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Goodnow

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[54] **BLADEHOLDERS FOR DOCTORS AND SCRAPERS**

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[52] **U.S. Cl.** **15/256.51,** 162/281

[51] **Int. Cl.** **D21g 3/00**

[58] **Field of Search** 15/256.51, 256.5, 15/256.53; 162/281, 282; 100/174; 68/270; 34/120; 165/91; 118/126, 261; 134/6, 9, 15; 101/154, 155, 167, 425

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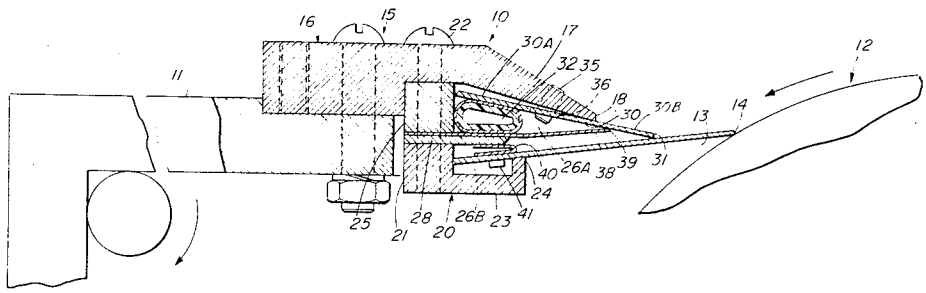
[57] **ABSTRACT**

A bladeholder for doctors, scrapers and the like has separate regions for a blade and a pressure or rocker plate. The blade can be removed, installed, or adjusted in one region without disturbing the rocker plate and associated parts in the other region. The rocker plate has constant "stick-out," and can be fitted with resilient profiling devices. An improved profiling device is shown having armor cladding to prevent damage due to pressure.

