(No Model.) 2 Sheets—Sheet 1.

J. PARKER & M. L. GUNNING.

BEVELING AND SCARFING MACHINE.

No. 373,943. Patented Nov. 29, 1887.

Fig. 1.

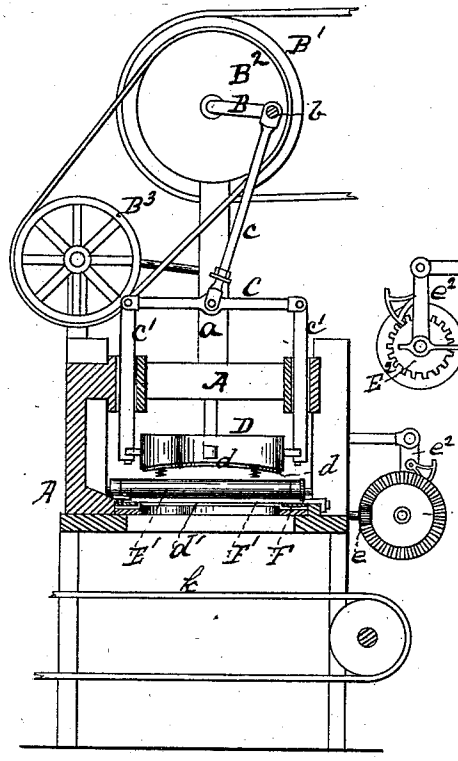


Fig. 2.

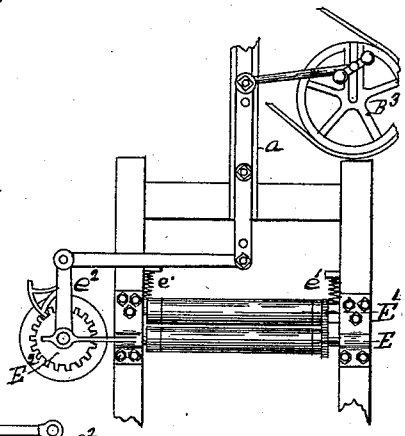


Fig. 4.

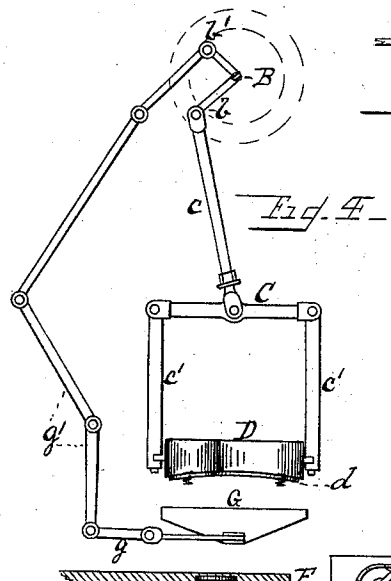


Fig. 3.

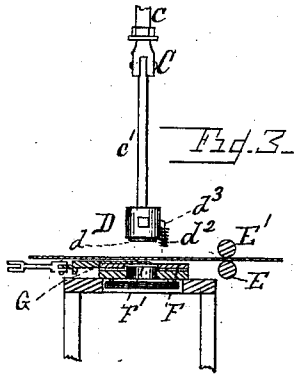


Fig. 5.

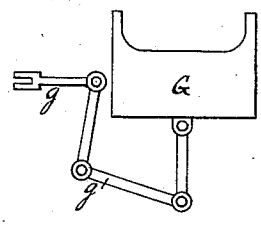


Fig. 7.

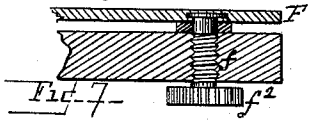


Fig. 6.

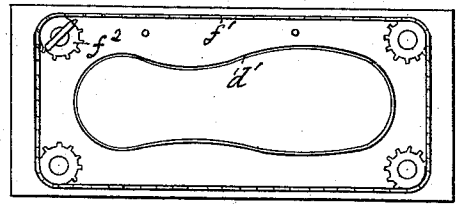
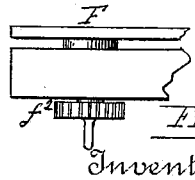


Fig. 8.



Witnesses

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(No Model.) 2 Sheets—Sheet 2.

J. PARKER & M. L. GUNNING.

BEVELING AND SCARFING MACHINE.

No. 373,943. Patented Nov. 29, 1887.

Fig. 9.

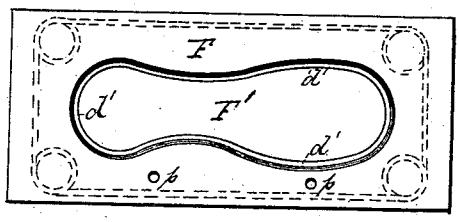
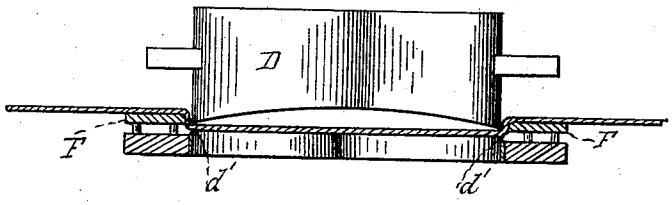


Fig. 10.



