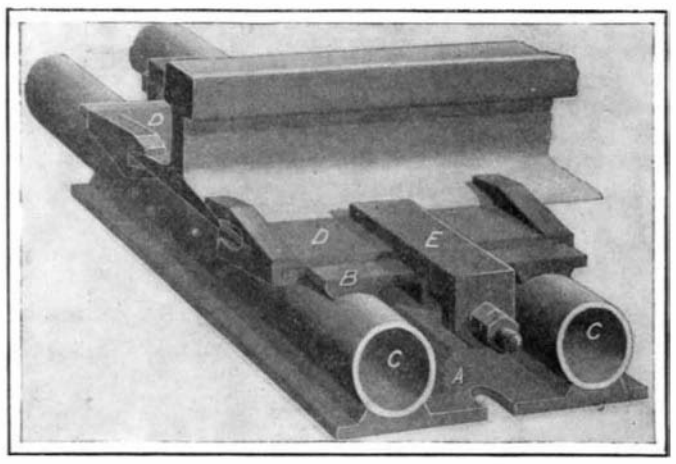
Patent Department

RAILROAD TIE AND CLAMP.

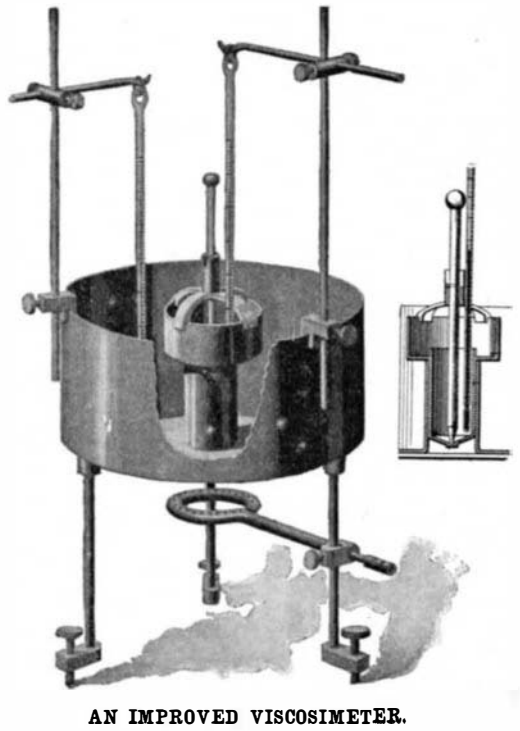
Pictured in the accompanying engraving is an improved railway tie and clamp recently patented by Mr. Henry S. Kilbourne, of Hayden Building, Nashville, Tenn. The construction is quite simple and inexpensive, and yet it possesses great strength and durability. The tie is composed of two steel tubes united near their extremities by steel plates, *A* and *B*. The latter are formed with saddles which fit the tubes, *C*, and are welded thereto. This arrangement is preferably used in light road construction. Where it seems advisable to give the tubes additional strength, the plates are formed with sleeves which are shrunk on to the tubes. The clamp consists of bars, *D*, which are bent at the ends to hook under the edges of plate, *B*, on which the bars rest. These bars are formed with jaws to receive the base flanges of the rails. Each bar, *D*, is provided with a tongue, *E*, bent downward at the rear, forming an ear which projects below the plate, *B*. The clamping plates on opposite sides of the rail are joined by a bolt, which passes under the plate, *B*, between the tubes, *C*, and through ears, *E*, against which the nuts on the bolt are tightened. The bolt is threaded at each end, but the main body is of square cross section, so that it will fit snugly against the under face of the plate, *B*, which is provided with a recess in each end to receive lugs formed on the bolt. In practice it would probably be found advisable to fill the tubes, *C*, with broken stone or ballast. The tubes may be plugged up to prevent entrance of water. On curves, where there is a tendency for the track to shift laterally, the plates, *A*, may be formed with flanges, which would press down into the roadbed and hold the track secure.



RAILROAD TIE AND CLAMP.

AN IMPROVED VISCOSIMETER.

