Feb. 21, 1939. E. N. CHILDS 2,147,882

APPARATUS FOR SHAPING PLOWSHARES

Filed Oct. 4, 1937

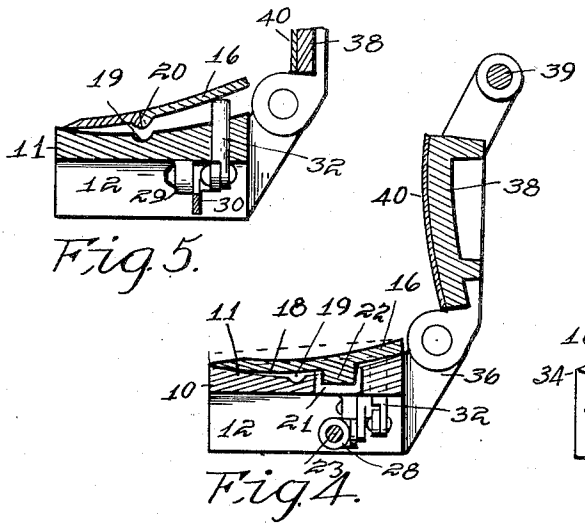


Fig. 5.

Fig. 4.

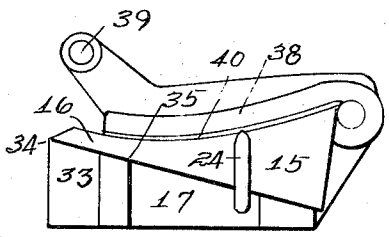


Fig. 3.

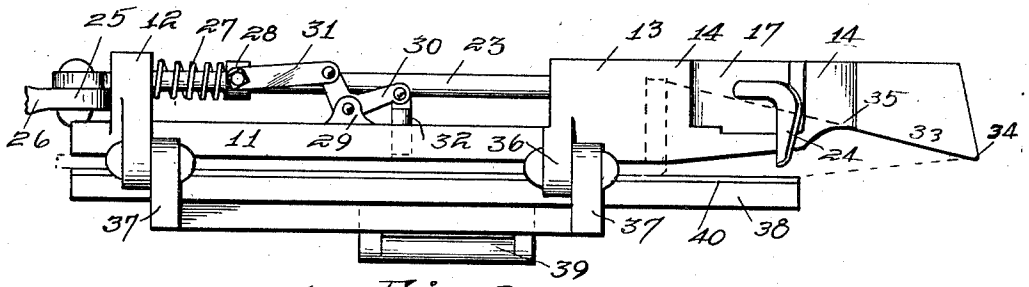


Fig. 2.

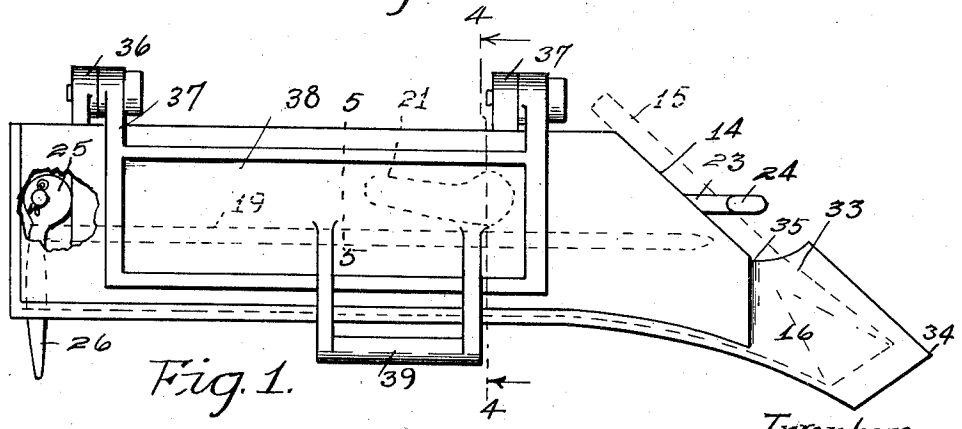


Fig. 1.

Inventor
Elmer N. Childs
by Owing & Hague
Attys

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APPARATUS FOR SHAPING PLOWSHARES

Elmer N. Childs, Perry, Iowa

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2 Claims. (Cl. 29—14)

The object of my invention is to provide a simple, durable and inexpensive device to assist blacksmiths and other mechanics in the shaping and repointing of plowshares.

