No. 655,834. Patented Aug. 14, 1900.

J. W. ROUGH.

BURGLAR ALARM.

(Application filed Nov. 22, 1899.)

(No Model.) 3 Sheets—Sheet 1.

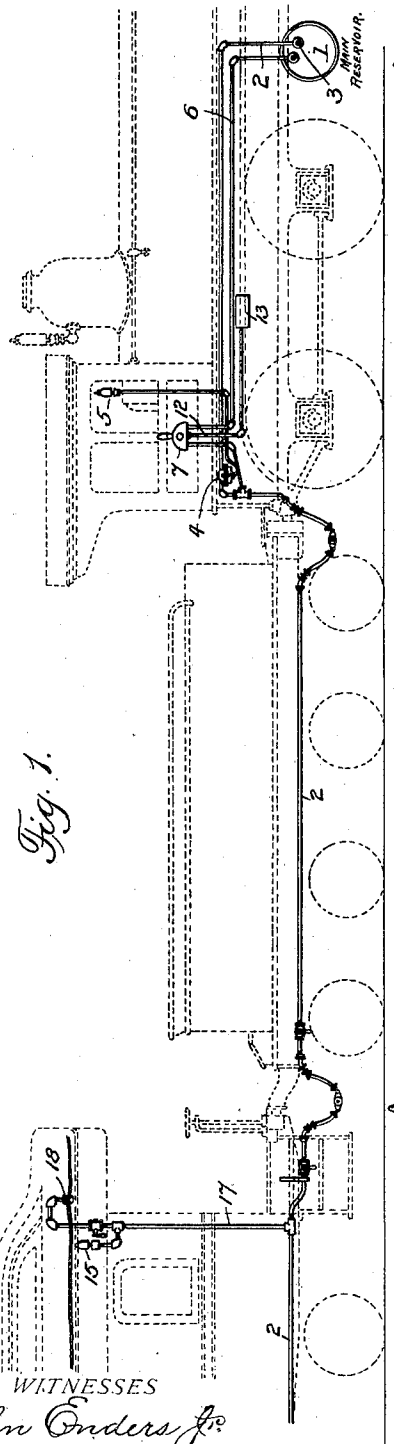


Fig. 1.

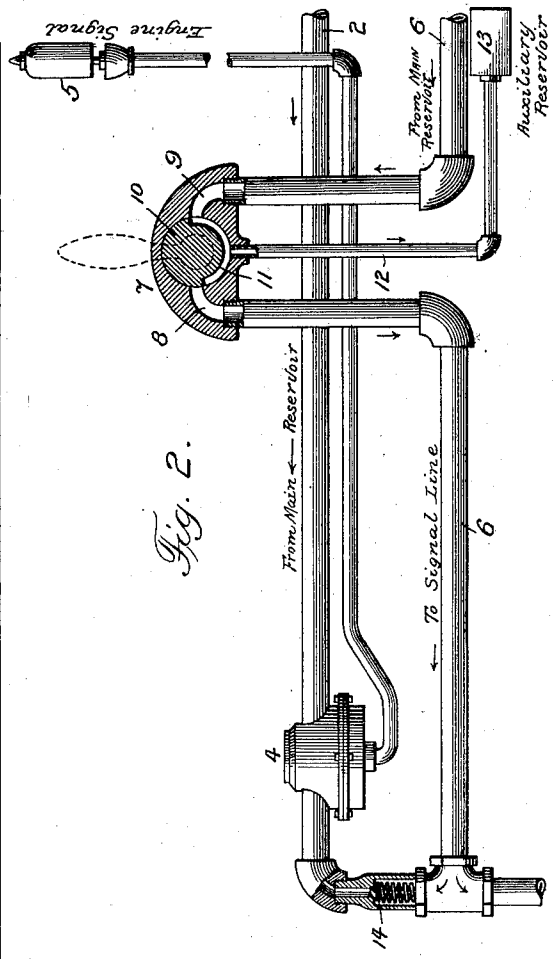


Fig. 2.

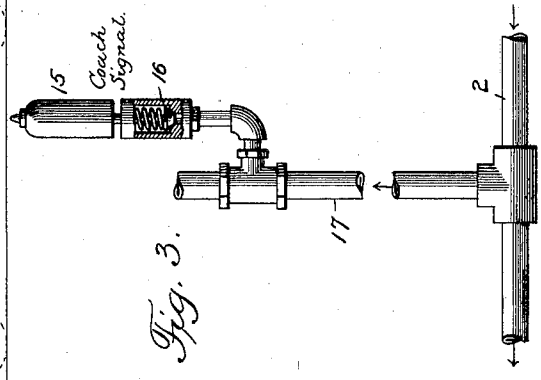


Fig. 3.

