RECENT INVENTIONS.

Novel Transplanter.

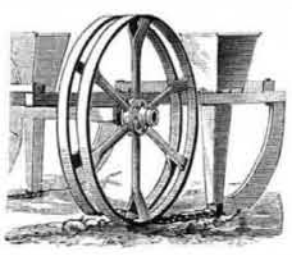
This invention consists of a pair of concavo-convex plates of nearly semi-cylindrical form at one end, but narrower at the other, pivoted together by strap ears near about the middle of the edges of said plates to enable them to be extended and contracted at the respective ends, said plates being provided with a latch device, to secure the ends which enter the ground in the contracted position for raising the plants together with the necessary surrounding earth, the parts being detachable and adjustable at the pivot joints to adapt the device to the size of the plant, and to enable the parts to be applied separately to the plants when necessary for the protection of the branches, and afterward connected to raise the plant together with the earth surrounding its roots. This invention has been patented by Mr. William Spitznass, of New Athens, Ill.

New Nut Lock.

This nut lock consists in a straight metal spring arranged within a longitudinal groove in the bolt, and engaging at its free end with a recess in the outer face or back of the nut to hold the spring from flying too far outward, and to act as a catch or stop to the nut to arrest it from being worked off the bolt. The spring is secured to the screw-threaded end of the bolt by bending it at its outer end to lie within a cross groove in the end of the bolt, and riveting the grooved end of the bolt over the bent end of the spring. The nut may be removed after depressing the spring, but it cannot be loosened accidentally. The spring offers no appreciable resistance to the movement of the nut. The nut lock is particularly adapted to fastening carriage tongues and shafts, and it may be used in other places where an ordinary bolt would jar out. The invention has been patented by Mr. John J. Waddill, of Montgomery, Ala.

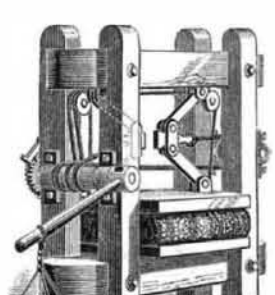
New Corn Planter.

This invention consists of a wheel for corn planters, having a groove or space in the center of the tire to aid in covering the grain and leave along the line in which the corn is dropped a ridge of earth unpacked by the wheel, to avoid the hard crust of earth which is formed over the seed by the rain and sun, when the wheel treads and presses down the earth the whole breadth of its tread along the line in which the corn is planted. Such a crust is very injurious to the young plants, offering a resistance to the growth, sometimes making it necessary to go over the field and break up the crusts with hoes to enable the corn sprouts to come up. The wheel has two narrow tires of iron mounted on branch spokes, the tires being placed a little distance apart, and having the inner edges turned inward or toward the hub to leave a narrow ridge of soft earth with sloping sides that will shed the rain well This invention has been patented by Mr. J. McDaniel, of New Hampshire, O.



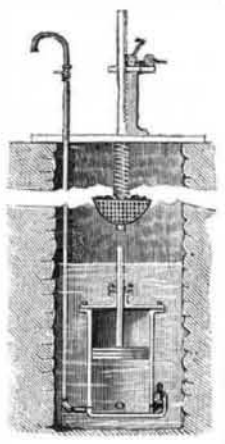
Power Press.

The engraving shows an improved power press recently patented by Mr. P. Morgan, of Hazelton, Mich. The frame of the press is composed of the upper beam, and the lower beam or platen, and two pairs of bars, which tie the beams together. The follower of the press is placed between the vertical bars, and may be moved downward with great power, straightening out the toggle levers that are pivoted to it and to the beam above. The toggle levers are operated by means of the winding shaft journaled at the outside of the vertical bars, and the ropes that are attached to the shaft and to the blocks secured between the plates (four in number), that join together the adjacent ends of the parts of the toggle levers. The rope before reaching the shaft is passed over a pulley journaled in suitable blocks attached to the outside of the frame, so that it will give the proper outward movement to the toggle lever farthest from the windlass. The shaft of the windlass is provided with a ratchet and pawl to prevent retrograde movement. This press is adapted to a large variety of uses, is very simple and powerful, and is quickly and easily operated, and by attaching a weight to the lever, as shown in the engraving, the press is adapted to exert a continual pressure, thus making the press particularly adapted for pressing cheese.



