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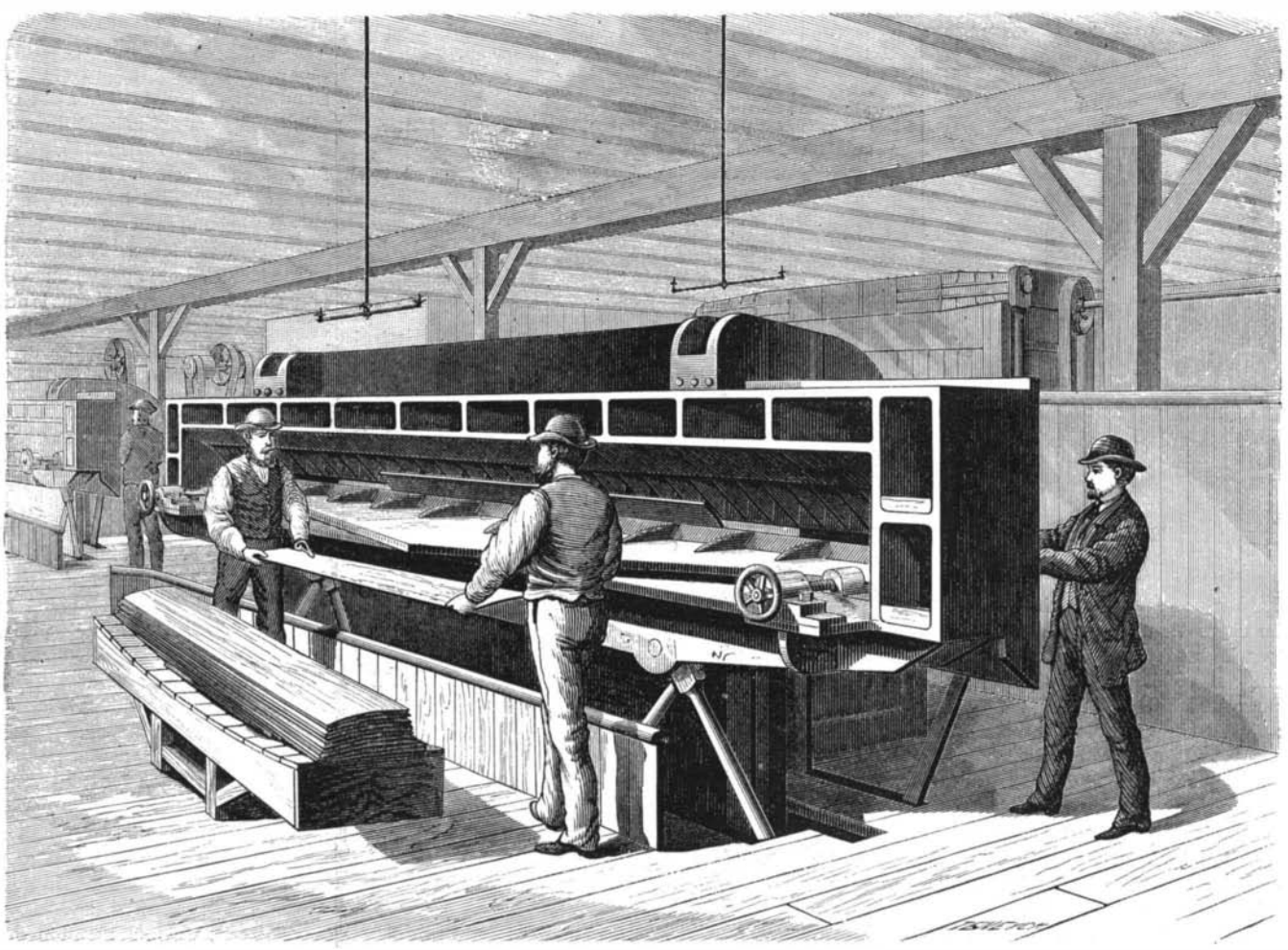
IMPROVED BOARD CUTTING AND SEASONING MACHINES.

