

**IMPROVED WASHING MACHINE.**

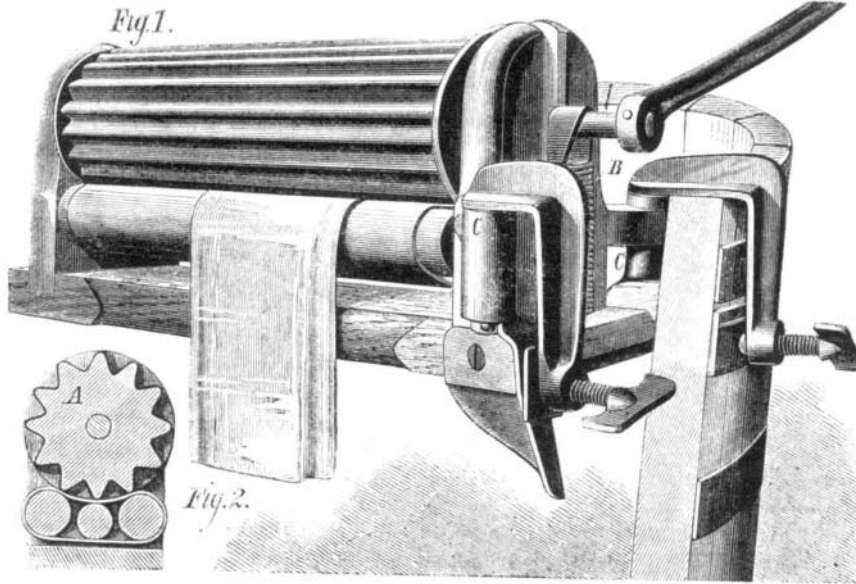
The annexed engraving represents a new washing machine which may be readily attached to any kind of tub. It is operated by passing the clothes between a corrugated roller above and an endless belt, which envelopes smaller rollers, beneath, the upper roller being held in its place and against the garments by stout spiral springs, and rotated by the handle shown.

In the illustration, A is the upper roller, which is faced with sheet metal. In Fig. 2, the arrangement of the smaller rollers and belt beneath is clearly shown. One of the springs which hold the roller, A, down upon the clothes is represented at B, and the simple screw clamps, by which the device is attached to the tub, need no special description, except to note the fact that they, in common with other metal work of the machine, are strongly constructed of galvanized iron, and are pivoted to the frame portion at C, so as to be adjusted on the circular edge of a tub.

The garments, as they pass between the rollers, are thoroughly rubbed by the upper one, receiving the same scouring as if rubbed by hand upon an ordinary washboard. The springs admit of the upper roller adjusting itself to any thickness which may be passed beneath it.

This machine is also claimed to wash the lightest fabrics with much less wear than is produced in washing by hand.

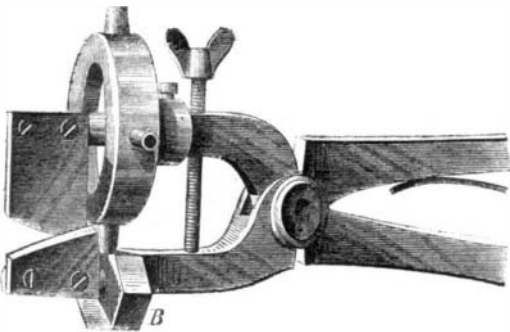
Patented February 24, 1874. For further particulars relative to sale of State, county, and town rights, address Mr James Taylor, P. O. Box 44, Otter River, Mass., or Box 577, Stamford, Conn.



**TAYLOR'S WASHING MACHINE.**

**WOLFF'S BUTTON HOLE CUTTER.**

The device represented in the illustration is a handy little instrument which cuts a slit for a buttonhole and, at the same time, punches the rounded end of the same. The handle resembles an ordinary pliers, and at the ends of the jaws two curved cutting blades, A, are attached. Just inside the blades, and on one jaw, is a circular head, attached as shown, and carrying several punches of various sizes. On the other jaw is a rotary anvil, B, corresponding in its sides to the shapes of the punches. The length of the button hole depends upon the distance to which the curved blades are permitted to pass each other. The length is regulated by the punches being adjusted in their head, so that, if one of them is brought opposite to the anvil, it will strike the



same and prevent the cutting blades passing beyond the desired distance. In one of the jaws is secured a set screw, C, which is so adjusted that it keeps the punches from striking too hard against the anvil. When buttonholes are to be made without eyelets, the punches are turned out of the way, and the length of the cuts determined by the screw, C. Both the cutting blades and the punches can be easily removed for sharpening or replacing them by new ones. Patented April 7, 1874, to Mr. Raphael Wolff, of New York city.

