Nov. 11, 1969 D. S. PARK 3,477,083

TYPEFACE CLEANER

Filed Feb. 23, 1967

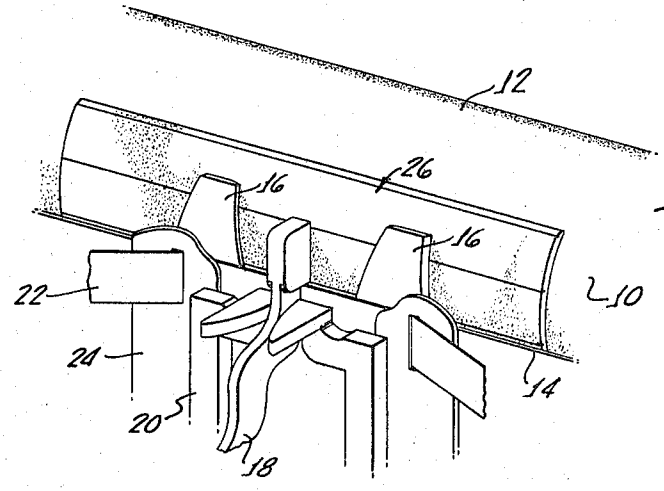


FIG. 1.

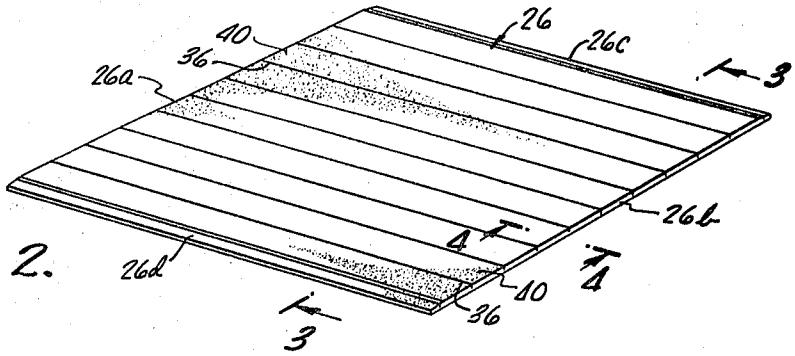


FIG. 2.

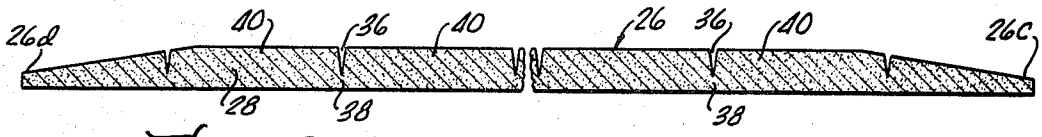


FIG. 3.

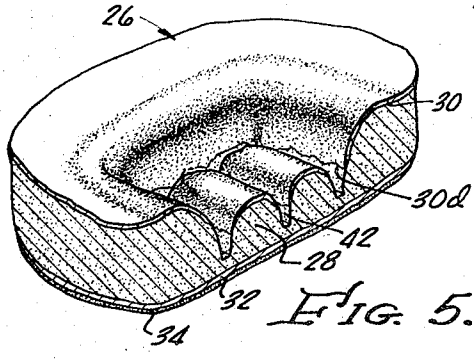


FIG. 5.

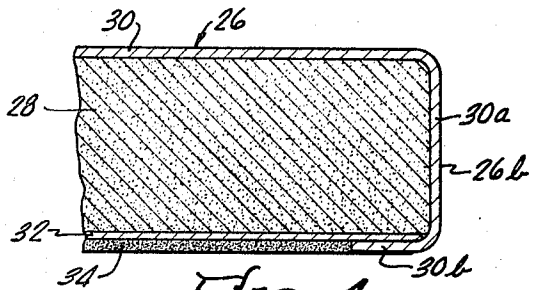


FIG. 4.

