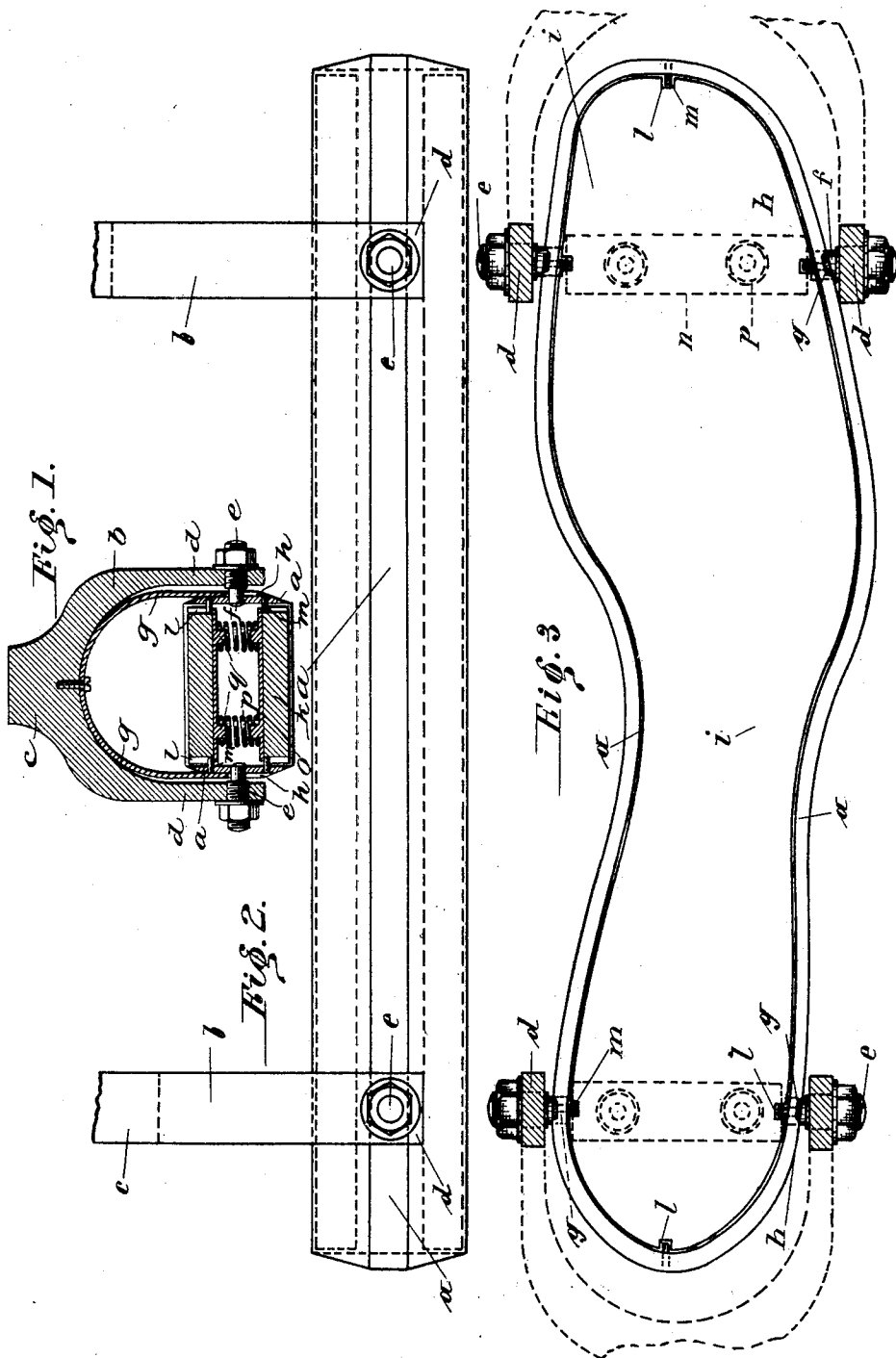


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CUTTING DIE.

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967,871.

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UNITED STATES PATENT OFFICE.

HERMANN C. GRÖS, OF LEIPZIG-LEUTZSCH, GERMANY.

CUTTING-DIE.

967,871.

Specification of Letters Patent.

