March 10, 1964 C. G. RAWLEY 3,123,947

FORMING TOOL

Filed May 8, 1963

Fig. 1.

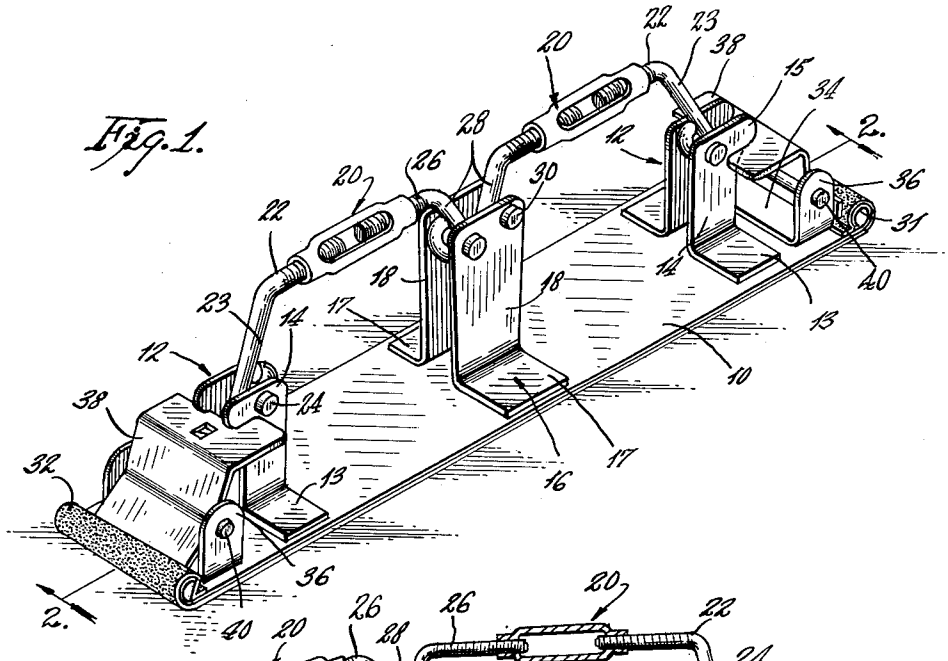


Fig. 2.

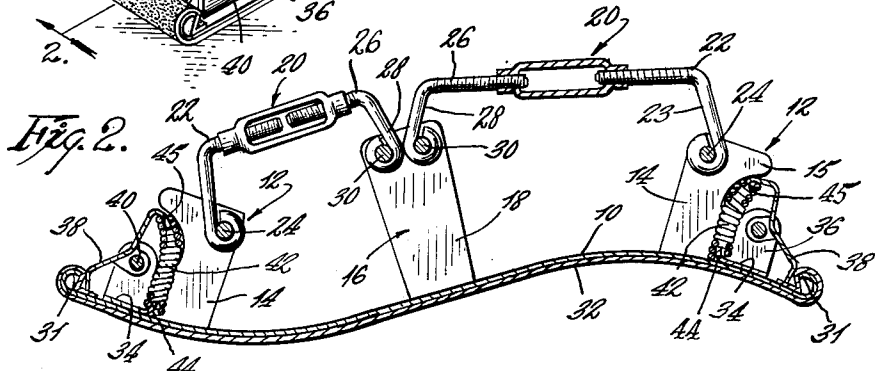


Fig. 3.

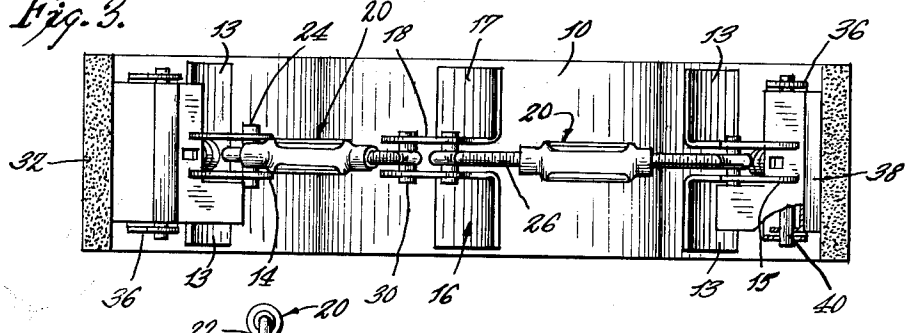
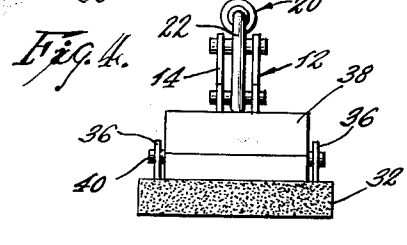