23 Claims, 5 Drawing Figures



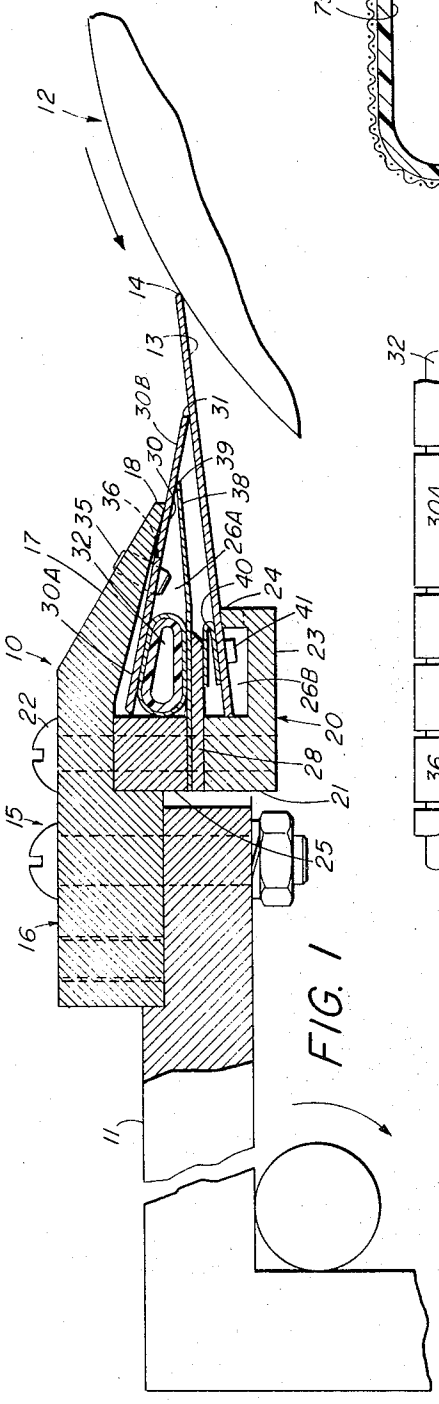


FIG. 1

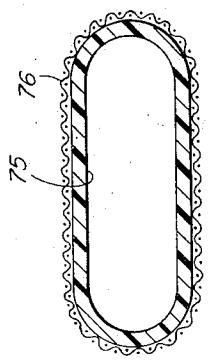


FIG. 3

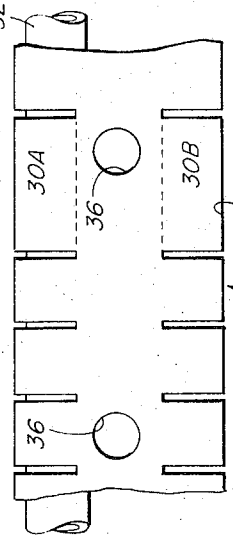


FIG. 5

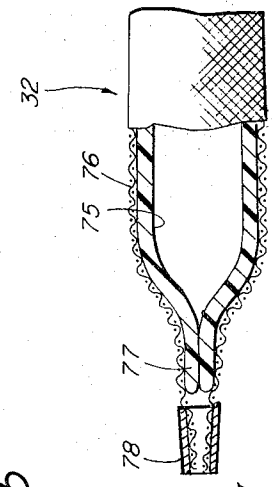


FIG. 4

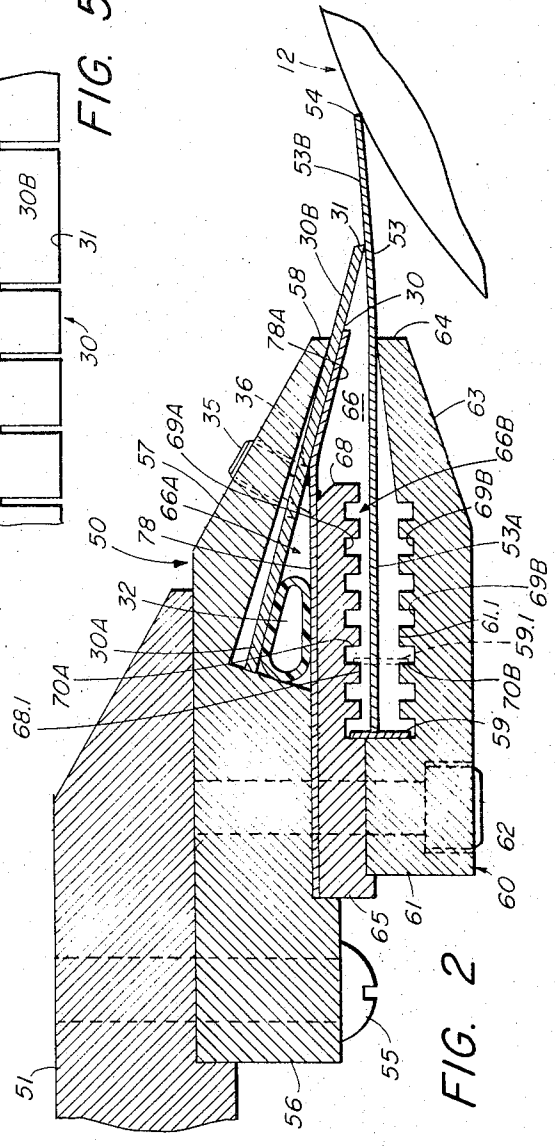


FIG. 2

BLADEHOLDERS FOR DOCTORS AND SCRAPERS

BACKGROUND OF THE INVENTION

The art of making bladeholders for doctors and scrapers is old, yet continues to develop. The task of doctoring or scraping a moving work surface, as on a roll or cylinder, for example, presents problems of approach to the load, operational control, and blade wear and replacement, which continue to engage paper makers and others facing the task. In the paper industry, doctors and scrapers are employed to clean the surfaces of rotating calendar rolls, drier cylinders and the like; and scrapers are used to remove a web of paper as in the manufacture of crepe paper (creping doctor). Scrapers (sometimes called "knives") are used to remove product from drums in flakers and drum driers used to prepare dried products of various kinds (examples being foodstuffs, pharmaceuticals, chemicals, films solidified from liquids) from a starting liquid or paste.

