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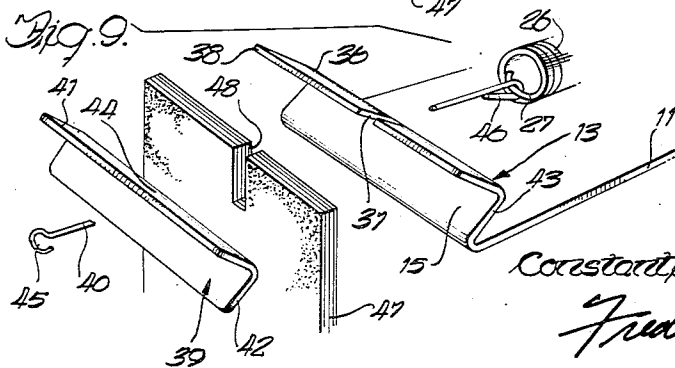
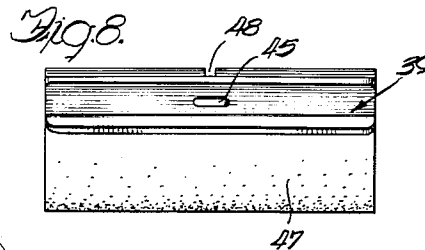
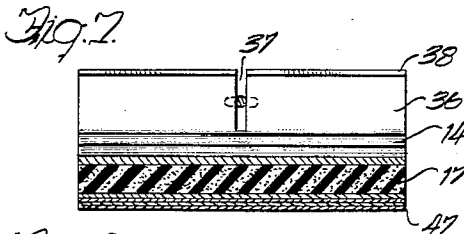
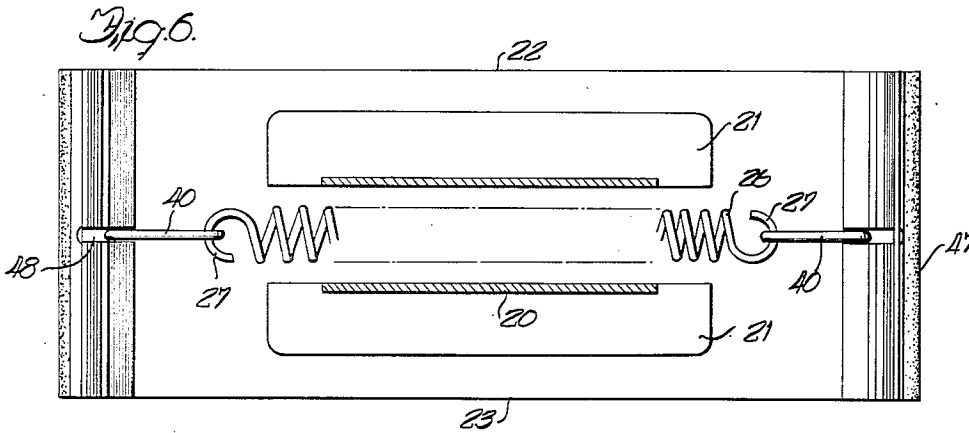
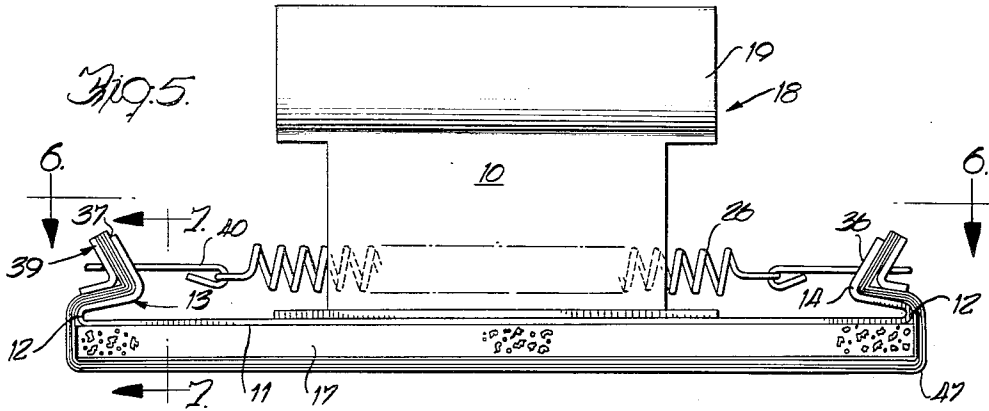
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2,809,476

