Dec. 17, 1935. C. KAISER 2,024,369

PACKING AND METHOD OF MAKING SAME

Filed Jan. 31, 1933

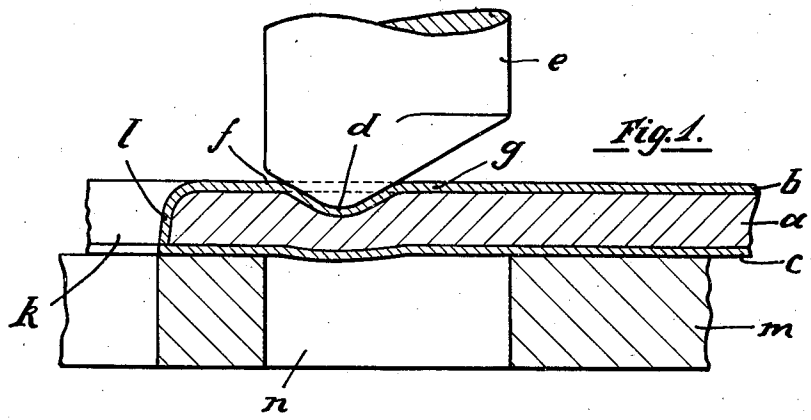


Fig. 1.

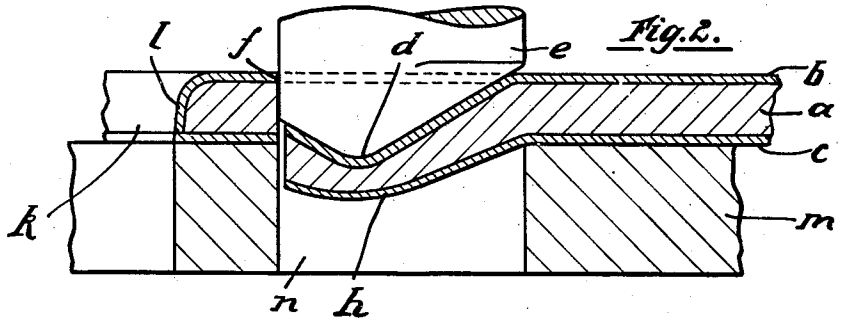


Fig. 2.

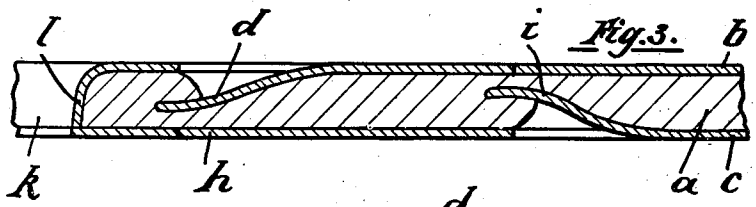


Fig. 3.

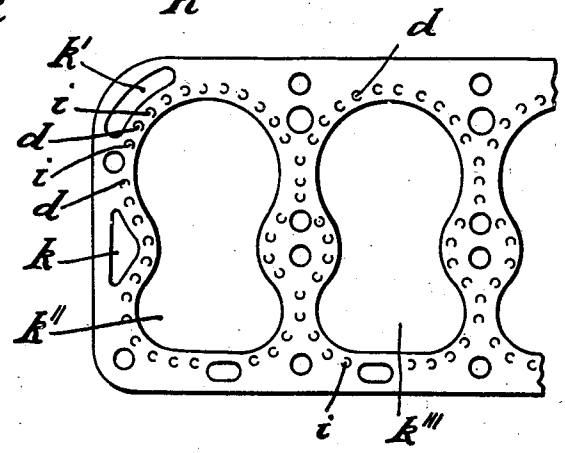


Fig. 4.

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PACKING AND METHOD OF MAKING SAME

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2 Claims. (Cl. 154—2)

My invention relates to packings and to the method of making same. It relates more particularly to packings which consist of a central layer of comparatively soft and resilient material, such as asbestos or the like, covered on both sides with liners of sheet metal.

It is an object of my invention to provide a packing of the kind aforesaid the parts of which are effectively interconnected. To this end I punch tongues out of the metal liners after the three parts of the packing have been assembled, so that the free ends of the tongues penetrate into the central layer.

In a preferred embodiment of my invention I straighten the packing after the tongues have been punched, so that the free ends of the tongues overlap the incisions where they have been separated from the metal. In this manner a sort of interlocking is brought about by which the bracing of the packing becomes still more efficient.

Preferably the liners are bent down along the edges of the packing and along the edges of the holes in the packing, if any, so that the central layer is enclosed by the two liners. This may be performed by bending down one of the liners onto the other liner which remains flat, or by bending both liners so that the edges of the bent portions are abutted or overlapped.

In the drawing affixed to this specification and forming part thereof a device for performing the method according to my invention is illustrated diagrammatically by way of example.

In the drawing

Fig. 1 is a partly sectional elevation of the device, showing its parts at the beginning of the first stage of operation.