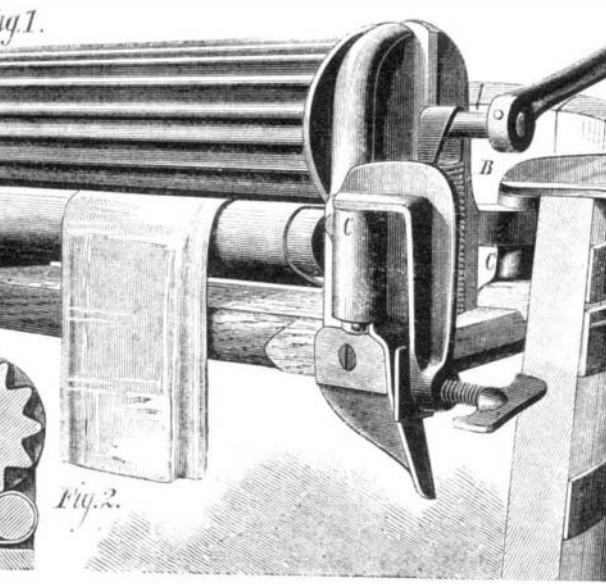
**New Process of Dental Surgery.**

Mr. Napier, an English dentist, announces what he considers to be something new in dental surgery, especially in a case where the teeth were extremely sensitive, and it became necessary to file them down for the purpose of introducing artificial teeth on the stumps. For the sake of avoiding pain in the operation as far as possible, ether spray was first made use of in reducing the sensibility of the teeth; a piece of cotton, dipped in ether, and laid first on the teeth and then on the instrument, being found to answer a still better purpose. While engaged in this operation it occurred to Mr. Napier to avoid the usual practice of dentists (of extirpating the nerve), with which object he took a bit of hard wood, dipping it in nitric acid, and with this cauterizing the exposed portion of the nerve in each tooth successively. He then filed the teeth down to the level of the gums without producing any pain whatever. He found that in this way the stump of the tooth remained perfectly healthy, giving no pain of any kind; and the subsequent experiences of the patients were of the most satisfactory character.

PROFESSOR SERGIUS KERN, of St. Petersburg, finds that the explosive properties of nitro-glycerin nearly disappear if the substance is highly heated.

**The Siemens Furnace Anticipated.**

Some two years ago, we gave a drawing of the medical warming apparatus, which the Prussian patent authorities decided to be an anticipation of Dr. Siemens' regenerator. A recent number of the *American Gaslight Journal* contains an article by Professor B. Silliman, who certainly ought to be made a Patent Office examiner on the spot, in which he endeavours to show that the gas furnace was foreshadowed in Dr. Hare's oxyhydrogen blowpipe! "Properly considered," says Silliman, "the fundamental principle which led Hare to the



**SIEMENS FURNACE.**

oxyhydrogen blowpipe has also led Siemens, in our time, to the invention of the regenerative gas furnace, by which, as Hare says in his memoir, 'to avoid these evils,' that is, the contact of solid fuel and the loss of heat consequent on its conversion into gas, it was thought desirable that means might be discovered of clothing the upper surface of any body which might be subjected to this species of operation with some burning matter, of which the heat might be equal to that of the incandescent carbon with which the lower surface might be in contact; or by which bodies might be exposed on solid supports to a temperature equal or superior to that of the porous charcoal uniting with oxygen. It soon occurred that these desiderata might be attained by means of flame supported by the hydrogen and oxygen gas. In the Siemens furnace the objects to be heated are sustained on a solid support in an atmosphere of burning gas, the oxygen of the atmosphere arriving by one inlet, and the combustible gases by another, and the two uniting in a true Hare's blowpipe flame to do their work. The necessary contrivances for the alteration of the flow of gas and air through the regenerative cellular flues of firebrick are evidences of a high degree of inventive skill, applied to the solution of a problem which, in its essential features, was clearly set forth by the American philosopher, Robert Hare, in 1802."—*Engineering*.

**Electrical Colored Shadows.**

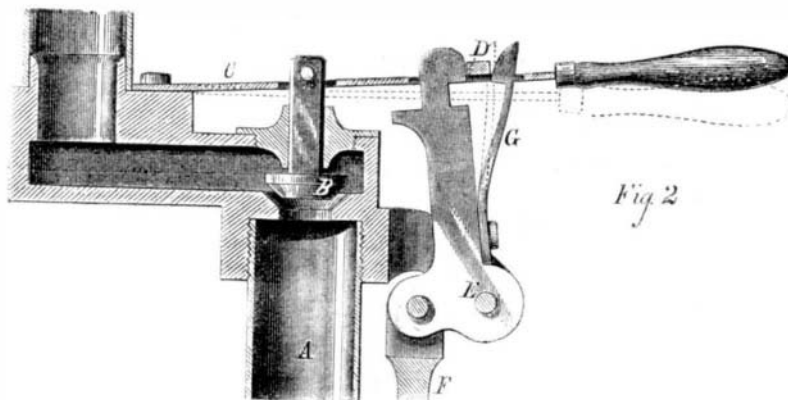
Six Grove's cells were connected with one of Ladd's large induction coils, and the secondary current, condensed by two large Leyden jars, was sent, in the usual way, between two pairs of metallic electrodes, in order to examine their spark spectra.