In the annexed engravings we represent a new machine for cutting boards and also an improved steam seasoning press. Fig. 1 is the board cutting machine, the invention of Mr. H. T. Bartlett. It is claimed to cut from the thinnest veneer up to boards of ⅛th to ⅞ inch in thickness, equal in quality to the same thickness of sawed material and requiring no further planing, both sides being perfectly smooth.

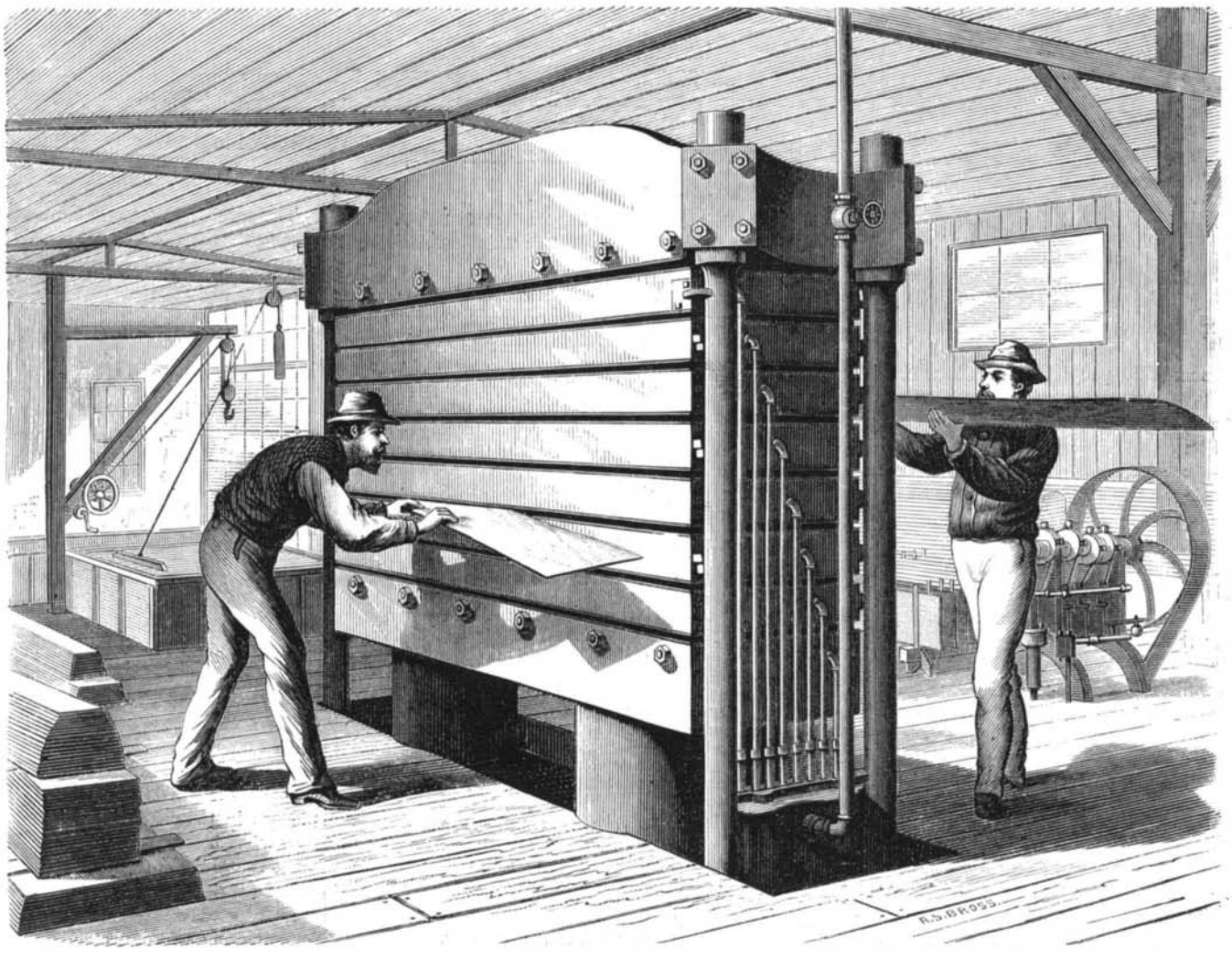
To accomplish this result the usual conditions of cutting are reversed, the log being held stationary while the knife moves through it with a drawing motion.