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United States Patent Office 3,477,083 Patented Nov. 11, 1969

3,477,083

TYPEFACE CLEANER

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Filed Feb. 23, 1967, Ser. No. 618,101
Int. Cl. A47l 13/00, 17/00, 25/00
U.S. Cl. 15—104 4 Claims

ABSTRACT OF THE DISCLOSURE

The cleaner comprises a small, flat pad which may be rolled into a typewriter like a sheet of paper, and the typefaces are cleaned by merely striking the keys against the paid. Included in the pad is a layer of clay-like cleaner material mounted on a sheet of backing paper and covered on its front surface by a thin skin of tissue paper. The cleaner material is sufficiently tacky and cohesive to cause excess ink and other matter on the typeface to become embedded in the pad upon impact by the key.

BACKGROUND AND PRIOR ART

This invention relates to an improved means for cleaning the typefaces of typewriter keys or similar articles. A bothersome chore connected with the use and operation of typewriters employing inked ribbons is that of periodically cleaning the typefaces on typewriter keys by removing accumulated ink, ribbon dust, and other matter. Failure to remove these accumulations will, of course, eventually result in the imperfect formation of the letters causing the words to be difficult to read and generally detracting from the appearance of the typing.

While there are various methods for cleaning typewriter keys, none of the known approaches are very satisfactory. Perhaps the most direct means is simply to brush the accumulations from the typefaces; however, it is difficult to remove all of the accumulated material in this manner. Also, it is messy, inconvenient and very difficult to keep the loosened material from falling into the typewriter.

Liquid cleaners applied with swabs or brushes are also occasionally used. Although with patience the typefaces can be cleaned in this manner, the problems of messiness and inconvenience appear even greater with this approach.

Perhaps the most common method presently employed is that of using semi-solid, rubbery or gum cleaners which are capable of absorbing or adsorbing the accumulations on the typefaces. In use, the cover over the typewriter keys is removed and the cleaner is pressed onto the key typefaces. This act is repeated until most of the accumulations have been removed and the keys are sufficiently clean.

Possibly the biggest drawback with these known methods is the time loss of labor and of the machine. The key cleaning operations are usually performed by the person who operates the typewriter. Hence, it is generally necessary that the typist's hands be washed after the cleaning operation to prevent smudging of papers which the typist is usually handling. Consequently, the typewriter and the typist are often out of operation for 20 to 30 minutes each time the typewriter keys are cleaned, and a machine regularly used must be frequently cleaned.

There are also various typeface cleaners employing some form of adhesive or gummy substance on a backing sheet that is rolled directly into a typewriter. The keys are then struck onto the adhesive or gummy substance to hopefully have the accumulations on the keys adhere to the substance. While such methods in general appear to hold great potential in that they should be clean and fast, they have never become widely commercially accepted due to various shortcomings.

The present invention relates to an improved cleaner pad in this general category that can be rolled directly into a typewriter. The pad is convenient to use and handle, cleans efficiently, and is low in cost. Also, the cleaner material employed will not stick in the machine and is not harmful to the machine nor toxic to the user.

SUMMARY OF THE INVENTION

Briefly stated, the invention provides a pad for cleaning typewriter keys which includes a flat layer of clay-like cleaner material that is sufficiently pliable or rollable to permit conformity to the surface of a typewriter platen. The thickness of the layer is less than the maximum spacing between the typewriter platent and the surrounding platen bed. Consquently, the material may be rolled into and out of a typewriter carriage in a conventional manner. The material is sufficiently deformable to receive the impression of the typeface of a typewriter key when struck by the key, and it is sufficiently tacky and cohesive to cause excess ink and other matter on the typeface to become embedded in the material upon impact by the key. The material is thicker than the depth of the typeface on a typewriter key and has sufficient thickness and density to support the pressure that exists between the platen and the platen bed.