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UNITED STATES PATENT OFFICE.

JONAS PARKER AND MARK L. GUNNING, OF WILLIAMSPORT, PENNSYLVANIA, ASSIGNORS, BY DIRECT AND MESNE ASSIGNMENTS, TO THE PARAGON SHOE CUTTER COMPANY, (LIMITED,) OF SAME PLACE.

BEVELING AND SCARFING MACHINE.

SPECIFICATION forming part of Letters Patent No. 373,943, dated November 29, 1887.

Application filed April 18, 1887. Serial No. 235,299. (No model.)

To all whom it may concern:

Be it known that we, JONAS PARKER and MARK L. GUNNING, both residing at Williamsport, in the county of Lycoming and State of Pennsylvania, have invented certain new and useful Improvements in Apparatus for Cutting and Beveling or Scarfing the Edges of Flexible or Elastic Materials; and we hereby declare the following to be a full and clear description of the same.

This invention relates to machines for cutting and beveling the edges of flexible or elastic material, and is designed as an improvement on the machine illustrated and described in United States Letters Patent No. 357,024, issued to us on the 1st day of February, 1887.

In the patented machine referred to the blanks are cut and beveled at one stroke by the conjoint action of a female cutter and a male die provided with an adjustable face-block arranged in advance of its cutting-edge.

One object of our present invention is to dispense with this adjustable face-block, substituting in lieu thereof an adjustable beveling or crimping plate arranged above the female cutter.

Another object of the invention is to provide a reciprocating feed apron or table, which, as the male die rises, will move forward and carry the material over the female die and as the male die descends will move back out of the way.

Another object of our invention is to provide means by which the material operated upon may be held firmly upon the block of the female die.

These and minor objects are attained through the agency of mechanism substantially such as is illustrated in the accompanying drawings, wherein—

Figure 1 is a vertical section of mechanism embodying our improvements. Fig. 2 is an elevation of a portion of the machine, (at the rear of Fig. 1,) showing the feed-rollers and mechanism for operating them. Fig. 3 is a detail section showing the die-block, with its spurs and strippers, and the female die and crimping-plate. Fig. 4 is a diagrammatic view showing the connections between the apron and shaft and die-block and shaft. Fig. 5 is a plan of the apron. Fig. 6 is a bottom view showing the female cutter and adjusting devices for raising and lowering the crimping-plate F. Figs. 7 and 8 are details of crimping-plate and adjusting mechanism. Fig. 9 is a top view of the crimping-plate, showing the perforations for receiving the spurs of the male cutter. The dotted lines indicate the adjusting mechanism beneath the plate F. Fig. 10 is a section of the male die or cutter, the female cutter, the interposed beveling-plate or crimping-plate, and the flexible or elastic material crimped or in position to be cut and beveled by the action of the cutters.

Like letters refer to like parts wherever they occur.

Mechanism for carrying out our invention is mounted upon any suitable frame, A, provided with standards *a*, supporting a crank-shaft, B, which may be driven from any source of power by a belt passing over a band-wheel, B′, keyed to said shaft. Another band-wheel, B^2, is keyed to the shaft B, through which band-wheel the feed-rolls are actuated. The crank-shaft B is provided centrally and at one end with cranks *b b′*, and to the central crank, *b*, is secured the upper end of a pitman, *c*, the lower end of which is pivoted to the upper cross-beam, C, of a yoke, the side bars, *c′*, of which move in vertical guides carried by or forming part of the frame A. To the lower ends of the side bars, *c′*, of the yoke is secured a die-block, D, carrying the male die or cutter *d*, or a cutting-edge may be formed on said block, as preferred. A female cutter, *d′*, is supported by the end of frame A directly beneath the die-block D. If desired, two or more die-blocks may be operated by the side bars, *c′*, and two or more female cutters arranged in the bed, so as to cut rights and lefts or several blanks at one time.

A pair of feed-rolls, E E′, are mounted in bearings secured to the side of the frame, the bearings of the upper roll, E′, being backed by coil or other springs *e′*, constantly exerting a pressure in the direction of the other roll, and the spindle of this lower roll, E, is extended at one end and fitted with a pinion,

e, arranged to mesh with a gear-wheel, E^2, mounted on the frame and advanced step by step by a pawl or pawls carried by an arm or lever, e^2, fulcrumed on the shaft or spindle of said gear-wheel E^2. This lever e^2 may be connected by a suitable rod directly to the band-wheel B^3, or there may be a lever and additional pitman interposed.

The mechanism so far described is of the general character of that illustrated in our patent hereinbefore referred to, except that in the present machine there is but one pair of cutters and one pair of feed-rolls, while in the patented machine two pair of cutters and two pair of feed-rolls are used.