This is the important feature of the machine; the drawing stroke of the knife being effected by a vertical and horizontal movement of the frame to which it is attached by means of crank and radial rods, with theirdriving mechanism situated beneath the floor, entirely out of the way. Power is applied by a single 12 inch belt giving the main driving wheels 20 to 25 revolutions and cutting a corresponding number of boards per minute. The several devices for holding the log and the automatic feed during the operation of cutting, while possessing much merit, need not be enlarged upon here. The machine is constructed to cut logs square or round, 8 feet 4 inches long, 28 inches thick, 36 inches wide.

The variable drawing motion of 16 to 40 inches of the knife, we are informed, enables the machine to accommodate itself to all the variations in the texture of the material. There is no dead point during the cut, which is continuous, so that the work is done with comparatively little friction and with economy of power. Another valuable feature in the machine is the adjustability of the cutting table to any height so as to bring narrow logs into the first or longest part of the drawing stroke. With three men to attend the machine and one or two to prepare logs, the apparatus, running at full capacity, 10 hours per day, can, we are informed, produce 280,000 feet of veneers; or its average production is about 50,000 feet of veneer, 20 to 25 feet of ⅛ to ¼ inch and 10,000 feet of half inch stuff. The facility with which the machine cuts boards of the thickness last named is remarkable, and it is, we believe, the first invention which improves upon the work of the saw in that respect. A ½ inch mahogany board 24 inches in width was exhibited to us, which had just emerged from the knife, and which, so far as firmness of grain and smoothness of surface were concerned, was ready for immediate use. Hitherto the work of cutting machines has been confined entirely to veneers, by means of the apparatus represented in Fig. 3, the construction of which will easily be understood. The present machine is the first, however, as we are informed, to produce cut boards of ⅛, 3/16, ¼, and up to ⅞ inch thick, with the grain firm and unbroken, and the surfaces so smooth as to need no further dressing.



BARTLETT'S MACHINE FOR CUTTING BOARDS.—Fig. 1.



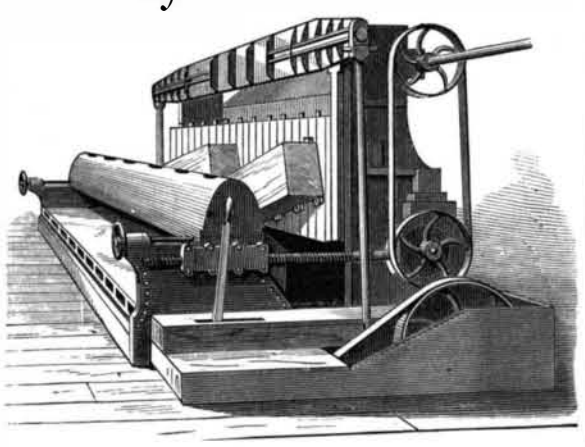
STEAM LUMBER-SEASONING PRESS.—Fig. 2.

By the steam press, Fig. 2, the use of the dry kiln is obviated, and thin lumber of all kinds can be thoroughly seasoned in from two to twenty minutes. It is unnecessary for us to review the present requirements for drying and seasoning lumber. Large space is required for air-drying, which is a slow and expensive process, and after it is concluded the wood is often warped, and exhibits wind buckle or season checks. All these disadvantages are claimed to be avoided in the new steam drying press—the invention of Philip Pfeffer. This consists of a series of steam-heated chambers, the steam being introduced by a pipe at one end of each chamber and passing out at the other, thus keeping a constant circulation of hot steam.

