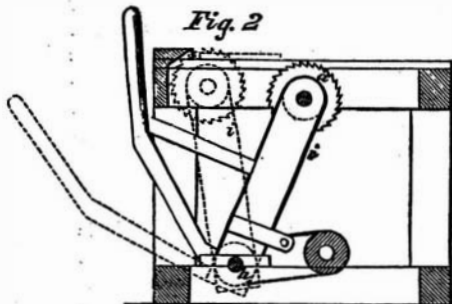


IMPROVED BOX-MAKING MACHINERY.

In a recent number we gave an account of the amount of the annual sales of some of the leading dry goods houses in this city, from which it appears that Claffin, Mellin & Co. sell about eleven millions of dollars worth, A. T. Stewart & Co. eight millions, Lord & Taylor six millions, and Arnold, Constable & Co. four millions and a-half each year. Besides these, there are hundreds of jobbers engaged in selling dry goods by the package to dealers. And as a large portion of these fabrics are encased in wooden boxes for distribution over the country, the manufacture of boxes has become a very extensive industry, involving a large amount of capital and labor, and the saving of any considerable portion of this labor is a matter of great importance. We have described several machines designed to facilitate the making of packing boxes, and we here illustrate one more recently invented, which performs all the operations of cutting the boards to the proper lengths and widths, and tonguing and grooving the edges all ready to be nailed together. Though the machine performs all the operations, and is easily adjusted to boards of different dimensions, it is exceedingly simple in its construction.

The boards are first cut to the desired lengths by

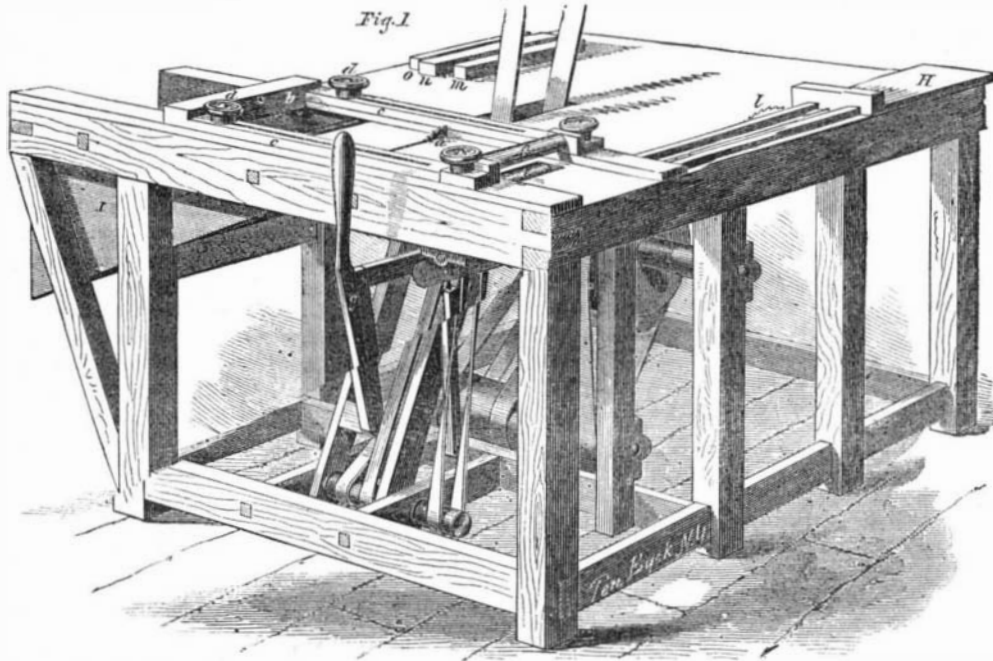


means of the circular saw, *a*, Figs. 1 and 2. The gage head, *b*, Fig. 1, which is fastened to the slotted slides, *c c*, is placed at a distance from the saw corresponding with the desired length of the boards, and secured in position by the set screws, *d d*. The end of the board is then entered between the rollers, *e* and *f*, the roller, *e*, being turned by machinery, and feeding the board in till its end comes against the gage head, *b*. The operator now seizes the handle of the lever, *g*, Figs. 1 and 2, and draws it forward, thus carrying the circular saw, *a*, through the board and cutting it off. The mode in which the saw, *a*, is belted, so as to permit this oscillating motion while it is rapidly rotating, is clearly shown in Fig. 2. The bearings of the pulley, *h*, for the belt, *i*, which drives the saw, are placed in the fulcrum on which the saw oscillates in its motion back and forth through the board. The driving roller, *e*, also has a vibrating motion, and the first operation of the lever, *g*, forward is to carry down the feed roller, *e*, away from the board, so that the latter may not be pressed inward while it is being cut. As the boards are sawed off they fall down the inclined chute, *j*, out of the way.

The next operation is to cut the boards to the proper width. To this end they are laid upon the sliding carriage, *k*, with the near edge corresponding with such line on the carriage as may give them the desired width, when the carriage is pushed along past the circular saw, *l*, which cuts the boards as desired. The tongues and

grooves are made in the edges by passing the boards, on edge, between the guides, *m* and *n*, and the guides, *a* and *o*, revolving cutters of the ordinary construction, one for forming the tongue and the other for the groove, being arranged to run between the guides. This operation finishes the boards ready to be nailed together into boxes.

