

A New Therapeutic Agent.

A new method of treating cancerous growths, tumors, etc., consists in subjecting the parts to a stream of hot, dry air. This is proposed and has been successfully applied by Dr. G. A. Keyworth, of England. By means of a foot bellows he caused air to pass through a glass vessel containing calcic chloride, then through a heated iron tube, and thence directed the hot, dry air against the surface of a cancerous sore. The treatment was continued for an hour, the effect being to relieve the pain and cause the parts heated to shrink and dry up very considerably. It is believed that this new method will prove valuable when proper appliances are employed to maintain and direct the supply of the air.

AN IMPROVEMENT IN STOVEPIPES.

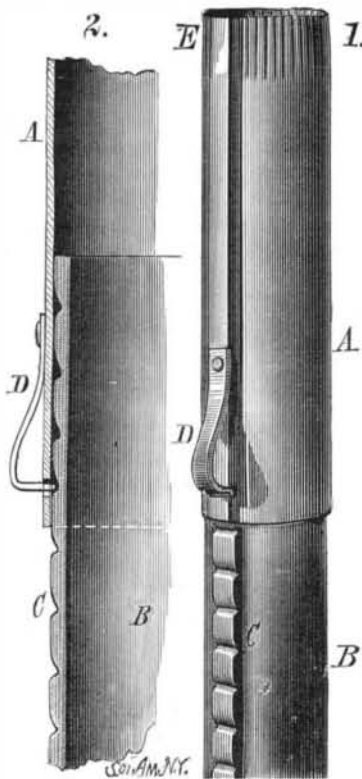
The inventor of the adjustable stovepipe shown in the accompanying engraving has endeavored to relieve those who are unfortunate enough to have to use stovepipe, from the trials and vexations incident to taking down and setting up stoves, by providing a single length of stovepipe which may be extended or contracted like a telescope, and which is formed at the ends so as to fit pipes whose sizes vary within reasonable limits.

The section, A, is of sufficient size to permit the section, B, to slide freely in it, and it is provided with a spring pawl, D, that fits into notches formed in the seam, C, of the section, B. By means of this arrangement the two lengths may be held in any position relative to each other, and the compound length may be easily fitted into a space in a stovepipe of nominally the same size.

The exterior appearance of the pipe is clearly shown in Fig. 1, and the arrangement of the different parts will be seen in Fig. 2.

The end of the outer section is corrugated to admit of easily contracting or expanding it to adapt it to various sizes of pipe.

For further particulars address the patentee, Mr. R. R. Pattison, 300 N. Fourth street, Terre Haute, Ind.

**PATTISON'S EXTENSION STOVEPIPE.****NEW HYDRAULIC RAM.**

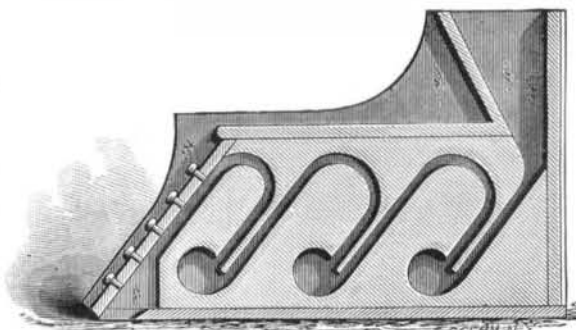
The accompanying engraving represents an improvement in hydraulic rams recently patented by Mr. Harry H. Heise, of Columbia, Pa. It is very compact and simple and seems well calculated for practical use.

The cylinder, A, is cast in one piece with the base that supports it, and is provided with three passages—a central one which discharges into the air chamber, B, and is covered with a check valve, and two lateral passages leading from the lower portion of the air chamber; only one of these is necessary, however, the two being formed merely for convenience in attaching the discharge pipes. The cylinder head, C, is apertured and provided with a valve seat fitted to the waste valve, E. This valve is supported by the spring, D, carrying at its lower extremity the bar, F. An adjusting screw passes through the bar, F, and bears against the cylinder head. The valve, E, is held open by the spring, D, until the water in the supply pipe attains sufficient momentum to close it, then the water escapes into the air chamber, where it is retained by the check valve, and is forced out through the discharge pipe by the air cushion. When the momentum has thus been partially checked, the spring opens the waste valve, E, and the operation is repeated.

