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976,448.

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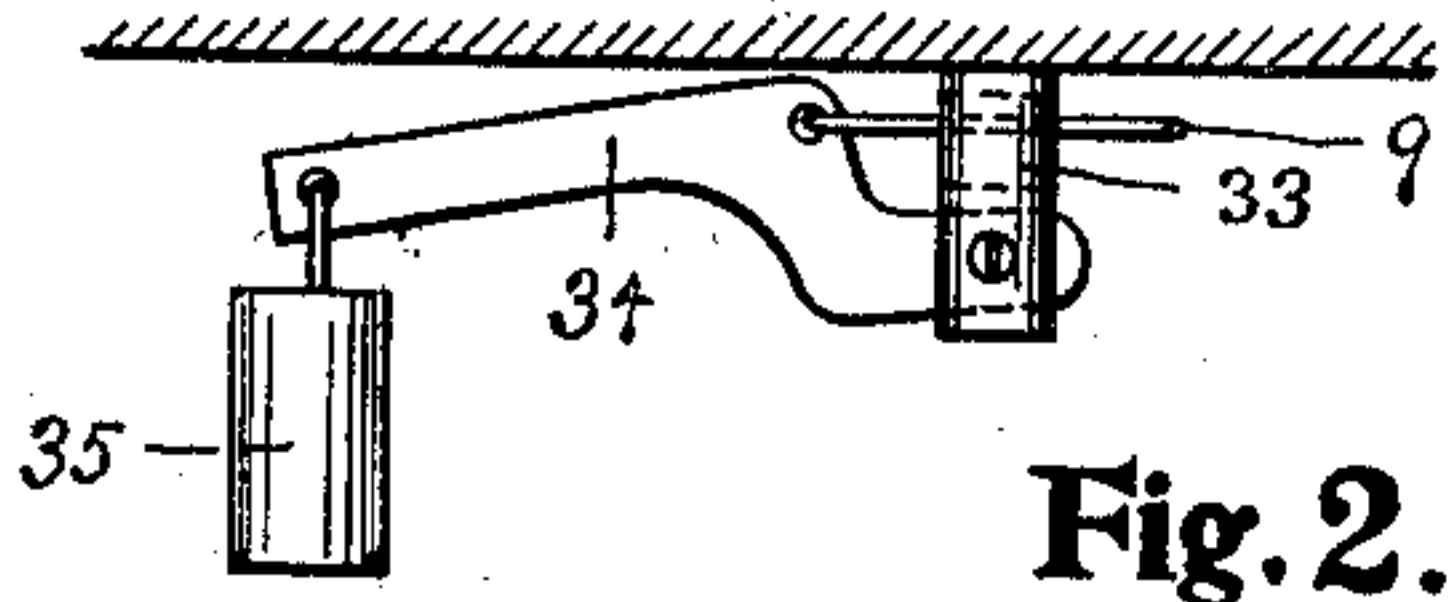


Fig. 2.

