S. J. KÜBEL.

VISUAL SIGNAL.

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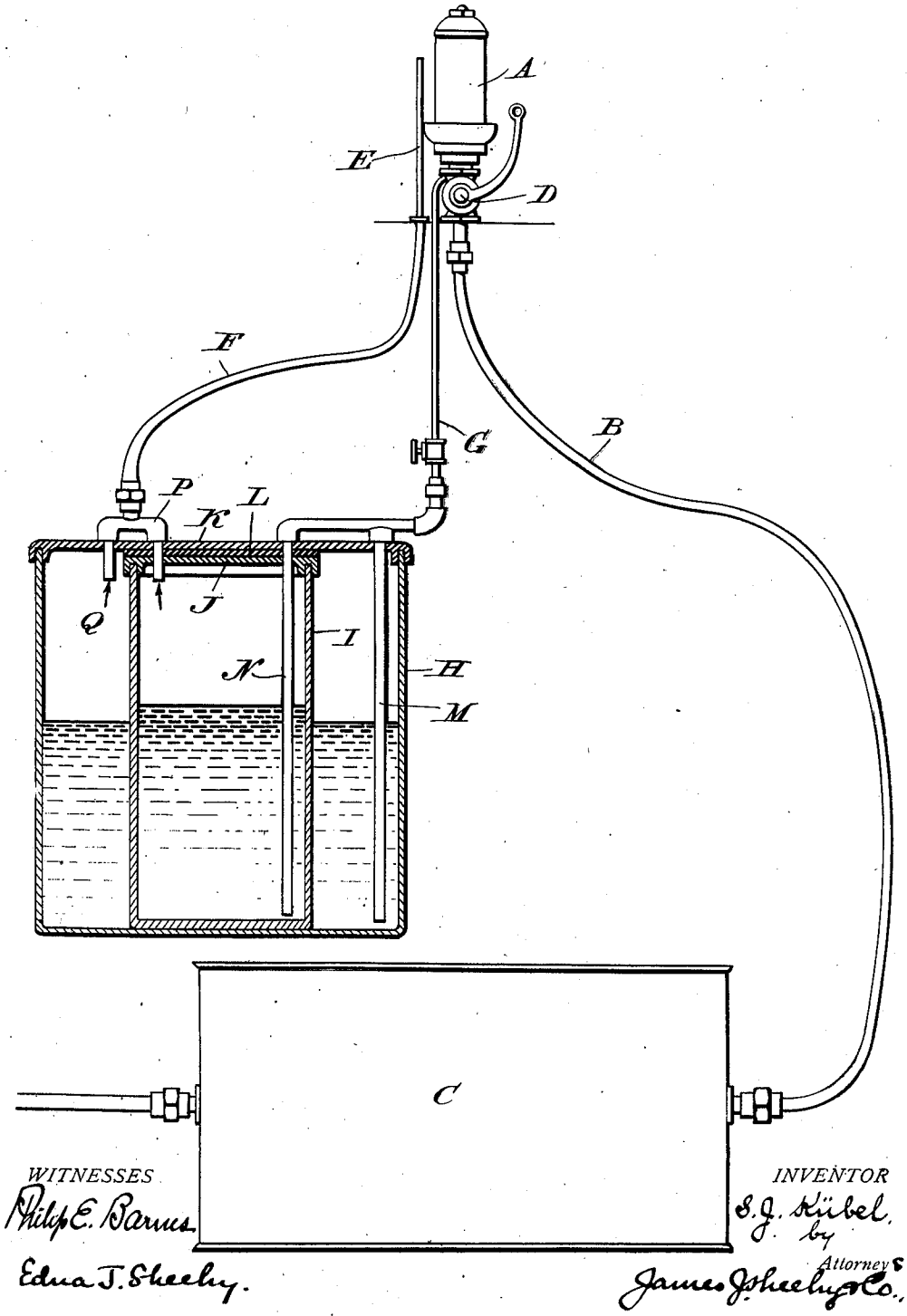


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# UNITED STATES PATENT OFFICE.

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## VISUAL SIGNAL.

1,050,551. Specification of Letters Patent. Patented Jan. 14, 1913.

Application filed March 11, 1912. Serial No. 682,957.

*To all whom it may concern:*

Be it known that I, STEPHEN J. KÜBEL, a citizen of the United States, residing at Washington, in the District of Columbia, have invented new and useful Improvements in Visual Signals, of which the following is a specification.