When the surface to be doctored or scraped (working surface) is that of a material soft enough to be damaged by a blade or knife approaching it at an angle that favors digging in, chipping or otherwise injuring the working surface, it is important that the bladeholder control not only the angle at which the blade engages the work surface during operation but also the angle at which the blade approaches the work surface when being brought into position for operation. A blade holder which permits the unloaded blade in it to rock about some axis parallel to its working edge would introduce the danger of injuring the work surface, thereby requiring special precautions to prevent such injury.

Blades wear out in use, and many attempts have been made to extend blade life. Attention has been given to special treatments of the working edges of blades, to improve the lasting qualities and efficiencies of the working edges. Attention has also been given to making blades having reserve body structure and adjustable holding features such that, in combination with a bladeholder incorporating cooperating adjusting features, the blade can be adjusted to compensate for wearing away of its working edge.

Much attention has been given to problems of operational control. Doctor and scraper blades are generally long thin structures approximately four to six inches wide and extending sometimes as much as 30 feet or more from one end to the other, across a working surface perpendicular to the direction of relative motion with respect to the working surface. In paper machinery, the long dimension of the blade is in the "cross-machine direction" (CMD). Obviously, the blade is subject to flexure in the CMD, and a high spot on the working surface, due to debris, for example, can lift the blade from the working surface in the vicinity of the high spot, and create conditions of non-uniform pressure between the blade working edge and the working surface in the CMD. This is a transitory, or dynamic flexure problem. There exists also a static problem of blade flexure to accommodate roll crown and the like. An early solution to these problems is described in U.S. Pat. No. 2,477,339 to Ljungquist, assigned to the predecessor of the assignee of the present application. Examples of the attention given to correcting these problems with yieldable displacement members are found, for example, in U.S. Pat. Nos. 2,914,788 and 3,163,878, both assigned to DST Pattern and Engineering Company Limited. A more recent improvement in bladeholders providing uniform pressure on the working surface is described in U.S. Pat. No. 3,529,315 of Dunlap and Bedard, which is assigned to the predecessor of the assignee of this application. This last patent describes and claims a bladeholder adapted to position a blade to bear against a work surface with substantially uniform pressure along its entire length, and a yieldable displacement member for a blade assembly which are believed to afford the most satisfactory solution yet available for this particular problem.

The introduction of yieldable displacement members has made bladeholders more complicated, and has brought with it problems of protecting the displacement members from destruction in the working environment, and during replacement or adjustment of blades in the bladeholder, as well as introducing complications in the installation, changing and adjustment of blades.

GENERAL NATURE OF THE INVENTION

The present invention is addressed to all of the foregoing problems. A bladeholder is provided which as in the prior art, has two jaws enclosing a jaw space for receiving the back portion of a blade, and a pair of confronting lips forward through which the blade extends to its working edge. The holder has provision for means, preferably resilient, arranged to apply force through a rocker plate to one side of the blade for holding the blade working edge in engagement with a working surface. The resilient means can optimally be a profiling means, and the rocker plate can be especially adapted for efficiently functioning with a profiling resilient means.

The jaw space is divided into two regions, for example by a partition member in the jaw space which is anchored to the bladeholder separating one region from the other, both regions, however, communicating with the space between the lips. The back portion of the blade is located in one region while the back portion of the rocker plate together with its associated force-applying means is located in the second region. Means are provided to seal the second region against entry of foreign material through the lips. The blade can be installed in, removed from, or in some embodiments of the invention adjusted in, the first region without disturbing the contents of the second region. The contents of the second region, in particular, a resilient force-applying means, can be installed in and removed from the second region without disturbing the blade. In creping applications, where constant "stick-out" of the rocker plate is desirable, embodiments of the invention which provide for independent adjustment of the blade are particularly valuable, and afford flexibility and simplicity of operation which have not heretofore been available.

The arrangement of parts is such that when the blade is not loaded, namely, the working edge is out of contact with a working surface, the blade attitute, or angle is the same or approximately the same, relative to an approaching load as the blade angle under loaded or working condition. To this end, the blade and rocker plate are constrained within limits that are normally not reached during operation but when reached in the absence of a load will maintain the blade at an angle, or in an attitute which closely approximates the working angle or attitude.

