



IMPROVED MACHINE FOR CUTTING BOARDS.

### IMPORTANT IMPROVEMENT IN CUTTING BOARDS.

The old way of cutting veneer and other very thin boards, was the same as that of cutting heavy planks, namely, with the saw, and this of course required scraping or planing afterward. Later this was improved upon in the case of veneer-cutting, and a machine produced, which is now in general use, with which the veneer was cut by means of a large descending knife. These machines had the defect that the knife, as it worked by pressure only, tended to crush the fibers of the wood, and the sheets produced were often badly splintered. Then of course the machine was entirely unfit to cut boards any heavier than the mere thin veneer films.

Mr. H. T. Bartlett conceived the fortunate idea of making the knife movable also in a sideward direction, so as not to merely press downward, but also to obtain the sideward sliding motion, which we see any housewife apply when cutting bread. The old machine operated in the same manner as if we would cut bread by merely pressing the knife through the bread, and not cutting it; it was, in fact, not a cutting, but only a crushing motion. Mr. Bartlett's machine, the only one which really cuts the wood, and thus removes all danger of crushing the fibers, is represented in Fig. 1, as it appears in successful operation at the factory of Geo. W. Read & Co., 186 to 200 Lewis Street, New York. The drawing stroke of the knife is effected by a vertical and horizontal movement of the frame to which it is attached by means of a crank and radial pole, with their driving mechanism situated beneath the floor, entirely out of the way. Power is applied by a single 12-inch belt giving the main driving wheels 20 to 25 revolutions and cutting a corresponding number of boards per minute. There are several ingenious devices for holding the log, also an automatic feed during the operation of cutting, which possesses much merit. The machine is constructed to cut logs square or rounds 8 feet 4 inches long, 28 inches thick and 36 inches wide.

The variable drawing motion of 16 to 40 inches of the knife enables the machine to accommodate itself to all the variations in the texture of the material. There is no dead point during the cut, which is continuous, so that the work is done with comparatively little friction, and with economy of power. Another valu-

able feature in the machine is the adjustability of the cutting table to any height so as to bring narrow logs into the first or longest part of the drawing stroke. With three men to attend the machine and one or two to prepare logs, the machine, running 10 hours per day, produces 230,000 feet of veneer. But it is not only veneer it can produce; it was found that this drawing motion of the knife enabled the machine to cut also boards of  $\frac{1}{2}$ ,  $\frac{3}{8}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ , and  $\frac{1}{2}$  of inch in thickness, while the most remarkable and beautiful result is that the boards come out smooth, and need no planing, while the cutting makes no sawdust—an enormous saving of material, as nothing is lost, which is a most important feature, especially when cutting expensive woods.

When we visited the factory of Messrs. Read & Co., mahogany was being cut for segar-boxes, which at once came out as smooth as if planed, the surface being firm and unbroken.

POPULATION OF THE WORLD.—The number of persons on earth is 1,423,917,000, or 28 persons for every square mile. Europe numbers 309,178,300 souls; Asia, 824,548,500; Africa, 199,921,600; Australia, 4,748,600; America, 85,519,800. The combined population of 1876 exceed those of 1875 about 20 millions. The inhabitants of various States of Europe are divided as follows: Germany, 42,723,000; Austria-Hungary, 37,700,000; Switzerland, 2,669,147; Holland, 3,809,527; Belgium, 5,336,634; Luxemburg, 205,153; Russia, 71,730,980; Sweden, 4,383,291; Norway, 1,502,882; Denmark, 1,903,000; France, 28,162,921; Great Britain, 35,450,000; Spain, 16,551,647; Portugal, 4,298,881; Italy, 27,472,174; Monaco, 5,741; the Republic of Andorra, 12,000; Turkey, in Europe, 8,500,000; Roumania, 5,073,000; Servia, 1,377,078; Montenegro, 190,000; Greece, 1,457,894. The population of Turkey in Europe, Asia and Africa reaches 47,600,000, of whom 20,500,000 are divided between Egypt, Tripoli and Tunis, and 13,000,000 in Asia. The population of Russia is estimated at 86,586,000, or 900,000 over the population of 1875. The population of the British Indies numbers 289,000,000, that of China, 405,000,000, and that of Japan, 33,299,012. London has 3,488,428 souls; Paris, 1,851,792; New York and Brooklyn, 1,535,622; Berlin, 1,045,000.