

(No Model.)

3 Sheets—Sheet 1.

J. B. GODWIN.  
FIRE EXTINGUISHER AND ALARM.

No. 438,726.

Patented Oct. 21, 1890.

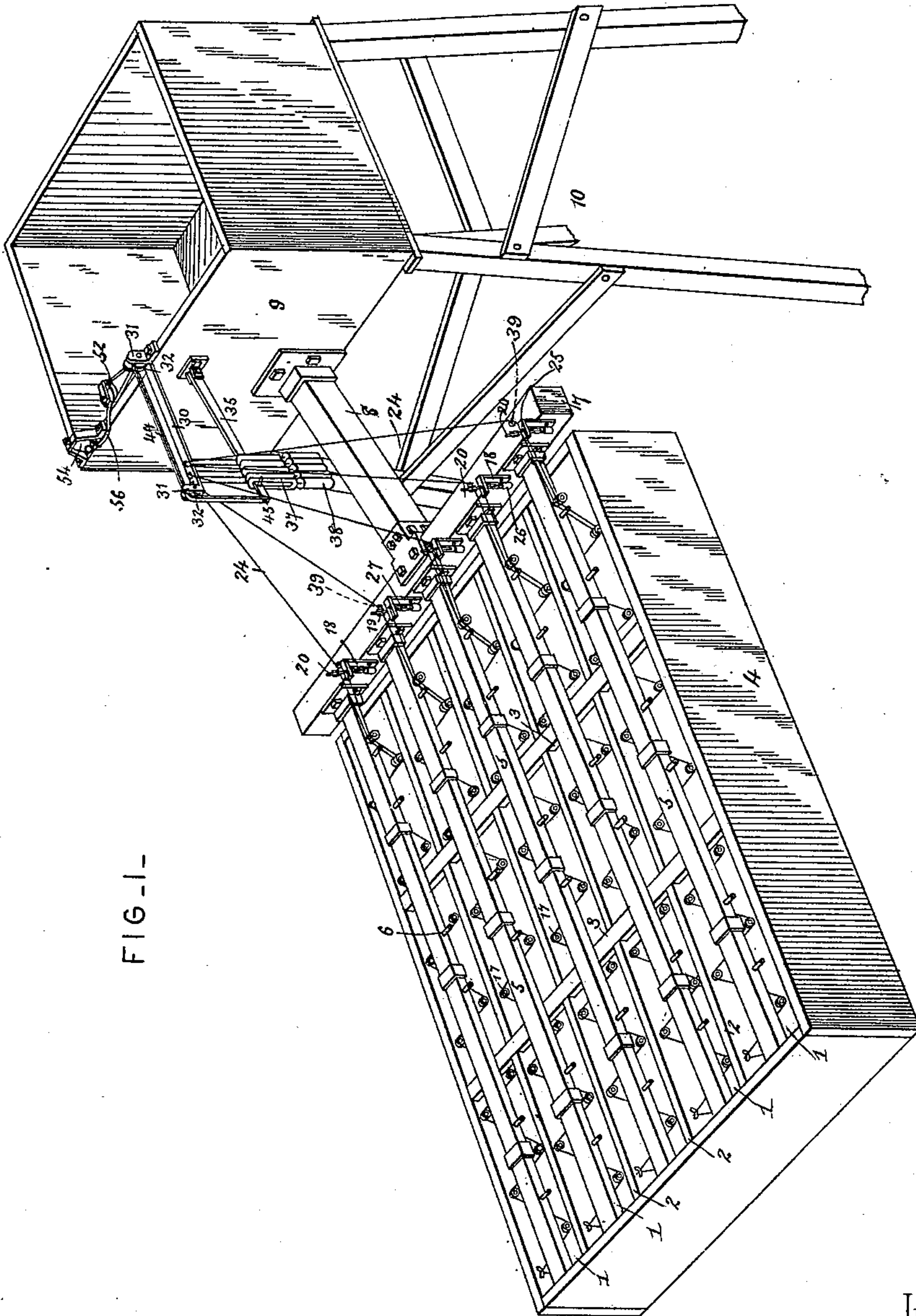


FIG. 1-

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*Joshua B. Godwin*

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FIG. 2.

