

J. V. ALLEN.
PATTERN GENERATING MECHANISM.
APPLICATION FILED OCT. 11, 1909.

1,064,118.

Patented June 10, 1913.

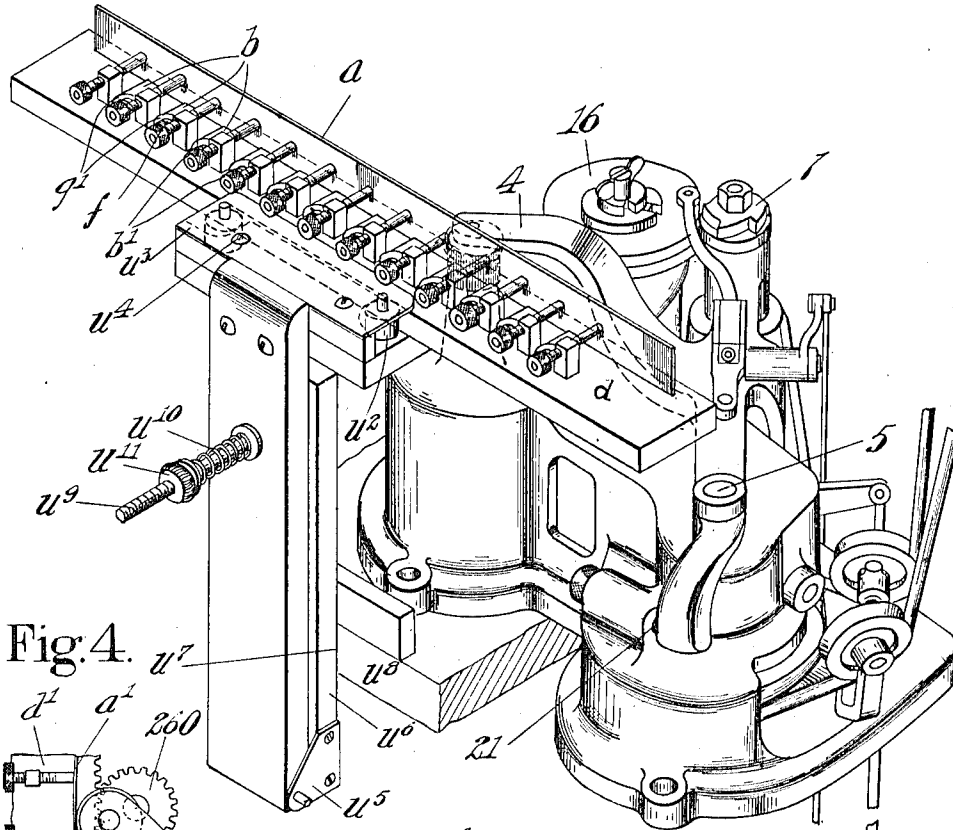


Fig. 1.

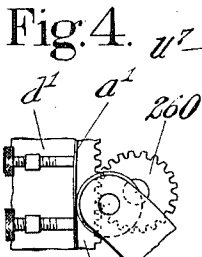


Fig. 4.

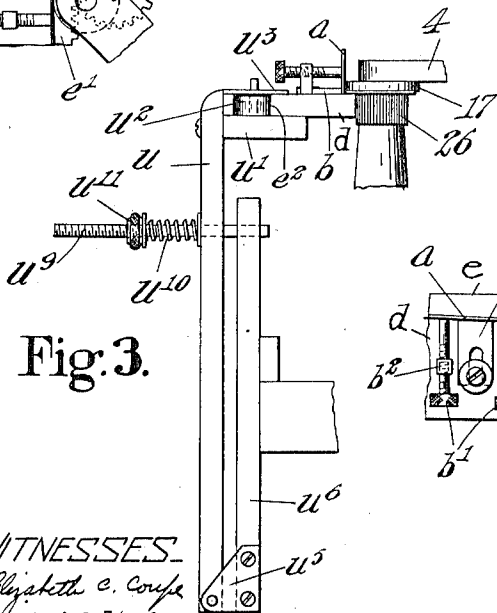


Fig. 3.

