June 23, 1931. A. C. ACKERMAN 1,811,571

GANG DIE FOR CUTTING GLOVE BLANKS

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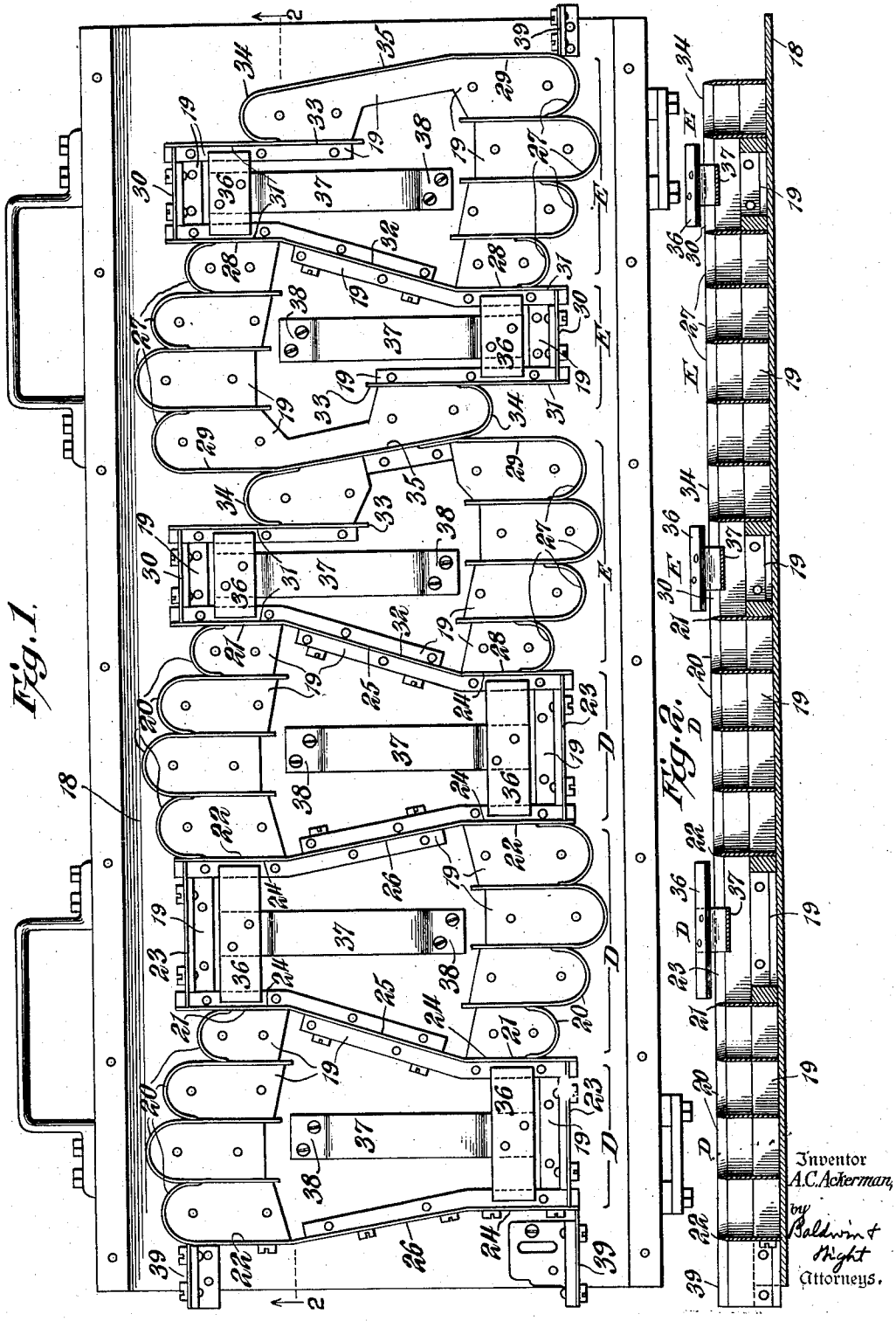


Fig. 1.

