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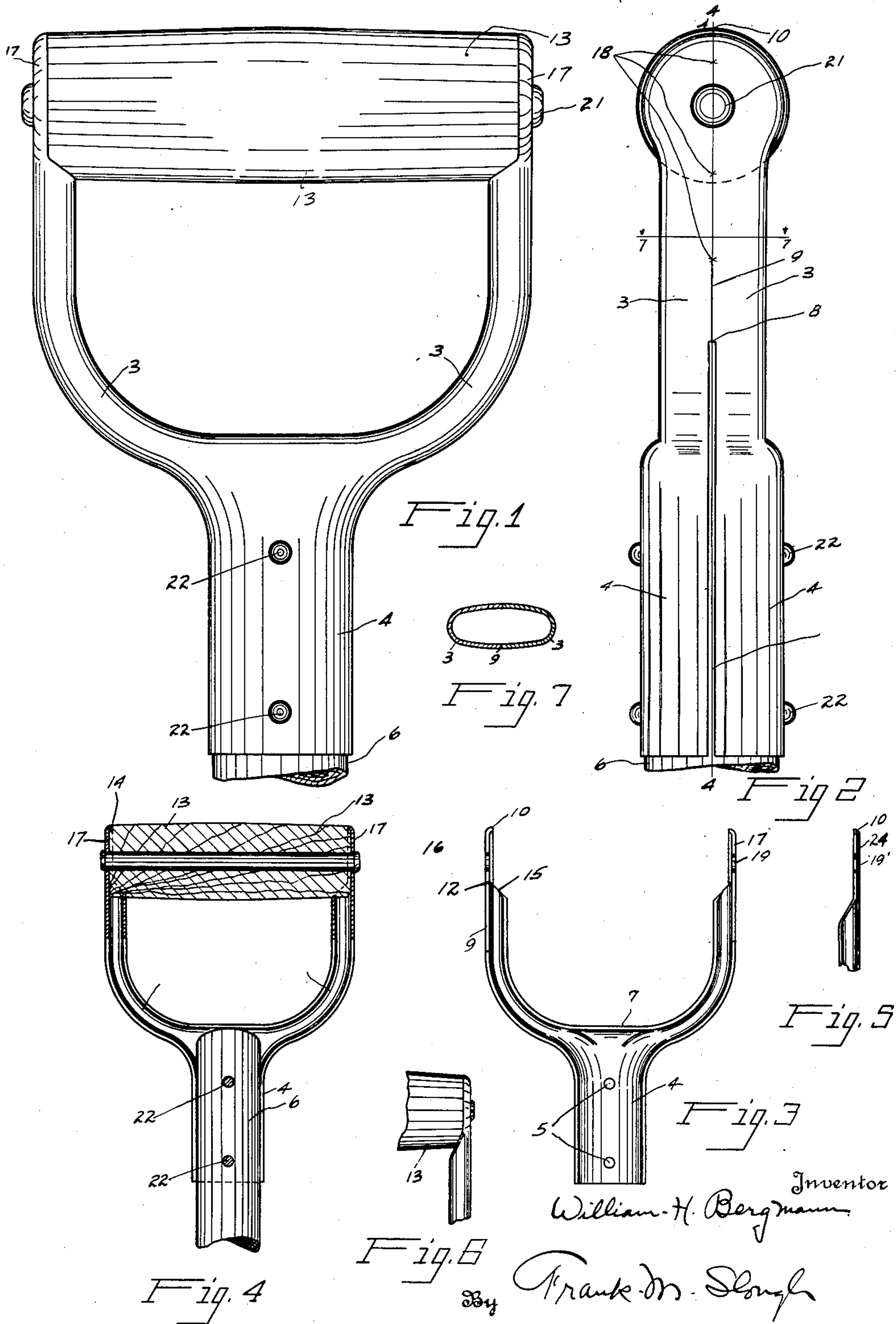
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1,908,305

