April 14, 1970 J. W. TRUMBULL 3,505,699

ART OF CLEANING TYPE OR OTHER MATERIAL

Filed Jan. 22, 1968

Fig. 1

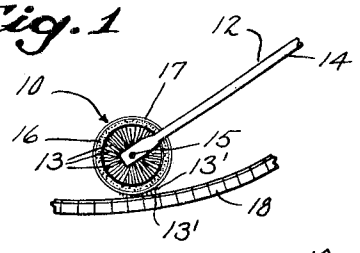



Fig. 4

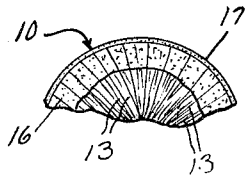



Fig. 2

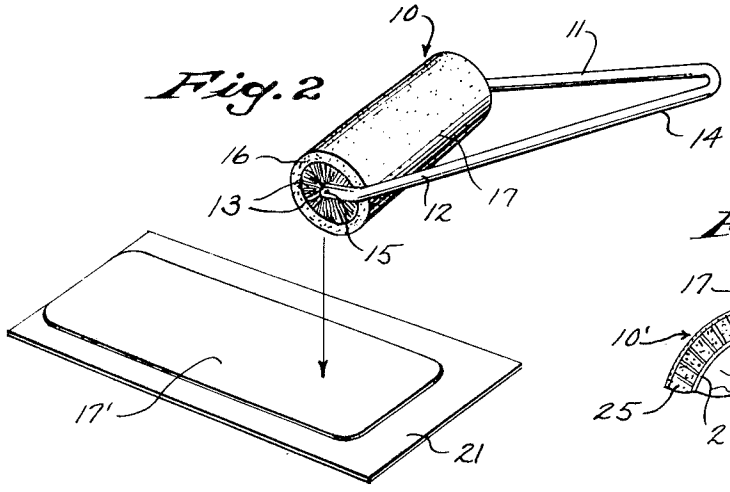



Fig. 5

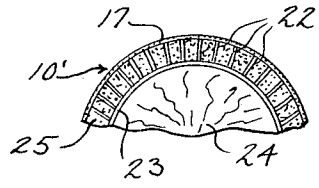



Fig. 3

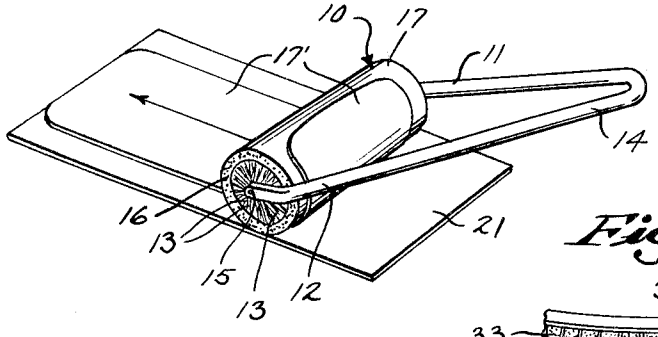



Fig. 6

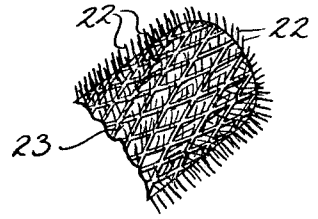



Fig. 8

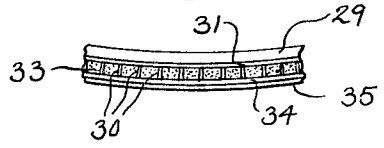
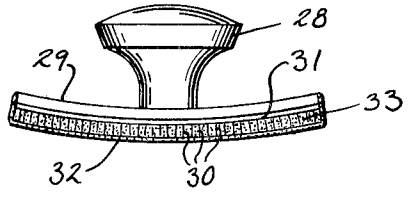



Fig. 7




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# ART OF CLEANING TYPE OR OTHER MATERIAL

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U.S. Cl. 15—104 7 Claims

## ABSTRACT OF THE DISCLOSURE

To clean type and the like there is provided a tool with an arcuate surface having radially-projecting probing elements adapted to project through a thin covering layer of putty-like tacky material when said tool is rolled or rocked over the type, said probing elements dislodging dirt particles from the crevices and said tacky material picking up and removing said dirt. A handle thereon permits the manipulation of the tool without the user getting her hands soiled, and to renovate said tool it is merely necessary to roll the same over a carrier sheet having a new wafer of said tacky material which is thereby transferred to the tool.