Resilient force-applying means for the rocker plate can be solid, as an elongated piece of rubber, or it can be a tubular member charged with a fluid. If a profiling member is desired, the teachings of above-mentioned U.S. Pat. No. 3,529,315 can be incorporated. Tubular members charged with fluid risk loss of the fluid, shutdown and the inconvenience of needing to be changed if they are damaged. To minimize these risks, a metal braid envelope is provided. This provision, combined with installation in a bladeholder which minimizes the occasions for changing or adjusting the rocker-plate and resilient means components, greatly improves the utility and reliability of bladeholders. Preferably this envelope is highly flexible, in order to avoid interference with profiling properties of the resilient means while protecting it from abrasion, cuts and the like.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a cross-section of a first embodiment of the invention;

FIG. 2 is a cross-section of a second embodiment of the invention;

FIG. 3 is a cross-section of a profiling resilient member;

FIG. 4 is a longitudinal end-section of the profiling member shown in FIG. 3; and

FIG. 5 is a partial plan view of a modified rocker plate.

DETAILED DESCRIPTION OF THE DRAWINGS

FIG. 1 shows in cross section a blade holder **10** carried by an arm **11** (i.e; doctor back) that is pivotally mounted with respect to a roll **12,** the surface of which is the work surface against which a blade **13** is intended to bear at its working edge **14.** As is well known, the bladeholder is an elongated structure which may be several feet long. The bladeholder is held to the arm by several bolts of which only one bolt **15** is illustrated. The bladeholder is comprised of a top piece **16** the back portion of which is bolted to the arm **11** and the forward portion of which constitutes a first jaw member **17** that terminates at its forward extremity in a first lip **18.** A bottom piece **20** has a back portion **21** fastened to the top piece by several bolts **22** and a forward portion constituting a second jaw member **23** which terminates at its forward extremity in a second lip **24.** The jaw members **17** and **23** are spaced apart not only by the back portion **21** but also by a spacer member **25** through which the bolts **22** pass into the back portion **21,** and the lips **18** and **24** also are spaced apart, the jaw members rearwardly of the lips bounding between them a jaw space **26.** A platform member **28** is held between the bottom piece back portion **21** and the spacer member **25** and extends into the jaw space dividing the jaw space into two distinct regions, here in the form of a first compartment **26A** bounded at one side by the first jaw member **17** and a second compartment **26B** bounded at one side by the second jaw member **23.**

A rocker plate **30** has a rearward portion **30A** located in the first compartment **26A,** and a forward portion **30B** extending out of the first compartment beyond the first lip **18** and terminating in a bearing edge **31.** The rocker plate bears at one side (top as seen in FIG. 1) against the first lip **18.** Resilient means **32** (to be described in detail below) is located in the first compartment **26A** between the platform member **28** and the opposite side (lower as seen in FIG. 1) of the rocker plate **30** at the rearward portion **30A** of it. Generally speaking, the resilient means includes an elongated flexible member which preferably has the property that a given pressure applied to it in one location will appear substantially uniformly at other locations throughout its length, and will therefore function as a profiling means. For some applications of the invention, it may be satisfactory to use a simple elongated resilient member (a spring or a rubber member, for example) which does not have this profiling property in a significant degree. The resilient means **32** will, in either case, urge the rearward portion **30A** of the rocker plate away from the platform member **28,** and will thereby urge the rocker plate to pivot around the first lip **18** in a direction tending to displace the bearing edge **31** toward the second lip **24.** Retainers in the form of short screw bolts **35** are threaded through the first jaw member **17** far enough to penetrate loosely through holes **36** in the rocker plate, to hold the rocker plate in the first compartment **26A.**

A thin strip **38** of buffer material is fixedly located in the jawspace in the vicinity of the platform member, being clamped at a rearward portion between the spacer member **25** and the platform member **28,** and extends forward terminating at its forward edge **39** in contact with the under side (in FIG. 1) of the rocker plate **30,** just forward of the first lip **18.** This sheet may be a sheet of steel, or other spring-like material which is preferably spring-loaded to hold its forward edge **39** resiliently in contact with the rocker plate, so that it aids in sealing the first compartment **26A** against the entrance of loose material during operation of the bladeholder. Terminating forward as it does beyond the first lip **18,** the spring-loaded buffer strip **38** is effectively dimensioned to cooperate with the resilient means **32** to maintain the rocker plate **30** in contact with the first lip **18** when there is no blade in the second compartment **26B,** thereby facilitating the insertion of a blade into, and removal of the blade from the second compartment **26B.**