In the accompanying engraving we illustrate an improved apparatus adapted for determining the viscosity of oils. The principle on which the apparatus operates is very simple. The oil is heated to a predetermined temperature, and then permitted to flow through an orifice of given dimensions, when its viscosity will be ascertained by the length of time required for the oil to pass through the orifice. The viscosimeter consists of a container or bath for oil, supported on a standard. The legs of the standard terminate in blocks, through which leveling screws are threaded. Attached to one of the legs is a Bunsen burner, which may be clamped at any desired position below the oil retainer. The retainer is formed with a central sleeve, into which is fitted a testing cup. A trough surrounds the upper end of the cup, to receive any oil that may overflow, due to expansion when it is heated to the required temperature. In the bottom of the cup is the orifice through which the heated oil must flow. Normally, however, the orifice is closed by a needle valve, the stem of which is guided in a sleeve carried by a spider resting on the rim of the trough. The sleeve is slotted to receive a pin on the stem of the valve. When it is desired to hold the valve open, the stem is raised and turned, so that the pin will rest on the upper edge of the sleeve. Two thermometers are used, one for the bath, and the other for the test cup. They are suspended from adjustable supports, clamped to the retainer. In operation, oil is placed in the bath and also in the testing cup, the latter being filled nearly to the top. Then, after leveling the apparatus and placing the thermometer in position, the gas is lighted, and when the same degree of temperature is indicated in the two thermometers, this degree being, of course, predetermined and depending on the character of the oil, the needle valve is raised, permitting the oil to pass in drops from the cup into a suitable receptacle. By means of a stop watch or the like, the time elapsed in the passing of the oil through the orifice, into this receiver, will give the viscosity of the oil. A patent on this viscosimeter is owned by the Fiske Brothers Refining Company, of 59 Water Street, New York city.



AN IMPROVED VISCOSIMETER.

Brief Notes Concerning Patents.

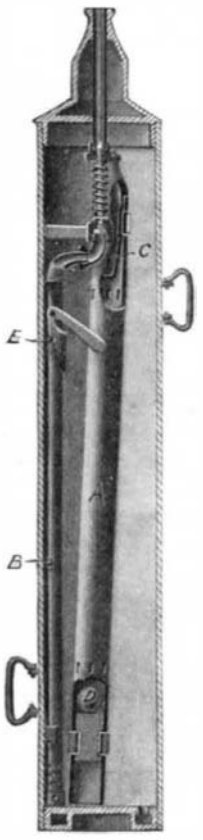
During the latter part of December last, the death took place of Henry Hohorst, a resident of Brooklyn, who for forty years had been a very prominent person in shipping circles. He was the inventor of several pieces of machinery for the loading and unloading of vessels. He was born in Bremen, Germany, eighty-three years ago.

An addition to pleasure cars of that kind established mainly at fairs and seaside amusement resorts, has been furnished by the recent invention made by Mr. J. D. Walsh, of St. Louis. This inventor provides a car whose axles are secured eccentrically to the running wheels, so that as the latter roll along either on an inclined or a horizontal track, the car body will oscillate up and down, producing a rocking sensation intended to be highly exhilarating and enjoyable to occupants who find pleasure in this sort of diversion. From the arrangement described above, the inventor claims that the character of oscillations imparted to the car may be almost unlimited, and need to be neither regular nor happen at the same time. This may be readily done by using on the forward trucks wheels of different diameter from those of the rear trucks.

A life-saving belt which has a number of features which are unique, if nothing else, was recently given a trial at Los Angeles, Cal., which is the home of the inventor, Z. C. Angevine. The device is of the nature of a canvas jacket, which is tied around the chest by means of stout cords. The interior is rubber-lined and divided into a number of compartments, so that in case one or more should become damaged from any reason whatever, the buoyancy of the remainder would be sufficient to keep the jacket and its wearer afloat. Besides this water-tight bulkhead construction, the coat is supplied with a number of pockets which the inventor has filled with articles that he divines would be of use to a person adrift on the high seas. The provisions consist of concentrated foods, a quart of stimulants which might be consumed by the aid of a rubber hose conveniently located, a gallon of water for drinking purposes, an aluminium pouch for the reception of valuables, a gun and set of signal cartridges, a collapsible pole eight feet long with an inverted American flag on it as a means to attract assistance, a knife and some other things of minor importance, which might assist in making the wearer of the belt quite comfortable. The inventor says that a person wearing one of these belts is provisioned for five days. At the test referred to, it was shown that besides carrying the load of supplies tucked about in the various compartments of the coat, the garment had a capacity of supporting three persons in the water without any effort on their part. The inventor expects to realize quite handsomely by selling and renting the life-saving coats to persons compelled to go to sea.