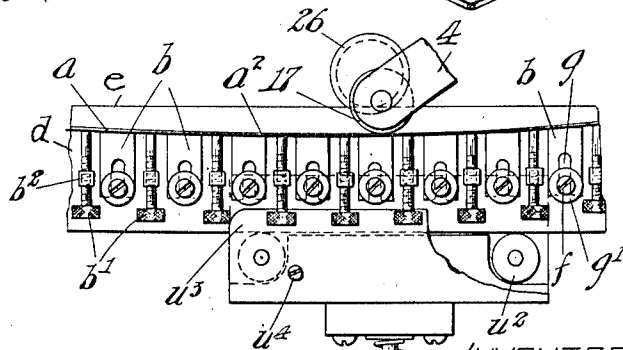


Fig. 2.

WITNESSES:
Elizabeth C. Couper
Edith C. Hollbrook

INVENTOR.

John V. Allen
By his Attorney
Nelson W. Howard

UNITED STATES PATENT OFFICE.

JOHN V. ALLEN, OF WEYMOUTH, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

PATTERN-GENERATING MECHANISM.

1,064,118.

Specification of Letters Patent.

Patented June 10, 1913.

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To all whom it may concern:

Be it known that I, JOHN V. ALLEN, a citizen of the United States, residing at Weymouth, in the county of Norfolk and State of Massachusetts, have invented certain Improvements in Pattern-Generating Mechanisms, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates principally to shoe machinery, and more particularly to pattern generating mechanism, and is of especial utility when embodied in what I term "abutment" devices, to operate the follower or controlling lever or member of pattern generating mechanism of the type illustrated in United States Letters Patent No. 1,027,562, granted May 28, 1912, on application of Frederick H. Perry, although I use the term "abutment" merely as a concise, suggestive designation, not in any limited, technical sense, and I contemplate the use of my improvements in any field for which they are adapted by their nature.

An important object of my invention is to provide an abutment having an edge corresponding in contour with the edge of the sole of a shoe, the abutment being so constructed and arranged that when engaged with the controlling member of pattern generating mechanism of the type illustrated in the Perry patent to which reference has been made above, the operation of the pattern generating mechanism will result in the formation of a pattern corresponding in peripheral contour with the edge of the sample shoe sole with whose shape the abutment edge has been constructed to conform.

Another important object of my invention is to provide means to change the contour of the abutment edge so that it may be adjusted to cause the production of successively different patterns corresponding severally in contour with the various sole edges which the operator may from time to time desire to produce or reproduce, means being provided to maintain the abutment edge in adjusted contour, so that any desired number of patterns of the same contour may be produced.

Among various other features of notable importance, I have provided means to cause positive engagement of a portion of the

abutment device with a regularly moving portion of the mechanism of the pattern generating apparatus, thus to insure traversal of the abutment and controller, one by the other, in regular progression, avoiding the formation of "lumps" on the pattern, and consequent deformities of the shoe, due to irregular traversal of the abutment edge and controller, which sometimes occurs when an operator is careless in feeding the edge of a sample shoe too slowly or too quickly past the follower of a pattern generating machine of the above type.

Accordingly, in carrying my invention into effect, I may use in place of the sole edge of a sample shoe, as illustrated in the aforesaid Perry patent, an abutment device which in its preferred form comprises a stick, base or supporting-member provided with suitable means, such as a rack, to engage positively with a regularly moving portion of the mechanism of the pattern generating apparatus, as for example with the teeth of a pinion on the rotary abutment or guide against which moves the sole edge of the sample shoe ordinarily used in connection with the mechanism of the aforesaid Perry pattern generator; and upon this base or support I may mount a flexible edge such as a flat piece of steel or other suitable material secured to the support preferably by a plurality of carrier-strips secured to the abutment strip in suitable fashion, as by brazing or welding the abutment strip extending upward from the support, and the carrier strip having slots receiving binding screws as one convenient form of fastening means to secure the carriers in adjusted position to maintain the flexible abutment edge in its predetermined contour. When so constructed, the contour of the flexible edge can be regulated quickly and accurately as desired by loosening the binding screws, changing the positions of the carriers so that their respective degrees of extension beyond the line of binding screws will present the flexible edge in the curvilinear form which ordinarily constitutes the required shape, and re-tightening the binding screws to secure the carriers in their new position and there maintain the flexible edge.

