

(No Model.)

R. T. SMITH.
SAFETY EXTINGUISHING ATTACHMENT FOR HEATING AND ILLUMINATING
APPARATUS FOR RAILWAY CARS.

No. 404,875.

Patented June 11, 1889.

Fig. 1.

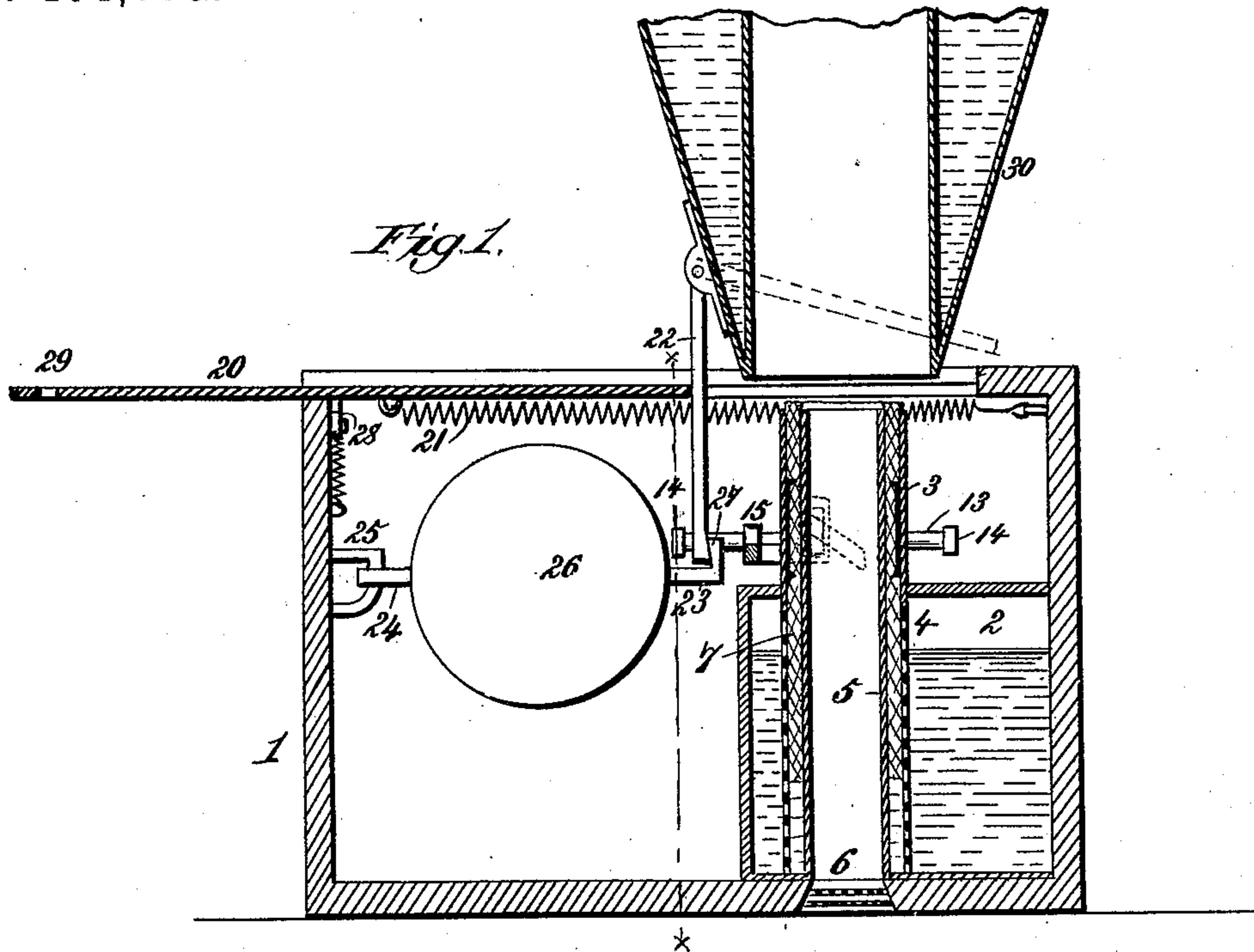


Fig. 2.

