

**Ladies, Beware!**

A singular case is reported from the University of Michigan, service of Dr. A. B. Palmer. A young married woman of twenty-one years was brought to the hospital, suffering much pain, partly paralyzed, subject to convulsions, helpless. Various forms of treatment were used, particularly for uterine difficulties, which was the supposed trouble, but without improvement. Finally it was diagnosed that it was a case of lead poisoning, and under proper treatment for that disorder she soon improved and recovered. But how the lead ever found its way into her system could not at first be ascertained, though the most careful inquiry was made. It came out at last, however, that she had for several years been in the habit of beautifying her complexion by the use of a white powder sold as "flake white," which she applied to her cheeks after first wetting them with water. This "flake white" proved on analysis to be nothing more nor less than carbonate of lead, a deadly poison to the human system.

**IMPROVED WATER METER.**

There is no question of more vital importance to a city than that of its water supply. What at first seemed like a plentiful supply in many of our large cities has proved inadequate when the increasing waste has remained unchecked, but when this waste is checked by registering the amount of water used by means of efficient meters, the original estimates were found ample. This proved to be the case in this city, for according to the report of the Commissioner of Public Works in 1880, the supply which ten years ago was required for a population of 842,000, by the introduction of water meters is made to suffice for a population of 1,280,000.

The city of Brooklyn, which, during the last season, almost suffered a water panic, would have been enabled to distribute a plentiful supply of water and to arrest waste if a good water meter had been adopted. In fact, the universal adoption of an efficient meter, to be used as a part of the water supply system, is the only means of insuring economy in the use of water.

We give herewith an engraving of a meter, which, according to the reports of the New York and Chicago Water Commissioners, has proved very satisfactory. The following tabulated statement of the test at Chicago indicates very accurate registration:

Duration in Minutes.	No. of C. feet by Meter Register.	Actual quantity delivered.	Pressure upon Main.	Remarks.
2 1/2	10	10.3	29.5	Discharging through 1 inch nozzle.
5	10	10.4	30.5	
10	10	10.5	29.5	
15	10	10.3	30.5	
20	10	10.3	29.5	

The meter is shown in Fig. 1 with one of its heads and the cover of the recording mechanism removed, showing the inside of the cylinder and valve chamber with the piston and valves in position. Fig. 2 is a detail view of the piston, and Figs. 3 and 4 are, respectively, auxiliary and main valves.

Water is admitted to the meter through the inlet, E, to the main valve chamber, C, passing between the two middle heads of the main valve, C', through ports into the cylinder, A, forcing the piston to one end of the cylinder. When near the end of its stroke it strikes one of the pins, D, projecting from the valve, B, and moves the valve in the same direction, thereby directing the flow of water into the valve chamber, C, between one of the outside heads of the main valve, C', and the head of the meter. The main valve is then forced to the opposite end of the valve chamber, when the flow of water into the cylinder, A, is reversed, and the piston is moved back into its original position, forcing the water on the eduction side of the piston, downward and out through the exit opening, which is exactly opposite the inlet opening.

The recording mechanism is operated by a double cam, F, projecting from the center of the piston, A', as seen in Fig. 2. This cam engages a forked lever having two projecting lugs, G G', projecting into the cylinder. This forked lever is attached to the lower end of a vertical shaft which extends upward through a stuffing box, and carries a double lever at the top, having two pawls which engage a ratchet wheel actuating the recording mechanism on the top of the meter, the wheel being moved forward one tooth for each stroke of the piston.

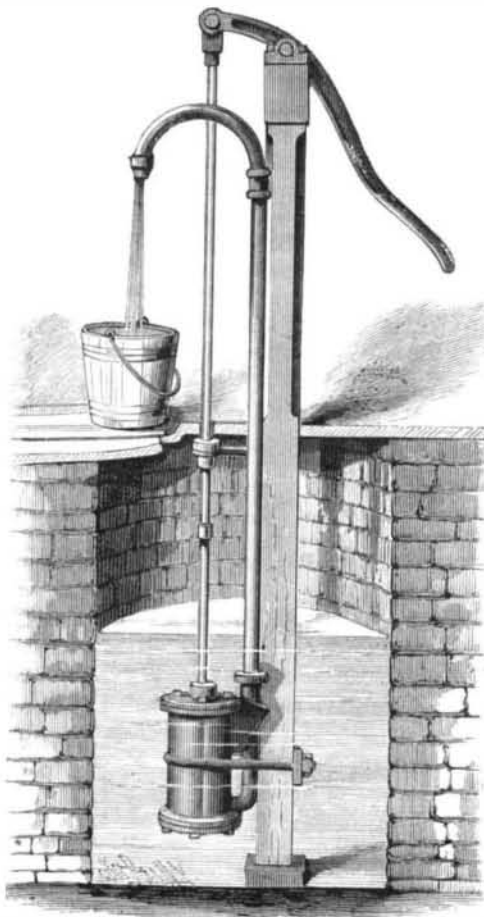
This meter is inexpensive in its construction and registers accurately.

