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## Preserving Stone Work.

There are various kinds of stone which do not stand exposure to the weather, and this is the case with some of the dark brown free-stones employed for building purposes. It absorbs moisture, expands with frost, and then scales off with rains. Any cheap means to prevent the crumbling away of such stones should meet with attention. Linseed oil applied to such stones will protect them, but it imparts to them a dark and somber appearance. A method of protecting stone with a solution of silicate of potash is now extensively carried out in Paris. It has been tested at the Louvre, Notre Dame, and other important works, and with success it is stated. This solution is manufactured by fusing 2 1-4 parts of clean white sand with one part of potash by weight, then dissolving the product in about 8 times its weight of boiling water. The stone work of the buildings to which it is to be applied, are first cleaned, then troughs huggd with clay are placed against the part of the building intended to be silicated, so as to collect the solution, which is applied with a syringe at intervals of three or four hours for about four days, or till the stone (when dry) ceases to absorb.

It is considered desirable that this process should be repeated, but to a less extent, the following year. The color of the stone is not materially changed, provided the absorption is tolerably equal and the silicalization effected by a sufficient number of applications of weak solutions, both of which conditions are necessary to success.

The phenomena of induration is thus explained:—The carbonic acid of the atmosphere separates the silica from the potash, leaving it deposited in the pores of the stone, whep, should the carbonate of lime be present (as in limestone), it combines with it, and forms the silicate of lime, while the soluble salt—viz., the potash—is removed by the rain or other means.

This solution, we understand, was tried on the new Houses of Parliament, in London, but without that success, it is stated, which has attended the French artists.

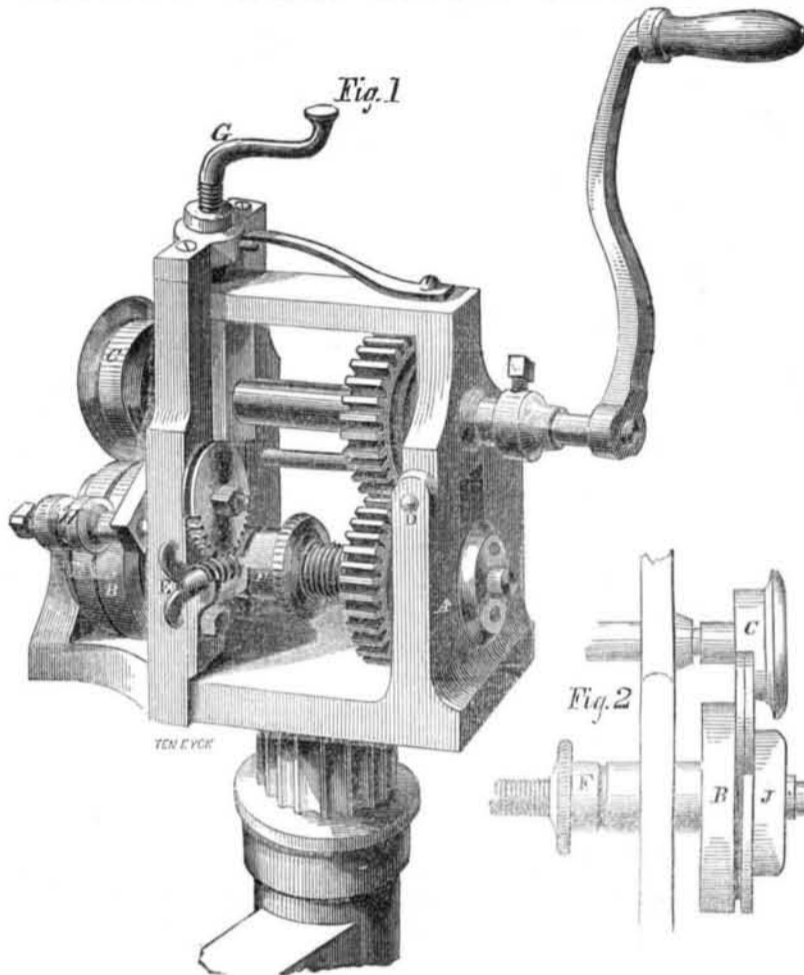
## Improved Wiring Machine.

The accompanying engraving illustrates a new Wiring Machine, by Shepherd and Stowe, which is now on exhibition at the great American Institute Fair, Crystal Palace, N. Y.

A is the frame of the machine, which carries the lower roller, and to which the frame that holds the upper roller, C, is hinged at D, allowing the frame, with its roller, C, to turn on the pin, D, in order to put in and take out the work. G is a crankscrew, by which the roller, C, is depressed; the spring on top of the machine raises said roller. H is a forming gauge, and is set to form any circle, by means of the screw and gear, seen at E.—B is an adjustable gauge, fitted to the lower roller, J, and its shaft, and revolving with them. This gauge is set to take in wire of any required size, by means of the nut, F.