D-TOP AND METHOD OF MAKING THE SAME

Filed Feb. 14, 1929

2 Sheets-Sheet 1



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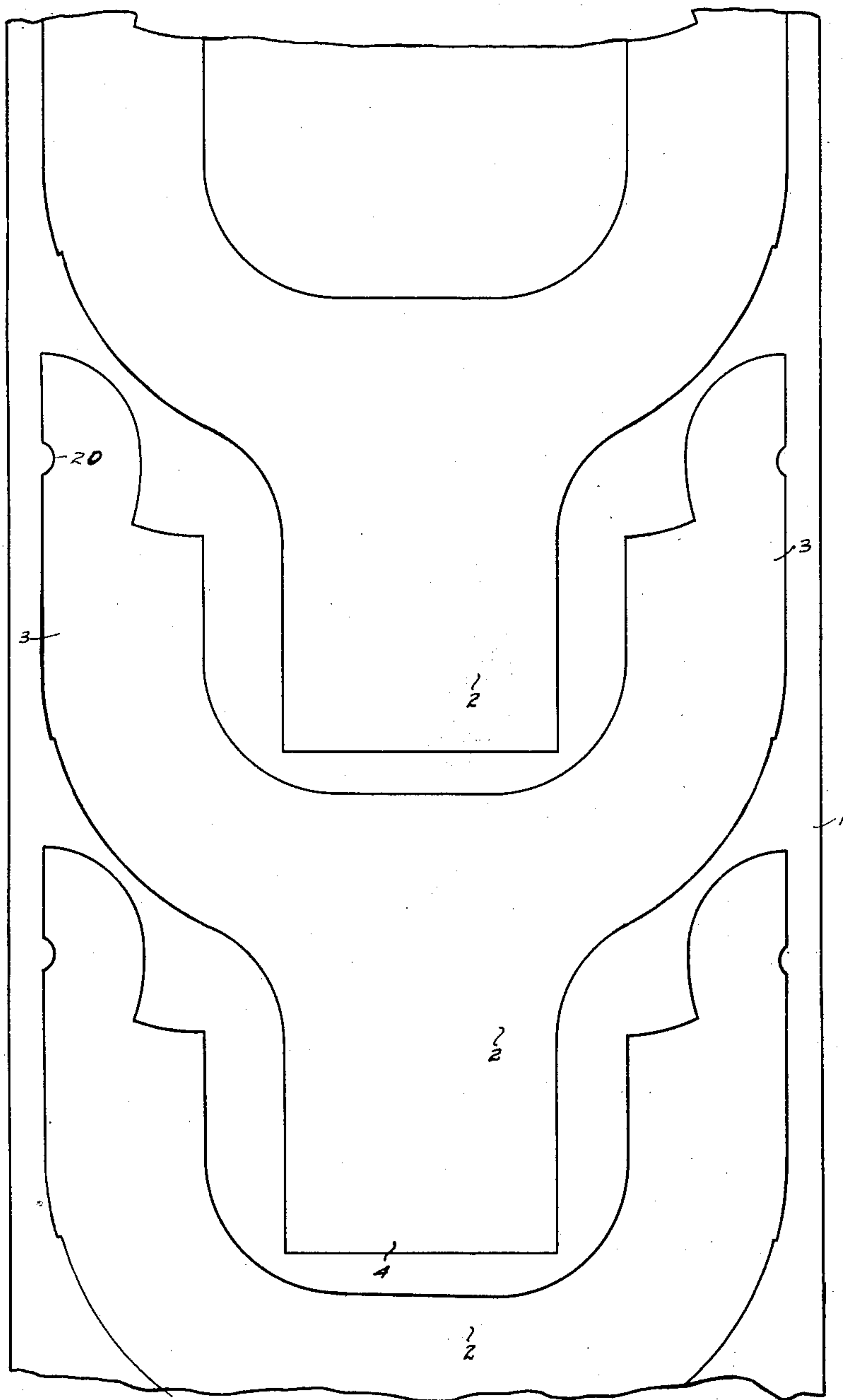


Fig. 8

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## UNITED STATES PATENT OFFICE

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## D-TOP AND METHOD OF MAKING THE SAME

Application filed February 14, 1929. Serial No. 339,771.

My invention relates to improvements in D-tops, such as are used on the handles of implements such as shovels, spades and the like, and relates particularly to an improvement over that type of D-top exemplified, for instance, in United States Letters Patent No. 1,523,506, to H. L. Bassett, patented January 20, 1925.

An object of the present invention is to provide a sheet metal D-top which contains no sharp edges, which in other constructions may disagreeably engage with the hands of the user.

Another object of my invention is to provide an improved sheet metal D-top which may be formed of a pair of like sheet metal stampings capable of assembly and placement on the end of the implement handle in a simple, inexpensive manner.

Another object of my invention is to provide an improved D-top in which the above stated objects are satisfied and which will be sturdy and strong, resisting breakage and bending in use.