A further object of my invention is to provide in a device for shaping plowshares having an anvil member provided with a longitudinally extending concaved upper surface for supporting the plowshare to be shaped, improved means for supporting the plowshare in operative position thereon and for shaping the same.

A further object of my invention is to provide a simple apparatus in which the plowshare may be placed in operative position and rigidly secured thereto and when so secured, provide improved means for forming the plowshare and in connection therewith means for supporting the nose portion of the plowshare and for aligning the said nose portion with the plowshare, whereby the plowshare may be properly formed to give the desired suction.

A further object of my invention is to provide in a device of the type above described employing a forming anvil, improved means for clamping the land side portion of the plowshare with the concaved portion of the anvil employed for giving the plowshare the proper longitudinal curvature.

A further object of my invention is to provide in an apparatus for forming a plowshare employing a forming anvil, improved means for elevating one edge of the plowshare after it has been formed, to permit the plowshare to be more easily removed from the anvil by means of a pair of tongs.

My invention consists in the construction, arrangement and combination of the various parts of the device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawing, in which:

Figure 1 is a plan view of my improved apparatus showing a plowshare supported thereon in dotted lines, a portion of the movable die being broken away to show a portion of the clamping means.

Figure 2 is an inverted side elevation of the same and a top view of Figure 1.

Figure 3 is an end elevation of my improved apparatus showing the manner in which the plowshare is clamped in position.

Figure 4 is a detail sectional view taken on the line 4—4 of Figure 1 illustrating the forming die in its elevated or open position.

Figure 5 is a detail sectional view taken on the line 5—5 of Figure 1 illustrating the manner in which the plowshare is automatically elevated from the anvil.

Referring to the accompanying drawing, I have used the reference numeral 10 to indicate what I shall term a forming anvil, said anvil comprising a horizontally arranged plate 11 having a downwardly extending and transversely arranged flange 12 designed to form a lug or support at one end of the anvil. The opposite end of the anvil is provided with a head portion 13 which also serves as a support for the plate 11, the head portion 13 having its outer end terminating in a beveled portion 14, the said beveled portion being of the same angularity as that of the land side portion of a plowshare relative to the longitudinal axis of the share, so that the inner surface of the land side 15 of the plowshare 16 may be adjoined to said beveled portion with the body of the plowshare supported longitudinally of the anvil. The face of the beveled portion 15 is provided with a recess 17 for receiving lugs or other devices forming a portion of the inner face of the land side and for securing the same to the plow beam so as to permit the inner face of the land side to firmly fit the said beveled face. The upper surface of the anvil 10 is provided with a longitudinally extending concaved groove or recess 18 extending the full length of the anvil, which concaved surface or recess is provided with a longitudinally extending groove 19, said groove 19 being designed to receive a welt 20 which is sometimes formed longitudinally on the under surface of the plowshare 16 when the cutting edge of the plowshare has been electrically welded to the upper portion. This groove 19 simply gives clearance for said welt so as to permit the back portion of the plowshare to be forced into contact with the concaved surface. The member 11 is also provided with an opening 21 for receiving the lug 22 or any other fastening device fixed to the back of the plowshare to assist in securing the same to the mold-board of the plow so as to permit the plowshare to properly fit the concaved portion as above described.

For clamping the land side 15 in contact with the beveled portion 14 I have provided a rod 23 slidably mounted in the member 13 with one end of the rod provided with an upwardly extending arm 24 designed to engage the outer surface of the land side 15. The opposite end of the rod 23 is provided with an eccentric or cam 25 having a handle 26. By this arrangement the rod 23 may be moved to the left, as viewed in Figure 2, causing the member 24 to