Two of the electrodes were of platinum: these may be called pair A.

Of the other pair, B, one electrode was of platinum, and the other of the metal to be examined.

Place a piece of white paper equidistant from, and on one side of, the two sparks. Hold the finger so that a shadow of it may be cast by each spark. The two shadows will be seen to be most beautifully tinted with different delicate colors, varying according to the metal inserted in B.

It will be seen that the shadow thrown by A is lighted by B, and is seen on a ground jointly illuminated by A and B; while B's shadow, lighted by A, is soon on the same common



**HOPKINS' LOW WATER INDICATOR.**

colored ground as before. Without these considerations, it might have been supposed that the shadow thrown by B, and lighted by the unchanging spark A, would itself have remained unaltered. "I saw it of the colors, pink, light pink, dim pink, light green, nearly white, and yellow green; corresponding to the introduction into B of Bi, Ag, Sn, In, Al, and Mg respectively."—C. T. L. Whitwell, in *Nature*.

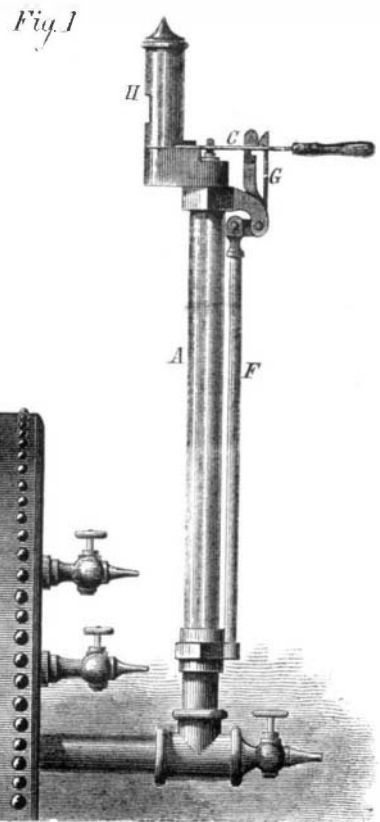
**IMPROVED LOW WATER INDICATOR.**

The invention illustrated in the annexed engraving is a new low water indicator which, it is claimed, can never get out of order so as not to give an alarm. The foaming of the boiler, it is stated, in no wise prevents the proper action of the device. The apparatus is, besides, simple in construction and possessed of various other advantages which will be readily understood from our engraving and the following description.

Fig. 1 shows the indicator as attached to the boiler and Fig. 2, the mechanism of its upper portion. A is an expansion tube connected to the generator at the alarm line, and provided at its upper extremity with a valve, B, the stem of which runs through a spring, C, Fig. 2. One end of the latter is fixed, and across a slot in its forward portion a bar, D, is placed. E is a detent or right angled lever, pivoted as shown in Fig. 2, one arm of which connects with the rod, F. The long arm extends upward through the slot in the spring, and is notched in such a way that, when the expansion tube, A, is cold, the crossbar, D, rests in the recess, thus retaining the spring, C, when depressed, and consequently holding the valve in its seat. To the lower part of the lever, E, is fixed a spring catch, G, which has its nib a very small distance below the notch in said lever. Rod, F, is fixed in a casting in the lower end of the expansion tube, and at H is a whistle.

The operation of the device is as follows: When the water is at its proper height, the tube, A, remains cool, the crossbar, D, rests in the notch of the lever, and the spring catch, G, rests against the side of the bar.

On the water in the boiler falling below the alarm line, the water in the expansion tube runs out and steam takes its place, expanding said tube which, in lengthening, raises the lever, E. The short arm of the latter being held by the rod, F,



the long arm is thrown over, the notch slips off the crossbar, the spring raises the valve, and the steam, escaping, sounds the whistle.

To stop the alarm it is only necessary to depress the spring by means of its handle. The catch, G, then engages with the crossbar, D, and, retaining the spring, holds the valve to its seat. When the water in the boiler again reaches the proper level, the tube, A, quickly cools, and in contracting throws the lever, E, over, so that the notch engages with the crossbar. At the same time the catch, G, is displaced, and the spring is thus allowed to rise sufficiently to admit of the engagement just mentioned. If it is desired to blow dry steam through the whistle, the upper end of the pipe, A, can be plugged and steam taken through a separate pipe below the valve. The device may also be placed in a horizontal position, and the whistle dispensed with, a nozzle being used in its place. The apparatus then becomes an automatic gage cock.

Patented November 10, 1874. For indicators or for further information address Messrs. Hopkins & Tytler, manufacturers, Albion, N. Y.

THE meeting of the British Social Science Association will be held at Brighton in October next, and there will be an exhibition of appliances and apparatus relating to the sanitary and educational systems.