(No Model.) 3 Sheets—Sheet 1.

P. MONCHARMONT.

MACHINE FOR NOTCHING KEYS OR WEDGES.

No. 420,729. Patented Feb. 4, 1890.

Fig. 1.

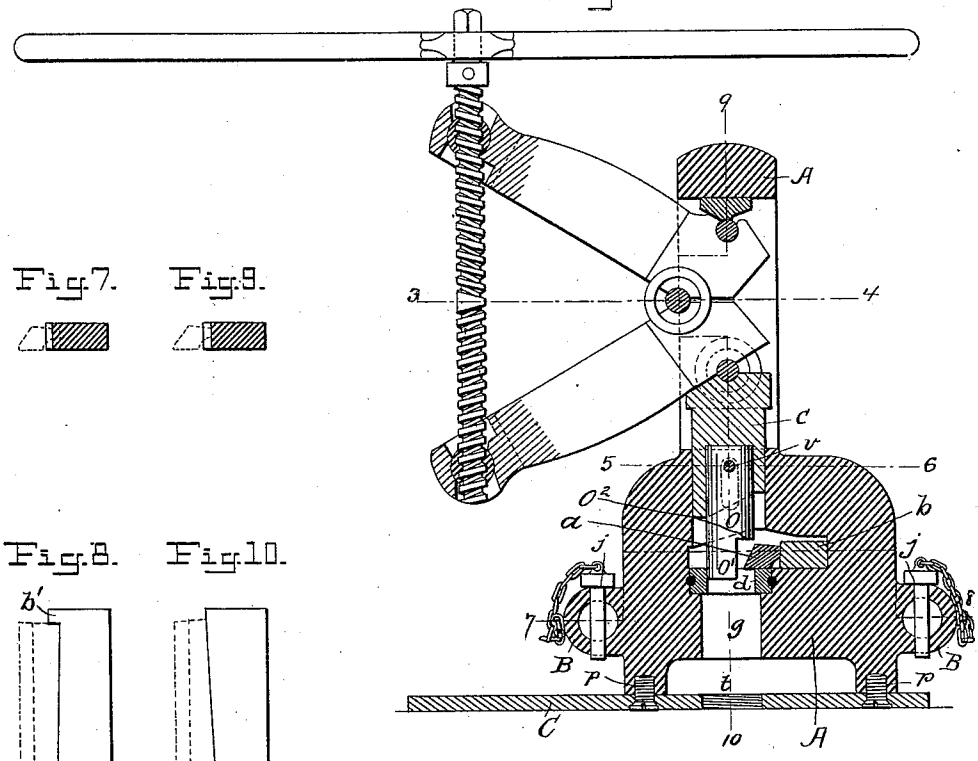


Fig. 7.

Fig. 8.

Fig. 8.

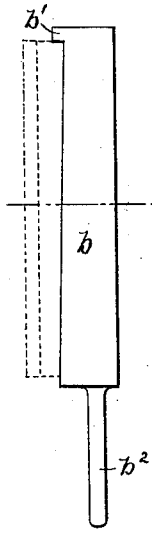


Fig. 10.

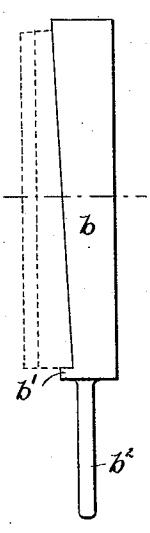
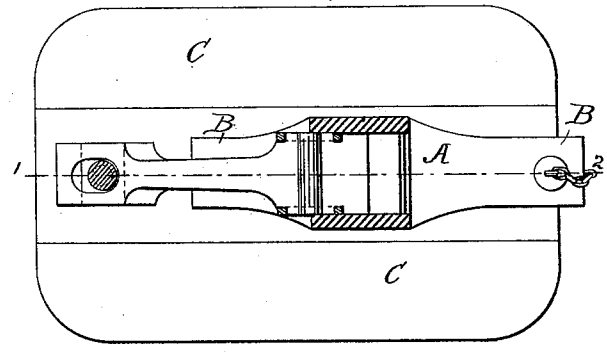


Fig. 2.



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Fig. 6.