Improved Pump.

Messrs. William R. Smith and Neil H. Bigger, of Bentonville, Ark., have recently patented an improved pump, which is shown in our engraving. The cylinder is made large to contain a sufficient supply of water in a charge for the supply of the user for a time, and is placed upright in the cistern or well, or sufficiently near the water for suction, and is provided with suction valves, and a delivery pipe at the bottom. The piston has a rod extending up through the top of the well, and has a toothed rack on the upper part, moved by a pinion operated by a crank. By this means the piston, with the weights placed in the basket on the piston rod, is raised and the spring on the rod is compressed, so that when the pinion is disengaged from the rack on the piston rod, the piston will be forced down by the combined action of the weights and spring, and cause the discharge of the water out of the vertical pipe, the weights and spring (one or both) being employed to expel the water as it is wanted out of the pipe, the amount allowed to escape being controlled by a cock. With a pumping device of this kind water may be supplied to circulating pipes, basins, and tubs throughout a house, thus saving the expensive construction of an overhead cistern.



AMONG the numerous fire escape inventions, one recently patented is being exhibited in Brooklyn in a practical manner. The invention consists of a cast iron box placed beneath the window in the recess, or on the roof, and when in place is secured by two iron bars passing across the width of the box near the top and bottom, firmly embedded in the front walls of the building within the recess. When placed on the roof a brick foundation is carried up from the top of the front wall, and on the top the box is set and held in place by anchor chains and bars attached to the two cross bars and are anchored in the copings on either side. To this upper iron bar is attached a flexible iron ladder of sufficient length when suspended to reach the sidewalk, and when not in use is snugly laid link over link in the box, wholly out of sight. Messrs. Thos. D. Mosscrop and W. H. Barker have an operative model of large proportions on exhibition at their office, No. 9 Willoughby Street. The Building Commissioners, Fire Department, and a number of insurance officials have examined the working of the apparatus, and approve of it. The apparatus not only affords a means of escape for the inmates of a burning building, but is an auxiliary aid to the firemen in extinguishing a fire.

Electricity in Mills.

The Boston *Advertiser* describes a very simple means for obviating the trouble and danger caused by the friction of machinery belts. Under the direction of Mr. Edward Atkinson, President of the Boston Manufacturers' Insurance Company, Mr. F. W. Whiting, a clerk in the latter company, has conducted a number of experiments, and has finally, according to the *Advertiser*, hit upon a simple plan for escaping the difficulty mentioned by the generating of electricity in cotton and woolen mills by the friction of the belts on the pulleys.

This electricity, being carried into the spinning machines, affects the cotton, especially if it is in a loose condition, before it is warped, and causes it to fly apart and stick to all portions of the machinery, thus causing an immense amount of trouble. In printing presses, also, where the roll paper is used, passing rapidly over the rollers in a semi-dry condition, unless the press is on a foundation in direct communication with the earth, so that the electricity can escape, there is so much electricity collected in the paper in a short time that it flies off the rollers and becomes entangled in the press; and in the case of flour mills, in addition to many other troubles, there is the danger of setting fire to the floating mass of finely powdered flour, which, acting as a kind of conductor, draws the electricity from the belting and causes an explosion. The electricity, being generated by friction, is static electricity, which is of great potentiality, and, therefore, dangerous to the life of an employe if the machinery is accidentally touched when highly charged. When Mr. Whiting first began his experiments at the Armory Mill, at Manchester, N. H., he found that the principal belt, which made 400 revolutions per minute, generated so much electricity that when the oiler attempted to oil the machinery he was almost paralyzed. Strange as it may appear, it only required the application of a very simple principle of electricity to remedy the entire evil. The earth is the great reservoir of electricity, and whenever there are proper conductors the current finds its way by the shortest path to the ground. Going into the carding room, Mr. Whiting attached a wire to one of the carding machines and carried the other end to the gas pipe, to which it was fastened. Instantly all the trouble ceased, much to the delight of that gentleman. While this probably would have been sufficient, he thought it best to draw off the electricity as rapidly as it was generated, without its passing through the carding machine; therefore he brought a rod of iron down from the ceiling to within a few inches of the belting, the upper part of the iron rod being connected with the gas or water pipes by a wire. At the lower end of his rod he fastened a brass bar, to which were attached a number of brass knobs, each an inch apart, they being brought up almost in contact with the belting. As fast as the electricity was formed most of it passed through these knobs, and thus through the iron rod, wire, and water pipes harmlessly to the ground; and what little did not do so, after being transmitted through the machinery, passed through the first mentioned wire. Thus, with two ground wires, all the electricity was got rid of, and the serious difficulties it occasioned were obviated. No patents will be asked for on the discovery, and it is expected all cotton and other mills will soon take advantage of it.

