

NEW INVENTIONS.

New Sewing Machine.

Alexander Tittman, of New York City, has taken measures to secure a patent for a new description of Sewing Machine. In this machine two threads are used to form the stitch, one being in the form of a loop, and the other thread being passed through the whole series of loops, thus preventing them from following the needle when it is withdrawn. The arrangement is very compact, and is well adapted to sew, besides the ordinary sort of work, anything in a circular or endless form. To admit of this variety of sewing the work is placed around the outer circumference of a hollow cylinder, as on a bed, and is moved forward for another stitch by an endless chain revolving inside, which is furnished with a number of points or teeth projecting through a slot that grasps the cloth which is being sewed. On the cylinder are fixed a vertical standard, and slides from which the needle works like wire vertically. This needle has two eyes, one near the point and the other close to the head. Within the cylinder is placed the apparatus for forming the thread (which is carried into the cloth by the needle) into a loop, and then securing the loop by a longitudinal thread. This last-mentioned arrangement consists principally of a circular shuttle (or, rather, the shape is of an oblate spheroid) with one part cut away, so as to form a point, which is used to open a way for the shuttle to pass through the loop. The shuttle has a recess, which contains a bobbin for supplying the longitudinal or lock thread. When the needle is made to descend with its attached thread (which is supplied from a bobbin) it perforates the cloth, and continuing its course, passes through an aperture in the cylinder. Whilst in the act of returning a portion of the thread (which at that moment is rather slack) is caught by the point of the shuttle and extended into the form of a loop. By a novel arrangement, the loop is freed from the shuttle, although the thread from the shuttle bobbin remains within the loop, thus holding it from re-passing the cloth. The work is pressed down in the cylinder by a spring, and is moved at each successive stitch by an endless chain, as before-mentioned, the motion of which is repeated by a ratchet wheel; all of which gearing, as well as the main driving shaft, &c., is contained within the cylinder. We must mention that the proper tension of the vertical thread is maintained by two neatly-contrived fingers, which grasp it until the needle has entered the cloth, when they relinquish the duty to the needle.

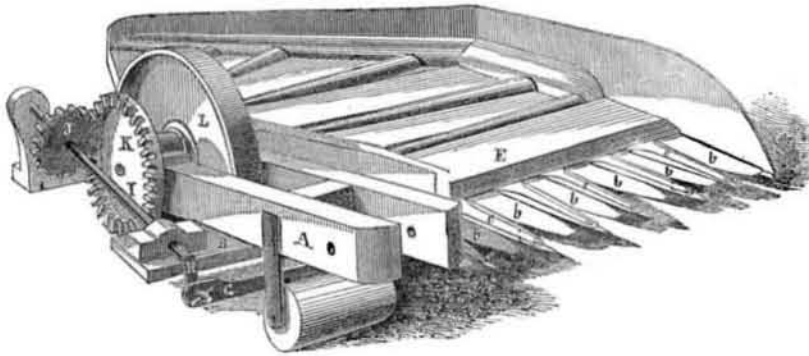
Machine for Bending Carpet-Bag Frames, &c.

Edward L. Gaylord, of Newark, Essex Co., N. J., has taken measures to secure a patent for improvements in machinery for forming Carpet-Bag Frames, and for bending flat metal bars generally, edgewise. By the ordinary method, the outer edges, after bending, do not correspond with each other, and require for that purpose to be hammered to the proper shape. The object of the above improvement is to obviate this defect by bending the outer edges to an exactly corresponding form, so that any unevenness shall be on the inner edge. The machine consists of a flat metal bed, in which are two iron clamps intended to grip the work. These clamps are formed like angle plates, so that the work is compressed both along the flat part of the bar and also along the edge. Each clamp has at one end a lug, which passes through a slot in the table, and is pierced to give a bearing to a shaft carrying an eccentric. Now, as this eccentric is made to bear against the under side of the table by a spring, if the shaft is forced around, the motion of the eccentric compels the clamps to descend. To the other end of each clamp there is firmly attached an adjustable piece of steel, which is rounded at the end, so as to suit the inner curve of the carpet-bag frame. The bending plate is hinged on to the table, so that when the former is impelled upwards, the work is compressed between it and the adjustable pieces of steel already mentioned. The turning point or pivot of the bending plate is in the line of the centre of the arc, in which the bend is to be made, and the plate

is provided with jaws for holding the work. The mechanism, however, will be best described by pointing out the mode of working. The two bars to be bent being previously heated, are placed in the clamps, the parts to be bent resting on the bending plate. The workman, then, by a treadle, causes the clamps to close, and by moving the eccentric they are brought down to the bed, and made to straighten the bars both edgewise and flatwise. The

workman, then, with his disengaged hand, moves a lever which impels the bending plate forward in an arc of a circle, and as its face is parallel (transversely) to that of the bed, the outer edges of the two bars are exactly parallel. There are also several ingenious contrivances to obtain precision and secure an independent motion to each clamp in the direction of the width of the bar, as well as in the mode of regulating the adjustable pieces.

