March 8, 1932. A. W. ALTVATER 1,848,863

CUTTING AND MARKING MECHANISM

Filed Nov 29, 1929 2 Sheets-Sheet 1

Fig. 1a.

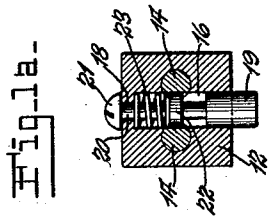
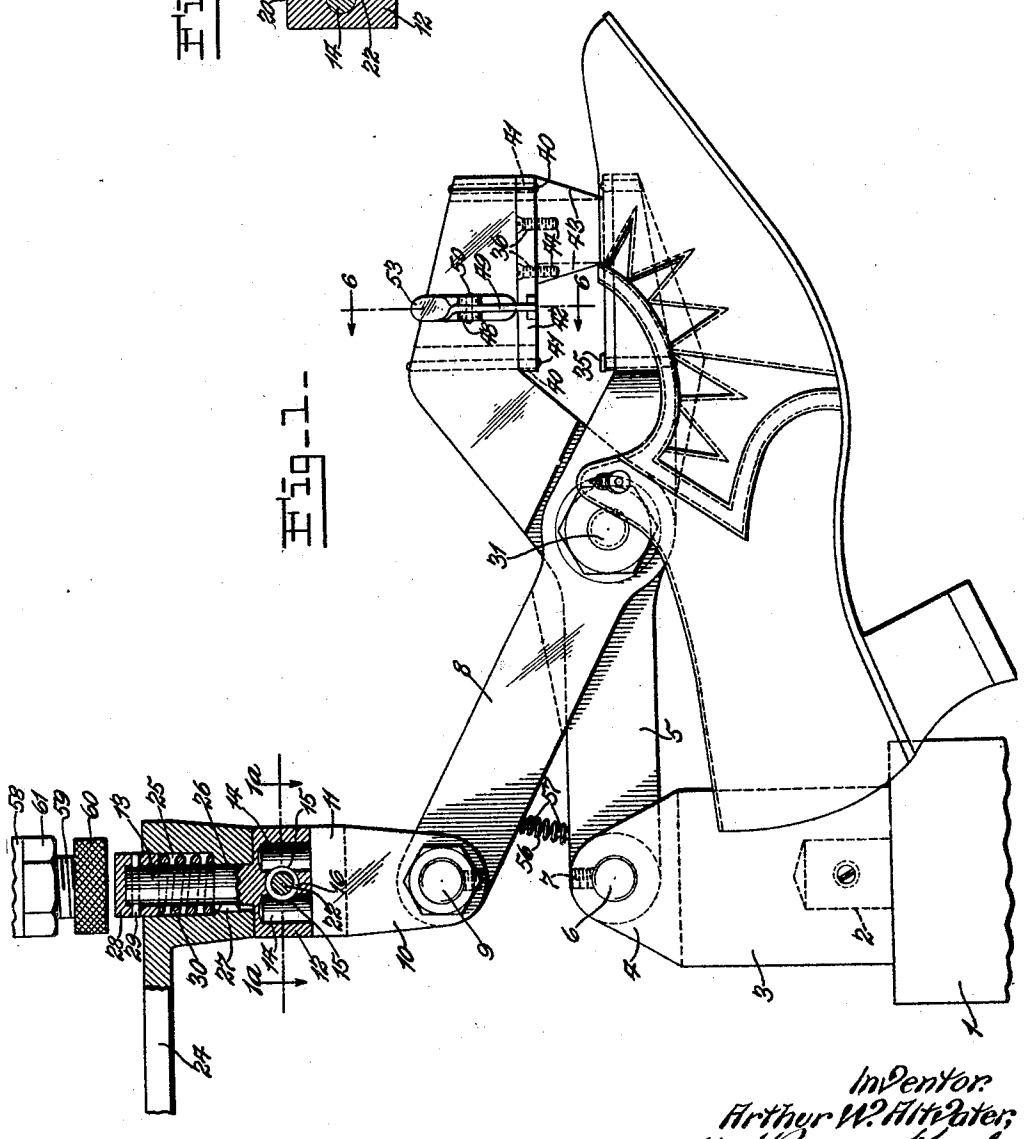


Fig. 1.



Inventor:
Arthur W. Altvater;
by Rippey & Kingsland,
His Attorneys.

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Fig. 2.