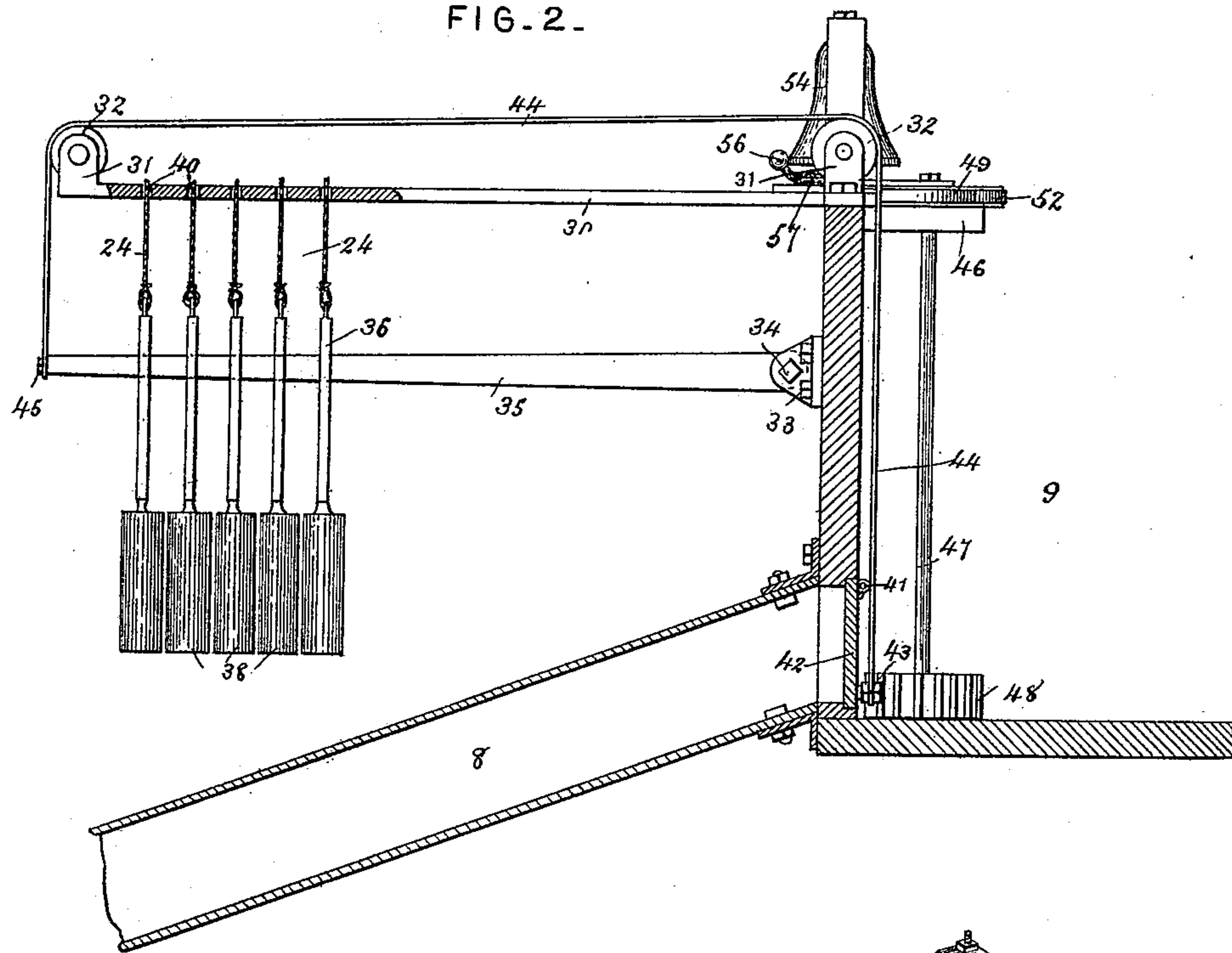
