

NEW INVENTIONS.

Safety Steam Boiler.

Henry Waterman, of Williamsburgh, L. I., has taken measures to secure a patent for an improved steam boiler. The chief object of this invention is to provide a means of relieving the boiler of dangerous pressure without a great loss of steam and without materially or even at all interrupting its proper operation. This is effected by placing on the top of the boiler a cylindrical vessel which the inventor terms a safety-chamber. The said vessel is separated from communication with the steam in the boiler by a metal plate (copper is preferable) which is sufficiently strong to bear the pressure of the steam up to the maximum that may be desired. But if the steam should exceed that pressure it will cause the plate to tear asunder and the steam will rush into the safety chamber, when the pressure will be at once reduced; and as the inventor proposes to make this chamber with a capacity equal to the amount of steam space in the boiler, the pressure of the steam will be reduced one half. From the fact that the water would be likely to foam up into the safety-chamber as the steam rushes in, another plate of the same strength as the boiler is connected to the before-mentioned safety-plate, the only way by which the steam can pass from the boiler to the under side of the latter being through a small pipe provided with a faucet. Supposing that the steam has rent the safety plate and rushed into the chamber, it then sounds a whistle, which informs the engineer of the occurrence: the pressure being by this time reduced, he closes the communication between the boiler and chamber, allows the steam in the latter to escape, and replaces the torn safety-plate by a new one, for which purpose he is always provided with two or three spare plates.

New Cut-off Gear.

Measures to secure a patent for an improved Cut-off for locomotives have been taken by J. E. Wootten, of Pottsville, Pa. This plan of giving a variable movement to the valve is intended by the inventor to be applied to locomotives and stationary engines. On the rock-shaft are placed two vertical arms, having on them a sliding block formed in two parts and connected by a pin. This block is moved to any desired position along the arms by a screw, which is turned by the engineer with the aid of a ball and socket-joint and two bevel wheels operated by a long shaft. A frame is attached to the valve-rod in which fit two boxes, which also connect with the block-pin. It is evident that the valve travels more or less according to the adjustment of the block, which is not only moved as required by the screw, but is by the same means retained in a firm position. It has been said that a ball and socket-joint are used in the operation of adjusting, but it is apparent that it would not act in the manner proposed were it not for two small projections formed on the ball, and which fit into corresponding recesses in the socket.

Rotary Engine.

Wm. Taylor, of Schenectady, N. Y., has taken measures to secure a patent for an improved Rotary Engine. The arrangement of this engine is as follows: a shaft is placed centrally in a fixed cylinder, and around the hub of this shaft are placed the pistons which are pressed against the inner periphery of a circular collar attached to the cylinder. Through this collar are cut the steam ports or openings, which are as wide as the space between the sides of the pistons. When, therefore, the steam issues through these ports, it impels the pistons, which revolve within the collar, and carry the shaft round in their rotation. The mode of applying the steam is likewise peculiar. Between the outer surface of the collar and the inner surface of the cylinder, is a space which the inventor terms a steam chest, there is a stop placed in it to compel the steam to take the right direction. At each end of the cylinder is a head, which bears steam-tight against the sides of the hub and pistons, over this is another head, which serves to keep the cylinder ends also steam-tight. An excellent plan of packing the pistons, where they touch

the collar, which is done by adjustable wedges, is one of the claims of the inventor.

