Jan. 28, 1958 V. LIESUNAITIS 2,821,017

SCRAPER

Filed Jan. 18, 1957

Fig. 2

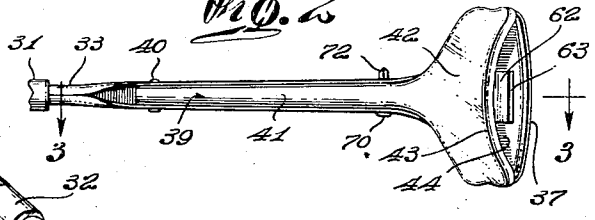


Fig. 5

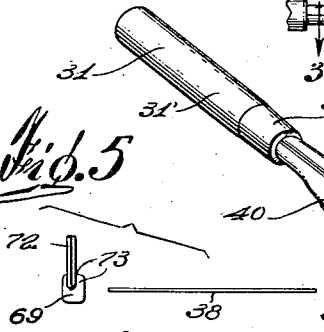


Fig. 1

Fig. 6

Fig. 7



Fig. 4

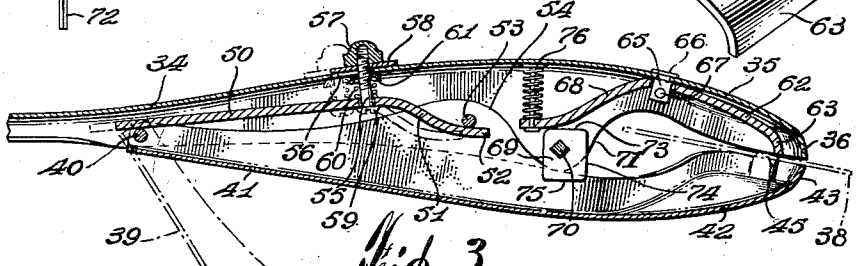


Fig. 3



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The present invention relates to scrapers and more particularly to a finishing scraper adapted to remove paint, varnish and the like surface coating, while leaving the decoated surface with a smooth finish which will not require any further finishing operations such as sand papering, buffing and the like.

The present invention is an improvement over the invention described in the U. S. Patent No. 2,756,499 dated July 31, 1956 by the same inventor.

The scraper, according to the present invention, is of the type in which the blade is removably held by a clamping device formed of two jaws, one of which provides a flat surface area to contact the blade in the flat state, and the other of which provides a curved surface area with its concavity opposite the flat surface area of the other jaw so as to contact the blade when the latter is in a curved state.

The general object of the present invention is the provision of a scraper of the character described having easily operated means for varying the curvature of the blade from a flat position to a maximum curved position to thereby vary the scraping depth of the blade according to the desire of the operator.

Still another important object of the present invention is the provision, in a scraper of the character described, of means for varying the curvature of the blades which are easily and quickly operated by the simple operation of a small lever.

Yet another important object of the present invention is the provision in a scraper, of easily and quickly operated means for permitting removal and replacement of the blade.

Another important object of the present invention is the provision of a scraper of the character described which is of relatively simple and inexpensive construction.

The foregoing and other important objects of the present invention will become more apparent during the following disclosure and by referring to the drawings in which:

Figure 1 is a perspective view of the finishing scraper according to the present invention;

Figure 2 is a partial plan view of the same, looking underneath;

Figure 3 is a longitudinal section along line 3—3 of Figure 2;

Figure 4 is a perspective view of the pusher element adapted to cause the blade to take a curved position; and

Figures 5, 6 and 7 are diagrammatic views of the blade and lever operated cam in their respective corresponding positions to obtain different curvatures of the blade.

Referring now more particularly to the drawings in which like reference characters indicate like elements throughout, the reference numeral 31 indicates a wooden handle having an adequate length so that the scraper may be gripped by both hands. The end 31' of the handle 31 is provided with a ferrule 32 and a clamping member, generally indicated at 33, is inserted within said end 31' of said handle so as to be rigid therewith. The clamping

member 33 is preferably made of heavy sheet metal and consists of a straight leg part 34 of substantially inverted U-shaped cross-section and is in alignment with the handle 31 and provided at its outer free end with an enlargement 35 so as to impart to the member 33 a generally T-shaped configuration. The enlargement 35 forms a transverse jaw, the front marginal portion 36 of which is slightly outwardly curved. The edge 37 which extends along the whole periphery of the jaw 35, lies in a flat plane and is adapted to contact the scraping blade 38 over the complete area of said edge 37 when the blade 38 is in flat condition.

A second clamping member, generally indicated at 39, is pivotally mounted on the clamping member 33 by means of a pivot pin 40 for pivotal movement between an open position (shown in dot and dash line in Figure 3) and a closed position opposite and partly nesting within the clamping member 33. The clamping member 39 is made of heavy sheet metal and provides a leg member 41 having a substantially U-shaped cross-section and adapted to nest within the leg member 34 of the clamping member 33. The outer free end of the leg member 41 is provided with an enlargement 42 having its longitudinal dimension disposed at substantially right-angles to the leg member 41 and providing the other jaw member for the scraper.