HAND TOOL

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2 Sheets-Sheet 1



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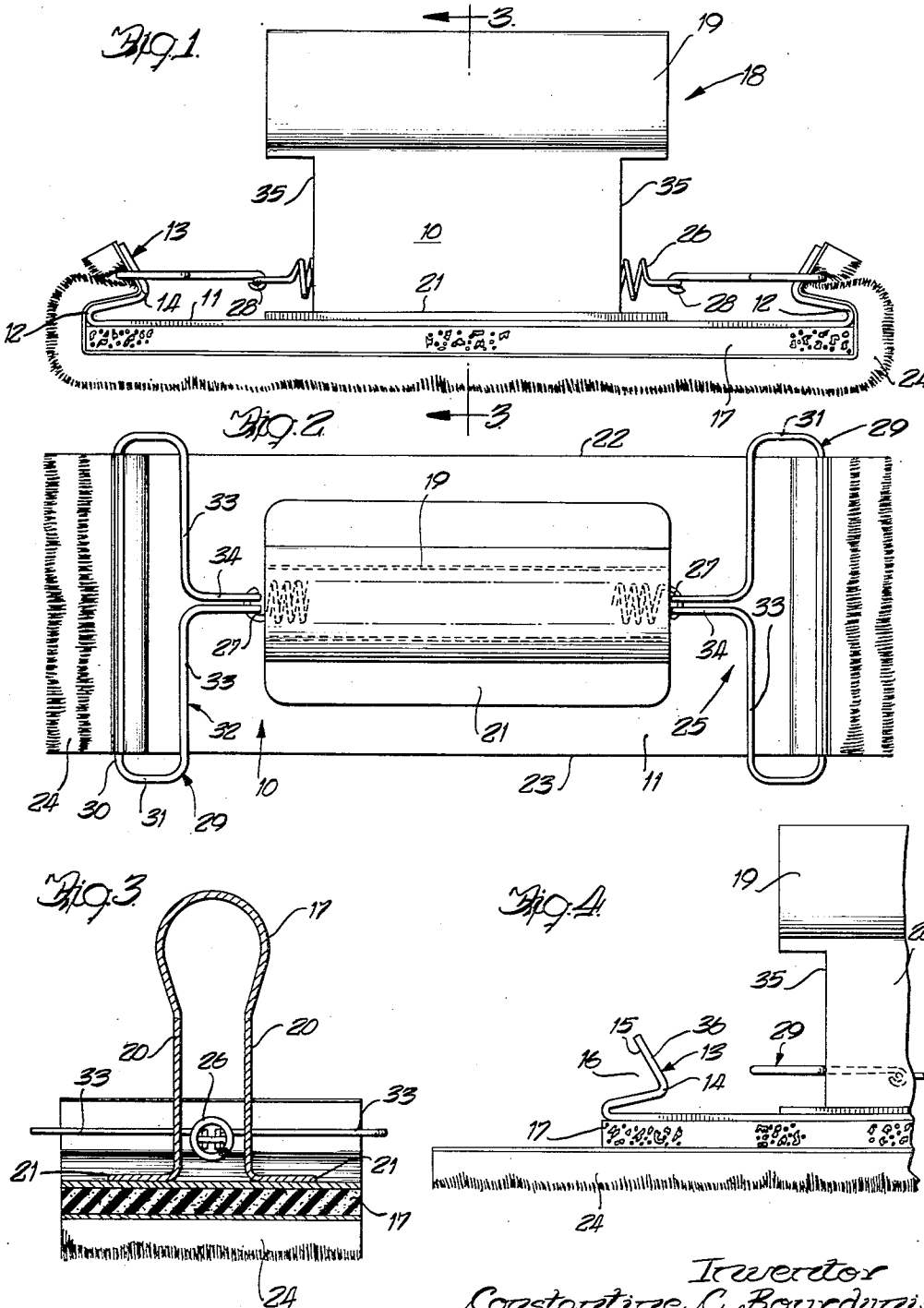
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HAND TOOL

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10 Claims. (Cl. 51-187)

This invention relates to surface working hand tools, and more particularly to a new and improved hand tool having quick detachable means for firmly securing a strip of work surface-engaging material thereto whereby the strip may be conveniently manipulated over the work surface.

An important object of the present invention is the provision of a surface-working hand tool constructed and arranged so as to permit the quick and easy interchange of surface engaging strips.