In wiring any vessel the work is placed between the rollers, C and J, fig. 2, and the gauge, B, moved up to press the work tightly between the surfaces of the rollers, C and J, and the gauge, B; the machine is then set in

## IMPROVED WIRING MACHINE FOR TINSMITHS.



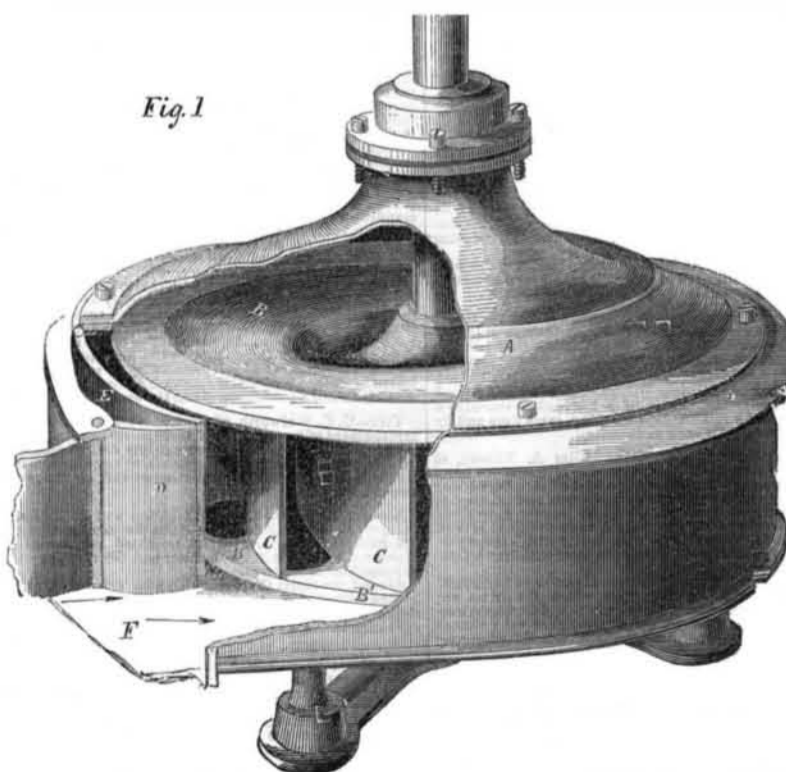
motion, when all these surfaces help feed the work through the machine.

By this improvement the friction on the fixed gauge, found in the old machines, is entirely removed, and work is fed through the rollers by all the surfaces on which it rests. So perfectly is this done that the work needs no aid from the operator in forcing it through the rollers in wiring even coal hods or the heaviest brass kettles. By hinging the frame of the roller C at D, a most desirable

result is obtained for the durability of the machine, viz., that of keeping the boxes closely fitted to the journals of the upper roller while it is raised to put in and take out the work.

Different sizes of these machines are made at prices ranging from \$14, worked by hand, to those fitted up with pulley and clutch, costing \$50. For further information apply at the Palace, or address the Stowe Manufacturing Co., Plantsville, Conn.

## NEW WATER WHEEL.



New Water Wheel

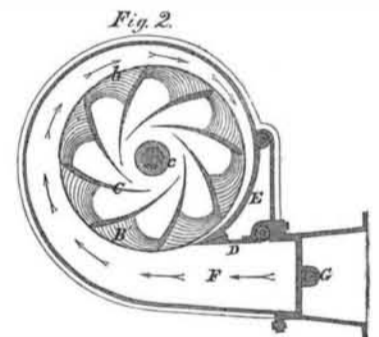
The only water wheel shown at the present great Exhibition of the American Institute

at Crystal Palace, in this city, is the invention of Mr. John Tyler, of West Lebanon, N. H. Our illustrations are taken from the operating

machine at the Palace, where it attracts much observation from the large percentage of power which it affords, although the wheel is comparatively small, being of two horse power.

Fig. 1 is a perspective view of the improvement, the shell, A, being partly broken away. Fig. 2 is a horizontal section of the wheel and shell, the upper portions being removed.

The wheel is enclosed by a scroll-shaped water-way, F, and is constructed in the following manner, to wit: draw a circle, b, corresponding with the periphery of the wheel to be constructed; then from the same center draw an inner circle, c, of only one-third the diameter of the said outer circle; then place the stationary leg of the compasses upon said outer circle, and so adjust the marking leg of the instrument that its point will form a tangential curve to the inner circle, c, which curve, when extended to the outer circle, b, will give the required shape of the convex surface of each of the buckets, C, and the relative position that each bucket should hold to the periphery and center of the wheel. The upper edges of the buckets, C, are cast in one piece with the head, B, whose under surface curves upwards and outwards, from the aperture in its center to its periphery, in lines whose radius corresponds with that of the periphery of said head. The lower edges of the buckets, C, are connected to each other by means of a rim, B', whose inner edge is of scollop-shape. The said rim, B', extends inwards, in contact with the convex surface of each bucket, a distance equal to about three-sevenths of the length of said surface, and from that point, curves outwards and downwards to a narrow connection between said rim, and the outer extremity of the concave surface of the next bucket in succession. The



object of giving the aforesaid shape to the rim, B', is to conduct the water in a solid body from the water-way against the central portion of the convex surface of each bucket, and then as soon as it has performed its propelling function, allowing it freely to fall out of the wheel and not re-act upon the concave surfaces of the buckets.

The object of giving a curving or dish-shape, to the head, B, of the wheel, is to enable the water, as it enters the wheel, to exert an upwardly lifting action upon it, also cause the water to be kept in a compact mass, and to pass so rapidly and so cleanly through the wheel, that there can be no loss from the re-action of sluggish water between the buckets.

The lifting action of the water as it enters the wheel, will cause it to run more lightly, and consequently with a much less amount of friction.

In connection with this wheel there is an improvement in the water way, which consists in providing movable lips, D E, of such shape that their inner curved surface, E, brings the scroll to a point at the periphery of the wheel when the lips are closed, and whose straight surface, D, forms one side of the mouth, F, of the scroll water-way. The lips are both pivoted. It will be perceived that the pressure and friction of the water as it passes into the mouth of scroll water-way