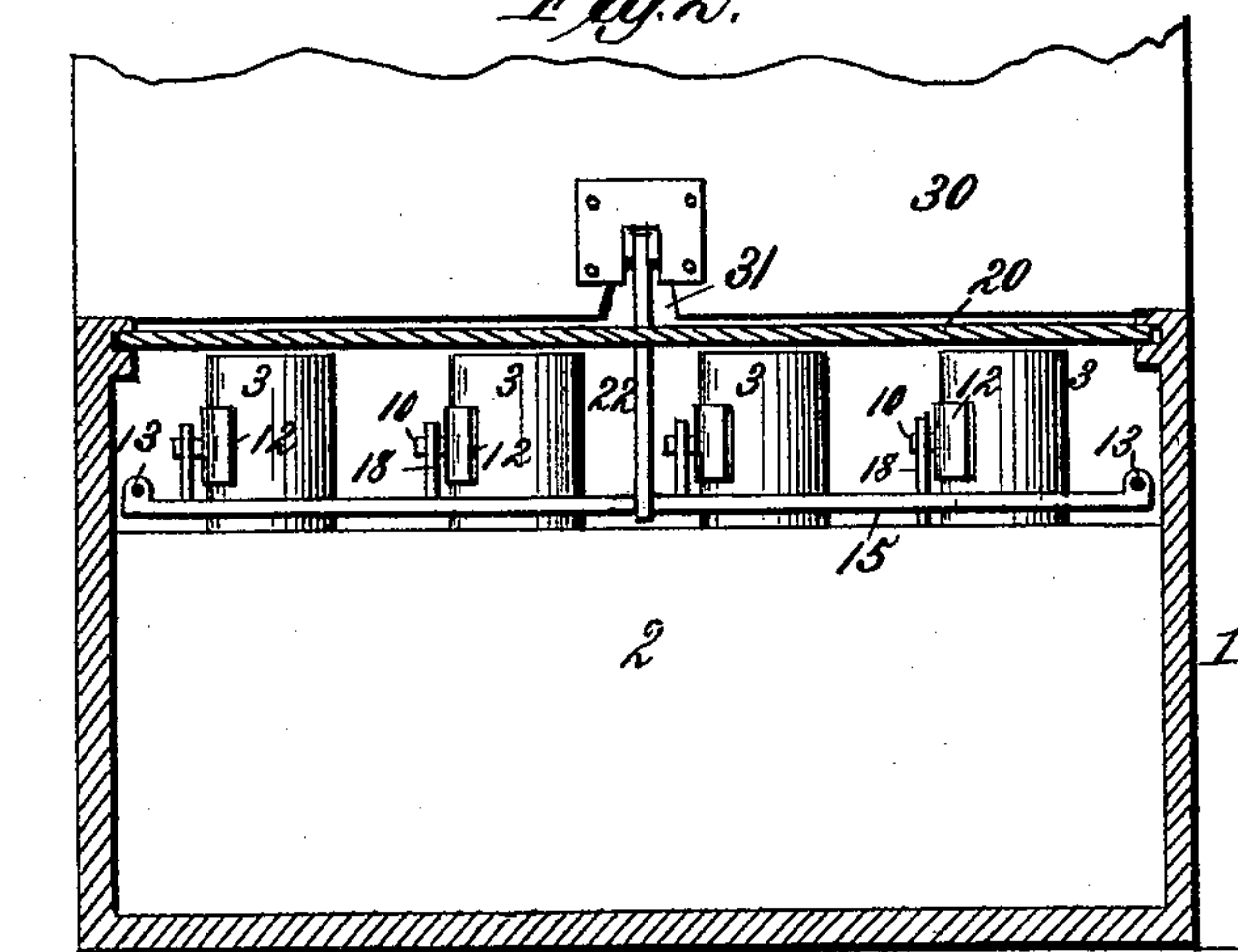


Fig. 3.

