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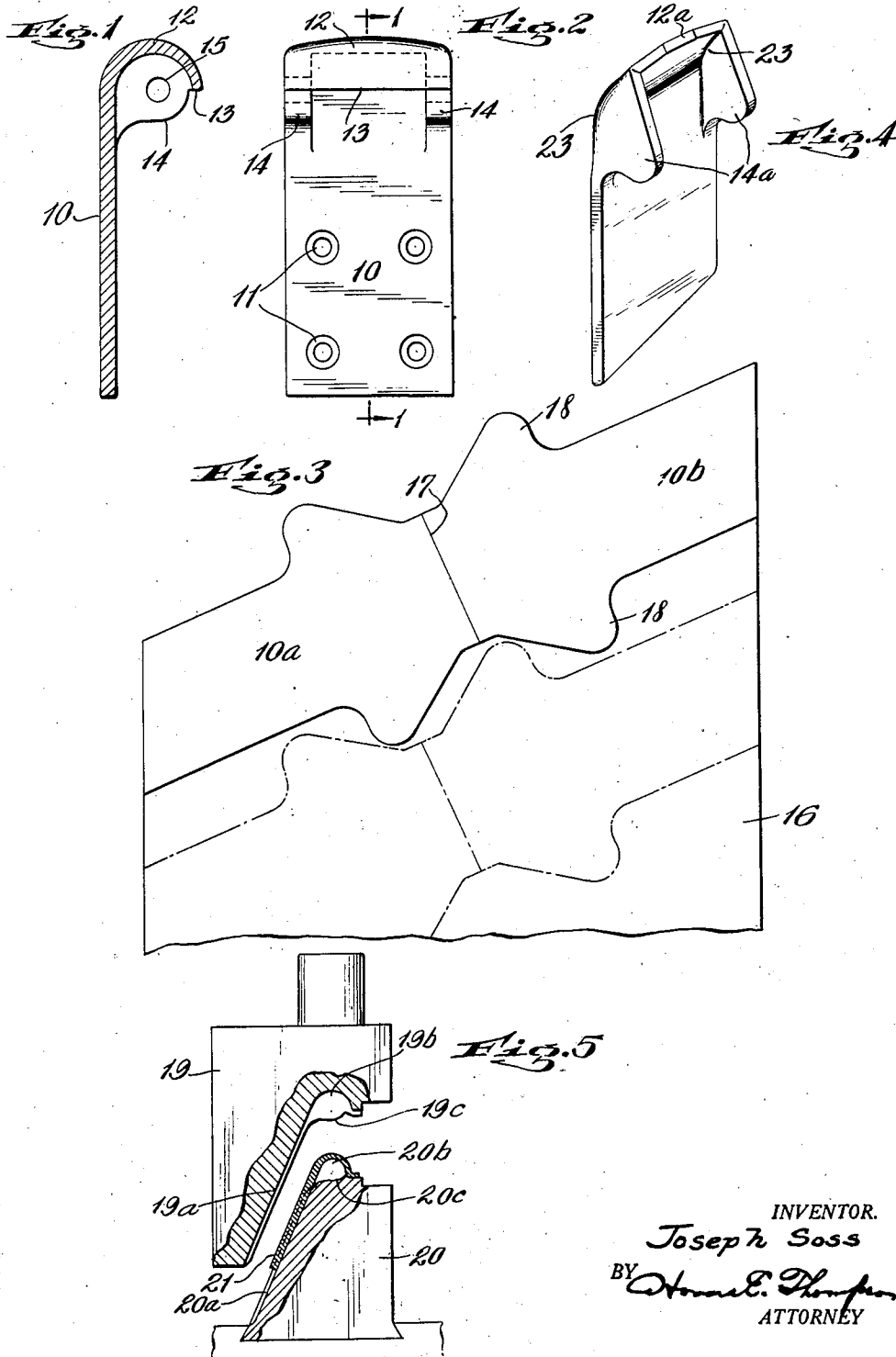
J. SOSS

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METHOD OF MAKING HINGE BUTTS

