W. TUCKER.

Saw-Gummers.

No. 136,110. Patented Feb. 18, 1873.

Fig. 1.

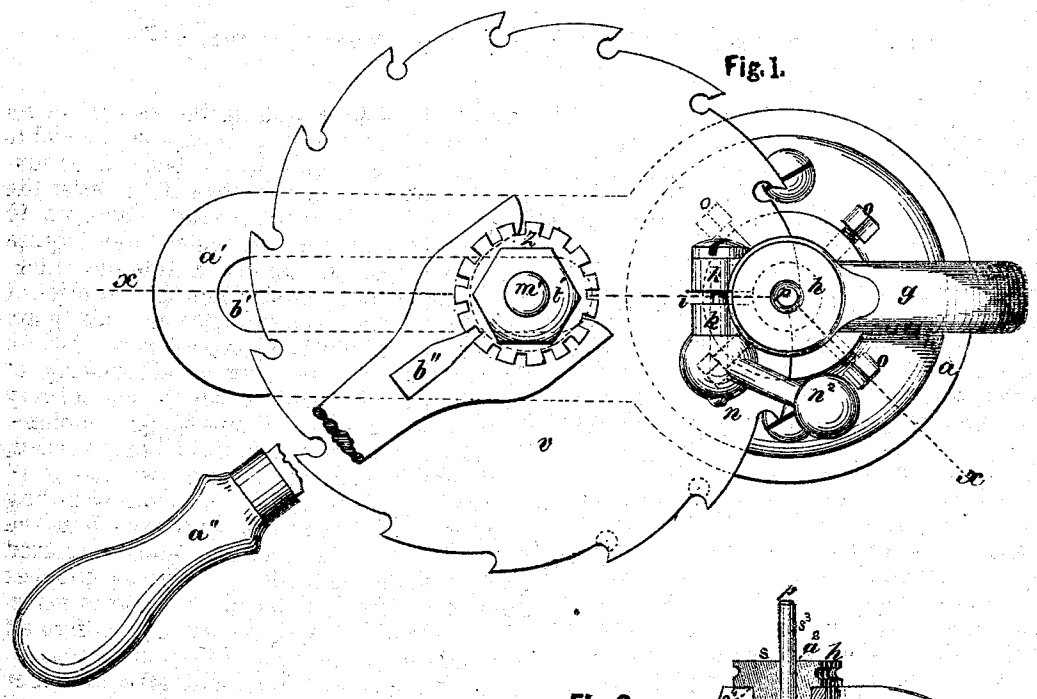
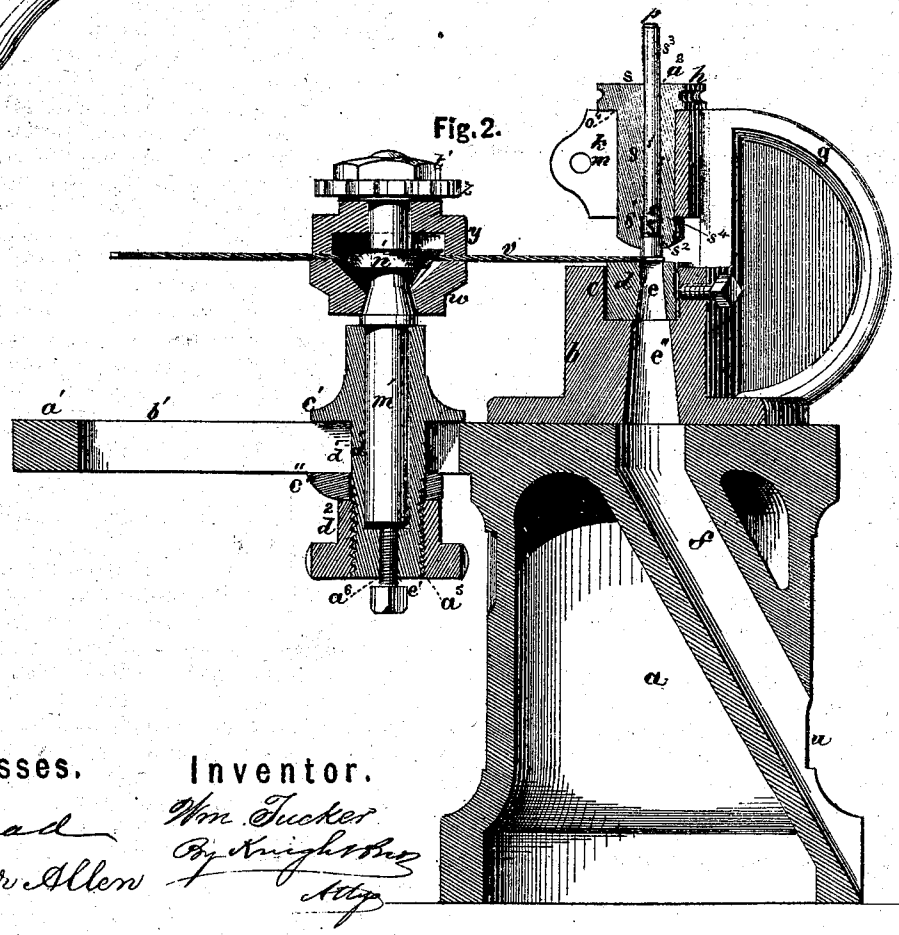


