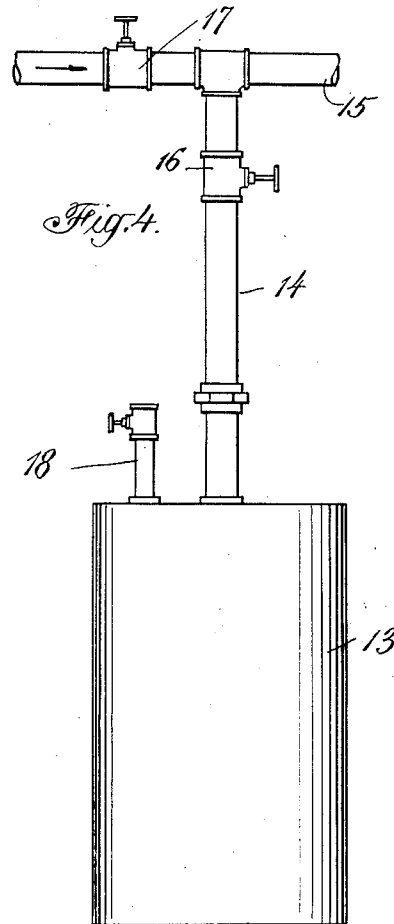
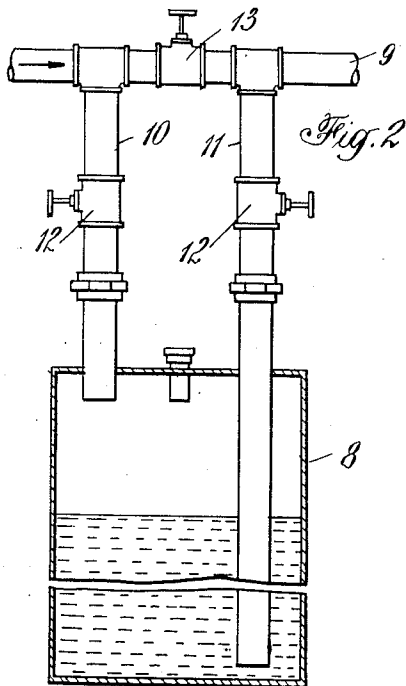
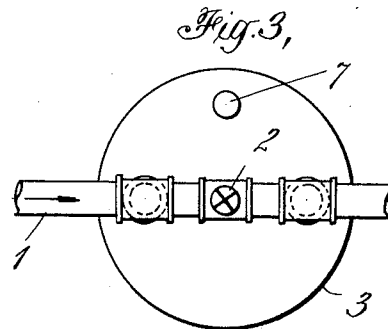
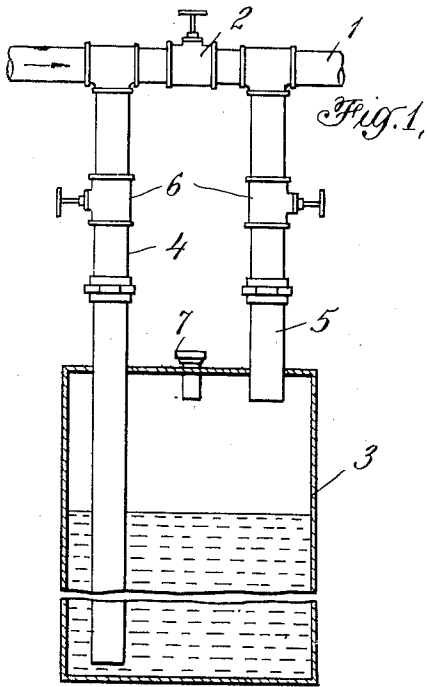


A. E. SANER.
 SIGNALING MECHANISM.
 APPLICATION FILED JUNE 29, 1921.

1,438,463.

Patented Dec. 12, 1922.



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UNITED STATES PATENT OFFICE.

ARTHUR E. SANER, OF BUTTE, MONTANA.

SIGNALING MECHANISM.

Application filed June 29, 1921. Serial No. 481,429.

To all whom it may concern:

Be it known that I, ARTHUR E. SANER, a citizen of the United States, residing at Butte, in the county of Silverbow, State of Montana, have invented certain new and useful Improvements in Signaling Mechanism; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention is an improvement in signaling, and relates especially to a method, and an apparatus, to be used in connection with fluid pressure supply lines of any character for transmitting information from a central station to a plurality of separated points. In many industries, as for instance mining, fluid pressure, usually compressed air, is supplied to every part of the plant, for ventilation, for operating machinery, and for like purposes. The supply lines extend to the remotest ramifications of the plant, and they are tapped at appropriate intervals, so that the central station supplying the fluid is connected with substantially all parts of the plant. The current of fluid, whether liquid or gaseous, moving continuously in one direction, provides a means, not heretofore utilized, for diffusing information from the central station to a plurality of points covering an extended area, or from a selected point on any line, to another selected point, or to other selected points, on the same line. The object of the present invention is to provide a method for utilizing this current of moving fluid for such purpose, and to provide an apparatus for carrying the method into effect.

