

IMPROVED SASH BORING AND GROOVING MACHINE.

We illustrate herewith a machine for boring and grooving sashes, which allows the operator to prepare the work ready for the cord at one handling and without changing his position, the entire job being performed in a space a foot square. It is claimed that the apparatus saves three fourths of the labor necessitated by the ordinary process.

Two mandrels are driven by the belt, A, and carry the pair of bits shown at B, for boring the holes. The groove is made by the saw, C, attached to one of the mandrels. In front of the saw a single mandrel sets and serves to bore through from the groove to provide for the reception of the cord.

The machine is constructed of maple or ash, and is put together with joint bolts. The top is made of walnut and ash strips, 1½ inches square and glued up. The countershaft and the mandrels—the latter of cast steel—run in the best Babbitt metal. Two groovers and sash and blind bits, complete, are furnished, together with a ten inch circular saw, which adapts the machine for all ordinary light sawing, in addition to its capability of boring blinds, grooving shutters, rabbeting doors, etc. The detached piece, shown leaning against the frame on the right, serves to fill up the space on top of the apparatus when it is used as a common saw table. The floor space occupied is two feet wide by three and a half feet in length.

For further particulars address the manufacturers, Messrs. J. H. Blaisdell & Co., 405 Commerce street, Philadelphia, Pa.

IMPROVED SURFACE BLOW-OFF.

By using the novel surface blow-off represented in our illustrations, it is claimed, the engineer is enabled to tell exactly how much water is in his boiler, whether scum and foreign substances are or are not being forced out, and, in case of the water being lost, he is provided with a means of readily finding it to the last moment of safety.

The engravings represent the invention in section, Fig. 1, and also give an exterior view, Fig. 2, the latter figure differing from the former, however, in that the stuffing box, which surrounds the tube attached to the float or skimmer, A, is arranged inside instead of outside the boiler shell, and also in some readily perceived details of construction. The device is placed on top of the generator, as shown. The skimmer is a hollow flat box provided with side openings for the admission of the surface water. The tube by which it is suspended extends upward through a chamber, B, and is there perforated so that the water may enter said chamber and escape through the blow-off cock, C. The tube continues upward, passing through suitable stuffing boxes, and terminates in a screw and wheel, D, surmounted by a testcock, E. As shown in Fig. 2, the wheel and screw is supported in a nut on the standards, F, above the chamber, B. The object is to allow of adjusting the skimmer to any height above or below the water level, as desired. The test cock, by ejecting when opened either steam or water, according to the position of the skimmer, indicates the location of the latter and, of course, the water level in the boiler. The main tube is made of sufficient length to allow for the entire range of water level, so that the skimmer may be shifted up or down, as required by the height of water, without interrupting the flow.

At G, on the main tube, Fig. 1, a stud is provided, which enters a groove in the side of the chamber, B. This serves to prevent the main tube from turning by the nut above.

The inventor states that by this device the scum which rises to the surface of the water may be so thoroughly expelled that a boiler thus provided, and running without cleaning

for a period four or five times longer than other generators unprovided, will still keep cleaner than the latter. He also informs us that he has practically tested the invention upon the boilers of a sugar plantation in Cuba, of which he is the engineer, with excellent success. The apparatus is especially adapted for marine boilers, particularly those upon steamers which make long voyages. It can be arranged so as to be operated from any part of the vessel.

Railroad Fire Engines.