Supported above the female cutter *d'* is a crimping-plate, F, adjustable vertically with relation to said cutter by means of a suitable number of screws, *f*, (four being shown,) and these screws may be turned simultaneously by any well-known means, such as a chain, f', passing over sprockets f^2, secured to each screw.

The cutters *d d'* may be similar in all respects to those described in our prior patent, except that the male cutter has no face-plate, the crimping of the material in the present machine being accomplished by the conjoint action of the male cutter *d* and the crimping-plate F, and the cutters in the present machine may be the exact size of the blank to be cut, instead of slightly smaller, as in the former machine.

It will be understood, of course, that the crimping-plate F is provided with an aperture, F', of proper size and shape, through which the material is forced by the male cutter or reciprocating die-block. To prevent the leading edge of the material from sagging and catching the edge of this aperture as it is fed forward through the machine, we have devised a means to support said material and carry it over the aperture of the crimping-plate as the die-block rises after a cut. The means shown consists of a light apron, G, of sheet metal or other suitable material, supported to move back and forth just above the upper face of the crimping-plate F, said apron being actuated by means of the shaft B and intermediate connections—as, for instance, the crank b', connecting-rods *g*, and rock arms or levers g', as shown.

The apron G and plunger or yoke carrying the die-block should be so timed with relation to each other that the forward concaved end of the apron will be withdrawn from the aperture in the crimping-plate at the instant the male cutter on its downward stroke comes in contact with the material operated upon, the rearward movement of the apron being continued during the descent of the cutter through the female cutter and reversed at the instant the male cutter in its ascent clears the material.

The successive cuts in the material are made as close together as possible, to avoid waste, and in working very flexible material there is great liability of the forward edge being pulled down by the male cutter into the aperture of the crimping-plate, thus endangering the accuracy of the cut. To overcome this difficulty we secure to the forward face of the die-block D a slender spur or spurs, d^2, arranged to enter perforations *p* in the crimping-plate F near its aperture, whereby the scrap end of the material in the machine will be pierced and held firmly against movement in any direction until the cut has been made and the male cutter rises free from the material. Stripper-springs d^3, coiled, as shown, or of any other approved form, are used in connection with the spurs d^2 to strip the material therefrom at the instant the lower ends of said spurs have cleared the crimping-plate in their ascent.

K indicates an endless carrying belt or apron arranged below the female cutter *d'*, and which receives its motion from a drum or pulley on the main power-shaft. This apron receives the blanks as cut and conveys them off out of the machine, and is a very material feature of the machine when used for cutting rubber blanks, such as shoe-soles, &c.

It will be noted that the beveling or crimping plate F is a plate having an aperture, F', corresponding in form to the blank to be produced (no matter what that form may be) and that the reciprocating die-block or male cutter D passes through the opening F' in plate F, carrying with it the flexible or elastic material, so that the plate crimps the material before it reaches the cutter *d'*. The reciprocating die-block has no face-plate or bevel, as in our former patent, and requires none, as the bevel of the cut is not dependent thereon. It will also be noted that the flexible or elastic material, &c., is held and controlled by the feed mechanism and the spurs d^2 on the reciprocating die-block or cutter D, so that the bevel and the cut must be accurate.

In indicating a crimping-plate having a hole through which the reciprocating die D passes to crimp the material, or of the general character of plate F, we shall, for the sake of brevity, refer to it as an annular crimping-plate, not intending thereby to be limited to the special form shown and described.

Having thus described the nature and operation of our invention, what we claim, and desire to secure by Letters Patent, is—

1. In apparatus for cutting and beveling articles of flexible or elastic material, the combination of the male and female cutters and an annular beveling-plate arranged between said cutters, substantially as and for the purposes specified.

2. In an apparatus for cutting and beveling articles of flexible or elastic material, the combination of the male and female cutters and an annular beveling-plate arranged above and adjustable with relation to the female cutter, substantially as and for the purposes described.

3. In a machine for cutting blanks, the combination of the male and female cutters, the feed-apron, and mechanism for supporting and re-

ciprocating the male cutter and apron, substantially as described.

4. In a machine for cutting blanks, the combination of the male cutter provided with spurs, the female cutter, and the beveling-plate supported above the female cutter and provided with perforations to receive said spurs, substantially as described.

5. In a machine for cutting blanks, the combination of the male and female cutters, the beveling-plate provided with perforations, the spurs secured to the male cutter, and the stripper-springs, substantially as described.

6. The combination, substantially as described, of the male cutter carrying spurs, the female cutter, the beveling-plate arranged above the female cutter, and the apron arranged to reciprocate above the beveling-plate, substantially as and for the purposes specified.

7. The combination, substantially as described, of the male cutter carrying spurs, the female cutter, the beveling or crimping plate arranged above the female cutter, an apron arranged to reciprocate above the beveling-plate, and a carrying-belt arranged below the female cutter, substantially as and for the purposes specified.

In testimony whereof we affix our signatures, in presence of two witnesses, this 13th day of April, 1887.

JONAS PARKER.
MARK L. GUNNING.

Witnesses:
A. H. HINKLE,
W. R. ROOK.