

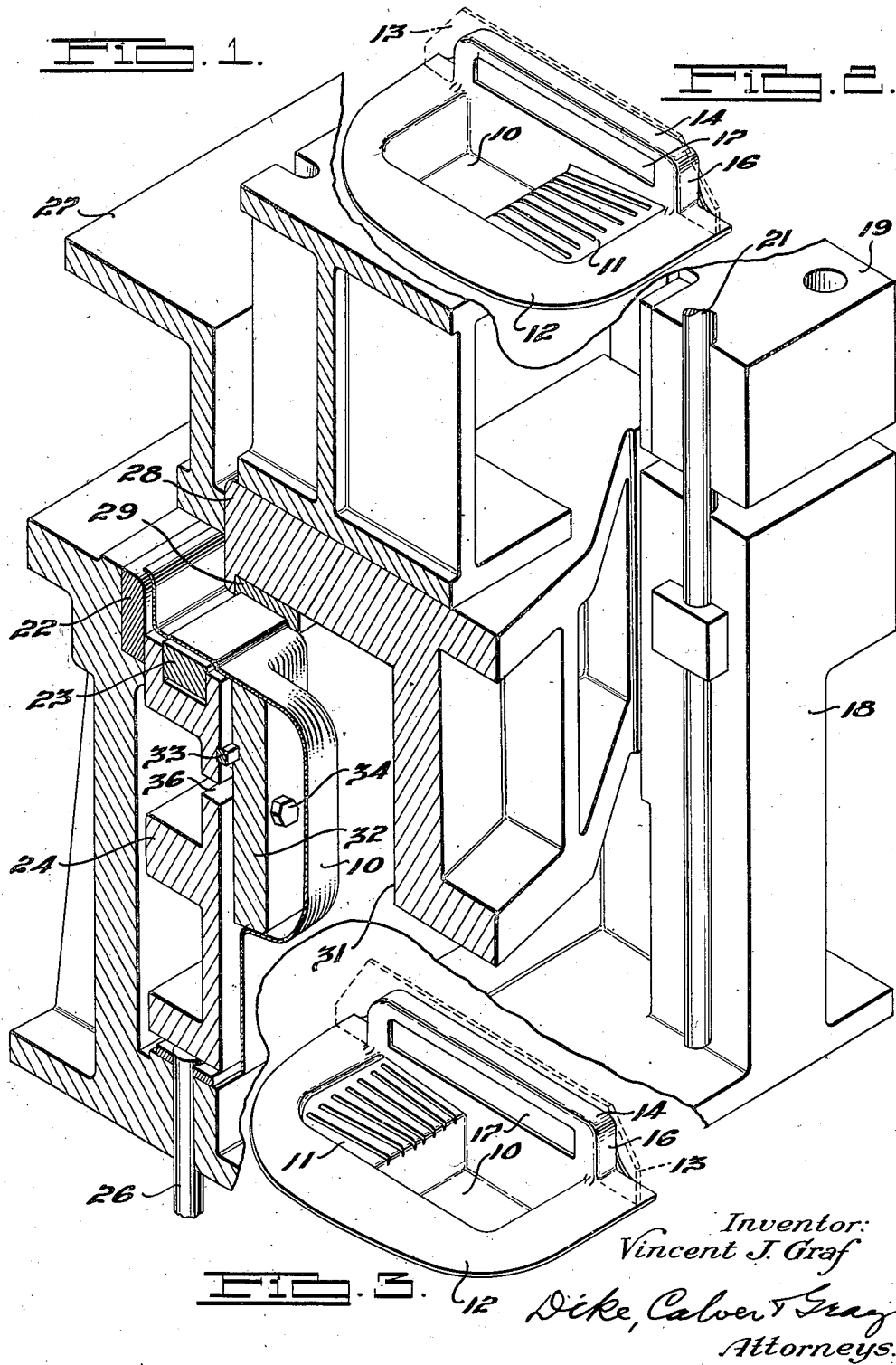
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DIE APPARATUS

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This invention relates to die blocks and more particularly to a die block for manufacturing sinks from a single piece of sheet metal.

A sink generally comprises a basin portion, a sloping drainboard portion located either on the right or the left side of the basin, a lip or flange extending along the sides and the front of the sink, and a splash apron extending across the back of the sink and above the drainboard and basin.

In performing a stamping operation on the splash apron, which is usually done after the formation of the basin, the presence of the bulge of the basin at either end of the splash apron portion complicates the die design particularly if a stamping operation is to be performed which involves a pressure on the blank exerted in a direction extending across the basin. This is particularly true of the operation of forming the top and end flange of the splash apron. If, at the same time, it is desired to emboss the splash apron, additional complication occurs.

If, in addition to designing a die to work around the basin, it is also necessary to have both right hand and left hand dies, then the die expense also becomes exorbitant.

One of the objects of my invention therefore is to reduce the die expense required for the manufacturing of right and left hand sinks by providing a single die which may be used alternatively for performing operations on splash aprons after the basin, located at either end of the apron, has been formed.

Another object of my invention is to provide a die for performing an operation on the splash apron of a one-piece sheet metal sink blank which may be either of the right or left hand type, but in which the splash apron portions are identical.

A still further object of my invention is to provide a die having a sink basin engaging portion and a splash board deforming portion, the basin engaging portion being movable across the die so that one die may be used alternatively on blanks having right or left hand basins.