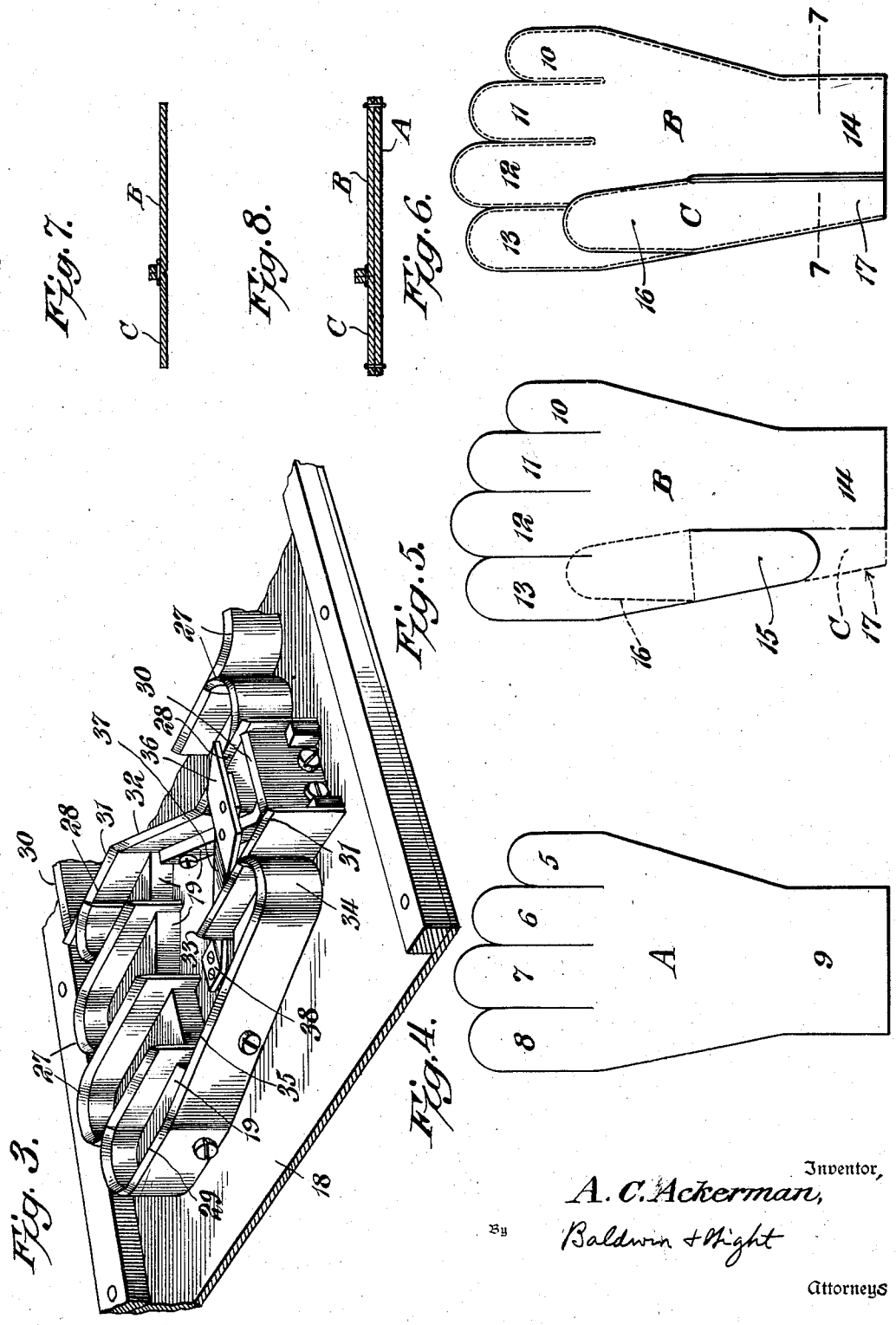
Fig. 2.

