

Wash'ing - ma-chine'. One for cleaning clothes with water and soap.

The oldest fashions are the rubbing between the hands, the dashing of the clothes on the water, and the pounding of the clothes on stones in the stream.

The modern machines have several other typical forms.

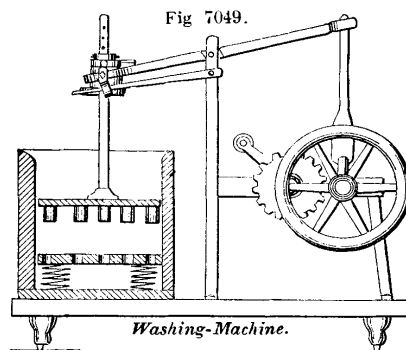
The present state of the art may be said to embrace the following modes:—

1. *Churning.* The clothes are beaten by a pounder in a tub. In some cases, wooden balls are added to increase the friction.

Fig. 7049 has a combined up-and-down circular motion.

2. The *dash-wheel.* The clothes are put in a barrel which is turned upon an axis,—longitudinal, transverse, or oblique. Such are used in bleacheries. See Fig. 710, page 297.

3. *Suicing.* The hot water is driven through the clothes. See WASH-BOILER for one form. See also BUCKING-KEIR, Fig.

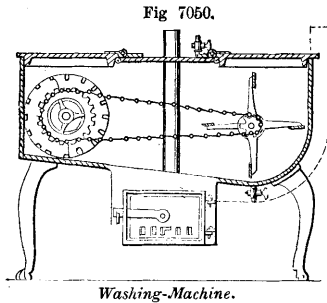


958, page 397. In Fig. 7050, the clothes are placed in the slat-sided cylinder, and the water circulated by the paddle-wheel at the other end of the suds-box. A stove beneath the metallic bottom gives means of heating. The cylinder and wheel are rotated by a winch upon the paddle-wheel shaft, and a chain connects the shafts.

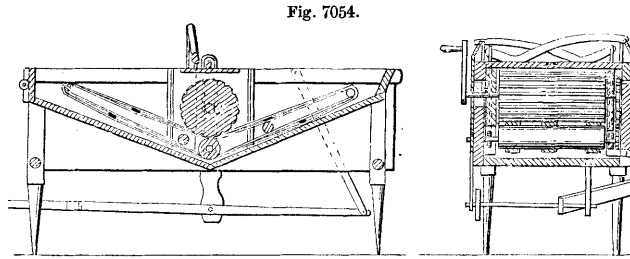
4. *Centrifugal.* This is on the principle of the sugar-drainer, and is shown at Fig. 1214, page 514.

5. *Twisting.* The clothes are alternately wetted and then placed in a strong cloth and wrung out.

6. *Squeezing.* In Fig. 7051, the clothes are rolled over and



Washing-Machine.

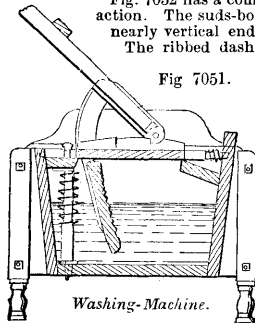


Washing-Machine.

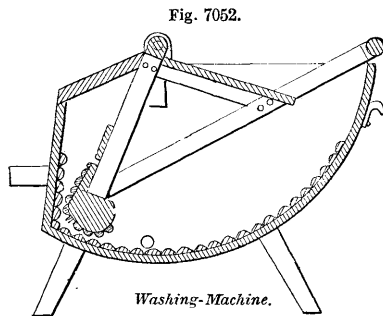
over, and squeezed by the segmental arm against a presser-board.

Fig. 7051 has a combined squeezing and rubbing action. The suds-box has a curved bottom and a nearly vertical end, armed with transverse ribs. The ribbed dasher is pivoted to a transverse shaft, sweeps over the curved surface, and presses the clothes against the end.

