

## New Inventions.

## Machinery for Making Spikes.

The manufacture of cut nails and spikes by machinery in our country, is of great importance on account of its present and fast-increasing magnitude. We believe that the honor of constructing the first machine for cutting nails belongs to America, and extends as far back as the days of the Revolution. Since that time great improvements have been made, and owing to the vast amount of nails which our people require for building, &c., we believe that more cut nails are used in the United States than in all other countries put together. Cut nails are clipped or cut out from metal plates by reciprocating knives, and are not made tapering. The machinery referred to in the above caption is for making square nails, or spikes, tapered on all sides and drawn to a point, and for which a patent was granted to John Wootton, of Boonton, N. J., on the 29th of last month. Hitherto, such formed nails or spikes have been made with one set of die rolls, and in general have not been perfect in form, the sides being feathered. In the improved machine there are two sets of die rolls; the one set forms the spike with its taper, and the other set takes it from the first and finishes it, smooth and tapering. Every improvement in the manufacture of spikes is of great importance to our country.

## Perry's Breech Loading Rifle.

The annexed engravings represent the breech-loading fire arm of A. D. Perry, which is now manufactured by the Perry Patent Fire Arm Co., Newark, N. J. Figure 1 is a side elevation; fig. 2 is a vertical longitudinal section, and fig. 3 is a section of the capping tube.

The peculiarity of the breech-loading fire arm consists in the combination of a vibratory charge holder, A, working on an arbor in a socket, and moving in a circle; a magazine or tube in the breech for fifty percussion caps, a piercing cone, *f*, in connection with the exploding nipple, which introduces the fire to the center of the cartridge, giving instant explosion thereto; and also of a tube, *a*, forming an adjustable gas joint with the barrel, and so arranged as to be self-cleaning in the joint, which prevents any obstruction by rapid firing; all combined so as to introduce each charge separately and without breaking the cartridge, at the same time placing a single cap, as required, on the nipple.

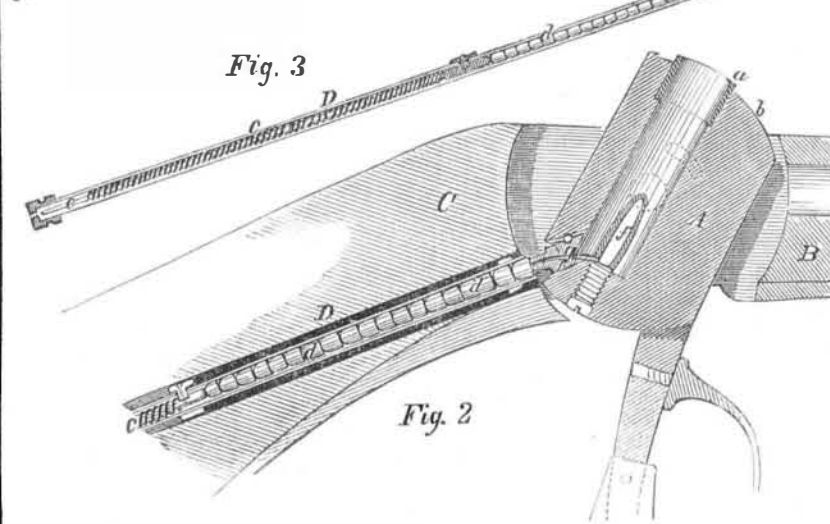
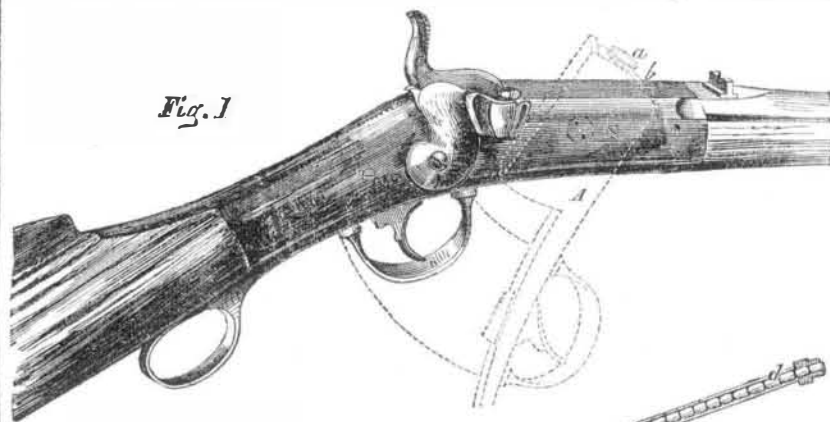
A is the swinging charge holder; it moves in a circle, being hung on pivots, as shown in figure 1, so as to swing up, to load, as shown by the dotted lines, and also to be swung in place for firing by a lever. B is the barrel; C is the stock, and D is the cap tube, which is filled with caps, *d*. The charge chamber has a small muzzle tube or thimble, *a*, on its outer end, and a piercing cone, *f*, on its inner end. This piercing cone has a hole through its center, in communication with the orifice of the cap nipple, *g*. The charge holder is now in position, fig. 2, to be loaded, the cartridge is pushed down so that the cone, *f*, pierces and runs up into it. It will therefore be observed, that when the cap is struck the charge will be ignited at the center, and the powder will burn in all directions, igniting all the grains of powder before the ball leaves the muzzle. This is stated to be one reason of the superior force of the ball projected by this fire arm.