IMPROVEMENT IN GRAIN REAPERS.—Fig. 1.



The annexed engravings represent a grain reaper which has been improved in its cutting arrangement, so as to prevent the teeth from clogging. The inventor is W. G. Huyett, of Williamsburg, Blair Co., Pa., who has taken measures to secure a patent.

Figure 1 is a perspective view of the machine. Figure 2 is a vertical side section of the cutter and shear teeth. The same letters refer to like parts.

There are two sets of cutting teeth, one set being of a triangular form like those on a straight saw blade, and which have a transverse rectilinear motion. The other set have a vibratory motion across and above the saw cutting teeth, and at the heel or inner angles have a quicker motion than at the extremity of the teeth, so as to cut and clear the grain from the corners or angles of the saw blade or cutting teeth, and thus prevent the cutters clogging up. A platform is shown having rollers on it curving round behind the machine, to direct the grain to be laid down on the cut track.

Fig. 2.



A is a strong side brace; there are two of them to support the shaft of wheel, L, and a suspended roller in front of it; K is a cog-wheel on the shaft of L. This cog wheel gears into a pinion, J, on shaft I, and gives the said shaft a rotary motion; G is the arm of the cutting blade; it is secured to the crank, H, of shaft I; E is a broad plate secured to the sides and across the frame, and covers the inner ends of the teeth. It is also attached to the

side bar, B, on which is secured the vibratory rod that operates the upper set of shear teeth; b b are the common saw or cutting teeth; they traverse between the rake teeth, a,—which are the lowest—and the shear teeth, c, which are on the top. The rake teeth, a, are made fast to the frame; the shear teeth, c, are secured by fulcrum pins, e, near the point of the rake teeth. The shear teeth, c, on the top, are also secured at D, figure 2, to a small rod, which has a fulcrum pin passing down through the cross-bar, B, and is attached by another pin to the arm, C, of the teeth (figure 2). When the machine moves forward the crank, H, gives the cutting saw teeth a motion from side to side between the rake teeth, a, and the shear teeth, c, and this cuts the grain in the usual way. The grain is liable to choke up the teeth at the angles, because it is crowded, as it were, into a number of corners; to prevent this the upper set of teeth or blades, c, have a short cross motion contrary to that of the teeth b, and this clears away the grain and prevents the choking up of the teeth. This motion of the upper teeth is a shear cut, and is quicker at the inner ends or roots of the teeth. This is owing to the fulcrum pins, e, being placed near the outer extremities. The small arm which moves the upper shear teeth, c, has a vibratory motion by having its fulcrum pin passing into the bar, B. It is this quick motion at the inner extremities of the teeth which effectually clears them, and prevents them from clogging—a very important consideration.

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

SIGNALS FOR STEAM BOILERS.

Figure 1.

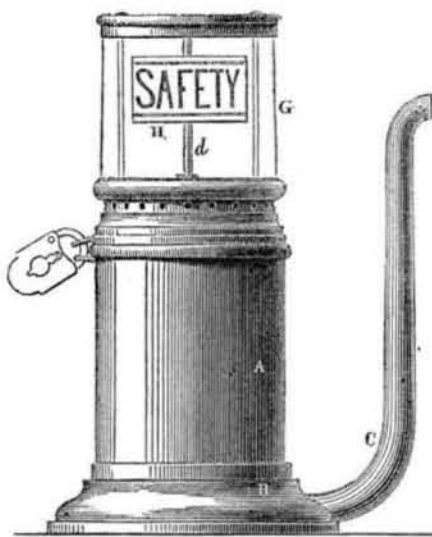
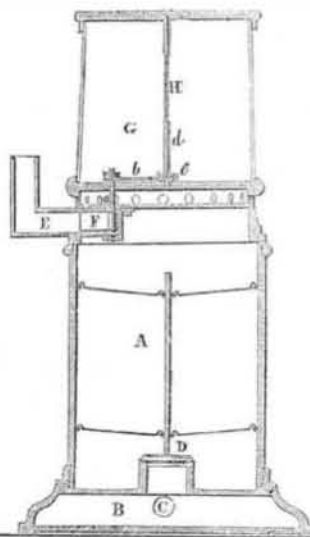


Figure 2.