Patented Aug. 16, 1910.

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To all whom it may concern:

Be it known that I, HERMANN C. GRÖS, a subject of the Emperor of Germany, residing at Leipzig-Leutzsch, in the Empire of Germany, have invented new and useful Improvements in Cutting-Dies, of which the following is a specification.

This invention relates to frame-like shaping knife for punching out leather, felt, textile and other soft materials.

Frame-like shaping knives are known which are provided on the knife back with a bail shaped handle, which at the same time serves as a pressure receiver. In such shaping knives any chips which collect in the inner part of the knife-frame cannot be removed in an upward direction as the manner of attaching the bail shaped handle forms an impediment.

The novelty of this invention consists in arranging the bail shaped pressure receivers in such manner that they embrace the shaping knife and by means of their shank ends engage about at the center of the outside of the knife body. The bail or bails in this arrangement allows sufficient free space to permit discharging of the chips in an upward direction.

A further important improvement is attained by the arrangement of such bail shaped pressure receivers on frame-like double-edged shaping knives.

Various attempts have been made to provide pressure receivers for double-edged knives and to enable their application. A really practicable feature in this direction can only be attained when the shaping knife with its pressure receiver during use can be rapidly reversed from one cutting edge to the other and when such arrangement is simple and its construction is not too expensive. In the present arrangement are employed bail shaped pressure receivers which at each of their ends are provided with pins or bolts which engage into holes located in the center of the frame-like knives. In this case the bails are so journaled from the out-side in the knife-body that they can be easily turned about the knife-body from one side to the other to enable the bail to be held in vertical position relatively to the cutting edges. The inner curvature of the bail is provided with a spring of corresponding shape whose two ends engage in grooves in the knife-body and on swinging the bail from one side to

the other the springs come into engagement and disengagement. In the use of such double-edged knife provided with pressure receivers or pressure bails the chips of material punched out and received in the interior of the knife can only with difficulty be removed in an upward direction. The emptying of the punch of chips from the interior of the knife in a downward direction is difficult for the operator and consumes time. Consequently, according to this invention an ejector arrangement is applied which consists of two movable plates in the interior of the shaping knife and corresponding to the form of the cut. Such ejector arrangement consists of two movable plates in the interior of the shaping knife and approximately corresponding to the form of cut. These ejector plates are arranged between pressure springs which exert a constant pressure against the plates in a direction toward the knife edge. By means of lugs these plates are held in their position of rest.

In the annexed drawing a shaping knife embodying this invention is shown and Figure 1 represents a cross-section of such a knife. Fig. 2 is a longitudinal view of Fig. 1. Fig. 3 is a plan view of the knife embodying this invention.

The shaping knife *a* as shown has upper and lower cutting edges. In side view this knife presents a tapering appearance in an upward and downward direction while its thick portion is at the center of which a certain portion is flattened. The bail *b* has at its upper portion a flat part *c* while at its free end *d* there are fastened pins or bolts *e*. The cylindrical smooth portion *f* on the projecting portion of each bolt engages into a suitable hole in the knife. At the inner face of the bail *b* are secured springs *g* whose free ends engage into grooves *h* formed in the upper face of the knife.

In order to allow an easy swing or freeing of the bail the edges on the grooves can be formed somewhat slanting or rounded. The two ejector plates *i* and *k* have grooves *l* into which engage pins *m* on the knife whereby the plates are led parallel to the direction of cut. For determining the end position of the plates the grooves have their length limited by lasts *n* and *o*. Between the plates *i* and *k* are arranged springs *p* which are held at the lasts *n* and *o* by suitably arranged studs *q*.

I claim:

1. A cutting die comprising a frame-like knife, and a pair of bails attached to said knife and having their shanks embracing the
5 outside of the same, each bail being reversible to a position at right angles to the cutting edges of the knife and provided with spring parts to act as holders.
- 10 2. A cutting die comprising a frame-like knife, a pair of bails attached to said knife and having their shanks embracing the outside of the same, each bail being reversible

to a position at right angles to the cutting edges of the knife and provided with spring parts to act as holders; and an ejector plate 15 located within said knife.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

HERMANN C. GROS.

Witnesses:

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RUDOLF ARNOLD.