

COMBINED PLANING AND MOULDING MACHINE.

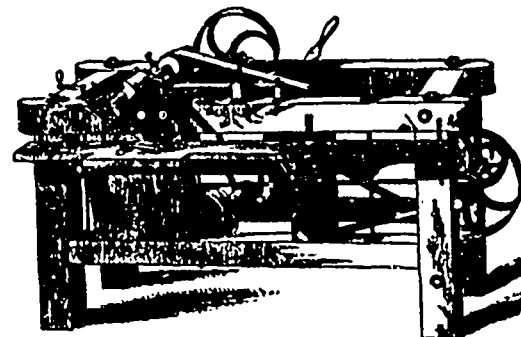
THE engraving herewith presented represents a planing and moulding machine, in the designing of which special care has been taken to combine every improvement and appliance necessary to produce the most perfect work at as fast a speed as is attainable without the aid of fixed knives. A recent improvement consists in the arrangement of the gear for driving the feed rollers, by which all wheels are placed outside the framing of the machine, thus materially reducing its width, and enabling the man working it to get more readily at the cutters. These machines are all fitted with top, bottom, and two side cutter-blocks, to work simultaneously on all four sides of the wood, thus enabling them to cut single or double mouldings of any pattern, or to plane, groove, tongue, edge, thickness, and bead match-boarding, etc., in one operation.

The adze blocks and their spindles are made in one forging of special steel, and run in improved self-lubricating bearings, thus enabling the cutters to be driven at a very high velocity, producing very perfect work at much higher speed than is generally attainable with machines of this class. The feed motion consists of four rollers, all of which are driven giving a great propelling power, which carries the largest stuff through the machine without any slip. The rate of feed can be readily varied from 10 to 50 feet a minute, according to the description of work, or quality and condition of the wood.

some time and it was in use here long before I saw it, and many a bill of supplies I could have cut down had I known of it before. If any one who has used it found any bad results, let him speak up; but don't theorize about it. I have results to go by and offer them. Save your old rubber belting, and when you want to pack your piston try this method: Cut rings of belting to fit easily on the piston and slip easily in the stuffing-box; cut them to slip over the piston and put them in the box to break joints, using the gland to ram them until the box is full; screw up lightly, so that the packing will leak for a time. As soon as it gets hot, the expansion is considerable and will quickly stop the leak, and you then have a packing that will stay with you, if you keep your cylinder properly lubricated. In cutting the rings you had better use a gasket-cutting tool and make an easy-fitting, smooth job of it, or you run the risk of a hot piston and then kick at my advice, when the fault will be your own. I have used many kinds of packing, but have never, often any that was any better nor had any to last as long as rubber belting.

There is another advantage about it: You don't have to put "packing" on your supply list. I will never forget the look of dismay I saw on a former employer's face when he saw an item of \$9 for packing in one supply bill. It was for nine pounds of packing—and did not last very long, either. I don't buy any more at that price, and am not likely to as long as the old belting

ments, tracer guide for sawing irregular forms, bevel and curvilinear sawing, grooving table, vertical adjustment of saws in benches, machine for grinding saw blades, tape gauge for sawing, T rebating machine, sectional cutters, pivoted table for mortising machine, forked or double mortising chisels, gauge lathe with slide rest, rotary cutters for forming screw threads on wooden



SASH AND MOULDING MACHINE OF 1856.

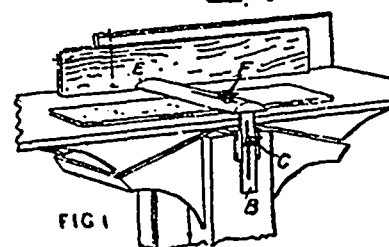
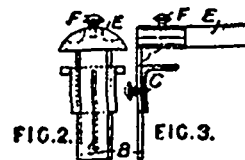
screws, double grooving saws, and each feed for planing machines.

From that day forward there has been a steady and continuous improvement in all the various machines that find a place in wood-working establishments. This progress continues, and within the past 50 years it has been most noticeable. Whilst from Benthams, an Englishman, came the incentive to better wood-working machinery, yet the larger developments of later years have doubtless been from the inventors of the newer continent. The trend of the age towards machinery that would lessen labor, and would add to a more ready production of stock, manifest in every department of mechanics, has been none the less so in wood-working. The wood-worker of to-day does not find it nearly so necessary to equip himself with a great stack of hand-tools, as did his predecessors. True the chisel and hammer and screw driver are still necessary articles of the carpenter's kit, yet in all our wood-working establishments machinery, driven by steam, or that more recent force of the day, electricity, is fast taking the place of many individual hand tools.

