(No Model.) 2 Sheets—Sheet 1.

L. KNETZGER.

CRIMPING MACHINE FOR BOOT OR SHOE UPPERS.

No. 323,815. Patented Aug. 4, 1885.

FIG. 1.

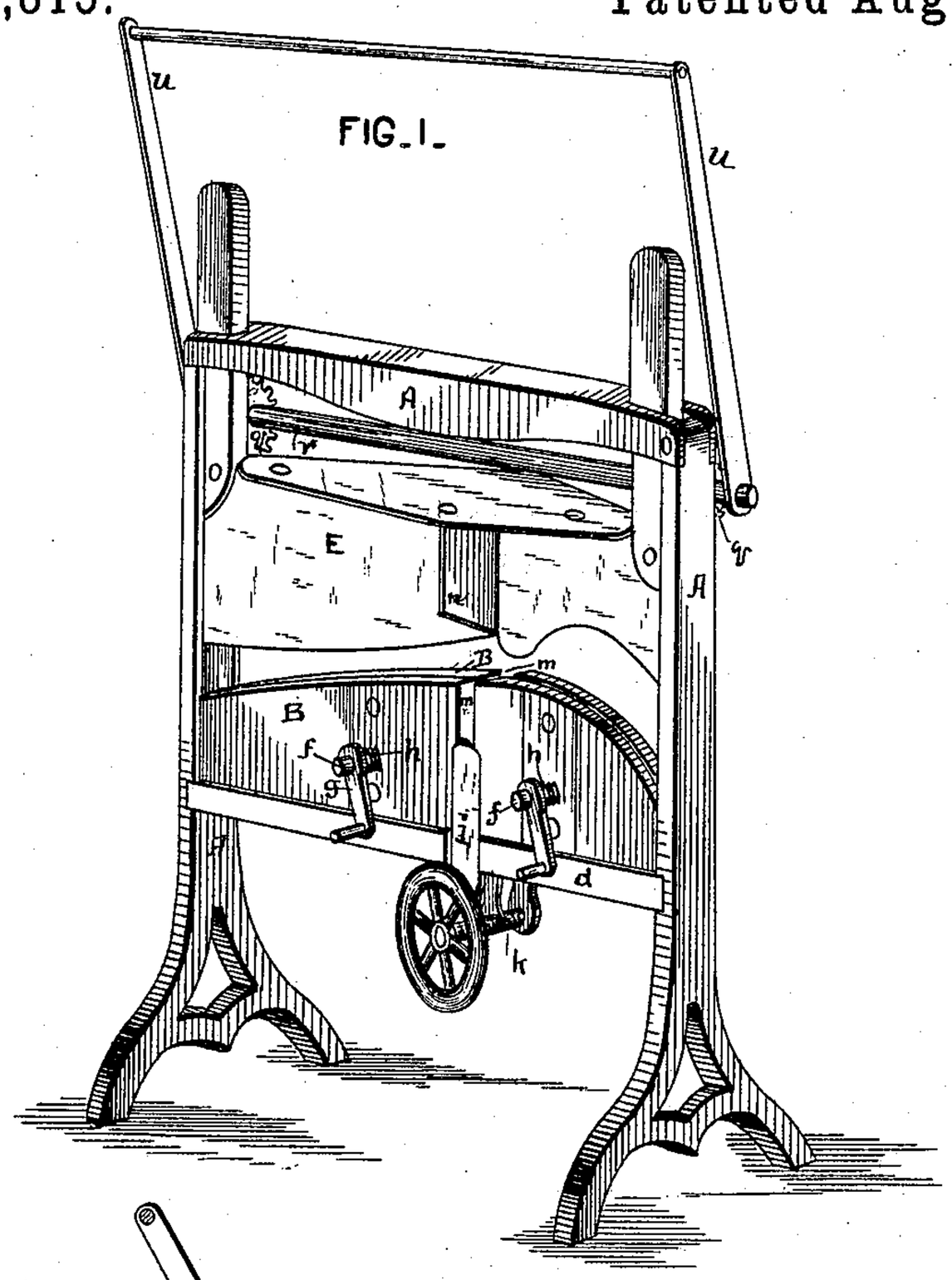


FIG. 2.

