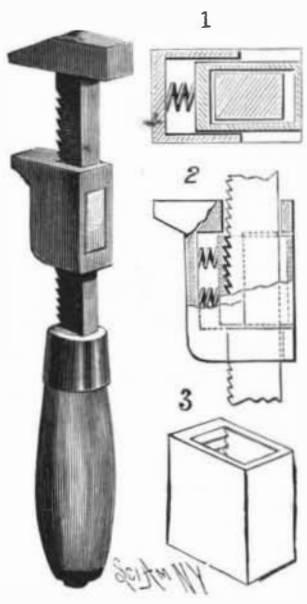
AN IMPROVED WRENCH.

The wrench shown in the illustration is of simple and durable construction and comprises virtually but three parts. It has been patented by Mr. Frederick B. Wells, of No. 50 Crescent Street, Montreal, Canada. The shank, which carries the outer jaw, has on one face a series of teeth, and sliding on the shank is a frame integral with the inner jaw, as shown in section in Fig. 2, this frame carrying a locking sleeve, shown separately in Fig. 3. Fig. 1 is a horizontal section showing the frame and locking sleeve in position on the shank of the wrench. The locking sleeve is capable of lateral movement in the frame and has on its front inner face teeth adapted to engage the teeth on the shank, the two sets of teeth being normally held locked by springs. To move the inner jaw toward or from the outer one the thumb is pressed against the back of the locking sleeve, forcing it inward against the tension of the springs, thus unlocking the sleeve, the thumb at the same time being used to slide the frame and sleeve inward or outward on the shank to effect the desired adjustment of the jaws. As will be seen, the wrench may be operated with one hand, leaving the other hand free and permitting the use of the tool in places inaccessible to wrenches requiring the use of both hands of the operator.



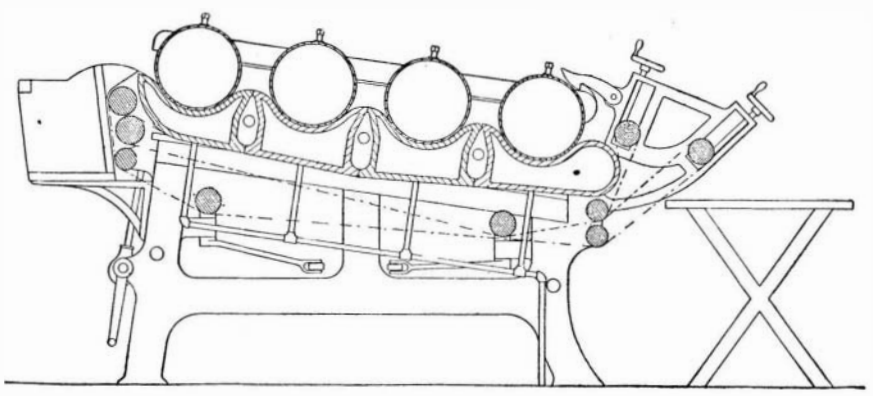
WELLS' WRENCH.

AN IMPROVED MANGLE.