Fig. 2.



Witnesses.

W. Read

Walter Allen

Inventor.

Wm. Tucker

By Knight Bros

Attys

UNITED STATES PATENT OFFICE.

WILLIAM TUCKER, OF FISKEDALE, MASSACHUSETTS.

IMPROVEMENT IN SAW-GUMMERS.

Specification forming part of Letters Patent No. **136,110**, dated February 18, 1873.

To all whom it may concern:

Be it known that I, WILLIAM TUCKER, of Fiskedale, in the county of Worcester, Massachusetts, have invented a certain Saw-Gummer, of which the following is a specification:

Nature and Object of the Invention.

This invention relates to renewing the length of saw-teeth by punching; and consists primarily in the employment of a punch with a contracted shank, which passes freely through the perforation. The punch is thus discharged with the punchings. The object is to obviate any necessity for forcibly withdrawing the punch, which has a tendency to spring the plate, and thus to dispense with an adjustable support above the plate; also, to permit or facilitate discharging the punch in the manner stated. The punch is employed in connection with a tubular guide having a vertical bore corresponding therewith, and with a suitable die, and with a discharge-passage below the die. The invention consists, secondly, in a combination of devices for securely clamping the said guide-"sleeve" in the standard or arm of the machine.

Description of the Drawing.

Figure 1 is a plan or top view of a saw-gummer, illustrating the invention. Fig. 2 is a vertical longitudinal section of the same on the line $x\,x$, Fig. 1.

General Description.

a is the base of the machine, having an inclined passage, f, for the escape of the punch and the material gummed from the saw, and provided with a horizontal slotted arm, a^1, the object of which will hereinafter be set forth. To the base a is bolted or otherwise securely attached the die-support b, having a flaring passage, e'', and countersunk at c to receive the die d, the latter being provided with a flaring hole, e, into which the punch p is driven by the hammer of the operator, and from which it falls by gravity through the inclined passage f out of the machine, with the material gummed from the saw. In thus forcing the punch through the saw-plate in the direction of the cutting, and thence downward through the inclined passage and out of the machine, in lieu of forcing the punch, which fits tightly in the perforation, backward or upward, I avoid springing the saw-plate by such upward movement, which would be liable to occur unless there was a bearing or support for the saw-plate above it, to resist the drawing of the punch upward, which would be inconvenient and expensive, and require adjustment for saw-plates of different thicknesses, and which would render the operation of gumming without springing the saw-plate exceedingly difficult and expensive. I obviate these difficulties, and prevent all kinking of the saw-plate, by driving the punch entirely through the plate and out of the machine. The punch is constructed with a point or head, s^2, of proper size, and a contracted shank, s^3, and the bore of the sleeve s has corresponding portions s^1 s^4, so that the point as well as the shank is accurately guided and supported against lateral deflection. Different punches are accompanied by sleeves of uniform external diameter, but each accurately conformed internally to its punch. If the punch were of the same diameter throughout, after its upper end had been driven by the operator flush with the upper surface of the sleeve a supplemental tool would have to be inserted into the sleeve at its upper end and driven through to remove the punch; whereas, by contracting the shank s^3 of the punch it will readily fall by gravity through the perforation made by its point or head after the latter has passed through the saw-plate. $o\,o$ are set-screws passing through the upper part of the die-support b and into the countersunk portion c of the same to adjust the die in its seat. g is a curved arm springing from the base of the die-support b, and preferably cast with it. The upper end of the curved arm g is perforated at o^4, (see Fig. 2,) to receive the guide-sleeve s, and said arm g is also slotted at i, and provided with holes $m\,m$ in its ears $k\,k$ to receive the screw-bolt n, operated by the handle n^2, by means of which the sleeve s carrying the punch may be firmly clamped in position to operate the punch. The sleeve s has a head, h, which rests upon the upper end of the curved arm g, which thus supports the guide-sleeve in its position. The guide-sleeve s is also provided with a perforation, s^4, for the shank s^3 of the punch, which accurately fits therein. This perforation s^4 is enlarged at its lower end, as seen at s^1, to receive the point or head s^2 of the punch. It is obvious,