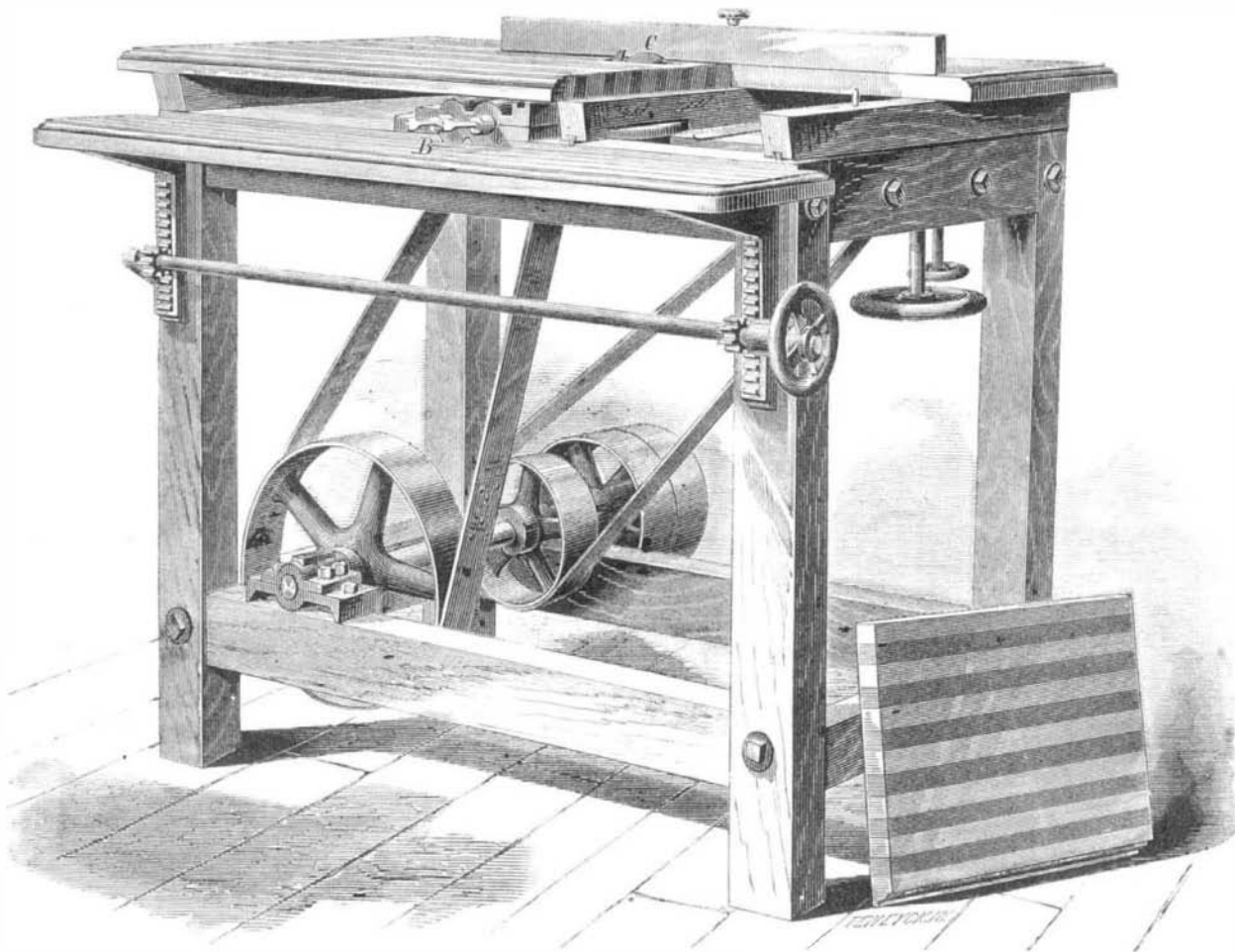
The Central Pacific Railroad Company employ no less than than four fire trains on the mountain route across the Sierra. The first is stationed at Blue Cañon, the second at Emigrant Gap, third at the Summit, and the fourth at Truckee. Each train consists of a locomotive and three or four water cars. These cars are about the same length as an ordinary freight car, and formed of two inch plank; they are very

strongly put together, as nearly watertight as possible, and elevated above the track about four feet. Each car will hold 3,000 gallons of water, or not far from 100 barrels—equal in weight to 24,000 pounds. The locomotives are arranged with powerful pumps that throw a steady stream, and do equally as good work as the best steam fire engines used in any of the large cities. Leather hose three inches in diameter is used, which, when not in use, is wound upon a large reel mounted on one car of each train. These trains are kept in constant readiness to proceed with all possible speed to the locality of the fire, upon the first alarm. All of the 25 miles of shedding between Emigrant Gap and Truckee is thoroughly deluged with water once a week. In sprinkling the sheds, the pipe man stands on the pilot in front of the engine, which moves slowly along at the rate of two miles an hour. In this work five men are sufficient to manage a train. Since the introduction of the fire alarm telegraph, with 32 different stations between Emi-