The blade **13** has spring-clips **40** attached with studs **41** along its rearward portion within the second compartment **26B.** The studs retain the blade within the second compartment against the up-standing second lip **24,** while the spring clips bear against the underside (in FIG. 1) of the platform member **28.** This light spring action tends to retain a blade **13** in the blade-holder **10** in its working attitude when it is out of contact with the roll **12,** that is, when there is no working load on the working edge **14** of the blade. This is an important feature of the bladeholder, which prevents damage to the surface of a roll or other working surface that is soft enough to be damaged if the blade approaches it at an angle that is not the correct, or at least approximately the correct working angle.

FIG. 2 shows a second embodiment of the invention in which the bladeholder **50** is affixed via its top piece **56** to the underside of a supporting arm or doctor back **51** by a series of bolts of which only one **55** is shown. The top piece extends forward of the doctor back to a first jaw member **57** terminating at its forward extremity in a first lip **58.** The bottom piece **60** has its back portion **61** fastened to the top piece by bolts **62** which pass through a spacer member **65** into the top piece **56.** In this embodiment the platform member **68** (corresponding to the platform member **28** in FIG. 1) is integral with the spacer member **65,** and extends into the

jaw space **66** where it divides that space into two regions comprised of a first compartment **66A** and a second compartment **66B**. The rocker plate **30**, resilient means **32**, retainers **35** and holes **36** in the rocker plate are all similar to the like-referenced components in FIG. **1**. A buffer strip **78** corresponds essentially to the buffer strip **38** in FIG. **1** being in this embodiment bent to form an extended contact at its forward portion **78A** with the underside of the rocker plate both before and beyond contact of the rocker plate with the first lip **58**. The first compartment **66A** and parts contained within it, including the buffer strip **78**, are essentially similar to the first compartment **26A** and the parts contained within it in FIG. **1**, in both structures and function.

The bottom piece **60** has a back portion **61** which extends forward essentially parallel to the platform member **68**, and a forward portion which constitutes a second jaw member **63** terminating at its forward extremity in a second lip **64**. The confronting surfaces **68.1** of the platform member **68** and **61.1** of the back portion **61** of the bottom piece **60** are each serrated or notched with a series of slots or notches **69A** and **69B**, respectively, that are in register with eachother forming a ladder-like series of enlarged subdivisions of the second compartment **66B**, separated by finger-like projections **70A** and **70B**, respectively, which extend toward but do not touch each-other.

A blade **53** has its back portion **53A** in the second compartment **66A**, between but not touching the confronting projections **70A**, **70B**, and its forward portion **53B** extending out of the holder beyond the lips **58** and **64** to terminate in a working edge **54**. A base plate **59** is positioned to the rearward extremity of the blade **53**, disposed transverse to the thickness of the blade and running its full length, so that in the transverse section shown in FIG. **2** the base plate and the blade form a "T." The base plate **59** generally is continuous. It has a width, across the second compartment **66B** which is greater than the distance between any pair of confronting projections **70A**, **70B**, but somewhat less than the distance between the bottoms of a pair of confronting slots or notches **69A**, **69B**. By sliding the blade **53** out of the second compartment **66B**, perpendicular to the plane of the figure, or through the lips **58** and **64**, or both, the blade can be removed from the holder without disturbing the rocker plate **30** or other contents of the first compartment **66A**. The base plate **59** can be removed and installed only in the direction perpendicular to the plane of the figure. With the reverse procedure, the blade can be reinserted in the holder **50** while locating the base plate **59** in any pair of confronting slots **69A**, **69B**, to rest on the rearward-most pair of confronting projections **70A**, **70B**, respectively, bounding those slots, as is shown in dotted line at **59.1**. In this manner the rearward portion **53A** of the blade can be located to one of several available depths in the second compartment **66B**, and the distance (i.e.: "stick-out") that the forward portion **53B** of the blade projects beyond the lips **58** and **64** can be adjusted, independent of the "stick-out" of the rocker plate **30**, which remains constant. This permits the blade to be adjusted in the holder **50** for wear, thereby extending the useful life of a blade, as well as to accommodate blades of varying widths.