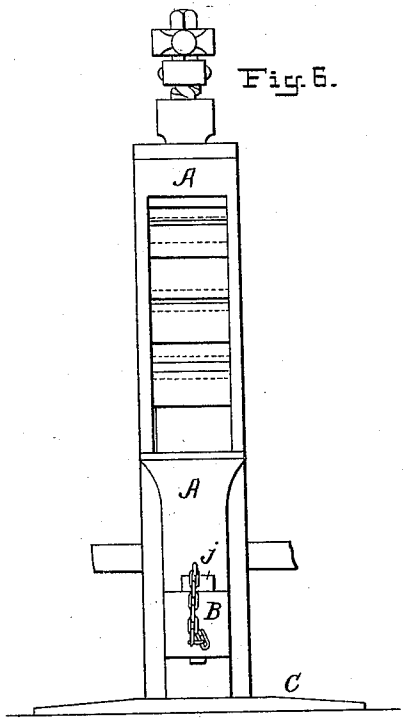


Fig. 5.

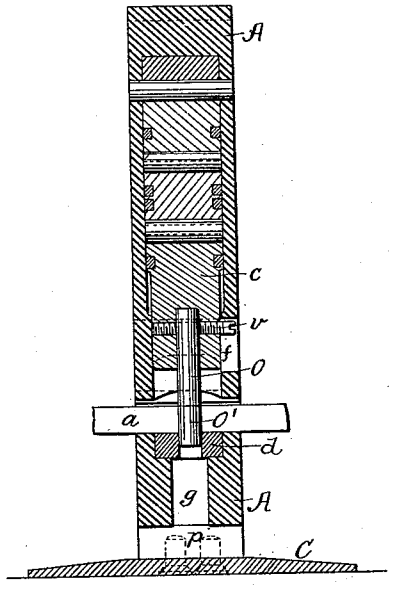


Fig. 3.

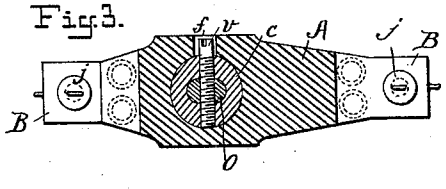


Fig. 14. Fig. 15.

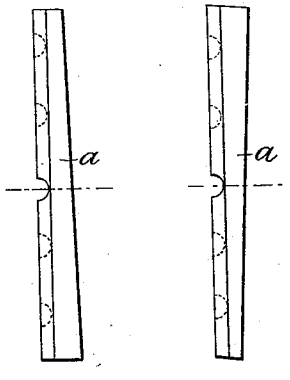
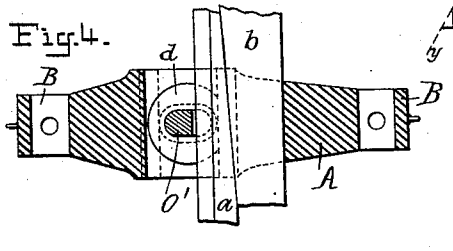


Fig. 16.



Fig. 4.



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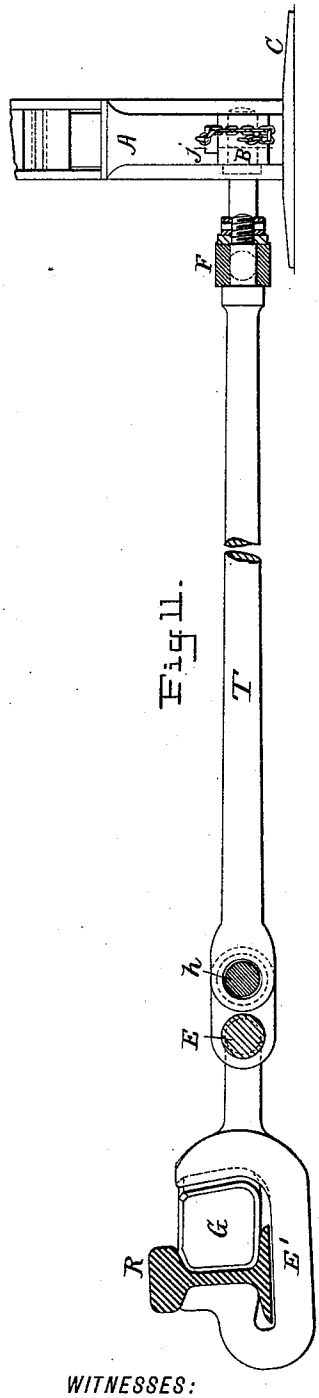


Fig. 11.

