

New Inventions.

Improvement in Cracker Baking.

We have lately seen some extracts copied from London papers, relative to what is termed a new mode of making biscuits, (and a good one it is) named Harrison's Hot Air Hexagon Biscuits. The invention is claimed for Mr. Thomas Harrison, of Wapping, England. The flour and water in proper proportions are placed in a cylinder, and the first operation of thoroughly mixing is performed by arms inside. On leaving the cylinder the dough is kneaded by means of a large iron cylinder under which it is passed several times. The required thickness is attained on passing beneath a smaller cylinder. The dough, spread out like a large sheet, then passing along an endless cloth, the machinery moving at each stroke the precise width of a biscuit. As the dough passes along by the rising and falling of a nicely adjusted piece of mechanism, the biscuits are cut into shape and receive the stamp of the patentee. The biscuits are not circular, but have six sides, and therefore, there is not in cutting out, any waste of dough; except a very small portion at each end. Passing along the endless cloth, the biscuits are conducted to the mouth of the oven, where they are received on a machine which draws in the biscuits in a few seconds. Each oven is four and a half feet in width, and twenty-six and a half feet in length. There are four ovens, one above another, and all fed from the same furnace with hot-air. The mixing of the flour and water occupies about 12 minutes, the kneading 5 or 6, and firing half an hour. As each oven contains 650 biscuits, and may be filled within a few minutes of each other, there is no difficulty in producing from flour and water no fewer than 2,600 biscuits in an hour, or nearly a ton of ship biscuits every two hours. The biscuits, are of excellent quality—beautifully crisp and sweet.

Thus the kneading, cutting and baking is one continued operation. The improvement, we think, might be profitably adopted by our large cracker and biscuit bakers. The form of the biscuit does not depend on the machine, but the cutters. The cracker cutting machine of Harrison appears to be the very same as that of Mr. Nivens, of this city, which was exhibited in England three years ago, and an engraving of which will be found on page 57, Vol. 3, Sci. Am. As the latter is an American patented machine, we must be vigilant to watch its honor. With this machine, his Dough Mixing Machine, on page 277, same Vol., and Massey's Drier, page 249, same Vol., which can easily be altered to use the belt only, (that part patented); crackers and biscuits might be manufactured at a great saving. We throw out these hints, believing them to be practically correct.

Improved Abdominal Supporters.

Mrs. M. W. O'Meara, No. 148 Canal st., this city, has invented a new kind of abdominal supporters, for which measures have been taken to secure a patent, and which is of great value on account of its intrinsic good qualities and simplicity. No pads are used, it accommodates itself to all the motions of the body, without being in the least disordered or displaced, and its worth has been at once recognized by a great demand for it, by persons who have used other kinds.

Improvement in Saw Mills.

Messrs. A. & W. Beswick, of Tylersville, Ill., have made application for a patent for a very useful improvement in saw mills, to be driven by water power. It gives a beautiful reciprocating motion to the saw, without the employment of a weight, which generally weighs about 500 pounds, in common mills.

New Buckwheat Cleaner.

Messrs. C. D. & T. L. Vose, of Mehoopany, Wyoming Co., Pa., have invented a new machine for cleaning buckwheat, which is represented to be a good invention, and for which they have taken measures to secure a patent. Its qualities are, the great quantity it can cleanse in a certain space of time, and the complete separation of all dross, &c., from the clean grain.

Improved Corn Planter.