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UNITED STATES PATENT OFFICE

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GANG DIE FOR CUTTING GLOVE BLANKS

Application filed June 25, 1930. Serial No. 463,733.

The invention generally relates to the manufacture of gloves and primarily has for its object to provide a novel die construction designed to facilitate the cutting of face blanks employed in the manufacture of gloves of the type disclosed in my copending application Serial No. 454,367, filed May 21, 1930.

Another object of the invention is to provide a novel die unit for cutting a blank having a hand face, a wrist portion, fingers and a reversely directed thumb portion.

Another object of the invention is to provide a cutting die including a gang of die units so juxtaposed and alternately arranged that the defining cutting edges between units serve to cut defining edges of adjacent blanks thereby eliminating the cutting of intervening waste strips and enabling the simultaneous cutting of large numbers of blanks from a minimum of material.

Other objects will in part be obvious and in part be pointed out hereinafter.

To the attainment of the aforesaid objects and ends, the invention still further resides in the novel details of construction, combination and arrangement of parts, all of which will be first fully described in the following detailed description, then be particularly pointed out in the appended claims, reference being had to the accompanying drawings, in which:

Figure 1 is a plan view illustrating a gang of die units assembled on a support;

Figure 2 is a longitudinal cross section taken on the line 2—2 on Figure 1;

Figure 3 is a fragmentary perspective view illustrating one die unit adapted for cutting a blank including face, wrist, fingers and reversed thumb portions;

Figure 4 is a plan view of a hand back face blank cut by a die unit;

Figure 5 is a plan view of a hand front or palm face blank cut by a die unit;

Figure 6 is a plan view of a completed glove, looking at the hand front or palm face thereof;

Figure 7 is a cross section of the completed hand front or palm face of the glove, the section being taken on the line 7—7 on Figure 6; and

Figure 8 is a cross section of the completed glove before turning the same right side out, the section being taken on the line 7—7 on Figure 6.

In Figures 4 to 8, inclusive, I have illustrated a glove which includes the back and palm blanks which are cut by the die which forms the basis of this application, claims to the glove per se being presented in my copending application referred to hereintofore.

The completed glove is constructed of three pieces, namely, a back section A, a front section B and a combined thumb and wrist strip C. The glove may be formed of knitted or woven, or other material, if desired.

The back section A includes finger portions 5, 6, 7 and 8 and a wrist portion 9, but does not include a thumb portion. As will be observed by reference to Figure 4 of the drawing, the finger designated 5 is disposed at the little finger side of the blank and the finger designated 8 is disposed at the index finger side of the blank.

The front section B includes finger portions 10, 11, 12 and 13 extending in one direction from the main body portion, a wrist portion 14 extending in the opposite direction from the main body portion and a thumb portion 15 so formed that it lies within the lateral confines of the blank across the finger portions thus causing the finger portions to constitute the maximum width of the blank. The wrist portion 14 is somewhat narrower than the wrist portion 9 of the back section A, and the thumb portion 15 is disposed in longitudinal alignment with the index finger portion 13 and is arranged along the respective side of the wrist portion 14 as is clearly shown in Figure 5 of the drawing.

In completing the glove, I employ a combined thumb and wrist strip C, which comprises a thumb portion 16 and a wrist portion 17 which are arranged in alignment, the thumb portion being wider than the wrist portion. See full lines in Figure 6 and dotted lines in Figure 5 of the drawings. It is to be understood that this combined thumb and wrist strip C is to be cut by a separate die, the gang die disclosed in this application being adapted for the cutting of three sets of

blanks such as are shown in full lines in Figures 4 and 5.

In my improved die, I employ three sets of back and palm cutting die units arranged in alternated close relation, the rear face dies being designated D and the palm face dies being designated E.

