

T. B. NEWELL.
METHOD OF FORMING SAFE FRAMES.
APPLICATION FILED APR. 4, 1911.

1,040,567.

Patented Oct. 8, 1912.

FIG. 1

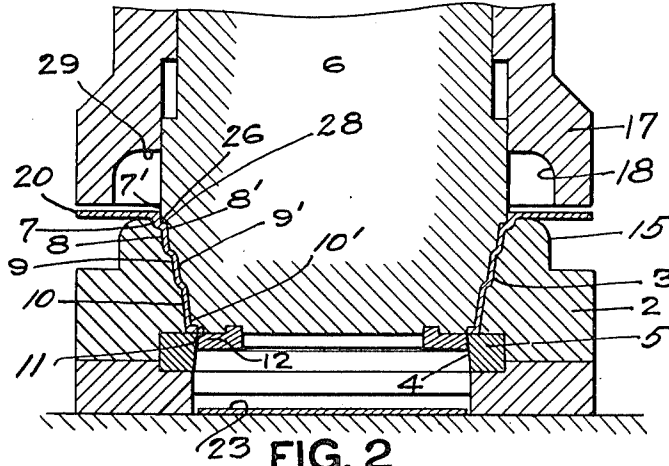


FIG. 2

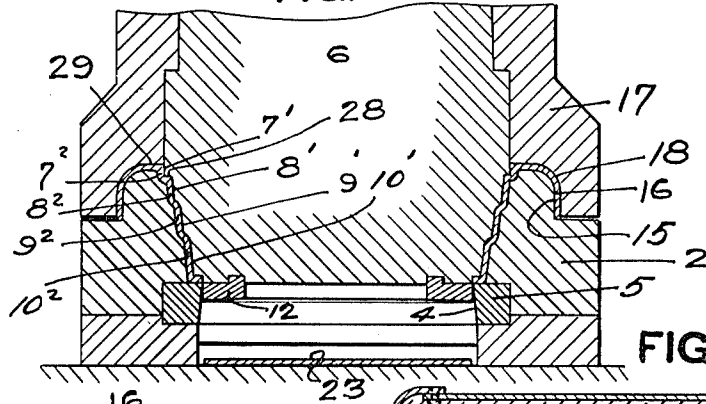


FIG. 3

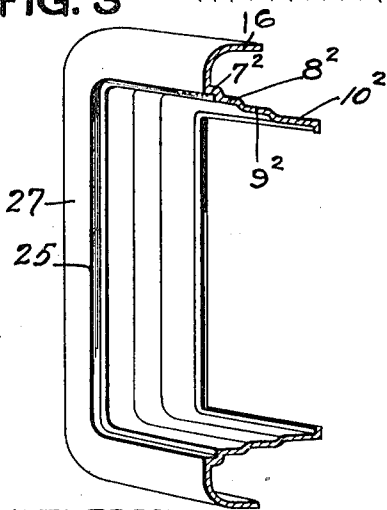
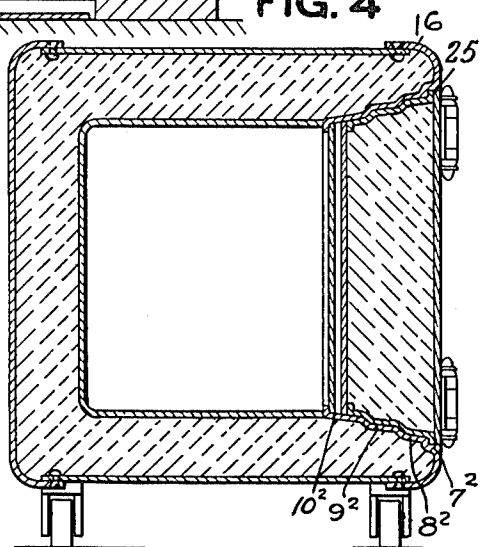


FIG. 4



WITNESSES.

J. R. Keller
Robert C. Fother

INVENTOR.