The jaw member 42 has an inturned flange 43, the edge 44 of which lies in a curved plane and is adapted to contact the underface of the blade 38 when the latter has a maximum curvature. In the closed position of the clamping member 39, the jaw 42 is disposed opposite the jaw 35 and the edges 44 and 37 of said jaw members are substantially opposite each other and, when the blade is removed, contact each other only at the lateral end portions of the jaws, as clearly shown in Figure 2, due to the concavity of the plane in which the edge 44 lies. The lateral ends of the jaw member 42 are provided with integral upstanding lugs 45 which have a curved cross-section to provide reinforcement therefor. The lugs 45 are adapted to engage notches 46 made in the ends of the blade 38 and are adapted to securely position said blade 38 relative to the lower jaw 42 in order to prevent relative displacement between the jaws and the blade.

Thus, when the blade 38 is positioned by the lugs 45 of the lower jaw 42 and said lower jaw brought into closed position with respect to the upper jaw 35, the blade is securely held between the two jaws only at the ends of the blade, while the portion of the blade intermediate the ends of the jaws can be made to assume any curved position between the spaced edge portions of the jaws, therefore, the curvature of the blade can be adjusted.

The lower clamping member 39 is removably secured in closed position by the following means.

A resilient elongated strip 50 is disposed within the leg 34 of the upper clamping member 33 with one end in slidable contact on the pivot pin 40 of the lower clamping member 39, while its other end is downwardly curved at 51 to provide a latching portion 52 adapted to engage underneath a transverse pin 53 secured to upstanding ears 54 at the sides of the lower clamping member 39. The latching portion 52 of the strip 50 is retained in resilient engagement with the transverse pin 53 by means of a bolt 55 which passes through an enlongated slot 56 of the upper portion of the leg 34 of the clamping member 33, and is in threaded engagement with a button 57 slidable over said leg 34 with the interposition of a curved washer 58.

It will be understood that actuation of the button 57 longitudinally of the leg 34 will cause forward and backward movement of the strip 50 into and out of engagement with the transverse pin 53 of the lower clamping member 39. The strip 50 is kept pressed against the head

59 of the bolt 55 by means of a coil spring 60 disposed between the strip 50 and a washer 61 which contacts the underface of the top wall of the leg 34.

The means for causing the blade 38 to assume various degrees of curvature comprise a rocking member in the form of a curved plate 62, shown in Figure 4, having, at one end, a downturned marginal portion 63 adapted to contact the upper face of the blade 38 at substantially right angles, and provided in its uppermost portion with a longitudinal slot 64 adapted to receive a pivot stud 65 of substantially rectangular cross-section and having a head 66 adapted to be secured to the top wall portion of the clamping member 33 at the root of the jaw member 35. The plate 62 is retained in engagement with the stud 65 by means of a transverse pin 67 which passes through the projecting end portion of stud 65. The portion of the plate 62 behind the stud 65 is downwardly curved, as shown at 68, and is in slidable contact with a cam element 69 which is secured to a square shaft 70 which is journalled in the downwardly extending ears 71 of the side walls of the upper leg 34 of the clamping member 33. The shaft 70 is provided with a lever arm 72 extending on the outside of the clamping member 33.

The cam 69 consists of a substantially rectangular, flat metal piece which is eccentrically mounted on the shaft 70.

Referring to Figures 5 to 7 inclusive, when the lever arm 72 is in upright position, the first cam face 73 of the cam 69 contacts the portion 68 of the plate 62, whereby the blade contacting portion 63 of the plate 62 is in its uppermost position and the blade 38 is allowed to take a flat position in full contact with the edge 37 of the jaw 35. When the lever arm 72 is rotated so as to point towards the handle 31, the second cam face 74 of the cam 69 comes in contact with the portion 68 of the plate 62 and raises said portion 68 so as to cause the marginal portion 63 of the plate 62 to press down on the center portion of the blade 38, so that the latter assumes an intermediate curved position as shown in Figure 6.

When the lever 72 is turned downwardly, as shown in Figure 7, the cam face 75 of the cam 69 comes in contact with the portion 68 of the plate 62 and causes downward movement of the marginal edge portion 63 of said plate 62 to further depress the blade 38 into its maximum curved position. In said position, the lower face of the blade 38 is in full contact with the curved edge 44 of the lower jaw 42.

The plate 62 is provided with a spring-pressed slidably mounted stud 76 which is adapted to contact the underface of the leg 34 of the clamping member 33 so as to cause the portion 68 to always be in contact with either one of the cam faces 73, 74 and 75 of the cam 69.

From the foregoing it will be apparent that by simple manipulation of the lever arm 72, the blade 38 can take either one of three positions, namely a flat position as shown in Figure 5, an intermediate curved position as shown in Figure 6, and a fully curved position as shown in Figure 7. In all of said three positions, the blade is securely held between the jaws 35 and 42 because it is contacted at the ends of said jaw and pressed between the same.