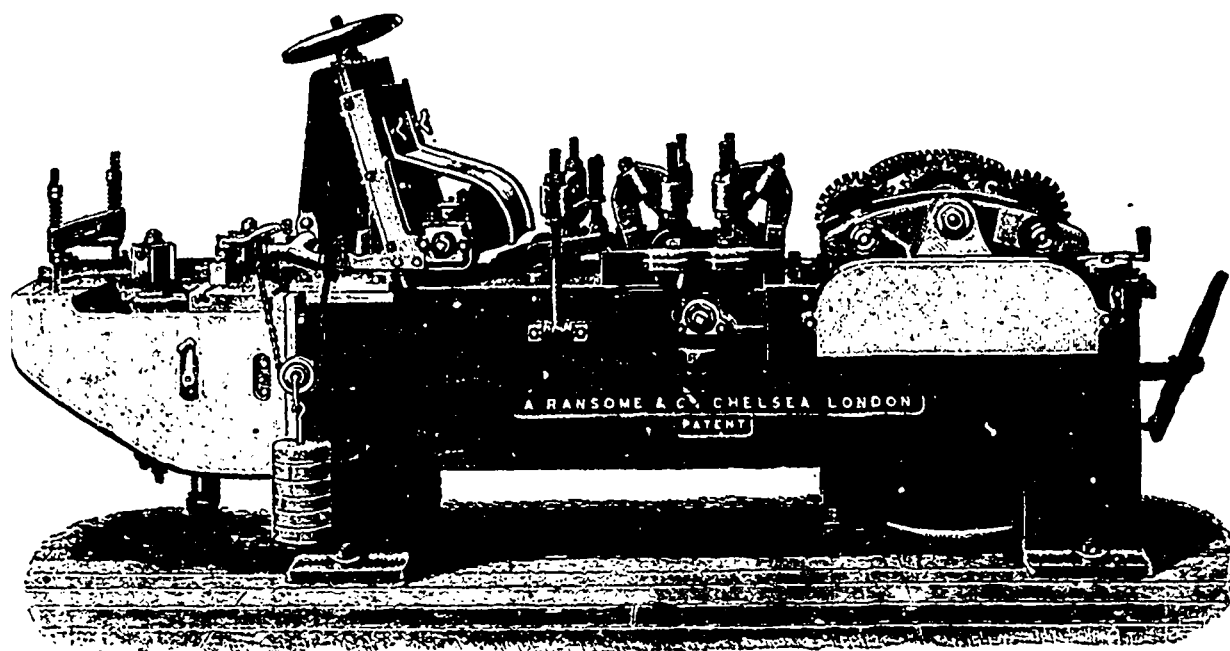
The cut of a sash and moulding machine of 1856, which we have given above, will illustrate, in a measure, as compared with the machinery of the present day, the progress that has been made in wood-working machinery in at least one direction.

PROTECTION FROM ACCIDENTS.

THIS device is an English invention and relates to a guard or cover for preventing accidents from machinery. The invention is shown in Fig. 1 applied to a surfacing and edging wood-working machine with revolving cutters. In Figs. 2 and 3 the guard is shown



separately. The protecting bar E can be raised or lowered by sliding the slotted bar B up or down and clamping it in position by the set screw C. The bar E may be adjusted horizontally by sliding on the boss E and fixing by the set screw F. When it is desired on occasions to turn the guard aside, the vertical bar B is made circular and fits in a circular socket.



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The pressure apparatus is arranged so as to hold the stuff down firmly to the table close to all the cutter-blocks, thus preventing any vibration in the piece when under the cutters. An advantage in these machines is the great facility with which the cutters can be adjusted, and as a large proportion of the time of a moulding machine is necessarily lost in setting the cutters, any arrangements which will facilitate this operation are of value. The low cutter-block is fitted into a planed iron drawer, which can be drawn out when it is required to adjust or change the cutters; and the side cutters are provided with a ready means of vertical adjustment.

PACKING.

IT is often the case in planing mill and saw mill practice, says a writer in an exchange, that one has an engine, a pump or steam cylinder of some kind that gives a great deal of trouble, by leaking at the stuffing box or by cutting out the packing. This has been a great deal of trouble to me at times innumerable. I say "has been," because I don't think it is a subject that will bother me any more, and as the remedy is simple and easy of application, it may help out some other mill man who cannot keep his piston from leaking, either for want of good or proper packing, or from a scored rod, or from some cause he can not at once remedy.

Now, I expect some engineer will rush in to offer some objection, but I have been using this packing for

holds out. If you conclude to try it, don't forget to make the rings an easy fit, break joints and screw up lightly at first. I heard an engineer say a few days ago that ninety per cent. of the ills that engines suffer from result from improper lubrication.

IMPROVEMENTS IN WOOD-WORKING MACHINERY.

IN an age when the inventive genius is abroad it is to be expected that marked progress would be made in the realm of wood-working machinery since the days of the crude planing machine invented in 1879 by Sir Samuel Benthams. Samuel Benthams was a brother of the famous English political economist, Jeremy Benthams. The latter was interested in the study of industrial prisons in England, and the talents of Sir Samuel were used to devise machines that would enable the government to secure a profit from the labor of convicts. In a treatise on wood-working machinery, of ancient date, the complete list of Benthams's inventions is given as follows:

Machines for planing and forming mouldings, improved planing and moulding machinery (rotary), wedging guard for circular saws, segmental circular saw, conical cutter for dovetail grooves, undulating carriage to form wave mouldings, compound cutter heads to work two or more sides at once, the slide rest, tubular boring implements, crown saws, reciprocating mortise machine, rotary mortising machine, radius arm for sawing seg-