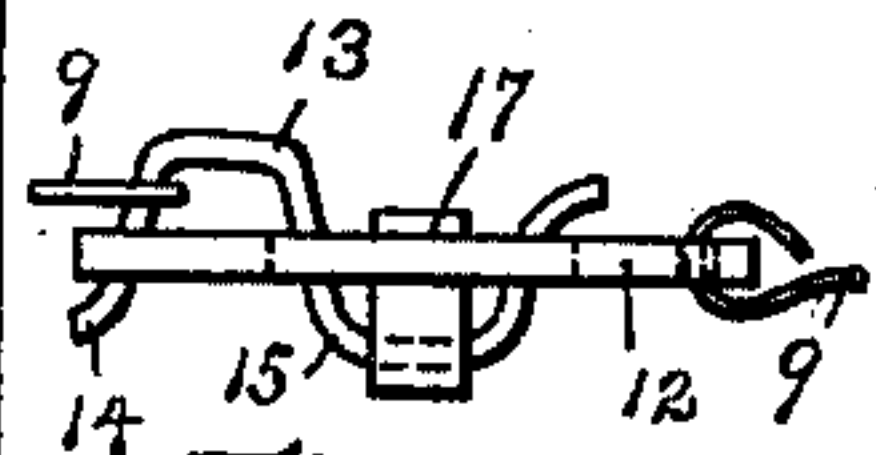
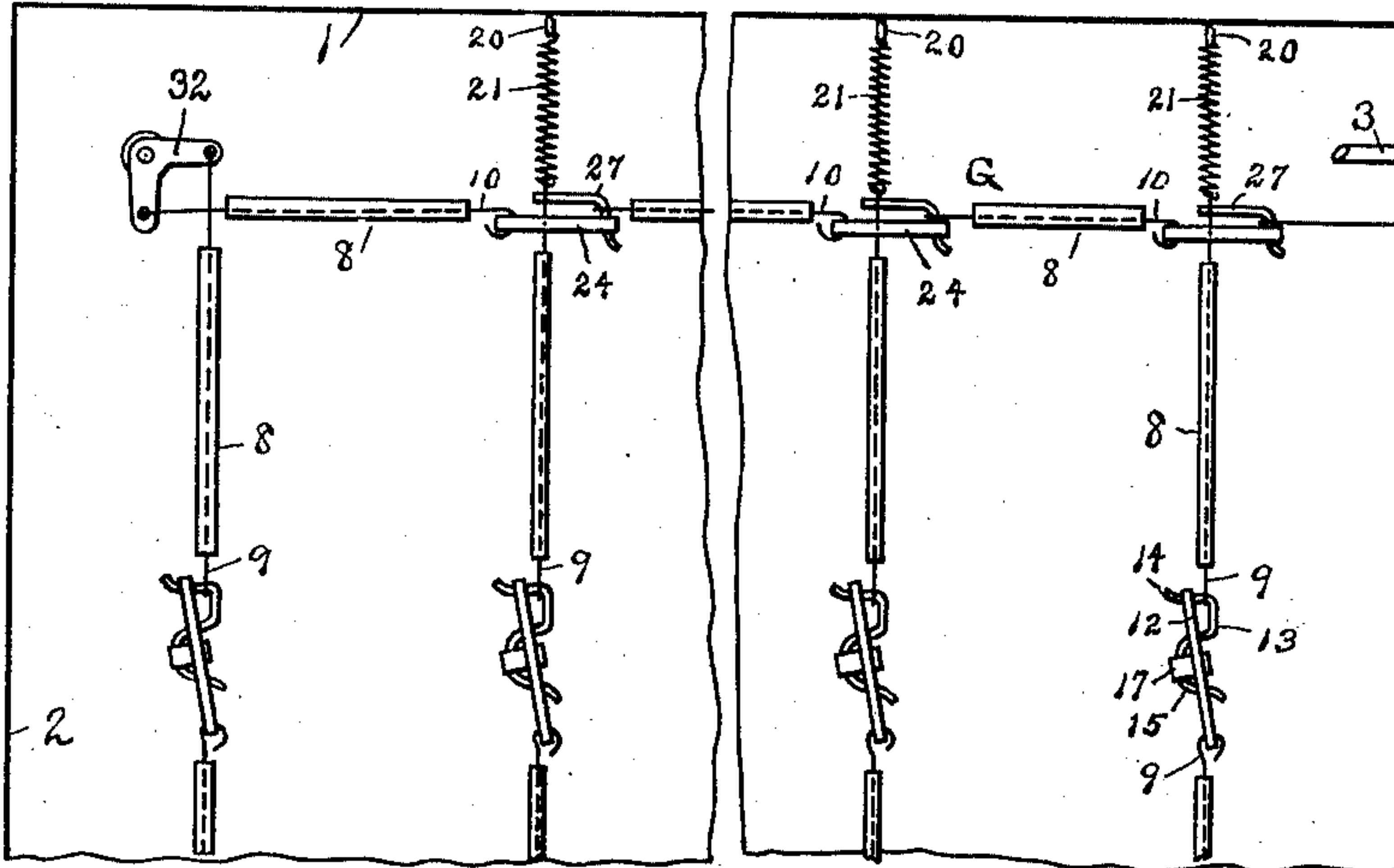