WITNESSES

John Enders Jr.

Louis D. Heinrichs

B. F. Frank

INVENTOR

John W. Rough

By Victor J. Evans

Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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J. W. ROUGH.

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Fig. 4.

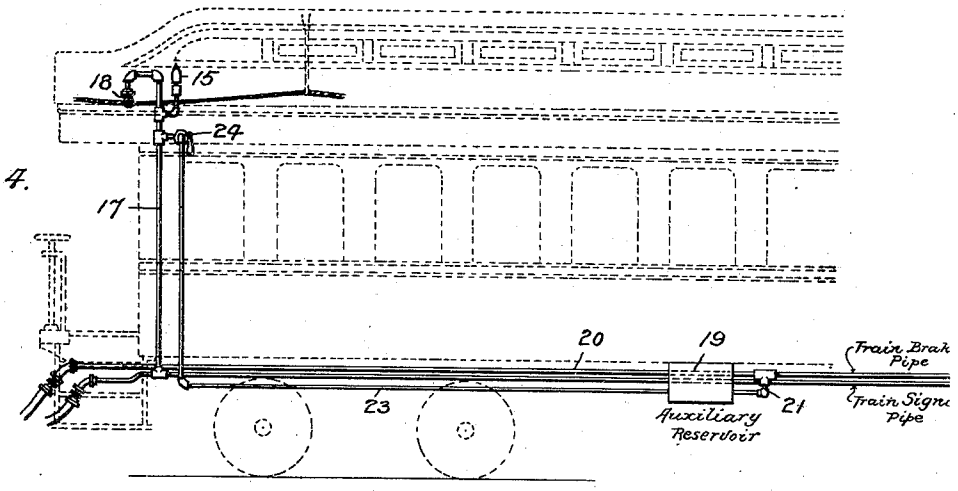


Fig. 5.

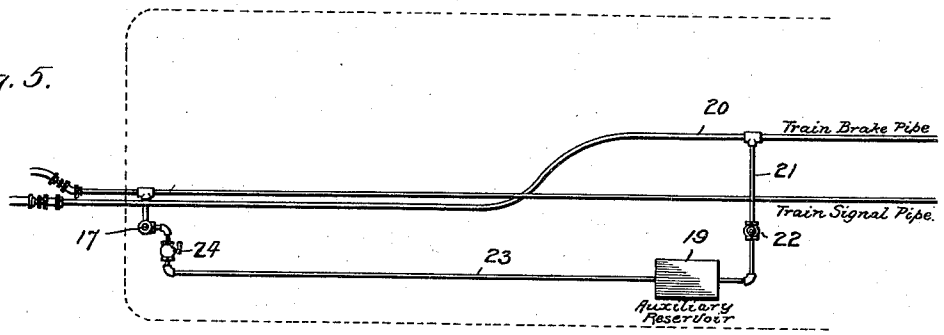


Fig. 6.

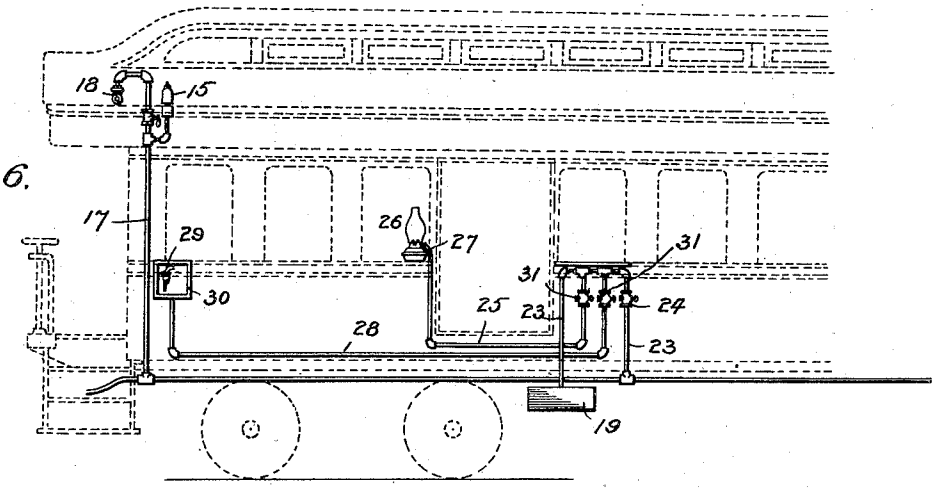
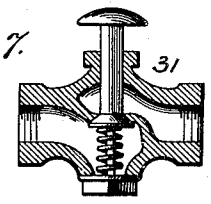


Fig. 7.