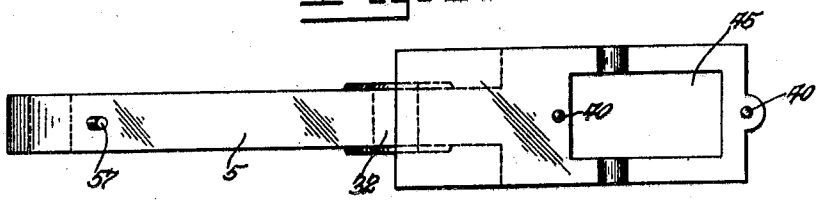


Fig. 3.

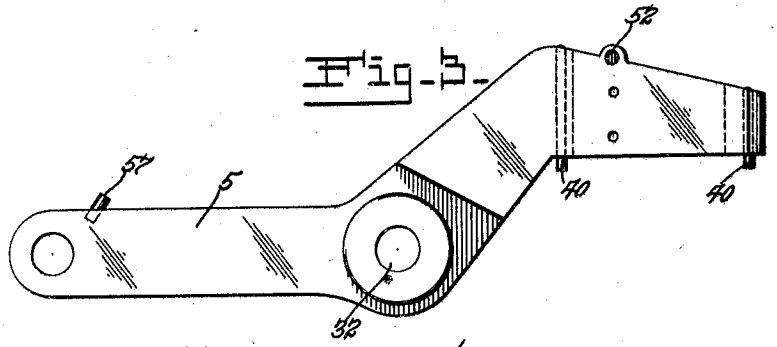


Fig. 4.

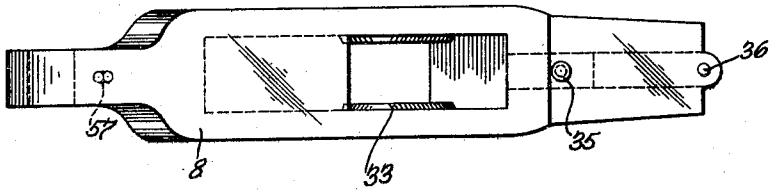


Fig. 7.

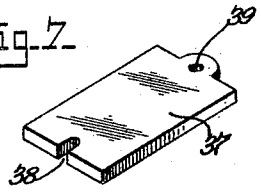
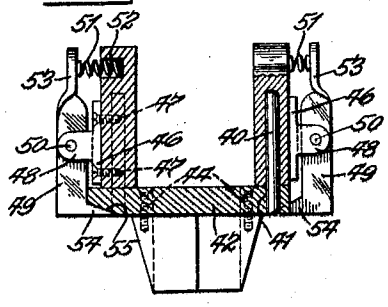


Fig. 5.

Fig. 6.



Inventor:
Arthur W. Altvater;
by Pippey & Kingsland.
His Attorneys.

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UNITED STATES PATENT OFFICE

ARTHUR W. ALTVATER, OF ST. LOUIS, MISSOURI

CUTTING AND MARKING MECHANISM

Application filed November 29, 1929. Serial No. 410,529.

This invention relates to cutting and marking mechanism such, for instance, as may be used in making ornamental cut-outs in shoe parts and shoe uppers, and for otherwise ornamenting the work by producing ornamental outlines and demarcations.

One object of the present invention is to provide a mechanism adapted for such work, which will be simple in construction, efficient in operation and easy of adaptation.

Another object of the invention is to provide mechanism of the character and type and for the purpose mentioned, which may be readily attached and operated by machines of larger application.

Another object of the invention is to provide novel means for supporting a die member in machines of the class described.

Various other objects will appear from the following description, reference being made to the accompanying drawings, in which—

Fig. 1 is a side view of the mechanism, with the carrier partly in section.

Fig. 1*a* is a cross-section on line 1*a*—1*a* of Fig. 1.

Fig. 2 is a top view of the upper jaw and lever.

Fig. 3 is a side view of the upper jaw and lever.

Fig. 4 is a top view of the lower jaw and lever.

Fig. 5 is a side view of the lower jaw and lever.

Fig. 6 is a detail vertical section on the line 6—6 of Fig. 1.

Fig. 7 is a perspective view of the cutting plate.

The base 1 has a vertical post 2 which fits a socket in the supporting member 3 having the upstanding lugs 4 to which is pivotally mounted the lever 5 for the upper jaw on the pivot pin 6, which pin is secured to one of the lugs by the set-screw 7. The lever 8 for the lower jaw is pivotally mounted in vertical alinement with the mounting of the lever 5 for the upper jaw, on the pin 9 between the lugs 10 of the attaching element 11.