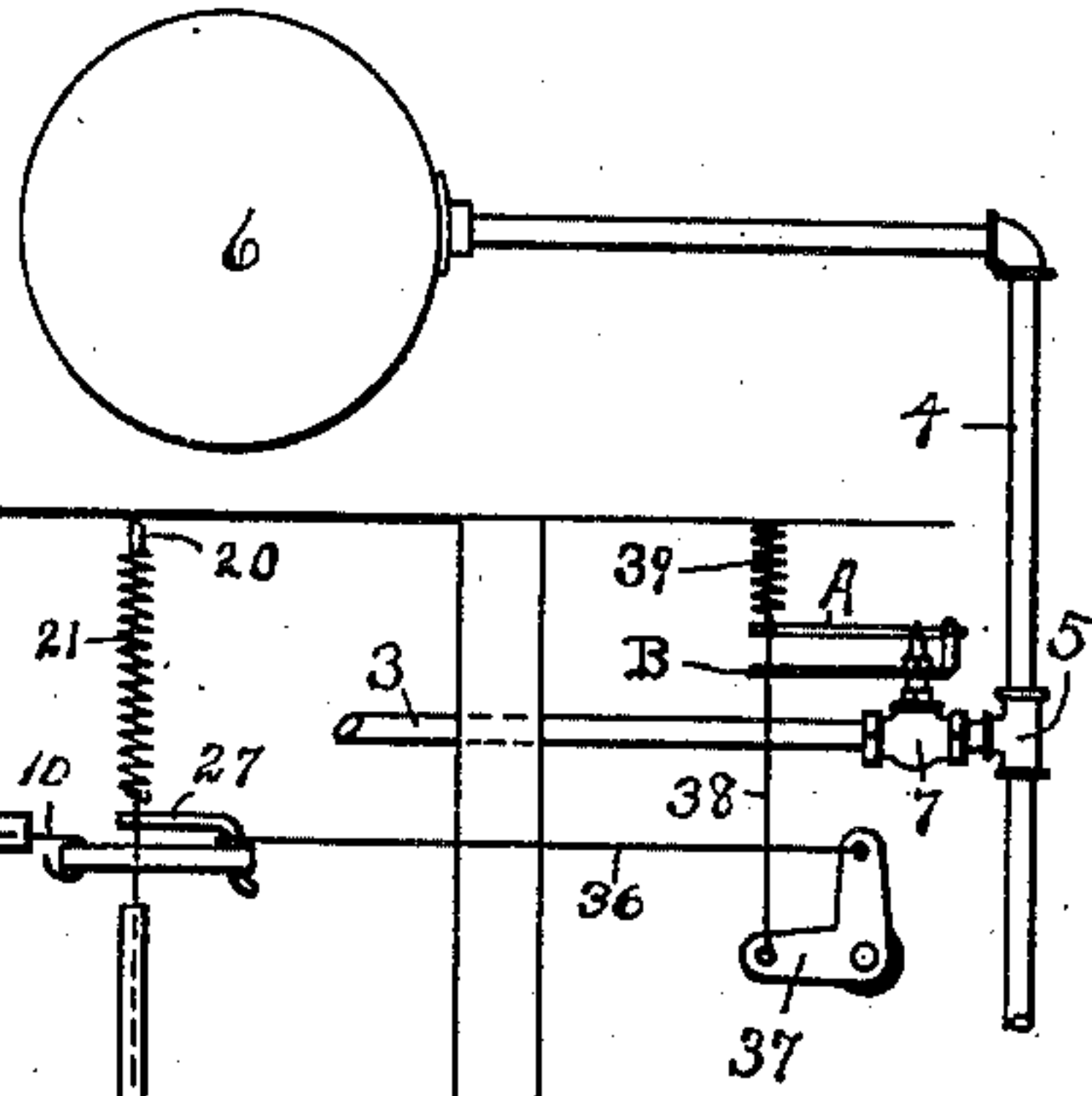