7. *Rolling.* The clothes are carried by an apron between fluted rollers (Fig. 7053). Fig. 7054 is another form, in which the upper and lower rollers are geared together and turned by a hand-crank. The clothes are passed on an endless apron between the rollers. The operating parts are attached to an inner frame, which is lifted from the tub by a treadle-lever and connecting side-rods. The lower roller is pressed upward against the driving roller by transverse levers connected to its respective ends.



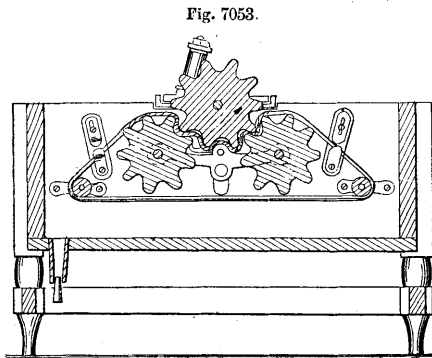
Washing-Machine.



Washing-Machine.

8. *Rubbing.* a. Between vertical surfaces. The clothes are attached to a gate, which reciprocates vertically between the corrugated surfaces of two spring-pressure bands attached to removable frames in the suds-box (Fig. 7055).

b. On a curved bed. A series of concave, corrugated, and



Washing-Machine.

yielding fingers, each having a pin encircled by a spiral spring, is hinged by a bolt to the yielding frame, the front edge of which is upheld by spiral springs, its rear edge resting on the tank bottom. Arms and a pin of vibrating rubbers are hung to a frame, and the pressure is adjusted as required (Fig. 7056).

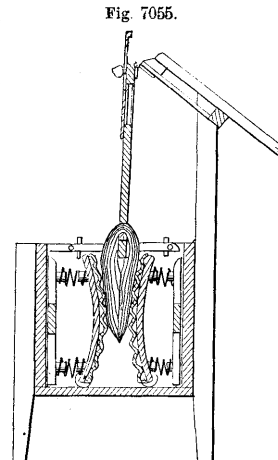
c. Between flat disks. In Fig. 7057, the rubber has a circular reciprocating motion, and with its driving mechanism may be vibrated vertically on a hinge to remove the rubber from the tub.

d. Between surfaces reciprocating in a direct line. The clothes are thinly spread between two rubbing surfaces, to which latter are given a quick and short alternately reciprocating motion (Fig. 7058).

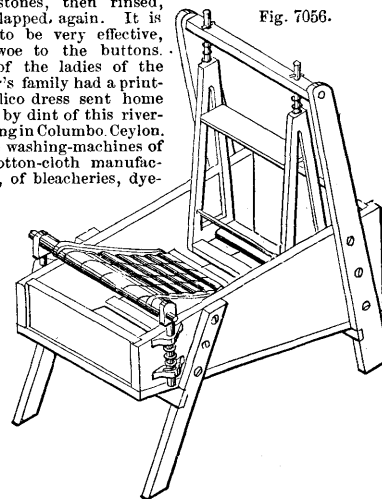
9. *Rocking.* a. On a flat bed (Fig. 7059).

b. In a concave (Fig. 7060).

The Oriental "washing-machine" is rather hard on clothes, and has caused some surprise to ladies who have sent colored cotton goods to the wash, and have received them with all the color beaten out of them. Fig. 7061 illustrates the operation. The clothes are wetted and slapped upon flat stones, then rinsed, and slapped, again. It is said to be very effective, but woe to the buttons. One of the ladies of the writer's family had a printed calico dress sent home white by dint of this river-washing in Colombo, Ceylon. The washing-machines of the cotton-cloth manufacturers, of bleacheries, dye-



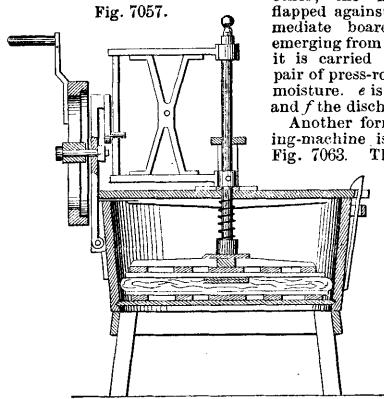
Washing-Machine.