## BACKGROUND OF THE INVENTION

### Field of the invention

The present invention relates to the art of cleaning type and similar elements having recesses therein, and more particularly to an improved tool and tool-renovating procedure for that purpose.

### Description of the prior art

To clean typewriter type, as well as other equipment such as adding and addressing machines, printer's type, and rubber stamps, the common practice is to either use a liquid solvent, which is unsatisfactory because it causes the dirt and foreign matter to run down into and eventually foul the mechanism, or a wad of putty-like plastic material is manually pressed onto the type to pick up and remove the dirt. The "Star" cleaning wad manufactured by Eberhard Faber Co. is an example of such a wad-type cleaning device. Such conventional wad-type cleaners are also unsatisfactory, however, because they do not always contact and remove all dirt particles wedged in the crevices and recesses in the type. Moreover, when using a wad-type cleaner the stenographer or other user must knead the wad in order to work the dirt therein to present a clean surface after each use, and her fingers may become stained with dirt and ink. As a result after each cleaning operation the stenographer must spend considerable valuable time attempting to remove the stain or tackiness from her fingers, which is particularly inefficient and disconcerting when the typewriter or other machine requires daily cleaning. It has been found, in fact, that in many instances the cleaning up actually takes considerably longer than the type cleaning operation.

While it has heretofore been proposed to carry tacky strips on rollers such as shown in Patent No. 3,177,512, with this type of device there is no way of getting into the inaccessible crevice portions and there is no assurance that the plastic material will enter all crevice portions, nor is there any means of dislodging foreign matter from corners of the type recesses. Furthermore, there is no



simple way proposed for renewing the roller by means of a very thin wafer of the tacky material.

Another common cleaning procedure used by typewriter mechanics and repairmen is to first tediously loosen the deeply embedded dirt and grime from the type recesses with a stiff tapping brush, and then employ a putty-like wad cleaner to pick up and remove the dirt. Not only does this method result in the user's fingers becoming stained and dirty, but it is also a difficult and time-consuming task.

## SUMMARY OF THE INVENTION

The present invention relates to the art of cleaning type and other surfaces, and features a novel tool for that purpose. In accordance with the invention the improved tool is provided with either a cylindrical or arcuate surface which is adapted to be rolled or rocked over the type faces, said tool including novel probing means for prying and dislodging dirt from the crevices in the type, and having a peripheral covering of putty-like material which functions to pick up said dirt particles. The result is a novel cleaning tool which is not only faster, but which provides substantially greater cleaning action than is obtained with prior cleaning tools and methods.

A further object of the present invention is to provide a new and improved cleaning tool having a handle to permit the user to clean her typewriter without getting her fingers soiled with dirt and ink, and without ruining her fingernails.

A further object is to provide a new and improved type-cleaning tool having a tacky surface covering which can be quickly and easily replaced when it is desired to rehabilitate said tool, and without the typist having to touch said tacky material.

A further object of the invention is to provide a novel tool and tool-rehabilitating procedure as described wherein the elimination of the necessity for the user having to manually handle or touch the tacky cleaning substance permits the use of a tacky material having greater adhesive properties than the materials used in conventional wad-type cleaners, thereby providing superior cleaning action.

A further object of the invention is to provide a novel type cleaning tool and tool-rehabilitating procedure as described wherein the elimination of the necessity for the user having to manually handle or touch the tacky cleaning substance encourages stenographers to keep their typewriters clean, thereby enhancing the neat, attractive appearance of their work.

A further object is to provide a method and apparatus which is particularly well adapted for rehabilitating a type-cleaning tool, as described, but which can also be advantageously utilized with cleaning tools designed for other purposes.

Still further objects of the present invention are to provide a novel and improved tool for cleaning type and the like, which tool is relatively inexpensive to manufacture, which is simple to use, which is reliable, and which is otherwise particularly well adapted for its intended purposes.