This machine is not adapted merely for making boxes, but the cut-off part would be very useful for cabinet



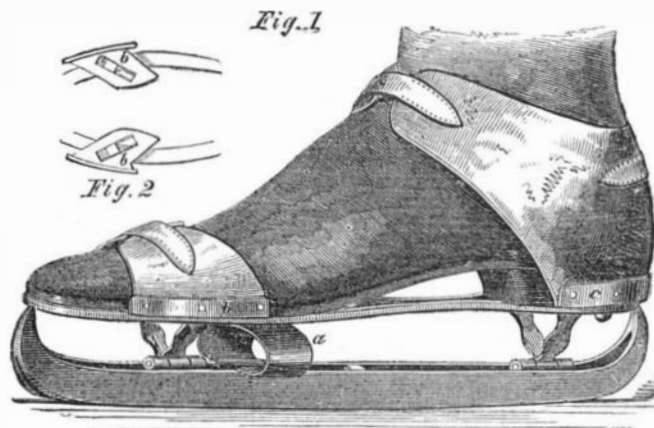
[DRAKE'S IMPROVED BOX-MAKING MACHINERY.]

makers, door, sash and blind makers, and joiners and carpenters, for cutting up long lumber into short pieces. And, by dispensing with the small roller over the feed roller (and inserting a few short iron points in the feed roller to catch into the timber), it would be useful in shingle mills to cut up the bolts, and in saw mills to cut up slabs for lath.

The patent for this machine was granted, through the Scientific American Patent Agency, on July 3, 1860, and further information in relation to it may be obtained by addressing the inventor, Timothy Drake, at Windsor, Conn., or S. A. Heath & Co., No. 102 William-street, New York.

FOGG'S IMPROVED SKATE.

Of the numerous improvements in skates suggested



FOGG'S IMPROVED SKATE.

by the fashionable and truly delightful exercise of skating, which has been the rage for two or three winters past in this city, and which will doubtless be on the increase for years to come, there is none more novel than the one here illustrated.

This skate has two parallel runners, from one-half to three-fourths of an inch apart, firmly connected together and joined by a hinge to the wood, in the manner plainly shown in the cut, Fig. 1. This hinge allows the wood, and with it the foot of the wearer, to turn down sideways, while the runners preserve their parallel position

on the ice, thus very materially relieving the ankle from that strain which is the most fatiguing part of the exercise. A stiff spring, *a*, is firmly secured at the middle to the bottom of the wood and has its ends bent down between the runners, pressing against their inner sides, and preserving the wood in a horizontal position except when the power of the spring is overcome.

The mode of fastening this skate to the foot is remarkably simple, convenient, and effectual. Two plates, *b b*,

Fig. 2, are secured to the toe of the skate, by bolts passing through inclined slits in the plates, so that the plates may be adjusted both to the length and to the width of the foot of the wearer. Similar plates, adjustable in the same manner, are attached to the heel of the skate, and when all these plates have been fitted to the size of the foot, they are screwed fast and will remain firmly fixed in their position. The plates have raised lips at their edges, which, with the straps and buckles, not only hold the skate in the most effectual manner to the foot, but permit it to be put on and taken off with the utmost possible facility.

Besides the extraordinary ease to the ankle of the wearer, this skate runs with unusual smoothness

on the ice, and is considered a decided improvement on all the styles hitherto invented.

The patent for this invention was granted on the 4th of September, 1860; and further information in relation to it may be obtained by addressing the inventor, Luther Fogg, at Boston, Mass.

HYDRAULIC ASSOCIATION—WATER WHEEL EXPERIMENTS.

We have received a communication from Messrs. Bastion & Overton, of Watertown, N. Y., complaining—as has been done by many others—of the treatment which they received from those who had charge of the water wheel experiments at Philadelphia. They intended to compete in the experiments, but were prevented from doing so by answers which they received from Philadelphia to certain letters of inquiry. They believe that these experiments were not fair tests of the power of the wheels, and they propose the organization of a Hydraulic Engineers' Association, for the purpose of testing wheels upon the most approved principles and in an impartial manner. A committee of millwrights and engineers is suggested to be appointed as a board to test wheels, and publish the results of their experiments without expressing opinions as to which wheel is best. It is also proposed that this board shall be kept ignorant of the names of the owners of wheels under test, so that the whole proceedings may be conducted without collusion.

These are a few of the suggestions made by our correspondents for regulating the actions of such an association, and if it be formed, other necessary rules may be added.

The proposition for the organization of such an association, we think, is to be commended. At present, owing to the great number of wheels now manufactured, and the variety and contrariety of opinions respecting their merits, it is scarcely possible to give advice to manufacturers who are desirous of purchasing and erecting new wheels. From one place we receive news that an overshoot wheel has been superseded by a turbine; from another that a turbine has been replaced by an overshoot. We hope that Messrs. Bastion & Overton will receive a hearty response to their propositions.