from the construction of the parts, that the punch cannot be inserted into the sleeve from its top, but the sleeve must be removed by unclamping it, and the shank of the punch inserted in the lower end of the sleeve or from the bottom, when the sleeve and punch are inserted in the perforation o^4 of the curved arm g, and there clamped for operation. d^1 is a hollow tube, the lower part of which is screw-threaded both on its outer and inner surfaces at a^5 a^6, and provided with a flange, c^1, which rests on the horizontal arm a^1 slotted at b^1, the tube d^1 passing through the slot b^1 in said horizontal arm a^1; d^2 is a nut screwed on the lower end of the hollow tube d^1, and c'' is a washer bearing against the lower face of the slotted arm a^1. By means of this construction, the tube d^1 may be adjusted horizontally for circular saws of different diameters. e^1 is a headed screw-bolt, which may be screwed up or down in the interior of the tube d^1, raising or lowering the shaft m', for the vertical adjustment for saw-plates of different thicknesses. w is a collar countersunk at its center, and perforated to receive the shaft m', which passes through it. The saw-plate v to be gummed is supported by the collar w. The vertical shaft m', passing through the central hole of the saw plate n', is the frustum of an inverted cone, through the perforation in the center of which the vertical shaft m' passes, the convex surface of the cone bearing against the circumference of the central perforation in the circular-saw plate. The diameter of the horizontal cross-section of the frustum n' is smaller above the base of said frustum than the diameter of the central hole in the saw-plate, so that the frustum will sink into the central hole of the plate and fill up the said central perforation in saw-plates with different diameters of the central hole; and, as the frustum is centrally situated or has its bearing on the shaft m', the effect will be to fix the center of the saw-plate on the axis m' of the vertical shaft, so that when the gummer is operated the punch will gum or cut out pieces at the base of the saw-teeth at equal distances from the center or axial line of the circular saw. y is a countersunk perforated collar placed over the shaft m', and bearing against the upper face of the saw-plate immediately over the collar w. z is a pinion on the shaft m', prevented from turning by the nut t', the construction thus firmly clamping the circular saw to be gummed. The collars w and y are countersunk, as shown, to allow free play of the frustum of the cone upon the shaft m', and prevent the collar y from pressing on the frustum n' and bending the eye of the saw-plate when the latter is securely clamped between the collars w and y. a'' is a wrench or key provided with a tooth, b'', which engages with the teeth of the pinion z, to give a rotary movement to the saw-plate and bring the teeth of the latter successively under the punch. The punch is operated by a hammer or other equivalent means, and by my construction the saw can be rapidly gummed with entire precision, or the invention may be applied to circular-saw blanks, which may be perforated by the gummer, and the other parts of the teeth afterward shaped by filing or punching or otherwise.

Claims.

The following is claimed as new:

1. The punch p constructed with a contracted shank, s^3, in combination with a corresponding guide, s, and die d, and a passage, $e^2 f$, for the discharge of punch and punchings, substantially as herein shown and described, to operate in the manner and for the purpose specified.

2. The perforated arm g with opening i and ears k k, in combination with the clamping-screw n for supporting the guide s, and the punch p therein, as set forth.

WILLIAM TUCKER.

Witnesses:
R. E. BOND,
E. L. BATES.