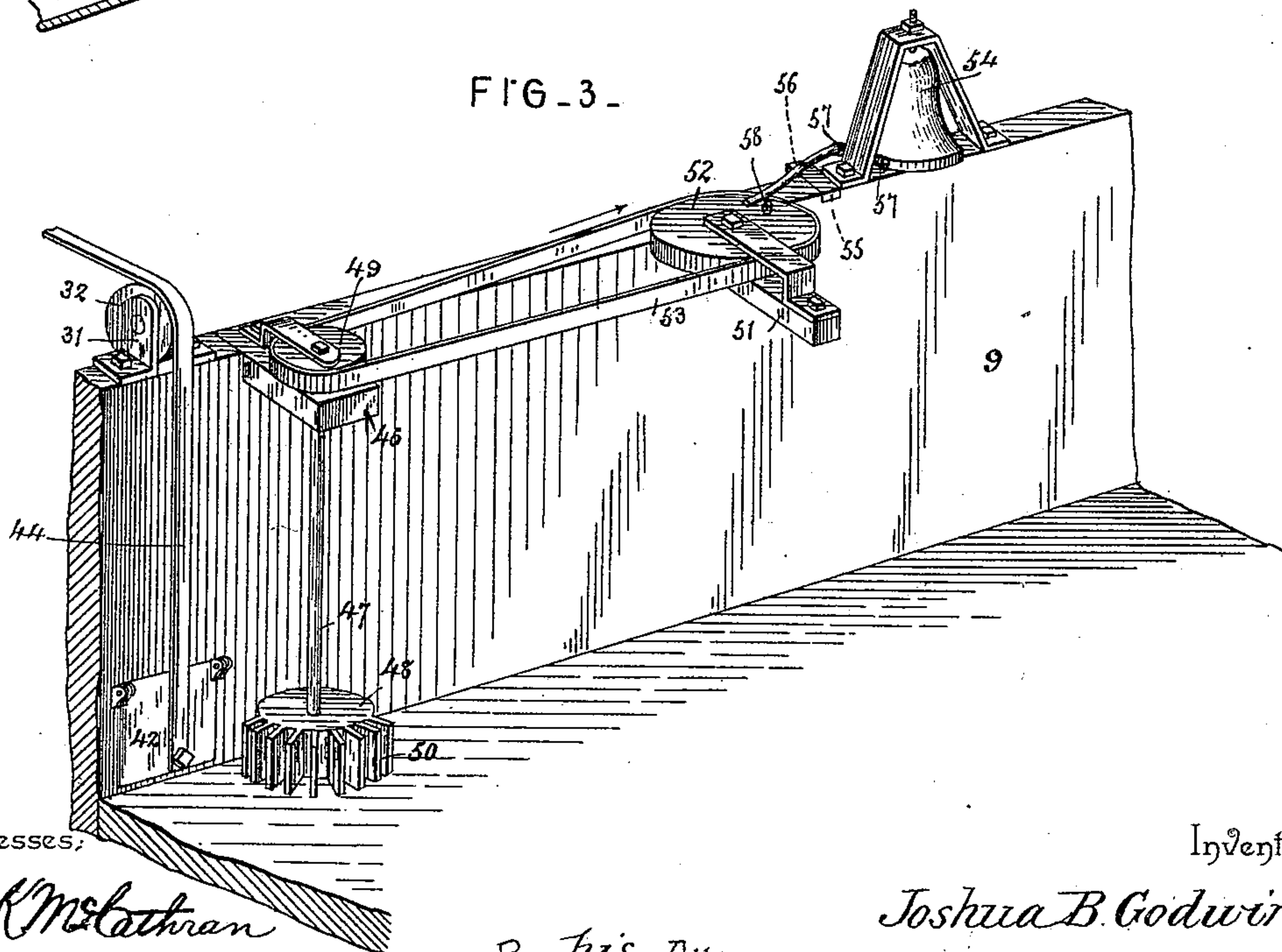


