

RECENT AMERICAN PATENTS.

The following are some of the most important improvements for which Letters Patent were issued from the United States Patent Office last week; the claims may be found in the official list:—

**Raking Apparatus for Harvesters.**—This invention relates to a new and improved raking device for harvesters of that class in which a rake is attached to an endless belt or chain. The object of the invention is to obtain a raking device of the class specified which will discharge the cut grain from the platform in a perfect manner, and from either the side or rear of the platform, according to the position in which the working parts are placed; the parts being so arranged as to cause the rake, while performing its work, to present itself properly to the cut grain while passing over the platform and to discharge the grain properly therefrom; the speed of the rake being also rendered capable of being varied or modified as occasion may require. I. C. Crane, of Edgerton, Ohio, is the inventor of this improvement.

**Nail Plate Feeder.**—This invention consists in certain novel means of drawing back the tongs, or their equivalent, which hold the plates, between the successive cutting operations; also in certain novel means of holding back the tongs after they have been drawn back and until the proper time for moving them forward; also in certain novel means of liberating the tongs to allow them to be moved forward by the weight or other means employed for the purpose, after the turning has been completed; and, further, in certain novel means of operating the tongs to make them raise and lower the plate during the turning operation. P. S. Bradford, of Bridgewater, Mass., is the inventor of this improvement.

**Apparatus for Bleaching.**—The object of this invention is to pass the fabric to be bleached through a series of vats containing the various liquors used in bleaching and to keep said fabric in each vat sufficiently long to enable the liquid to produce the desired effect, without interrupting or stopping the motion of the fabric through the apparatus. In order to obtain this object, each vat is divided in two or more chambers or compartments and the fabric is caused to arrange itself in each compartment in a serpentine pile of more or less layers, according to the time it is desired to retain the fabric in each compartment or vat; and as the fabric passes through the apparatus, the lowest layers of each pile are drawn out from the bottom, while, at the same time, fresh layers are formed on the top, and the motion of the fabric can thus be continued without interruption and still each portion of the cloth remains in each vat long enough to enable the various bleaching liquors to produce the desired effect. Jeremiah Meyer, of Bay Ridge, N. Y., is the inventor of this improvement.

**Evaporating Liquids.**—This invention relates to an improvement in that class of evaporators of which a series of disks are employed which rotate in a pan heated with steam or any other means, and which take up a portion of the liquid contained in said pan and by spreading it over a large surface facilitate the evaporation. The invention consists in the employment of annular rims supported by two or more arms and secured by means of these arms to a rotary shaft which has its bearings in the ends of the pan containing the liquid to be evaporated, in such a manner that on rotating said rims a portion of the liquid in the pan is taken up and caused to drip down through the open space in the center of each rim, where it comes in contact with a current of air passing or being passed through said open spaces, and by this means the operation of evaporating the liquid is considerably facilitated. Thomas Oxnard, of Marseilles, France, is the inventor of this improvement.

General Grant.

A clergyman writes from the army of the Potomac of an interview with Lieutenant-General Grant, whom he met sitting in a once elegant mansion, with a New York paper in his hand, quietly enjoying his cigar:—“Like every one else who meets him, we were charmed with his quiet, modest simplicity and manly bearing. He is a low-voiced, diffident man, with fair skin and brown hair—looks younger even than Fremont, and talks slowly, like one used to keeping his own secrets. He says he ‘never had even a headache.’ God

grant he may have no headache during the coming eventful month! When I rallied him pleasantly about the traditional ‘cigar,’ which he used as Napoleon did the snuff-box, he smilingly replied, ‘When the war is over, I am going to give it up.’ He has the most unbounded confidence of the troops; in every tent we hear the same spontaneous testimony.”

WINTERS' CARD RACK.

This useful device is intended to receive business cards, and hold them so that while they may be easily withdrawn by hand when required, they are not liable to be scattered about if the case should fall from its support, or be blown out by the wind when in exposed situations. The case, A, is constructed of sheet metal in one piece, thus making it much cheaper to manufacture. The spring, B, which strikes against the cards, is bent up after the form of

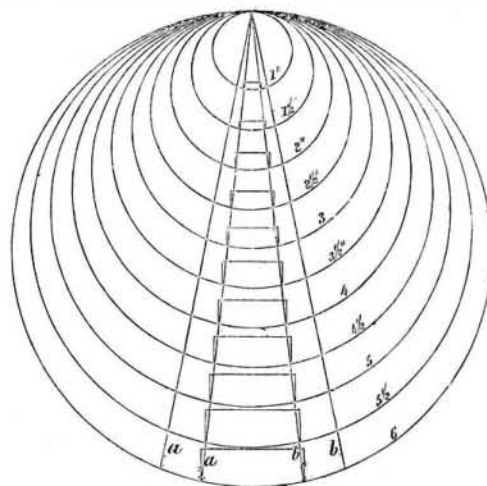


the case is struck out; so also are the small lugs or guides, C, at the side, and the bottom, D, which the cards rest upon. In this arrangement of the several parts, and the general details, a neat and convenient receptacle for business cards is furnished which can be sold at a low price, and will answer the purpose admirably.

