

**IMPROVED FIREPROOF AND BURGLARPROOF SAFE.**

It has been suggested that the simplest fireproof safe is found in a hole in the ground. The present invention improves upon this idea by suspending a safe by a chain in a well, and also by locking it there so as to prevent burglars from raising it. A, in the engraving, represents a well of strong masonry in the cellar under the safe, B, in which is a watertight case, C, of galvanized iron, surrounded, except at the top and bottom, by water. Into this case the safe is lowered by a chain, pulley, crank shaft, counterweight, etc. A staple is attached to the bottom of the safe, and a bolt, K, which is operated through the medium of the arm, a, and rock lever, b, by rod, Z, passes into said staple and so holds the safe down. m, in the small diagrams, is a sliding bolt, which, in connection with the tumblers, L, controls the locking bolt, K. The tumblers are connected to rods, O P, respectively, extending up through the floors to the room in which the safe is used, to be manipulated conveniently. Q is a trap door in the floor of the room, over which the safe stands when raised.

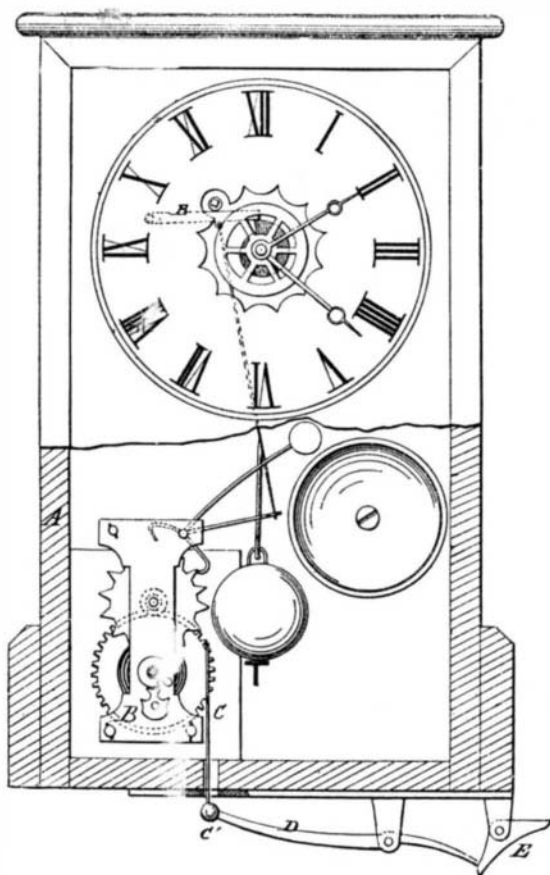
The invention was patented through the Scientific American Patent Agency, September 26, 1876, by Mr. I. J. Gray, of Pentwater, Mich.

**In Case of Fire.**

The season is at hand when fires most prevail, and when the precautionary hints of the late Dr. Hall are most important to be heeded. They are as follows: Keep doors and windows of the structure closed until the firemen come; put a wet cloth over the mouth, and get down on all fours in a smoky room; open the upper part of the window to get the smoke out; if in a theater, church, or school room, keep cool; descend ladders with a regular step to prevent the vibration. If kerosene just purchased can be made to burn in a saucer by igniting with a match, throw it away. Put wire work or glass shades over gaslights in show windows, and in bedrooms with curtains; sprinkle sand instead of sawdust on floors of oil stores; keep shavings and kindling wood away from steam boilers, and greasy rags from lofts, cupboards, boxes, etc.; see that all stovepipes enter well in the chimney, and that all lights and fires are out before retiring or leaving the place of business keep matches in metal or earthen vessels, and out of the reach of children; and provide a piece of stout rope, long enough to reach the ground, in every chamber. Neither admit any one if the house be on fire, except police, firemen, and known neighbors; nor swing lighted gas brackets against the wall; nor leave small children in a room where there are matches or an open fire; nor deposit ashes in a wooden box, or on the floor; nor use a light in examining the gas meter. Never leave clothes near the fire place to dry; nor smoke or read in bed by candle or lamp light; nor put kindling wood to dry on top of the stove; nor take a light into a closet; nor pour out liquor near an open light; nor keep burning or other inflammable fluids in rooms where there is a fire; nor allow smoking about barns or warehouses.