Filed Oct. 6, 1930

2 Sheets-Sheet 1



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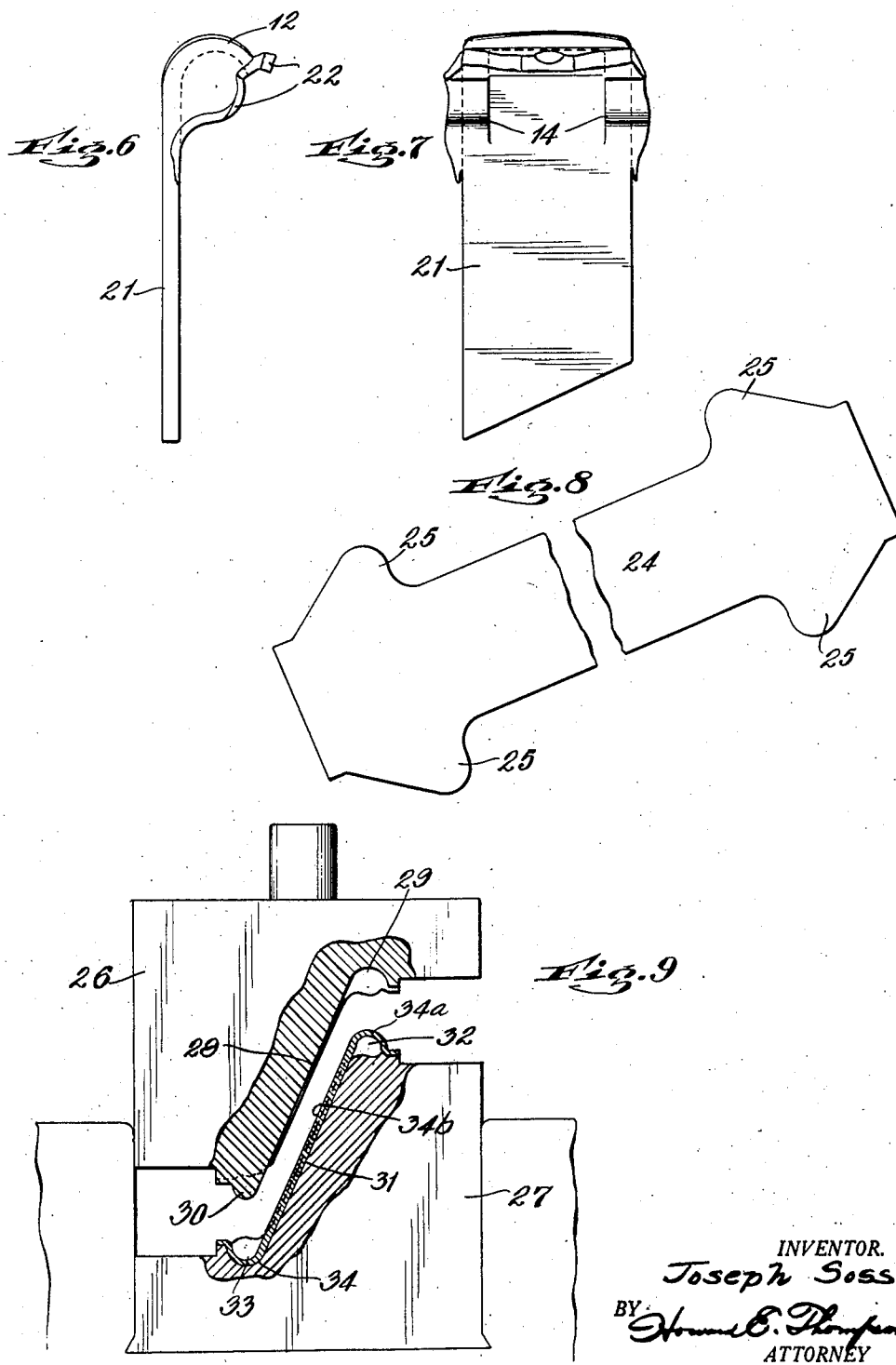
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METHOD OF MAKING HINGE BUTTS

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2 Sheets-Sheet 2



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METHOD OF MAKING HINGE BUTTS

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This invention relates to the method of making hinge butts and particularly hinge butts having curved hood portions disposed at one end thereof; and the object of the invention is to provide an improved method whereby the fashioning of the blank from which the butt is made is performed in such manner as to compactly compress the metal at the hood portion of the hinge so as to form a strong and durable hinge butt; a further object being to fashion the hood portion of the hinge in such manner as to reduce the thickness of the wall of the hood adjacent and at the free edge of said hood and to increase the thickness of the side walls of the hood both with respect to the thickness of the blank from which the butt is formed; a further object being to cut the blanks from a strip-like workpiece on the bias or diagonally with respect to the longitudinal and transverse planes of the workpiece to facilitate and simplify the formation of the curved hood portions on said butts; a still further object being to provide an improved method whereby two hinge butts may be fashioned from a single blank, and the hood portion of each butt being disposed at the end portions of the blank and curved to opposite sides thereof; and with these and other objects in view, the invention consists in the method of manufacturing hinge butts which is more fully hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which:

Fig. 1 is a longitudinal, sectional view through a hinge butt made according to my invention, the section being on the line 1—1 of Fig. 2.

