

SCIENTIFIC AMERICAN

A WEEKLY JOURNAL OF PRACTICAL INFORMATION, ART, SCIENCE, MECHANICS, CHEMISTRY, AND MANUFACTURES.

Vol. XXIII.—No. 6.
[NEW SERIES.]

NEW YORK, AUGUST 6, 1870.

\$3 per Annum.
[IN ADVANCE.]

Universal Wood Working Machine.

Our engravings illustrate an improved wood working machine which we are informed is now in successful operation in over one hundred and twenty of the best shops in the country, representing almost, if not quite, every variety of wood working, sashes, doors, and blinds, furniture and bedsteads; in railroad car shops, wagon and carriage shops, manufacturers of distillers' and brewers' tubs, machine shops, brush factories, etc., etc. Its uses are rabbeting, planing, gaining, beveling, jointing, hand-matching, planing out of wind, etc. It has capacity for heavy or light work, gaining from $\frac{3}{16}$ in. wide to 4 in. wide, and $3\frac{1}{2}$ in. deep at one cut in hard wood, also half round or bevel gains for boxing, and is specially adapted for planing turned work, such as bedstead posts, stand and table legs, and routing for the post and rail irons, making glue joints, rolling joints for table leaves, also shallow mortices for joint bolts, planing out of wind, smoothing, jointing, and rabbeting blinds at one operation. It is not complicated, and is quickly adjusted, requiring no more time than to remove one head and put on another. It may be converted into a saw table by the same operation, and then adjusted by turning the hand wheels.

In Fig. 2, showing sticker side or molder attachment with side-head, the fence, which is used for squaring, beveling, jointing, rabbeting, etc., is removed, giving a view of the tops of the three beds, which are made of iron and planed straight, the front ones having a recess for slide boards, used in sawing, gaining, etc. The feed rollers never rise out of gear and are always straight with the bed (or parallel), thus holding the work firmly on both sides while being passed through. It will stick sash or an eight-inch crown molding, and has a fifteen-inch drop. Two persons can work on it at the same time advantageously.

Three kinds are made, one with boring and routing attachment, one with sticker or molder attachment for planing one side (without side-head), and one for planing two sides. The principal parts are lettered for reference in Fig. 1, and the following description will give the reader a general idea of the construction and capacity of the machine:

A is the main frame. B is an adjustable table extending the full length of the machine. C and C are also adjustable tables, independent of each other and of table B, sliding upon beds, D, which rest upon the inclines, E. These inclines are bolted to a sliding frame, and all the tables are raised and lowered by forcing the inclines backward and forward by means of the screws, F.

G is an iron fence, graduated in half and quarter inches, fastened to and forming an exact right angle with the table, B, and held by wing nuts through slots in the arms, and which can be moved over the tops of the knives.

For dressing straight work the bed, C, in rear of the bits, is adjusted to the exact height of the circle described by the bits in revolving. The bed, C, in front of the bits must be adjusted as much lower than the rear bed as the thickness of

of any size required. There is also an arrangement shown attached to beds D and A, and to cross-ties below, whereby the tables are made to move, in lowering and raising, in an oblique direction, and are carried toward the bits in raising, and away from them when lowering, thereby preventing the bits from striking the beds, when adjusted, while running. The bevel nut and fence are made in a single piece, and can be adjusted at any angle. A sticker attachment is also made,

with feed rollers, etc., for planing one and two sides in place of the boring and routing attachment. It will plane eight inches wide and has a fourteen-inch drop.

