

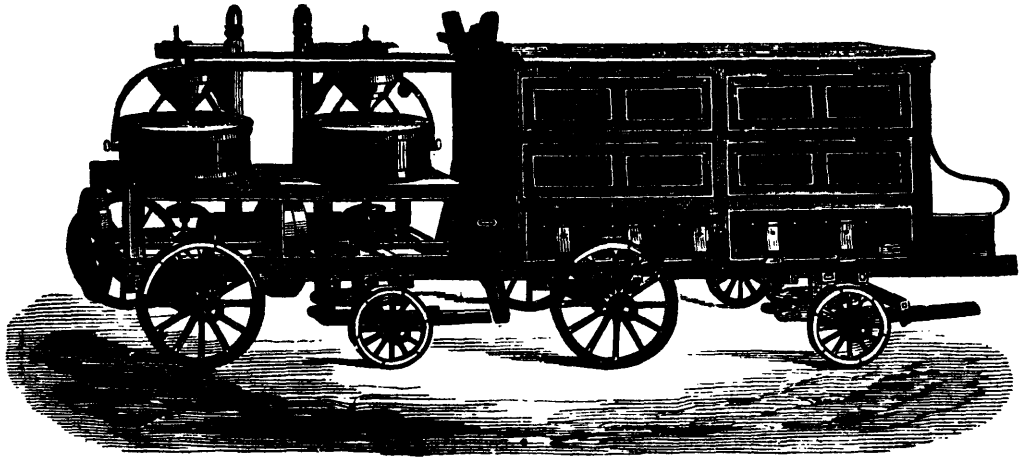


FIG. 2.—PORTABLE MILL.

FRENCH HORIZONTAL FLOUR MILLS.

The mills exhibited at the late Exhibition in Paris by Messrs. Bresson, Fanchon & Co., of Orleans, are novel in several particulars. The stones are arranged so that they lie parallel to each other, and they are arranged so that they may yield when subjected to sudden jars or shocks. This avoids serious damage to the mill, and prevents the heating of the stones and grain. The grain is drawn in through the eye of the stone, and equally distributed between the stones by an apparatus which also furnishes cool air for the spaces between the stones, which cools both the stones and the grain. A cast iron case incloses the stones, leaving an air space all around them, in which air currents are produced by a blower at the top of the casing. These mills are provided with conveniences for removing and replacing the stones, and they are compact and efficient.

The stationary mills shown in Fig. 1 are supported by a strong cast iron frame, and the portable mills, Fig. 2, are supported by a substantial waggon frame. The bolting box is connected with the mill and has no special shafting, but takes its power directly from the shaft that drives the stones.—*Scientific American*.

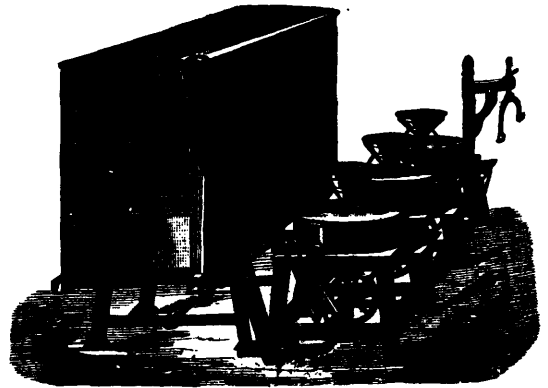


FIG. 1.—STATIONARY MILL.

JAPANESE PAPER.

We are glad to believe, says the *American Architect*, that Lord Dufferin's scheme for the use of Niagara Falls is more likely to be carried out than Dr. Siemens's or Sir William Thompson's. The joint commission of the State of New York and the Dominion of Canada met on the ground not long ago to discuss the proposition to which we have before referred, for securing the lands about the falls to be maintained by the two governments as a perpetual park, free from private encroachment. The commissioners had apparently no difficulty in deciding that the grounds needed the care of the governments to protect the scenery from disfigurement or destruction; and find themselves substantially agreed, we understand, as to the manner in which the thing should be done. It is expected that they will meet again in November, and render a decisive report, with a scheme for carrying out the project. This action comes none too soon. The degradation of the surroundings warrants the *New York Times* in saying that already "the superb adjuncts of the fall scenery, on both the American and Canadian sides of the chasm, have been robbed of much of their original beauty and grandeur. Where picturesque groves once stood, unsightly mill-sheds and rickety drinking booths now appear. On the Canadian side, only a few stunted trees remain to remind the visitor of the old-time forests. Year after year the change goes on, the rocks are covered with the signs of quack medicine men, every prominent outlook is crowned with the booth of some vagabond peddler, and the grand old trees, once the pride of the neighborhood, are being cut down to build mill-races or supply with fuel some petty factory." The vexatious exactions of people in possession of the approaches to the falls have done as much as anything to win the public mind to the idea of protection; but a still more serious argument is the need of securing the falls against the ravages of speculators, who would ruin them for the sake of mechanical uses, or of savants who itch to convert them to some scientific toy.

Many varieties of paper are made in Japan, and all from the bark of trees. The best, and that most generally in use, is produced from a shrub called there Kozou (*Broussonetia papyrifera*), which grows to a height of about two metres and a half. It was introduced from China, and is now cultivated throughout Japan for this express purpose. It is ordinarily planted as a sort of hedge along the fields, the roots being about two feet apart. After a short time the branches interlace and form a very efficient protection against cattle. Under favorable conditions it sends out shoots three metres long each year, and it is said to produce as much as 1,800 kilos. of bark per hectare annually. The manufacture of the paper is conducted as follows: The stem and branches are laid in water for a fortnight, and if the water is stagnant the bark becomes gradually detached; if running, the outer coating, which is useless, is carried away. The interior layer is then peeled off in strips, combed, washed and dried, and put away if not to be used immediately. This is the raw material, and to convert it into paper it is subjected for three or four hours to the action of hot water and steam, which renders it soft; then it is pounded and vigorously beaten with knotty sticks. A sort of pulp is thus produced, which can be made as fine as is requisite. It is mixed with water in a vat, and taken out in the mould of the paper to be made. The Kozou paper is very strong, particularly in the direction in which the fibre extends. Owing to this property, the Japanese can employ their paper in many ways unknown in Europe. For instance, they use it instead of glass for their windows, bandages for wounds, pocket-handkerchiefs, cords, thread, etc. When a still stronger paper is required, the mould is again dipped in the pulp, but in a direction at right angles with the first operation, so as to have the fibre crossed, when it becomes extremely strong. This process is sometimes repeated three or four times until a product is obtained which is used for covering umbrellas, packing goods, making cloaks for travellers, etc. In these cases the paper is oiled and thus made impermeable to moisture.