The embodiment of FIG. **2** has all the advantages and features of the embodiment of FIG. **1**. In addition, this embodiment provides for separate adjustment of a blade in a holder which incorporates provisions for hydraulic profiling means, without disturbing the profiling means. It will be noted that, as in FIG. **1**, the rocker plate **30** in FIG. **2** bears at its forward edge **31** on the top surface (in the figure) of the blade forward of the second lip **64**. The distance between the first lip **58** and the forward edge **31** of the rocker plate **30** (i.e: the rocker plate "stick-out") is a constant in a given structure, which can be chosen to suit the needs of a particular application, while the blade **53** is independently adjustable so that the blade "stick-out" (amount the forward portion **53B** extends) beyond the rocker plate edge **31** is independently variable. This feature of the invention is important for example in creping applications, and is available independent of whether or not a resilient force-applying means **32** is employed. With no load on the blade, the blade will approach its load (e.g: surface of the roll **12**) at an angle approximately as is shown in FIG. **2**, but without the slight curvature imposed by the load which is shown in the figure.

The resilient means **32** preferably has no noticeable spring rate. A yieldable displacement member as described and claimed in U.S. Pat. No. 3,529,315 may be used in place of the particular resilient means **32** shown in FIGS. **1** and **2**. Such a displacement member, in elongated tubular form, has the property that a given pressure applied to it in one location will appear substantially uniformly at other locations throughout its length. When incorporated as the resilient means **32** in the present invention, it will provide a profiling feature to the invention. Blades for doctoring, calendaring, creping, and the like, being sometimes several feet long are flexible in the direction of the working edge. When a high spot appears on the working surface of the roll **12**, tending to lift the nearby lengthwise portion of the blade from the roll, the blade correspondingly tends to urge the same general lengthwise portion of the rocker plate to pivot counter-clockwise around the first lip, **18** or **58**, of the holder. This puts an increased pressure on the corresponding lengthwise portion of the resilient means. Employing the substantially-uniform pressure property defined above, the resilient means transmits that pressure throughout its length, and that pressure is applied via the rocker plate **30** to the blade **13** or **53**, to hold down against the surface of the roll **12** the remainder of the working edge **14** or **54**. As is described in the referenced patent, such profiling means can be made of a pliable tube closed at both ends and charged with a substantially incompressible fluid, preferably a fixed volume of non-compressible fluid to the substantial exclusion of compressible fluid, and the best advantages for profiling will be enjoyed if the material of the walls of the tube is relatively inelastic such that in the range of normal conditions of operation, it is substantially unstretched.

The resilient means **32** shown in FIGS. **1** and **2** can also provide profiling properties to the invention. FIGS. **3** and **4** show enlarged views of it. An elongated tube **75** which has or is given a generally oval cross-section is made of a suitable plastics material, such as Teflon (DuPont trademark for a plastic consisting of a tetrafluoroethylene polymer). The tube can be chosen of any suitable material (e.g: rubber) in a wall thickness having the desired inelastic properties. Tubes of Teflon Type FEP having wall thickness in the range 0.015 to 0.030 inch have been used. A metal-braid protective envelope **76** encloses the tube **75**, to prevent damage

to the tube from abrasion with the surrounding metal parts when it is installed in the bladeholder and during operation. A protective envelope **76** made of highly flexible fibers will minimize interference of the envelope with the profiling properties of the enclosed profiling tube **75**. To this end, stainless steel braid tube size **48-11-36** has been used. After filling with a non-compressible fluid according to the above-referenced patent, the tube **75** is sealed at its ends, by heat sealing in a known manner to provide sealed ends one of which is illustrated at **77** in FIG. **4**. The metal-braid envelope **76** is drawn over the sealed tube end **77** and closed with a clamp **78**, which can be made, for example, from a ring of ⅜ inch diameter copper tube flattened over the overlapping metal braid.