ANALYSIS OF A PIECE OF MODERN ENGLISH CALICO.—Cotton, 53; china clay, 26; starch, 12; fatty matter, 2.5; chloride of magnesium, 2; chloride of zinc, 1.5; chloride of calcium, 0.5; moisture, 2.5: 100.0.

NEW AMALGAMATOR.

The novel and simple amalgamator shown in the engraving is the invention of Mr. Perry Dickson, of Spearfish City, Dakota Ter. The apparatus has a supply hopper, and

**DICKSON'S AMALGAMATOR.**

a series of downward and upward passages connecting with scroll-shaped chambers, arranged so that the pulp from the stamp mill is spread out in thin sheets, and the current is made to revolve with great velocity so as to bring the gold and quicksilver in the chambers into intimate contact. The amalgam remains in the chambers, but the lighter particles escape from one chamber to another, and are finally allowed to pass away through the discharge sluice.

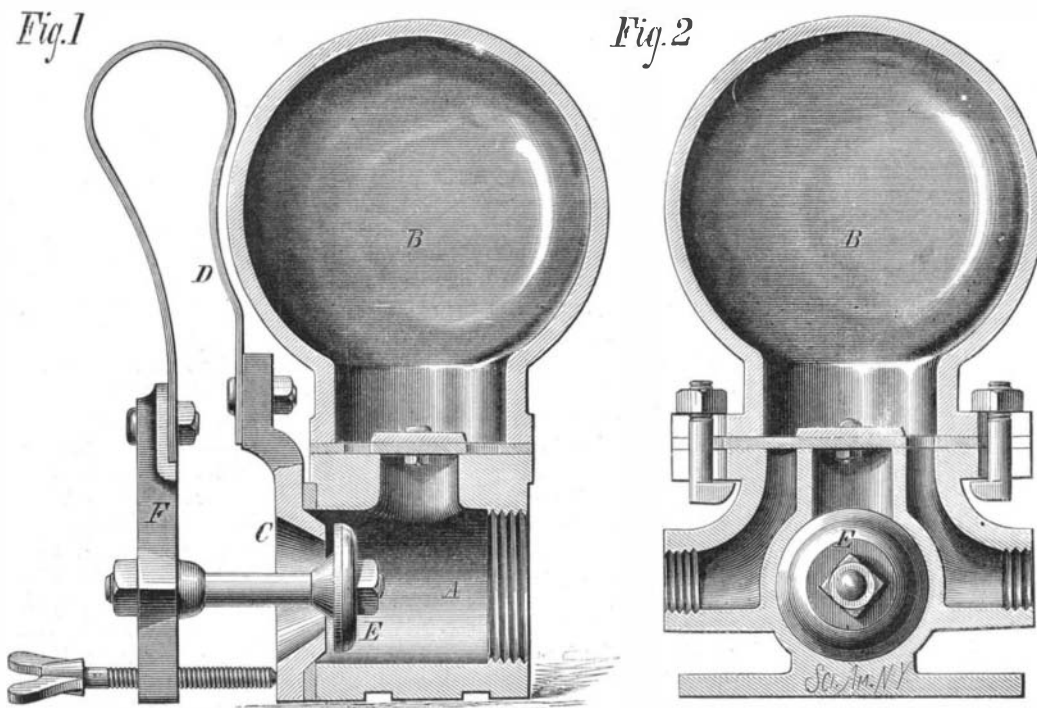
The velocity of the water is regulated more or less by removing or inserting plugs in the side of the discharge sluice.

Photo Decoration of Metals.

Herr Falk's photographic method consists in coating the metallic surface with a photographic film, which is then exposed under a transparent positive; by this arrangement the parts lying beneath the dark places of the positive are not affected by the light, and are consequently capable of being etched. With curved surfaces a print taken in fatty ink on paper by a photographic method is transferred to the metal, and all the parts covered with the ink are by this means protected from the etching. It is a peculiarity of this process that the etching fluid colors all the etched places black, and this adds considerably to the effect of the whole.

Heat of the Electric Light.