A sheet of backing paper is mounted on one surface of the layer of cleaner material to provide support for the material. When properly installed in the typewriter, this sheet extends between the layer of cleaner material and the platen. On the other surface of the layer of cleaner material, there is provided a thin skin or layer of material like tissue paper which confines and protects the layer of cleaner material to facilitate handling of the pad and rolling it through the typewriter. This thin skin also contributes to the cleaning action.

Striking a key against the cleaner pad in a normal typing manner causes the typefaces to rupture the non-tacky, thin surface layer and embed into the cleaner material. Due to the tackiness and cohesiveness of the cleaner material, this action causes the accumulations on the typeface to become embeded therein. By operating each key several times, they are thereby efficiently and conveniently cleaned.

Further features and advantages of the invention will become apparent with reference to the following de-detailed description and drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view showing a portion of a typewriter with the cleaner pad of the invention in operation;

FIG. 2 is a perspective view of the pad;

FIG. 3 is a cross-sectional view of the pad on line 3–3 of FIG. 2;

FIG. 4 is a cross-sectional view on line 4–4 of FIG. 2; and

FIG. 5 is a perspective, cross-sectional view of a portion of the pad after being struck by a typewriter key.

DETAILED DESCRIPTION OF THE INVENTION

Referring first to FIG. 1, there is shown a portion of a typewriter **10** including a platen or roller **12**, which cooperates with the platen bed structure, part of which is shown at **14**. Other conventional components of a typewriter illustrated are a paper guide **16**, a typewriter key **18**, a key guide **20**, an inked typewriter ribbon **22**, and a ribbon guide **24**. A typeface cleaner pad **26** made in accordance with this invention, is illustrated in operation in the typewriter.

Referring now to the other figures of the drawings, it may be seen that the pad **26** has a relatively thin, flat configuration shown in its preferred shape being slightly

less than four inches square. The primary component of the pad **26** is a layer of non-toxic cleaner material **28** which has characteristics like that of modeling clay. The cleaner material **28** is encased in a paper envelope including an upper layer or skin **30** having portions **30***a* which extend around the edges of the cleaner layer **28**, and edges **30***b* secured by gluing or some other suitable manner to a lower layer **32**. It should be understood that the upper skin **30** is the front or outer layer when the pad is in position in the typewriter; i.e., the skin **30** is the surface struck by the typewriter key, and the back or lower layer **32** is closer to the typewriter platen **12**. The skin **30** is preferably formed of a material having the qualities of a sheet of good quality toilet tissue paper. Such paper snugly adhering to the cleaner material, is easily ruptured upon impact when struck by a typewriter key.

The lower layer **32** may be formed of any inexpensive paper or plastic which is substantially stronger than the tissue paper of the front skin **30**. It is desired that the layer **32** of paper serve as a backing or supporting surface for the cleaner material **28** to properly confine the cleaner material; and, hence, the backing layer should adhere to the cleaner material. The cleaner material is inherently sufficiently tacky to secure the backing thereto; but if greater adherence is desired, a layer of glue, latex or other adhesive may be used between the backing sheet paper **32** and the layer of cleaner material **28**.

Positioned below or to the backside of the backing paper **32** is a layer of material **34** forming a gripping surface. This layer **34** may be rubber-like material glued to the backing paper or may be latex or rubber cement which can be sprayed onto the backing paper.

The overall thickness of the cleaner pad **26** is approximately the depth of the beard of type which would be used in a typical typewriter so that the pad can be inserted into a typewriter like a sheet of paper. This dimension varies, but is usually no more than about $\frac{3}{32}$ of an inch. The layer of cleaner material **28** should be greater than the depth of the typeface on the typewriter key which is typically about $\frac{1}{32}$ of an inch, and is preferably one and one-half or two times thicker than the depth of the typeface which would be between $\frac{3}{64}$ to $\frac{4}{64}$ of an inch. The other layers of materials **30**, **32** and **34** are, of course, considerably thinner.