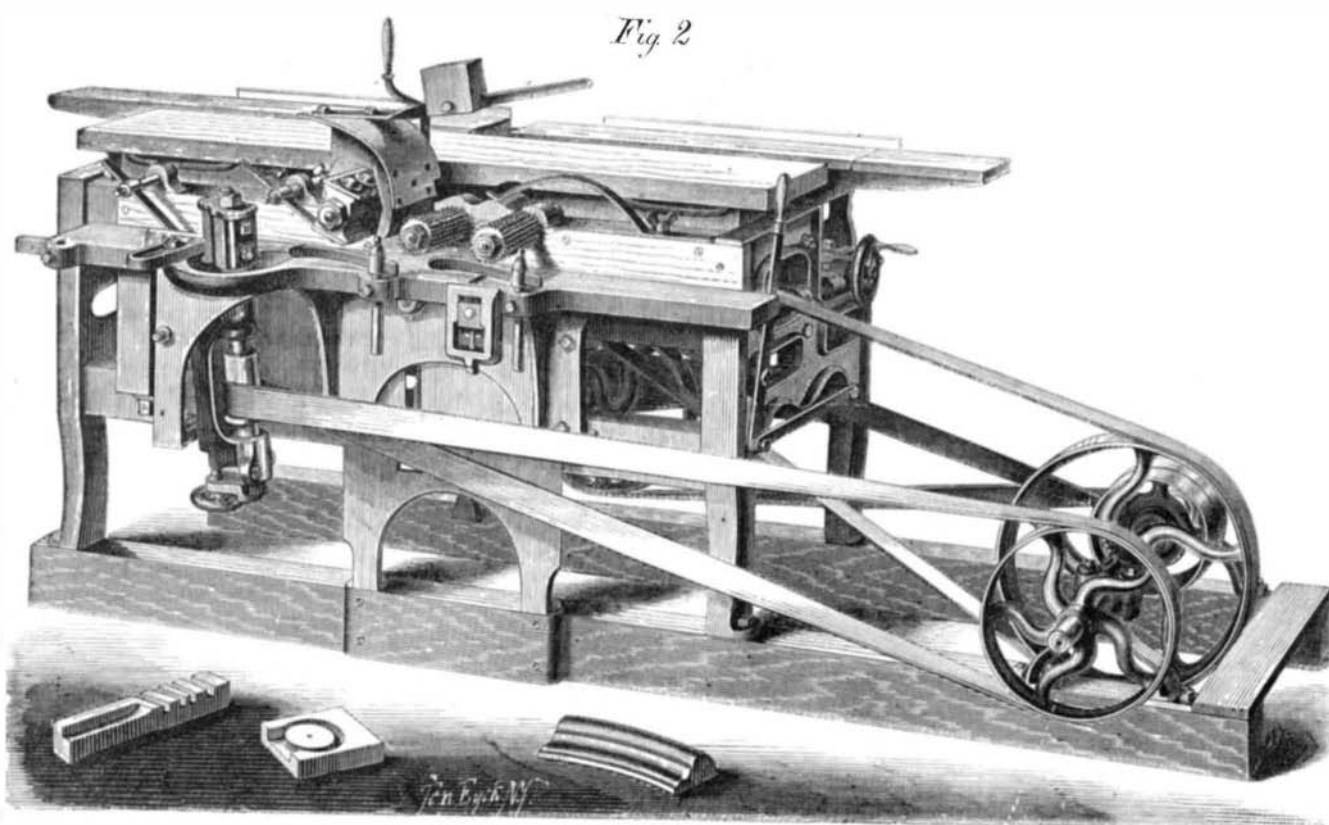
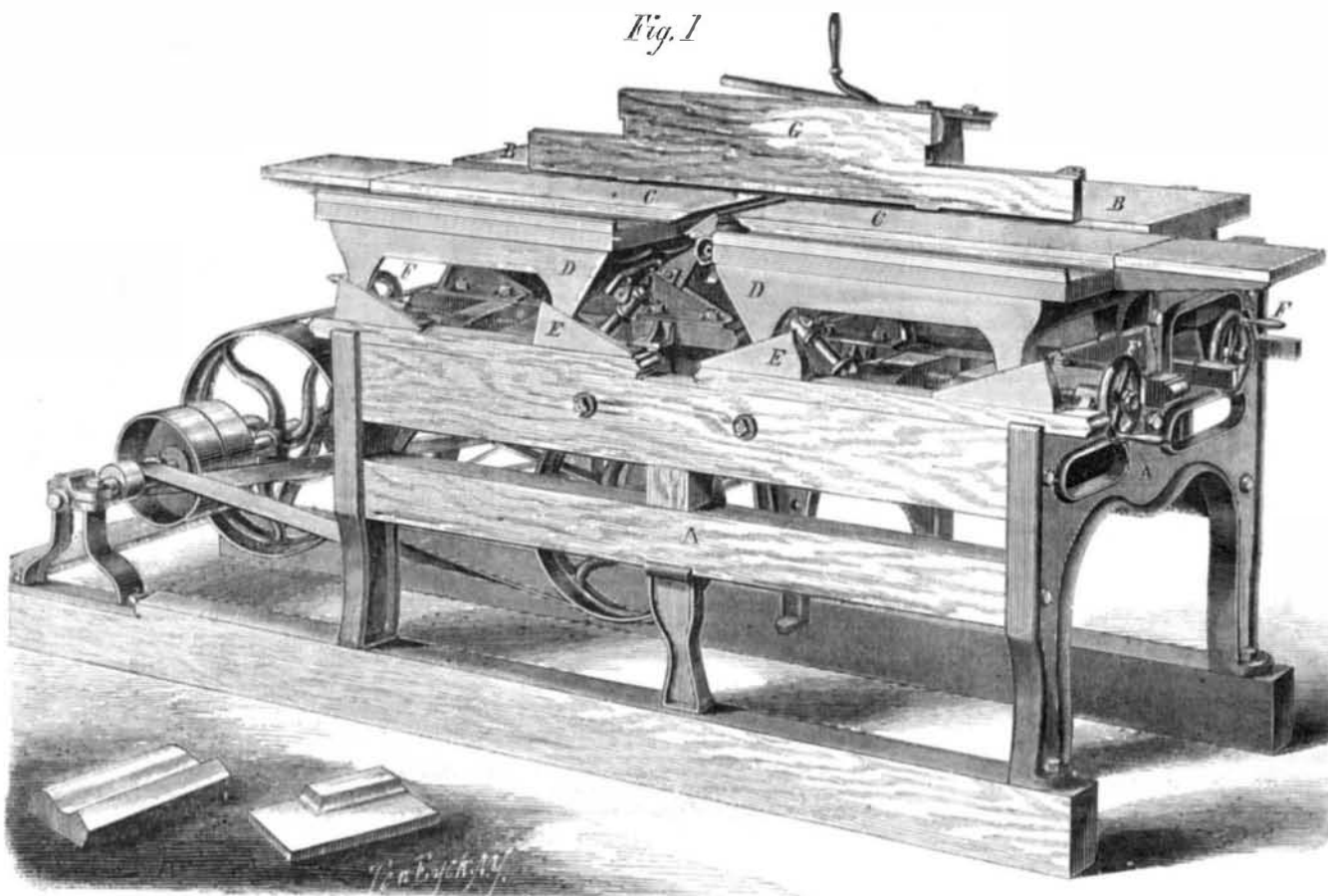
We have seen specimens of the work done on this machine, done for variety and quality is very remarkable. One of the pieces sent us has, after being first planed, had rabbeting, gaining, plowing, beveling, routing, and cornering done upon it in a most superior manner, and all the work gives evidence that this machine is one of the most useful of its class.