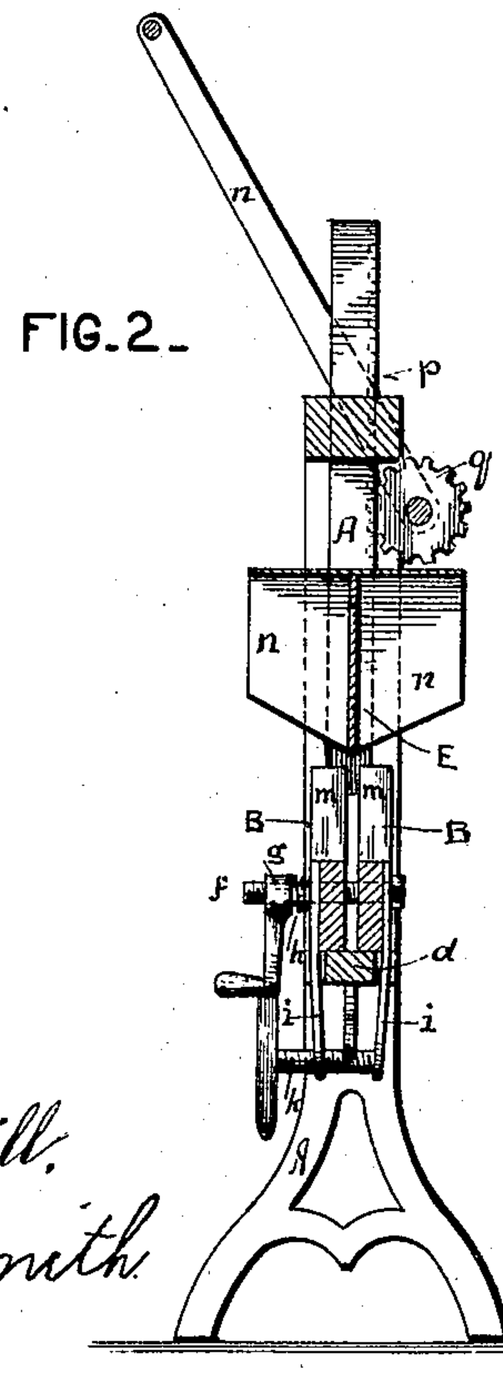
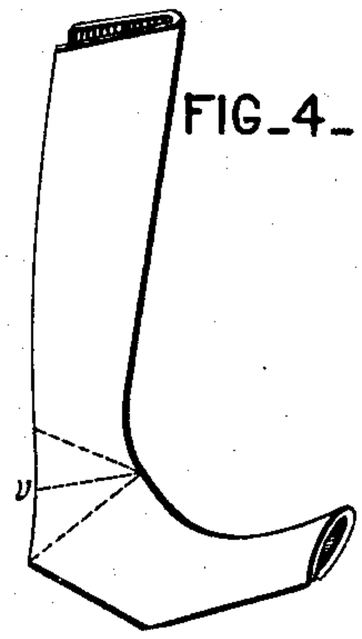


FIG. 3.

FIG. 4.



WITNESSES:

Wm. P. Gill.

Myles Smith

INVENTOR

L. Knetzger

BY R. D. Smith

his ATTORNEY

(No Model.) 2 Sheets—Sheet 2.

L. KNETZGER.

CRIMPING MACHINE FOR BOOT OR SHOE UPPERS.

No. 323,815. Patented Aug. 4, 1885.