The temperature of the polar extremities of carbons giving the electric light has been recently investigated by M. Rossetti (*Jour. de Phys.*), using the same method and instruments as he used in measuring the temperature of the sun. (The face of a thermo-electric pile is placed at suitable distance to receive rays from a radiating surface of determinate size, and the thermal effect is measured by a very sensitive Wiedemann reflecting galvanometer; the temperature is deduced by means of a formula previously established.) We give, briefly, the author's conclusions: (1) The positive carbon pole, at the moment of production of the light, has always a higher temperature than the negative. (2) These temperatures vary according to variation of the current's intensity. (3) They are higher the smaller the radiating surface, provided, of course, it comprises the extremity of the point. (4) For the negative pole the minimum temperature was 1,910° C., the radiating surface being large, and, in part, of small brilliancy; the maximum 2,532° C., the radiating surface being half the preceding. (5) For the positive pole,

**HEISE'S IMPROVED HYDRAULIC RAM.**

the minimum temperature was 2,312°, the carbon being very large and the radiating surface very extensive; the maximum, 3,200° when the carbon was thin, and the radiating surface nearly a quarter of that corresponding to the minimum temperature. (6) We may consider, says *Nature*, the temperature of the extreme negative polar point as equal to 2,500° at least; that of the positive polar extremity is not less than 3,200°.

Discovery of a Remarkable Cave.

The *Courrier de Tlemcen* (near Algiers) states that some miners occupied in blasting rocks in the vicinity of the picturesque cascades, discovered the entrance to a cave, the floor of which was covered with water. They ventured upon the subterranean river on a raft, and followed it for some 60 meters' distance, when it disappeared in a vast lake. Here the vault of the cave was very high and covered with stalactites. In many parts the miners had to steer their raft between colossal stalactites which reached down to the surface of the water; eventually they reached the end of the lake, where they noticed a canal extending toward the south, and into which the waters of the lake flowed. The workmen estimate the length of the lake to be 2 miles, and the breadth about 1½ miles. They brought out a quantity of fish, which, they say, surrounded the raft, and which were found to be blind.

A NOVEL CANDLE.

In the service of some churches there are occasions when candles are employed; generally these candles are large, sometimes being thirty-four inches long and two inches in diameter; they are consequently quite expensive, and are never burned continuously for a sufficient length of time to exhaust them, but are lighted at different times, becoming shorter and shorter. It is desirable to have the candles of full length each time they are lighted. Mr. Francis Maguire, of Cambridge, Mass., has patented a novel device for renewing the tips, so that the candles will be full length whenever they are lighted.



The invention consists in securing in the upper end of the main body of the candle a tapering pin of sufficient length to steady and support the tip, the latter being cast with a conical socket for receiving the pin. The wick of the tip does not extend entirely through it, but is secured at its lower end to a small metallic anchor which holds the wick in the process of making the candle. The object of this device is to prevent the candle tip from being burned entirely to the socket.

What to Teach.

Rev. Charles Brooks, father of the State normal schools in America, was asked by a teacher this question: "What shall I teach my pupils?" He answered, "Teach them thoroughly these five things: 1. To live religiously. 2. To think comprehensively. 3. To reckon mathematically. 4. To converse fluently; and, 5. To write grammatically. If you successfully teach them these five things, you will nobly have done your duty to your pupils, to their parents, to your country, and to yourself."

ENGINEERING INVENTIONS.

An improvement in valves for steam engines has been patented by Mr. Albert F. Kirsten, of Orange, N. J. The object of this invention is to dispense with steam and valve chests in connection with the cylinders of steam engines, and operate the valves by direct action of the piston without levers or other intervening mechanism. For this purpose the inventor places the valves in slide ways within the cylinder, and moves them by contact of the piston head with lugs projecting from the valves.

Mr. Christopher Castle, of Cleveland, Ohio, has patented improvements in apparatus for cleaning boiler flues by directing a jet of steam through them. The object of the improvement is to prevent the wasting of steam and the blowing of the soot from the flues out into the boiler room. It consists in providing the nozzle of the apparatus with a conoidal head, provided with a sleeve fitting over the nozzle and bearing against a spiral spring, and a finger that operates the stem of the valve that shuts off the passage of steam through the apparatus.

Mr. Michael Condon, of Newark, N. J., has invented improvements in frogs and guard rails for railroads, designed to secure greater strength, cheapness, and increased facilities for repairing. The invention cannot be described without diagrams.

Mr. Henry Spindler, of East Saginaw, Mich., has invented a simple and effective clamp to be used in tubing or withdrawing tubes from salt, oil, or Artesian wells. It consists of a metallic frame in which is rigidly secured one jaw of a clamp, while the other jaw is secured to a nut that slides in the frame, and is worked by screw or lever.