A further object is the provision of a durable hand tool of the type described which is sturdily constructed of a relatively few parts and which is efficient in operation and comparatively inexpensive to manufacture.

A still further object is the provision of novel means for securing a strip of work-engaging material to the bottom of the new and improved hand tool in operative position.

The foregoing and other important objects and desirable features inherent in and encompassed by the invention, together with many of the purposes and uses thereof, will become readily apparent from a reading of the ensuing description in conjunction with the annexed drawing, in which,

Figure 1 is a side elevational view of a hand tool embodying the invention;

Figure 2 is a top plan view of the hand tool shown in Figure 1;

Figure 3 is a sectional view taken substantially along line 3-3 of Figure 1;

Figure 4 is a fragmentary side elevational view showing one end of the surface polishing pad detached from the hand tool;

Figure 5 is a side elevational view of a hand tool embodying a modified form of the invention;

Figure 6 is a sectional view taken substantially along line 6-6 of Figure 5;

Figure 7 is a sectional view taken substantially along line 7-7 of Figure 5;

Figure 8 is an end elevational view of a portion of the hand tool shown in Figure 5; and

Figure 9 is an exploded, perspective view of one end of the hand tool shown in Figure 5.

Referring to the drawings in detail, wherein like reference characters represent like elements throughout the various views, a hand tool embodying the invention is shown which includes a body 10, preferably made of metal. The body 10 is provided with a flat base portion 11 which has a generally rectangular configuration when viewed in plan, as shown in Figure 2. Integrally formed with each longitudinally spaced end 12 of the base portion 11 so as to be a continuation thereof is a portion 13. Each portion 13 has a generally V-shape in side elevation. The apex 14 of each V-shaped portion 13 is vertically spaced above the base portion 11 and longitudinally inwardly of a respective adjacent base end 12. The outwardly facing surfaces 15 of each V-shaped por-

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tion 13 define a transversely-extending, V-shaped pocket 16, the purpose of which will be explained hereinafter.

A pad 17 of relatively soft, resiliently compressible material, such as sponge rubber or the like, extends along the bottom of the base portion 11. The pad 17 has a width and length substantially equal to the width and length of the base portion 11 and is securely fixed to the bottom surface thereof, preferably by means of an adhesive.

A handle structure, designated generally by numeral 18, comprises an elongated, C-shaped hand grip portion 19. A pair of parallel plates 20, are integrally formed with the hand grip portion 19 and depend therefrom. The lower end of each plate 20 is provided with laterally outwardly extending flange 21 which is suitably secured to the top surface of the base portion 11 by spot welds or the like. As best shown in Figures 2 and 3, the handle structure 18 is laterally spaced midway between the opposite side edges 22, 23 of the base portion 11.

As stated hereinbefore, the purpose of the hand tool is to receive and securely hold a surface-working strip 24, so that the strip may be conveniently manipulated over the surface being worked on. In the form of invention shown in Figures 1, 2, 3 and 4 the means for securing the strip to the hand tool includes a clamping device 25. The clamping device 25 includes a helically-wound tension spring 26 which is disposed in the space between the handle structure plates 20. The spring 26 being substantially enclosed by the handle structure 18, permits the person using the hand tool to firmly grasp the handle structure without interference by the spring 26. The spring 26 extends longitudinally with respect to the base portion 11 and has each of its end coils provided with an integrally formed semi-circular hook 27. Each hook 27 is adapted to extend through the ends 28, which are in the form of eyes, of a respective clamping members 29 so as to be connected thereto. The clamping members 29 are composed of relatively stiff or rigid wire. Each clamping member 29 includes a single wire formed such that the mid-section 30 thereof is adapted to be sealed in a pocket 16 and bear against the portions of the surfaces 15 defining the apex 14 of a V-shaped portion 13. The mid-sections 30 serve as clamping bars and have a transverse length greater than the width of the V-shaped portions 13 whereby each end thereof is transversely spaced outwardly of a respective side edge 22, 23 of the base portion 11. Continuing from the ends of each clamping bar 30 are short sections 31 which are perpendicular to the axis of the clamping bar 30 and are substantially parallel to each other. The portions 32 of the wire continuing from the short sections 31 are L-shaped in plan. One leg 33 of each portion 32 is parallel to the clamping bar 30 and the other leg 34 thereof lies closely adjacent and is coextensive with the leg 34 of the other portion 32. It will be appreciated that the clamping bar 30, short sections 31 and the legs 33 of each clamping member 29 form a loop which has a rectangular configuration in plan, as best shown in Figure 2.