As seen from FIGS. 2 and 3, the pad **26** is formed with a plurality of spaced parallel slits or score lines **36**, which extend transversely across the pad from its left side **26***a* to its right side **26***b*. These score lines **36** are spaced from each other approximately $\frac{3}{8}$ of an inch and extend into the pad to a depth of approximately $\frac{2}{3}$ the total thickness of the pad. Part of the skin **30** is forced into the slits **36** during the scoring operation, and it has been found helpful to have the tissue skin **30** slightly moist while scoring the pad. The score lines in effect create hinges **38** and divide the pad into a series of hinged sections **40**.

The upper and lower edges **26***c* and **26***d* of the pad are tapered or bevelled as best seen in FIG. 3. While not critically dimensioned, the preferable arrangement is to have the outer edges be approximately $\frac{1}{32}$ of an inch and gradually increasing to the full thickness of the pad when approximately $\frac{3}{8}$ of an inch from the edges.

When the typewriter keys of the typewriter **10** require cleaning, the pad **26** is simply rolled into the typewriter carriage in the same manner as a conventional sheet of paper. That is, the upper edge **26***c* of the pad is inserted first and the pad is rolled around, by operating the platen, until it reaches the position shown in FIG. 1. Due to the thickness of the pad, the platen **12** and surrounding structure **14** should be separated to their maximum amount or as necessary to accommodate the pad. Note that the bevelled leading edge **26***c* facilitates insertion of the pad into the typewriter. Due to the existence of the score lines **36** and the hinges **38**, the hinged sections **40** of the pad readily conform to the curvature of the platen.

During the insertion operation, the gripping surface **34** contacts the platen **12** and ensured that the pad does not slip relative to the platen. The non-tacky front skin **30** rides in contact with the platen bed structure **14** and provides sufficient protection to prevent the somewhat tacky clay or cleaner material **28** from adhering to the platen bed. The density of the cleaner material is, however, such that it can easily support the pressure between the platen and platen bed rollers. This is particularly important in the area of the series of rollers (not shown) usually found in platen bed structure in that these rollers are normally urged towards contact with the platen.

The typewriter keys **18** should be placed in the "stencil" position, if the typewriter has such a position; or, if not, the ribbon should be moved so that it will not occupy its usual position of extending between the typeface of the key and the platen. To clean the key typefaces, it is only necessary to operate the keys in normal manner, causing them to strike the pad surface.

The clay-like layer of cleaner material **28**, is sufficiently deformable such that the typeface of the key is embedded into the pad when the key strikes the pad surface. The material is not a resilient substance; hence, the key easily penetrates the surface of the pad. As the key is automatically withdrawn, an impression of the key typeface is left in the pad. An example of such is shown in FIG. 5, where the letter "E" is schematically illustrated as an impression **42** in a portion of the pad. As the key strikes the thin tissue paper skin **30** and then moves downwardly into the cleaner material, the tissue **30** is usually ruptured by the force of the key, leaving the jagged, uneven edges **30***d* indicated in FIG. 5. The tissue skin **30** assists in the cleaning operation and becomes partially embedded in the cleaner material with the typeface accumulations. It should be noted that FIG. 5 that the thickness of the pad is greater than the thickness of the typeface so that the typeface does not extend clear through the cleaner pad.

In addition to having inert materials in its composition which provide density and body, the cleaner material **28** includes oils and resin which make the material sufficiently tacky and cohesive to cause ink, ribbon dust, and other dirt and debris which tends to accumulate on the typefaces of typewriter keys to adhere to and be embedded in the cleaner material **28** upon impact. Although the pad absorbs or adsorbs the ink and other material, it is important to note that the material is sufficiently cohesive to prevent crumbling or to prevent adhering to the type key. While the impression of a key is easily formed in the pad when the key is moved with typical typing force, the density or viscosity of the material is such that the material displaced by the typeface does not form mounds or raised portions on the surface of the pad which are significant enough to interfere with the letter guide **16** as the platen is transversely moved. The tissue skin **30** assists in maintaining a relatively smooth surface by resisting movement of the cleaner material outwardly.