Fig. 3.

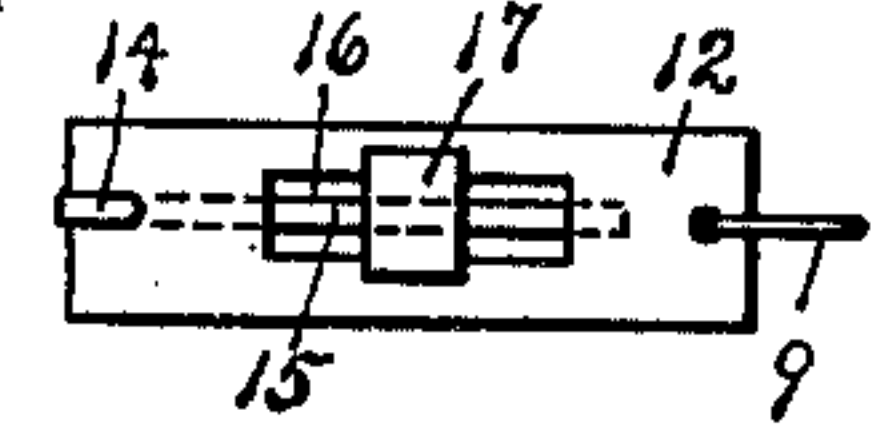


Fig.4.

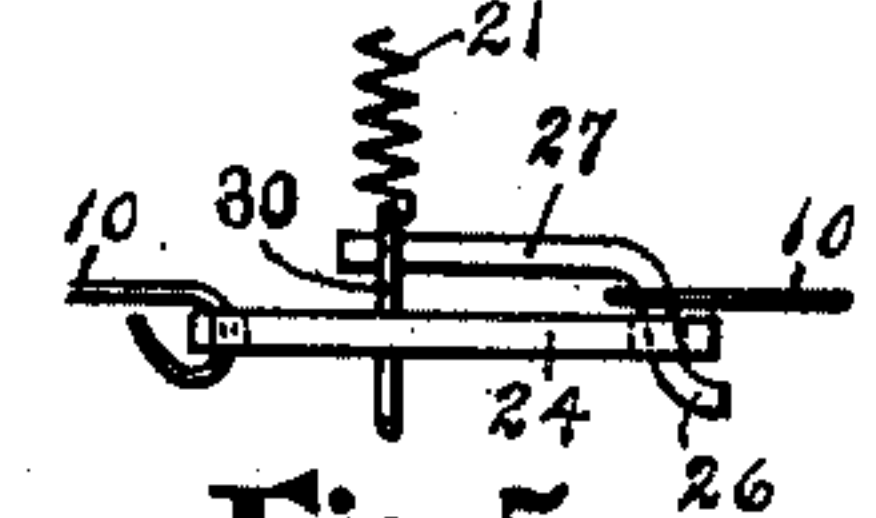


Fig. 5.