WITNESSES

John Enders Jr.

Louis D. Heinrichs

B. J. Fenwick

INVENTOR

John W. Rough

By Victor J. Evans

Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 655,834. Patented Aug. 14, 1900.

J. W. ROUGH.

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Fig. 8.

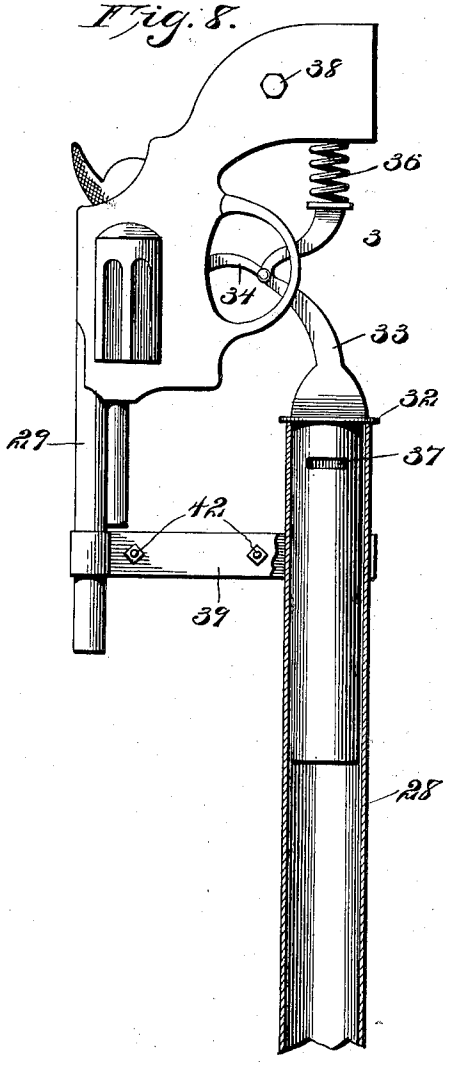


Fig. 9.

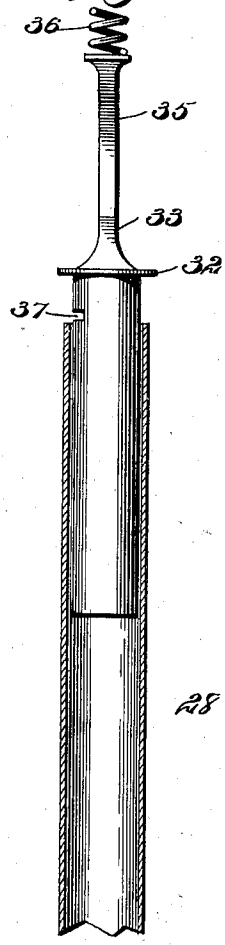
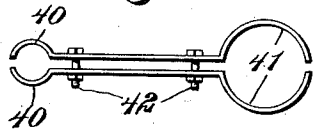


Fig. 10.



Witnesses
John Enders Jr.
Louis D. Heinrichs

Inventor
John W. Rough
By Victor J. Evans
Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN W. ROUGH, OF ORLEANS, INDIANA.

BURGLAR-ALARM.

SPECIFICATION forming part of Letters Patent No. 655,834, dated August 14, 1900.

Application filed November 22, 1899. Serial No. 737,944. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. ROUGH, a citizen of the United States, residing at Orleans, in the county of Orange and State of Indiana, have invented certain new and useful Improvements in Burglar-Alarms, of which the following is a specification.

This invention relates to train-signals, but more particularly to signaling systems adapted for utilization to sound an alarm throughout the train when the engine or any car is attacked by train-robbers.

One object of the present invention is the provision of an improved signaling system adapted for operation by air-pressure derived from the regular signaling and air-brake equipment of the train without interfering therewith by which the engineer can send an alarm to all the cars of the train if he is attacked or the alarm can be sent throughout the train from any car thereof if that car is the point of attack.

A further object is to provide in connection with the other parts of the system an improved equipment for the baggage and express car by which the lights therein can be extinguished and a firearm discharged in order to better protect the express-messengers, &c.

Having the foregoing objects in view, the invention consists of a signaling system and apparatus comprising certain improved features and novel combinations and arrangements set forth in detail hereinafter and recited in the appended claims.