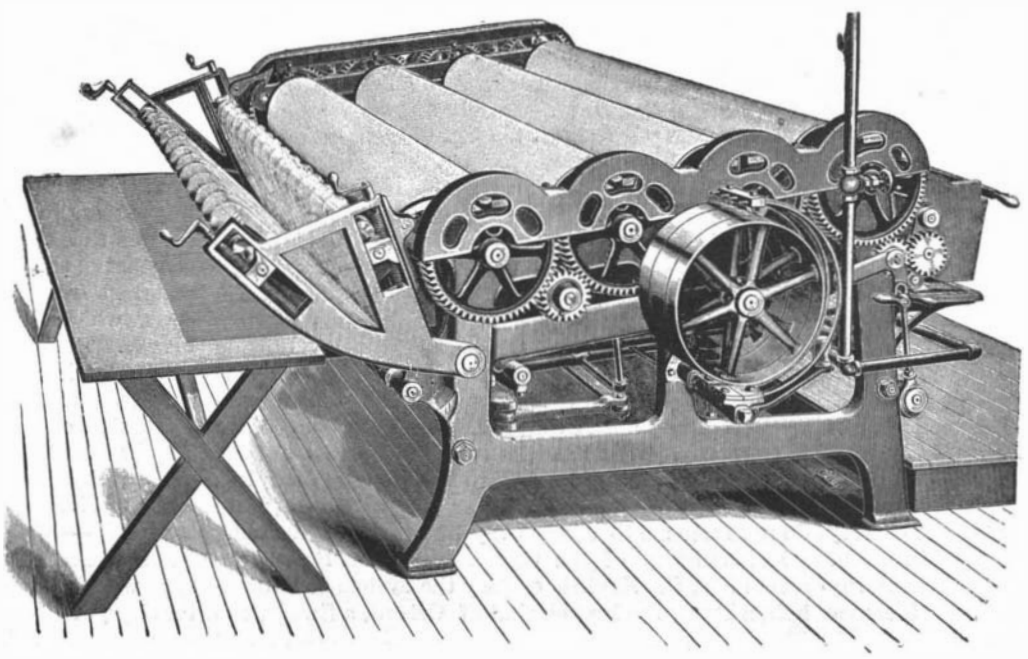
The demand made by large institutions and laundries for a mangle that will iron all kinds of flat work without having it first dried in a dry room has brought out several types of such machines. An illustration of this class of machinery appeared in the SCIENTIFIC AMERICAN of January 14. The one shown in the engravings, in perspective and sectional views, has been patented by A. T. Hagen & Co., Rochester, N. Y., manufacturers of modern laundry machinery, and is of very large capacity and gives an excellent finish to goods.

It consists of four steam chests placed parallel and close together, with their under sides planed straight and their upper sides concaved. Into each of these is placed a 12″ revolving roll. The goods to be ironed, after being wrung, are fed by an operator under the first roll and then carried by each to the succeeding roll. After being passed through the machine in this way, they are returned by means of an apron, tightly pressed against the under side of the steam chests and then carried back by another apron underneath the first one to the delivery side of the machine and deposited on a folding table.

The concaved surface of each steam chest measures about 11″ and the convex surface (or space between each roll) about 11″. Thus the goods, after being pressed against the heated chest under each roll, are exposed while passing to the next roll, allowing the steam to escape. After passing through the machine in this way, any dampness that may remain in the goods is taken out while on the moving aprons. One great advantage of this mangle is the small amount of floor space it takes up, considering its capacity; another, the absence of all stuffing boxes. This machine is provided with a device for changing the speeds to accommodate the different thicknesses of goods that it may be required to iron.



THE HAGEN MANGLE—SECTIONAL VIEW.



THE HAGEN MANGLE.

Tanning by Electricity.

At Turin experiments are in progress, under the direction of R. Pinna, in which hides are subjected to the action of weak alternating currents while immersed in the tanning liquor. A non-soluble metallic conductor, of about the same superficial area as the skins, is placed in the bottom of the tan pit and the hides are spread out and piled one upon the other on this conductor. The liquor is run in until this pile is submerged completely.

The second electrode is carried on a wooden framework, and is situated above the pile, being equal in size to the lower electrode. These electrodes are varied to suit the required current density. At present the current used is 0·04—0·10 ampere per square decimeter, according as the skins are light or heavy. The voltage is 50, and the frequency of the alternations 5,000 per minute. A rheostat is used for governing the current density and the temperature is kept below 35° C. Experiments are also in progress with hides stretched vertically and kept separate from each other, while the other conditions are the same. It is stated that an exposure of from 100–400 hours, according to the quality of the skins, is sufficient to convert the raw material into leather.

The Localization of the Perfumes of Flowers.

Mesnard's method of examining floral odors is applicable to a wide range of micro-chemical studies. A ring of glass is cemented to a suitable glass slide, and within this cell another smaller ring is glued, in such a manner as to leave between the two a clear annular space. In this space is placed pure chlorhydric acid. On a cover glass, large enough to cover the whole of the larger cell, is put a drop of pure glycerine containing a good deal of sugar, and in this reagent is deposited the section of petal to be studied. The cover glass is now to be inverted and applied to the outer ring. By the concurrent action of the vapor of the acid and the dehydrating activity of the glycerine, the essential or the fatty oil containing the perfume separates in minute drops.

A modification of the process directs that the central ring be covered by its own cover glass. On this the drop of glycerine is to be put, and this is to hold the sections.