The units are arranged as illustrated in Figure 1 of the drawings and are secured upon the base 18 by having their webs 19 secured to the base in any approved manner. See Figures 1, 2 and 3.

Each section D includes finger cutting flanges or knife edges 20 including the necessary intermediate edges for separating the fingers throughout their length and defined at one side by the little finger defining edge 21 and at the other side by the index finger defining edge 22. The unit also includes wrist portion base and sides cutting edges 23 and 24, respectively, one of the side edges being connected by a side cutting and defining edge 25 with the little finger edge 21, and the other side edge being connected by the side cutting and defining edge 26 with the index finger edge 22.

The units D thus constructed are alternately juxtaposed as shown at the left of Figure 1 of the drawing whereby one side cutting and defining edge 25 is common to two units and one side cutting and defining edge 26 is common to two units thus avoiding intervening spaces and the cutting of any waste material between the units.

Each unit E includes finger cutting edges 27 for forming the finger portion of the palm blanks which portion is defined at one side by the little finger cutting and defining edge 28 and at its other side by the index finger cutting and defining edge 29. These units also include wrist portion base and sides cutting edges 30 and 31, respectively, one of which side edges is connected by a side cutting and defining edge 32 with the little finger edge 28 the other of which side edges is extended a considerable distance into the main body portion of the palm blanks as at 33.

The extension 33 serves to divide from the palm body portion a thumb extension which is thereby disposed substantially as an extension of the index finger and which is completed by the thumb cutting and defining edges 34 and 35, the former being curved to shape the end of the thumb and the latter being extended to connect with and form an extension of the index finger cutting and defining edge 29.

It will be observed that the thumb portion formed by the edges 33, 34 and 35 is extended in a direction opposite the direction of projection of the fingers and lies wholly within the lateral confines of the palm blank so that its maximum width is across the position of the fingers. Thus the palm blank B matches the back blank A, except for the slight omission evident at the lower left hand corner of Figure 5.

Ejectors 36 are provided, one being disposed in each die unit wrist portion, said ejectors being mounted upon leaf springs 37 which are secured as at 38 with the base 18. The ejectors serve the purpose of ejecting the blanks which have been cut by the die units when the die is removed from the work.

The die is also equipped with laterally extended severing edges 39 which serve to divide the material from which the blanks are cut into upper and lower portions, thereby facilitating removal of the cut blanks and also the saving of the remaining material for future use.

In the foregoing description, I have disclosed a die capable of efficiently cutting glove blanks in a manner that will insure the manufacture of gloves from a minimum of material and with a minimum of waste. The die units are so constructed and arranged that no cut-outs or waste materials are severed between the blanks, the adjacent edges of the respective blanks serving as common cutting edges. The employment of a die having a reversely directed thumb cutting equipment makes it possible to form palm blanks which provide the necessary thumb portion and yet are no wider and thereby consume no more space than the back blanks.

From the foregoing description taken in connection with the accompanying drawings, it is thought that the novel details of construction, the manner of use and the advantages of my invention will be readily apparent to those skilled in the art to which it relates.

I claim as my invention:

1. A glove face blank cutting die comprising cutting edges disposed to stamp out a glove face blank having an extended wrist portion at one end and finger extensions at its other end, and cutting edges for stamping out a thumb portion connected to and extending from the blank in the direction of the wrist portion.

2. A glove face blank cutting die comprising cutting edges disposed to stamp out a glove face blank having an extended wrist portion at one end and finger extensions at its other end, and cutting edges for stamping out a thumb portion connected to and extending from the blank in the direction of the wrist portion, said thumb portion cutting edges being conjointly provided by extensions from the finger and wrist cutting edges.

