

How Bohemian Glass is Colored.

The ornamentation of the glass is done partly in connection with the exposure in the furnace and partly in the finishing shops, where the work is completed by cutting, polishing, tarnishing, etching, painting, and mounting in metal. The glasshouses have at their command a very complete color scale for transparent, opaque, and clouded glasses. But it must not be supposed that a crucible is placed in the furnace for each color, from which glass colored for each ornament is to be made. The colors are worked out by means of what are called pastes, which are kept on hand in sticks or cakes. From pieces of these pastes, previously warmed till they are soft, suitable quantities are cut off, laid upon the foundation of white or colored glass, and then spread out by drawing or blowing. By this means only is an economical use of such costly materials as gold and silver compositions possible. Some of the glasses thus treated—gold, copper, and silver glasses—remain still little, or not at all, colored after the melting, shaping, and quick cooling, and do not take on their bright hues until they are reheated. This is the case with the new yellow silver glass, which continues uncolored after the intermelting of the silver salt until it is exposed in the furnace again. Very fine effects are produced by blending or overrunning of paste colors, provided proper attention is given to the laws of harmony. A blue glass cup is, for example, overlaid with silver glass at its upper edge, and this is drawn down in gradually thinner tones till it fades away at the foot of the vase. Gold and copper ruby colors are thus combined with green glasses, etc. Another brilliant effect is produced when a still hot bulb of glass is rolled in finely pulverized aventurine glass, and after this is melted, and previous to the shaping of the vessel, is overlaid with a coating of either colored or colorless glass.—*Popular Science Monthly.*

Wanted, a Gas Meter.

The following inquiry has been addressed to the editor of this paper, which question we refer to our mechanical and inventive readers for an answer:

"Can any of your mechanical correspondents refer us to a self-acting meter for the registry of gas, as manufactured?"

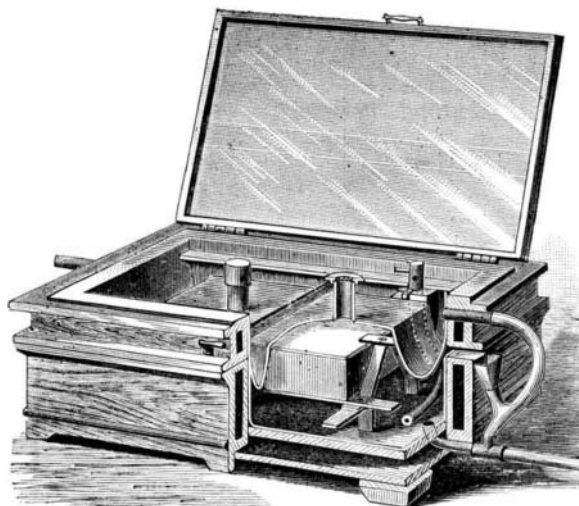
"They are needed to be used in connection with exhaust fans, and the gas will have a temperature of between 400° and 500°. They should be able to run at least 30 days, and 90 days would be preferable."

"The gas, an oxyhydrocarbon one, available at will for heating, power, and illuminating purposes, will be largely used in manufactories and other works, and it is for the determination of the gross amount of royalty to be paid that they are required."

The difficulty involved in supplying this want lies in the high temperature of the gas. Ordinary gas meters, if of the wet type, would be quite unavailable, on account of the presence of water and consequent generation of steam. Dry meters would have their diaphragms dried, their oiling destroyed, and their flexibility interfered with. A positive-acting meter, such as used for water, would, if of sufficient capacity, and if the lubrication was not interfered with by the heat, be very expensive. Something of the anemometer type seems to be indicated, as the doctors say. We leave the problem to our readers.

A MILK COOLER THAT EXCLUDES THE AIR.