Fig. 4.



INVENTOR.
CLYDE G. RAWLEY,
BY
Trask, Jenkins & Hauley
ATTORNEYS.

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# FORMING TOOL

Clyde G. Rawley, R.R. 4, Columbia City, Ind.

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7 Claims. (Cl. 51—187)

This invention relates to a forming tool and more particularly to a tool for forming and finishing both curved and flat surfaces.

It is an object of my invention to provide a forming tool which can be used in forming and finishing flat and curved surfaces, including concave, convex, and compound curved surfaces, which can be simply and easily adjusted into the desired curvature, and which can be economically manufactured largely from inexpensive sheet-metal.

In accordance with the preferred form of my invention, there is provided an elongated, longitudinally flexible base. A pair of brackets are mounted on the base adjacent the ends thereof on opposite sides of a third bracket centrally mounted on the base. A pair of turn-buckles are swingably interconnected to the third bracket and each of the pair of brackets, whereby upon adjustment of the turn-buckles the flexible base can be flexed into the desired curvature.

Conveniently, a clip is mounted on the base between each base end and the adjacent one of said pair of brackets. Said clips have plates spring biased toward said base for bindingly retaining a strip of abrasive material or the like against the face of the base opposite the face upon which the brackets are mounted.

Other objects and features of my invention will become apparent from the more detailed description which follows and from the accompanying drawing, in which:

FIG. 1 is an isometric view of a forming tool embodying my invention;

FIG. 2 is a vertical section taken on the line 2—2, but showing the tool adjusted for use on a compound curved surface;

FIG. 3 is a plan view of the tool shown in FIG. 2; and

FIG. 4 is an end elevation of the tool shown in FIG. 1.

As shown in the drawing, my invention comprises an elongated strip of sheet-metal forming a flexible base **10** which can be longitudinally flexed. A pair of brackets **12** are mounted on the upper face of the base **10**. Conveniently, each of the brackets **12** comprises a pair of laterally spaced sheet-metal stampings each having a transversely extending foot **13** fixedly mounted on the base **10** and integral with an upwardly projecting leg **14** terminating in a finger **15** projecting toward the adjacent end of the base. A third bracket **16** is centrally mounted on the upper face of the base **10** and comprises a pair of laterally spaced sheet-metal stampings each having a foot **17** fixedly connected to the base and integral with an upwardly projecting leg **18**.

A pair of individually controllable turn-buckles **20** interconnect the brackets **12** and **16**. As shown in FIG. 2, the ends of the outer threaded arms **22** on the turn-buckles are curved downwardly, as at **23**, and are swingably connected to transverse pins **24** mounted on the legs **14** of the end brackets **12** adjacent the upper ends thereof. Similarly, the ends of the inner threaded arms **26** on the turn-buckles are curved downwardly, as at **28**, and are swingably connected to transverse pins **30** mounted on the legs **18** of the center bracket **16** adjacent the upper end thereof. Thus, by adjusting the turn-buckles **20**, the base **10** can be fixed from a planar configuration into the desired curved configuration. The base is shown in FIG. 2 as flexed into a compound curvature, but it can also be flexed into simple concave and convex curvatures by proper adjustment of the turn-buckles.