The cap tube, D, has a coiled spring, *c*, secured on a small spindle, *e*, and it can be drawn out and filled with the caps, *d*, during which operation a small catch on the end of the spring is held in a notch in the tube, (after the spring is forced down) to allow the caps to enter, and then the tube is pushed into its recess in the stock, C, and the small catch on the back end of said tube, is buttoned to the stock plate. The coiled spring, *c*, continually presses the caps forward, but it is only when the nipple, *g*, is brought down to the position shown, that a cap can be thrust on it, and out of its tube. It is therefore a very safe loading fire arm. By turn-

ing the spindle, *e*, to the one side, (it projects out of the tube when the spring is pushed down) the catch that holds back the spring, *c*, is released, and its tension is exerted to feed forward the caps.

The thimble, *a*, on the outer end of the charge chamber, makes a tight gas joint with the butt end of the barrel, B. The edges alone of this thimble (forming the end of charge chamber) fit close against the barrel, and not the whole ball joint of A. The scurf

formed by the burning of the powder is rubbed off the edges of the barrel, *a*, every time the swinging holder is turned up, so that the joint is always kept clean. A small space *b*, around the charge thimble, receives the scurf and black scale of the powder, and it is blown out by a small hole on each side, and one at the bottom. This allows the vibratory holder to be always moved with great ease, and prevents it from binding. The charge chamber is a little larger than the bore of the

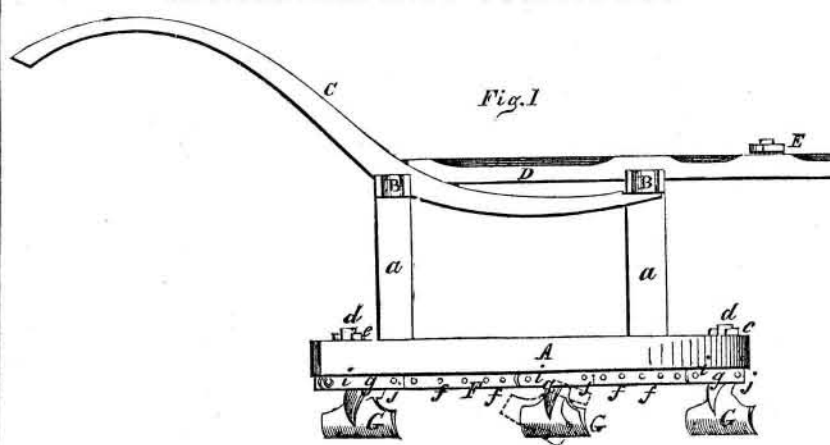


barrel, so as to prevent windage, and give the same advantage as the Minie ball does to muzzle loaders. It can also be charged with powder and patch, and no cartridge used, if desired, as this breech chamber is loaded like a common shot gun. We are assured by the Company, that this rifle possesses "one-third greater penetrating power, with one sixth less powder than any muzzle loading one.— A ball fired from this rifle has penetrated through a target composed of 18 pine boards

—each one inch thick, and an inch apart—at a distance of eighty yards." It has been tested by a board of officers at Washington, and a number are recommended to be put into the service immediately. A patent was obtained in 1849, and application has recently been made to secure another for it as improved.

More information may be obtained by letter addressed to "The Perry Fire Arm Co.," Newark, N. J.

## LICHTENTHALER'S CULTIVATOR.



The annexed engraving is a side view of a Cultivator, for which a patent was granted to Griffith Lichtenthaler, of Limestoneville, Pa., on the 26th of July last. The nature of the improvement in this cultivator consists in the peculiar manner of attaching the shares to the beams, whereby they (the shares) may be readily adjusted in position, and also allowed to yield to any obstructions with which they may come in contact.