Pilots of steamboats and boats of other classes are rarely enabled to hear clearly or at all the course-signals given by the comparatively weak whistles (actuated by other than steam blasts), the horns or other audible signals with which motor boats and other boats are equipped, and this failure to distinguish signals is a serious menace to navigation. It is also well known to operators of motor boats propelled by internal combustion engines that the pilot of such a boat, because of the noise made by the propelling machinery therein, is frequently unable to hear the whistle, horn or other audible device and ascertain the course-signal of an approaching boat, and hence the handling of such boats is always attended by more or less danger.

One of the objects of my present invention is to provide a visual signal intended primarily for use in the daylight and through the medium of which the pilot of a boat not equipped with a steam whistle can acquaint those in another vessel of the course he proposes to take. While my visual signal is intended primarily for use in the daytime, I would have it distinctly understood that when illuminating means of any suitable kind is employed, the signal may be made visible at night.

Another object of the invention is the provision of an audible signal and a visual signal; the said audible and visual signals being so combined as to be operated synchronously.

Another object is the provision for signal purposes of two chemicals or gases adapted when combined to form smoke or vapor, and means for bringing about the commingling and emission of the said chemicals or gases in the form of smoke or vapor plainly visible in the atmosphere. The chemicals I prefer to employ are ammonia and hydrochloric acid, and when these are combined ammonium chlorid is formed; ammonium chlorid being a solid white substance so finely divided as to appear as a smoke or vapor. The chemicals mentioned are also preferable because they neutralize each other when combined, and the vapor given off is not noxious.

Other peculiar and advantageous characteristics of the invention will be fully understood from the following description and claims when the same are read in connection with the drawing, accompanying and forming part of this specification, in which:

The figure is a view, partly in elevation and partly in section, of the best practical embodiment of my invention that I have as yet revised.

In the illustrated and preferred embodiment of my invention, I employ a whistle A which *per se* may be of any type consonant with the purpose of my invention without involving departure from the scope of same as claimed. The said whistle is connected through a suitable conduit B with a reservoir C, charged in any approved manner with air or other suitable fluid under pressure, and in the conduit B at a suitable point is located a conventional or other approved valve D, the opening of which will bring about the passage of fluid under pressure to the whistle and the sounding of the latter.

Located by preference at one side of and in close proximity to the whistle A is an ejecting tube E, disposed vertically, and connected with the lower end of the said tube is a conduit F through which the fluid under pressure and the smoke or vapor-forming means are permitted to pass as hereinafter set forth.

Connected with the conduit B at the opposite side of the valve D, with reference to the source of fluid-pressure supply C, is a conduit G through which a portion of each blast of fluid under pressure is permitted to pass when the valve D is opened to sound the whistle A. The said conduit G has for its office to conduct a portion of the fluid under pressure to the chemical containing vessel, with a view to displacing and commingling the chemicals and ejecting the same in the form of smoke or vapor through the tube E, and this synchronously with the sounding of the whistle A.

The chemical-containing vessel referred to comprises an outer receptacle or member H, designed to contain hydrochloric acid, an inner receptacle or member I adapted to contain ammonia and keep the same isolated from the hydrochloric acid, an individual cover J for the receptacle or mem-

ber I, a cover K suitably secured on the receptacle or member H and a gasket or cushion L interposed between the covers J and K and designed to retain the cover J in position and against casual displacement.

The conduit G is connected as shown with two sub-conduits M and N; the conduit M extending down in the receptacle or member H to a point adjacent the bottom thereof, and the conduit N extending down into the receptacle or member I to a point near the bottom of the receptacle or member. It will also be understood that a conduit P effects communication between the receptacle I and the conduit F, and a conduit Q effects connection between the interior of the receptacle H and said conduit F. By virtue of this it will be manifest that when the valve D is opened to sound the whistle A, a portion of the fluid under pressure will pass through the conduit G and the sub-conduits M and N into the receptacles H and I respectively. The hydrochloric acid and ammonia are gases dissolved in water, and when the fluid under pressure is let into the receptacles or containers H and I as stated, such fluid under pressure will liberate the gases from the water and will pass with the gases to the conduit F. When the said gases contact with each other in the conduit F ammonium chlorid is formed, as before stated, and this latter is emitted with the blast of fluid under pressure from the tube E, and constitutes a visual signal that is plainly to be seen in the atmosphere, and one that does not dissipate as quickly as steam or ordinary smoke. It will also be understood here that the emission of the ammonium chlorid will be synchronous with the sounding of the whistle A.