Fig. 2 is a face view of the hinge shown in Fig. 1.

Fig. 3 shows one method of forming the blanks from which the butts are formed.

Fig. 4 is a perspective view showing the first step in forming the blank.

Fig. 5 is a side and sectional view of a die

for completing the formation of the hood portion of the blank.

Figs. 6 and 7 are side and face views of the butt as formed with the dies shown in Fig. 5.

Fig. 8 is a detail view of another form of blank which I employ; and,

Fig. 9 is a view similar to Fig. 5 but showing the dies employed for fashioning a pair of hinges from a blank such as shown in Fig. 8.

In Figs. 1 and 2 of the drawings, I have shown one form of covered joint hinge or hinge butt which is made according to my improved method, and this butt consists of an attaching plate portion 10 in which is formed a plurality of apertures 11 for attaching the butt to a suitable support. At one end of the attaching plate 10 is a substantially semi-circular curved hood 12, terminating in a shoulder portion 13 at its end. Said end of the hood 12 is preferably thinner than the thickness of the attaching plate. The curved hood portion 12 is closed at its opposite ends by walls forming pintle bearings 14 which are apertured as seen at 15 to receive the usual pintle pin of the hinge. It will be noted on a consideration of Fig. 2 of the drawings, that the thickness of the bearings 14 is greater than the thickness of the metal employed in the attaching plate, which result is brought about in accordance with my improved method.

The hinge butt which is shown in Figs. 1 and 2 of the drawings is formed either from a single blank or a double blank. In Fig. 3 of the drawings, I have illustrated one manner of forming the single blanks and in said figure, 16 represents the elongated strip of metal which is cut or stamped diagonally or on the bias to form two workpiece blanks 10a and 10b arranged transversely of the strip 16, it being understood that the oppositely disposed blanks are cut from said strip in pairs in the manner illustrated in said figure, one blank being severed from the other on the line 17, and each blank including laterally extending curved extensions 18 from which the end walls 14 of the butt are formed.

In dot and dash lines, I have shown the manner of cutting the next adjacent pair of

workpiece blanks from the strip 16. It will be understood that any number of pairs of blanks may be cut from the strip, depending solely upon its length.

After forming the separate blanks, each blank is fashioned to partially form the hood portion and the side walls of the hood portion of the butt in the manner seen in Fig. 4 of the drawings, in which figure, 12a represents the partially formed hood and 14a the partially formed wall members. The workpiece may be fashioned into the form shown in Fig. 4 by suitable dies, and if desired, the blank may be heated prior to performing this operation. After the workpiece shown in Fig. 4 has been obtained, it is placed between two dies 19 and 20 shown in Fig. 5 of the drawings, which completes the formation of the curved hood portion and side walls of the butt.

The die 19 has a beveled wall 19a terminating in a curved socket 19b having side walls 19c, whereas the die 20 has a beveled wall 20a arranged in parallel relation to the wall 19a when said dies are brought together. The upper end of the wall 20a terminates in a raised, rounded knob 20b adapted to enter the socket 19b, at opposite sides of which are surfaces 20c, which control the contour of the outer edges of the walls 14 in completing the formation thereof.

It will be understood that the workpiece as formed in Fig. 4 of the drawings, is placed upon the die 20, and as the die 19 moves toward the same, the workpiece is fashioned to complete the accurate formation of the hood 12 and walls 14. The product thus finished is shown at 21 in Fig. 5 of the drawings as well as in Figs. 6 and 7 of the drawings. In the latter figures, it will be noted that around the peripheral edge of the side walls 14 and at the free edge of the hood portion 12, there will be a slight flare of metal indicated at 22 which is trimmed off in the usual or any desired manner, producing the outlined contour of the butt as seen in Figs. 1 and 2 of the drawings, after which the pintle pin apertures 15 will be formed in the side walls 14 and the apertures 11 will be formed in the attaching plate 10.