## BRIEF DESCRIPTION OF THE DRAWING

In the accompanying drawing, wherein the same reference numerals designate the same or similar parts in all of the views:

FIG. 1 is a side elevational view showing the improved type-cleaning tool in operative position;

FIG. 2 is a perspective view illustrating the manner in which a new tacky surface covering can be applied to the tool, said view showing the tool positioned above a fresh piece of tacky material prior to the engagement of the tool therewith;

FIG. 3 is a similar perspective view showing said tacky material being rolled onto the tool;

FIG. 4 is an enlarged fragmentary transverse sectional view through the tool roller assembly;

FIG. 5 is a fragmentary transverse sectional view through a modified form of roller that can be utilized with the invention;

FIG. 6 is a fragmentary perspective view of a roller of the form of invention illustrated in FIG. 5 before the tacky material is applied thereto;

FIG. 7 is a side elevational view of a modified form of type-cleaning tool included within the scope of the invention; and

FIG. 8 is an enlarged fragmentary side elevational view of another modified form of the invention.

## DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now more particularly to FIGS. 1–4 of the drawing, the numeral **10** designates the roller portion of the novel cleaning tool featured in the present invention. When the tool is intended for cleaning typewriter type said roller **10** is preferably about 2" in length and approximately ½"–1" in diameter, although these dimensions are by no means critical. It is preferred to have the roller at least three times as wide as the type, in order to triple the useful life of said roller, but the invention is not to be limited or confined in this respect. In the illustrated form of the invention a rod or wire extends axially through said roller to form an axle **15**, and rotatably secured to the opposite ends of said axle are handle legs **11, 12** which converge to form a handle **14** permitting the tool to be manually grasped and rolled over the surface to be cleaned without the user's fingers coming in contact with the roller. Handles of other shapes may be employed. As hereinabove mentioned, and as will be discussed in greater detail hereinafter, this is an important feature of the present invention. In addition, the offset mounting of said handle permits the use of the tool on front-clean machines as well as conventional top-clean styles.

Projecting radially outwardly along the entire length of the axle of the roller **10** in the form of the invention illustrated in FIGS. 1–4 are a multitude of nylon bristles **13** forming a brush-like wheel, the axle being formed of twisted wire to hold said bristles. As best appears in FIG. 4, a mass of extra tacky, putty-like material **16** is packed between said bristles **13** to form a resilient fill or backing which extends a substantial distance inwardly from the periphery. Said fill terminates short of the outer ends of the bristles, and the inner, core area of the roller is also initially free of said fill, the purpose of which will be hereinafter seen. Referring still to FIG. 4, wrapped around the entire periphery of the roller is a thin covering layer **17** or wafer of tacky putty-like material. While the composition of said tacky substance can be varied as desired, and the invention is not to be limited in this respect, it has found that a Butyl rubber plastic with a small percentage of non-toxic inert filler provides an excellent composition that will not harden or crumble even after extended use. Butyl rubber is a copolymer of butadiene and isobutylene, and is characterized by a putty-like plasticity and desired adhesiveness at room temperature. It may be compounded to obtain a desired degree of tackiness. Said layer **17** is preferably about 1/16"–⅛" in thickness, and the pointed ends of the bristles normally project partially into said covering layer **17**.



In the use of the illustrated tool for cleaning typewriter type, and referring now to FIG. 1 of the drawing, the tool is positioned in the typewriter basket directly on the faces of the type **18**. The user grasps the handle **11, 12** and merely propels the roller **10** over the type while applying some pressure. The pressure thereon causes the pointed ends of the bristles **13'** in the contact area on the underside of the roller to be forcibly projected through and pierce the thin putty-like covering layer **17**, said bristles providing hundreds of probing points digging into the crevices in said type to loosen and dislodge the dirt particles therein. As the roller passes over the type the dirt particles, ink, and grime accumulated on said type adhere to the tacky surface **17** and is picked up and removed thereby. The result is a dual probing and cleaning action which provides a more effective and thorough cleaning operation than is obtained where similar plastic material is merely used as a wad, as well as being considerably faster. With the present invention even closed letters such as *a, e, o, b,* and *p,* as well as fractions and numerals, are effectively purged of dirt.

Unlike conventional plastic wads used for cleaning type, which must be repeatedly manually kneaded in order to work the dirt therein and to present a clean wad surface, with the present tool it is unnecessary for the user to touch the tacky surface covering thereon. With the present invention a clean surface area is continuously presented as the tool turns, and after considerable use the roller can be shifted axially to again present a clean surface area, said roller preferably being at least three times as wide as the type, as described, to permit the use of said roller a number of times before it is necessary to renew the surface covering.