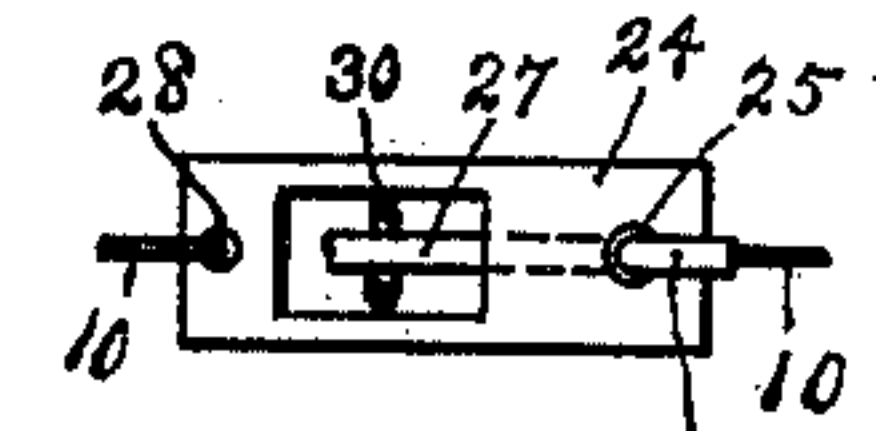


Fig. 6.