Another object of my invention is to provide a D-top of the above character capable of being formed from metallic blanks which may be stamped from a sheet of metal in such a way that very little waste metal will be left in the sheet after successive of the stampings are blanked therefrom.

Another object of my invention is to provide a D-top comprising sheet metal parts which may be readily formed in a minimum of forming operations.

Another object of my invention is the provision of a D-top of any of the above characters having a stake-socket formed of opposed handle embracing parts susceptible of resilient yielding so as to compressively embrace any of a number of implement ends varying slightly in size.

Another object of my invention is to provide a D-top having tubular grip supporting arms which are nearly closed throughout their lengths.

Another object of my invention is to inexpensively provide a strong, sturdy tubular D-top which presents a good appearance when placed on the end of an implement.

Another object of my invention is to provide a novel method of making a D-top for implement handles.

Other objects of my invention and the invention itself will become apparent by reference to the following figures of the drawings.

Referring to the drawings:

Fig. 1 is an elevational view of a D-top embodying my invention.

Fig. 2 is a side view in elevation of the D-top of Fig. 1.

Fig. 3 is an elevational view of one of the two like complementary sheet metal parts for the D-top of Fig. 1.

Fig. 4 is a vertical medial sectional view taken on the line 4—4 of Fig. 2.

Figs. 5 and 6 are medial sectional and side elevational views of a fragment of a D-top which is a second embodiment of my invention.

Fig. 7 is a section taken on the line 7—7 of Fig. 2.

Fig. 8 illustrates a sheet of metal marked to indicate the successive stampings sheared from the sheet.

Referring now first to Fig. 8, at 1 I show a sheet of metal, such as soft steel, upon which the outlines of a plurality of sheet metal stampings, indicated at 2, are successively cut.

It is to be noted that the different stampings are all alike and comprise a pair of like wings 3 divergent from a common stem 4. The stem 4 for each successive stamping, is taken from the metal lying within the wings 3 and the ends of the wings are taken from the metal disposed closely adjacent to the lateral portions of the stem metal for the next succeeding stamping and underlying, as shown, the arms thereof.

It will be seen from the drawings, therefore, that a relatively small part of the metal of the sheet is left over and therefore largely representing waste from the stamping of successive parts 2 from a strip of sheet metal.

One of the objects of the invention, as previously mentioned, is that of economy of manufacture and this is largely accomplished by the economy in the amount of material



representing waste during the stamping process.

A second economy is then effected by a reduction in the number of operations required to be taken to give the stamping 2 its ultimate form, as illustrated in Fig. 3.

This is accomplished by suitably designing the like parts 3, of which two are required for each D-top handle, so that it may be formed from the blank in a single press operation. The part 2 is pressed into the form of a divided channel of which the stem 4 is given the form of a slightly incomplete semi-cylinder, to form half of a handle stale-socket, and the wings 3 are given the form of a narrow substantially U-shaped channel, each to form one-half of a flattened tubular grip supporting D-top arm.

Two longitudinally aligned perforations 5 are formed simultaneously in the stem with the forming during the single pressing operation above referred to.

These channel arm portions are indicated at 3 in the drawings and Fig. 2 illustrated in side elevation two like parts, each formed from a stamping 2, which may be placed together so that the stale-socket halves 4 may embrace the end of an implement handle 6, which may project upwardly to the end of the stale-socket, as defined by the inturned flange or web 7, which unites the arms or wings 3, and with its complementary part 7 of the other stamping forms the end wall of the stale-socket.

It will be noted in Fig. 2 that the wings 3 of the stamping contain a slightly offset portion shown at 8, and it will be noted that this formation enables the two complementary formed stampings, to be fitted together so that their outer edges 9 fit closely together from the ends 10 of the arms to the point 8, but permit portions of the stamping beyond the point 8 toward and including a portion of the arms and the stale-socket portions to have their adjacent edges disposed in slightly spaced relation so as to make a visible seam between the edges. This for a purpose later herein explained.

The arms retain their channel form only to a point 12 near their ends, and there, in order to provide for the reception of the ends 14 of the wood grip 13, one side of the channel is cut away on a line 15 and the arm is continued to its end 10, as an extension of the lateral edge 9 of the channel in the form of a strip 16.

The rounded side edges of the strip 16 are folded inwardly and together with the edge 15, formed by cutting the other wall of the channel, provides a shallow socket or grip receiving cap 17.

