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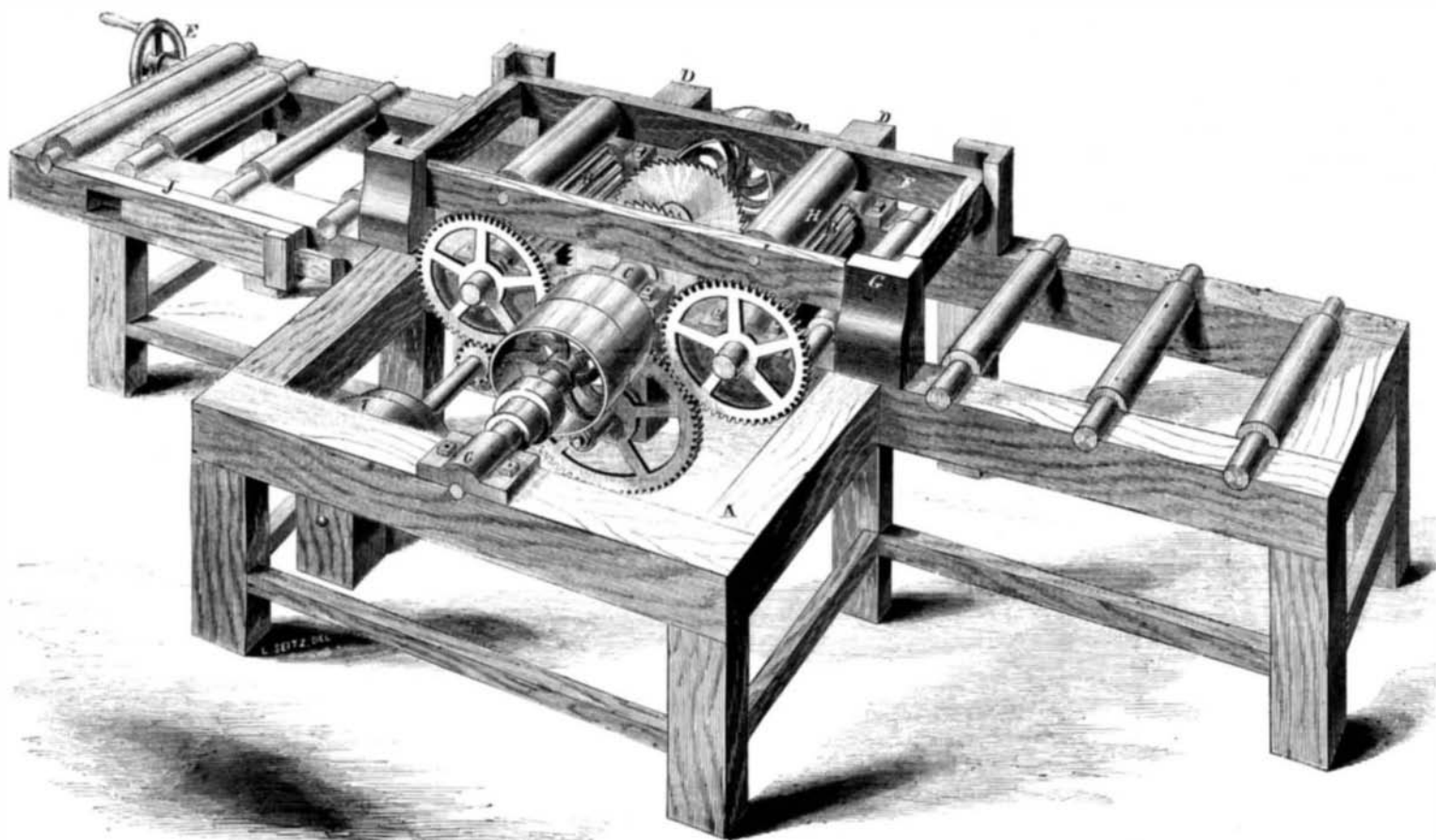
## Improved Lumber Edging Machine.