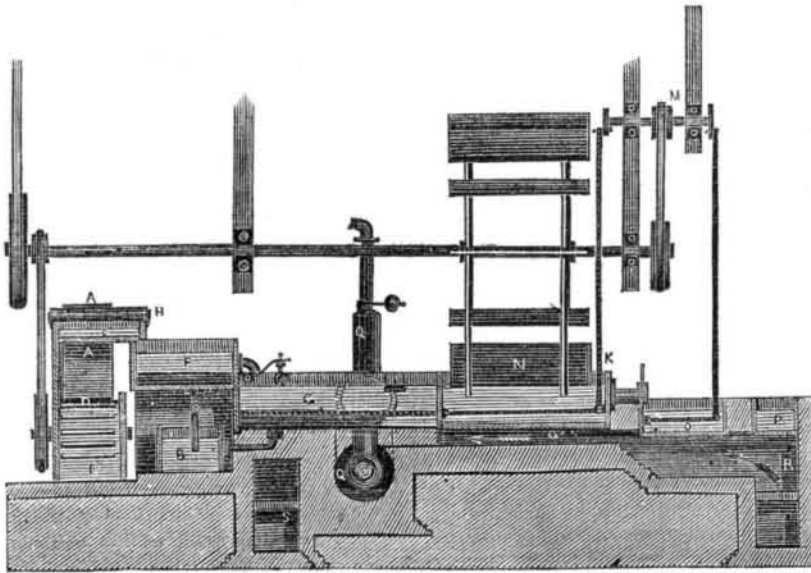
Mr. John P. Groshon, of Yonkers, near New York, has invented an improved Corn Planter, for which he has made application for a patent. It is a most admirable machine, to be drawn by one horse, as it is held and is like a plow, with the corn or seed box just above and a little behind the shoe, which makes the furrow, behind which again, between the stilts or handles, there is a wheel which revolves on the ground, and by a cam on its sides, opens and closes the perforated bottom of the said box, at regular intervals, to deposit the corn, or seed. There is a coverer on each side, which can be set at any height behind the seed box, to cover the corn or seed with a greater or less quantity of soil. This is a good idea.

Great Printing Press.

Messrs. Hoe & Co., the great Printing Press Manufacturers, are making an eight cylinder press for the "New York Sun," which, at a low speed, will throw off 20,000 copies per hour. It is to be made self-flying, requiring but eight persons to attend it, which is the same number required to attend those which they have at present, and which are the largest kind in use in this or any other country. The cost of the new press will be about \$20,000.

Mr. Hoe will no doubt attend the great Industrial Exhibition in London, in 1851, and come off victorious in competition with any other. This press will be the flying heavy artillery of the literary world.

IMPROVEMENT IN THE MANUFACTURE OF SUGAR.



This is an invention of Mr. William H. Clement, of Philadelphia, who has patented the same at home and abroad. This engraving is a vertical longitudinal section, and represents the improvements, after crushing the cane, until it is ready to be clarified, and afterwards there is a brief account of the clarification.

The juice having been expressed from the cane, is delivered from a suitable trough or spout on to the filter, A. The apparatus consists of an endless band or belt of wire gauze which passes over two rollers, one only of which is shown at B, the other upon the other end of the small receiver, C, and it also passes under the lower drum, D, placed within the cistern or tank, E, the upper part of the gauze is thus in an horizontal position over the receiver, C, and the cane juice being delivered thereon, it filters through and falls into the receiver. As a slow motion is communicated to the gauze filter, the refuse, which will not pass through it into the receiver, is carried by the filter down into the cistern, E, which is filled with water. There are two revolving brushes placed in this cistern, the one placed beneath the surface of the water; this clears the refuse off the filter as it passes downwards; the other roller brush is placed on the side, above the surface of the water; this brush clears the water from the filter, as it emerges from the cistern. When a considerable quantity of refuse has accumulated in the cistern, it is transferred to the still house, and the cistern re-supplied with fresh water from the receiver, C; the liquor is passed into the receiver, F, which has a double bottom, into the space between which steam is admitted. The froth and scum resulting from the boiling in this receiver is skimmed off, and the liquor is passed on to the long shallow receivers, G G; the first of these receivers, G, is provided with a double bottom, between which steam is admitted.—The water resulting from the condensation of the steam in this as well as the bottom of the receiver, F, is received through pipes into the cistern, H. The second receiver, G, is subjected to the heat from the naked fire. At about the middle of the length of the receiver, G, is placed transversely the trough, I, for the purpose of receiving the scum from the surface of the liquor; it being thrown into the trough by reason of the circulation produced in the liquor by the application of heat. The liquor in the receiver, G, would be liable to be burnt by the

heat, were it not kept in constant agitation by means of the agitator, K, which is a flat plate perforated with holes, and hinged at one end to the end of the receiver, and attached at the other end by a rod to a crank fixed upon the shaft, M; thus keeping the liquor in the receiver in constant agitation. As the scum rises to the surface of the liquor it is removed by the floats of the wheel, N, which dipping into the liquor, throws the scum upon an inclined board; it then falls into a cistern, whence it is pumped and returned to the first receiver, G. From the receiver, G, the liquor is passed into the clarifier, O, where it is subjected to increased heat from the furnace; in this there is an agitator, similar to the one in the receiver, G; from this the liquor is passed into the tilting vessel, P, where it is again subjected to increased heat, and when sufficiently clarified the vessel is tilted, and the contents poured into a trough, and received directly into the crystallizers, (which are square vessels with inclined bottoms) for the extraction of the molasses; Q, the steam boiler, which is heated by heated air and products from the furnace, R; the furnace, S, is for the purpose of heating the boiler at the commencement of the working, but is afterwards closed when the furnace, R, is at work.