FIG. 3.



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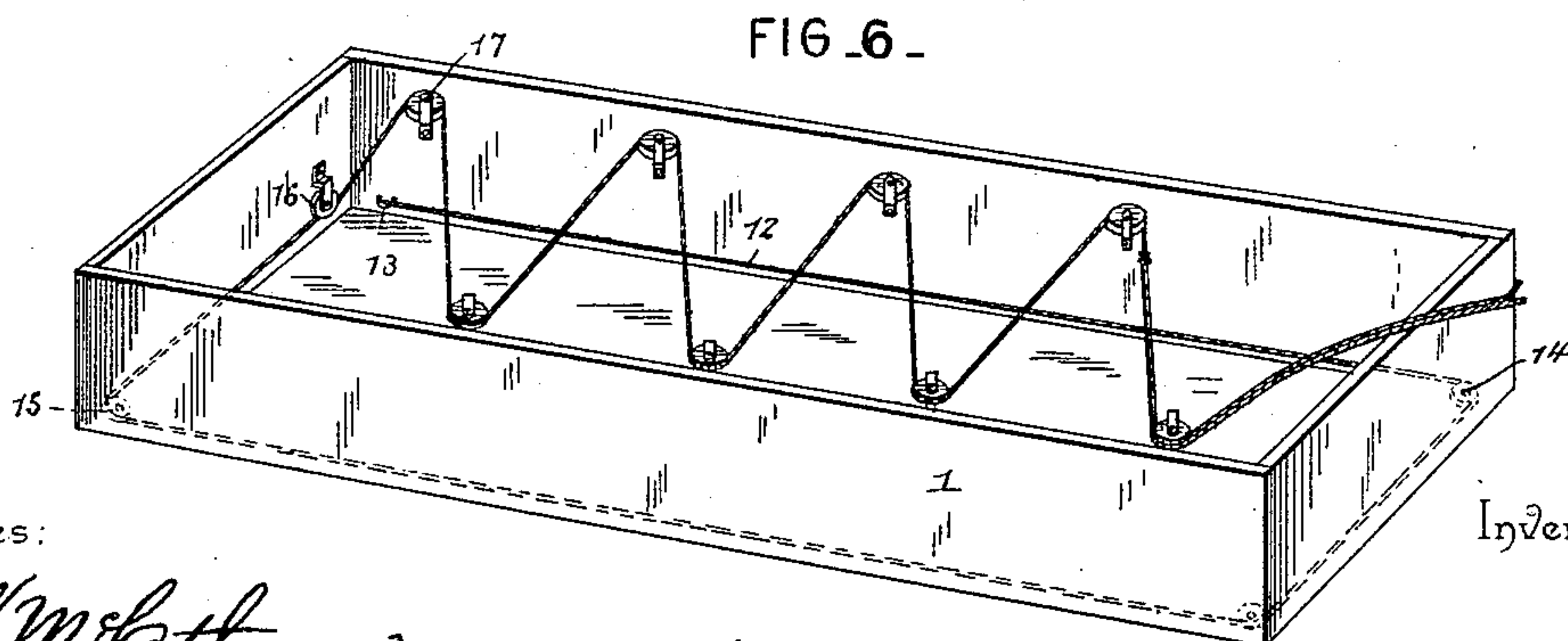