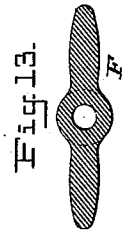


Fig. 13.

Fig. 12.

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UNITED STATES PATENT OFFICE.

PAUL MONCHARMONT, OF PARIS, FRANCE.

MACHINE FOR NOTCHING KEYS OR WEDGES.

SPECIFICATION forming part of Letters Patent No. 420,729, dated February 4, 1890.

Application filed November 20, 1888. Serial No. 291,408. (No model.) Patented in France May 16, 1888, No. 190,622; in Belgium May 17, 1888, No. 81,874, and in Germany May 27, 1888.

To all whom it may concern:

Be it known that I, PAUL MONCHARMONT, engineer, of Paris, in the Republic of France, have invented a Machine for Notching Keys or Wedges, (for which I have obtained Letters Patent in France, dated May 16, 1888, No. 190,622; in Belgium, dated May 17, 1888, No. 81,874, and in Germany, dated May 27, 1888,) of which the following is a specification.

This invention relates to a machine more particularly intended for notching or channeling the beveled keys employed in railway chairs or supports of the class described in an application for Letters Patent filed by me March 16, 1888, Serial No. 267,441; but it is also applicable to the notching or channeling of other keys or wedges for railways and tramways or other like purposes.

The most important characteristics of this machine relate to the construction and operation of the punch or cutting-tool and to the means employed for holding the key or wedge in position while it is being acted upon by the tool and for securing the machine itself in position by connecting it to the permanent way or other fixed support, and to the general combination of the parts, as hereinafter described.

In the accompanying drawings, Figure 1 represents a vertical section of a machine for making the notches according to this invention, taken on line 1 2 of Fig. 2. Figs. 2, 3, and 4 represent horizontal sections taken on the lines 3 4, 5 6, and 7 8, respectively, on Fig. 1. Fig. 5 represents a vertical section on line 9 10, Fig. 1. Fig. 6 is a side elevation of the machine, viewed from the right in Fig. 1. Figs. 7 and 9 are sectional views, and Figs. 8 and 10 front views, of the key-holders. Fig. 11 represents the tackle, partly in section, along the line 11 12, Fig. 12, and the punching-machine A being represented in elevation. Fig. 12 represents the apparatus in plan. Fig. 13 represents a transverse section on the line 13 14, Fig. 12. Figs. 14 and 15 represent the keys. Fig. 16 is a cross-sectional view of a key.

The machine illustrated in the drawings is arranged for cutting notches or channels in keys of the prismatic form represented in Figs. 14, 15, and 16. The side to be notched ($x\,y$, Fig. 16) is beveled relatively to the lower surface. It is necessary to form the notch perpendicular to this lower surface and at a constant depth or distance from the edge. The distance of the notch from the end may vary, as indicated by the dotted lines in Figs. 14 and 15. The side to be notched and the opposite side may not be parallel; but the key may taper to one end, either as shown by Fig. 14 or by Fig. 15.

This machine is constructed with a standard or frame A, the base of which is formed with an angular transverse opening for the reception of the key a to be notched or channeled and of a distance piece or block b. Above and at right angles to this opening there is a cylindrical hole or socket, in which works a tool-holder c, carrying a punch O, secured by a set-screw v, the head of which works in a suitable slot f, Fig. 5. The lower part of the base is provided with a circular die-piece d, formed with an elliptical or elongated central opening and fitted into a recess in the base, being retained in position by two parallel pins or keys driven in horizontally through the base and engaging with the sides of the die-piece. A cleaning-hole g is provided underneath the die-piece.

Lugs B B are provided at the sides of the bed, being perforated with cylindrical holes, which are utilized for fixing the machine, as hereinafter described. The under side of the base is provided with legs p, to which a sole-plate C of suitable shape and dimensions is attached by screws. The upper part of the frame is constructed with mechanism such as that illustrated in the drawings or of any other suitable construction for obtaining the requisite power for working the tool or punch O, employed for notching the key a.

The tool-holder c is made with a cylindrical shank, and at its lower extremity presents an inclined plane perpendicular to or bisecting the prolongation of the long axis of the elliptical opening in the die-piece d, the said plane terminating in horizontal planes corresponding to the thickness of the sides of the socket of the tool-holder.