For further information address the manufacturers, McBeth, Shaffer & Co., Hamilton, Ohio.

Glucose.

In Europe glucose is manufactured from wheat, potatoes, and starch, and though the first named, as important staples of food, are not generally supposed by those unacquainted with the science of chemistry to contain any such sweetening properties as sugar, repeated experiments have demonstrated the fact that they in reality do, and, with confectioners who require the addition of an almost colorless preparation for the more delicate kinds of their manufacture, and with brewers who are interested in making the paler sorts of ale clear and sparkling, it is gradually taking the place of sugar, the well-known embodiment of sweetness in its more perfect form. The characteristics of glucose are almost the opposite of those of its celebrated rival, as, at the same time, that it can be made into a solid, consisting of minutes granules, more or less soft and hard, similar to

those of raw sugar; it can also be worked into a thick whitish liquid, semi-transparent, and is, as the first syllable of its name implies, rather *glucy*, to which may be added gluten, a substance highly esteemed for its powers of strengthening and nourishing the animal system. Owing to its comparative weakness, however, glucose will never successfully compete with sugar as expressed from the cane juice alone, but, for the peculiar purposes to which it may be applied (as, for instance, those above referred to), it will no doubt become more freely used, its decided cheapness being no small recommendation to those who have not yet ventured upon giving it a fair trial. A cheap method of transforming glucose into cane sugar is a chemical desideratum.



McBETH, SHAFER & CO'S UNIVERSAL WOOD WORKER.

the cut required. Thus as soon as the work has passed to the rear bed it has a solid bearing on both sides of the bit, and will be dressed entirely straight and out of wind. In squaring the fence is used so as to have an exact right angle. For rabbeting, gaining, or fluting both beds are lowered to the desired depth below the knives. For tapering one end of the work is rested on the rear bed before cutting, and the front bed is depressed to the depth of the taper required. The work is then passed over as usual. When access to the bits is desired, either for the purpose of sharpening them or changing the head, a wing nut underneath the table, C, (not shown) is loosened, which permits the tables, C, to slide backward and forward, and to be adjusted for a saw or head