In the drawings;

Figure 1 is a vertical section of a form of apparatus,

Figure 2 is a similar view of another embodiment,

Figure 3 is a top plan view of Figure 1,

Figure 4 is a front view showing another embodiment of the invention.

In the embodiment of the invention shown in Figures 1 and 3, the pipe line 1, through which flows the current of fluid pressure is provided at the central station, or at any desired point from which it is desired to signal, with a valve 2, the valve being any usual form of cutoff valve. A container 3 is arranged adjacent to the valve, and pipes 4

and 5 connecting the container with the pipe line 1. These pipes are connected with the pipe line on opposite sides of the valve 2, and each pipe 4 and 5 is provided with a cutoff valve 6 of usual construction. The pipe 4 extends into the container, and to near the bottom thereof, while the pipe 5 extends only through the top of the casing. The casing is adapted to contain a fluid, either liquid or gaseous, having characteristics noticeably different from those of the fluid normally passing through the pipe line. As for instance this fluid may be colored, or it may be odorous, or possessing other characteristics, which would make themselves evident to the senses. A filling nipple 7 is provided for permitting the container to be filled, and normally the valves 6 are closed, so that there is no circulation through the container.

When for any reason it is desired to signal by means of the current flowing through the pipe line, the valves 6 in the pipes 4 and 5 are opened, and the valve 2 is closed. Now the current of fluid pressure must flow by way of the pipe 4 into the container, and through the fluid therein, passing thence by way of the pipe 5 to the pipe line. In a very short time, this fluid, having characteristics noticeably different from those of the fluid normally passing through the pipe line will make itself evident at every outlet of the pipe line. If the fluid is a colored gas, or solution, it will be seen, when it begins to flow from the pipe line. If such fluid is odorous, its presence will be determined by the sense of smell.

In Figure 2, the container 8 for the fluid is connected to the pipe line 9 by pipes 10 and 11, each of which is provided with a valve 12. A valve 13 is arranged in the pipe line between the pipes 10 and 11. The pipe 10, which corresponds to the pipe 4 of Figure 1, extends only through the top of the container, while the pipe 11 which corresponds to the pipe 5 of Figure 1, extends to near the bottom of the container. The operation is the same as in the construction of Figure 1, but the construction is more especially adapted for use with liquids, colored, or odorous. The construction of Figure 4 is especially adapted for use with a fluid under pressure, which is forced out into the pipe line by the pressure in the container. In this arrangement, the container 13 is connected by a pipe 14 with the pipe line 15. A valve 16 is provided in the

pipe 14 and a valve 17 is interposed in the length of the pipe line, between the pipe 14 and the central station. When it is desired to signal with this construction, the valve 5 17 is closed, and the valve 16 is opened. The fluid pressure in the container 13 will flow out through the pipe 14, into the fluid supply pipe, and will make its presence evident at the outlets of the said pipe. The fluid may 10 be either gaseous or liquid, and it is supplied to the container by means of a valved inlet pipe 18. In use, a supply of the fluid would be held in the container. Normally the valves in the connecting pipes would be 15 closed. In case it were necessary to signal, as for instance in case of fire in a mine, it is only necessary to close the valve in the pipe line, and to open the valves in the connecting pipes, in the construction of Figures 1 and 2. 20 The fluid pressure now flows down the one pipe into the container, and through the other pipe into the pipe line, carrying with it the fluid having characteristics noticeably different from those normally flowing in the pipe line. In the construction of 25 Figure 4, the valve 17 would be closed and the valve 16 opened. The pressure in the container would drive out the fluid into the pipe line. The same method and apparatus may be used with any pipe lines 30 carrying any character of fluid, either gaseous or liquid, as for instance water. The method may also be used for signaling with air currents, or currents of other gases 35 moving continuously in one direction. The fluid having characteristics different from those forming the air current would be introduced directly into the current, and would be transported by such current to the 40 points desired.

I claim:

1. A method of utilizing a current of

fluid moving continuously in one direction for diffusing information, which comprises introducing into the current a fluid having 45 characteristics noticeably different from those of the fluid of the current.

2. A method of signaling with fluid pressure supply lines, which comprises introducing into the supply line a fluid having 50 characteristics noticeably different from those of the fluid normally flowing in the line.

3. In combination with a pipe line for fluid under pressure, a container for a fluid 55 having characteristics noticeably different from those of the fluid normally flowing through the pipe line, and means for introducing said fluid into the pipe line.

4. In combination with a pipe line for 60 fluid under pressure, a container for a fluid having characteristics noticeably different from those of the fluid normally flowing through the pipe line, and means for diverting the fluid in the pipe line through the 65 container.

5. In combination with a pipe line for fluid under pressure, a container for a fluid having characteristics noticeably different 70 from those of the fluid normally flowing through the pipe line, and means for diverting the fluid in the pipe line through the container, said means comprising a plurality of valved connections between the container 75 and the pipe line and a valve in the pipe line between said connections.

6. In combination with a supply line for fluid under pressure, of means for introducing a fluid having characteristics noticeably 80 different from those of the fluid under pressure for the purpose specified.

In testimony whereof I affix my signature.

ARTHUR E. SANER.