AN IMPROVED FIRE EXTINGUISHER.

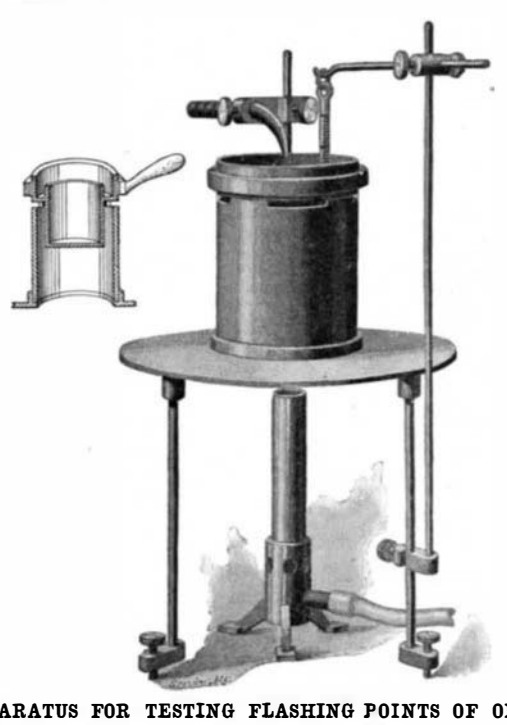
A patent has recently been procured by Mr. Charles W. Aton, of Clairton, Pa., on an improved fire extinguisher, which we illustrate herewith. The construction is such that upon inverting the extinguisher, chemicals for exerting pressure will be set free, and thereupon the fluid will be forced out of the nozzle in any direction desired. The device can be charged with a higher pressure than most fire extinguishers, and is, therefore, particularly adapted for use in shops and warehouses with high ceilings, and also for passenger coaches and stations. The handles are insulated so that the fluid can be directed upon highly-charged electrical wires without danger. The device consists of a tubular casing closed at one end by a plug threaded therein, and at the other by a cap in which the nozzle is formed. Within the casing is a large tube, *A*, and a smaller one, *B*. The latter is coupled at its upper end to a small duct, which enters a sleeve projecting inward from the nozzle. A spring-pressed coupling on this sleeve makes a tight joint between the sleeve and the duct. In the upper end of the tube, *A*, is the acid bottle, *C*. The clip which holds the tube, *A*, in place projects through openings in the latter, and holds the bottle, *C*, also. A plug is similarly held at the lower end of the tube, and on this plug a ball, *D*, rests. When the extinguisher is inverted, the ball rolls down and breaks the frangible bottom of the bottle, *C*, and the gases immediately generated rise and collect in the bottom of the inverted receptacle. Thence they pass into the tube, *B*, forcing the fluid in the latter out through the nozzle. The fluid enters the tube, *B*, through the valve, *E*. The latter, however, is so arranged that it will close when the device is turned nozzle upward, and then the fluid enters through the perforations at lower end of the tube under pressure of the gas, which will then have risen to the top of the receptacle.



AN IMPROVED FIRE EXTINGUISHER.

APPARATUS FOR TESTING FLASHING POINTS OF OILS.

A patent has recently been secured by the Fiske Brothers Refining Company, of 59 Water Street, New York city, on an improved device for determining the flashing points of inflammable liquids, such as oils. The device is of simple construction, easily kept clean, and so arranged that the igniting flame will pass over the surface of the oil in a uniform and practically horizontal direction. The apparatus comprises a ring-like support, mounted on legs provided with leveling screws at their lower ends. Resting on the ring is a flue, which receives the flame from a Bunsen burner clamped to one of the legs. A test cup fits into the upper end of the flue, resting on lugs formed on the rim of the flue. This test cup is provided with a trough surrounding its upper end, which is designed to receive any overflow of oil due to its expansion when heated. A gas-burner tip is adjustably supported over the cup, and the thermometer is hung from an adjustable arm clamped to one of the legs of the standard. In operation the apparatus is first leveled, and then the cup is filled nearly to the brim with oil. The Bunsen burner is adjusted to regulate the thermometer, which is suspended with its bulb immersed in the oil. The burner tip is now adjusted to extend slightly over the edge of the test cup. The flame from the tip will then pass in a substantially horizontal plane over the surface of the oil, and when the oil flashes, its flash point will be indicated by the mercury in the thermometer.



APPARATUS FOR TESTING FLASHING POINTS OF OILS.