The attaching element 11 may be secured to the block 12 at the lower end of the stem 13 by two spaced posts 14 in corresponding sockets in the block 12. These posts are of approximately the same diameter as the sockets so they may be inserted into and withdrawn therefrom. Thus, in order to attach the element 11 to the block 12, the posts 14 are inserted into the sockets until the upper face of the attaching element 11 abuts against the lower face of the block 12. Each post 14 has on its inner side an arcuate notch 15.

The block 12 has a lateral cylindrical socket 16 so positioned and of such a size as to register with the arcuate notches 15 in the posts 14. The end wall 17 of the socket 16 has therethrough a hole 18 of reduced diameter and concentric with the axis of the socket. Thus, when the posts 14 are within their sockets and the upper face of the attaching element 11 abuts against the lower end of the block 12, the walls of the notches 15 are flush and in alinement with the walls of the socket 16.

A latch or holding device for securing the element 11 in the block 12 is mounted in the socket 16. This latch or locking device comprises an outer end portion 19 of approximately the same diameter as the socket 16 and which fits within the end of the socket 16 for sliding movements. This locking or latching device further comprises a coaxial elongation 20 of reduced diameter which fits within and projects through the hole 18. A screw 21 is engaged in a threaded hole in the end of the reduced portion 20 of the locking or latching device, and the head of said screw constitutes an abutment designed and adapted to engage against the wall 17 to prevent withdrawal of the locking or latching device from the block 12. On the reduced portion 20 a circumferential flange or collar 22 is arranged in such position and relationship that when the screw 21 is against the wall 17, said flange 22 will engage and seat within the notches 15; that is to say, the diameter of the collar or flange 22 is approximately the same as the diameter of the socket 16, which is the same as the distance from the bottom of one of the notches 15 to the bottom of the other notch 15. Accordingly, when the attaching

element 11 is in connection with the block 12 and the collar or flange 22 engages in the notches 15, the attaching element 11 is supported in rigid connection with the block 12 and the stem 13.

A spring 23 is mounted on the reduced portion 20 of the locking or latching device and has one end abutting against the socket end wall 17 and the other end abutting against the collar or flange 22. The power and energy of said spring is utilized effectively to hold the locking or latching device in position, in which the head of the screw 21 is against the wall 17 and in which the collar or flange 22 is in locking or latching engagement with the posts 14, being engaged in the notches 15. The projecting end 19 of the locking or latching device constitutes a handle or button for manual engagement by which said locking or latching device may be moved in opposition to the spring 23 and in a direction and to an extent to disengage the collar or flange 22 from the posts 14 so as to permit detachment of the device.

An arm 24 rigidly secured to the base 1, by means not shown in the drawings, is formed with a socket 25, through the lower end wall of which a hole of lesser diameter is formed with the wall 26 thereof forming a bearing to permit vertical movement of the stem 13. In the wall 26 is formed a vertical channel to engage the key 27 on the stem 13. A cap 28 encloses the upper end of the stem 13 and extends downwardly into the socket 25 and cooperates with the wall 26 to guide the mechanism and prevent oscillation. A removable pin 29 extends through the stem 13 and the enclosing walls of the cap 28 and secures these parts together. A spring 30 is mounted in the socket 25 about the stem 13 and has its lower end seated against the lower end of the socket, and its upper end seated against the lower end of the cap 28. The resilient power and energy of this spring 30 is effective to return the jaws to normal open position. Said spring also permits downward sliding movement of the stem 13 by any appropriate actuator or driver.

The levers 5 and 8 are pivoted together by the pin 31 through the hole 32 in the lever 5 and the hole 33 in the lever 8. It will thus be seen that the mounting of the levers forms a toggle to operate the jaws.

The lower jaw may have a reinforcing rib 34 at its bottom. It has the stud 35 and the dowel pin 36 to aline and hold the cutting plate 37 to be supported by the lower jaw. The cutting plate 37 has the notch 38 to engage the stud and the hole 39 to engage the dowel pin. It is often necessary to remove and replace this cutting plate in severe uses. This may readily be done by lifting the end of the plate at which the dowel pin 36 is located and sliding the cutting plate forward so that the notch 38 will clear the head of the stud 35. A new cutting plate may be inserted by a reverse process.