Further information may be obtained by addressing Mr. Augustus Sequeira, 1447 Broad street, Hartford, Conn.

DANIEL F. BEATTY, the celebrated organ manufacturer, of Washington, New Jersey, was re-elected Mayor of that city this week. This is the third successive term of Mayor Beatty.

**IMPROVED FORCE PUMP**

The annexed engraving represents an improved force pump recently patented by Mr. A. J. Hopkins, of Hamilton, Ontario, Canada. The cylinder of the pump is mounted on a standard which rests on the bottom of the well, and reaches above the well covering a sufficient distance to receive the handle and support the upper end of the discharge pipe.

**IMPROVED FORCE PUMP.**

The pump is double-acting and works very freely, taking the water from the bottom of the well where it is coolest and purest. It can never freeze, for as soon as the movement of the piston is stopped the water retreats from the discharge pipe into the well. The pump is well made and calculated to remain in order in all seasons and under all conditions.

**A New Photographic Process.**

The phosphorescent properties of sulphide of calcium have been applied to many purposes more or less useful both in and outside the bounds of photography; but so far

Mr. Henderson has himself obtained startling results, though as yet not perhaps photographically perfect. The luminosity set up by the momentary exposure of the phosphorescent film to light, feeble though it may be to the eye, is sufficiently powerful to gradually impress the particles of silver bromide, which, after a short time, become amenable to alkaline or other development in the same manner as if impressed in the ordinary way, the length of time between exposure and development ruling the degree of impression effect; in other words, the longer the plate is kept the better or more fully "exposed" it will be. We have not yet had the opportunity of trying this novel application of phosphorescent light to photographic purposes, as while we write but a few hours have elapsed since it was made public; nor is it possible yet to prognosticate what degree of success will attend its practice; but we give it at once to our readers on Mr. Henderson's behalf, feeling certain that many will be ready to enter the field of research in this direction.—*British Journal of Photography.*

**Alcoholism a Predisposing Cause of Crime and Epilepsy.**

In a recent number of the journal with the awkward title *Brain*, Dr. Clarke has published some tables of statistics, which lead him to the conclusion that "alcoholism of parents is a predisposing cause of crime and epilepsy in their children." Forty-four per cent of the epileptic criminals were the children of drunken parents. The proportion of epileptic and insane relatives is found to be very much greater with criminals than with ordinary epileptics. The convictions for bastardy are three times as numerous among epileptics as among non-epileptics. The statistics show that the amount of crime, as indicated by the number of convictions, is greater among epileptics than among ordinary criminals.

**MECHANICAL INVENTIONS.**

A safe and simple stationary fire escape, suitable for buildings of all kinds, has been patented by Mr. Charles Barlow, of Cookshire, Quebec, Canada. The invention consists of two cylinders fixed on different radii, each cylinder being filled with liquid, air, or gas, and containing two pistons provided with orifices that may be opened or closed by the relative adjustment of the pistons, to prevent or permit the passage of the liquid or air from one end to the other of the said cylinders, and thereby retard or hasten the operation of the lowering mechanism.

Mr. William H. Grubb, of Hannibal, Mo., has patented an improved device for bending metal tubes, consisting of a steel plate having several holes of different sizes which are perpendicular to the faces of the plate, and the holes are of the exact size required for standard sizes of pipe. The device is first firmly secured in vertical position in a vise clamp, the portion in which the hole is formed being uppermost. One end of the pipe is then inserted in the hole and the pipe drawn gently toward or pushed from the workman at right angles to the axis of the hole. The pipe is then pushed through the hole half an inch, or thereabout, and the operation of drawing and bending repeated, thus producing the curve.

