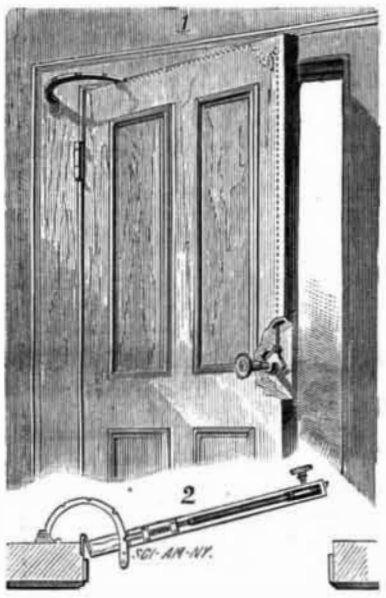
RECENT INVENTIONS.

Improved Door Check.

In the door check shown in the engraving a notched semi-circular bar concentric with the door hinge is secured to the upper part of the door casing, and the door is grooved along its upper edge to receive a spring bolt which may lock into any of the notches in the circular bar. The bolt is connected by a bell crank lever in the corner of the door, with a vertical rod connected with a crank arm mortised in the door, and having an external knob by which it may be turned. The crank arm is also provided with a check arm which limits the motion of the crank arm, stopping it just as it passes the center, so that it will hold the bolt in an unlocked position. By means of this simple contrivance the door may be locked at any desired angle, or the bolt may be secured in a withdrawn position, so that the door may be opened or closed as if no check had been applied. Fig. 2 is a view of the top of the door. This invention has been patented by Mr. Thomas B. McCurdy, of Lancaster, Texas.

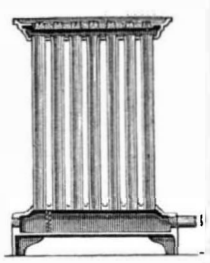


Improved Lantern.

The upright tubes, base burner, top, and handle of this lantern are of ordinary construction, except that the burner is provided with the plate for supporting the globe, and the side tubes have secured to them slotted barrels, inclosing coiled springs that rest upon the trunnions of the globe frame, for holding the globe frame down upon the plate attached to the burner. The globe frame is composed of a lower ring which receives and holds the bottom of the globe, the side uprights having the trunnions formed upon them, and an upper ring that receives and holds the upper end of the globe. This upper ring is made open, permitting the globe to be easily taken out of the frame and replaced. This improvement renders cleaning and lighting the lantern very simple and easy, and admits of easily replacing a broken globe. Mr. James Fanning, of Salem, Mass., is the patentee of this invention.

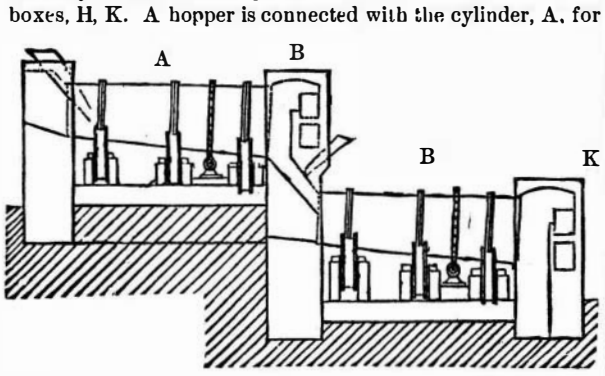
Improved Radiator.

This radiator is designed for steam and hot water, and its novelty consists principally in the arrangement of a subdividing partition in the base and in a top chamber secured to the upper ends of the radiating tubes by expanding in a way similar to the method of securing boiler tubes in the heads of boilers. The top chamber is provided with screw plugged apertures opposite each tube, through which the tools are inserted for expanding the upper ends of the tubes. This invention has been patented by Mr. Thomas McAvity, Jr. 13 King St., St. John, New Brunswick, Canada.



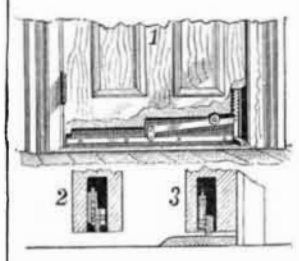
Ore Roasting and Chloridizing Furnace.