Thomas B. Newell
By Kay & Fother
attorney

UNITED STATES PATENT OFFICE.

THOMAS BARNES NEWELL, OF WILKINSBURG, PENNSYLVANIA.

METHOD OF FORMING SAFE-FRAMES.

1,040,567.

Specification of Letters Patent.

Patented Oct. 8, 1912.

Application filed April 4, 1911. Serial No. 618,951.

To all whom it may concern:

Be it known that I, THOMAS BARNES NEWELL, a citizen of the United States, and resident of Wilksburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Methods of Forming Safe-Frames; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to the manufacture of safe frames, its object being to provide for the manufacture of a combined door jamb and front body frame for such safes from wrought metal, and also for the manufacture of the door jamb frames forming part of the safe doors.

The principal points of the invention will be hereinafter set forth and claimed.

In the accompanying drawing Figure 1 is a view of dies suitable for forming the combined front body frame and jamb frame, showing the pressing of the door jamb portion; Fig. 2 shows the forming of the outer flange upon the blank; Fig. 3 is a sectional perspective of the complete blank; and Fig. 4 is a longitudinal section through the safe showing the pressed integral blank as employed in the building of the same.

In the practice of the invention I employ suitable pressing dies, the dies illustrated being suitable for the purpose, the anvil die 2 having the die cavity 3 of suitable form for the pressing of the blank, and the shearing opening 4 formed in the base of the die cavity fitted with suitable shearing knives 5 providing for the shearing of the bottom portion of the pan-shaped blank formed.

The reciprocating die 6 has its base portion corresponding to the shape of the anvil die, and the die faces of the anvil die 2 and the reciprocating die are formed of a series of steps, for example, the steps 7, 8, 9 and 10, in the anvil die, and the corresponding steps 7', 8', 9', 10', in the reciprocating die, so providing for the pressing from the pan-shaped portion of the blank the several steps 7², 8², 9² and 10², to provide the desired steps on the door jamb frame of the finished blank. The dies are arranged for the shearing of the bottom 11 from the pan-shaped blank, the shear knife 12 being illustrated as carried by the pressing die 6. It will be noted that the anvil die 2 has beyond the outer face of the reciprocating die 6 the downwardly curved die face 15. This provides for the pressing of the outer flange 16

from the same plate of metal, so providing an integral combined body frame and door jamb frame. For pressing the flange 16 I provide the reciprocating die 17 which fits around the die 6 and is operated so as to press the outwardly extending portion of the plate downwardly over the die face 15, the die 17 having the concave pressing face 18 for so pressing the metal.

In the manufacture of these door jamb frames and outer frames with the apparatus above described, a plate 20 of suitable width both for the pressing of the jamb portion of the combined integral frame and the body portion of the same is employed, and such plate is pressed to the desired shape by one or more pressing operations as found necessary according to the thickness thereof. It may be desirable to submit the same to a preliminary panning operation, but it is not considered necessary to illustrate the same, as the dies illustrated are only necessary in the formation of plates from certain thicknesses of metal. The plate resting upon the top of the anvil die 2, the reciprocating die 6 is forced downwardly under heavy pressure, and the metal is forced into and caused to conform to the die cavity 3 of the anvil die, the press imparting to the blank the stepped form by means of the several stepped faces 7', 8', 9', 10', forcing the metal into the like seats 7, 8, 9 and 10 of the anvil die, so forming the like steps 7², 8², 9² and 10² in the finished blank, and in line with the bottom step 10', the metal extending below the reciprocating die and forming the bottom of the pressed pan. The shearing knife 12 shears out the bottom portion 23 of the pan in connection with the pressing of the stepped blank, so forming the inner edge of the jamb frame. In some cases it is preferable to shear out the portion 23 before the final clamping of the blank between the dies as the blank, having then the form of a hollow frame, is thus left free to conform more easily to the several steps of the dies. While the blank is so held the reciprocating die 17 descends and bends the portion of the blank extending beyond the reciprocating die 6 down over the die face 15 of the anvil die 2, so producing the integral combined front frame and jamb frame.