The French Cocoon Crop.

It is very satisfactory to find that sericulture in France has very much revived within the last year or two, and bids fair to again become a great French industry, which many circumstances, both primary and secondary, had most unfavorably affected. The principal of these was the competition entered into by Japan, as a seller and reeler of raw silk, in which great progress was made by the introduction of European systems and apparatus. Italy also entered largely into the field, the Italian reelers having built *filatures* which were better and more economically worked than those possessed by the French. The Lyons manufacturers helped the downward movement by selling goods made from Eastern silks in figured patterns instead of the plainer but more solid fabrics which had hitherto been in fashion; but the *coup de grâce* was give to sericulture by the breaking out of the silkworm disease, due in all probability to lack of care and the endeavor of the growers to produce too much. Overcrowding and want of ventilation had been rife for a long time, so that when the disease commenced the worms were swept away by millions, and the trade was nearly exterminated.

Fortunately for France and her silk producers, M. Pasteur's researches into the causes and remedies of the disease have borne good fruit, he having invented a method for the examination of the moths, by which it is possible to preserve the sound eggs and to detect and destroy all those which are infected. During 1880–81 there was a marked improvement in the strength and character of the worms, the chief difficulty then being to get sufficient food for them, as the great majority of the mulberry trees had been neglected, and in many cases pulled up for firewood. During the year which has just passed the difficulties appear to have been surmounted, the "pebrine" and "flachrie," the technical names for the diseases, have very greatly diminished, and France has again become an exporter of cocoons. The *filatures*, which have been professedly unequal to their work, are now being renewed and enlarged, though it is not so easy to obtain the services of the trained *fileuses*, who, in consequence of the failure of the industry, had betaken themselves to other occupations.

New Fining Agents.

Isinglass and the gelatine derived from the skins of fish are the materials usually used in the clarification of beer and wine, and it would be difficult to find better fining agents, but the best qualities of isinglass are very expensive. From time to time vegetable products have been recommended as substitutes for isinglass, and of these several species of algæ, such as carrageen, or Irish moss, are best known. Many nuts and seeds are known to possess great clarifying properties. The clearing nut used by the Hindoos to clarify muddy water is the dried ripe seed of the shrub *Strychnos potatorum*, and possesses wonderful fining properties; it is said that if an earthen vessel be simply rubbed on the inside with one of these nuts, the muddiest water is almost immediately clarified. A fatal objection to the use of these nuts for clarifying a beverage like beer is that they are derived from a plant belonging to a natural order including some of the most virulent poisons known, and, therefore, if not actually poisonous themselves, their use would be attended with considerable prejudice Lately, the kola nut has been suggested as a new clarifying agent; this nut is the seed of the *Sterculia acuminata*, and was introduced into this country a few years ago by Mr. Thomas Christy, F.L.S., who claims for it properties equal to either coffee or cocoa. These nuts contain a considerable quantity of mucilage, which is said to have a very remarkable power of quickly and completely clarifying fermented liquors. The kola nut is not poisonous, but is said to be an infallible remedy for intoxication; so that even teetotalers cannot raise any objection to its being used in the clarification of beer.—*Brewers' Guardian.*