The blade 38 has a generally rectangular shape and is generally symmetrical about its longitudinal notches 46 so that either one of its scraping edges 77 and 78 may be used. The blade can have other shapes than that illustrated in the drawings. For instance, the scraping edges 77 and 78 may be much shorter than the length of the blade and may be also straight or convex so that the blade will be able to scrape at a greater depth than the blade 38 illustrated in the drawings.

The scraper, according to the present invention, has been found to be very useful for removing coatings from wooden surfaces without marring the said surface whereby it is not necessary to further finish the surface by fine sanding or buffing in order to obtain a smooth surface.

Therefore, the scraper, according to the present invention, is a scraper which accomplishes preliminary and finishing scraping in one operation.

The scraper, according to the present invention, is an improvement over the scraper of the U. S. Patent No. 2,756,499 because it is much easier and quicker to adjust the curvature of the blade and to replace said blade.

While a preferred embodiment according to the present invention has been illustrated and described, it is understood that various modifications may be resorted to without departing from the spirit and scope of the appended claims.

I claim:

1. In a scraper, a blade, a blade clamping mechanism comprising a pair of clamping members each having a clamping jaw, means to press said jaws one against the other in opposite relation, the upper one of said clamping jaws providing an edge portion lying in a substantially flat plane, the lower one of said clamping jaws providing an edge portion lying in a curved plane, said jaws securely contacting the blade only at the ends thereof a rocking member pivotally mounted intermediate its ends on one of said members and having one end adapted to contact the upper face of said blade at that portion intermediate the ends of the clamping jaws, and a lever operated cam member contacting the other end of said rocking member for rocking said member about its pivotal point to various angular positions.

2. In a scraper as claimed in claim 1, wherein one of said clamping members is pivotally mounted on the other clamping member, said other clamping member having a handle, and further including means to lock the pivoted clamping member in a position in which the ends of its jaw member are in contact with the ends of the jaw member of the other clamping member.

3. In a scraper as claimed in claim 2, wherein said locking means comprise a strip of resilient material mounted within the clamping member provided with said handle, for longitudinal movement within the same, an actuating button slidably mounted on said same clamping member for longitudinal movement thereon and connected to said strip for moving said strip between an unlocking position, in which said strip clears a transverse pin mounted on said pivoted clamping member, and a locking position in engagement with said transverse pin.

4. In a scraper as claimed in claim 3, wherein said rocking member consists in a curved plate pivoted intermediate its ends on the clamping member provided with the clamping jaw with an edge portion lying in a flat plane, said curved plate having one downturned end engageable with the portion of said blade between its clamped ends and having its other end in contact with said cam member, and further including resilient means to press said other end of said rocking member against said cam member.

5. In a scraper as claimed in claim 4, further including a lever extending outside of said clamping members and connected to said cam member for rotating the same.

6. In a scraper as claimed in claim 5, wherein said cam member consists in a flat substantially rectangular piece having cam edges progressively distant from the axis of rotation of said cam member.

7. In a scraper as claimed in claim 6, wherein said clamping members are made of heavy sheet metal having leg parts of substantially U-shaped cross-section, the leg part of said pivoted clamping member adapted to nest within the leg part of the other clamping member in the closing position of the pivoted clamping member.

8. A scraper comprising a handle, a first rigid substantially T-shaped member secured to said handle with a cross leg extending at substantially right angles to said handle, a second rigid T-shaped member pivotally mounted on said first member adjacent said handle and pivotable to a position in which its cross leg is in substantial registering relationship with the cross leg of said first T-shaped member, the cross leg of said first T-shaped

member providing a blade contacting area lying in a substantially flat plane to contact a flat blade over substantially the entire area of said blade contacting area, the cross leg of said second T-shaped member having a blade contacting area lying in a curved plane, the concavity of said plane being directed towards the blade contacting area of the cross leg of said first T-shaped member, said blade contacting area of said second T-shaped member adapted to contact over its entire area a blade in a curved position, means to press said T-shaped members one against the other to retain a blade between their respective blade contacting areas, means to firmly position said blade in between said clamping members, said blade being retained between said clamping members only at the ends of the cross legs of said clamping members and being free intermediate said ends, a rocking member disposed within one of said clamping members and cam means engaging said rocking member to rock the same into engagement with said blade to vary the curvature of said blade.

9. A scraper as claimed in claim 8, wherein said cam means comprise a shaft journalled in one of said clamping members, a cam member of substantially rectangular shape eccentrically mounted on said shaft, an actuating lever for said shaft extending outside said one clamping member and means to resiliently maintain said rocking member in engagement with said cam member.

10. A scraper as claimed in claim 8, wherein said means to press said clamping members one against the other comprise a longitudinally displaceable strip mounted within one of said clamping members, an actuating button slidably mounted on said one of said clamping members and connected to said strip for longitudinally displacing the same, a transverse pin mounted in the other of said clamping members, said strip being movable into a position engaging said pin for locking said clamping members together.

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