It is desirable in the manufacture of safes that the inner edges of the jamb frame shall have the meshing corners formed angular so that the full access will be given to the in-

ner box holding the contents of the safe. It is, however, difficult to press these deep pans from such wrought metal plates to form absolutely square angles for the entire
 5 depth of the pan. Such angular corners are, however, required only at the inner end of the frame, and can be pressed at the bottom portion of the blank, as this is the first part of the flat plate with which the reciprocating die engages. I therefore form
 10 the lower step 10 of the die cavity and the corresponding step 10' of the reciprocating die with angular corners, while the corner portions of the dies above the same, for instance of the faces 7, 8, 9, and 7', 8', 9',
 15 are formed with curved corners. By so constructing the dies the metal will be carried down by the reciprocating die into the die cavity 3 and drawn over the angular corner of the lower stepped face and caused to fit closely thereto, while the metal of the plate is drawn into the die cavity passing over the rounded corners of the other steps of the die and die cavity, so that the metal
 20 can easily conform to the same while forming the series of steps required in the door jamb. Such curved faces and angular pressing are shown in Fig. 1, and the effect of the same in the top view of the blank, Fig.
 30 4. It is also desirable that the outer edge of the door jamb, such as the edge 25, shall be brought to a sharp angular edge so that the door plate of the safe may fit neatly and closely to the same. The dies are therefore constructed so that the base
 35 of the reciprocating die is formed with a sharp square seat 26, and in the formation of the blank sufficiently heavy pressure is applied on the downward movement of the reciprocating die to produce such clean
 40 square edge upon this portion of the pressed blank. In the final movement of the dies, the dies 6 and 17 are preferably advanced together, and the final pressure is sufficient
 45 to produce such square edge upon the blank, and to finish the front face 27 of the combined frame by the pressure of the flat faces 28, 29, of said dies 6 and 17 to produce a smooth finished face by the combined simultaneous movement of the two dies. The
 50 other steps of the blank may be made rounded as indicated in the drawing, as the only requirements for the same are that they shall closely fit the corresponding parts of the jamb frame secured to the door. Such
 55 corresponding frame carried on the door can be made by a like pressing operation, the

dies corresponding to those illustrated in the drawing, except that the reciprocating die 17 for bending the outer flange forming
 60 the front body frame of the same is not required.

I am thus enabled to provide a wrought-metal safe front plate and stepped jamb in the same to produce squared corner parts
 65 and rounded corner parts and to have the parts conform exactly to the dies, especially through the shearing out of the mid-portion of the pan during the pressing operation and before the dies are brought to their
 70 actual seats.

What I claim is:

1. The herein described method of forming a wrought metal door jamb frame, consisting in pressing a plate metal blank to
 75 form a series of steps, and in said operation forming the corner portions of the outer steps curved or rounded, continuing the pressing to form the corner portions of the inner step angular and punching out
 80 the mid-portion of the blank to form the door opening.

2. The herein-described method of forming an integral combined body and door-jamb safe frame, consisting in pressing from
 85 a single metal plate a stepped door-jamb frame and pressing the outer portion of said plate to form the flange of the body frame, and shearing out the bottom portion of the pan so formed while the blank is confined
 90 by the pressing dies.

3. The herein-described method of forming an integral combined body and door-jamb frame, consisting in pressing from a
 95 single metal plate a stepped door-jamb frame, and by a separate stroke pressing the outer portion of said plate to form the flange of the body frame, and advancing the pressing dies together to finish the front
 100 face of the combined frame.

4. The herein-described method of forming an integral stepped door-jamb frame, consisting in pressing from a single metal
 105 plate a pan-shaped blank and shearing out the bottom portion of said blank, and continuing the pressing operation to force the stepped portions of said blank into the stepped seats of the dies.

In testimony whereof, I the said THOMAS BARNES NEWELL have hereunto set my hand.
 110 THOMAS BARNES NEWELL.

Witnesses:

ROBERT C. TOTTEN,
 JOHN F. WILL.