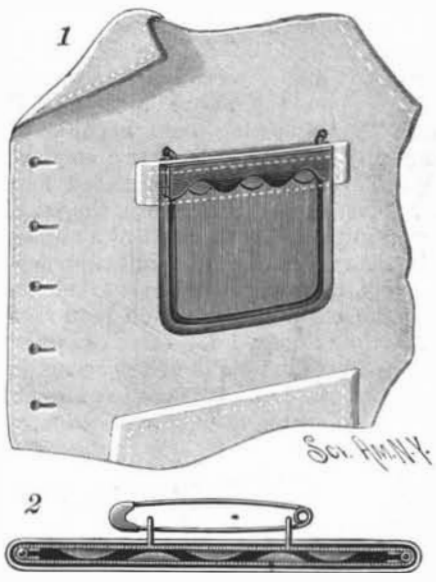
By this simple method, the localization of the perfume of the jasmine, rose, violet, and tuberose has been effected.—*G. L. G., American Journal of Science.*

Photography on Marble.

Mr. Villion publishes the following process: Coat an unpolished plate of marble with the following solution: Benzine, 500 parts; spirits of turpentine, 500 parts; asphaltum, 50 parts; pure wax, 5 parts. When dry, expose under a negative, in sunshine, for about twenty minutes. Develop with spirits of turpentine or benzine and wash in plenty of water. Now cover the plate where it is intended to be left white with an alcholic solution of shellac and immerse the same in any dye which is soluble in water. After awhile, when enough of the coloring matter has entered the pores of the stone, it is taken out and polished. The effect is said to be very good.—*Photographisches Archiv.*

A SIMPLE FORM OF SAFETY POCKET.

A safety pocket, more especially designed for carrying a watch, and which may be readily attached to or detached from a garment, is shown in the picture, and has been patented by Mr. Henry C. Diefenbach, of No. 124 Webster Avenue, Jersey City, N. J. A U-shaped wire frame has on its ends pintles for hinges connecting the ends of spring plates, having inwardly projecting teeth, as shown in Fig. 2, and this frame is placed in a separate pocket made of any suitable material, the spring plates forming the front and back edges of the pocket at its top. Fig. 1 shows such a pocket in position in a garment, to which it is secured by a safety pin passed through eyes extending inward from one of the plates. The upper ends of the wire frame have little knobs, and by pressing these toward each other with the thumb and one finger the spring plates open sufficiently to permit the convenient insertion or removal of the watch.



DIEFENBACH'S SAFETY POCKET.

Electricity at the Opening of the Fair.

The *Electrical Engineer* says: The devices for starting the engine and pump were connected in series with the key, and twelve cells of Exeter dry battery supplied the current. President Cleveland, in closing the circuit, first pressed the key lever, and then closed the circuit breaker, in order to keep the circuit closed and allow the starting mechanism time to act. The installation was made by Mr. L. Ethridge, superintendent of the World's Fair fire alarm service, and Mr. L. J. Auerbacher, electrician for The E. S. Greeley & Co.

The conductors were run under the platform and thence through the subway to the Allis-Corliss engine in Machinery Hall. Thence another wire extended to the pump house at the east end of the hall, where the great Worthington pump is situated. The electric fountains were operated by separate circuits from the northeast tower of Machinery Hall and were started by a signal in multiple with the main circuit. There was not the slightest hitch in the proceedings and everything worked to the perfect satisfaction of those in charge and the intense delight of the multitude.

The device used for opening the throttle of the great Allis-Corliss engine in Machinery Hall is the invention of Mr. Frederick D. Taylor, of Hartford, Conn.

The operation is extremly simple. When the circuit is closed, the armature is drawn toward its magnet, thus releasing the outer end of the tumbler. The shipping lever, then being free to move, is thrown over by its spring and withdraws the pawl from the ratchet on the barrel, leaving the latter free to revolve under the action of the powerful coiled spring within; and this motion is communicated by means of the shaft, sprocket wheels, and drive chain to the throttle valve of the engine.

An arrangement is also provided for mechanically releasing the spring barrel if desired by simply pressing upon the outer end of a rod whose inner end engages the pawl and moves it away from the ratchet. The whole device is inclosed in a handsome hardwood case.

THE diamond drill is pointed with black diamonds.