

Oct. 15, 1929

E. P. SIMMONS

1,732,032

KEY MACHINE

Filed March 5, 1927

Fig. 1.

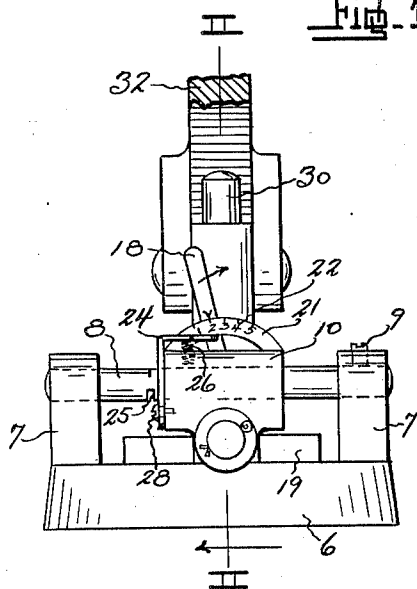


Fig. 3.

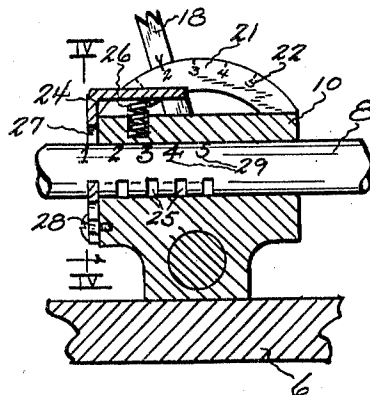


Fig. 4.

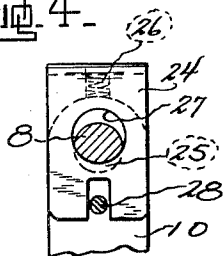


Fig. 5.

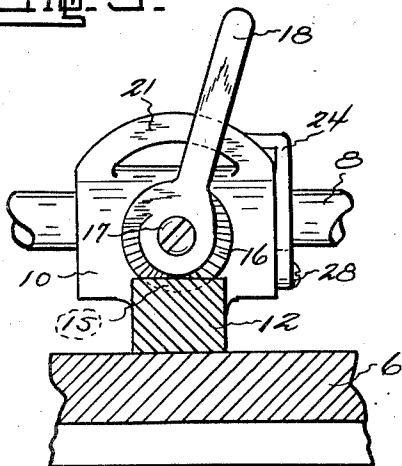
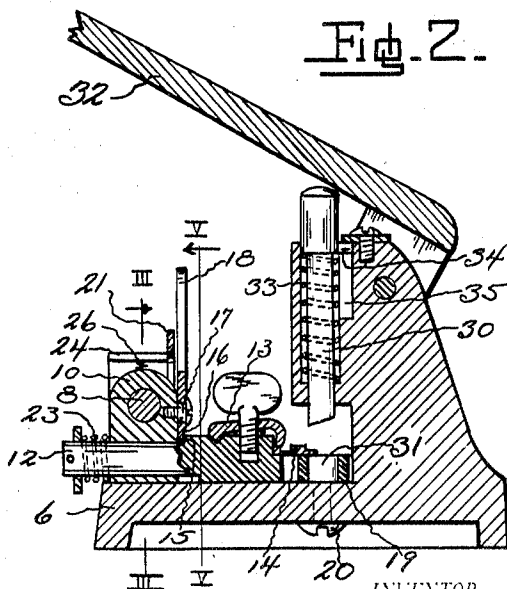


Fig. 2.



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KEY MACHINE

Application filed March 5, 1927. Serial No. 173,053.

This invention relates to key machines, and has for its primary object the provision of a key-making device which is especially adapted for making flat bodied keys wherein the plunger actuating notches are cut at different distances along the length of the key and the depth of the notches are varied a predetermined amount.

One of the objects of the instant invention is to provide a key machine which will make a key without the use of a master key to guide its actions, and which will form the proper notch by merely setting the movable mechanism having proper indicia in juxtaposition thereto.

Another object of this invention is to provide a key-making machine which departs from the usual type in that a punching die is used to form the key notch and no milling or filing is necessary, thereby materially decreasing the time required to turn out a key as well as decreasing the cost of equipment to manufacture keys of the flat type.

A yet further object of the invention is the provision of a cheap and durable key-making machine having necessary scales to guide the setting of movable parts thereof which will permit making a key for any certain lock after the notch depth and location has been computed from a number on the lock and a chart compiled for that purpose and always kept on hand by the operator of the machine made in accordance with this invention.

Specific details of construction and many minor objects of the instant invention will appear during the course of the detailed specification referring to the accompanying drawing, in which

Figure 1 is a front view of a key machine made in accordance with this invention.

Fig. 2 is a central vertical section through the machine, taken on line II—II of Fig. 1.

Fig. 3 is an enlarged detailed view taken on line III—III of Fig. 2.

Fig. 4 is another detailed view taken on line IV—IV of Fig. 3, and

Fig. 5 is a section and face view of the actuating cam taken on line V—V of Fig. 2.