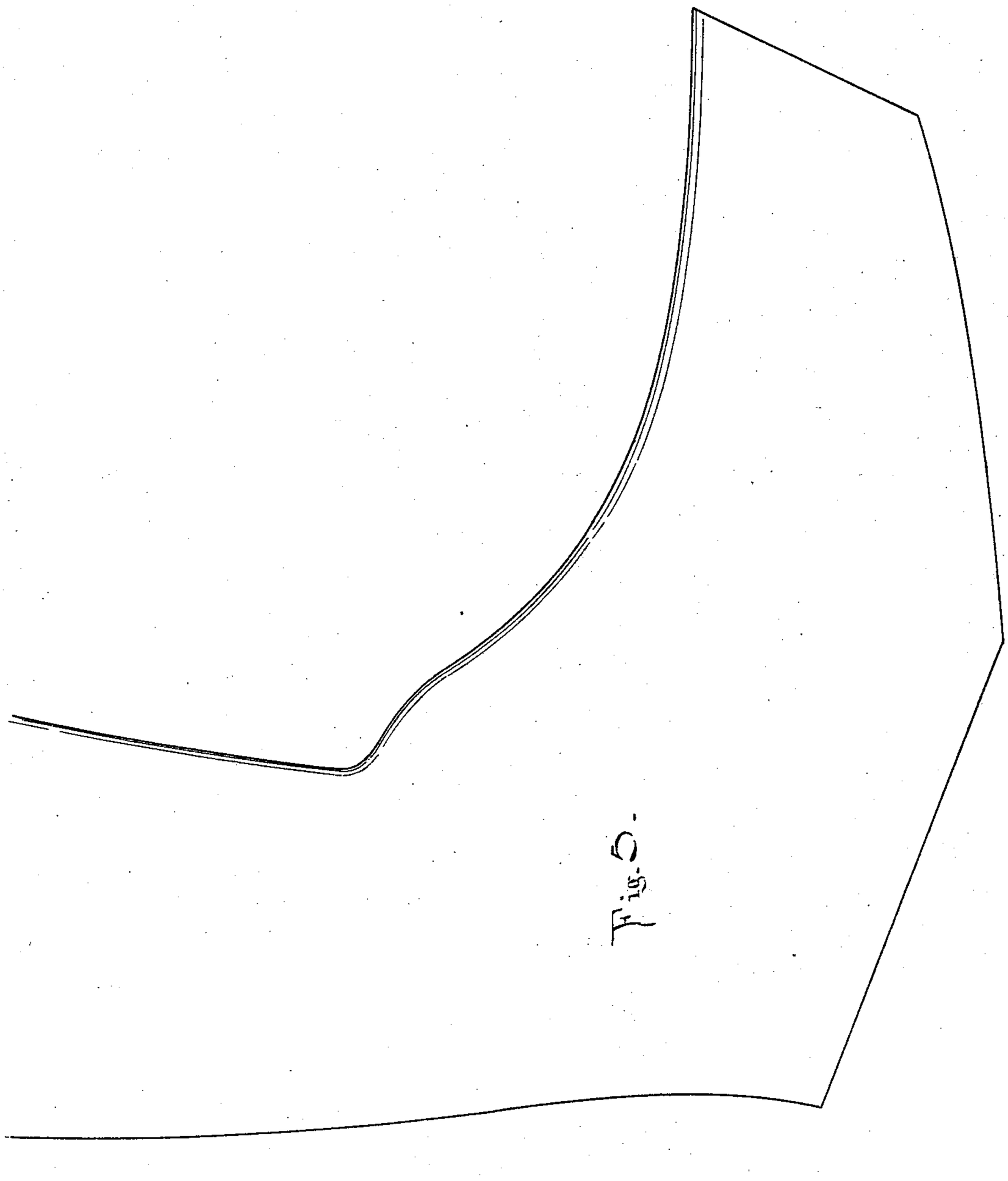


Fig. 5.

WITNESSES

M. D. Smith.
R. W. Smith

INVENTOR

L. Knetzger
By R. D. O'Smith
his Attorney

UNITED STATES PATENT OFFICE.

LEONARD KNETZGER, OF DUQUOIN, ILLINOIS.

CRIMPING-MACHINE FOR BOOT OR SHOE UPPERS.

SPECIFICATION forming part of Letters Patent No. 323,815, dated August 4, 1885.

Application filed May 19, 1885. (No model.)

To all whom it may concern:

Be it known that I, LEONARD KNETZGER, of Duquoin, Perry county, in the State of Illinois, have invented new and useful Improvements in Machines for Crimping Boot or Shoe Uppers; and I do hereby declare that the following is a full, clear, and accurate description of the same.