Washing-Machine.

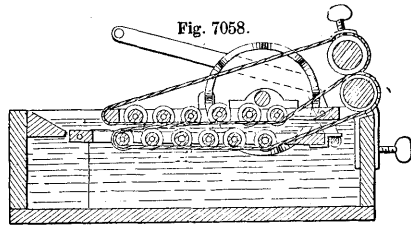
shops, etc., are on a somewhat extensive scale, and have specific names, among which may be mentioned *bucking-machines*, *wincing-machines*, *keirs*, *dash-wheels*. Bridson's washing-machine (Fig. 7062) consists of a tank *a* in which are two rollers *b b'* having bars *c c'* placed diametrically to each other. The cloth is conducted by guide-rollers through the water in the

trough in the direction indicated by the arrows, passing eight times around the bars *c c'*; as these come in line with each other, the material is flapped against the intermediate board *d*. On emerging from the trough it is carried between a pair of press-rolls to expel moisture. *e* is the supply and *f* the discharge-pipe.



Washing-Machine.

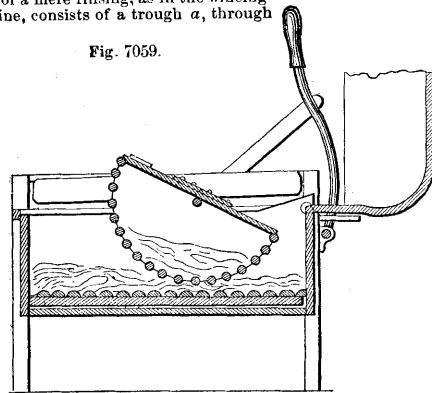
arranged in folds on a shelf *b* to the left of the vat *a*, whence it is conducted by rollers through the first compartment, and upward between a pair of rollers which press out the water, and so on successively through the seven compartments of the vat until



Washing and Wringing Machine.

arriving at *c*, where it passes between a pair of rollers kept together by weighted levers, which express most of the moisture. Water is first admitted to the higher right-hand compartment, and flows from that into the next, and so on, causing a current opposite to the direction taken by the cloth.

The dyer's washing-machine, to give a positive washing instead of a mere rinsing, as in the wringing-machine, consists of a trough *a*, through



Washing-Machine.

which the folded cloth is carried a number of times in succession as it winds spirally about the roller *b*, being at the same time struck by a series of beaters *c c'* (Figs. 7064, 7065). In all these machines it is customary to tack a number of pieces of the fabric end to end, forming one continuous length.

See also Ure's "Dictionary" (American edition), Vol. III. page 251 et seq.

Wool-washing machines vary in their construction almost as much as the domestic article.

In Fig. 7066, the wool is passed upon an endless apron between the lower fixed and upper spring rollers, which are all

geared together. Above the vacancies between the rollers are transverse pipes, slotted beneath, to throw jets of water upon the material passing through.

Washing-shield.
A corrugated palm-shield

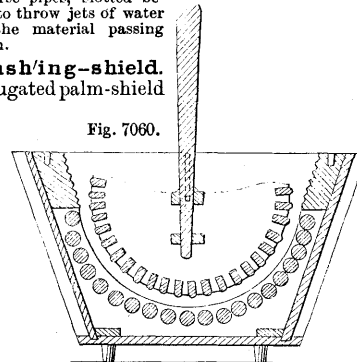


Fig. 7060.

Washing-Machine.

or armor to protect the person and form an effective surface for rubbing, or upon which to rub the clothes.

Washing-table. (*Metallurgy.*) A shaking-trough in which ore is sorted by gravity.

