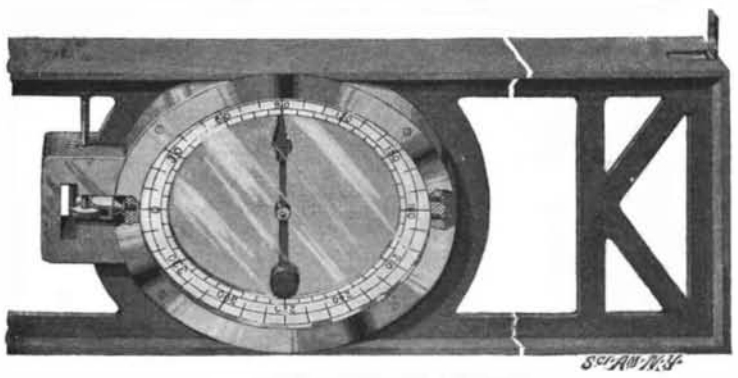
A NEW LEVEL AND PLUMB.

An improved level and plumb has been recently patented by J. V. Janin, of Seattle, Washington. It is designed particularly for determining angles in building operations. The body or frame of the instrument, which is of metal, is made in skeleton form for the sake of lightness. Sights are provided at each end of the instrument, which are hinged, and, when not in use, may swing down into sockets or recesses in the body frame. Supported in a circular central opening of the instrument are two adjustable rings, between which a scale ring is held. The scale ring, on its two opposite surfaces, is marked off to the degrees of a circle. At each side of the scale ring are glass disks, which form the walls of a chamber in which the indicator is adapted to swing. The disks along their inner edges abut against a strip of packing, to which they are held by annular flanges on the adjustable rings. The chamber is thus made liquid tight, and is filled with oil or some other liquid to prevent undue vibration



A NEW LEVEL AND PLUMB.

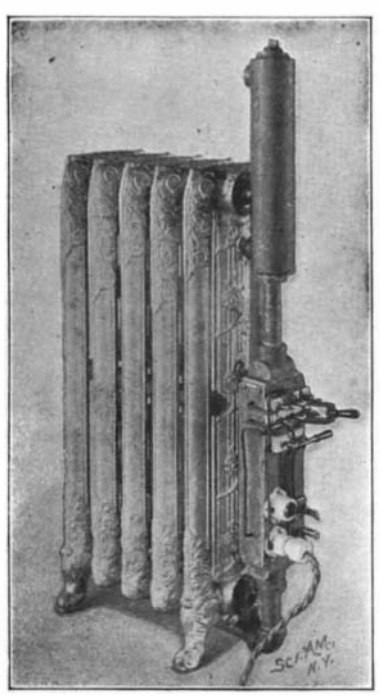
of the indicator. The indicator needle has trunnions near its center, which find bearings in the glass disks. A weight at one end of the needle tends to hold it in vertical position. The other end is forked and straddles the scale ring, forming a pointer for each graduated surface. The instrument can thus be read from either side.

In order to make accurate readings it will be found necessary to adjust the scale ring slightly. The necessary adjustment can be made by turning the thumbnut which is mounted on a threaded stud at the left of the instrument. The sides of this nut are engaged by a yoke piece which is secured to the scale ring. By turning the nut the scale ring can be moved and a proper adjustment made. A set screw is adapted to engage the thumbnut and hold it in place after the adjustment is made.

At the right of the instrument will be noticed two small screws which enter threaded holes in the adjustable rings. Oil can be poured into the chamber through one of these openings, while the air is permitted to escape through the other. The screws normally fill these openings to prevent the escape of the liquid.

ELECTRICAL HOT-WATER HEATING SYSTEM.

A system of heating houses and cars which combines the hot water and electrical systems has been devised by Waldo F. Follett, of New Haven, Conn., who has been recently given patents covering the same. It is claimed to represent high efficiency and to give a uniform and most pleasant heat. The heater itself is made up of but few parts and is yet durable and inexpensive. It is composed of castings which form the connecting heads and circulating flue or water chambers, around which are placed the electric coils of high resistance. The latter are perfectly insulated by lava and specially prepared cement. The heads of the castings are made to receive iron plates, which are held in place by screws and form a casting around the coils. The heat is controlled by a switch made to use in connection with this heater, and with its use the current is reduced without the aid of any external resistance, thereby keeping all the heat within the heating apparatus.