It will be noted that by cutting the workpiece blanks 10a—10b from the stock or strip 16 diagonally, the graining of the metal in the resulting workpieces and especially where the folded corners 23 are to be formed, note Fig. 4 of the drawings, the grains in this part of the workpiece will be primarily on the bias, thus facilitating the formation of the corners 23 as well as the hood portion as a whole, preventing cracking and other rupturing of the metal.

At the same time, in compacting the metal or fashioning it into the form shown in Figs. 5, 6 and 7, and in building up the comparatively thick walls 14, a very condensed pack-

ing or amalgamation of the metal is produced. Thus, the resulting hinge butt will have by far greater strength and durability than any other butt of its kind, constructed in accordance with old and conventional methods. This result is also brought about by virtue of the wedge-like action of the die 19 with respect to the die 20. It will also be apparent that by cutting out the blanks from the stock in the manner shown in Fig. 3, comparatively little waste of metal is experienced, thus effecting a saving in the amount of scrapping which must be disposed of. It will be understood at this time that my invention is not necessarily limited to the specific manner of forming the blanks herein shown and described, nor to the specific contour of the resulting product.

In Fig. 8 of the drawings, I have shown at 24 a modified form of blank which consists of an elongated strip at the opposite end portions of which are arranged laterally extending, curved projecting members 25, from which the side walls of the hood portions of two hinge butts are adapted to be formed. With this construction, the blank shown in Fig. 8 is first fashioned to produce at each end thereof and on opposite side faces, the partially formed hood and wall structure similar to that shown in Fig. 4 of the drawings, after which the complete blank is arranged between two dies 26 and 27.

The die 26 has a beveled wall 28 which terminates at its upper end in a curved socket 29 and at its lower end in a curved, projecting member 30. The die 27 has a beveled wall 31 parallel to the wall 28 which terminates at its upper end in a curved, projecting member 32 adapted to enter the socket 29 and terminates at its lower end in a socket 33 in connection with which the member 30 operates so that a curved hood portion 34—34a may be formed at each end of the workpiece, and arranged at opposite sides thereof in the manner illustrated in Fig. 9 of the drawings. The central portion 34b of the workpiece joining said hood portions is severed after completing the formation of the hood to form independent butts, similar to the butts shown in Figs. 1 and 2 of the drawings. It is understood that the flared metal around the hood portions will be trimmed away as in trimming or removing the flare shown in Figs. 6 and 7 of the drawings.

In both forms of construction shown, it will be apparent that the hood portions are formed at the end of the blank or workpiece, and that the male and female dies employed in both manners of constructing the hinge butts have the same wedge-like contour to facilitate the fashioning of the workpiece into the desired form, and in producing the strength and durability in the resulting product.

In the several steps of forming the com-

plete hinge butt and especially in forming the curved hood portion and the end walls of the hood portion, the blank or workpiece is preferably heated to facilitate the fashioning of the same into the desired form. It will be understood that I am not necessarily limited to the particular form and construction of hinge butts herein shown and described, nor to the specific manner of blanking and shaping the same; and various other changes in and modifications of the method herein set forth may be made within the scope of the appended claims without departing from the spirit of my invention or sacrificing its advantages.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. The herein described method of making hinge butts having curved hood portions disposed at one end thereof, which consists in forming a predetermined blank having members projecting from opposite sides of the blank adjacent one end thereof, heating the blank to a predetermined temperature to facilitate the fashioning thereof, then fashioning the end of the blank having said projecting members through a series of successive operations to first partially curl said end of the blank in the direction of one side face thereof and to dispose said projecting members at substantially right angles thereto and in alinement with the side edges of the blank, and then fashioning the blank thus formed to complete the formation of the curved hood portion and to compact the metal of said projecting members to form at opposite sides of the blank comparatively thick wall members continuous with said hood portion and the adjacent part of the butt, and forming a similar hood portion with wall members at the other end of the blank in the operation of forming said first named hood portion, and the last named hood portion being disposed and curved to the opposite side face of the blank.

2. The herein described method of making hinge butts having curved hood portions disposed at one end thereof which consists in providing an elongated and comparatively wide stock strip, cutting butt blanks diagonally from said strip to dispose the grain of the metal on the bias with respect to the longitudinal plane of the resulting blank, each of said blanks having projecting members disposed at opposite side edges of predetermined sections thereof and lying in the plane of said blank, fashioning said sections of the blank to form curved hood portions and end walls formed from said projecting members and continuous with said hood portions and of greater thickness than the thickness of the material in said blank.