By reason of the emission of the visual signal each time that the whistle is sounded, the pilot of an approaching boat will be apprised of the sounding of the whistle even if he can not hear the same, and hence will be made cognizant of the course-signal given. It will also be understood in this connection that the emission of the visual signal from the tube E will correspond in length with the blasts of the whistle A—*i. e.*, long blasts of the whistle will be attended by correspondingly long emissions of the visual signal, while short blasts of the whistle will be accompanied by similar short emissions of the visual-signal or visual-signal means. Consequently by observing a boat equipped with my improvements, the pilot of another boat is enabled to clearly understand the course-signals that are given on the boat so equipped even if he can not hear the whistle thereof.

It is to be distinctly understood that my invention is not restricted to the specific means shown and described for forming and ejecting blasts of substance clearly visible in the atmosphere in concert with blasts of the whistle. On the other hand the emissions visible in the atmosphere may be formed by any suitable means and may be discharged into the atmosphere in any approved manner without involving departure from the scope of my claimed invention. It is also to be clearly understood that my invention consists broadly in signal emissions visible in the atmosphere, the said visible emissions being formed by any suitable means, other than steam, and being discharged into the atmosphere in any approved manner, and used in combination with a whistle, a horn or other audible—*i. e.*, noise-making, device. I would further have it understood that when the illustrated embodiment is employed, including a valve such as D, or any other valve intermediate the source of fluid-pressure supply and the whistle and controlling a conduit that extends between the said elements, the said valve may be arranged at any suitable point between the reservoir C and the whistle A, without departure from the scope of my claimed invention.

Having described my invention, what I claim and desire to secure by Letters-Patent, is:

1. In a signal means, the combination of an audible signal, a tube arranged adjacent thereto and disposed to discharge upward, a source of fluid-pressure supply, containers, a conduit intermediate the containers and said tube, chemicals in said containers, adapted when commingled to form a signal-means visible in the atmosphere, a conduit intermediate the source of fluid-pressure supply and the audible signal, a valve controlling the passage of fluid-pressure through said conduit, and a conduit leading from the second named conduit, at the opposite side of the valve with reference to the source of fluid-pressure supply, to the interiors of the containers, whereby opening of the valve will cause sounding of the audible signal and a synchronous emission of visual-signal means from the tube.

2. In signal means, the combination of an audible signal, a tube arranged adjacent thereto and disposed to discharge upward, a source of fluid-pressure supply, containing means, means in said containing means adapted when discharged into the atmosphere to constitute a visual signal, a conduit intermediate said containing means and the tube, a conduit intermediate the source of fluid-pressure supply and the audible signal, a valve controlling the passage of fluid-pressure through said conduit, and a conduit leading from the second named conduit, at the opposite side of the valve with reference to the source of fluid-pressure supply, to the interior of the containing means, whereby opening of the valve will cause

sounding of the audible signal and a synchronous emission of the visual-signal means from the tube.

3. In signal means, the combination of an audible signal, a visual-signal discharge tube, containers, a conduit intermediate the containers and said tube, chemicals in said containers, adapted when commingled to form signal means visible in the atmosphere, and means for synchronously sounding the audible signal and liberating chemicals from the containers and emitting the commingled chemicals through the tube.

4. The combination of an audible signal, means for supplying the audible signal with fluid under pressure to actuate the same, a container having a discharge orifice separate from the audible signal, means in the container adapted when discharged through said orifice thereof and into the atmosphere to contrast therewith and constitute a signal visible in the atmosphere during daylight, and means for supplying the container with fluid under pressure synchronously with the supply of fluid under pressure to the audible signal, whereby the soundings of the audible signal and the emissions of the visual-signal means will correspond in duration as will also the intervals between the soundings of the audible signal and the emissions of the visual-signal means.

5. An audible signal, a container having a discharge orifice apart or separate from the audible signal, means in the container which means is of such character that when discharged through said orifice and into the atmosphere it will contrast with the atmosphere during day light and constitute a visual-signal useful in the day light, and means for synchronously actuating the audible signal and jetting the visual-signal means into the atmosphere; the soundings of the audible signal and the jettings of the visual-signal means corresponding in duration, and the intervals between the soundings of the audible signal and the jettings of the visual-signal means also corresponding in duration.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

STEPHEN J. KÜBEL.

Witnesses:
ROBERT O. OTTERBACK,
ALPHA R. EVERHART.