There are two beams, A, secured in an oblique position by cross ties, B B, which are attached to uprights, *a*, on the beams. The oblique position of the beams gives the usual triangular or harrow-shape, the front ends of the beams being nearer together than the back ends. C are the handles or stilts attached to the cross ties, and D is a reach secured to the cross ties, and having a swivel

tree, B, attached to its outer end. In the under surface of each beam, A, there is a longitudinal groove or recess, in which a metallic strip, F, is fitted and secured therein by wedges or keys, *c*, which pass through projections, *d*. The projections pass upward from the strips, F, through the beams, A, the wedges or keys, being driven through eyes in the projections above the beams. Each strip is perforated with holes, *f*, as shown. The shares are represented by G. Each share has a socket formed by two lips, *g g*. The sockets are at the upper ends of the shares, and have holes through them. The shares, G, are secured to the beams, A, by placing the lips, *g g*, in the recesses, the strip, F, fitting between the lips, and inserting a metal pivot or pin, *i*, through the hindermost holes of the lips, and through a corresponding hole *f*, in

the strip. Wooden pins, *j*, are passed through the front holes of the lips, and through corresponding holes, *f*, in the strips. The body of the shares are set nearly at right angles with the beams, A A, and the dirt is thrown by the shares, as the machine is moved along, towards the center of the machine. In case of the shares meeting with any obstruction, such as a root, stump, stone, etc., the pins, *i*, being formed of wood, will break, and the shares, G, will turn backward, the metal pins, *i*, being the fulcrum or pivots (see dotted lines, the pin of one share being broken), and the share forced back. By this arrangement the machine is prevented from being broken, or any of its parts wrenched by sudden stoppages arising from obstructions. The shares by means of the sockets at their upper ends, and the perforated strips, F, may be readily adjusted to the beams. Shares of different forms may also be applied with the same facility, provided they have the sockets at their upper ends.

More information may be obtained by letter addressed to the patentee.

## Hutchinson's Stave Machine.

Among the machines recently received at the "Crystal Palace," we have been specially pleased with C. B. Hutchinson's Stave Jointer, which, with its latest improvements, seems to combine all the requisites of a good jointer. It works very rapidly, and at the same time with mathematical accuracy, adapting itself to any width of stave, giving the bilge in exact proportion to the width, and making a perfect joint for any description of work. The stave is not bent, but simply laid on an endless chain bed-plate, and carried between the saws or cutters. We shall give an illustrated description as soon as the cuts can be prepared.

## Grain Separators.

Although many improvements have been made in this class of machines, so useful to our farmers, still many of our people are far from being satisfied with their performances, believing that they are not yet perfect. Joseph Barker, of Honesdale, Pa., has taken measures to secure a patent, for combining a conical hopper and circular inclined screens in a peculiar manner; the grain is made to pass over a very extensive screen surface, and is equally spread in all directions, whereby the impurities are separated from it in a very perfect manner.

## New Fruit Case.

It is not only desirable, but necessary, that fruit which has to be sold in market, if sent from a distance, should be so carefully packed as not to be bruised, otherwise their market value is much depreciated. In order to transport fruit carefully to market, so as to withstand the rough joltings of railroads and wagons, John S. Rood, of Hartford, Conn., has invented and taken measures to secure a patent for an improved case, which consists of a series of triangular boxes, placed together and arranged in tiers, so as to form a many-sided figure, and all enclosed within a case of corresponding form. A tier or row of angular boxes is placed within the case and filled with fruit; another tier is then placed, with the case resting on the first, and filled with fruit, and the succeeding ones in the same manner, until the whole case is filled. It is asserted that even strawberries, raspberries, &c., may be conveyed to market in this case without being in the least bruised or damaged; this much can scarcely be said of the common method of carrying them in baskets.

## Uniting Plates of Metal of Unequal Thickness.

One of the most useful, and what we would call "neat inventions" that we have noticed for a long time, has been made by Jeremiah Carhart, of this city, who is distinguished for the making of melodeons, and consists in a method of uniting plates of metal of unequal thickness in a most rapid and effectual manner. Two plates of metal of unequal thickness are placed together between a punch and a die, the thickest piece next the punch and the thinnest next the die, and pressure is then applied to the punch, which forces a portion of the thickest plate into the thinner one, thus tying them, as it were, both together.