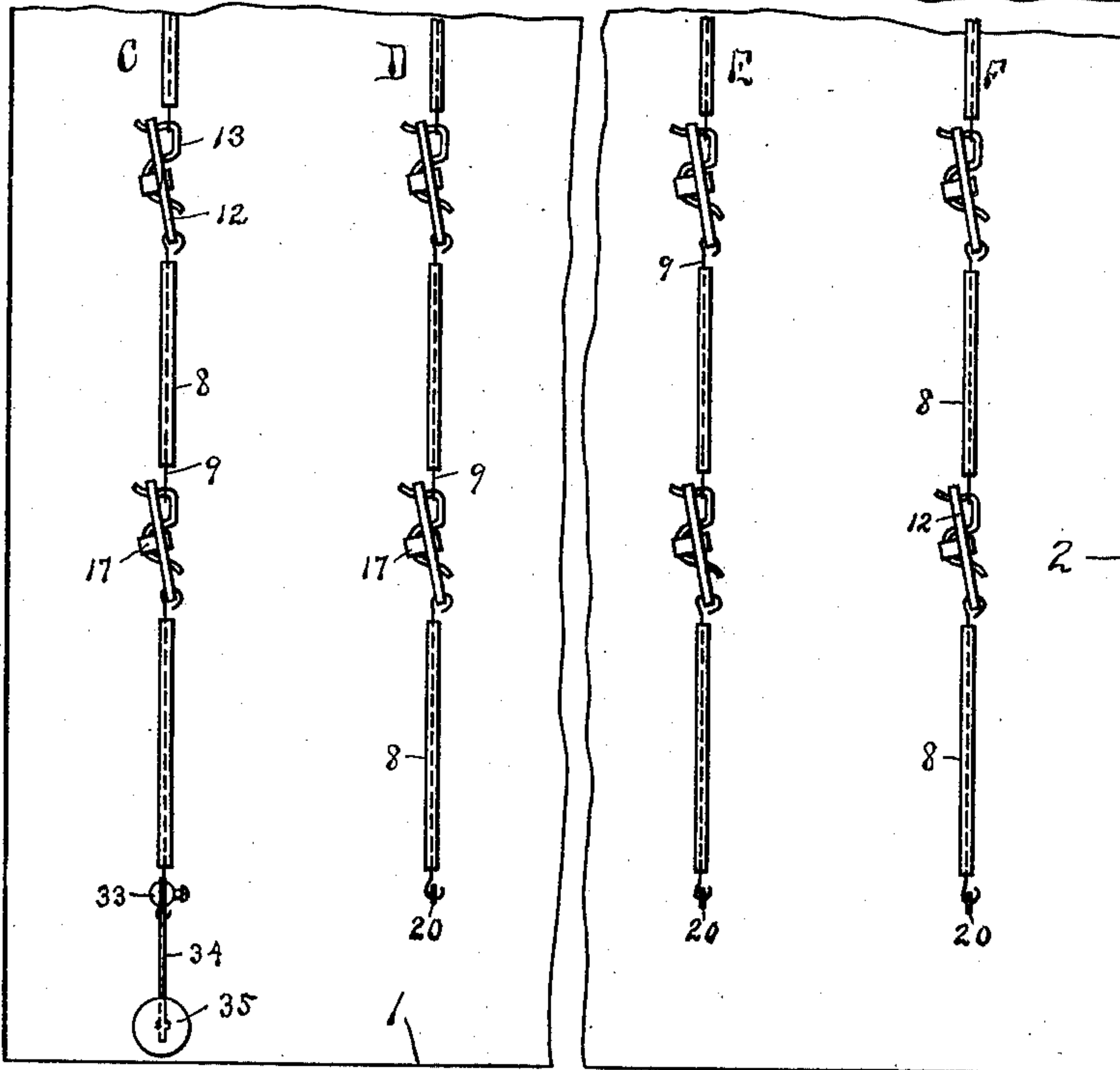


Fig. 1.

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UNITED STATES PATENT OFFICE.

HARRY D. EMMONS, OF WOODSTOCK, AND WILLIE B. EMMONS, OF THORNTON, NEW HAMPSHIRE.

FIRE-EXTINGUISHER SYSTEM.

976,448.

Specification of Letters Patent.

Patented Nov. 22, 1910.

Application filed June 4, 1910. Serial No. 564,971.

To all whom it may concern:

Be it known that we, HARRY D. EMMONS and WILLIE B. EMMONS, citizens of the United States, and residing at Woodstock and Thornton, respectively, in the county of Grafton and State of New Hampshire, have invented a new and useful Fire-Extinguisher System, of which the following is a specification.

This invention relates to automatic fire extinguishers, and the object of our improvements is to provide a system of fusible links and connections between the same whereby a valve, which controls the flow of steam or inert gas through a pipe into a room, chamber or hold of a boat, is normally kept closed, together with means for opening said valve and permitting the steam to rush into said chamber or hold if the heat at any point in the same reaches a certain temperature.

In the accompanying drawing, Figure 1 shows the ceiling of a room or hold equipped with this improved system. Fig. 2 is an elevation of a tensioning device. Fig. 3 is a plan, and Fig. 4 is an elevation of a fusible link. Fig. 5 is a plan and Fig. 6 an elevation of a releasing device.

Similar reference characters refer to like parts throughout the several views.

In automatic sprinkling systems, water is conducted across the ceilings of rooms to the different sprinklers, each of which is provided with a fusible releasing device, so that if the temperature goes above a certain predetermined height, the sprinkler will operate. As a result, the goods in the rooms or chambers are often ruined by the water.

In the present construction a series of connected fusible links control the opening of a valve so that if the temperature at any point exceeds a certain predetermined degree, steam or inert gases are permitted to rush into the chamber smothering the fire without injuring the contents.

The rectangle formed by the lines 1 and 2 in Fig. 1 represents the ceiling of a room or of the hold of a boat into which extends a pipe 3 which connects to a main pipe 4 at 5. The circle 6 represents a steam dome or other container for fluids or gases under pressure, which gases will rush into the chamber upon the opening of the valve 7, which valve is fully described and shown in our previous Patent No. 913,817 dated March 7th, 1909.

Secured to the ceiling are a number of guide strips 8 of any desirable material, in which are slidable the rods or wires 9 and 10. The wires 9 are connected by means of the fusible links shown in Figs. 3 and 4, consisting of a plate 12 into which one end of a wire 9 is hooked. A reversely curved rod 13 has one end 14 extending through a small hole in the plate 12 and a curved portion 15 extending through the slot 16 in this plate. A small block 17 of fusible metal holds this curved rod in position. The melting point and the composition of this fusible metal will depend upon the various conditions and the articles in the room or hold, but we prefer an alloy which melts at about 150 degrees. Any other fusible link may be substituted for that shown and just described.

