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NEW SERIES.

THE SHAKER WASHING MACHINE.

We have long known that the true way to wash clothes is to alternately fill them with soap suds, and squeeze the liquid out by simple compression, avoiding all friction or rubbing as much as possible. This principle is adopted in the machine which we here illustrate.

The two halves of the machine are precisely alike, but in the cut the left hand is shown with the front side removed, in order that that the interior may be seen. A long tank or tub, A, is made $3\frac{1}{2}$ feet in width, with water-tight partitions, B B, which are wider at the top than at the bottom; thus constituting a series of tubs, the ends of which slope inward at the top. In each partition is suspended from a swinging frame one of the pressers, C C C, formed of a series of slats run-

phia; of Willard's Hotel, Washington; of the Tremont House, Boston, and by the managers of numerous large benevolent and manufacturing establishments throughout the land.

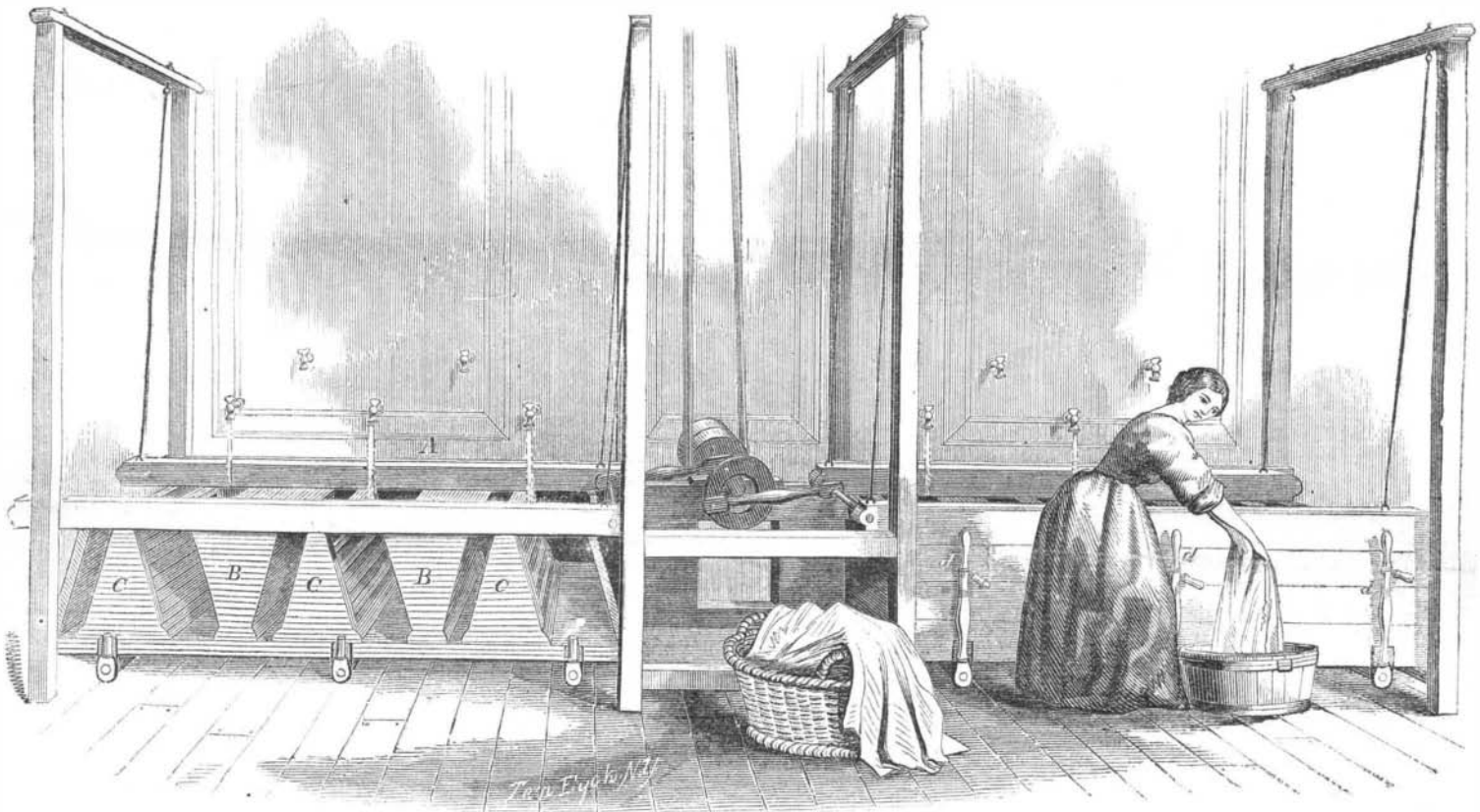
The patent for this invention was obtained Jan. 26, 1858, and persons desiring further information in relation to it will please address either the inventor, David Parker, or Robert Shepard, at Shaker Village, N. H.

