

## NEW INVENTIONS.

## Improvement in Butter Firkins.

Butter firkins, as at present constructed, require to be sawn horizontally through the centre, or the head removed, in order to obtain the butter, which is liable to be injured from the consequent exposure to the air. As an improvement on the above, a new method has been invented by Daniel Minthorn, of Watertown, N. Y., who has taken measures to secure a patent. The firkin is made to consist of two parts, which are connected together by means of a taper flange on the core of the one, which fits into a corresponding recess cut inside the edge of the other, the two parts being kept firmly together with hooks or any other suitable fastening. The great advantage of a firkin of this description is, that small quantities of butter can be taken out when required, and the firkin afterwards closed air-tight, which renders it superior to those of the ordinary construction for family use; moreover, the firkin can be used repeatedly for the same purpose until completely worn out.

## Improved Railroad Switch.

An improved self-acting switch has been invented by James M. Dick, of Buffalo, N. Y., who has taken measures to secure a patent. It consists, in addition to the usual arrangement of two levers projecting upwards a short distance above the rails, which are made to act upon springs, when the car wheels pass over them. The movable rails are, in consequence, drawn or pushed back into the required position, either for communicating with the branch or the direct line, according as may be desired. In case they are in line with either of the branch tracks, and a train is passing along on the direct road in either direction, the movable rails will be brought in line with the rails of the latter, as soon as the wheels depress either of the above-mentioned levers.

## Improved Grain Separator.

Francis King, of Ithaca, N. Y., has taken measures to secure a patent for an improved Grain Separator. In this improvement the grain, before passing into the riddle, is made to fall through an open concave receptacle, composed of thin strips of metal or other material, so as to allow of its more perfect separation before its escape into the former. In the central part of this concave receptacle the separator is made to revolve, and the slots and endless belts are so connected together that there may be no liability of their becoming disconnected when the mechanism is in operation.

## Tonguing and Grooving Machine.

Measures to secure a patent for improvements in the above have been taken by John B. Tarr, of Albany, N. Y. The nature of the improvement consists in the use of a set of cutters, called by the inventor side finishers, which are arranged in any proper manner to suitable stocks in conjunction with the groove and tongue cutters. It being intended by means of the above, to plane the sides of the grooves and tongues, as they are shaped. The advantages of this improvement are, that, by its employment, a better joint may be formed than can be done by the machine now generally used.

## Boring and Mortising Machine.

Measures to secure a patent for improvements in the above have been taken by N. C. Travis, of Canistota, N. Y. The merits of this invention consist in attaching to the same driving shaft both a crank pulley for communicating the reciprocating motion, and also a band wheel to give a rotary motion. Both the pulley and wheel revolve loosely until either operation of mortising or boring is required, when, if the former is wanted, the pulley is thrown into gear by means of a clutch, but if the wood is to be bored, the band wheel is operated by a similar arrangement. Either of these adjustments can be effected whilst the driving shaft is in motion by simply shifting a lever. In cases where hard wood is to be mortised, this plan is peculiarly valuable, as it is necessary to employ, previously, the boring operator, if the chisel is to cut effectually.

## Cutting Barrel Heads.

A machine of the above description has been lately invented by Franklin Fruit, of Jefferson City, Mo., who has taken measures to secure a patent. Barrel heads are formed of several pieces, and these often vary in thickness, hence causing some difficulties in the process of chucking. The inventor has overcome this obstacle by using a chuck of a

peculiar description. It is made of two circular discs with a series of centres placed in a circular form. Each centre is provided with a spiral spring, so that it can yield to accommodate the different thickness of the wood. All persons engaged in this great branch of manufacture will understand that the chuck can be employed in conjunction with the usual shaping and bevelling apparatus.