The illustration herewith shows a cooler designed to facilitate the changing of the milk and the raising of the cream without uncovering the pans to the outside air and dust. The lower part, or pan box, of the cooler



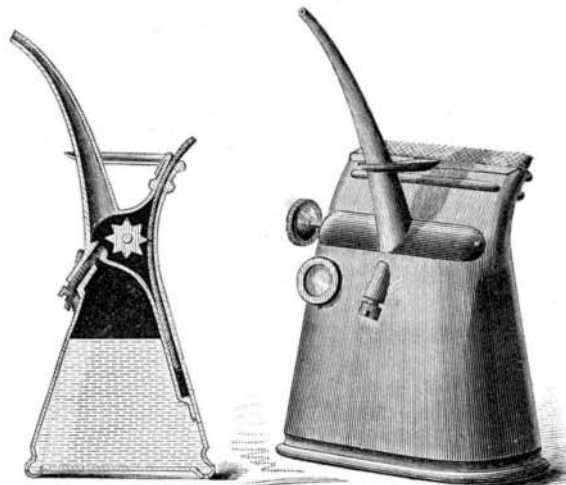
BRAMKAMP'S MILK COOLER.

is made with double bottom and side walls, providing air spaces, as will be readily understood from the engraving, where one corner of the cooler is shown with parts broken away. The cream pans, which are shallow, are supported with their tops about level with the top of the box, upon a metal framework, attached

to the bottom and sides of a sheet metal lining. The box has an overflow pipe and a lower outlet pipe, through which the water used in cooling the milk may escape. The cover of the box has an interior water tight sheet metal lining, the central portion of which is raised, forming a pendent trough-shaped part, which enters the box around the milk or cream pans, and water-seals the pans against the entrance of air when the cooler is in use. In the lining, over each of the pans, is fitted a tube, through which the milk may be passed or strained into the pans. The water supply pipe is fitted at one end of the cover, and the overflow and discharge pipes at the opposite end. The water circulation may be regulated as desired, and the pans may be filled without lifting the cover.

This invention has been patented by Mr. John H. Bramkamp, of No. 825 Holiday Street, Denver, Col.

AN OIL CAN WITH WICK TUBE BESIDES A NOZZLE.
The accompanying figures represent an oil can hav-



MOAT'S OILER.

ing a body of oblong form, provided with spring sides, and terminating in a wick tube for receiving a broad wick for applying oil to the surface of saws, for the purpose of lubrication, and for oiling metallic surfaces to prevent rust. This oiler has also a nozzle or spout, with a regulating valve for controlling the amount of oil escaping through the nozzle or the wick. By the side of the wick tube is formed a chamber containing spur wheels placed on a spindle, extending longitudinally through the chamber and through the end of the can, the spur wheels engaging the wick, so that by turning the spindle the wick may be raised or lowered.

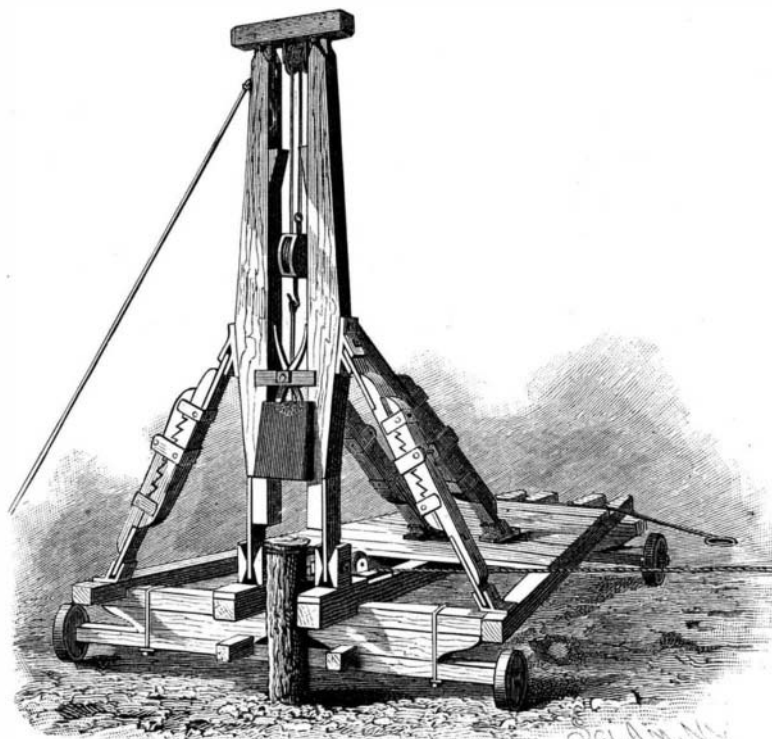
This invention has been patented by Mr. Elijah Moat, corner of Third and Flower Streets, Los Angeles, Cal.