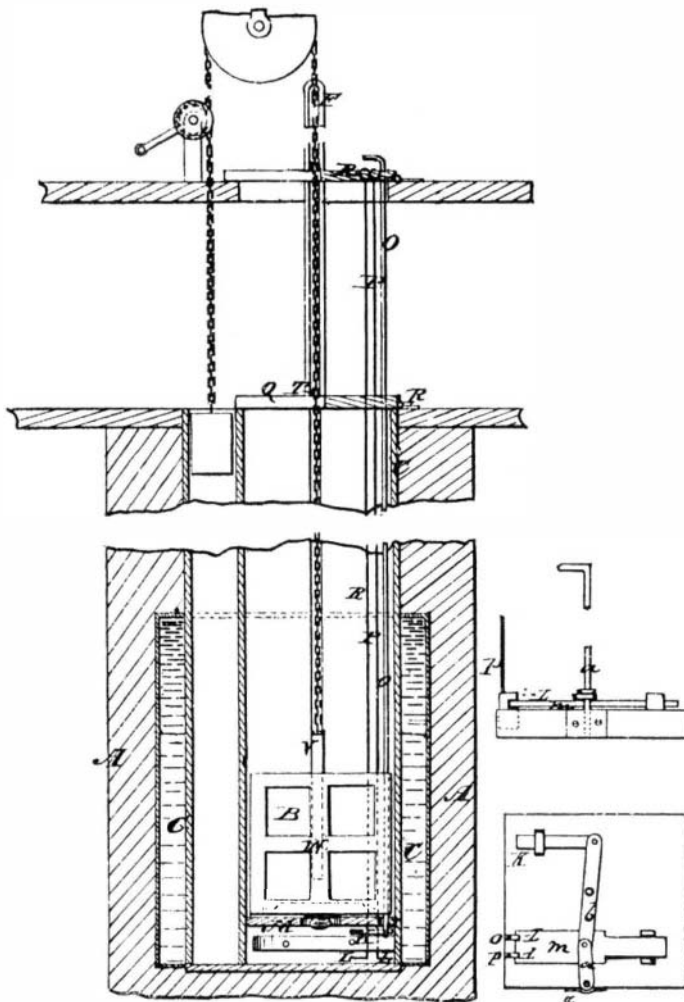
**TIME DROP ATTACHMENT FOR ALARM CLOCKS.**

This is an ingenious device connected with ordinary clock mechanism, which may be attached to the door of a furnace to turn on the draft; with the faucet of a water pipe,



to turn off or on the water; or with the valve of a gas pipe, to turn off the gas at any time. A rod, C, passes through the bottom of the case of the clock, and has a loop formed upon its upper end, to enable it to be hung upon the teeth of the wheel of the alarm mechanism, B. To the lower end of the loop rod, C, is pivoted the end of a lever, D, which is pivoted to the bottom of the clock, A, when said

clock is attached to a wall and to the bottom of a shelf. The other end of the lever, D, rests against the arm of an obtuse angled lever, E, which is pivoted at its angle to the bottom of the clock, or to the shelf to which said clock is attached, so that its other arm may project beyond the end of the said bottom or shelf. The loop rod, C, the lever, D, and the obtuse-angled or cam lever, E, are so arranged that the operation of hanging the loop rod, C, upon a wheel of the alarm mechanism may raise the free end of the obtuse-angled le-

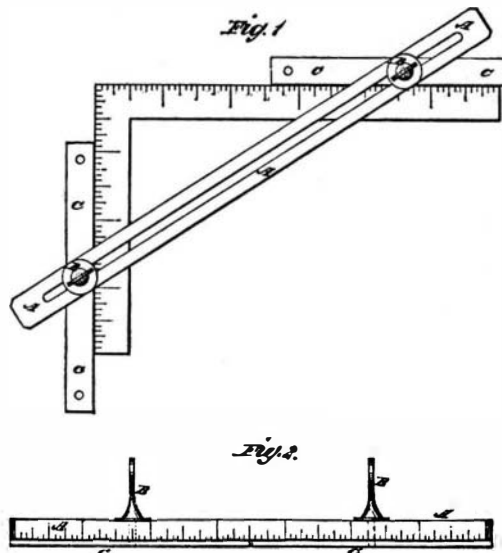


**GRAY'S FIREPROOF SAFE.**

ver, E, into a horizontal position, so that it may receive and hold any object hung upon it. With this construction, as soon as the alarm mechanism starts, the loop rod, C, will drop, which withdraws the end of the lever, D, from the arm of the angle lever, E, so that the object hung upon or from its other arm may drop. In case it is not wished to sound an alarm when the alarm mechanism, B, starts, the bell, or hammer, or both, may be detached. The lower end of the loop rod is provided with a handle for convenience in hanging it upon a wheel of the alarm mechanism. The object, in falling, may release a weight which performs the required operation. This device was patented through the Scientific American Patent Agency, September 26, 1876, by Mr. Charles Cottrell, of Newport, R. I.