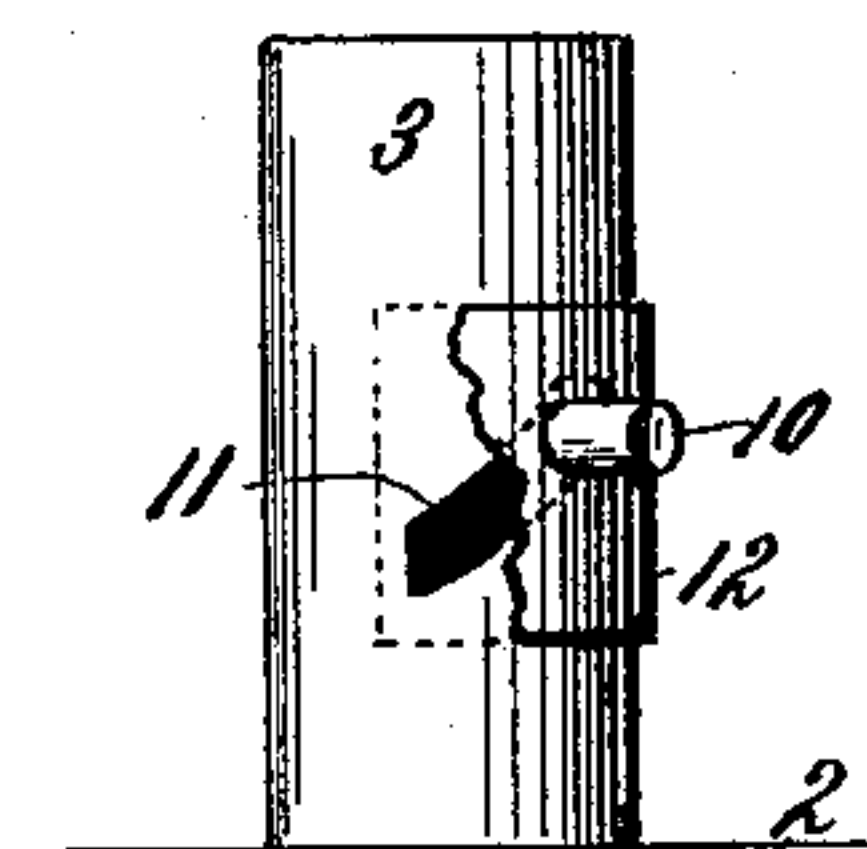


Fig. 4.