The base face opposite the face upon which the brackets **12** and **16** are mounted can be used for troweling and working plastic, cement, etc. However, in certain finishing operations it is necessary to smooth the work surface with an abrasive material such as sandpaper, emery cloth, or the like. To this end, the ends of the base are rolled upwardly and inwardly, as at **31**, and I mount a pair of clips on the base **10** which releasably retain a strip of abrasive material **32** on said base. Each clip comprises a U-shaped sheet-metal stamping having a web **34** mounted on the base between one of the brackets **12** and the adjacent base end **31** and interconnecting a pair of upwardly projecting legs **36**. An angulated plate **38** is swingably mounted on pin **40** mounted on the legs **36** and has one of its ends biased into engagement with the upper base face by a coil spring **42**. As shown, the lower end of the spring **42**, which rests against the base **10** between the adjacent bracket legs **14**, is retained in position by a tab **44** formed on clip web **34**. The upper end of the spring **42** bears against the lower face of the plate **38** and is retained in position by a tab **45** struck downwardly from said plate. The bracket fingers **15** extend over the inner ends of the plates **38** and thus limit the swinging movement of said plates. As shown in FIG. 2, the strip **32** is disposed along the lower base face with its work face presented downwardly and its ends wrapped over the base ends **31** so that they may be bindingly retained between said base and the plates **38**.



I claim as my invention:

1. A forming tool, comprising
   *a.* an elongated flexible base,
   *b.* a pair of brackets mounted on said base towards the ends thereof,
   *c.* a third bracket mounted on said base between said pairs of brackets, and
   *d.* a pair of turn-buckles, each of which is swingably interconnected to one of said pair of brackets and said third bracket whereby upon adjustment of said turn-buckles said flexible base is flexed from a planar configuration into a curved configuration.

2. A forming tool, comprising
   *a.* an elongated flexible base,
   *b.* a pair of brackets mounted on said base towards the ends thereof,
   *c.* a third bracket mounted on said base between said pairs of brackets, and
   *d.* a pair of turn-buckles each having threaded arms angled downwardly and swingably interconnected to said brackets adjacent the upper ends thereof on axes transverse to said brackets,
   *e.* the arms of one of said turn-buckles being interconnected to said third bracket and one of said pair of brackets and the arms on the other of said turn-buckles being interconnected to said third bracket and the other of said pair of brackets whereby upon adjustment of said turn-buckles said flexible base is flexed from a planar configuration into a curved configuration.

3. A forming tool, comprising
   *a.* an elongated flexible base,
   *b.* a pair of brackets mounted on said base towards the ends thereof,
   *c.* a third bracket mounted on said base between said pairs of brackets,
   *d.* a pair of turn-buckles, each of which is swingably interconnected to one of said pair of brackets and said third bracket whereby upon adjustment of said turn-buckles said flexible base is flexed from a planar configuration into a curved configuration, and
   *e.* means for releasably retaining a strip of abrasive material against the face of the base opposite the face upon which the brackets are mounted.

4. A forming tool as set forth in claim 3 in which said means comprise

*a.* a pair of clips mounted on said base between said pair of brackets and the ends of said base and bindingly retaining the ends of said strip of abrasive material against the face of the base upon which said brackets are mounted.

5. A forming tool, comprising

*a.* an elongated flexible base having its opposed ends rolled upwardly and inwardly,

*b.* a pair of brackets mounted on said base adjacent the ends thereof,

*c.* a third bracket mounted on said base between said pairs of brackets,

*d.* a pair of turn-buckles, each of which is swingably interconnected to one of said pair of brackets and said third bracket whereby upon adjustment of said turn-buckles said flexible base is flexed from a planar configuration into a curved configuration, and

*e.* a pair of clips mounted on said base between said pair of brackets and the ends of the base and each comprising a pair of legs projecting upwardly from



the base and swingably supporting a spring biased plate engageable with the end of a strip of abrasive material received over the adjacent base end for releasably retaining it on said base.

6. A forming tool as set forth in claim 5 in which

*a.* each of said pairs of brackets have projections extending toward the adjacent end of the base in the path of pivotal movement of said arm for limiting the movements thereof.

7. A forming tool as set forth in claim 5 in which

*a.* said plate is swingably mounted on a transverse pin interconnecting the legs on said clip, and

*b.* a coil spring is interposed between said plate and base and retained in position by tabs on said plate and means interconnecting the clip legs.

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