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## Wood-splitting Machine.

This machine is intended to be used where large quantities of wood have to be split, as in factories, where it is prepared for kindlings; railroad stations, and similar places. It is simple in construction and very efficient; it is also powerful, for the most obstinate, knotty, or crooked-grained block, can be cloven with ease by it. The machine is simply a cast-iron block, A, solidly placed, with a heavy hammer, B, to which the knives or axes, are secured. This hammer slides between the rods, C, and is elevated by the gearing, D. The shaft the crank, E, is on, is carried in stout bearings; the rope, G, is attached to the crank, which is carried around by a pin, H, in one of the wheel arms; so soon as the crank reaches a vertical position it falls forward and the hammer descends on the wood, cleaving it asunder. This operation is repeated as long as the pulley, I, drives the gearing.

There are springs, J, at the bottom of the slides which support the knife hammer, and keep it off of the splitting block, so that the machine may continue to run while the attendant is absent or adjusting the block to be split, without injuring the cutting edges. The inventor says that he lately split a full cord of hard, dry oak-wood, sawed in two and three cuts, in twenty-six minutes, and that one machine has been running for five months at a cost of less than \$1 for repair. It will split from 15 to 18 cords of wood a day, including knotty pieces, and the labor of two boys is all that is required to operate it. It was patented through the Scientific American Patent Agency on the 17th of May, 1864, by John A. Knight, of St. Louis, Mo.; for further particulars address King-lands & Ferguson, St. Louis, Mo.

## Altering Light Draft Monitors.

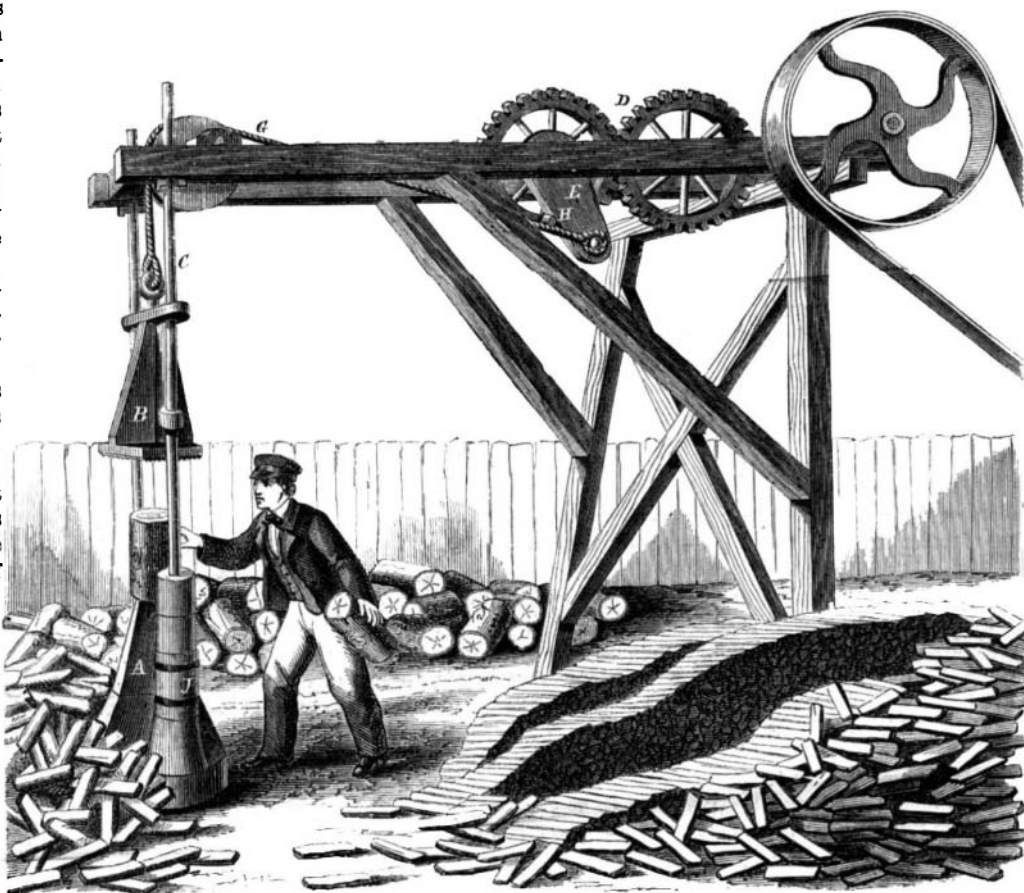
The United States Gazette says, "The condemned monitor Tunxis will, after all, prove a valuable ship. She is now hauled out, and the defects in her construction are all in course of remedy. It was a Titanic task—this hauling from the water a huge iron-clad of sixteen hundred tons weight. To perform it required a great deal of mechanical skill. Three hundred and twenty-five men, with five 'crabs,' performed the work, which was accomplished up 'ways' inclined an inch to a foot, and without an accident of any kind. It is the first time in this country that such a feat has been performed, upon greased 'ways,' and Philadelphia has another feather in its cap in consequence.