Sensitivity of the profiling arrangement to distortion of the blade in the cross-machine direction, as by an irregularity on the working surface, may be enhanced by slotting the rocker plate transversely to the cross-machine direction, from one or both of its long edges toward or into its median region, as is illustrated in FIG. **5**. In the event a resilient means is used that does not contribute profiling properties, such as a bar of solid rubber, slotting of the rocker plate in this manner will reduce the tendency of neighboring regions of the blade to follow such a distortion of the blade.

When the invention is used without a resilient means **32** selected primarily for or with major interest in its profiling properties a bar of solid rubber (not shown) as mentioned above, or an inflatable tube or hose may be used. Another alternative is a wavy spring (not shown) extending in the cross-machine direction, between the rearward portion **30A** of the rocker plate and the platform member **28** or **68**, with its wave peaks touching both. Such other resilient means may contribute some profiling properties, or substantially none at all, depending on the particular structure that is chosen in a given installation. Bladeholders according to the invention give the user a full range of options and, regardless of choise of resilient means, a blade can be installed, removed, and in embodiments according to FIG. **2** adjusted, without disturbing the rocker plate and resilient means subassembly.

I claim:

1. A holder for a doctor blade or the like comprising a pair of jaw members having respective spaced-apart lips said members bounding a jaw space, a partition member in the jaw space dividing that space into first and second side-by-side compartments, a rocker plate having a rearward lockably retained portion in the first compartment and a forward portion extending a fixed distance out of the first compartment beyond the lip of the jaw member bounding the first compartment, the rocker plate being arranged to bear at one side against said lip and terminating at its forward portion in a bearing edge, and resilient means located in the first compartment between the partition member and the rearward portion of the rocker plate; the second compartment being fitted to receive a blade having a rearward portion located in the second compartment and a second portion extending out of the second compartment beyond both lips and said bearing edge so that said blade during operation will be in contact at one side with said bearing edge, said partition member and the jaw member bounding the second compartment being arranged to hold removably between them the rearward portion of said blade, so that a blade can be fitted into and removed from the second compartment independently of the contents of the first compartment.

2. A bladeholder according to claim **1** in which said resilient means incorporates profiling means that includes an elongated flexible member having the property that a given pressure applied to it in one location will appear substantially uniformly at other locations throughout its length.

3. A bladeholder according to claim **2** in which said profiling means comprises a tube of flexible material closed at both ends and charged with a substantially incompressible fluid.

4. A bladeholder according to claim **3** in which said tube contains a fixed volume of non-compressible fluid to the substantial exclusion of compressible fluid, and the material of the walls of said tube is relatively inelastic such that in the range of normal conditions of operation it is substantially unstretched.

5. A bladeholder according to claim **3** including a tubular metal armor having flexibility similar to said tube substantially surrounding the tube.

6. A bladeholder according to claim **1** including a buffer strip of generally rigid but flexible material having a rearward portion fixedly located in said jaw space in the vicinity of said partition member and a forward portion bearing against the opposite side of said rocker plate in the vicinity of said first-named lip, for substantially closing said first compartment to passage of material entering said jaw space between said lips.

7. A bladeholder according to claim **6** in which said forward portion of said buffer strip bears against said rocker plate at a location forward of said first lip.

8. A bladeholder according to claim **1** in combination with a blade having a rearward portion located in said second compartment and a forward portion extending out of said second compartment beyond both said lips and said bearing edge to a working edge, said blade being in confronting relation at a first side with said lip bounding the second compartment and in contact at its other side with said bearing edge, so that when working force is applied to said working edge of said blade in a direction tending into said first side thereof said working force is transmitted via said rocker plate to said resilient means.

9. A combination according to claim **8** in which said resilient means incorporates profiling means that includes an elongated flexible member having the property that a given pressure applied to it in one location will appear substantially uniformly at other locations throughout its length for reacting on said blade differentially along the length thereof in response to working forces tending to deflect said blade differentially along said working edge.