Mr. Clement uses the high pressure process for clarifying the sugar, and he therefore places the saccharine solution, after it has gone through the process described, in a close vessel, under a heavy pressure on the safety-valve. To separate the metallic oxides employed in clarification, he places within the saccharine solution containing the oxide, a porous vessel, containing a weak salt solution, and in this a plate is immersed, and another plate of metal is placed in the sugar solution itself. These two plates are connected to the poles of a battery, and a wire completes the circuit, when the oxide of metal contained in the sugar is deposited on the metal plate. For filtering he employs the phosphate of lime, but with this he also employs the galvanic battery to deposit the metallic oxide, used in the clarification, and which, if it could be entirely dispensed with, would in our opinion be a blessing of no small value. If the reported French discoveries do this, the importance of them cannot be too highly estimated, for sugar is one of the most necessary domestic "we can't do without" articles known.

Improvement in the Manufacture of Candles.

A patent has just been taken out in England, by a gentleman, for moulding candles with a small core in the mould, so as to form a tube in the candle to allow air to come up and supply oxygen to the flame in the centre of the wick, upon the same principle as the argand burners are made. This is a good idea, only it does not provide against the grease running down and filling up the interior of the candles: This would destroy all the intended benefits of the tubes. There was a time when candles were made of good tallow, and could well have been moulded to a good purpose by the above plan, but recent improvements in candles, those at least that are most common in New York, consist in improving the grease upon the squash system—soft as butter in dog-days.

Improvement in Water Wheels, and the Plumbing of Grist Mill Shafts.

Mr. Marcins B. Ashley, of Watertown, Jefferson Co., N. Y., has made some excellent improvements on Water Wheels, for grist mills, for which he has applied for a patent. The plan is to use a wheel with a vertical shaft, and to gear the runner stone direct on the shaft, and to have a tramming box placed in the bed stone to tram the shaft with great facility, by the miller, when he dresses the stone. He also employs a boot on the lower part of the shaft, so that the shaft itself never wears untrue on the bottom. He also employs peculiar moveable gates to admit the water to the wheel, whereby he nicely regulates the uniform speed and power of the wheel.

The Britannia Tubular Bridge.

By the late news from England, we learn that one tube of this, the most wonderful work of the age, has been raised to its resting place. This is only one-eighth of the entire bridge, each tube having to be lifted 100 feet above high-water mark. The tube was raised by two Bramah presses, which thus, by two half-inch columns of water, raised a weight of 1,321½ tons 100 feet high. Such are the splendid results of engineering skill. This bridge is made of two parallel lines of tubes for two tracks of the railway. The bridge will be nearly a mile in length. We will endeavor to give a more full and complete description of this undertaking at some other time.

Invention to Detach Horses from Carriages.

Mr. J. M. Ewing, of Piqua, O., has made an improvement to detach horses when they become unmanageable, from carriages, which appears to be worthy of attention. It consists of a means of instantly locking the fore axle-tree, so that there is no danger of the wheels turning under the bed and upsetting the carriage, and at the same time locking both hind wheels. With this invention applied to a carriage, horses may be detached while going down a steep hill, and the vehicle brought to a firm stand without a passenger rising from his seat.

The Steamboats and Wheeling Bridge.

Some of the largest steamers on the Ohio river are arranging their chimneys so that they can be lowered in the time of the highest water to go under the great Wheeling bridge. The chimneys of the steamer Telegraph, No. 2, are the largest on the river, being about eighty feet in height, and weighing eight tons. Her captain, Mason, has an invention of his own for lowering them in ten minutes, by means of derricks.

Improved Matching Machine.

Mr. Robt. Kittle, of Dansville, Livingston Co., N. Y., has invented a new and useful improvement in machines for matching boards. One of his machines can tongue and groove 3000 feet of stuff in one hour, and do its work well.

At the present pitch of water, in the Connecticut river, the sheet passing over the dam, at the New City of Hadley, measures 18 inches in depth, at the point of this fall. This sheet, one thousand feet long, clearing the lip of the dam at a graceful leap, presents a very beautiful appearance.