## IMPROVEMENT IN HAND LOOMS.

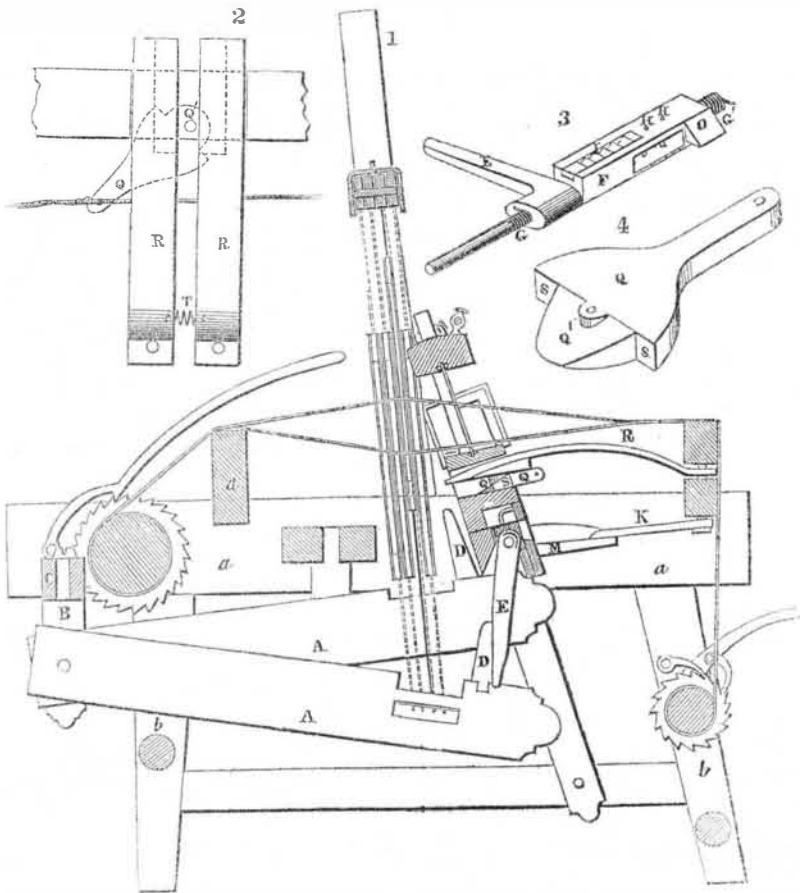
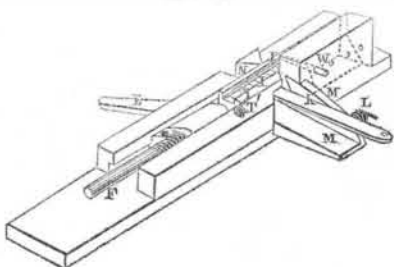


FIG. 2.



The annexed engravings are views of improvements in Hand Looms, invented by Stephen C. Mendenhall, of Richmond, Ind., and Obed King and Ezra King, of Salem, Iowa and for which a patent was granted on the 9th of last November (1852).

Figure 1 is a transverse vertical section, showing the treddle stick depressing one of the heddles to the fullest extent. Figure 2 is a view of the mechanism for effecting the throwing of the shuttle. Fig. 3 is a detached view of the finger shaft and finger, with the springs for recoiling the same. Fig. 4 is a detached view of the picker-staff, showing the double inclined planes upon its end. Figure 5 is a view of the mechanism for effecting a movement of the heddles, detached from the lay and breast beam. Similar letters refer to like parts.

The improvements consist, first, in effecting a movement of any number of heddles, and varying the number of the same by a motion derived from the lay, so as to produce fabrics of two or more leaves with the same loom, without the use of cams and without removing any part of the machinery. Second, in effecting a throwing of the shuttle by an inclined plane action, which operates independently of that for shedding the web.

a are the beams; b the stanchions connected together by the breast beam and other cross ties, which are constructed of such form and size as are suitable to support and sustain the moving portions of the machinery. A are the treddles (which can be varied to any desired number, as we can operate two or more of them at pleasure, and can produce with the same loom fabrics of any number of leaves), swung from behind, instead of from the breast

beam, as usual in hand looms, from the arms, B, projecting down from the treddle tie, C. D are arms secured to the tops of the treddles, which serve as guides and butments of the finger, E, to act against.