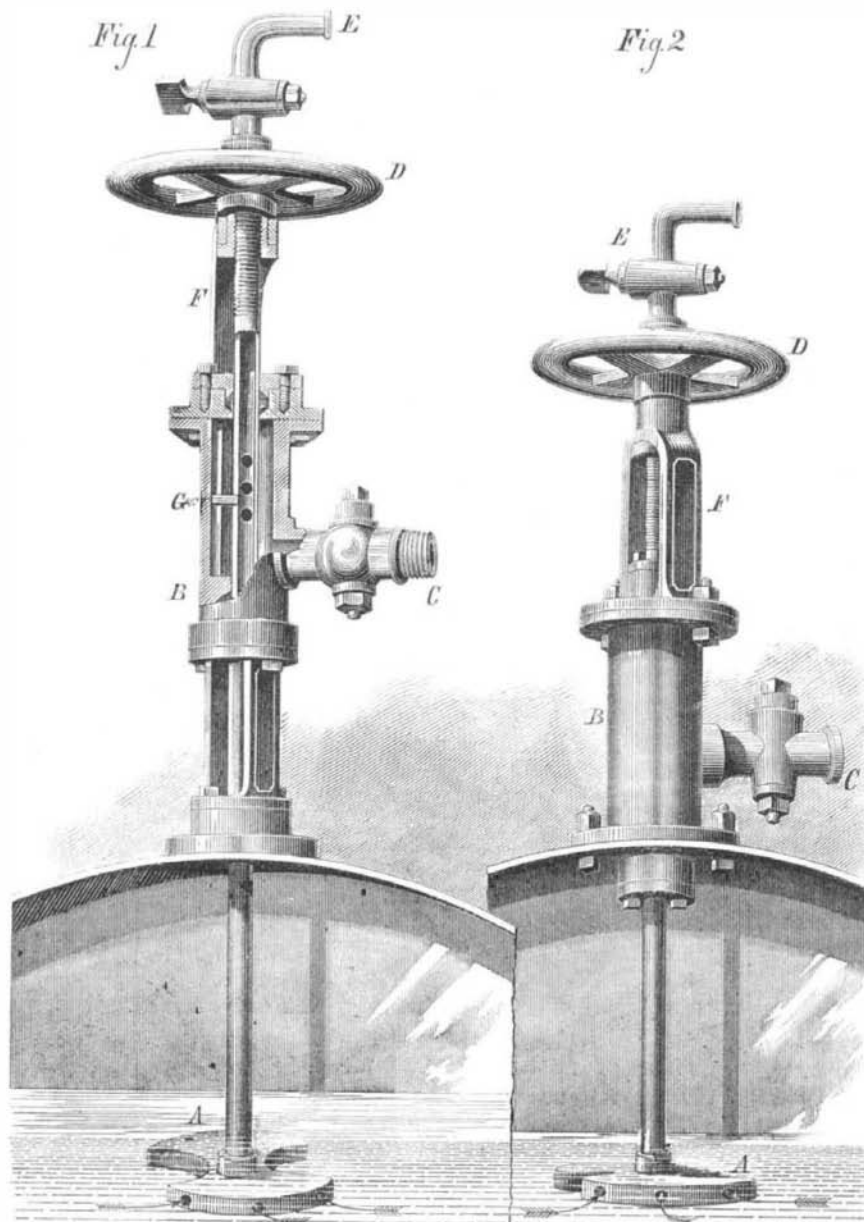
grant Gap and Truckee, the danger of any very disastrous conflagration in the sheds is nearly or quite obviated.

New Chiming Machine.

The art of constructing carillons, or machines for playing tunes on peals of bells, is being much practised in Europe. *Iron* says: The new carillon or chiming machine which has been fixed in the parish church, Leek, by Messrs. Gillett and Bland, of Croydon, England, was lately opened. The carillon machine is fixed in the same chamber as the clock, to which it is connected by means of a lever. On being slightly pulled, the lever dislodges a pin, which instantly sets the machine in motion, and the tune commences playing. It is constructed to play fourteen tunes on eight bells, the tenor weighing one tun, and the whole peal about 4½ tuns. This apparatus is on an entirely new system. The motive power is obtained by weights of about half a tun each, which are suspended from an iron barrel by a steel line. At one end of this barrel is a wheel running in gear with a pinion, driving a spindle, upon which are fixed twenty cam wheels, kept constantly revolving, ready to do the heavy work of lifting the hammers the instant they are released by the musical barrel, which is also kept revolving by a series of wheels similar to a musical box. The levers arranged at the top of the machine are, at the musical barrel end, connected with the hammers above (by means of wire lines and cranks) and the key frame in front of the barrel; and directly the ends of the lever are released by the small brass pins pricked upon the musical board, the other ends of the levers, with the points of the arms attached to them, fall upon the revolving lifting cams and are instantly raised into the striking position and locked by the key frame at the other end, so that the two actions of releasing the hammers by the musical barrel and again lifting by the cams are perfectly simultaneous, and therefore very rapid passages in the music can be played. It will give some idea of the slight tension required for letting off the heavy hammers and the remarkable effectiveness of the mechanism when we state that the musical barrel is made of hard wood, only ten inches in diameter, studded with brass pins one eighth of an inch square; and the whole machine does not occupy more than a quarter of the space that the old one did.

**BLAISDELL'S SASH BORING AND GROOVING MACHINE**

Patented through the Scientific American Patent Agency, September 1, 1874. For further particulars address the inventor, Mr. Robert Waugh, Ingenio San Joaquin, Pedroso, Isle de Cuba, or John M. Wiemann, Box 2,524, New Orleans, La.

**WAUGH'S IMPROVED SURFACE BLOW-OFF.**