**IMPROVED BEVEL.**

Carpenters and builders will be interested in a new instrument which we illustrate herewith, and which is intended for use in determining the length of rafters and the



bevels of their ends, when the width of the building and the desired pitch of said rafters are known. The device may also be used for getting the length and the bevels of the ends of braces, and for other similar purposes. A represents a bar, upon the edge of which is formed a scale of division marks, numbered to represent the length of the rafter or brace, and which should be made upon a scale of an inch to the foot to make it correspond with the division marks of an ordinary square. The bar, A, is slotted longitudinally to receive the clamping screws, B, which are screwed into straight bars, C, placed upon the lower side of said bar, A, as shown. In using the instrument the bar, A, is laid diagonally across the arms of an ordinary square, and

is adjusted upon the long arm of the square at a point representing the half width of the building, and upon the short arm at a point representing the desired pitch of the rafters. The bars, C, are then adjusted against the edges of the arms of the square, and are clamped in place by the screws, B. The instrument is now set to give the length of the rafters and the bevels of their ends. The instrument may be used without a square, by having lines drawn upon the under side of the bar, A, to represent the different positions of the bars, C, for different lengths and pitches of rafters.

The device was patented September 26, 1876, through the Scientific American Patent Agency, by Mr. George H. Bradshaw, of Fayetteville, Tenn.

**Enameled Cooking Vessels.**

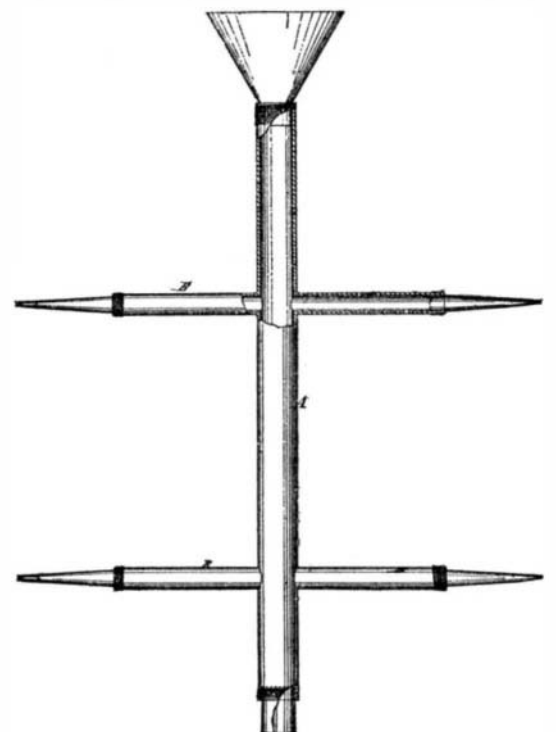
Cast iron cooking vessels, coated on the inside with a white porcelain or enamel, are now extensively used, and are generally supposed to be as safe as they are convenient and cleanly. It has been assumed that vegetable acids, which act more or less energetically upon metallic surfaces, do not affect this porcelain lining, and that vessels protected by it may therefore be used for cooking acid fruits, preparing pickles, and kindred processes. It seems, however, that there may be "death in the pot," even when it is enameled. A Scotch chemist, in a paper recently read at Glasgow before the Society of Public Analysts, states that some kinds, at least, of this porcelain lining are very readily acted upon by acid fruits, common salt, and other substances used for food, and that thus large quantities of lead and even arsenic are dissolved out during culinary operations. Analyses were given of three enamels taken from cast iron pots made by as many different manufacturers. All contained arsenic, and two of them lead; but it is not so much on account of the presence of these substances that the enamels are objectionable, but because of their highly basic character, which renders them peculiarly susceptible to the action of even feebly acid solutions. The percentage of bases in the three enamels was 38.58, 53.73, and 55.28, respectively. A one per cent solution of citric acid, boiled in the third, roughened and destroyed the enamel at once, dissolving out enough lead to give a dense black precipitate with hydrosulphuric acid. An enamel that will not bear so moderate a test as a one per cent solution of citric acid is certainly not fit to be used for culinary purposes.

If the enamels employed in this country are similar to those in Europe, as they probably are, our readers should be cautious in using vessels coated with them.

We have not experimented upon them as yet, but may do so and give the results at some future time.

**A NEW IRRIGATOR.**

Mr. Frederick Taylor, of Covington, Pa., has patented, through the Scientific American Patent Agency, September 26, 1876, an improvement in irrigating apparatus, which, as shown in the engraving, consists of a tube, A, with a pointed and perforated end to be set in the ground near the plants; the water from this tube slowly escapes through the perforations and thus gently moistens the ends of the plants. A number of conically pointed and perforated tubes, B, are attached to a main pipe for holding the water to irrigate a number of plants or hills from one supply, the pointed pipes being attached so as to project laterally from the main pipe.



These irrigators may be used independently of the main pipe by setting them upright on the point in the ground and filling them. For elevating the main pipe, and for adjusting the laterals as required, they are made of flexible material; but the points are of metal.

CHLOROFORM has been administered to a child during sleep, and a painful operation was performed, the child sleeping on and awaking in the morning unconscious of anything unusual having occurred.