The ends 14 of the grip are preferably reduced in diameter relative to the body portion, and the inturned portions of the cap 17 fit over the reduced grip ends and their

edges abuttingly engage the shoulders thereby formed on the body portion.

Prior to placement of the D-top on implement handles such as 6, the two complementary parts forming the tubular handle, as illustrated, are rigidly secured together and made integral, one with the other, by welding the edges of the D-top together at points such as indicated by *x*'s at 18 on the line of junction of the two complementary parts, at their outer surfaces near the ends of the arms 3 and preferably on the two sides of the bolt receiving opening 19, which is provided by suitably notching the blanks 2, as shown at 20.

The bolt 21 is projected through the aligned openings 19 of the arm extensions 16 and draws the free ends of the arms inwardly to effect a tight grip by the recessed caps 17, the bolt being projected through the usual longitudinal bore of the grip. The end 6 of an implement handle is bored transversely in spaced portions to permit bolts or rivets 22 to be projected through the perforations 5 of the stale-socket halves and the transverse holes through the handle end.

The bolts or rivets 22 draw the two stale-socket halves toward each other to bring the opposing lateral edges of the stamping halves disposed below the point 8, more closely together to tightly compress the halves against the handle end.

The method of manufacture above outlined may be partially performed in a metal-working factory through the welding operation above described, and the joined D-top halves as an integral structure may then be supplied to the wood-workers who will apply the grip 13 and implement handle 6.

In Figs. 5 and 6, I show another embodiment of my invention comprising a modification in the form of the ends of the arms 3, the D-top being otherwise formed as above described. In the second embodiment as illustrated, instead of cutting away the inner channel along the line 15 as above described, the handle is continued in its tubular form to its end 10 and then a subsequent forming operation is accomplished upon the free ends of the arms to flatten the channel in the portion 24 so that the two channel walls of both D-top halves are flattened into surface contact, as shown at 24, and in this embodiment the bolt receiving perforation 19' is preferably accomplished subsequent to or simultaneously with the channel flattening operation.

In this embodiment, as in the previous embodiment, the grip supporting tip portions of the arms are enlarged and of rounded outline on their exterior edges so as to conform with the rounded outline of the ends of the grip 13.

It will be seen that the handle is tubular throughout, is very rigid, being reenforced



by its tubular form in all parts, and resists bending and breaking stresses which occur incidental to the use of the D-top.

Having thus described my invention in two embodiments, I am aware that numerous and extensive departures may be made from the embodiments herein illustrated and described but without departing from the spirit of my invention.

I claim:

1. A D-top for implement handles, comprising a substantially Y-shaped grip supporting element formed of two sheet metal stampings comprising D-top halves and of tubular form throughout, comprising a stale-socket and integrally joined grip supporting arms, the division being defined by separated lateral opposing edges of the two halves provided by offset edge portions of the sheet metal stamping, which extend throughout the entire length of the stale-socket to permit bodily inward movement of the stale-socket halves when these are bolted against opposite sides of an implement handle end, said halves being integrally welded together along their contiguous lateral edges adjacent their grip supporting arm ends.

2. A D-top for implement handles, comprising a substantially Y-shaped grip supporting element formed of two sheet metal stampings comprising D-top halves and of tubular form throughout, comprising a stale-socket and integrally joined grip supporting arms, the division being defined by separated lateral opposing edges of the two halves provided by offset edge portions of the sheet metal stamping, which extend throughout the entire length of the stale-socket to permit bodily inward movement of the stale-socket halves when these are bolted against opposite sides of an implement handle end, said halves being integrally welded together along their contiguous lateral edges adjacent their grip supporting arm ends, said halves being initially formed as like complementary Y-shaped channels.

3. A D-top for implement handles, comprising a substantially Y-shaped grip supporting element formed of two sheet metal stampings comprising D-top halves and of tubular form throughout, comprising a stale-socket and integrally joined grip supporting arms, the division being defined by separated lateral opposing edges of the two halves provided by offset edge portions of the sheet metal stamping, which extend throughout the entire length of the stale-socket to permit bodily inward movement of the stale-socket halves when these are bolted against opposite sides of an implement handle end, said halves being integrally welded together along their contiguous lateral edges adjacent their grip supporting arm ends, said halves being initially formed as like complementary Y-shaped channels, the inner wall of each channel arm

for both halves being cut away in grip supporting portions of the halves to admit projection of the grip ends for engagement with the outer walls of the channels.