3. A glove face blank cutting die comprising cutting edges disposed to stamp out a glove face blank having an extended wrist portion at one end and finger extensions at its other end, and cutting edges for stamping out a thumb portion connected to and extending from the blank in the direction of the wrist portion, said thumb portion cutting

edges being conjointly provided by extensions from the finger and wrist cutting edges, said wrist portion cutting edge extension determining the extent of freedom of the thumb portion, and said finger cutting edge extension forming the side limit of the thumb portion and being disposed to extend from the index finger side.

4. In a glove blank cutting die a base, blank cutting units supported on the base, each said unit comprising cutting edges disposed to stamp out a glove face blank having an extended wrist portion at one end and finger extensions at its other end, and cutting edges for stamping out a thumb portion connected to and extending from the blank in the direction of the wrist portion, two such units being disposed in juxtaposition to cause a part of the respective thumb portions to be cut by a common cutting edge.

5. In a glove blank cutting die a base, three palm blank cutting units supported on the base, each unit comprising cutting edges disposed to stamp out a glove face blank having an extended wrist portion at one end and finger extensions at its other end, and cutting edges for stamping out a thumb portion connected to and extending from the blank in the direction of the wrist portion, two such units having their wrist portion cutting edges directed in like manner and the other unit being disposed closely intermediate said two units and in reverse order to cause portions of the thumb portion cutting edges of two of the units to comprise a single cutting edge and to cause portions of the cutting edges opposite the thumb portion sides of two units to comprise a single cutting edge.

6. A glove face blank cutting die wherein is provided cutting edges for cutting a body portion and extended finger, thumb and wrist portions, the thumb and wrist portion cutting edges being disposed within the lateral confines determined by the finger portion whereby the width of the blank cut will be greatest across the position of the finger extensions.

7. In a glove blank cutting die a base, blank cutting units supported on the base, each said unit comprising cutting edges disposed to stamp out a glove face blank having an extended wrist portion at one end and finger extensions at its other end, and cutting edges for stamping out a thumb portion connected to and extending from the blank in the direction of the wrist portion, two such units being reversely juxtaposed to cause the cutting edges at the little finger side to unite in a common cutting edge.

8. In a glove blank cutting die a base, three palm blank cutting units supported on the base, each unit comprising cutting edges disposed to stamp out a glove face blank having an extended wrist portion at one end and finger extensions at its other end, and cutting edges for stamping out a thumb portion connected to and extending from the blank in the direction of the wrist portion, two such units having their wrist portion cutting edges directed in like manner and the other unit being disposed closely intermediate said two units and in reverse order to cause portions of the thumb portion cutting edges of two of the units to comprise a single cutting edge and to cause portions of the cutting edges opposite the thumb portion sides of two units to comprise a single cutting edge, and three back blank cutting units each comprising body, finger and wrist portion cutting edges, and said last named units being alternately-reversely juxtaposed to cause their adjacent edges to form common cutting edges and whereby the edge of the one thereof adjacent the nearest of the first mentioned units will form therewith a common cutting edge.

9. In a glove blank cutting die a base, three palm blank cutting units supported on the base, each unit comprising cutting edges disposed to stamp out a glove face blank having an extended wrist portion at one end and finger extensions at its other end, and cutting edges for stamping out a thumb portion connected to and extending from the blank in the direction of the wrist portion, two such units having their wrist portion cutting edges directed in like manner and the other unit being disposed closely intermediate said two units and in reverse order to cause portions of the thumb portion cutting edges of two of the units to comprise a single cutting edge and to cause portions of the cutting edges opposite the thumb portion sides of two units to comprise a single cutting edge, and three back blank cutting units each comprising body, finger and wrist portion cutting edges, and said last named units being alternately-reversely juxtaposed to cause their adjacent edges to form common cutting edges and whereby the edge of the one thereof adjacent the nearest of the first mentioned units will form therewith a common cutting edge, and end extension cutting edges to sever the material into upper and lower portions.

In testimony whereof, I have hereunto subscribed my name.

ALBERT C. ACKERMAN.