THE HOOSICK TUNNEL.

The great undertaking of boring through the Hoosick Mountain, for the Troy (N. Y.) and Greenfield (Mass.) Railroad, has progressed favorably during the past year. The whole length of the tunnel to be constructed is about 25,500 feet. The greatest height of the mountain above

This is driven day and night (Sundays excepted) by three gangs of workmen, each working eight hours. The gangs consist each of nine men, with the addition of blacksmiths, &c. The progress, under favorable circumstances, is three feet per day. Not more than four holes can be drilled at one time, and the rock is removed by blasting. For the purpose of ventilation, air is forced in through canvas hose, the current being produced by a small fan worked by horse power. The tunnel is designed for a single track, and will be 14 feet wide and 18 feet high. As far as it has progressed, the tunnel is nearly free from water.

Hitherto all the work has been done by hard manual labor, although considerable was said, when the tunnel was commenced, about employing Wilsons' stone-cutting



THE SHAKER WASHING MACHINE.

ning across the tub with open spaces between them. The clothes and suds or water are put into the tubs on each side of the presses, and a reciprocating motion being given to the swinging frame, each presser is forced alternately near each end of the tub in which it is suspended, squeezing the water from the clothes, which then passes through the slats.

This operation dissolves the dirt, and brings it out with the least possible wear to the fabric; and the frame being suspended, the friction is reduced to the lowest point. Each compartment is supplied with a suitable stop-cock for drawing off the water, the handles, *ddd*, of these stop-cocks rising by the side of the tub in a position convenient for the operator. Different kinds of clothes can, of course, be placed in separate compartments, and thus washed separately at the same time.

This machine has been in use several months in the first hotels in the country, where it gives perfect satisfaction. It is recommended in unqualified terms by the proprietors of the Revere House, Boston; of the St. Nicholas, New York; of the Girard House, Philadel-

the grade line of the tunnel is 1,750 feet. About 2,100 feet have been excavated—on the eastern side about 1,500 feet, the balance on the western. The work of tunneling was commenced in 1856, and has been prosecuted until now, with many delays and suspensions, owing to the want of sufficient capital, the contractors having been compelled to find all the capital and do all the work, up to the time of the first payment of the State on account of the two million loan (October, 1858), when an installment of \$100,000 was paid. The tunnel passes through the base of the mountain and connects the valleys of the Deerfield and Hoosick rivers, and forms part of the shortest practicable route between Boston and Troy, N. Y. The whole road between these two cities is completed, with the exception of the tunnel and about twenty miles east of the tunnel along the valley of the Deerfield. The entire length of the road is 186 miles. The maximum grade from east to west is 39.6 feet per mile.

The work of tunneling is prosecuted by first driving an advanced gallery or heading, 14 feet wide and 6 feet high.

machine for boring the big hole right through the rock. A machine of this kind, we believe, was constructed with this object in view; but what became of it we never heard. It is now proposed to introduce a machine of a different character; one that will contain a certain number of drills attached to small cylinders, to be operated by compressed air, driven from the outside through a tube. This method has been practiced for several years (as described in a former volume of the *SCIENTIFIC AMERICAN*), in the celebrated Mount Cenis tunnel, in the Alps. The American machine is stated to be superior in its mode of operation, and it is expected that when it gets to work, it will be able to do about seven times the amount of work per day that is done at present. About twenty drills will then be enabled to operate; the blasting will be done with powder ignited by an electric spark; and the foul air is to be exhausted by means of a fan. Col. H. Haupt, the well-known author and engineer, is the present contractor and engineer of this tunnel; when finished, it will be the greatest work of the kind on th continent.