Fig. 7068 consists of a long rectangular trough, suspended by hooks, and provided with stops at suitable distances apart on the inside of the trough. These

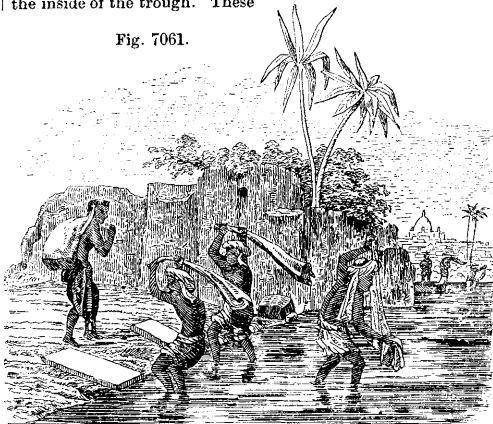


Fig. 7061.

Indian Dhobees (*Washermen*), Hindostan.

stops consist of strips of wood extending from one side of the trough to the other, and kept in place by posts. A vibrating motion is imparted to the trough by means of a cam working against the end of a beam. The ore, previously ground into *slimes* in water, is supplied through the aperture in the chute.

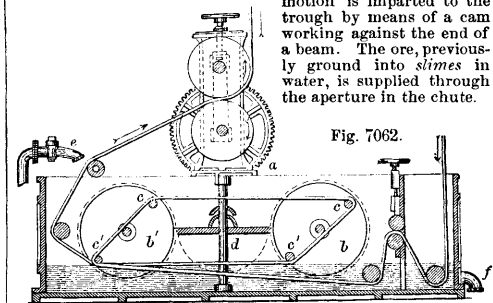
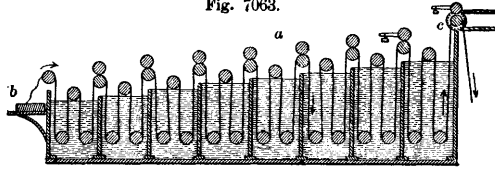


Fig. 7062.

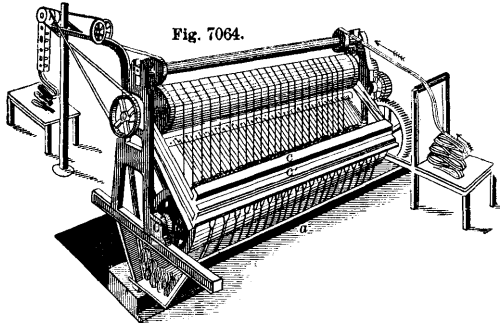
Washing-Machine.

Fig. 7063.



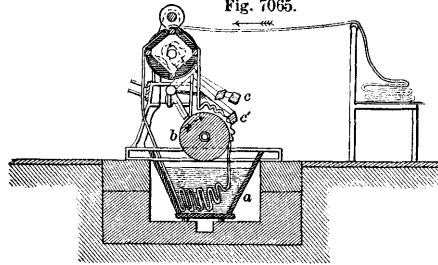
Washing-Machine.

Fig. 7064.



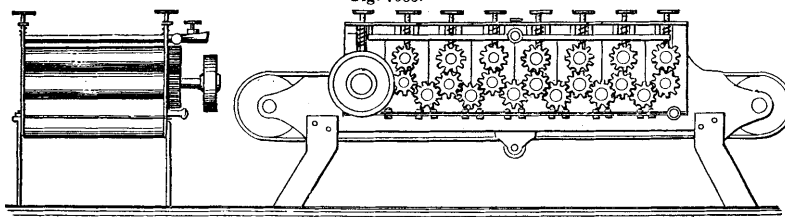
Dyer's Washing-Machine (Perspective View).

Fig. 7065.



Dyer's Washing-Machine (Section).

Fig. 7066.



Wool Washing and Wringing Machine.