3. The herein described method of making hinge butts having curved hood portions dis-

posed at one end thereof which consists in providing an elongated and comparatively wide stock strip, cutting butt blanks diagonally from said strip to dispose the grain of the metal on the bias with respect to the longitudinal plane of the resulting blank, each of said blanks having projecting members disposed at opposite side edges of predetermined sections thereof, fashioning said sections of the blank to form curved hood portions and end walls formed from said projecting members and continuous with said hood portions and of greater thickness than the thickness of the material in said blank, one of said hood portions being disposed at each end of the blank and projecting on opposite side faces of the blank and severing the central portion of the blank to form independent hinge butts.

4. The herein described method of making hinge butts having curved hood portions disposed at one end thereof which consists in providing an elongated and comparatively wide stock strip, cutting butt blanks diagonally from said strip to dispose the grain of the metal on the bias with respect to the longitudinal plane of the resulting blank, each of said blanks having projecting members disposed at opposite side edges of predetermined sections thereof, fashioning said sections of the blank to form curved hood portions and end walls formed from said projecting members and continuous with said hood portions and of greater thickness than the thickness of the material in said blank, one of said hood portions being disposed at each end of the blank and projecting on opposite side faces of the blank and severing the central portion of the blank to form independent hinge butts, and then forming pintle pin apertures in said end walls.

5. The herein described method of making hinge butts having curved hood portions disposed at one end thereof, which consists in providing an elongated and comparatively wide stock strip, cutting butt blanks diagonally from said strip to dispose the grain of the metal on the bias with respect to the longitudinal plane of the resulting blank, each of said blanks having projecting members disposed at opposite side edges of predetermined sections thereof and lying in the plane of said blank, fashioning said sections of the blank to form curved hood portions and end walls formed from said projecting members and continuous with said hood portions and of greater thickness than the thickness of the material in said blank, trimming the butt thus produced, and then forming pintle pin apertures in said end walls.

6. The herein described method of making hinge butts having curved hood portions disposed at one end thereof, which consists in providing an elongated and comparatively wide stock strip, cutting butt blanks diagonally from said strip to dispose the grain of

the metal on the bias with respect to the longitudinal plane of the resulting blank, each of said blanks having projecting members disposed at opposite side edges of predetermined sections thereof and lying in the plane of said blank, fashioning said sections of the blank to form curved hood portions and end walls formed from said projecting members and continuous with said hood portions and of greater thickness than the thickness of the material in said blank, trimming the butt thus produced and then forming pintle pin apertures in said end walls, and heating said blank during the operation of fashioning the same.

7. The herein described method of forming blanks from which hinge butts having curved hood portions disposed at one end thereof are fashioned, which consists in providing an elongated, comparatively wide, strip-like stock of sheet metal, then successively cutting pairs of blanks from said stock in such manner as to dispose the longitudinal plane of the blanks diagonally and on the bias with respect to the grain of the stock to facilitate and simplify the fashioning of the curved hood portions on each of said blanks.

8. The herein described method of forming sheet metal blanks used in the manufacture of hinge butts having curved hood portions disposed at one end thereof, which consists in providing a comparatively wide, elongated, sheet metal stock, successively cutting elongated blanks having projecting members disposed at opposite side walls thereof from said stock, in such manner as to dispose the grain of the stock on the bias with respect to the longitudinal plane of the blank.

9. The herein described method of forming sheet metal blanks used in the manufacture of hinge butts having curved hood portions disposed at one end thereof, which consists in providing a comparatively wide, elongated, sheet metal stock, successively cutting elongated blanks having projecting members disposed at opposite side walls thereof from said stock, in such manner as to dispose the grain of the stock on the bias respect to the longitudinal plane of the blank and to intermesh one blank with respect to an adjacent blank to reduce the waste in the material of said stock and to cut an oppositely disposed pair of blanks from each transverse section of the stock.

10. The herein described method of making hinge butts which consists in providing elongated strip-like blanks having oppositely disposed projecting members at one end thereof and lying in the plane of said blank, fashioning said end of the blank adjacent said projecting members to form a curved hood portion and of said projecting members end walls for said hood portion, then upsetting the material of said projecting members and adjacent portion only of the blank to form a

curved hood portion and end walls the latter being of greater thickness than the thickness of said strip-like blank, trimming the product thus formed, and then forming pintle pin apertures in the end walls of said hood.

In testimony that I claim the foregoing as my invention I have signed my name this 3rd day of October, 1930.

JOSEPH SOSS.