"The alterations are important. The solid decks are being taken off and the hull raised twenty-two inches. The former will then be replaced. In her

previous condition the Tunxis drew so much water as to render her valueless. In three months she will be again afloat, and a match for the Yazoo, which is also being altered at the same yard. The Yazoo was another failure. Of the twenty light draft monitors ordered by the government the same mistakes in construction were made. Some of them have been altered into torpedo boats, with one 8-inch gun on their bows. The Napa, the first to be so metamor-

are inclosed in 2-inch iron pipes, to protect them from being damaged. At the central station there is fixed in the basement a small high-pressure beam engine, and connected with it a double-action air pump, 17 inches in diameter and 15-inch stroke. The pump is continually at work exhausting the air from a cylinder 8 feet long and 4 feet in diameter, which is styled the vacuum cylinder. The pipes which pass under the streets from the branch offices are terminated in

the instrument room on the top floor of the building, and the pipes from the vacuum cylinder are also carried to the same place, and they can be put in connection by simply opening a valve. The carriers which travel through the pipes are made of gutta percha covered with felt. They are about five inches long, and of a diameter nearly equal to that of the pipe. They are hollow inside for the purpose of containing the messages. Electric bells are employed to give the necessary signals for the working of the pipes.—When the officials at the Ducie Buildings office wish to send a "carrier" they place one in the mouth of the pipe and signal the central station by ringing its bell. The clerk in attendance at the latter place by moving a small lever, puts the pipe in communication with the vacuum cylinder. The air in the pipe then rushes into the vacuum cylinder, and the "carrier," having the ordinary atmospheric pressure behind it, is propelled through at a speed of from



KNIGHT'S WOOD-SPLITTING MACHINE.

phosed, is now at the Navy-yard, just finished. The Yazoo and Tunxis will be as valuable when finished as the government expected them to be when first ordered. The builders will alter the rest of them at their own expense."

It strikes us that two portable engines on the ground would have been quite as efficient and much more expeditious than 325 men.

## Pneumatic Dispatch and Telegraphy.

Recently a pneumatic dispatch apparatus was tried in Manchester in connection with telegraphy. Owing to the increase of their business in Manchester, the Electric and International Telegraph Company has lately taken extensive premises in York street, and opened a central station there. In order to facilitate the rapid dispatch of messages from the branch offices at Ducie Buildings (Royal Exchange) and No. 1 Mosley street, it has been deemed advisable to connect these offices with the central station by means of the pneumatic system, the same as is adopted by the company in London and Liverpool. Between the branch offices above mentioned and the central station leaden pipes with an inside diameter of 1½ inches have been laid down under the streets. The leaden pipes are made perfectly air tight, and

35 to 40 miles an hour. On the arrival of the "carrier" at the central station it strikes against a spring buffer, which, by a simple, self-acting contrivance, cuts off the communication between the pipe and the vacuum cylinder, and the "carrier" falls from the valve on to a counter prepared to receive it. To send a "carrier" from the Mosley-street office the action is precisely the same. By using a second chamber, and compressing air into it, a force is obtained for blowing the "carriers" from the central station to the branch offices, so that the pipes can be made available for carrying in both directions. The branch office in Mosley street is about 320 yards from the central office, and the distance of the Ducie Buildings from the branch office is 510 yards. The time occupied by a "carrier" in traversing the shorter distance is 22 seconds.—*Engineer.*

THE TIDE of travel to the oil regions of Pennsylvania is swelling all the time. The cars going in that direction are crowded to their utmost capacity, and at Titusville the hotel accommodations, although largely increased recently, are still inadequate.

THE address of Mr. Porter, the inventor of the sifter shovel, illustrated on page 14, of the present number, is 415, Hudson St., not 15 as given.