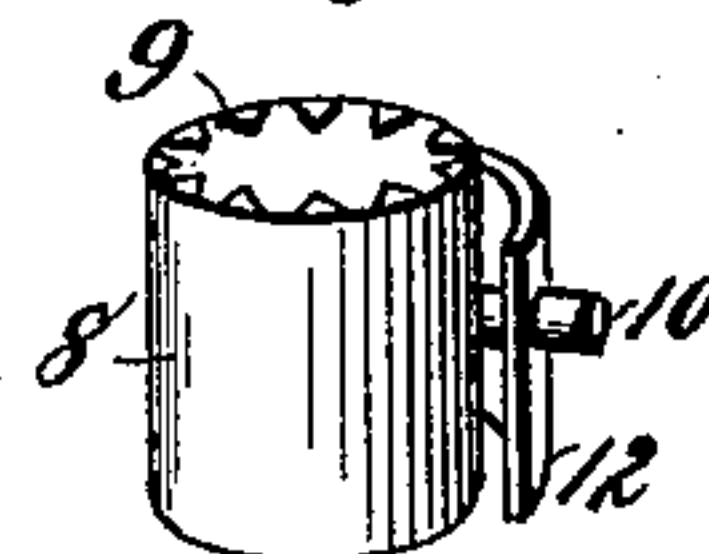
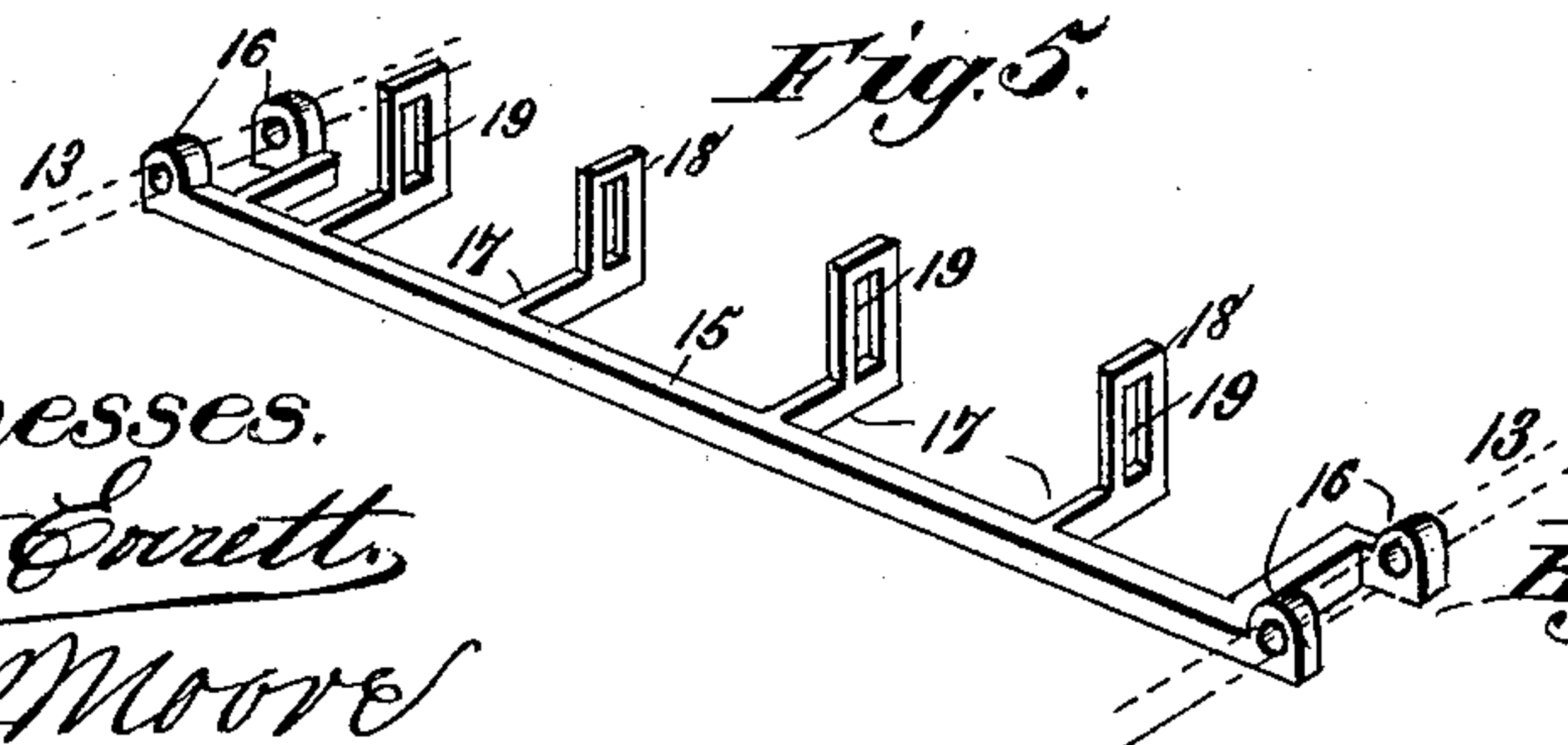


Fig. 5.