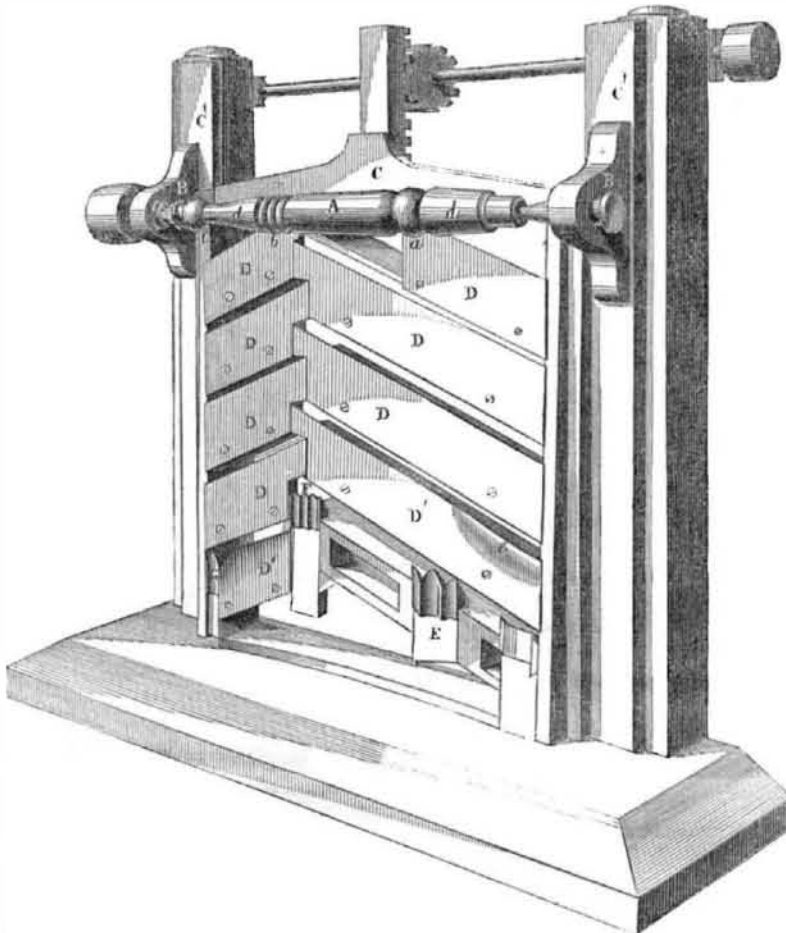
Threshing Machines.

Thomas McClure, of McConnellsville, O., has taken measures to secure a patent for improvements in the above. These are of such a nature as to prevent the grain from being thrown out of or beyond the machine by the force of the threshing cylinder, and to allow of the straw being discharged or drawn from beneath the curve or deflector. This latter being made of a peculiar shape to supersede the ordinary method. The invention likewise consists in a peculiar arrangement of the spouts, by which the grain is perfectly separated from foreign substances.

Improved Straw Cutter.

Measures to secure a patent for an improved Straw Cutter have been taken by Thomas Allison, of Milton, N. Y. The nature of the improvement consists in setting the feed roller obliquely, instead of placing it in a straight line parallel with the cutter. By this means the latter is fed more effectually and less liable to be clogged up than when the feed roller is placed parallel with it. Moreover this obliquely set roller does away with the necessity of placing the knives spirally round the cylinder, thereby obviating the inconvenience that is often experienced in getting to and keeping the spirally arranged knives properly sharpened.

IMPROVEMENTS IN TURNING BEDSTEAD POSTS, TABLE-LEGS, &c.---Fig. 1.



The annexed engravings are views of an improvement in machinery for turning articles of an ornamental character but regular form, either plain or beaded, such as bedstead-posts, table-legs, pianoforte-legs, chair stuff, &c. The inventor is Milton Roberts, of South Levant, Penobscot Co., Me., who has taken measures to secure a patent.

Figure 1 is a front view of the improvement applied to a turning lathe. Figure 2 is a top

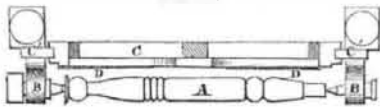
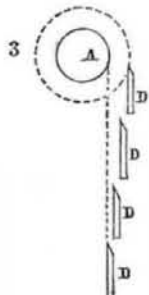


FIG. 2.



or plan view of fig. 1, and figure 3 is an end view, showing the stick to be turned with knives and cutters. The same letters refer to like parts on all the figures.

A, in figs. 1 and 2 represents a table-leg, or such-like article, it is centred between the two heads, B B, of an ordinary lathe, and receives a rotary motion by common gearing; C is a rectangular sliding frame, which works up and down in the guides, C' C', which are attached firmly to the lathe bed. D represents a series of knives or cutters placed within the sliding frame, C, in an inclined position. There are two sets of knives in the frame, the