COMBINED ELECTRIC AND HOT-WATER HEATING SYSTEM.

In the application of this system, the electric water heater is placed in the cellar in place of the ordinary coal burner, the rest of the plant being the same as with the ordinary water-heating installation. The controlling switch may be located in any part of the house that may be desired, from which point the temperature of the entire structure may be regulated.

The convenience of such a system will be apparent to any one. There is no handling of fuel or ashes, and there is also the advantage of instant adjustment.

The principle has been applied to the radiator with an expansion tank and pig and circulating pipes, thus forming a portable electric heating system with a flexible cord connection with the electric light bracket. The illustration presented herewith shows a five-section hot-water radiator, wound for a 115-volt circuit. The one pictured has a radiating surface of 34½ square feet. This heating method is said to be particularly well adapted for the purpose of heating street cars—to be used as the steam jacket heater is now used on the passenger cars of the steam railways.

A Device for Saving Fine Gold or Platinum.

An appliance has been perfected in San Francisco for saving the fine flour-like and microscopic values in gold and platinum contained in sands and gravel beds. The process is the invention of Mr. F. M. Johnson, and the patent rights for this and other countries have been purchased by the Rose Gold Reclamation Company, of 720-721 Hayward Building, San Francisco. The appliance is purely mechanical in nature, using neither chemicals, plates nor magnets, and in appearance resembles an ordinary sluice box. Each one has a capacity of about three tons of sand per hour, and the devices are now being operated in batteries of from ten up.

The cost of operating is merely that involved in putting the sand and water into the appliances. Each one requires in the neighborhood of five inches of water. Salt water is as efficient as fresh. As there are thousands of miles of beach sand carrying high values of both gold and platinum, it will be readily appreciated that this is a great advantage.

The first field test was made on the beach at Aptos, Cal., with a continuous run for thirty days, at the rate of three tons of sand per hour. The device saved not only all of the fine gold and platinum, but the coarse gold as well.

At the present time two plants are in actual operation, and others, aggregating over two thousand of these appliances, are in the process of construction.

Passing of Cork Stoppers.

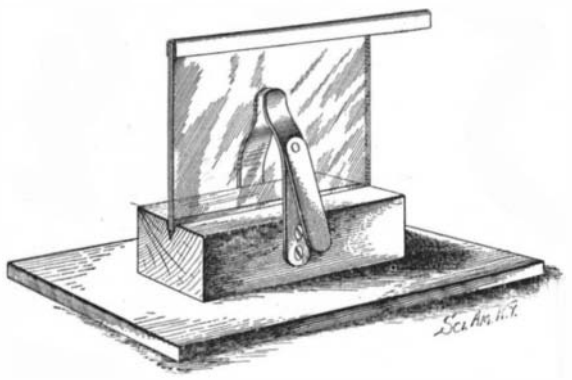
The man who made the discovery many long years ago that a little tapered cylinder of cork was the very best bottle stopper has only been exceeded as a practical genius by those who, within the past century, have set themselves to work to improve upon and undo this early invention, and to get upon the market anything else than a "cork." On both hands there have been successes, the cork people having by improved machinery reduced their price so that there is still to-day nothing cheaper for the closing of a bottle; the patent-stopper men for their part, having shut off avenue after avenue for the use of corks, coming to absolutely control certain lines of trade.

Yet the beginning of the end may almost certainly be seen "as through a glass, darkly." After five centuries of use, says the N. Y. Times, the cork-closing bottles are passing, slowly and with many an effort to hold their own, but passing, nevertheless. Rubber, metal, glass, pasteboard, and pulp are the new coverings of the day that here and there are taking the cork's place. There are financial rewards almost beyond the bounds of the imagination for the inventor who hits the popular taste for a cork substitute, or if not for the inventor, at least for the lucky manufacturer who manages to lease good stopper patent rights.

The new president of the Franklin Institute, Mr. John Birkinbine, has made an earnest appeal for public support, and says that the great work accomplished by the institution was not appreciated. The management has been endeavoring to work up interest in a scheme to obtain accommodations more suited for the work which is carried on. The present building is located in a very crowded section of Philadelphia, where there is no room for expansion, and there is constant danger of fire.