The removable surface-working strip 24 illustrated in Figure 1 is in the form of a shoe polishing pad of the type used to obtain a high degree of gloss on the shoes after shoe polish or dressing has been applied to the shoe. The shoe polishing strip 24 may be made of sheep skin having the wool thereon or other similar materials such as a backing fabric provided with a synthetic fiber coating similar to wool.

In use, when it is desired to fit on the hand tool, the clamping members 29 are drawn vertically upwardly and longitudinally away from the handle structure 18 against the biasing action of the spring 26 until each is free of its respective V-shaped portion 13. When the clamping mem-

bers 29 are released the legs 33 of each clamping member about the respective end edges 35 of the vertical plates 20, as illustrated in Figure 4. It will be noted that the transversely aligned end edges 35 are longitudinally spaced from the opposite transversely aligned end edges 35 a distance considerably less than the longitudinal length of the hand grip portion 19. By constructing the handle structure 18 in this manner, the resilient biasing action of the spring 26 is relieved whenever the hand tool does not have a strip 24 connected thereto. Thus, the life of the spring 26 is lengthened and at the same time the clamping device 25 is instantly available for securing a strip 24 to the hand tool. With the clamping device 25 in its released position the major mid-portion of a polishing pad 24 is positioned beneath the sponge rubber pad 17 in a flat condition. The polishing pad 24 is stretched in a longitudinal direction and has its ends drawn tautly over the ends of the hand tool and disposed in the V-shaped pockets 16. Each clamping member 29 is then moved from its released position and looped over the upper leg of a respective V-shaped portion 13 and the terminal end of the pad 24 seated in the pocket 16. When clamping member 29 is released, the clamping bar 30 thereof tightly clamps the pad end in the apex 14 of the V-shaped portion 13 as illustrated in Figure 1. In order to replace a pad 24 which has become worn in use or to change the pad which has been used to polish shoes of one color for another pad for polishing shoes of a different color, it is only necessary to hold the hand tool in one hand and with the other hand pull each clamping member 29 individually longitudinally and upwardly until the clamping bar 30 associated therewith is free of the upper leg of the V-shaped portion 13. A new pad 24 is then fastened to the hand tool as pointed out above.

The modification of the hand tool invention illustrated in Figure 5 through 9 is similar in all respects to the hand tool described above with the exception of the means for securing the surface-working strip 24 thereto. As best shown in Figures 7 and 9, the uppermost leg 36 of each V-shaped portion 13 is provided with a slot 37 which extends from the free edge 38 thereof to the apex 14. It will be noted that the slots 37 are in longitudinal alignment and are spaced substantially midway between the lateral side edges 22, 23 of the base portion 11. In lieu of the loop-type clamping members 29 employed in the hand tool heretofore described, V-shaped clamping plates 39 and links 40 are used. Each plate 39 has a length substantially equal to the length of the V-shaped portion 13 associated therewith which is also equal to the lateral width of the base portion 11. The angle between the upper leg 41 and the lower leg 42 is substantially the same as the angle between the upper leg 36 and the lower leg 43 of the associated V-shaped portion 13. The upper leg 41 of each plate 39 is provided with an aperture 44 through which a link 40 loosely extends. The links 40 are made of relatively stiff and rigid wire and the end portion 45 of each disposed on the outwardly facing side of the leg 41 is in the form of a loop having a diameter greater than the aperture. The opposite end of each link 40 is in the form of an eye 46 through which a hook 27 of the tension spring 26 extends to thereby pivotally connect the link 40 to the spring 26. It will be appreciated from the foregoing, that the spring 26 through the intermediary of the links 40 yieldably urge the clamping plates 39 longitudinally toward each other and into abutting engagement with the outwardly facing surfaces 15 of the V-shaped portions 13.

