrounded by the different gases of which  
55 natural gas is composed, by reason of its

specific gravity being somewhat between the specific gravities of the different gases of natural gas. The flame propagation of natural gas is not nearly so rapid as that of arsin or phosphin, hence, when natural gas  
60 is ignited in a body within a mine, it burns along at a rapid pace, until it impinges a wall and rebounds, causing some shock; but if phosphin or arsin is present, then the flame propagation is so rapid that practically the whole body of natural gas is consumed in a small fraction of time to what  
65 it would be in its pure state. It is therefore apparent that if phosphin or arsin be present in a natural gas, the body of the gas can  
70 be fired without spark by simply causing a disturbance in the air currents, for instance, by closing a door against a strong current of air, or by a fall of slate. Such disturbances drive the natural gases away from the phosphin or arsin, causing the same to contact  
75 with an air stratum and a terrific explosion is the result.

In my system, I aim to remove all of the combustible gases from pockets in the roof  
80 of the mine, and to convey these gases to the exterior of the mine and use them for various purposes, since phosphin or arsin will burn as readily as natural gas.

I attain the above objects by the convenient embodiment of my invention shown  
85 in the accompanying drawing, in which,

Figure 1 is a longitudinal section of a portion of a mine equipped with my system, Fig. 2 is a horizontal sectional view of the  
90 same, and Fig. 3 is a cross sectional view.

In the drawings, 1 designates a mine entry or room in the floor 2 of which are embedded longitudinal pipes or conduits 3 and 4, these pipes or conduits extending  
95 through the mine workings and to the mouth or exterior of the mine. The pipe 3 at different intervals throughout the mine is provided with openings 5 communicating with  
100 openings 6 in the floor 2. The openings 5 are normally closed by detachable covers or caps 7 for preventing dust, coal and other matter from entering the pipe 3. This pipe 3 is adapted to convey fresh air to the mine and serves functionally as a casing for another  
105 pipe 8, which at each of the openings 5 is provided with a connection 9 for a faucet 10. The pipe 8 is employed for conveying liquid food to miners entombed within the mine, the liquid food, and the fresh air con-  
110

veyed by the pipe 3, being adapted to sustain life for a sufficient period of time to permit of entombed miners being rescued. The pipe 4, at different intervals throughout the mine is provided with branch pipes 12 and perforated pipes 13, the pipes 12 and 13 being located in recesses or pockets 14 provided therefor in the walls and roof of the mine. A suction is maintained within the pipe 4 by a suitable fan or apparatus (not shown) located upon the exterior of the mine, whereby as fast as gases accumulate within the pockets or recesses, said gases are removed and prevented from exploding within the mine.

While I have shown my invention embodied in what I now consider to be its preferred form, it is evident from the foregoing explanation that numerous variations in detail may be made without departing from the spirit of the invention, the essence of which consists in providing a conduit system for conveying desirable matter to a mine, as a first aid to entombed miners and removing undesirable matter which permitted to accumulate endangers miners. With this understanding of the fundamental characteristics of my invention, numerous means may be devised for carrying it out, and for adapting it to various conditions and services; but the exact form, character, or position of the conduits, or the different connections with said conduits does not matter. Neither is it material as to what apparatus is used for maintaining the system in an operative condition.

Having now described my invention, what I claim as new, is;—

1. A system for rendering first aid to entombed miners embodying an air supply

pipe provided with openings at intervals throughout the mine, covers for normally closing said openings, and a liquid food supply pipe within said air supply pipe and having discharge connections at the opening of said air supply pipe.

2. A system for rendering aid to entombed miners embodying an air conduit provided with openings at intervals for supplying air to the interior of the mine, covers for normally closing said openings to prevent discharge of air from the conduits, a liquid food supply pipe arranged within said conduit and faucets secured to said supply pipe and positioned in the openings of the conduit whereby access can be had to the faucets when the covers for said openings are removed.

3. A system for rendering aid to entombed miners embodying an air supply means and a liquid food supply means, one arranged within the other and each having a plurality of normally closed discharge points, the discharge points of one arranged at the discharge points of the other.

4. A system for rendering aid to entombed miners embodying an air supply means and a liquid food supply means, one arranged within the other and each having a plurality of normally closed discharge points, the discharge points of one arranged at the discharge points of the other, and removable covers for the discharge points of the air supply means.

In testimony whereof I affix my signature in the presence of two witnesses.

ROBERT C. DAWSON.

Witnesses:

H. S. MILES,  
J. DINDINGER.