A TRAVELING POST AND PILE DRIVER.

In this construction the derrick is so mounted upon the vehicle platform that it may always be adjusted to a perpendicular position, irrespective of the contour of the ground on which the vehicle stands, while the arrangement is such that the derrick may be folded down to rest in a horizontal position, and a tongue or bolt connected to either axle of the vehicle.

The rear axle of the vehicle is much longer than the forward axle, both axles having pole couplings, and both being connected to the platform framework by king bolts. The derrick proper consists of two timbers, to the lower ends of which are secured stout iron legs, which rest in sleeves secured to the upper faces of the rearwardly extending ends of the central timbers, in such way that the derrick timbers may be tilted, upon their connection with the vehicle platform, either to one side or the other, or folded backward, while they may be supported by braces in a vertical position. The braces are each formed in two sections, each section carrying blocks arranged so that their teeth will interlock, and there is a binding pin which holds the teeth in engagement, but which may be withdrawn in order that the length of the brace may be adjusted to suit the requirements of any particular case. Between the guide timbers is the weight to be used as a hammer, with the ordinary form of hoisting and tripping mechanism. A long pole is so connected, near the top, to one of the vertical timbers that it may be carried to the side, front, or rear of the derrick, to aid the operator in moving it, irrespective of its position.

This machine has been patented by Mr. Adam Towberman, of Sutherland, Iowa.



TOWBERMAN'S POST AND PILE DRIVER.

or ferric sulphate, spores being killed after exposure to one per cent solution for two hours. It is cheap, tolerably safe, and will not corrode lead pipes. It is advised, when required to be kept, and to prevent formation of insoluble oxychloride, to mix it with an equal quantity of ammonium chloride.

Thunder Storms.

From certain meteorological statistics recently published in Germany; we learn that thunder storms in that country have, during the last thirty years, been steadily increasing both in frequency and severity. The number of deaths per annum from lightning has increased in a far greater ratio than that of the increase of population. In the present state of our knowledge of the whole subject of atmospheric electricity, the cause of the phenomena of thunder storms is confessedly obscure. It is, however, very possible that some light would be thrown upon the question by a comparative study of the frequency and severity of storms during a lengthened period and over a wide geographical area.

The German savants incline to the opinion that the increase is to be attributed to the enormously increased production of smoke and steam which has taken place during the last three decades. But although we may admit this to be to some extent a probable *vera causa*, yet, when we consider the very local character of thunder storms, we should naturally expect to find that it would follow that the neighborhoods of large cities, and especially of manufacturing districts, would suffer the most severely. But the statistics referred to show distinctly that the very reverse is the case. The number of storms attended by fatal results from lightning is far larger in the agricultural districts than in the towns. Upon the other hand, we ought to take into consideration the protective action of lightning conductors, with which the prominent buildings in the towns of Germany are well provided.

Artesian Wells in Denver.

In 1883 the president of the Denver Water Company, one of the owners of landed estate in North Denver, on the highlands, just across Platte River, immediately opposite the business section of the city, conceiving his land to be underlain at considerable depth with valuable coals, began boring them. At a depth of about 300 feet a stream of water was suddenly projected, with great force, from the bottom to a height thirty or forty feet above the surface, completely drenching his men and compelling a suspension of work. At first it was thought to be but temporary; but as it continued day after day without any perceptible decrease of force or volume, and as the theory of its projection from true artesian sources, so to speak, became more and more apparent, Mr. Zang, owner of a large brewery near by, concluded to test the matter for himself. In due time, apparently, the same deposit was encountered at a depth of 300 feet, and then followed a succession of like enterprises, all of which were successful. Many wells are now in operation, varying in depth from 250 to something over 700 feet, the deepest being that sunk by the county of Arapahoe, near its splendid court house, which is 910 feet deep, the whole producing about 3,000,000 gallons per day of 24 hours. The water is very pure and fine.

Stannous Chloride as a Disinfectant.

This is recommended by Dr. Abbot as being more active than zinc chloride, copper sulphate, zinc sulphate,