Although the tacky covering **17** can ordinarily be used for up to twenty daily cleanings, eventually said covering layer becomes dirty and loses its effectiveness. One of the principal features of the present invention is the method by which said covering layer can be replaced to rehabilitate the tool, as will now be described.

As is shown in FIGS. 2 and 3 of the drawing, in accordance with the invention there are provided flat wafer-like pieces or strips **17'** of said putty-like material which are of a length at least equal to the circumference of the roller. Each of said wafers is individually mounted on a backing or transfer sheet **18** of kraft paper coated with vinyl or foil, or other suitable material permitting the easy separation of said backing. A suitable film or paper cover layer (not shown) is also provided to preserve the adhesive quality of said plastic strips **17'**.

Referring now to FIG. 2, when it is desired to renew the tacky covering on the roller **10** the cover layer is stripped from a new plastic strip of wafer **17'**, which can be quickly and easily accomplished without touching said tacky material. The roller **10** is then positioned above one end thereof and lowered onto said wafer, and as is shown in FIG. 3 said roller is pushed forwardly without downward pressure to cause said fresh covering **17'** to be wrapped therearound.

As the new covering layer **17'** is applied to the roller, the old layer **17** is urged downwardly into the bristles **13**, becoming an integral part of the interior mass **16**. In instances wherein the tool has been used for a considerable length of time, and the covering layer is frequently renewed, it might be advisable to pull off a portion of the old material before applying the new layer, but ordinarily this is not necessary. As hereinabove mentioned, the interior of the roller is initially free of plastic material and as succeeding layers are applied to the roller periphery the older material gradually works into and fills said void.

Because of the elimination in the present invention of the necessity for the user having to manually handle or touch the tacky cleaning substance, either during the use of the tool or when applying a new covering layer thereto, it is possible to use a tacky composition having greater adhesive properties than the compositions employed in

conventional wad-type cleaners, thereby providing superior cleaning action.

In FIGS. 5 and 6 of the drawing there is shown a modified form of rotary cleaning tool wherein the roller **10'** is provided with thin, pointed, flexible plastic nubs **22**, having characteristics of bristles, formed on and projecting from an injection molded plastic body member **23**. In the illustrated embodiment said plastic member is sleeve-like in form similar to items used for hair curling cylinders and is mounted on a wooden cylinder **24** which forms the roller core but it is to be understood that a solid plastic cylinder with protruding nubs could be utilized as well. It has been found that polypropylene or polyethylene provides excellent results, but other plastics can also be employed in the formation of the roller illustrated in FIGS. 5 and 6, and the invention is not to be limited in this respect.

As appears in FIG. 5, a fill **25** of tacky, putty-like material is provided between the nubs **22**, and a thin layer **17** of tacky material covers the roller periphery. As in the form of the invention hereinabove described, in the use of the roller **10'** to clean type or the like the pointed nubs **22** project through the tacky layer **17** to provide a multitude of probing points adapted to pry out and dislodge dirt particles from the crevices in said type, the putty-like material **17** functioning to pick up and remove said dirt as the tool is rolled over the type.

In FIG. 7 of the drawing there is shown another form of cleaning tool coming within the scope of the present invention. Said tool includes a plate **29** of steel or other rigid material, and having a convex undersurface, there being a handle of plastic knob **28** projecting from the top of said plate. A layer **31** of putty-like material is affixed to the undersurface of said tool, and therebelow is a plastic sheet, like the material **23** of FIGS. 5 and 6, having a multitude of bristles or nubs **30** projecting therefrom, the putty-like material **31** being extra tacky to prevent said plastic bristles being pulled away from the plate. A putty-like fill **33** is carried between the bristles, and a thin layer **32** of tacky material normally covers the bristle ends. In the use of the tool illustrated in FIG. 7 said tool is grasped by the handle **28** and positioned on the type or the like to be cleaned. Said tool is then rocked on the type faces to cause the bristles to probe into the crevices in said type, and when said tool is lifted from the type the dirt adheres to the tacky material. As in the forms of the invention hereinabove described, a fresh covering **32** of tacky material can be applied to the tool merely by rocking the same over a flat piece or wafer of said material, like **17'** of FIG. 2, thereby permitting the tool to be renovated without the stenographer having to touch said tacky material with her fingers.