Witnesses.
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UNITED STATES PATENT OFFICE.

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SAFETY EXTINGUISHING ATTACHMENT FOR HEATING AND ILLUMINATING APPARATUS FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 404,875, dated June 11, 1889.

Application filed March 16, 1887. Renewed May 11, 1889. Serial No. 310,485. (No model.)

To all whom it may concern:

Be it known that I, ROSWELL T. SMITH, a citizen of the United States, residing at Nashua, in the county of Hillsborough and State of New Hampshire, have invented new and useful Improvements in Safety Extinguishing Attachments for Heating and Illuminating Apparatus for Railway-Cars, of which the following is a specification.

My invention relates to apparatus for heating or illuminating public conveyances, and more especially to that class of apparatus employed upon railway-cars.

It is the object of my invention to provide simple means whereby the flame generated for purposes of heating and lighting (either one or both) shall, in the event of accident, be instantly and completely extinguished and the devices and material from which heat or light is derived simultaneously inclosed in a chest or casing having sufficient strength to resist the shock and crush of collision or derailment.

It is an essential feature of my invention, also, that the results contemplated shall be wholly accomplished by automatic means so organized that they will act instantaneously and certainly in the event of accident without regard to the magnitude of the disaster, thereby interposing an effectual safeguard against the repetition of those calamities which have so frequently attended railway travel in this country during the last few years.

To these ends, therefore, my invention consists in the several novel features of construction and combinations of parts hereinafter fully set forth, and definitely pointed out in the claims following this specification.

Referring to the drawings accompanying this application and forming part thereof, Figure 1 is a vertical section taken through an apparatus embodying my invention. Fig. 2 is a vertical section in the plane xx , Fig. 1. Fig. 3 is a detail elevation of a part of one of the wick-tubes shown in Figs. 1 and 2. Fig. 4 is a detail perspective of one of the wick-adjusters detached. Fig. 5 is a detail perspective of the side bar by which the wick-adjusters are operated.

In the said drawings, the reference-numeral 1 denotes a chest or casing, of any suitable

form and dimensions, constructed of metal and of sufficient strength to resist any ordinary strain which may be exerted thereon. Within said casing is placed an oil-chamber 2, of any suitable construction. Within this oil-chamber is a wick-tube or series of tubes 3, projecting somewhat above the top of said chamber and having perforations 4 below said top to admit oil freely to the wick. Within each wick-tube and concentric therewith is a solid tube 5, communicating at its bottom with an opening 6 in the bottom of the oil-chamber and chest and supplying air to the wick to support combustion. Between these tubes lies the wick 7 in the annular space formed by them.

In that portion of the wick-tube which rises above the oil-chamber 2 lies a wick-adjuster, consisting of a short section of tubing 8, closely embracing the wick and having inwardly-turned teeth 9 at its ends, which penetrate the meshes of the wick. Projecting from this wick-adjuster is a stud or pin 10, which lies in a spirally-cut slot 11 in the wick-tube 3, said slot being covered by a plate 12, mounted on the stud. It will be seen that by carrying the said stud from end to end of the slot the wick will be raised or lowered.

The casing 1 may contain only a single wick-tube, or it may be provided with a series of such tubes, each having the construction set forth, and arranged in line with a little space between them. I have shown four such tubes in Fig. 2, and in employing a number thereof care is taken to have the studs or pins 10 all project from the same side of the tubes. Upon the walls of the casing at each end of the series of tubes 3 is a horizontal rod 13, supported on rigid bearings 14, and mounted upon said rods is a slide-bar 15, having a double bearing 16 on each end to obviate all tendency toward binding or jamming by the unequal travel of its ends and prevent it from turning axially. Projecting from said bar are horizontal arms 17, each carrying an upright 18, having a vertical slot 19, the arrangement of parts being such that when the slide-bar is mounted on its supports 13 the slotted uprights 18 shall lie adjacent to the wick-tubes and the slots 19 receive the studs

10 of the wick-adjusters. By the horizontal movement of the slide-bar the wick-adjusters will be operated simultaneously and equally.