Valves are arranged to govern the entrance and exit of the steam as may be desired. The chambers are adjusted to separate, leaving an aperture between each of an inch or more, according to the thickness of lumber to be seasoned. The boards are then inserted between the faces of each chamber and the pressure applied by forcing the chambers together, either by hydraulic or steam power. The heat of the chambers causes the sap in the wood to become vaporized, which passes off through vents or channels in the opposing face of each chamber, or through perforations in the faces of the lining plates leading to grooves or channels in the inner sides.

The rapid action of the machine was well shown by a test conducted in our presence upon a cedar board 11¼ inches wide, ¼ thick, and weighing four pounds, and wholly unseasoned, being just from the cutting machine. It was placed in the press for five minutes, at the end of which time it was found to have shrunk ¼ of an inch in width, and to have lost 1¼ pounds in weight. The same principle is applied to curved plates, and thus lumber is seasoned and shaped at one operation. This will particularly apply to coffin, piano, and chair

Fig. 3



manufacturers. It is hardly necessary to point out that these machines are of the character which work revolutions in the manufactures to which they relate; and this, not merely from their capability of yielding better material, but from the fact of the economy which they insure. It certainly can be no longer economical to saw thin boards when it is possible to produce the same without loss by sawdust, and without requiring the subsequent planing to fit them for use, resulting in a gain of 40 per cent to 50 per cent on material. The saving of time effected by the seasoning press is too obvious to need any reference here.

Both machines were patented through the Scientific American Patent Agency in this country and in Europe.

For further information, address Geo. W. Read & Co , 186 to 200 Lewis street, foot of Fifth to Sixth street, East River, New York city, at whose large veneering and hard wood lumber establishment both machines are in daily and successful operation, and with whom arrangements may be made for the purchase of territorial rights or licenses to use either or both patents.

THE WOODRUFF SCIENTIFIC EXPEDITION.

We have to acknowledge the receipt of a new prospectus of the Woodruff Scientific Expedition, an enterprise which, as we recently explained, has for its object the conveying of a class of students around the world on a two years' voyage of combined instruction, amusement, and science. We observe that the fee (payable in advance fifteen days before the ship sails) has been reduced from $5,000 to $2,500 per head, and that the steamer Ontario, a larger and more commodious ship, has been substituted for the vessel originally proposed. There are various other inducements offered, which, if the entire enterprise were not, as we learn, based on a series of contingencies, would render the project a very attractive one.

But it appears that not only does the necessary capital for its execution depend on the obtaining of 400 subscribers at $2,500 or $2,000 each—naval cadets being taken at the latter figure—but the various scientific gentlemen who are to accompany the vessel have agreed to go under the conditions that such material support is first secured. Similarly we understand the testimonials quoted in the prospectus to be given by these eminent writers, with the understanding that if the scheme as explained to them can be carried out, then the project is worthy of public attention.

In the present hard times, probably no capitalist would invest so large a sum as a million dollars in a project of this kind, and hence the promoters have adopted the best and most feasibly way of raising the necessary funds. But on their success depends the realization of the scheme, and it, perhaps, is open to question whether 400 people can be collected willing or able to pay down the goodly sum required in advance. We shall probably revert to this subject again.

H. F. ANDREWS, M.D., of Washington, Ga., says that cologne water is an efficacious remedy for poisoning by poison ivy. A good article of cologne must be used, and frequently applied. The vesicles should be broken when the remedy is applied.

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DISCOVERY OF SATELLITES OF MARS.

Professor Asaph Hall, of the Washington Observatory, has recently announced the interesting discovery of two satellites attendant upon the planet Mars. At about 11 o'clock on the night of August 16, Professor Hall, by the aid of the great 26 inch refractor telescope, noticed a very small star following Mars by a few seconds. Two hours later he looked again, and to his surprise found that the distance between planet and star had not increased, although the former was moving at the rate of 15 seconds per hour. Hardly crediting his discovery, Mr. Hall delayed further observation until he could bring the matter before his colleague, Professor Newcomb, and that astronomer, being confident that the discovery of a satellite had been made, calculated roughly its time of revolution, which he found to be 1 day and 8 hours. This enabled the prediction of the probable place of the satellite on the following night—a prediction which was verified. On the morning of August 17 another satellite appeared, and its identity was fully recognized.