Although the exact composition of the cleaner material can be varied somewhat, it will still perform successfully so long as it has the foregoing necessary characteristics. One example of a suitable material which is currently commercially available is Spectrum Plastolene modeling clay made by Advance Crayon and Color Corporation of Brooklyn, N.Y. Modeling clay is of course quite inexpensive, particularly if purchased in bulk.

Although the fluids in the material are of low volatility the pad preferably should be packaged in sealed plastic containers or bags to ensure that the cleaner material does not become too dry while awaiting use.

It has been found that by striking a key several times against the pad, the typeface can be effectively cleaned in this fashion. By starting in the upper lefthand corner of the pad, typing across the pad and moving the pad upwardly after a row is complete, all of the keys on a typewriter can be satisfactorily cleaned with a single pad.

After the cleaning operation is complete, the pad is simply removed and discarded. The typewriter is then immediately ready to be returned to normal use. Since the accumulations from the type key are all neatly embedded in the cleaner pad, there is no cleanup operation and since the typist or operator did not have to contact the dirty typewriter keys or the accumulations from the keys, the typist is also immediately ready to once more commence typing. The entire operation typically takes only a few minutes.

I claim:

1. A pad for cleaning the typeface of typewriter keys, comprising:

a flat layer of clay-like material which is pliable to permit conformity to a typewriter platen; and

a thin skin covering the front surface of said layer of cleaner material;

said material being sufficiently deformable to receive the impression of the typeface of a typewriter key when the pad is struck by the key and said skin being rupturbale by the key as it strikes and embeds into the pad, said material being sufficiently tacky and cohesive to cause ink and other matter on the typeface to become embedded in the pad upon impact by the key, said material being approximately the depth of the beard of a typeface on a typewriter key and said material having sufficient density to prevent a key from penetrating completely through the material and wherein the pad is formed with a plurality of score lines in its front surface and with unbroken surface skin portions inserted into the crevices of the scores to facilitate conformity of the pad to a typewriter platen.

2. The pad for cleaning the typeface of typewriter keys in accordance with claim 1, wherein said score lines extend transversely across the pad to form a series of hinged sections.

3. A pad for cleaning the typefaces of typewriter keys, comprising:

a flat layer of cleaner material which is sufficiently pliable to permit conformity to the surface of a typewriter platen, said material being sufficiently deformable to receive the impression of the typeface of a typewriter key when struck by the key, and being sufficiently tacky and cohesive to cause excess ink, ribbon dust, and other similar matter on the typeface to become embedded in the material upon impact by the key, said material being thicker than the depth of the beard of the typeface on a typewriter key and having sufficient thickness and density to support the pressure that exists between the platen and the platen bed and to prevent a key from penetrating completely through the material;

a thin sheet of tissue paper covering the front surface of said layer of materal to be engaged by the typeface, the strength of said paper and the deformability of said material being such that the paper is likely to rupture when struck with typical force by a typewriter key;

a plurality of spaced parallel score lines extending transversely across the front surface of the pad, said score lines separating said pad into hinged sections which facilitate conformity of the pad to a typewriter platen;

a sheet of backing paper on the opposite surface of said material;

means securing the edges of said tissue paper and said backing paper; and,

means forming a gripping surface secured to the side of said backing paper opposite from the cleaner material for lightly gripping a typewriter platen;

the overall thickness of said pad being approximately the depth of the beard of type used on a typical typewriter key.

4. The pad of claim 3, wherein said score lines are spaced about ⅜ of an inch and the lines extending into the pad a considerable depth causing the thin skin on the lines to be stretched or forced into slits formed in the cleaner material;

the upper and lower edges of said pad being thinner than the main body of the pad to facilitate insertion of the pad into a typewriter carriage;

said tissue paper being larger than said cleaner material so that it extends over the side edges of said layer of cleaner material and is folded against the edges of said backing paper; and,

the size of said pad is from 3 to 4 inches square.

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DANIEL BLUM, Primary Examiner

U.S. Cl. X.R.

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