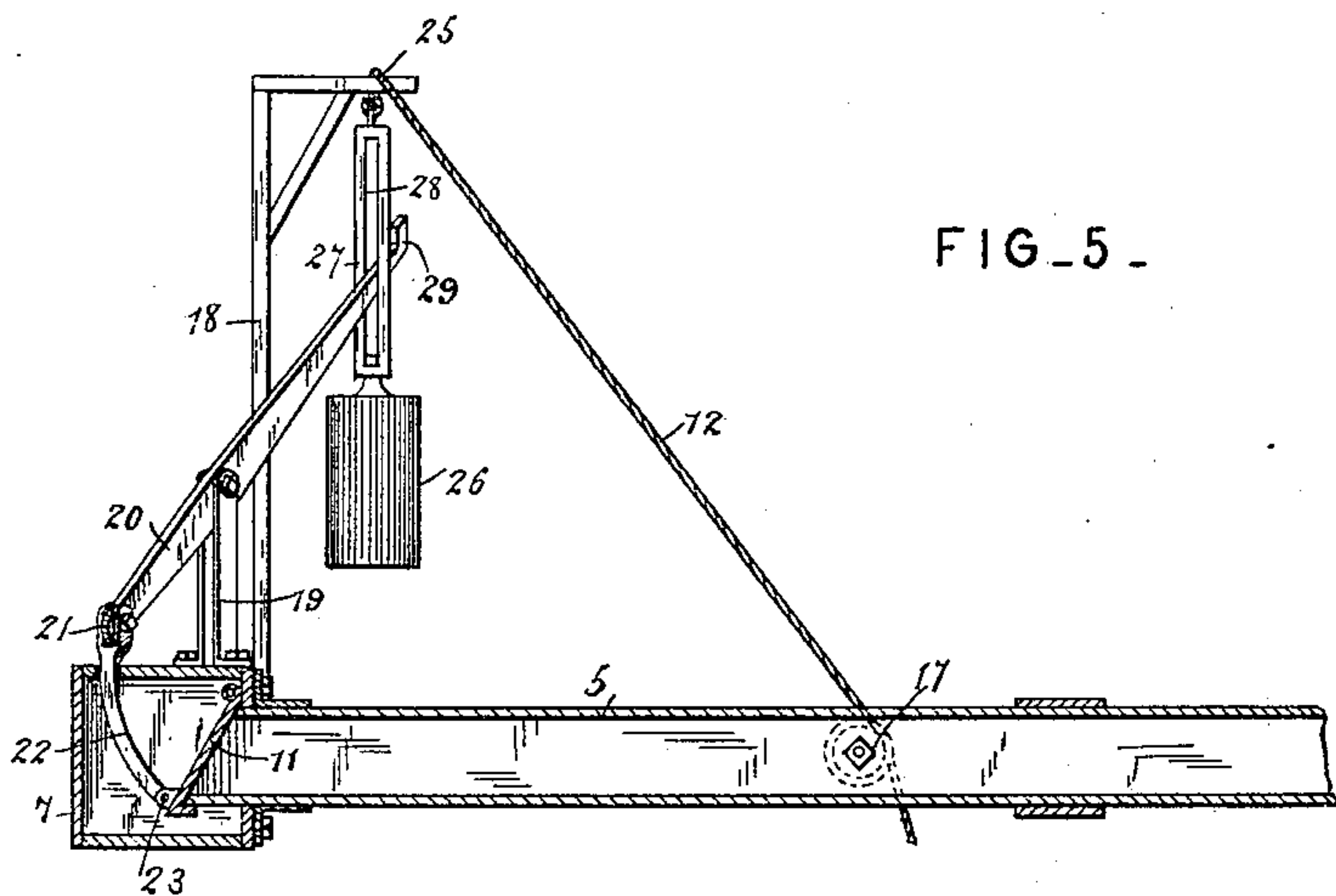
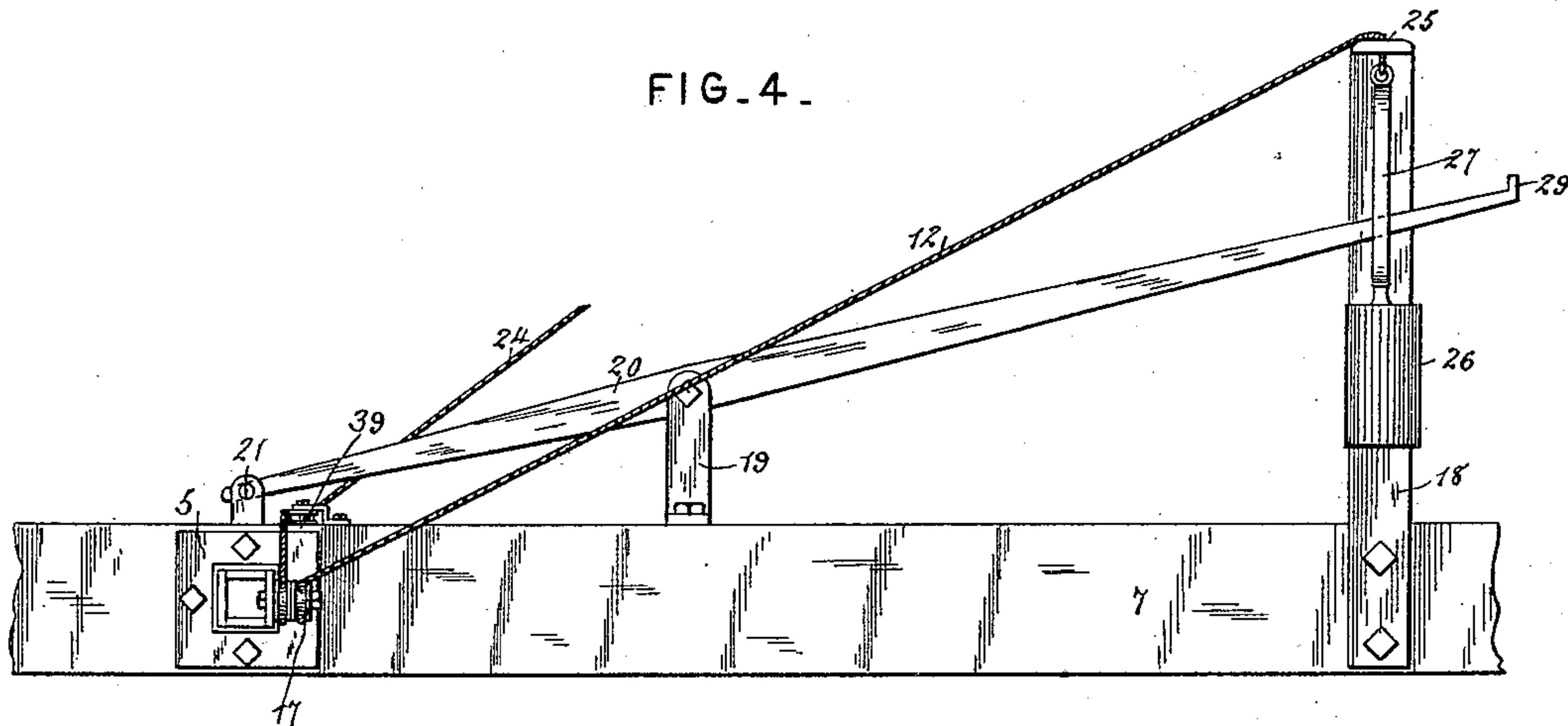
Joshua B. Godwin