From the foregoing description, the operation of the modified hand tool is believed apparent. In the practical use of the hand tool, a single or any other desired number of relatively thin strips 24 such as sand paper 47 are applied to the bottom face of the sponge rubber pad 17, their ends being slipped in between the inner surfaces of the legs 41, 43 of the clamping plates 39 and the outer faces 15 of the V-shaped portions 13. The clamping

plates 39, when released firmly clamp the strip or strips, as the case may be, to the hand tool and the hand tool is then completely assembled in readiness for surface dressing. When one strip 47 has become worn out, it may be readily replaced by another or removed and the next strip underneath used, if the strips are superimposed one upon the other on the hand tool, as shown in Figure 5. It will be noted that the strips 24 utilized by the modified hand tool are provided with a slot 48 extending from each end thereof which slots 48 are registerable with the slots 37 formed in the uppermost legs 30 of the V-shaped portions 13 to accommodate the links 40. It is also to be understood, that the modified hand tool could be employed as a shoe polishing tool by attaching a strip of suitable polishing material thereto instead of sand paper, and vice versa, a strip or strips of sand paper could be clamped to the hand tool shown in Figure 1 to convert the same to an abrading tool.

It will be appreciated that no part of the modified hand tool including the clamping device 25 overhangs the side edges 22, 23 of the base portion 11. Consequently, the entire area of the surface being sanded may be conveniently worked on even if a raised surface is adjacent to such surface. As a further example, both surfaces defining an inner corner of a cabinet or base board may be sanded without interference by any parts or portions of the hand tool.

The embodiments of the invention chosen for purposes of illustration and description herein are those preferred for achieving the objects of the invention and developing the utility thereof in a most desirable manner, due regard being had to existing factors of economy, simplicity of design and construction, and the improvements sought to be effected. It will be appreciated, therefore, that the particular structural and functional aspects emphasized herein are not intended to exclude, but rather to suggest, such other adaptations and modifications of the invention as fall within the spirit and scope of the invention as defined in the appended claims.

What is claimed is:

1. A surface working hand tool, comprising a metal body having a flat base portion, said body having an integrally formed, substantially V-shaped portion at each end of said base portion, to provide transversely extending V-shaped pockets; a strip of work surface-engaging material extending beneath said base portion and having its opposite ends in a respective pocket; and means for detachably securing the ends of said strip in said pockets including a clamping device, said clamping device including a contractible spring and a pair of clamping members, each of said clamping members comprising a single relatively rigid wire having its middle portion in the form of a rectangular loop, one of the longer sections of said loop extending transversely and disposed in a respective pocket and abutting the end of said strip disposed in said pocket, the end sections of each wire lying closely adjacent and extending longitudinally and perpendicular from the middle of the other longer section of said loop, the free end of said end sections being connected to a respective end of said spring.

2. A surface-working hand tool substantially as set forth in claim 1, in which the uppermost leg of each of said V-shaped portions is provided with a slot extending from the free edge thereof and transversely spaced midway between the transverse ends of the V-shaped portion, the ends of said strip disposed in said pockets being provided with slots registerable with the slots provided in said V-shaped portions, and said means for detachably securing the ends of said strip in said pockets includes a clamping device, said clamping device including a contractible spring and a pair of V-shaped clamping plates, each of said clamping plates being of a transverse length substantially equal to the width of said base portion and disposed in a respective pocket and abutting the end of said strip disposed in said pocket, and a means operatively

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interconnecting each clamping plate and a respective end of said spring including a pair of links, each of said links extending longitudinally through the slot of an uppermost leg of a respective V-shaped portion and registering slot in a strip end, and having one end connected to a clamping plate adjacent the apex thereof and its opposite end connected to a respective end of said spring.

3. A surface-working hand tool, comprising a relatively thin metal body having a substantially rectangular flat base portion; said body having an integrally formed, substantially V-shaped portion at each end of said base portion to provide transversely extending, substantially V-shaped pockets; a strip of work surface-engaging material extending beneath said base portion and having its opposite ends in a respective pocket; a handle structure including a substantially C-shaped longitudinally extending hand grip portion and a pair of spaced and parallel support plates integrally formed with and depending from said hand grip portion, said plates being rigidly secured to said base portion; and means for detachably securing the ends of said strip in said pockets including a clamping device having a portion thereof extending longitudinally and disposed between said support plates.

4. A surface-working hand tool substantially as set forth in claim 3, in which, said means, for detachably securing the ends of said strip in said pockets includes a clamping device, said clamping device including a contractible spring and a pair of clamping members, each of said clamping members comprising a single relatively rigid wire having its middle portion in the form of a rectangular loop, one of the longer sections of said loop extending transversely and disposed in a respective pocket and abutting the end of said strip disposed in said pocket, the end sections of each wire lying closely adjacent and extending longitudinally and perpendicular from the middle of the other longer section of said loop, the free ends of said end sections being connected to a respective end of said spring.