The engraving shows an improved ore roasting and chloridizing furnace recently patented by Mr. R. A. Neven, of San Francisco, Cal. (Box 2361). This furnace has two revolving cylinders, A B, the latter being connected with the stack by a flue. These cylinders are connected with the fire boxes, H, K. A hopper is connected with the cylinder, A, for the introduction of salt into the ore. It is stated that this furnace has been running for some time at the Navajo Independence Mill in Tuscarora, Nev., and that it has been ascertained that the furnace effects a great saving working up to 94 per cent of fire assay and using 25 per cent less salt than the ordinary methods of chloridizing.



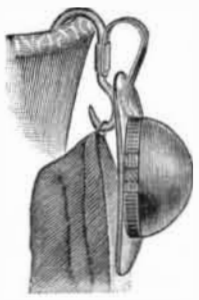
New Weather Strip.

This weather strip is fitted to a groove in the bottom of the door, and is suspended from a spring-acted lever pivoted in a mortise in the door, and capable of raising the weather strip when the door is open. A bolt pivoted to the end of this lever strikes a cam block secured to the bottom of the door jamb when the door is closed, and forces the weather strip into contact with the door sill. This device is readily applied to a door, and is effectual in making a close joint between the door and sill. Fig. 1 shows the strip in place in the door, the door being broken away. Figs. 2 and 3 are vertical transverse sections of the weather strip. Mr. Thomas B. McCurdy, of Lancaster, Texas, is the patentee of this invention.



Vest Pocket Coat and Hat Rack.

The engraving shows a very compact and handy device, which answers the purpose of a coat and hat rack, and may be very readily carried in the pocket. The cut shows it in use, the hat being held by the spring clamping it against the back of the hook, and the loop on the coat being placed on the hook at the lower end. The upper hook is designed to be placed on the back of an opera chair or other convenient support. When not in use the spring is folded into the larger hook, its free end covering the smaller hook. In this condition it may be readily carried in the pocket. The hook shown in the cut is about one-third actual size. This useful invention has been patented by Mr. W. R. Cole, of Pottsville, Pa.



Artificial Light.

At the Parkes Museum of Hygiene, London, Captain Douglas Galton lectured recently upon "Recent Improvements in Artificial Lighting, and their Bearing upon the Purity of Air in Rooms." There was a large attendance at the lecture, which was presided over by Sir Joseph Fayrer. In beginning his lecture, Captain Galton remarked that the vast improvements which had taken place in the production of artificial light in recent years, improvements which bore to a considerable extent upon the hygienic aspect of the question, made it especially desirable to bring the subject before the public. The introduction of the electric light had stimulated invention in gas lighting, and there had been recently introduced new methods of gas lighting which bade fair to retard the universal introduction of the electric light for domestic use. Every form of matter, when sufficiently heated, had the power of emitting rays of light, and thus became self-luminous. This was called incandescence, and all artificial sources of light depended upon the development of light during incandescence. For the illumination of our streets and houses at night, use had hitherto been made of a combustible gaseous combination of carbon and hydrogen, which was the chief constituent of ordinary coal gas. When this hydrocarbon burnt it underwent partial decomposition, and evolved heat. Carbon was separated in the solid state, and floated in a finely divided and incandescent state in the interior of the burning vapor, and this constituted the flame. Looking back at the gradations of improvement which had taken place in artificial lighting, it was found that each successive step had been of advantage to the purity of the air; and he proceeded to trace the various improvements which had been made in the means of lighting from the earliest ages. The more imperfect the combustion of any sort of artificial light, the more deleterious was its effect upon the air of the room. Dealing with the different systems of electric light, he said the arc light with its dazzling brightness was subject to fluctuations, from the fact that the carbon points were continually wearing away, and the constant necessity of shifting them rendered the light often unsteady. Further, it was not pleasing in color, and it had been alleged against it that it produced a great quantity of nitric acid. In the incandescent light the electric current was employed to heat the carbon so as to make it incandescent, and thus use it as a source of light. He remarked in conclusion that the electric light would probably supersede all others, but it was probable that the great advance which had been made in illumination by means of gas might enable that material still to hold its own for some time longer. The lecture, which was illustrated with practical experiments, was listened to with marked attention. Sir Joseph Fayrer, speaking in the course of a brief discussion which followed, agreed with the view expressed by the lecturer that the electric light was the light of the future. He looked with horror upon the present abominable condition of nearly all theaters and public buildings, and remarked that it could not but be expected that people should look for another and a better form of light than that at present in common use.

Ozone as Anæsthetic and Hypnotic.