Messrs. George M. Fay and Nahum Fay, of Eureka, Cal., has patented a combined sawing, grooving, and planing machine, more particularly intended for the sawing, planing, and grooving of boards to be used for roofing.

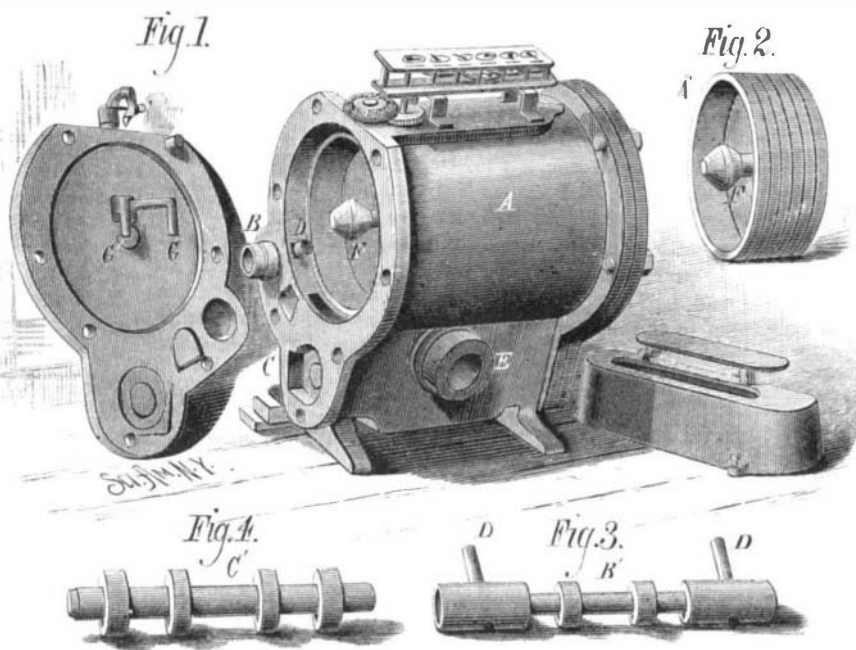
A mandrel that may readily be inserted in and withdrawn from the hole in the piece of work to be turned, that furnishes a parallel bearing the full length of the hole or any part thereof, has been patented by Mr. John A. Wiide, of Hudson, N. Y., The invention consists of a mandrel having an enlargement or boss in the middle of its length, or at either end, that is cut away so as to form two raised parallel longitudinal bearings and a corresponding groove, which are at equal distances apart, the groove being deeper at one end than at the other, and being designed to receive the third bearing, which consists of a corresponding key that is to be forced into the groove to secure the mandrel in place in any piece of work.

A simple saw-filing machine that is readily adjustable for any desired rake, bevel, and depth of tooth, and for any length of file, has been patented by Mr. Eugene P. Ellis, of Emporia, Kan.

A magnetic support for scale beams has been patented by Mr. Solomon H. Brackett, of St. Johnsbury, Vt. This invention

relates to beam or even balance scales, or other scales depending on pivoted levers. The main feature of this invention consists in the combination, with the pivotal beam or lever, of a magnet arranged to attract the central or pivotal part of the beam, and suspend or partly suspend the same against the action of gravity.

An improved tiling for roofs, etc., has been patented by Mr. John J. Williams, of Fair Haven, Vt. The object of this invention is to apply tiling to roofs, floors, and other places in such a manner that water cannot pass in through the joints between the tiles, and that the expansion, contraction, springing, and sagging of the tiling or its support will not open the joints and cause leakage.

**SEQUEIRA'S WATER METER.**

as the latter is concerned the applications have been hitherto of little real practical utility.

At a meeting of the London Photographic Club, however, Mr. A. L. Henderson announced an entirely new and, if it should prove to be practically workable, a most valuable application of the sulphide of calcium. This is, as yet, only in the experimental stage, and is given to the public that others may join in working it out to a practical issue. It consists in a method of producing instantaneous pictures by any light, however feeble—as Mr. Henderson himself described it, even by gaslight—with a pinhole stop. This result is attained by incorporating finely divided sulphide of calcium with the emulsion itself. With such an emulsion