5. A surface-working hand tool substantially as set forth in claim 3, in which the uppermost leg of each of said V-shaped portions is provided with a slot extending from the free edge thereof and transversely spaced midway between the transverse ends of the V-shaped portion, the ends of said strip disposed in said pockets being provided with slots registerable with the slots provided in said V-shaped portions, and said means for detachably securing the ends of said strip in said pockets includes a clamping device, said clamping device including a contractible spring and a pair of V-shaped clamping plates, each of said clamping plates being of a transverse length substantially equal to the width of said base portion and disposed in a respective pocket and abutting the end of said strip disposed in said pocket, and a means operatively interconnecting each clamping plate and a respective end of said spring including a pair of links, each of said links extending longitudinally through the slot of an uppermost leg of a respective V-shaped portion and registering slot in a strip end, and having one end connected to a clamping plate adjacent the apex thereof and its opposite end connected to a respective end of said spring.

6. A surface-working hand tool, comprising a relatively thin metal body having a substantially rectangular flat base portion, said body having an integrally formed, substantially V-shaped portion at each end of said base portion to provide transversely extending, substantially V-shaped pockets, the apex of each of said V-shaped portions being spaced above and longitudinally spaced inwardly from the adjacent end edge of said base portion; a pad of yieldable material secured to the underside of said base portion; a strip of work surface-engaging material underlying and abutting said pad and having its opposite ends in a respective pocket; a handle structure including a substantially C-shaped longitudinally extending hand grip portion and a pair of laterally spaced and

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parallel support plates integrally formed with and depending from said hand grip portion, said plates being rigidly secured to said base portion; and means for detachably securing the ends of said strip in said pockets including a clamping device, said clamping device including spring means extending longitudinally and disposed between said support plates.

7. A surface-working hand tool, comprising a relatively thin metal body having a substantially rectangular flat base portion, said body having an integrally formed, substantially V-shaped portion at each end of said base portion to provide transversely extending, substantially V-shaped pockets, the apex of each of said V-shaped portions being spaced above and longitudinally spaced inwardly from the adjacent end edge of said base portion; a pad of yieldable material of substantially the same configuration as said base portion secured to the underside of said base portion; a removable strip of work surface-engaging material underlying and abutting said pad and having its opposite ends in a respective pocket; a handle structure including a substantially C-shaped hand grip portion and a pair of laterally spaced and parallel support plates integrally formed with and depending from said hand grip portion, said plates being secured to said base portion; and a spring biased device for detachably securing the ends of said strip in said pockets including a helically-wound spring extending longitudinally and disposed between said support plates.

8. A surface-working hand tool substantially as set forth in claim 7, in which, said spring biased device includes a pair of clamping members, each of said clamping members including a rectangular loop, one of the longer sections of said loop extending transversely and disposed in a respective pocket and abutting the end of said strip disposed in said pocket, each of said clamping members further including longitudinally extending means integrally formed with the other of longer section of said loop and operatively connected to a respective end of said spring.

9. A surface-working hand tool substantially as set forth in claim 7, in which, said spring biased device includes a pair of clamping members, each of said clamping members comprising a single relatively rigid wire having its middle portion in the form of a rectangular loop, one of the longer sections of said loop extending transversely and disposed in a respective pocket and abutting the end of said strip disposed in said pocket, the end sections of each wire lying closely adjacent and extending longitudinally and perpendicular from the middle of the other longer section of said loop, the free ends of said end sections being connected to a respective end of said spring.

10. A surface-working hand tool substantially as set forth in claim 7, in which, the uppermost leg of each of said V-shaped portions is provided with a slot extending from the free edge thereof and transversely spaced midway between the transverse ends of the V-shaped portion, the ends of said strip disposed in said pockets being provided with slots registerable with the slots provided in said V-shaped portions, and said spring biased device for detachably securing the ends of said strip in said pockets includes a pair of V-shaped clamping plates, each of said clamping plates being of a transverse length substantially equal to the width of said base portion and disposed in a respective pocket and abutting the end of said strip disposed in said pocket, and means operatively interconnecting each clamping plate and a respective end of said spring including a pair of links, each of said links extending longitudinally through the slot of an uppermost leg of a respective V-shaped portion and registering slot in a strip end, and having one end connected to a clamping plate adjacent the apex thereof and its opposite end connected to a respective end of said spring.

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