Prof. Binz, of Bonn, has made a series of experiments upon the physiological effects of pure ozonized air. He did not prepare the ozone which he employed by chemical means, as ozone prepared in this way contains many impurities, but by electricity, using a tube made by Werner Siemens for the silent discharge. The tube was an inch in diameter and a foot long, and was operated with four Bunsen cells and an induction coil that would give a spark nearly an inch long when the battery was in good order.

The ozone tube was connected with a chloride of calcium cylinder charged with eight inches of coarsely powdered chloride of calcium between plugs of glass wool. The air to be ozonized had to pass through this tube, which filtered and dried it sufficiently; the former is of importance for the purity of the ozone, the latter for the quantity.

The ozone thus prepared, when conducted into water recently distilled over permanganate of potash and then made slightly alkaline, did not show a trace of nitrous or nitric acid. A second experiment gave the same result.

We cannot go into all the details of the precautions used in its inhalation and the apparatus employed. Experiments made upon the lower animals showed that an apparent sleeping state could be produced before the air passages were irritated by it, and this was more distinctly noticed in men. The breathing before sleep began was quiet and full, the persons experimented upon said that it was easy and comfortable, and the passage from the waking to the sleeping state was a feeling of the most agreeable indifference. The pulse never exhibited any perceptible change during the experiment, nor was there any alteration in the pupil of the eye or the color of the face. If the quantity of ozone inhaled is too large, from the apparatus working too fast or the tube being too near the nostrils, it may excite very violent coughing, nausea, and choking, but not the slightest sensation of local irritation in the chest is perceived.

In all observations hitherto made as to the effect of ozone on men, they have only described the irritating effect on the air passages resembling those of chlorine. The reason of this was that the ozone was not mixed with air in suitable proportions, and in most cases also to impurities in the ozone used. In the former respect Binz compares ozone to alcohol, which used in its concentrated form irritates the mucous membranes violently, destroys the epithelium, coagulates albumen, etc., but when very dilute scarcely exerts any perceptible influence on them.

Owing to the very transitory effect of ozone, it will never take the place of nitrous oxide for anæsthesia for surgical purposes. Binz himself does not lay much weight upon the practical importance of the ozone sleep, but hints that further experiments in this direction may lead to important results. —*Pharm. Centralhalle.*

[Perhaps the ozone in mountain air increases its hypnotic and hence invigorating effects. Cannot pure ozonized air be used for sleeplessness in some cases?—ED.]

Rolling Molten Iron.

Alluding to the proposed establishment of a rolling mill for rolling molten iron and steel, *Iron* says that the idea is not a new one, a similar attempt having been made some time ago by Sir Henry Bessemer. In the arrangement as brought out at that time, sheet metal was to be made directly from the converter by pouring the molten metal between two revolving rolls. So long as the supply of steel was properly maintained and the rolls worked freely without meeting any obstruction, a continuous sheet of metal of good quality was obtained, and the product, when worked up, was said to give very satisfactory results. However, it is by no means difficult to point out elements of weakness in the method, and to these it is probably due that the rolling of liquid metal never seemed to meet with much favor. Prominent among them is the item of a continuous supply, as it is clearly apparent that anything producing a check in the flow of metal would lead to a more or less complete dismantling of the whole train. The destructive action of the highly heated metal upon the rolls, tending to produce rough surfaces, is another point of considerable importance, especially in turning out sheet metal, where irregularities, however slight, are necessarily fatal to good results. Another disadvantage is found in the difficulty of keeping the liquid metal free from such impurities as slag, etc., from the ladle, which, when worked into the sheet, would necessitate the cutting away of large portions, thus entailing considerable waste. Even in view of all these difficulties, however, the operation of rolling molten iron or steel is not impossible of execution.

Improvement in Photo-Mechanical Printing.

When a collotypic picture is transferred to stone for lithographic printing, or to metal for etching into a typographic block, the details are apt to clog during the first inking, owing to fatty matter round the ink becoming pressed out. A recent improvement of Mr. Swan, however, yields a transfer with a grain clearly and sharply defined so as to print well from a stone, or yield a transfer capable of being inked on zinc or other metal. The method consists in inking the collotypic plate before soaking it in water, and as the gelatine softens in parts, the ink is removed by sponging. During this operation the ink breaks up into a clear grain free from the halo of grease referred to above. The process is not patented, and promises to give an impetus to photo-mechanical printing.