Heretofore it has been the custom to crimp the leather over a former having only one stretching-plane approximately the profile shape of the leg, instep, and foot, and the leather so crimped is compelled to stretch substantially in one direction only, and this gives rise to wrinkles and puckers, which require to be "worked out." I am also aware that a former has been jointed in the middle, so that the leather may be first folded over said former while substantially straight, and afterward stretched longitudinally by flexing the former; but that requires the edges of the leather to be clamped fast, which interferes with the uniform stretching, and it does not simultaneously produce the stretch both transversely and longitudinally. My invention obviates these undesirable results as well as facilitates the general results, by a cruciform stretch of the leather over a former having two stretching-planes instead of one, substantially at right angles to each other, and bearing no resemblance to the profile of the leg, instep, and foot. The effect of this is to commence the stretching at the center and extend the same in radial lines in all directions therefrom, so that the leather is uniformly and gradually elongated without wrinkles, and the operation is greatly facilitated.

That others may fully understand my invention, I will particularly describe the machine which I have made to work it, without, however, intending to limit myself to the details of the operative mechanisms shown, which may be greatly varied without affecting the results of the invention.

Figure 1 is a perspective view of my machine. Fig. 2 is a perspective view of crimping-blank when removed from the machine. Figs. 3 and 4 are perspective views of the crimped boot-front. Fig. 5 is an outline of a boot-front crimped as on my machine.

A is a stout frame with feet, to stand upon the floor and support the operative parts of the invention.

B B are the side plates constituting the crimping die or matrix mounted and stationary on said frame. Said side plates rest on a bar, *d*, of the frame A, which supports them in resisting the downward thrust of the crimping-former E, which forces the leather down between the plates B B. To adapt the machine to the different thicknesses of leather, and to impart to the plates B B an elastic quality which will enable them always to act without risk of rupturing the leather under treatment, straining-bolts *f f* are employed, each provided with a screw and hand-nut, *g*, and with a strong spring, *h*, interposed between said nut and plate B. The tension of the spring *h* is the measure of the elastic resistance to lateral pressure, and this may be increased or diminished at will by changing the position of the nuts *g* accordingly.

To maintain substantial parallelism between the plates B B, the lateral pressure being all above the straining-bolts, two arms, *i i*, are projected downward from the plates B B, and a screw, *k*, acts to maintain them at the desired distance apart, subject to adjustment, by the action of said screw.

The matrix-plates B B have a transverse gap, *m*, to receive the cross-arm or transverse blade *n* of the former E, whereby the leather is stretched transversely as well as longitudinally from the center.

The former E may be raised or lowered by any of the mechanical contrivances usually employed; but I prefer to work it by means of two racks, *p p*, attached to the former E, and pinions *q q*, mounted on a shaft, *r*, whereby they may be simultaneously operated. For convenience I attach a hand-lever, *u*, to move said shaft, and thereby the former may be actuated with all desirable speed and force.

When the leather blank is to be crimped, the former is raised clear above the matrix, and the leather is spread thereon in proper position, and upon the descent of the former it is forced into the matrix in the form of a cross, the cross arm or blade *n* descending into the gap *m*, spreading and stretching the leather laterally, as shown. It will be observed that without the cross-blade *n* the force

exerted upon the leather will all be in the plane of the motion of the former E, but with said cross-blade there is also a lateral pull perpendicular to said plane, and those parts of the leather which develop wrinkles without said cross-blade are with it drawn out and stretched.

When the blank has been crimped and is removed from the machine, it is in form like Fig. 3, the foot being substantially in line with the leg. By bending the foot upward, however, to the ordinary position of the foot portion of a crimped blank the side folds will flatten out without farther stretching, as in Fig. 4.

Having described my invention, I claim as new—

1. In combination, in a boot-crimping machine, a matrix and a cruciform former arranged to co-operate with a corresponding die or matrix having two stretching-planes adapted to simultaneously stretch the leather both transeversely and longitudinally, substantially as set forth.

2. The matrix-plates B B, provided with the transverse gap *m*, combined with a former, E, provided with a transverse or cross blade, *n*, adapted to enter said gap and stretch the leather laterally at the same time the former E is stretching the same leather longitudinally.

3. The matrix-plates B B, combined with the adjustable spring *h* and the screw *k*, substantially as set forth.

4. In combination, to constitute a crimping-machine, the frame A, matrix-plates B B, provided with gap *m*, former E, with cross-blade *n*, racks *p*, and shaft *r*, provided with pinions *q*.

L. KNETZGER.

Witnesses:
GEO. E. PECK,
N. E. ORTON.