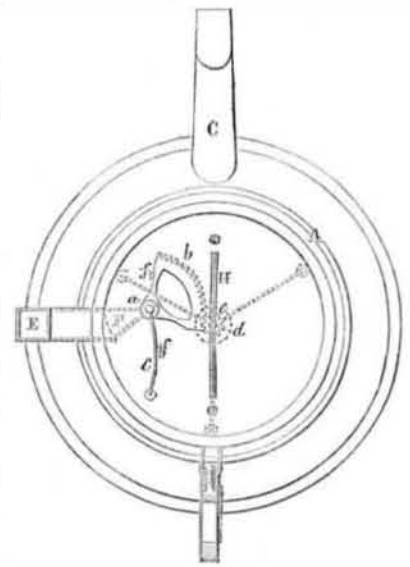
The annexed engravings represent an invention of Signals for steam boilers, for which the inventor, Birdsill Holly, of Seneca Falls, N. Y., has taken measures to secure a patent. Fig. 1 is an elevation of a signal apparatus. Fig. 2 is a vertical section of the same through the centre. Fig. 3 is a plan view of the same with the top or cover removed. The same letters refer to like parts. This invention consists in an indicator inscribed on opposite

faces with suitable words, expressive of safety and danger, and attached to a spindle or pivot, which is made to turn to the extent of half or any suitable portion of a revolution by the opening and closing, or moving of a small swinging gate or valve, or any analogous device, so placed as to be opened or moved to a certain position by the pressure of the steam escaping from the boiler through a safety or other valve, but to be closed or moved to a

different position when no steam escapes to act upon it. When the safety-valve is closed, the indicator is intended to show the side denoting safety, but when open, to show the side denoting danger. The safety-valve is intended to be loaded to the pressure it is considered safe for the boiler to carry, and together with all the operating parts of the apparatus to be locked up, so as to be beyond the control of the engineer. The apparatus is to be placed in a conspicuous position—if on a steamboat, to be within view of the officers and passengers, but to be under the sole control of the Inspector, and will, in case the escape-valve is over-loaded, or otherwise prevented from opening, immediately make known any excess of pressure.

A is a chamber or vessel having a hollow bottom, the space, B, in which is always in communication with the boiler through a pipe, C. D is the safety or escape valve, which opens and closes communication between the space, B, and the inside of the chamber, A; this is loaded by the Inspector or other proper person, nearly to the maximum safe pressure. E is a pipe leading from the chamber, A, to the atmosphere, having the small swinging gate or valve, F (shown in fig. 2, and dotted in fig. 3), at its communication with the chamber. The upper part of the pivot, a, of the gate, F, protrudes through the bottom of the indicator case, G, which is screwed to the top of the chamber, A, and locked, but is movable for the purpose of adjusting the valves. The indicator case is made of glass and darkened on one side, or is otherwise constructed, so that its front or

Fig. 3.



most conspicuous side is transparent. The protruding upper part of the pivot, a, is furnished with a toothed sector, b, and a light spring, c, fig. 3, is applied to it in such a way as to make the gate, F (as shown in fig. 3), close or stand flush with the entrance to the pipe, E, which is the most favorable position for the escaping steam to act upon it. H is the indicator, which consists simply of a card or piece of sheet metal, or other material, secured to a vertical spindle, d, which turns freely in bearings in the top and bottom of the case, G, and carries a pinion, e, gearing with the toothed sector, b. On one side of the indicator is the word "safety," and on the other side "danger;" the former side must always show when the gate, F, is undisturbed.

If the pressure of steam in the boiler ever exceeds the weight on the valve, D, the latter is raised and the chamber, A, instantly filled with steam, which, by its pressure, overcomes the tendency of the light spring, c, to close the gate, F, and opens the same, making the sector, b, turn the pinion, e, half way round, and cause that side of the indicator, on which "danger" is inscribed, to be shown, and to remain visible until the proper pressure is restored, and the valve, D, closed. After the valve, D, is closed, and the steam has escaped from the chamber, A, the gate, F, is closed, and the indicator turned to show its "safety" side by the action of the spring, c. The distance of the indicator is regulated by two small stops, f f, on the bottom of the indicator case, which prevent the sector turning too far in either direction, and cause either signal to be kept in full view.

More information may be obtained of Silsby, Race & Holly, Seneca Falls, N. Y.