be moved toward the inclined face **14** and to engage the land side **15** and clamp the same in operative position, thus forming means whereby the plowshare will be aligned with the concaved portion **18**. A spring **27** is provided on the rod **23**, having one end against the member **12** and the other end against a collar **28**, thus providing means for automatically moving the arm **24** to open position. The under surface of the member **11** is provided with a downwardly extending lug **29** for pivotally supporting a bell crank lever **30**, one end of which is pivotally connected to a link **31**, which is in turn pivotally connected to the collar **28**. The opposite end of the bell crank **30** is pivotally connected to the plunger **32** projecting upwardly through the member **11** and engaging the under surface of the upper edge of the share **16** in such a manner that as the rod **23** is moved to the right or to its open position, the plunger **32** will be moved upwardly causing the upper edge of the share **16** to be elevated in the manner illustrated in Figure 5, thus providing means whereby the space will be formed between the said upper edge and the anvil to permit the upper edge of the plowshare to be grasped by means of a pair of tongs, whereby the plowshare may be easily removed from the anvil after it has been formed and while it is still hot.

The outer end of the head **13** terminates in what I shall term a shoulder portion **33** projecting laterally from the face **14**, the top portion of the shoulder **33** being inclined between the points **34** and **35**, as indicated in Figure 3, so that the pointed end of the land side **15** will rest on said inclined portion when the body of the plowshare is formed into the concaved portion, the head member **33** also serving to support the nose portion of the plowshare and as an anvil on which the nose portion may be sharpened or drawn out so that the angularity of the nose portion relative to the body of the plowshare will be such as to give the proper suction to the plowshare when in operation.

For forming the plowshare and giving it the proper curvature and forcing the same into the concaved portion I have provided on the back edge of the anvil **10** hinge members **36** adapted to support the hinge members **37** carried by the forming dye **38**, the under surface of the die **38** being convexed to fit the upper surface of the plowshare when forced into the concaved portion **18**. The die **38** is provided with a handle **39** by means of which the said die may be operated, the under surface of the die **38** being preferably formed with a layer of soft material **40**, such as copper, to prevent the scale formed on the upper surface of the plowshare from being forced into the plowshare while the same is hot, as would be the case if said scale was engaged by a hard surface. The die **38** is designed to substantially fit the upper surface of a plowshare, but short enough so that it does not cover the nose portion so that the nose portion may be hammered or drawn out while the die is in its closed position, which also may serve as means for clamping the plowshare to the anvil so that the nose portion may be bent to fit the forming shoulder **33**, and at the same time hold the plowshare firmly against the concaved portion and thus enable the operator to properly form the shape of the nose portion relative to said share.

In the actual operation of the device the operator first moves the die **38** to its elevated position, then places the hot plowshare on top of the anvil **11** with the land side **15** against the member **14**. The handle **26** is then operated to clamp the land side in position and to align the plowshare with the anvil, after which the die **38** may be dropped to its closed position and forced downwardly, if necessary, to force the plowshare into the concaved portion. The die may then be immediately elevated unless it is desired to hammer the nose portion in shape, at which time the die may be held in its closed position. After the nose member has been properly shaped the die may then be moved to its open position and the clamp **24** released, causing the plunger **32** to be elevated and the upper edge of the plowshare to be elevated as illustrated in Figure 5.

Thus it will be seen I have provided a simple and efficient device, which is of cheap construction, provided with few moving parts, which are not likely to get out of order, and which provides means whereby a blacksmith of ordinary skill can easily and quickly properly shape a plowshare and the nose portion carried thereby.

I claim as my invention:

1. An apparatus for forming plowshares, comprising an anvil having an elongated concaved upper surface, said surface being provided with a recess for receiving lugs formed on the under side of a plowshare supported on said surface, the corner of one end of said anvil being provided with a diagonally supported shoulder portion for supporting the pointed end of the land side and its accompanying nose portion, said end having a recess for receiving lugs formed on the inner surface of the land side portion of said plowshare, means for clamping said land side adjacent to said end to align the share with said concaved portion, and means for forming said share into said concaved portion.

2. An apparatus for forming plowshares, comprising a plate having its upper surface concaved longitudinally and one end beveled against which the inner surface of a plowshare may be supported, said end having a recess for receiving lugs formed on the inner face of the land side of said plowshare and a longitudinally and transversely protruding shoulder portion for supporting the nose of a plowshare and the adjacent end of the land side of the plowshare, means for clamping the said land side against said beveled portion, and means for forcing the plowshare into said concaved portion with its nose resting on said shoulder whereby the share may be rigidly held and its nose hammered to produce a point of the desired shape.

ELMER N. CHILDS.