5 Closing the top of the chest or casing 1 is a metallic slide 20, moving in suitable ways. This slide is normally thrown inwardly by a pair of powerful springs 21, and in closing it passes over the ends of the wick-tubes 3,
10 which are of such length that while permitting the free movement of the slide they are practically closed or so nearly closed by the closing of the slide as to effectually prevent combustion from taking place at the ends of
15 said tubes and to instantly arrest such combustion upon the passage of the slide.

When the apparatus is in use, the sliding cover 20 is held open by a trigger-bar 22, which may be hinged or pivotally mounted
20 upon any convenient support above the slide in such manner that it will hang in front of the edge of said slide. This trigger-bar engages with a loaded latch 23, having a loose connection with the wall of the casing within
25 the lid or cover—as, for example, by an eye 24 and staple 25. Any suitable weight 26 serves to load the latch, the end 27 thereof having any form which will give sufficient frictional contact with the end of the trigger-bar 22 to insure the preservation of their en-
30 gagement by the strong pressure of the springs 21 under all normal conditions and insure their disengagement upon the occurrence of any unusual shock or abnormal
35 change of position. For example, the engaging ends may be beveled at opposite angles, as shown.

When the slide 20 is opened and the springs 21 are under tension, the edge of the slide
40 bears against the trigger bar 22, the spring-tension preserving the engagement of the latter with the latch, by which the slide is held in its retracted position. The slide-bar 15 being now drawn back or away from the wick-
45 tubes 3, the slotted uprights 18 operate the studs 10, causing them to ride up in the slots 11 of the wick-tubes, thereby rotating the wick-adjusters 8 and raising the wicks into position for ignition. When thus arranged,
50 it will be seen from Fig. 1 that the slide-bar 15 lies in front of the end of the trigger-bar and within the arc through which it is swung by the closing of the slide 20. Thus adjusted the apparatus is ready for use. Let it now be
55 supposed that by reason of any sudden shock the latch 23 is thrown off the trigger-bar. The slide 20 is instantly thrown by the springs 21 over the tops of the wick-tubes; but before reaching them it sweeps the trigger-bar 22
60 against the slide-bar 15, pushing the latter forward or toward the wick-tubes and drawing all the wicks down in said tubes low enough to practically extinguish the flame of each. As this takes place and the slide closes
65 the chest or casing, a spring-actuated detent 28 is thrown upward into engagement with an aperture 29 in the end of the slide and

locks it securely. It may be stated that the lowering of the wicks is not in all cases expected to effect the immediate extinguish- 70 ment of the flames, but is accomplished in order to permit the free passage of the slide close to the open ends of the wick-tubes, whereby every spark is at once smothered. As the slide 20 closes, the trigger-bar 22 is 75 swung between the wick-tubes 3 and passes into a slot, 31, formed in the walls of the vessel 30, said slot allowing the bar to assume the position shown in dotted lines in Fig. 1, in which position it offers no obstruction to 80 the closing of the slide.

The heat derived from the lighted wicks may be used to heat water in any suitable form of vessel 30, and when the latter is employed it may furnish a convenient support 85 for the trigger-bar 22, a notch 31 being formed to permit the upward swing of said bar as the slide closes.

It will be noted that my invention contemplates the complete inclosure within an inde- 90 structible chest or casing of the entire apparatus of combustion, as well as the material by which combustion is sustained, and the automatic closing and locking of said chest or casing and the simultaneous extinguishing of the 95 wicks upon the occurrence of any accident from which danger is to be apprehended.