The abutment may have any suitable general contour, and one such suitable and convenient shape is formed by extending the

support along a generally straight longitudinal axis, in parallelism with which the binding screws are arranged, serving as a base line from which to measure the curvilinear departure of the flexible abutment edge from a straight line, to which curvilinear departure will correspond the variation in radius of the pattern disk generated, and the variations in width of the projecting edge of the sole in the finished shoes, the latter being cut in machines controlled by the pattern disks, each change in width of the sole edge finding its source in a corresponding change in the extent of departure of the flexible edge, the length of which is preferably equal to the periphery of the operative portion of the pattern disk. As a further aid to the rapid alinement of the abutment strip in desired contour, I may, and preferably will, provide a series of threaded positioning bolts mounted in posts extending above the stick at intervals, behind the abutment strip, which may be readily engaged with the free ends of these bolts to locate the strip quickly when the bolts have been set so that their ends lie in a line corresponding to the desired shape. The carrier strips will have been loosened first, of course, to permit the abutment strip to be bent, and as the abutment strip is pressed into engagement with the alinement bolt at any given region, the binding screw adjacent that region will be tightened, to hold that portion of the abutment strip in adjusted position and so on until the abutment strip shall have been located and fastened throughout its operative length.

The various features of my invention will be illustrated and described fully in the accompanying drawings and specification and pointed out in the claims.

In the drawings, Figure 1 is a view in perspective of an abutment device in the construction of which my invention has been embodied, the same being shown in operative relation with a portion of a pattern generating mechanism of the Perry type before mentioned, sufficient of the latter being shown to permit a clear idea of the mode of coöperation of my abutment device with such apparatus; Fig. 2 is a fragmentary plan view of the same abutment device shown separately; and Fig. 3 is a fragmentary view thereof in end elevation, looking from right to left, Fig. 1; Fig. 4 is a fragmentary detail view in plan of a modification which will be more fully described hereinafter.

In the embodiment of my invention selected for illustration and description to enable ready and complete understanding of my improvements, the part designated by the reference letter *a* is the abutment proper, which may be of any material construction and arrangement suitable to be

engaged, and coöperate, with a "follower," or analogous controlling lever or member, such as that designated by the reference numeral 4, to control the operation of the pattern generating mechanism, the latter comprising in the instance illustrated a rotary cutter 1 mounted near the end of an arm of the lever 4 in position to cut or shape the periphery of a pattern disk such as that shown at 16, which, when completed, may be utilized in, and to control, machines for trimming the soles of shoes, and in such other operations as may require the use of a pattern disk.

In Fig. 1 only so much of the pattern generating mechanism is shown as is deemed useful to illustrate the mode of operation of the abutment, and for a more extended description and illustration of the pattern generating mechanism, reference may be had to the Perry patent already mentioned; it being a sufficient further designation of one of the important objects of my improved abutment device to mention that it takes the place of the model shoe ordinarily used in coöperation with pattern generating mechanisms of the type illustrated in the said Perry patent. The abutment proper, *a*, preferably, consists of a flexible edge of suitable material, as for example a thin resilient strip of steel, shaped by bending, thus rendering it a universally adjustable substitute for an infinite variety of model shoes, and permitting changes in the shape of the sole edge pattern that ordinarily would require the expensive operation of making a new model shoe for each change. To permit this adjustment, and to provide means to maintain the abutment edge in its adjusted shape, I may adopt any suitable construction, and as one convenient form of such construction, I have shown a series of carriers *b*, supported on a stick, base or support *d*, in a straight line in the instance chosen for illustration, along the longitudinal axis of the support, the latter being shown as a flat piece of wood. The carriers *b* are secured, preferably permanently, as by welding or brazing, to the abutment strip along its rear, and are held by binding screws *f* in adjusted position on the stick, the binding screws passing through slots *g*, and washers *g*¹, and constituting one convenient form of fastening means for this purpose. Auxiliary positioning screw members or bolts *b*¹ may be mounted in posts *b*² intervening between the carriers *b* just described and these members may, and preferably will, be provided, to simply abut against the rear of the abutment strip, as illustrated, engaging the same at regions intermediate the regions of support by the carriers *b*, and will hold the flexible edge up to its work. They may be utilized also to regulate the change in its

form, by first setting their free ends at points corresponding with the desired position of the abutment strip at that region of each screw, and then pressing the abutment strip back against the screw, where the strip may be secured by its binding screw which has been loosened to facilitate adjustment.