The lines D, E and F of wires may connect at one end to hooks 20 secured to any desirable support, such as the ceiling, while the opposite ends of the lines connect to springs 21, also connected to hooks 20. The releasing devices which cooperate with these lines of links and wires consist of plates 24 having holes 25 near one end through which the hooked ends 26 of the rods 27 extend. The wires 10 engage these hooks 27 at one end and at the other end extend into the holes 28 in the next plate 24. The end wire 9 of the line extends through the slot in the plate 24 and is formed with a loop 30 through which the rod 27 extends. The outer line C of wires 9 may connect to the transverse wires 10 in any desired manner, but we prefer to do so by means of the bell-crank lever 32. In order to keep these lines C and G at the proper tension, a device such as shown in Fig. 2 is preferably employed. A post 33 is secured to the ceiling and carries a lever 34 having a weight 35 at its outer end, which weight produces a tension on the wire 9. A rod 36 connects the transverse line G to a bell-crank 37 and a rod 38 extends from this bell-crank to the lever A of the valve 7. The arm B of the valve furnishes a guide for this rod 38. By these means, the weight 35 will normally hold the valve 7 closed.

The spring 39 connects to the lever A, but is not of sufficient strength to overcome the pull of the weight 35. The spring will assist in opening the valve when the tension of the weight 35 is removed.

The operation of this construction is as

follows: Under normal conditions, the rods or wires which constitute the lines C and G are tensioned by the weight 35, while those comprising the lines D, E and F are tensioned by the springs 21. The valve-lever A holds the valve closed under the pull of the rod 38. Should the temperature rise sufficiently to melt the block 17 of alloy of any fusible link in the line C, the curved rod 13 will immediately be pulled out of that plate 12, breaking that line so that the weight 35 will no longer act to hold the valve 7 closed, whereupon the spring 39 together with the pressure of the steam or gases in the receiver 6 will open this valve and permit the steam or gases to rush from the receptacle 6 into the chamber. If a fusible link of either of the lines D, E, or F were disconnected, the spring 21 of that line would immediately be permitted to pull out the loop 30 at the end of this line. This would permit the rod 27 to swing out and disconnect from the loop and the plate 24, again permitting the bell-crank 37 to turn and the valve to open. The steam or gas would fill the chamber and tend to smother the fire.

The number and positions of the fusible links, and the proportions and designs of the various parts may be changed by those skilled in the art without departing from the spirit of our invention.

Having now explained our improvements, what we claim as our invention and desire to secure by Letters Patent is:—

1. In a fire-extinguisher system, the combination of a series of rods in rows, fusible links between them, means to tension said rods and links, a valve, means comprising rods and releasing devices connected to said valve to normally hold it closed, one of the releasing devices being positioned in connection with each row of fusible links, and

a source of fire-extinguishing material connected to said valve.

2. In a fire-extinguisher system, the combination of a series of rods in rows, fusible links between them, means connected to one end of each row to tension the same, a valve, a connecting device between the outer row of links and the valve to normally hold the same closed comprising rods and a releasing device at each of the other rows, each releasing device normally held closed by its respective row of fusible links, and a source of fire-extinguishing material connected to said valve.

3. In a fire extinguisher system, the combination of a series of rods and fusible links between them, means to tension said rods and links, a valve connecting to a source of fire-extinguishing material, means comprising rods, releasing devices and a tensioning device to hold the valve closed, said fusible links controlling the operation of the releasing device, and means to open said valve.

4. In a fire extinguisher system, the combination of a valve connected to a source of fire-extinguishing material, means to open said valve when released, a flexible connection comprising rods and releasing devices, and a weight on the opposite end of said connection to normally hold said valve closed, springs to operate said releasing devices, and fusible links and connections to the same to normally prevent the springs from operating the releasing devices.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

HARRY D. EMMONS.
WILLIE B. EMMONS.

Witnesses:

GEORGE H. GREEN,
HARRY D. SAWYER.