The mechanism to operate any number of heddles, and vary the number of the same at pleasure, with the same loom, without the use of cams and without removing any part of the machinery, consists, and may be described as follows:—F is the finger shaft, which is constructed square at one end for part of its length, the remaining part being a round shaft, cut through its square end is a mortise through which pass and are secured a series of pins, H, which correspond in number to the treddles, and serve as butments for the nerves, K, to act against. On the top side of said square end are provided a series of notches, I, which are the same distance apart as the pins, H, but are less in number than the treddles, and suitably suspended on a fulcrum in the beam of the lay is a pawl, J, which falls into said notches, so as to prevent the shaft, F, from moving in one direction, while it is kept from moving in the opposite direction by a spring, G'. Attached to the square end of said shaft is an inclined plane, O. E is the treddle stick or finger which moves freely on the round part of said shaft, but is kept close against the shoulder by a spring, G, which spring also answers the purpose of causing said finger to act gradually upon the butments, D, and assume a position, again, when the lay is on its backward movement to operate against the butment in the same manner when the lay is again on its forward movement. Cut through the beam of the lay is a mortise into which is secured the guide boards, M M', and it is provided with an inclined plane, N; the guide-boards are for the purpose of guiding the nerve, K, into the mortise of the finger shaft, and the inclined plane, N, by its action upon the end of said nerve causes a movement of the finger and shaft at each backward movement of the lay in the following manner:—On the backward movement of the lay, the nerve, K, which is hinged to the under side of the breast beam, and provided with a spring, L, which keeps it close against the side of the board, M', is guided by said boards so as to enter the mor-

tise in said finger shaft, and by acting against the inclined plane, or by the action of the inclined plane upon its end, causes it to force the finger shaft to slide the distance of one of the notches, I, or in position to operate upon the next treddle, thus at each backward movement of the lay, the shaft, F, is moved one notch by the action of the nerve, as described, in which position it is retained by the pawl, J, until the finger has operated a treddle, and the nerve adjusts it again, ready to operate the next treddle. After the number of treddles, to produce the number of sheds required, have been successively operated in this manner, the inclined plane, O, causes the nerve, K, to slide up over it, and under the pawl, J, which releases said shaft, F, and allows it to recoil to the starting point, ready to repeat the same sheds. With this arrangement for effecting a movement of the heddles, it will be seen that to vary the number of heddles to produce any number of sheds of the web, it is only necessary to prescribe the limit to which the finger shaft shall slide or recoil in the lay, and that said shaft can be adjusted so as to operate two or any number of treddles, by simply inserting a pin through holes provided on the lay beam at suitable distances apart for that purpose, as represented in fig. 5, or a bit of wood placed in the mortise in which the shaft slides, so as to check it, will answer the same purpose.

In the action of the treddle stick or finger on the treddles, there is this feature of difference between this arrangement and all other hand looms: the treddles are swung from behind instead of from the front, so that the finger acts upon them at or nearly a right angle, and the leverage can be increased to any extent, whereas, on other looms, where the treddles are swung from the breast beam, the finger acts at a greater angle, and consequently diminishes its power, to effect a movement of the heddles.

The simple device for effecting the throwing of the shuttle backward and forth, when the web is shed by mechanism independent of that for shedding the web, operates upon the principle of the inclined plane. The picker-staff is provided with inclined planes near its fulcrum, which are so arranged with and operated upon by hooks on the breast beam as to produce a very regular and perfect back and forth motion to the shuttle, said hooks being self-acting. Q is the picker-staff, formed with inclined planes, Q', on each side of its fulcrum. This peculiar construction of the picker-staff, in combination with the hooks, R' R, and spring, T, have the effect to raise said hooks alternately clear of the shoulders, S S, on said picker-staff, producing a catching or impinging of said hooks against the shoulders of said picker-staff, on the forward movement of the lay; said hooks are hinged to the breast beam, and have a spring, T, between them, so that they shall have both lateral and vertical play; when the picker-staff is in the position represented, one hook is acting against one of its shoulders, S, while the other hook, which is held close against the round part of said picker-staff, by the action of the spring, T, is forced to slide up the inclined plane, Q', thus clearing the hooks of the shoulders of said picker-staff, alternately, and effecting a sure throwing of the shuttle.

More information may be obtained by letter addressed to Mr. Mendenhall.

## Improvement in Clock Escapement.

David Walker, of Newark, N. J., has taken measures to secure a patent for an improvement in the above. The merit of this improvement lies in the use of springs to regulate the motion of the pallets, and to cause them to catch into the teeth of the "scape wheel." The elasticity of the springs permits them to yield to the pressure of the pallets in case of any departure from the regular movement caused by the catching of the pallets upon the extreme edges of the teeth of the "scape wheel," or by any similar occurrence that tends to raise the pallets more than usual. The advantage gained by this plan is obvious, for the "scape wheel" will be able to continue its motion, and after the obstruction has passed the springs will act upon the pallets as usual.

A new steam ferry boat is to supersede the Troy horse boat.