I have shown the invention applied to any ordinary form of heater whereby a circulation of hot water in pipes may supply the 100 requisite temperature to the interior of the car. It is evident, however, that the same invention may be applied to the illuminating apparatus or to any other form of heater. Moreover, the construction and arrangement 105 of parts and the mode of application may be greatly varied without any essential departure from my invention. It is evident, also, that there is no necessity for storing the material supporting combustion wholly within 110 the chest or casing, and since I may simply place therein a small reservoir and supply it as needed from an auxiliary or main tank independent of the chest. Moreover, instead of 115 one, I may employ two closing-slides moving oppositely or toward and from each other, and the lid, slide, or slides may be curved and move in curved guides, thus enabling me to project the burner-tubes above the open ends of the casing, which would be desirable in 120 case the apparatus is used for illumination.

One use to which my invention may be put and for which it is especially adapted is in connection with the heating and cooking ap- 125 paratus used in the cook's galley upon dining-room cars, this being considered one of the most dangerous points on a train as regards the probability of a conflagration in case of accident.

What I claim as new, and desire to secure 130 by Letters Patent, is—

1. In a safety extinguishing attachment for car heating and illuminating apparatus, a chest or casing adapted to contain material

and devices for sustaining combustion, a cover normally impelled to close said casing, a swinging trigger-bar engaging said cover when open, and a gravity-catch sustaining the engagement between said cover and trigger-bar, substantially as specified.

2. In a safety extinguishing attachment for car heaters and lighters, the combination, with a chest or casing adapted to contain means and material for sustaining combustion, of a cover for said casing, which is normally impelled to close, a trigger-bar holding said cover open, a gravity-catch held in engagement with said trigger-bar by the pressure of the cover, and an automatic catch locking the cover as it closes, substantially as specified.

3. In a safety extinguishing attachment for car-heaters, the combination, with a chest or casing adapted to contain devices and material for sustaining combustion, of one or more wick-tubes rising to the plane of the open top of the casing, a cover normally impelled to close the latter, a trigger-bar holding said cover open, and a gravity-catch engaging said trigger-bar, substantially as specified.

4. In heating or illuminating devices for railway-cars, a chest or casing, a cover constantly impelled to close the same, a closed oil-reservoir within said casing, one or more wick-tubes rising from said reservoir, a wick-adjuster engaging with each wick and a trigger-bar, and a gravity-catch holding said trigger-bar against the pressure of the cover, said trigger-bar being swept by the closing-cover against the bar connecting the wick-adjusters, whereby said wick-adjusters are operated automatically simultaneously with the closing of the cover, all combined substantially as specified.

5. In heating or illuminating devices for railway-cars, a chest or casing, one or more wick-tubes rising from a closed oil-reservoir within said casing, a wick-adjuster in each

tube having a stud projecting through a slot cut spirally in the wick-tube, an actuating-slide engaging said stud or studs, a spring-impelled cover sliding over and practically closing the tops of said wick-tubes, and an automatically-released trigger-bar which holds and automatically releases said cover and by which the actuating-slide is operated to lower the wicks as the cover closes, all combined substantially as specified.

6. In heating or illuminating devices for railway-cars, a chest or casing, a spring-impelled slide closing the same, an oil-reservoir within said casing, one or more wick-tubes rising from said reservoir, a wick-adjuster in each having a stud projecting through a slot cut spirally in the wick-tube, a slide-bar having arms engaging said studs, a swinging trigger-bar holding the slide open, and a loaded latch holding said trigger, the latter when released swinging against and actuating the slide-bar to lower the wicks before the slide shoots over the tops of the wick-tubes and closes the same, all combined substantially as specified.

7. In heating or illuminating devices for railway-cars, a chest or casing, a reservoir containing material for sustaining combustion, burner-tubes rising from said reservoir, devices for raising and lowering the flame, a slide-bar actuating said devices, a spring-impelled slide closing said casing, means for holding and automatically releasing said cover, and an automatic locking-detent for retaining it in a closed position, the slide-bar being actuated by the releasing device as the slide closes over the tops of the burner-tubes, all combined substantially as specified.

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

ROSWELL T. SMITH.

Witnesses:

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CHAS. B. TILDEN.