The upper jaw has the dowel pins 40 to engage in the holes or sockets 41 on the die plate 42. In order to place the die in alinement on the upper jaw, the die elements 43 may be secured to the die plate 42 by the screws 44.

A hole 45 is provided in the upper jaw to cooperate with passages through a cutting die to allow the passage of cuttings when a cutting die is used.

The upper jaw has a pair of brackets 46 secured at either side by screws 47 and having the lugs 48 to which is mounted the latch 49 by the pin 50. Each latch 49 is held in position by the spring 51 fitting against one end of the latch 49 and into a socket 52 in the side of the jaw, The upper end of the latch 49 has the finger strip 53 and the lower end has the engaging lug 54 to fit in a recess 55 in the lower side of the die plate 42. A compression spring 56 is positioned on the pins 57 to assist in holding the jaws open.

It will be apparent that by the arrangement for attaching the die to the upper jaw, such dies may be interchanged readily and very quickly.

The stem 13 may be actuated by a tappet comprising the plunger 58 in the lower end of which may be screwed the stem 59 having the head 60 and the lock-nut 61. It is preferable to operate this mechanism by a cam having a uniform thrust with respect to the plunger 58. A machine to which this mechanism may readily be attached is illustrated and described in my application for Letters Patent of the United States filed January 25, 1929, Serial No. 334,934, eventuating in Patent No. 1,807,952, June 2, 1931. But it is to be understood that this invention is not limited to its application with a machine of the details there described.

It is apparent that a mechanism has been provided which may be readily attached and detached from a machine capable of operating it; that the mechanism is simple in construction and efficient in operation. Means have been provided whereby the dies may be readily interchanged so as to readily and quickly perform with it a variety of work.

By operating the plunger 50 by a cam having a uniform thrust and adjusting the tappet by the head 60 and the lock-nut 61, the movement of the jaws with respect to one another may be regulated and the device used not only with cutting dies but also for ornamenting dies which merely impress a design into the work.

It is to be understood that various changes may be made from the details illustrated and described within the scope of the appended claims without departing from the spirit of this invention, and that some of the improvements may be advantageously used without appropriating the rest.

I claim:

1. A device of the character described including a pair of jaws, a pair of levers respectively integral with the jaws, a pin pivotally connecting said levers, a fixed pivotal support for one of said jaws, a stem mounted for vertical movement, and means to pivotally connect the other lever to said stem.

2. A device of the character described including a pair of jaws, a pair of levers respectively integral with the jaws, a pin pivotally connecting said levers, a fixed pivotal support for one of said jaws, a stem mounted for vertical movement, and means to pivotally connect the other lever to said stem, in combination with a tappet to operate the stem.

3. A die mechanism comprising a member for supporting and actuating a die, a die member, one of said members having holes therein, dowel pins in connection with the other member engageable in said holes to position the die on said supporting and actuating member, and devices pivotally supported by said supporting and actuating member for engaging and holding said die member in connection therewith.

4. A die mechanism comprising a supporting and actuating member, dowel pins in connection with said supporting and actuating member, a die member having holes receiving said dowel pins and having latch receiving recesses, and latches pivotally supported by said supporting and actuating member and engaging in said recesses and supporting said die member.

5. Die mechanism comprising a supporting and operating jaw, a latch pivoted on each side of said jaw, engaging lugs on the lower ends of said latches, a die element engaged by said engaging lugs and supported thereby, and means cooperating with said engaging lugs to prevent displacement of said die element.

6. A machine of the character described comprising a supporting member, a die member pivotally connected with said supporting member, a work supporting member arranged to extend into a shoe upper, an element pivotally connecting said die supporting member and said work supporting member, and mechanism cooperating with said work supporting member for moving the same toward said die supporting member.

7. A machine of the character described comprising a supporting member, a die member pivotally connected with said supporting member, a work supporting member arranged to extend into a shoe upper, an element pivotally connecting said die supporting member and said work supporting member, mechanism cooperating with said work supporting member for moving the same toward said die supporting member, and means for supporting a die in connection with said die supporting member for cutting through the shoe upper mounted on said work supporting member.

8. A machine of the character described comprising a pair of members, one of which is arranged to extend into and support a shoe upper, a die attached to the other member and having a cutting edge extending toward said member that supports the shoe upper, a pivot connecting said members intermediate of their ends, and means pivotally connected with one of said members for moving toward each other the ends of said members that support the shoe upper and the die and thereby cause the die to cut through the shoe upper mounted on one of said members as aforesaid.

ARTHUR W. ALTVATER.