Other objects of this invention will appear in the following description and appended claims, reference being had to the accompanying drawing forming a part of this specification wherein like reference characters designate corresponding parts in the several views.

Fig. 1 illustrates a perspective view of a portion of a die and sink blank, parts of the die being cut away to show the construction which incorporates my invention.

Figs. 2 and 3 illustrate, respectively, right hand

and left hand drainboard sinks showing in dotted lines the form of the blanks before they are put through the die shown in Fig. 1, and in full lines their form as changed by said die.

Before explaining in detail the present invention it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawing, since the invention is capable of other embodiments and of being practiced or carried out in various ways. Also it is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation, and it is not intended to limit the invention claimed herein beyond the requirements of the prior art.

Referring to the drawing, the sinks shown, which are symmetrical, comprise a basin portion 10, a drainboard portion 11, and a flange 12 which is later to be deformed into the front edge of the sink. Before being operated on by the die, the back edge 13 of the sink blank lies in a plane perpendicular to the flange 12. The operation to be performed in the die will bend the splash apron flange 13 into a top flange 14 and end flanges 16, only one of which is shown. An embossed panel 17 will also be formed in the center of the splash apron, this embossment extending across the back of the blank above both the basin and the drainboard.

It will be noted that the embossment and the top and end flanges are the same in each of the sink blanks shown in Figs. 2 and 3, but that in the right hand drainboard sink the basin is at the left and in the left hand drainboard sink the basin is at the right.

Because it is necessary, in embossing the panel and in drawing the flanges 14 and 16, to hold the metal of the flange immediately adjacent the top edges of the drainboard and basin, the die must be designed to do this without interfering with the already formed basin. The die illustrated in Fig. 1 accomplishes this result.

The die comprises a lower section 18 and an upper section 19 aligned and held in alignment by locating studs 21. The die is particularly adapted for use in a double action press fitted with air cushions or springs in the well-known manner.

The lower section of the die is provided with a pressure plate portion 22 which surrounds an opening substantially the size of the finished splash apron panel, the pressure plate portions 22 being curved to form the top and end flanges 14 and 16.

The embossment 17 is formed by a die block 23 carried on a die insert 24 which is yieldably held in position by the rods 26 which may be connected to the air cylinder or spring mechanism.

- 5 The top section 19 of the die comprises a block 27 which cooperates with the pressure plate portions 22 to grip the edge of the flange 13 during the operation of drawing the flanges 14 and 16. Attached to the ram of the press is a second die 10 block 28 having a die plate 29 in the lower surface thereof, this plate being adapted to form the embossment 17 and extending across the embossment into contact with the unembossed portion of the front wall of the splash apron.
- 15 The die block 28 is recessed as at 31, this recess being sufficiently large so that as the die block 29 comes down, it will not touch the basin portion 10 of the blank. Carried by the movable insert 24 in the lower section 18 of the die 20 is a gauge or locating pad 32 which serves to position the sink blank inasmuch as its contour is substantially the same as the inner surface of the basin. This gauge or pad 32 may be vertically located by the guide rail 33 and is held 25 against the insert 24 by suitable adjusting bolts 34 operating in a slot or holes 36 formed in the die block 24.

With this construction the pad is adjustably and slidably mounted on the face of the block 30 24 and may be shifted laterally thereof to engage the basin whether the basin be located at the right or left hand end of the sink blank. Relocation of the basin engaging pad is the sole change required to fit the die shown for either 35 right or left hand sink blanks.

I claim:

1. A die block assembly for performing a stamping operation on the splash board portion of either a right hand or left hand sink blank; each of said blanks comprising a basin 40 portion, a drain board portion located respectively on the right or left side of the basin portion, and a splash board portion extending across the sink blank along the edges of the basin and the drain board portion; said die block assembly 45 comprising die means for performing a stamping operation on the splash board portion, gauge

means for engaging or locating said basin portion, and means for locating said gauge means adjacent either end of said die means, whereby said die block assembly may be adapted for operation on either right hand or left hand sink blanks by moving said gauge means to a position such that it will engage the basin portion of the selected blank.

2. A die block assembly for performing a stamping operation on the splash board portion of either a right hand or left hand sink blank; each of said blanks comprising a basin portion, a drain board portion located respectively on the right or left side of the basin portion, and a splash board portion extending across the sink blank along the edges of the basin and the drain board portion; said die block assembly comprising die means for performing a stamping operation on the splash board portion, and movable gauge means and gauge supporting means adjustably fixed below said die means for engaging or locating said basin portion, whereby said die block assembly may be adapted for operation on either right hand or left hand sink blanks by moving said gauge means to a position such that it will engage the basin portion of the selected blank.

3. A die block assembly for performing a stamping operation on the splash board portion of either a right hand or left hand sink blank; each of said blanks comprising a basin portion, a drain board portion located respectively on the right or left side of the basin portion, and a splash board portion extending across the sink blank along the edges of the basin and the drain board portion; said die block assembly comprising die means for performing a stamping operation on the splash board portion, movable gauge means for engaging or locating said basin portion, and means for locating said gauge means adjacent either end of said die means, whereby said die block assembly may be adapted for operation on either right hand or left hand sink blanks by moving said gauge means to a position such that it will engage the basin portion of the selected blank.

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