A patent is now pending on this invention through the Scientific American Patent Agency; for further information address William Winters, 805 Washington street, San Francisco, Cal.

SIZES FOR KEY SEATS.

Mr. William Edward Davies of Jersey City, N. J., sends us a diagram of a convenient plan for the sizes of key seats. It should be engraved on a brass plate and kept by the foreman or tool keeper so that the workmen may have access to it. Our mechanical



readers will understand the diagram without any explanation from us. The lines from a to a, represent the depth of the key-seat for wrought iron which in the largest size shown in the diagram is  $\frac{1}{2}$  inch in depth for  $1\frac{1}{2}$  inches in width for wrought iron, and  $\frac{1}{16}$  by  $1\frac{1}{4}$  for cast-iron. These latter sizes are

shown at b b. The dimensions of the shafts are shown by the figures at the right. We are always pleased to receive suggestions and plans for expediting work; if our readers would only impress upon the minds of every one interested in the subject the great need which exists for a standard pitch for different sizes of screw bolts and their nuts, they would do a great deal towards inaugurating a reform in the matter.

A Delicate Investigation.

Pliny Earle Chase, of Philadelphia, recently read a paper before the American Philosophical Society—*On the Barometer as an Indicator of the Earth's Rotation and the Sun's Distance.* He says:—

“On account of the combined effects of the earth's rotation and revolution, each particle of air has a velocity in the direction of its orbit, varying at the equator from about 65,000 miles per hour, at noon, to 67,000 miles per hour at midnight. From 0h. to 6h. the air has a forward motion greater than that of the earth, so that it tends to fly away; its pressure is therefore diminished, and the mercury falls. From 6h. to 12h. the earth's motion is greatest; it therefore presses against the lagging air, and the barometer rises. From 12h. to 18h. the earth moves away from the air, and the barometer falls; while from 18h. to 24h. the increasing velocity of the air urges it against the earth, and the barometer rises.”

From the relation of these forces to the power of gravitation, he calculates what should be the daily changes in the height of the barometer, and the results are found to correspond very closely with the changes in the barometer at St. Helena, the point nearest the equator where a long series of barometric observations have been made. From these changes in the barometric pressure he also computes the distance of the sun from the earth, and obtains results agreeing pretty nearly with those obtained by the most approved of other methods.

The Philadelphia Boiler Explosion.

In a further examination into the causes of the disaster at Cornelius & Baker's factory, Mr. Orr, the maker of the boiler in question, testified that he had used the available matter of an old boiler belonging to the firm. He gave some curious information concerning boiler iron. It appears from his testimony that the charcoal-hammered iron, as made three years ago, is so much superior to that now made, that the sound material of an old boiler of that date is better than most of the new iron of to-day. Before using the old iron in question every square inch of it was tested. It was as tough and sound as when it was new. Mr. Orr considered those parts of it to be the very best in the boiler. As to the other parts of the boiler where corrosion had taken place, Mr. Orr expressed the opinion that an engineer should have known of their existence by examining the boiler from the inside. He had seen boilers that corroded in two years as badly as the one in question, but the engineer should have known all about it by personal examination.

BREECH-LOADERS AND THE BAYONET.

When infantry are generally armed with breech-loading rifles, as they are doubtless destined to be, there will be an end of bayonet charges, except upon cavalry and artillery. For a regiment or brigade thus armed could pour forth such a constant sheet of bullets that they would destroy any force charging upon them with the bayonet.

Had Grant's army been furnished with breech-loaders a year ago, and drilled in their use to the present time, can there be any doubt that they would sweep away Lee's army in the first attack?

The opinion appears to be gaining ground in England that submarine cables should be made of the lightest material. A copper wire with a Manilla hemp insulator is now recommended as the lightest and strongest, yet is heavy enough to sink. The Red Sea and Algiers cables are said to have been destroyed by their own weight.

Compositions of zinc and copper can be made so hard that they will cut steel and stand well for tools. We have seen a good workman two days in getting a  $1\frac{1}{2}$ -inch hole through a brass bell.

A FRENCH nobleman in search of a new sensation had his yacht transported to the Dead Sea on camel-back, and is now sailing on the salt.