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# UNITED STATES PATENT OFFICE.

JOSHUA B. GODWIN, OF WASHINGTON, NORTH CAROLINA.

## FIRE EXTINGUISHER AND ALARM.

SPECIFICATION forming part of Letters Patent No. 438,726, dated October 21, 1890.

Application filed April 23, 1890. Serial No. 349,116. (No model.)

*To all whom it may concern:*

Be it known that I, JOSHUA B. GODWIN, a citizen of the United States, residing at Washington, in the county of Beaufort and State of North Carolina, have invented a new and useful Fire Extinguisher and Alarm, of which the following is a specification.

This invention has relation to a fire extinguisher and alarm for general use, but more especially for lumber kilns or driers or the like.

The objects in view are to provide a lumber kiln or drier of the usual construction with a system of overhead flood-pipes connected to a suitable source of supply and with mechanism adapted to open said flood-pipes and the source of supply leading thereto upon the occasion of any one or all of the kiln sections or compartments getting afire, and at the same time sound the alarm.

Various other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a perspective of a kiln, the roof removed, and a fire-extinguishing mechanism constructed in accordance with my invention applied in position to a lumber-drier. Fig. 2 is an enlarged detail section of the supply-tank and the weights for operating the cut-off. Fig. 3 is a perspective in detail of that wall of the supply-tank having the cut-off and supporting the alarm mechanism. Fig. 4 is a detail in front elevation of a portion of the supply-pipe. Fig. 5 is a longitudinal vertical section of one of the flood-pipes, the cut-off of the same, and its operating mechanism. Fig. 6 is a detail in perspective of one of the kiln or drier sections.

Like numerals of reference indicate like parts in all the figures of the drawings.

The kiln, as is usual, comprises a series of kiln sections or compartments 1, or when used for houses one of the rooms thereof, which are formed by intermediate partitions 2, suitably braced and connected by transverse strips 3, and the entire series surrounded by a casing 4. In these compartments is stored the lumber to be dried, which lumber is subjected to high degrees of heat from the furnaces arranged under the kilns or any other system

of heating. The compartments often become superheated, which results in disastrous conflagrations, destroying not only the expensive kiln or drier structures, but also immense quantities of lumber stored therein. Very often the fire originates in but one kiln section or compartment and spreads to the others before noticed by the attendants. By my invention I propose to provide means for automatically flushing or flooding that compartment or compartments in which the fire originates, thus saving the contents of the other compartments from both fire and water and confining the destructive elements only to the compartment or compartments in which the conflagration originates.

Above each compartment, below the ceiling thereof, there is supported a flooding-pipe 5, extending throughout the length of the drier-compartment, and said pipes are each provided at suitable intervals with discharge-nozzles 6, adapted and arranged to discharge water throughout the entire length of the compartment. In front of the drier there is supported a transverse supply-pipe 7, the bore of which is equal to the combined bore of the entire series of pipes 5. Leading from the pipe 7 and communicating with the same is a pipe 8 of equal bore as the pipe 7, the opposite end of the pipe communicating with a supply-tank 9, supported upon a suitable frame-work or trestle 10, located at a point above the pipes 5. In lieu of the supply-tank 9, the pipe 8 may lead from any other elevated source of supply—either natural or artificial—or be connected with any suitable system of water-works. The ends of the pipes 5 which communicate with the supply-pipe 7 are, as shown in Fig. 5, covered by a hinged cut-off 11, which cut-off is automatically operated by mechanism hereinafter described.

Within each of the compartments of the kiln or the rooms of the house there is arranged a system of cords, the system being so arranged as to cross the compartments at nearly every point, so that a small fire at any point in any one of the compartments will serve to burn the cord and operate the mechanism heretofore and hereinafter described. In the present instance 12 represents the above-mentioned cord, one end of which is



made fast to an eye or other fixture 13 at the rear end of each compartment. The cords are then passed along that longitudinal side of each compartment to which the end is af-  
 5 fixed to the opposite end of the compartment, and then are passed around the pulleys 14, located in the two front corners and to the rear at the opposite side of the compartment to which the cord was first attached over a  
 10 pulley 15 and to the point of attachment and under the pulley 16. From the pulley 16 the cord passes around pulleys 17, mounted in suitable brackets secured to the opposite longitudinal walls of the compartments, said  
 15 pulleys being located alternately so that the cord is laced back and forth, as shown best in Figs. 1 and 6.

To the supply-pipe 7, at one side of each of the flood-pipes 5, there is located an L-shaped standard 18 and between the standard and the flood-pipe a pair of bearing-ears 19. In the ears 19 there is fulcrumed a lever  
 20 20, one end of which is pivoted, as at 21, to a curved link 22, the lower end of which is pivotally connected, as at 23, to the lower end  
 25 of the pivoted or hinged cut-off 11 of the flood-pipe 5. The front pulley 17 of each of the compartments is, as shown in Fig. 4, double, and previous to passing over one of  
 30 the grooves of the same the cord 12 is provided with a branch cord 24. The standards 18 are of inverted-L shape, and the upper ends of the same are provided with perforations 25, down through which are passed the  
 35 ends of the cords 12.