4. A D-top for implement handles, comprising a substantially Y-shaped grip supporting element formed of two sheet metal stampings comprising D-top halves and of tubular form throughout, comprising a stale-socket and integrally joined grip supporting arms, the division being defined by separated lateral opposing edges of the two halves provided by offset edge portions of the sheet metal stamping, which extend throughout the entire length of the stale-socket to permit bodily inward movement of the stale-socket halves when these are bolted against opposite sides of an implement handle end, said halves being integrally welded together along their contiguous lateral edges adjacent their grip supporting arm ends, said halves being initially formed as like complementary Y-shaped channels, the inner wall of each channel arm for both halves being cut away in grip supporting portions of the halves to admit projection of the grip ends for engagement with the outer walls of the channels, the walls of the outer channels having inturned edges adapted to receive the ends of an inserted grip.

5. A D-top for implement handles comprising a pair of sheet steel stampings of like Y-shaped channeled form adapted to be placed in opposing contiguous like relation to each other with channel edges of the one in engagement with channel edges of the other and welded together along the resulting seam adjacent the grip supporting portions of the arms, the opposing edges of each channeled stamping being normally spaced prior to attachment to the end of an implement handle projected into the hollow stale-socket stem formed by the joined stampings, by offset portions of said opposing edges.

6. The method of forming a D-top implement handle which includes stampings from flat sheet metal, a pair of blanks of like Y-shaped form, the lateral outer edges of the Y branches thereof extending inwardly from the ends of the branches in substantially parallel relation to a point remote from said ends and beyond said point being inwardly offset, bending the blanks into Y-shaped like channel form, placing the channel form stampings in opposing contiguous relation to each other with the channeled edges of the one confronting the channeled edges of the other, the said parallel edges of the blanks constituting engaging confronting edges of the channel stampings and the offset edges of the blanks constituting spaced confronting edges of the channel stampings, welding the channel stampings together along said contacting edges.

7. As an article of manufacture, a blank



adapted to be used in identical pairs for forming a **D**-top handle, the blank being generally of flat sheet metal **Y**-shaped form, the lateral outer edges of the **Y** branches thereof extending inwardly from the ends of the branches in substantially parallel relation to a point remote from said ends and beyond said point being inwardly offset.

8. As an article of manufacture, a blank adapted to be used in identical pairs to form **D**-top handles, the blank being generally of flat sheet metal **Y**-shaped form, and the **Y**-form blank having its lateral outer edges provided with inwardly offset portions beginning at points below the free ends of the **Y** branches and continuing to the lower end of the blank.

9. As an article of manufacture, a blank adapted to be used in identical pairs to form **D**-top handles, the blank being generally of flat sheet metal **Y**-shape form and a lateral outer edge of the blank comprising an inwardly offset portion beginning at a point below the upper free end of the corresponding **Y** branch and continuing to the lower end of the blank.

10. As an article of manufacture, a blank adapted to be used in identical pairs for forming **D**-top handles, the blank being generally of flat sheet metal **Y**-shaped form, the lateral outer edges of the **Y** branches extending inwardly from the free ends of the branches in substantially parallel relation to a point remote from said ends, and beyond said point a lateral outer edge being inwardly offset.

11. As an article of manufacture, a **Y**-form sheet metal blank bent into **Y**-channel form and adapted to be used in pairs in **D**-top handles, the lateral outer edges of the **Y**-form blank comprising inwardly offset portions beginning at points below the outer free ends of the **Y** branches and continuing to the lower end of the blank, the offset portions being of such extent and disposition that when a channeled pair of blanks are disposed with their edges confronted, the edge portions not offset may be welded together and the offset portions will be spaced apart.

12. As an article of manufacture, a **Y**-form sheet metal blank bent into **Y**-channel form and adapted to be used in pairs in **D**-top handles, a lateral outer edge of the **Y**-form blank comprising an inwardly offset portion beginning at a point below the upper free end of the **Y** branch and continuing to the lower end of the blank, the said offset portion being of such extent and disposition that when a channeled pair of the blanks are disposed with their edges confronted, the offset edge portions may be spaced apart from their opposite confronted edge portions, and the other portions of the edges may be welded together.

In testimony whereof I hereunto affix my signature this 11th day of February, 1929.

WILLIAM H. BERGMANN.