A further advantage of the rockable tool shown in FIG. 7 is that it can be used when it is desired to make an erasure. In this respect, when a typist makes an error, a common practice is to take a wad-type cleaner and twist it to a point which can be dabbed on the typed letter or character to blot the excess ink therefrom before erasing. With the novel tool of FIG. 7 the edge of said tool is thin enough to permit the blotting of a single character, the rigid plate providing a firm backing to promote said blotting operation, and it is unnecessary for the typist to handle a messy plastic wad.

In FIG. 8 of the drawing there is shown a modification of the rockable tool illustrated in FIG. 7 including an arcuate steel plate **29**, inner putty layer **31**, and plastic probing elements **30**. Covering the points of said probing elements **30** is a first layer **34** of extra tacky plastic material, and superposed thereover is an outer plastic layer **35** of medium tackiness. In this form of the invention the tacky material is urged into the crevices by said probing points **30** to ensure the adhesion of the loosened dirt particles thereto for maximum cleaning effect. In addition to its use on a rockable tool of the type shown in FIG. 7, said modified, dual-covering layer arrangement can also be utilized on a roller-type tool, of course, and the invention is not to be limited in this respect.

From the foregoing detailed description it will be seen that the present invention provides a new and improved tool for cleaning type and other elements having crevices or recesses which is a decided improvement over the wad-type cleaners heretofore used for the same purposes. With the present invention it is unnecessary for the stenographer or other user to touch the tacky cleaning substance either during the cleaning operation or when recovering the tool, thereby conserving valuable time that is ordinarily consumed washing the dirt or tackiness from the stenographer's hands after each cleaning. Moreover, the cleaning tool comprising the present invention includes novel probing means for loosening and dislodging dirt particles and smudge accumulated in the type crevices, thereby providing a novel dual picking and cleaning action that is not obtained with prior type cleaners.

It is to be understood that while the present invention is particularly well adapted for cleaning typewriter type, it can also be employed in cleaning printing type and numerous other devices. In addition, said tool and the novel tool-rehabilitating procedure featured in the invention can be advantageously utilized in conjunction with tools designed for numerous other cleaning purposes, including rotary tools of the type used for cleaning lint from clothes.

While several styles of type-cleaning tools coming within the scope of the invention have been illustrated and described herein, numerous other modified tool forms will undoubtedly occur to those skilled in the art. What is intended to be covered herein is not only the illustrated embodiments of the invention but also any and all variations or modifications thereof as may come within the spirit of said invention, and within the scope of the following claims.

What I claim is:

**1.** A tool for cleaning work surfaces having depressions therein, comprising:

a support;

a multiplicity of bristles projecting from said support with their outer ends defining a curved contour;

a layer of putty-like tacky material directly overlying the outer ends of said bristles and forming a curved surface, said putty-like tacky material layer being penetrable by the outer ends of said bristles when the curved surface of said tool is pressure rocked or rolled upon a work surface such that a cleaning function relying upon both a digging action of said bristle outer ends in said work surface depressions and the dirt adhesion action of the putty-like tacky material occurs.

**2.** The cleaning tool recited in claim **1** and having handle means associated with said support permitting the use of the tool without the user's fingers contacting said putty-like tacky material.

**3.** The cleaning tool recited in claim **2** wherein said support is a cylindrical roller with said bristles projecting therefrom about substantially its entire periphery, said tool being adapted to be rolled over the work surface during the cleaning operation.

**4.** The cleaning tool recited in claim **2** wherein said support is rocker shaped and is adapted to be rocked against said work surface during the cleaning operation.

**5.** The cleaning tool recited in claim **1** wherein said putty-like tacky material works itself downwardly between said bristles during use and provides increased support promoting the rigidity of said bristles.

**6.** The cleaning tool recited in claim **5** wherein said tool is adapted to have a new covering layer of said putty-like tacky material mounted thereon when desired.

**7.** The cleaning tool recited in claim **6** wherein said new covering layer can be mounted thereon by pres-

surably rolling or rocking said tool over a flat piece of said putty-like tacky material.


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15—105, 230.11; 134—6; 197—184; 101—425