26 represents a series of weights, one for each standard 18, and to the upper ends of the weights are attached longitudinally-slotted vertically-disposed links 27, the upper  
 40 ends of the links being connected with the ends of the cords 12, which latter, as before stated, have been passed through the perforations 25. Through the elongated slot 28 of the links 27 projects the free end of the lever  
 45 20, which lever terminates in a stop 29. The cords 12 normally suspend the weights 26 by means of the links above the free ends of the levers 29, and when said cords are released, as hereinafter mentioned, the weights fall so  
 50 that they operate to depress the free end of the levers 20 and raise the opposite end, which, as will be apparent, opens the several gates or cut-offs 11 and permits water to pass from the supply-pipe 7 into any one of the flood-  
 55 pipes 5, which have thus been thrown into communication with the supply-pipe.

From the upper central edge of the front wall of the tank 9 there extends outwardly a fixed arm 30, provided at its front and rear  
 60 ends with bearing-ears 31, in which are mounted loose pulleys 32. Pivoted in bearings 33, bolted to the front wall below the arm 30, is a pair of bearing-brackets 33, in which there is pivoted, as at 34, a lever 35, which near its  
 65 front end is loosely embraced by a series of links 36, each of which is provided with an elongated slot 37 for this purpose, and is se-

cured at its lower end to a weight 38. The upper ends of the links 36 are connected to the series of branch cords 24, each of which  
 70 cords, after having passed under the double pulley 17, before mentioned, is passed around a guide-pulley 39, and is then carried upwardly and inserted down through an opening or perforation 40, formed in the arm 30, in  
 75 which arm there is a series of such perforations.

The front wall of the tank 9, opposite the pipe 8, has pivoted thereto, as at 41, a gate 42, provided at its lower end with a stud 43, to  
 80 which is attached one end of an operating cord or belt 44, said cord or belt being carried upwardly over the pulleys 31 and down over the front end of the arm 30, and connected, as at 45, to the front end of the piv-  
 85 oted lever 35, which lever is maintained in a horizontal position when the gate is closed, as shown in Fig. 2.

When the cord or cords of one or more compartments of the drier are burned by reason  
 90 of fire within said compartments, it is apparent that the weights 26 and 36 being no longer supported by the cords will fall, the former weight depressing the lever 20, to which it is connected, and opening that gate  
 95 11, covering the pipe 5, superimposed over that compartment in which the fire is raging and in which the cord is burned, and thus permit water to pass from the supply-pipe 7 into the flood-pipe 5. The weight 38 falling  
 100 depresses the pivoted lever 35, which, through the medium of the strap or cord 44, elevates or raises the pivoted cut-off 42, thus permitting water to pass from the tank 9 into the supply-pipe 8, and from thence to the pipe 7.  
 105 It will thus be apparent that if any of the compartments should become fired that flood-pipe located in that compartment will be opened and discharge water through its discharge-nozzles 6 throughout the entire length  
 110 of said compartment. Should the entire kiln become fired, all of the flood-pipes are open, and in the same manner may two or more pipes, whether adjacent or remote from each other, become open and discharge water. By  
 115 this invention it is apparent that the fire is confined to that compartment in which it originates, if such be the case, and that the immense losses heretofore occurring will be clearly avoided by the automatic fire-extin-  
 120 guisher herein described.

Referring particularly to Figs. 2 and 3, within the tank and mounted in bearings 46 is a vertical shaft 47, provided at its upper end  
 125 with a belt-pulley 49 and at its lower end with a small water-wheel 48, a portion of the wheel being provided with a series of radiating-blades 50. A bracket 51, upon which is mounted a belt-pulley 52, is connected to the pulley 49 by an endless belt 53. Beyond the  
 130 pulley 52 is located an alarm-bell 54, and pivoted at one side of the same, as at 55, is a hammer 56, one end of which is adapted to strike the bell, and is maintained in contact



with the bell by means of a coiled spring 57. Upon the pulley 52 is located a trip 58, designed to strike the rear end of the hammer and swing the same away from the bell and against the tension of the spring, said hammer to be returned to contact with the bell by means of the spring. When the gate 42 has been raised to admit of the flow of water from the tank, as caused by the burning of any one of the cords 12, the rush of water through the opening covered by the gate serves to rotate the water-wheel 48, which rotates the shaft 47, pulleys 49 and 52, and thus simultaneous with the turning on of the water the alarm-bell is sounded to attract the attention of the attendants.

I wish it to be understood that I do not limit myself to the use to which I may place the principles of my invention.

Having thus described my invention, I claim—

1. The combination, with a series of compartments or rooms, of superimposed flood-pipes 5, having discharge-openings, a common supply-pipe 7, connected with a source of supply, hinged cut-offs 11, connected with the flood-pipes at their connections with the supply-pipe, and a hinged cut-off 42, connected with the supply-pipe at their connection with the source of supply, a series of cords 12, mounted in each of the compartments and terminating at their front ends in branches, levers 20 and 35, pivoted to one side of and connected to each of the flood-pipe cut-offs and to the supply-pipe, a branch of each cord being provided with and supporting a depending weight 26, having a slotted link adapted to actuate the flood-pipe valve-actuating levers 20, and the other branch of each cord being connected with similar slotted links and weights, each of which embraces and is supported above the lever 35, operating the supply cut-off, substantially as specified.