10. A combination according to claim **9** in which said profiling means comprises a tube of flexible material closed at both ends and charged with a substantially incompressible fluid.

11. A combination according to claim **10** in which said tube contains a fixed volume of non-compressible material to the substantial exclusion of compressible fluid, and the material of the walls of said tube is relatively inelastic such that in the range of normal working forces it is substantially unstretched.

12. A combination according to claim **10** including a tubular metal armor having flexibility similar to said tube substantially surrounding said tube.

13. A combination according to claim 8 including a buffer strip of generally rigid but flexible material having a rearward portion fixedly located in said jaw space in the vicinity of said partition member and a forward portion bearing against said opposite side of said rocker plate in the vicinity of said first-named lip, for substantially closing said first compartment to passage of material entering said jaw space between said lips.

14. A combination according to claim 8 including means in said second compartment for adjusting the distance said blade extends out of said second compartment.

15. A bladeholder according to claim 1 including adjustable blade support means between a side of said platform member and the confronting rearward portion of said second jaw member that bounds said second compartment.

16. A bladeholder according to claim 15 in combination with a blade having a rearward portion located in said second compartment and a forward portion extending out of said jaw space beyond both said second named lip and said bearing edge to a working edge, and means at said rearward portion for cooperating with said adjustable support means to adjust the extension of said blade out of said jaw space.

17. A bladeholder according to claim 16 wherein said blade is in confronting relation at a first side with said second named lip and in contact at its other side with said bearing edge, so that when working force is applied to said working edge of said blade in a direction tending into said first side thereof said working force is transmitted via said rocker plate to said resilient means.

18. A combination according to claim 8 including slotted adjustment means in said second compartment to adjust the distance said forward portion of said blade extends beyond said second lip.

19. A combination according to claim 18 in which adjustment means includes a rigid member confined by the slotted means and transversely disposed in said second compartment at the back edge of the rearward portion of said blade.

20. A bladeholder adapted to position a blade to bear against a work surface comprising first and second jaw members terminating in first and second respective spaced-apart lips and rearwardly of said lips bounding a jaw space between them, a platform member fixed in said jaw space between said members dividing said jaw space into a first compartment bounded at one side by said first jaw member and a second compartment bounded at one side by said second jaw member, a rocker plate having a rearward portion located in said first compartment and a forward portion extending from said bladeholder a constant distance beyond said first lip and terminating in a bearing edge, means for causing said rocker plate bear at one side against said first lip, a buffer strip having a rearward portion fixed in said jaw space in the vicinity of said platform member and a forward portion bearing against the opposite side of said rocker plate for closing the first compartment to passage of material entering said jaw space between said lips, a blade having a rearward portion located in said second compartment and a forward portion extending out of said second compartment beyond both said second lip and said bearing edge to a working edge, said blade being in confronting relation at a first side with said second lip and in contact at its other side with said bearing edge, and means in said second compartment for adjusting the distance said blade extends out of said second compartment, independently of said rocker plate.

21. A bladeholder according to claim 20 in which said platform means comprises a rigid member traversing said jaw space dividing said first and second regions into respective first and second compartments, said adjusting means being disposed between said rigid member and the rearward portion of said second jaw member that bounds said second region.

22. A bladeholder according to claim 21 including pairs of confronting slots in said rigid member and said second jaw member and an elongated base member slidably engaged in one such pair of slots for supporting and locating the rearward portion of said blade in said second region.

23. A bladeholder according to claim 21 including a rigid member transversely disposed in said second region for locating said rearward portion of said blade therein.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,778,861 Dated December 18, 1973

Inventor(s) Ronald F. Goodnow

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 5, line 14, delete "structures" and insert

--structure--

line 23, delete "eachother" and insert

--each other--

line 27, delete "each-other" and insert

--each other--

Column 6, line 31, delete "calendaring" and insert

--calendering--

Column 10, line 11, after "plate" insert --to--

Signed and Sealed this

eighth Day of June 1976

[SEAL]

Attest:

RUTH C. MASON
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents and Trademarks