SIMPLE AND INTERESTING INVENTIONS.

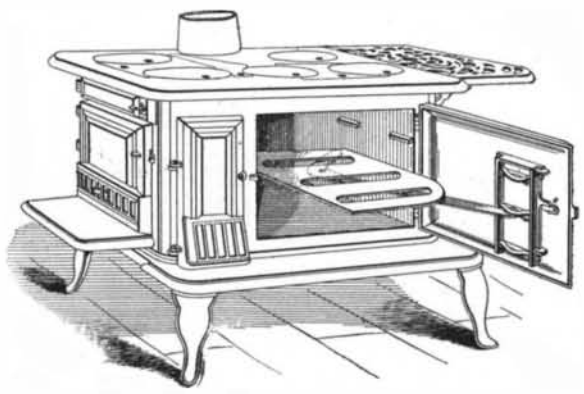
Lantern Slide Clamp.—Anyone who has ever mounted lantern slides knows how difficult it is to bind the glasses together with the customary black tape. In order to facilitate this invention, a clamp has been devised which consists of a base having a wedge-shaped groove to receive the slide and glass plate. The plate and slide are held in the wedge by



LANTERN SLIDE CLAMP.

upwardly-extending springs. The plates being thus held it is a simple matter to bind the edges of the slide and plate.

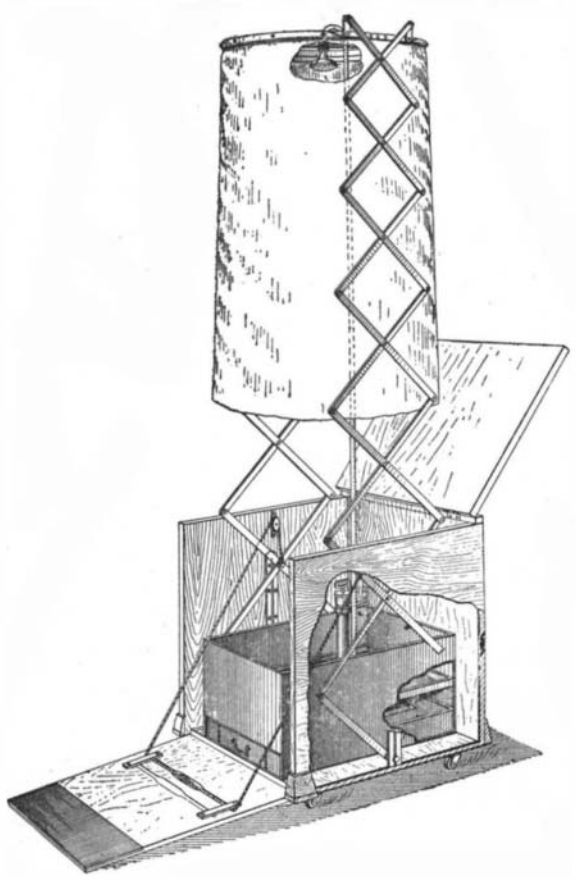
Automatically Operated Oven Shelf.—How an oven shelf can be drawn out of the oven merely by opening the door is shown in a patent issued to a Philadelphia inventor. A bar is pivotally connected with the shelf and has an angle end arranged to come into contact with the inner surface of the oven. A projection upon the bar is automatically engaged by a catch upon



AUTOMATICALLY-OPERATED OVEN SHELF.

the door of the oven. When the oven door is closed, the shelf is pushed in; and when the oven door is opened, the shelf is pushed out. The projection on the bar and the catch are used when it is desired to open the door without removing the shelf.

Folding Shower-Bath Apparatus.—A shower bath that can be folded into a small space is a novelty for which James M. Castle, of Lynn, Mass., has received a patent. The apparatus is contained in a cabinet having a hinged cover and a drop side. The sprinkler is



FOLDING SHOWER-BATH APPARATUS.

carried on either side by lazy-tongs, which are connected by ropes with the drop side. When the side is therefore allowed to drop, the lazy-tongs will simultaneously be extended to elevate the shower-bath apparatus automatically.