In the accompanying drawings, Figure 1 is an elevation showing the application of the system to the locomotive and a car; Fig. 2, a detail view of those parts which are located on the locomotive; Fig. 3, a detail view of the signal mechanism in a car; Fig. 4, an elevation showing the complete equipment of a car; Fig. 5, a view illustrating the arrangement of the parts on the bottom of the car; Fig. 6, an elevation of the special equipment of the baggage and express car; Fig. 7, a detail of the valve employed therein. Fig. 8 is an elevation, partly in section, of a pistol and means for firing the same by air-pressure. Fig. 9 is a detail sectional view of the firing device, and Fig. 10 is a plan view of a clamp for securing the pistol.

Referring now to Figs. 1, 2, and 3, the numeral 1 designates the usual main air-reservoir of the air-brake and signaling system now in general use on trains, and 2 the signal-pipe leading from a reducing-valve 3, which cuts the reservoir-pressure of ninety pounds down to forty pounds. 4 is the signal-valve in said pipe, and 5 is the ordinary engineer's whistle, by which the conductor signals the engineer. I employ an auxiliary signal-pipe 6, shunted from the reservoir around the ordinary signaling apparatus on the engine to the signal-pipe proper leading to the train, and in said pipe is an engineer's signal-valve 7, whose casing or body has the passages 8 and 9 communicating with the respective pipe-sections. A plug-valve 10, having a peripheral air passage or channel 11, is adapted to put either of said passages into air communication with a branch pipe 12, leading to an auxiliary reservoir 13. In the main signal-pipe is a spring-actuated valve 14, having a tendency to seat itself, which closes communication with the engineer's whistle when the signals are being sent by the engineer to the cars of the train, so that his own whistle will not blow at the same time. In each car there is a signal-whistle 15, having a normally-seated spring-actuated valve 16, adapted to hold the usual forty pounds' pressure in the signal-pipe 2, said whistle being connected to the signal-pipe by branch pipe 17, leading to the usual discharge-valve 18, which is operated by pulling the signal-cord when signaling to the engineer.

Before proceeding with a description of the other parts of my signaling system I will give the operation of that part previously described.

The normal position of the signal-valve 7 is that shown in Fig. 2, where the passage 9 is in communication with the auxiliary reservoir. As the pipe 6 contains the full pressure of ninety pounds in the main reservoir 1, the auxiliary reservoir will also contain a pressure far in excess of the normal pressure in the signal-pipe while in this position. The usual signaling apparatus, operated by the signal-cord in the various cars, can be used to sound the whistle 5. If for any cause—such, for instance, as an attack by train-robbers—the engineer wishes to sound the alarm

in the various cars of the train, he throws the valve-handle to the right, thereby cutting off communication between the main and auxiliary reservoirs and putting the auxiliary reservoir in direct communication with the train signal-pipe. When this is accomplished, the normal forty pounds pressure in the signal-pipe is supplemented by the discharge from the auxiliary reservoir. The pressure being raised, the valves in all the car-whistles are unseated and said whistles sounded until the pressure again drops to forty pounds. During this discharge the valve 14 is held tightly seated by the additional pressure, thus preventing the engine signal or whistle from sounding. Consequently the attacking party have no knowledge of an alarm being sounded, while the train-crew are warned of the attack and placed on their guard. The valve 7 can be placed at any convenient point in the car and arranged for operation either by hand or by foot.

Referring now to Figs. 4 and 5, where is shown the additional means on each car for the purpose of allowing a signal to be sent from any car to the other cars in case that given car is attacked, the numeral 19 designates an auxiliary reservoir similar to the one on the locomotive, which is connected to the train-brake pipe 20 by the branch 21, which corresponds to the branch 6 on the locomotive leading from the main reservoir to the valve 7 and by which pressure is stored in said auxiliary reservoir 19. In the pipe 21 is a check-valve 22, which will close and retain the stored pressure in the auxiliary reservoir whenever the demand on the train-brake pipe on applying the brakes causes the pressure to drop below that in said auxiliary reservoir, so that the whistles can be sounded regardless of such a drop in pressure. The air-passage through the casing of said valve 22 is very small in order to prevent a sudden drain on the train-brake pipe 20 when the whistles are sounded. A pipe 23 leads from the auxiliary reservoir to the pipe 17 in the car and is provided with a cock or valve 24. Upon opening the valve 24 to allow the excess pressure in the auxiliary reservoir 19 to pass by the same, the normal pressure of forty pounds in the train-signal pipe and its branches is supplemented and raised and the whistle blown in the cars.