2. The combination, with a room or compartment, a flood-pipe 5, mounted above the compartment or room, a source of supply 9, located above the pipe, and a supply-pipe connecting the supply with the flood-pipe, of the gate pivoted to the supply-pipe at its point of connection with the source of supply, a perforated arm 30, supported in front of the gate and provided with pulleys, a lever 35, pivoted below the arm, a strap 44, mounted over the pulleys and having one end connected to the free end of the lever and the opposite end to the gate, and a cord 12, extending throughout the length of the compartment and passing through a perforation in the arm and depending below the same, and a weight 38 and a slotted link for supporting the weight and embracing the lever, the upper end of the link being connected to the cord, substantially as specified.

3. The combination, with a compartment or room provided at its opposite walls with a series of pulleys 17, the pulleys of one wall alternating with those of the opposite wall, of

a flood-pipe 5, mounted above the compartment and connected with a supply-pipe, a pivoted gate 11, connected to the end of the flood-pipe at its point of connection with the supply-pipe, a lever 20, pivoted to the gate and fulcrumed at one side thereof, a cord 12, made fast at its rear end to the compartment and passing in a zigzag manner around the aforesaid pulleys, and a weight 26, provided at its upper end with a slotted link connected with the cord, said slot receiving the rear end of the lever aforesaid, substantially as specified.

4. The combination, with the room or compartment having a cord 12 arranged therein at various points, of a supply-tank 9, elevated above the compartment and having a pivoted gate 42 covering an opening therein, a pipe 8, leading from the opening above the compartment, a rigid arm 30, projecting from the tank and provided with opposite pulleys, a lever 35, pivoted below the arm, a strap 44, mounted over the pulleys and connected at its rear end to the gate and at its opposite end to the free end of the pivoted lever, and a weight 38, having a suspension-link slotted to receive the lever and connected at its upper end to the cord 12 of the compartment, which latter depends through a perforation in the aforesaid arm 30, substantially as specified.

5. The combination, with the series of rooms or compartments, the superimposed series of flood-pipes 5, having discharge tubes or nozzles, the transversely-arranged supply-pipe 7, connected to the flood-pipes, the elevated tank 9, and the supply-pipe 8, leading from the transverse pipe to the tank, of gates 11 and 42, pivoted to each of the flood-pipes at their points of connection with the supply-pipe and to the supply-pipe at its point of connection with the tank, a series of inverted-L-shaped standards 18, located upon the transverse supply-pipe and provided with perforations, a series of cords 12, arranged upon pulleys and following a zigzag course in the compartments, one end of the cords being fastened within the compartments and the opposite ends passed through the perforations in the standards, a series of weights 26, having slotted links connected to the cords, levers 35, fulcrumed at the side of each flood-pipe, and having their rear ends terminating in the slots of their respective weights and their opposite ends connected by links to the gates, a vertical shaft 47, journaled at the side of the cut-off of the tank, a water-wheel 48, mounted thereon and projecting in front of the gate, a bell 54, and intermediate mechanism connecting the shaft 47 with the hammer of the bell, a rigid arm 30, mounted upon the tank and having a series of perforations and a pair of pulleys located at the ends of the arm, a strap 44, mounted on the pulleys and having one end connected to the gate, a lever 35, pivoted below the arm and having its free end connected to the outer end of the strap, a series of weights 38, having elongated slotted links embracing the lever, and a series of cords 24



branching from the cords before mentioned prior to their connection with the weights before mentioned and passing through the perforations in the arm 30, and connected at their  
5 free ends to the upper ends of the slotted links of the aforesaid weights 38, substantially as specified.

6. In a fire-extinguisher, the tank or other source of water-supply, the gate 42 in the tank  
10 to control the flow therefrom, the flood-pipe leading from the tank to the rooms or compartments desired, the cords 12, arranged in the room or compartment, the cut-offs 11 in the flood-pipes, lever mechanism for actuat-  
15 ing the cut-offs, and independent lever mech-

anism for actuating the gate 42, the aforesaid cords 12, leading directly to the cut-offs in the flood-pipes and having weights to actuate the lever mechanism thereof, and branch  
cords 24, leading from the cord 12 to the le- 20 ver mechanism of the gate 42 and having weights, as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JOSHUA B. GODWIN.

Witnesses:

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R. W. DAYTON.