The machine illustrated herewith is intended for trimming or edging planking or lumber of any kind, and is simply and conveniently arranged for that purpose. The principal parts are the wooden frame A, the fluted rollers, B, by which the timber is brought towards the saws and the gearing by which these rollers are driven. The saw mandrels run in the bearings C, the one in the foreground of the engrav-

The gearing which operates the rollers is driven by a belt on the pulley, I. One end of the main frame, A, has an extension piece, J, added to it. This is supported by brackets, as shown. The shaft on which the crank wheel, E, is fixed has a tubular sleeve to accommodate this extension, so that when it is drawn out, the shaft will operate as before—a very useful attachment when long timber has to be sawed. This mill will answer the purpose it was intended for well,

## Great Railway Bridge.

The new bridge now being built on the railway route leading from New York to Washington, across the Susquehanna river, at Havre de Grace, will be 3,800 feet long, and supported by 13 stone piers, each 240 feet apart; seven of these will have pile foundations and six rock. They will be constructed so as to resist the greatest pressure of ice which it is possible to bring against them. The greatest depth of



ENSWORTH & BARKER'S LUMBER EDGING MACHINE.

ing is stationary, while the other saw is fitted in a frame which cannot be shown plainly, as it is hidden by the other parts of the machine. This saw frame slides between the guides or ways D, D, and the frame itself is moved in or out to suit various widths of lumber by the crank E. This crank turns a shaft upon which a pinion is keyed; the pinion gears into a rack upon the under side of the sliding frame the saw sets in, so that by turning the wheel the saw is advanced towards, or withdrawn from its fellow opposite; thus graduating the width of the planking cut with great accuracy. There may also be an index, or scale of feet and inches attached to this machine upon the sliding ways D, so that the saws can be quickly adjusted to cut timber of any width.

Directly over the fluted rollers, B, there is a rectangular frame, F, which rises and falls in the guides, G; this frame is furnished with two other rolls, H, which are perfectly smooth and directly over the fluted rolls; when the timber to be cut is inserted at one end of the machine it is seized by these fluted rollers, and they, in connection with the self-adjusting frame and rollers just mentioned, feed it steadily through the machine, no matter what the thickness of the stuff is. By this arrangement the work may proceed whether the timber is all of one lot or not, which is a material advantage to the manufacturer.

and was patented by L. A. Ensworth and B. Barker, of Williamsport, Pa., on Jan. 27th, 1863. Further information can be had by addressing B. Barker, at 105 East 22d street, New York.

**AIR AND OCEAN.—INTERESTING ITEMS.**—The air is made up of a mixture of two gases, oxygen and nitrogen, and it always contains considerable watery vapor and carbonic acid. In his new work on chemistry, Prof. Youmans states that if all the air were reduced to its average density at the earth's surface, it would extend about five miles high, and that if the above constituents were arranged in layers one over the other, we should have first, at the bottom, a bed of water all over the earth's surface 5 inches deep; next a layer of carbonic acid 13 feet deep; next above, a layer of oxygen gas about 1 mile deep; and above this a layer of nitrogen gas about 4 miles deep. This will help the memory. Sea water contains about 4 ounces of salt in every gallon. Estimating the ocean to average two miles in depth, the salt, if separated in a solid bed, would line the bottom of the entire ocean to a depth of 140 feet.

MR. BESSEMER, the inventor of the process of converting iron quickly into steel, now says he can produce a block of it, twenty tons in weight, from flint cast iron, in twenty minutes!

water in which these piers are laid is 42 feet. The bridge will have a "draw" on the pivot plan, with two openings of 70 feet each in width. The railway track will be twenty-five feet from the water; above that will be a common carriage-way. The entire height of the bridge will be 50 feet, its estimated cost \$700,000. It was intended to build the superstructure of iron, but the high price of that material may cause the substitution of wood.

**CLEANNES OF GUN-COTTON.**—In their report to the Austrian Government, the Commission appointed to examine gun-cotton say:—"From the steel barrel of a rifle, 40 rounds have been fired with gun cotton cartridges, which have hit the target 300 yards distant, in an unexceptionable manner. After the said number of rounds, the barrel was internally as clean and polished as a mirror."

A MAINE paper says:—"People are getting into the habit of using sirups as a substitute for butter. It is found easier to contract such a habit than to form the habit of paying fifty cents a pound for butter. Many of the boarding houses find it impossible to procure butter. One of the grocers sent a runner one hundred miles into the country for butter, and succeeded only in obtaining one tub."