Figs. 2 and 3 are partly sectional elevations showing two more stages of the method, and

Fig. 4 is a plan view of the finished product.

Referring now to the drawing, and first to Figs. 1–3, *a* is a central layer of comparatively soft and yielding material such as asbestos or the like, and *b* and *c* are top and bottom liners of sheet metal on opposite sides of the central layer. The layer and the liners are assembled and are then subjected to the action of a punch for forming the tongues, as will now be described.

e is the punch to which reciprocating movement is imparted by any suitable means (not shown), and *m* is a die plate for cooperation with the punch *e*, with a hole *n* therein which the punch *e* can enter. The punch is equipped with suitable cutting edges, as will now be described.

In operation, the packing *a*, *b*, *c* is placed on the die plate *m* and the punch *e* is lowered, as shown in Fig. 1. The cutting edges on the punch *e* are so arranged, that when the punch descends, two edges which are at the sides of the punch facing the spectator, and averted from the spectator, i. e., at the right and left as viewed by an operator standing at the left in Fig. 1, form two incisions at the sides of the punch in the top liner *b* and the bottom liner *c*, without, however, severing the incised portion from the bodies of the liners. The punch *e* has a one-sided hump on its lower face by which it produces a depression in the upper tongue portion *d* and stretches this portion. Upon the further descent of the punch *e* and about at half its downstroke, Fig. 2, a third cutting edge at its front or left side severs the incised portion of the top liner *b*, the central layer *a*, and finally the bottom liner *c*, at *f*. The portion of the punch *e* at the right is blunt and not a cutting edge, so that at the right the tongues remain connected to the bodies of the respective members. As shown in Fig. 2, the top and bottom liners now are severed at the left and at the same time curved or bulged by the hump of the punch *e*, as shown at *d* and *h*, the bulging of the top liner *b* being obviously more pronounced than that of the bottom one *c* to which the pressure of the head *e* is transmitted through the soft central layer *a*.

The packing and its tongues are now flattened out in a suitable press (not shown) so that the lower portions *h* of the tongues return into the plane of the bottom liner *c*. The upper portions *d*, however, of the tongues have been stretched by the above described treatment and have become somewhat longer, so that their free ends now penetrate into the edge of the central liner *a* where it has been severed at *f*, Fig. 2, overlapping the inner edge of the top liner *b* where it has been severed. This effects a very good connection of the parts.

The formation of only one tongue having the upper and lower portions *d* and *h* has been described but it is understood that as many tongues may be formed as desired, and that the formation of the tongues may be started from opposite sides of the packing. Thus, Fig. 3 shows another tongue *i* which is formed from the bottom liner *c*, and such tongues may be provided in alternating arrangement. The arrangement, number, size and configuration of the tongues may obviously be varied as required by the shape of the packing, and the purpose for which it is used.

The edges *l* of the holes *k* are formed by beading down the top liner *b* onto the bottom liner *c*, as shown for the hole *k* in Figs. 1, 2 and 3. The outer edges of the packing may be beaded in a similar manner. Instead of beading down one of the liners, such as the top liner *b*, down onto the other liner which remains flat, such as the bottom liner *c*, the two liners may be beaded toward each other so as to form a central seam which may be overlapped or abutted.

Fig. 4 shows a portion of a rectangular packing with holes *k*, *k'*, *k''* and *k'''* the hole *k* being the one whose edge *l* has been illustrated in Figs. 1 to 3. At the left of Fig. 4, a row of tongues *d* is formed along that portion of the hole *k''* which is at the bottom in Fig. 4, and a row of tongues *i* is formed at the portion which is at the top. At the hole *k'''*, the position of the tongues *d* and *i* is reversed.

The spring or resilient reaction of the strongly bulged portions of the tongues, i. e. of the portions on which the hump of punch *e* acts directly, may be relied on for causing them to overlap with the bodies of the respective liners after the punch *e* has been retracted, but it is preferred to straighten the packing in the manner described with reference to Fig. 3 as the overlaps become longer and more regular.

My invention may be applied to packings for any purpose, for instance, packings for cylinder covers, cylinder heads, flanges of tubes or manifolds in internal combustion or steam engines, turbines, etc.

Various changes may be made in the details disclosed in the foregoing specification without departing from the invention or sacrificing the advantages thereof.

In the claims affixed to this specification no selection of any particular modification of the invention is intended to the exclusion of other modifications thereof and the right to subsequently make claim to any modification not covered by these claims is expressly reserved.

I claim:—

1. In the production of gaskets the steps of arranging metal liners above and below a sheet of gasket material, acting on the assembled parts with a punch to form a depression therein and to cause elongation of the metal in the depression, cutting off the depressed portions on three sides to form three superposed tongues and finally acting with pressure on said tongues to flatten out and returning into its original position the shorter metal tongue, while stretching and forcing into said gasket material the longer metal tongue.

2. A gasket comprising in combination a sheet of gasket material and a metal liner covering said sheet on either side, a portion of said gasket material being depressed and the adjoining portion of one of said metal liners being elongated and projecting into the nondepressed gasket material adjoining the depressed portion.

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