In Fig. 6 is shown a scheme for giving additional protection to the baggage and express car. Here the same arrangement is had as on the other cars, the valve 24 being shown in a different position, but acting in the same manner; but a pipe 25 is branched from the pipe 23 to the lamps 26 used at different points in the car, with the open end 27 of the pipe positioned so that the lamp will be extinguished when the air issues from said end 27. Another pipe 28 leads to suitable air-operated mechanism (shown in Figs. 8, 9, and 10) for discharging any suitable firearm 29, inclosed in a box 30, located, preferably, near the door of the car. Valves 31 are provided in the pipes for controlling the supply of air thereto. The form of valve used is shown in Fig. 7. This valve is kept normally closed and is of a well-known construction. When the attack is made, the occupants of the car can open the valve in pipe leading to the lamps and simultaneously extinguish them by the air-pressure from the auxiliary reservoir, so that the attacking party will not possess the advantage of being able to see the messengers, &c. Upon the attack being made the air can be allowed to discharge the firearm by opening the proper valve for the purpose of scaring off the robbers.

While the invention is not restricted to any particular mechanism for firing the firearm, I have shown in Figs. 8, 9, and 10 practical devices for this purpose. The upper end of the pipe 28 is provided with a valve 32 in the form of a cartridge-shell, having an arm 33 pivotally secured to the trigger 34 of the pistol 29. To the trigger is also pivotally secured an upwardly-extending arm 35, a spring 36 being interposed between the upper end of said arm and the stock of the firearm. The valve 32 is formed with an air-vent 37, and the firearm is secured by a bolt 38 passing through its stock or handle, and also by a two-part clamp 39, formed at one end with curved jaws 40 to embrace the barrel of the firearm and at its opposite end with curved jaws 41, embracing the pipe 28. The sections of the clamp are secured together by bolts 42. When the air is admitted to the pipe 28, the valve 32 is lifted, thus pulling the trigger to discharge the firearm. When the valve is raised sufficiently to uncover its vent 37, the air escapes and the spring 36 returns the trigger and valve to their normal position.

It is obvious that my invention is susceptible of many changes without changing its scope, and I do not therefore limit myself to the precise constructions and arrangements shown and described, but consider myself entitled to all such variations as properly fall within the spirit of the invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a signaling system for trains, the combination with an air signal-pipe, and a source of air-pressure for maintaining an air-pressure normally in said pipe, of car-signaling devices, operated from said pipe but unaffected by the normal pressure therein, a reservoir, a pipe connection between said reservoir and the source of air-pressure, a pipe connection between the reservoir and the signal-pipe, means controlling the discharge from the reservoir through said pipe, and a valve for preventing escape of the air-pressure from the reservoir back into the source of air-pressure, said reservoir being adapted

to supplement the normal air-pressure in the signal-pipe when discharging therein, whereby the signaling devices are operated.

2. In a signaling system for trains, the combination with an air signal-pipe, of a main air-reservoir for maintaining an air-pressure in said pipe, car-signaling devices operated from said pipe but unaffected by the normal air-pressure therein, an auxiliary signal-pipe, a valve interposed in said auxiliary signal-pipe, an auxiliary reservoir, and a pipe leading from said auxiliary reservoir to the valve, said valve being adapted to put the main reservoir normally in communication with the auxiliary reservoir to cause the charging of the latter, and to effect the discharge of the auxiliary reservoir into the main signal-pipe when operated.

3. In a signaling system for trains, the combination with an air signal-pipe, of a main air-reservoir in communication with said pipe, means for reducing the air-pressure supplied to the pipe so it will be below that of the main reservoir, an auxiliary signal-pipe leading from the main reservoir to the signal-pipe, an auxiliary reservoir connected to said auxiliary signal-pipe, a valve for establishing communication either between the main and auxiliary reservoirs or between the auxiliary reservoir and the main signal-pipe, and air-operated car-signaling devices operated from the signal-pipe which are normally inactive but are actuated by the supplemental pressure thrown into the signal-pipe from the auxiliary reservoir when discharging.

4. In a signaling system for railway-trains, the combination with an air-pressure pipe, a firearm, and a branch pipe leading from the air-pressure pipe to the firearm, of a valve within the branch pipe provided with an arm attached to the trigger of the firearm, and with an exhaust-opening, and means for retracting said valve after it has been forced outward by the air-pressure.

5. In a signaling system for railway-trains, the combination with an air-pressure pipe, a firearm, and a branch pipe leading from the air-pressure pipe to the firearm, of a bracket secured to the branch pipe for supporting the firearm, a valve within the branch pipe formed with an exhaust-opening, an arm projecting from the outer end of said valve and attached to the trigger of the firearm, a second arm pivotally secured to the trigger and a spring interposed between said arm and the stock of the firearm.

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

JOHN W. ROUGH.

Witnesses:

JONAS MONYHAM,

CHARLES P. MUNGER.