In operation, the members b and b^1 having been adjusted to give the flexible edge the desired curvilinear, or other, contour, and being fastened firmly in place by tightening the binding screws f , the device is applied to the mechanism to be controlled, as for example to a machine containing pattern generating mechanism of the Perry type already mentioned, and preferably the forward edge e of the support will be engaged with some regularly moving portion of the pattern generating mechanism, as for example the rotary gage or member 26 which is usually caused to turn at a predetermined ratio of speed relatively to the speed of the pattern blank disk 16, carrying the stick d along at the peripheral speed of the gage, and with it the abutment proper a , against which the swiveling follower 17 is held in yielding engagement by suitable means, as the spring plunger 21 (see Fig. 1). In some instances it may be desirable to insure positively co-equal traverse of the gage and edge, and any suitable construction may be adopted for that purpose. I prefer to provide the edge with some form of gearing, as the rack e^1 illustrated in the modification shown in Fig. 4, in which event it will be found convenient to provide a cooperating gear device on the gage 260, as for example the pinion illustrated, the teeth of which intermesh with those of the rack e^1 . In this modification the reference character a^1 designates the flexible abutment strip. When the follower 17 runs past a swell, as that marked a^2 on the flexible edge a , the lever is swung on its pivot 5 (see Fig. 1), and the cutter 1 is carried in against the pattern blank disk 16, cutting more deeply into the periphery thereof, and each variation of contour in the flexible edge a is similarly reproduced upon the periphery of the disk 16. If it be desired that the abutment shall be held in position without requiring constant attention by the operator, suitable holding means may be provided, and as one convenient form of such holding means I have shown at u an upright having a ledge u^1 provided with antifriction guide rollers u^2 with which the rear edge e^2 of the abutment stick may be engaged, an overhanging cap-piece u^3 being shown also to retain the abutment stick upon the ledge, to which latter suitable fastening means such as the screws u^4 may attach the cap-piece. I prefer to provide for swinging the holder upright u away from the rotary member 26 at times, for the sake of convenience in withdrawing

and replacing the abutment, and as one convenient form of connection to permit such withdrawal I have shown the upright u as hinged at u^5 to a stand u^6 secured at u^7 to the table u^8 which carries the pattern generating machine, and by means of a threaded bolt u^9 fast in the stand u^6 and passing through the upright u , and a spring u^{10} confined between the upright and an adjustable nut u^{11} on the bolt, the holder and abutment may be held yieldingly but with a steady pressure in its operative relation with the pattern generating apparatus.

Having described my invention thus fully, and illustrated suitable means for carrying the same into effect, I wish it to be understood that I do not limit myself to the specific construction or materials herein shown and described, nor in general otherwise than as set forth in the claims read in connection with this specification.

What I claim and desire to secure by Letters Patent is:—

1. The combination with a pattern generating machine having a rotatable support for pattern-blanks, a model follower, and pattern-generating mechanism constructed and arranged to generate radially irregular pattern disks; of an abutment device comprising a plurality of parts independently adjustable to form a pattern edge; and means to support said abutment device movably in position to traverse said model follower operatively.
2. A holder for abutment devices of the class described; said holder comprising a swinging upright having a ledge provided with antifriction means to be engaged with said abutment device and permit free traverse of the same while held; and means to maintain said swinging upright yieldingly toward the mechanism to be traversed operatively by said abutment device.
3. The combination with a pattern generating machine having mechanism constructed and arranged to generate radially irregular pattern disks and a model follower, of an abutment device comprising a plurality of parts independently adjustable to form a pattern edge or movable engagement with said follower; a holder upon which said abutment device is supported movably to traverse said follower operatively; and means to permit said abutment device to traverse said follower inoperatively.
4. The combination with a pattern generating machine having pattern-generating mechanism, a rotatable support for disk-pattern-blanks, and a model follower; of an abutment device comprising a base, a plurality of independently adjustable supporting members mounted on said base, and a flexible abutment strip carried by, and conformable with, said members; and means to

support said abutment device movably in position to traverse said model follower operatively, said abutment device being removable with its base, supporting members
5 and flexible strip, as a unitary structure, from said machine.

5. An abutment device for pattern-generating machines; said device comprising a base, a plurality of independently adjustable
10 supporting members mounted on said base, and a flexible abutment strip carried by, and conformable with, said members, said base,

supporting members and strip constituting a unitary structure implacable as such in any of a series of said pattern-generating
15 machines.

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

JOHN V. ALLEN.

Witnesses:

ELIZABETH C. COUPE,
ARTHUR L. RUSSELL.