The punch or tool O is made of elliptical or other suitable form in transverse section, be-

ing rounded or semicircular at the ends in the example illustrated, and is retained in position in the socket of the tool-holder *c*, which is of a form fitted to receive the shank of the tool. This tool is provided with an extension O′ on the back or side opposite to that on which the cutting-edge O^2 is situated, which extends into the hole in the die-piece and forms a guide and support for the punch or cutting-edge O^2. A hole *t*, closed by a screwed plug, is formed in the sole-plate C under the hole in the die-piece to enable the punch or tool to be removed. The cutting-edge O^2 is semicircular, as indicated in the drawings, or of angular or any other suitable form corresponding to that of the notch or channel to be cut in the key *a*. According as the key is intended to be driven in from left to right, as in Fig. 21, or from right to left, Fig. 22, it is supported in the machine by a filling piece or block *b*, Figs. 9 and 10 or 7 and 8, in which the key is indicated in dotted lines. Each of these filling-blocks represents a rectangular parallelopipedon bisected longitudinally by a vertical plane, forming with the side of the parallelopipedon an angle equal to that formed by the intersection of the horizontal lines in the surfaces between which the key is to be driven. The blocks *b* are provided with a projection *b′*, Fig. 10, bearing against the thick ends of the keys and forming a stop, which prevents longitudinal displacement of the keys during the punching, and with a handle b^2 to facilitate the manipulation. By means of these blocks, any number of which may be provided with the machine corresponding to the different sizes of keys, the notching or channeling is enabled to be performed with perfect regularity at the same position and depth, the key being retained longitudinally in position during the operation by the heel or projection *b′* and laterally by the side face of the block. The punch makes a perfectly-clean cut without burrs, as the work and the tool are effectually prevented from yielding or moving laterally, the former being supported by the block *b* and the latter being supported by the holder *c* and by the extension O′. This arrangement of the tool O is of great importance, constituting a cutting-punch perfectly certain and regular in its action.

This notching or channeling machine may be screwed or otherwise secured to a table or bench by means of the sole-plate C. This plate may be dispensed with by making the base with feet adapted to fix it in position; but as the machine is especially intended to be used for notching the beveled metal keys employed in the construction of railways it is more convenient to provide means for fixing it to one of the rails of the permanent way, as hereinafter described. These means of attachment or holding-tackle are illustrated in Figs. 11, 12, and 13 of the accompanying drawings.

The tackle represented in Figs. 11, 12, and 13 is composed of two U-shaped bars or forks E and F, connected by a straight bar T. The fork E is provided with two hooks or claws E′ E′, shaped to embrace and fit the rail R, as indicated in Fig. 11, the rail being jammed in the hooks by means of wooden wedges G, connected to the apparatus by chains. This fork E is jointed to the straight bar T by a pin *h*, passed through an eye formed in the bar and through lugs on the fork and secured by a nut. The bar T is connected at the other extremity to the fork E by a pivot *i*, Fig. 12, formed on the end of the bar and fitting in a hole or socket in the fork. The legs of the latter terminate in pins fitting into the cylindrical holes in the lugs B B, Fig. 1, hereinbefore referred to, being secured to the punching-machine by pins *j*, attached to the base of the machine by short chains. The double joint formed by the pin *h* and pivot *i* enable the machine to adjust itself readily to any irregularities or inequalities in the level or incline of the ballast of the road-bed relatively to the rail R. It is evident that in practice the machine may be steadied and retained in position by attaching it to any other stationary support, the rail R being merely illustrated by way of example as being the most convenient support in working on the permanent way.

I claim as my invention—

1. A machine for notching railway-chair and other like keys or wedges, comprising a standard frame having a lateral opening for the keys, in combination with a key-holder, a notching-tool, and a die-piece, substantially as described.

2. A machine for notching railway-chair and other like keys or wedges, comprising a frame A, having a transverse opening for the key and its holder, a vertical opening for the punch and tool-holder, a clearing-hole, and perforated lugs B to secure the machine, substantially as described.

3. In combination with a machine for notching railway and other like keys or wedges, a key-holder consisting of a rectangular block against one side of which the key abuts and provided with a handle, and projection *b* to prevent longitudinal displacement of the key, substantially as described.

4. In combination with a punching-machine, tackle for fixing said machine in position, consisting of two forks, a bar connecting the forks, adjusting devices, hooks to grasp the rail and wedges, and means to fasten the tackle to the punching-machine, substantially as herein described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

PAUL MONCHARMONT.

Witnesses:
LÉON FRANCKEN,
R. J. PRESTON.