Similar reference characters refer to like parts throughout the several views, and the

numeral 6 designates the body of the machine provided with a pair of upwardly extending lugs 7 which support a transverse shaft 8. This shaft should be rigidly supported, and may be kept from turning or becoming out of proper adjustment by a set screw 9 carried by one of the lugs 7. This screw 9 may also be used in assembling the device to allow a slight relative movement between shaft 8 and the supporting lugs 7.

Bearing 10 is slidably supported by shaft 8 and, in turn slidably supports a key carrying member 12 having a thumb screw actuated jaw 13 carried by the inner end thereof whereby a flat key 14 may be held in place to receive the desired notch.

Key carrying member 12 passes through bearing 10 below shaft 8, and in a direction at right angles thereto. A shoulder 15 should be formed on the member 12 which rests against the face of cam 16 pivotally mounted as at 17 to bearing 10 thereabove. A handle 18 integral with the cam 16 allows manual actuation of the cam face against shoulder 15, and as the same is moved, the member 12 will be forced toward the die block 19, secured to the base of the device by screws or analogous means 20. The above movement takes place when the handle 18 is moved in the direction of the arrow shown in Fig. 1. The plate 21 carries indicia 22 thereon which afford easy means of determining the depth of the notch which is to be cut when the handle is stopped. It is understood that the graduations may be varied according to the use to which the machine is put. The graduations here shown indicate that the notches are cut but five different depths.

When the handle 18 is moved to the left (Fig. 1), the retrieving spring 23 will withdraw member 12 from the block 19, and movement of handle 18 will, thereby be effective when moved in either direction.

After the key 14 is clamped in position as shown in Fig. 2, the position of the notch to be cut with respect to the length of the key may be set through the movable bearing 10 in the manner illustrated. Bearing 10 is movable along shaft 8, and is locked in the desired position therealong by a catch 24.

To permit this catch to operate, the shaft 8 is provided with a series of grooves or notches 25 which may be cut in the lower portion thereof and into which the catch is carried by spring 26 when the operator's finger is removed from the spring-compressing position. The opening 27 is the same diameter as the diameter of shaft 8, and when the catch 24 is pressed down out of engagement with any one of the slots 25, the bearing 10 is free to move along the shaft. Catch 24 may be retained in place by a screw and slot construction 28 if desired. As illustrated in Fig. 3, each slot 25 should be given a number to indicate the position of the notch along the length of the key to be made. These numbers 29 may be formed directly on the face of the shaft 8.

When the key 14 has been placed beneath the jaw 13, and handle 18 has been moved to force member 12 toward the die block 19 the required distance (in accordance with the depth of the required notch) the entire bearing 10 is moved along shaft 8 to the proper notch 25. This movement will be in direct accordance with the position of the required notch along the edge of the key 14.

This operation will place the machine in the properly set position, and the next step is to force the die punch 30 down against the key 14 and into the opening 31 formed in the die block 19. The proper notch will thus be cut in the edge of the key, and no further work is required to render the key a finished product.

Downward pressure against the top of die punch 30 may be exerted by a pivotally mounted handle 32 carried by a portion of the body 6. The punch 30 is carried back to the starting point by a spring 33, and the punch 30 is kept from turning by the pin 34 which rides in the groove 35. The specific construction of this part of the machine may be varied and the particular materials of the entire mechanism may be such as to suit conditions and requirements.

From the specifications and drawing, it is obvious that a flat key may be formed through this machine with a minimum amount of labor and time. The required notch may be placed along the edge of the key without a great amount of calculation, and the depth of the notch may be set without trouble.

Having thus described the invention, to the details of which it is desired not to be limited, except by the scope of the appended claims, what is claimed as new and desired to be secured by Letters Patent is:

1. In a key machine, a movable key support, a punching die, means for moving said support toward said die and retrieving mechanism for the key support to withdraw the same from the punching die as said moving means is released.

2. In a key machine, a movable key sup-

port, a punching die, means for moving said support toward or from said die and a slidably mounted bearing carrying said moving means and key support.

3. In a key machine, a movable key support, a punching die, means including a cam for moving said support toward or from said die and a slidably mounted bearing carrying said key support and moving means.

4. In a key machine, a movable key support, a punching die, an actuating cam for said support, a slidably mounted bearing carrying said support and cam said bearing also carrying releasable means for arresting the sliding movement of said bearing.

5. In a key machine, a movable key support, a punching die, an actuating cam for said support, a slidably mounted bearing carrying said support and cam and means for securing the bearing at a predetermined point along its path of travel.

6. In a key machine, a movable key support, a punching die, and means for moving said support toward or from said die, said moving means being slidably mounted for movement transversely to the first mentioned line of movement.

7. In a key machine, a movable key support, a punching die and a bearing slidably supporting said key support, said bearing being slidably mounted beside said die for movement parallel to a plane including the line of movement of said die.

In testimony whereof I hereunto affix my signature.

ERNEST P. SIMMONS.