The distance of the first satellite from the planet is between fifteen and sixteen thousand miles, which is less than that of any other known satellite from its primary, and only about $\frac{1}{16}$ the distance of the moon from the earth. It is exceedingly small, having a diameter of not over 100 miles. The inner satellite is believed to be still closer to the planet, and to have a period of less than 8 hours. The first moon is distant 80, the second 30 seconds from their primary. Further and more accurate details will, however, soon be forthcoming, as probably the keen eyes of astronomers the world over will now be turned upon Mars. Next to our moon, more full and accurate knowledge is possessed regarding Mars than of any other heavenly body. Venus is nearer to the earth, but when most closely approximated she is invisible, being concealed by the solar light. Mars, however, may be examined under favorable circumstances, and during the present year the conditions are especially advantageous, owing to the planet being in opposition to the sun, near perihelion. The apparent disk is now larger in the proportion of 3 to 1 than when the planet is in aphelion, while the illumination is more brilliant in the proportion of 3 to 2. At the same time the planet is nearer perihelion than previously for more than 30 years; so that in the heavens its brightness is but little inferior to that of Jupiter.

While the surface of Mars has been mapped with remarkable accuracy, and although probably no other planet has been subjected to more keen and continuous scrutiny, yet up to the present time all searches for satellites attendant upon upon it have been fruitless. Most astronomers have not hesitated to assert that none such existed, though it has been said that if Mars has moons they are too small to be recognized by any telescope extant; but in any event the probable presence of Martial moons was not to be predicated on any phenomenon exhibited by the planet itself, and if their existence was suspected it was because it would be more in accordance with the nebular hypothesis that they should be present than absent. In a work on astronomy published some 40 years ago, we find mention of a phenomenon on Mars which might possibly lead to the idea that the planet was subjected to reflected light from some near body, and that was, that a curious and persistent illumination of the planet had been noticed, which, under the circumstances, was unaccountable, save under the hypothesis that the planet was slightly phosphorescent.

The discovery is a triumph both for Professor Hall and for Mr. Alvan Clarke, the maker of the great telescope. It, besides, shows what may be expected of the still more colossal instrument which at no very distant day we hope to see established in the Lick Observatory.

MACHINE HONESTY AND ITS CIRCUMVENTION.

The exceedingly ingenious mechanical devices often found among the tools of burglars and safe-breakers are in themselves sufficient to demonstrate the fact that all the inventive ingenuity is by no means confined to honest people; and it is scarcely necessary to say, to any one conversant with that peculiar instinct of the inventor which causes him to regard almost any mechanical obstacle as a challenge to his abilities, that in the bell-punch and similar apparatus of "machine honesty" the desire to overcome the difficulty is added to the nefarious incentive. Hence attempts to "beat" the machine, as the crime is vulgarly termed, are not uncommon, nor yet unsuccessful, although the perpetrators are usually in the end found out. The use of this apparatus began in this city about two years ago, when it was discovered that stage drivers and car conductors were in the constant habit of supplementing their scanty earnings with drafts on the fares collected. Accordingly that ingenious contrivance known as the bell-punch was largely introduced, receipts of the companies at once increased, and it was hoped that the evil was prevented. The bell-punch perforates a slip and the piece punched out is retained in a receptacle in the machine. At the same time a bell is sounded and a hidden indicator moved on a dial. Hence the fares collected are shown first by the number of holes in the slip, second, by the number of pieces punched out, and third, by the indicator; while a placard in the vehicle warns the passenger to listen for the ring when his fare is collected. Hardly had the punches come in use when frauds were detected. A smart mechanic drove a thriving business by making neat little bells which were inserted in the conductor's coat sleeve. The latter would, on collecting a fare, pretend to punch a hole in the slip—covering, however, a hole already made—and at the same time by pressing his arm against his body would sound his