one set being longer than the other, and made to join. By this arrangement they act with a shaving cut when the sliding frame is moved up and down by a rapid motion. The inner ends of both sets of knives incline upwards, and are also a little further from the stock than the outer ends; this makes them act obliquely on the grain of the wood, consequently they make smooth work of it. The two upper knives are placed out in the frame further from the wood than the other knives, and the knives below are set gradually nearer the wood, so that the rough is taken off by the first, and each knife is set in its place to approximate to and finish the stick to be turned, at the end of a stroke. The knives, therefore, have three distinct positions in reference to the horizontal stick, A; first, they are inclined; second, their inner ends are placed out of line with their outer ends; third, they are set in proportion one above the other at a greater and less distance from the stick. E F are tools to make beads and knobs on the stick; they are secured on the lower part of the sliding frame, they are for cutting the beads, &c., on the stick. This stick is represented as finished, the tool, E, cuts the bead, a; the one F the beading, b, and the one G the knob and bead, c. These tools are made of such a form as to cut the desired pattern of beading, &c.; each pattern must have a tool expressly made to cut it out, or the tools may be made in sections, and these joined by screws, so as to change them and make a variety of patterns by the same set of tools.

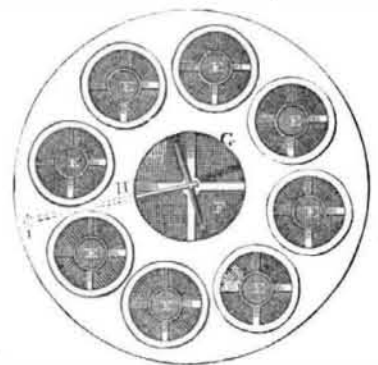
The lowest set of cutters are so shaped as to cut the general parts of the stick the required form. The two ends, d d, of the stick, A, are tapered, this has been done by the lowest knives, D', which are set at e, so as to form the said tapers.

Supposing the stick, A, to be rough and to

receive a rotary motion by the live spindle set in motion, it is evident when the knife-sliding frame, with all the cutters, is drawn upwards, that the said stick will be cut or shaped by the knives into the form represented. The improvement is a simple and very desirable arrangement of machinery.

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

Improved Locomotive Spark Arrester. FIG. 1.

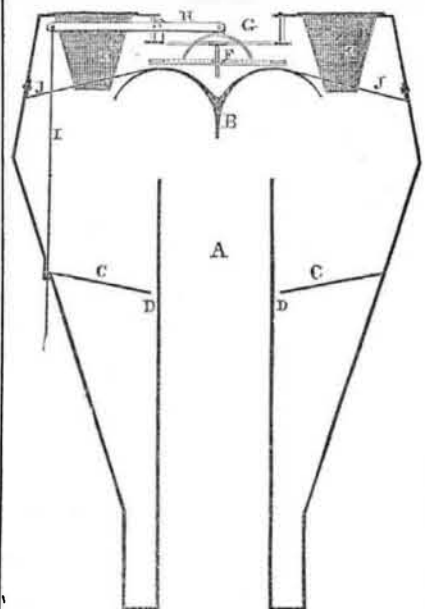


The annexed engravings are views of an improvement in Spark Arresters, invented by Samuel Sweet, of New York City, who has taken measures to secure a patent.

Figure 1 is a plan view, and fig. 2 is a vertical section. The same letters refer to like parts.

The superiority of this spark arrester over most others, consists in placing a deflector, B, strengthened by braces, J J, over the top of the smoke-pipe, with a partition, C, near the centre of the outer case, so shaped as to direct the sparks to the bottom, while the force of the steam is exerted upwards. The sparks falling beneath, through an opening, D, which is situated round the smoke-pipe and between it and the partition, C. The top of the spark arrester consists of eight funnel-shaped sieves of wire-cloth, E F, which are sunk downwards with a circular opening, G, in the centre, which is covered with a valve, F. The valve is so arranged that it can be opened or shut by the engineer, as required, by means of the rod, I, and lever, H, the said rod being placed within reach outside the casing. By this arrangement it will be perceived that it is utterly impossible for any sparks to issue out of the smoke-pipe, an evil that has hitherto been never completely prevented, and yet it is always in the power of the engineer to obtain a greater amount of draught, it required, by opening the valve in the manner pointed out. This however is not likely often to be required.

FIG. 2.



The arrester has been tested on the Hudson River Railroad and on the Harlem, as well as some others, where the plan has given great satisfaction, and been eminently successful.

This invention is so simple in its construction, that further explanation would be unnecessary. It is, however, worthy of notice that the steam, in passing out at the top, acts with force against the wire-cloth, and thus keeps it clean and free from any obstructions. The smoke is likewise, by the same arrangement, allowed to ascend without being drawn into the current that catches the sparks.

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