

[54] **BURNISHING TOOL**  
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 [22] Filed: **Sept. 1, 1971**  
 [21] Appl. No.: **176,829**

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[52] **U.S. Cl.**..... **81/9.2, 29/90.1**  
 [51] **Int. Cl.**..... **B41b 1/00**  
 [58] **Field of Search**..... **81/9.2, 3 R;**  
**30/164.9; 73/141 AB, 81; 29/90.1**

[57] **ABSTRACT**

A burnishing tool includes a spring-loaded plunger which projects from a barrel, the plunger having a tip for providing a spring-loaded burnishing surface. The plunger provides a constant burnishing force for transferring indicia from a carrier sheet to a receiving surface when the tool is used.

[56] **References Cited**  
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**6 Claims, 2 Drawing Figures**

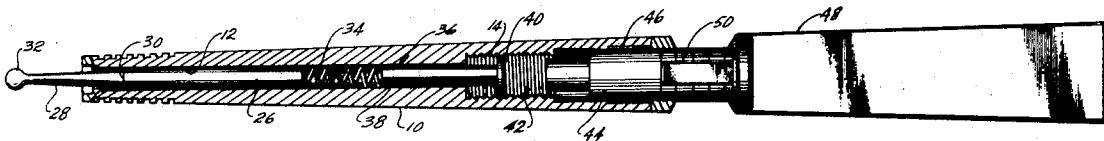


FIG. 1

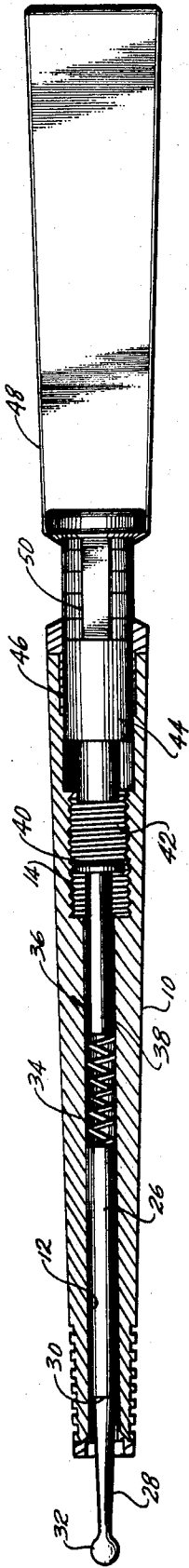
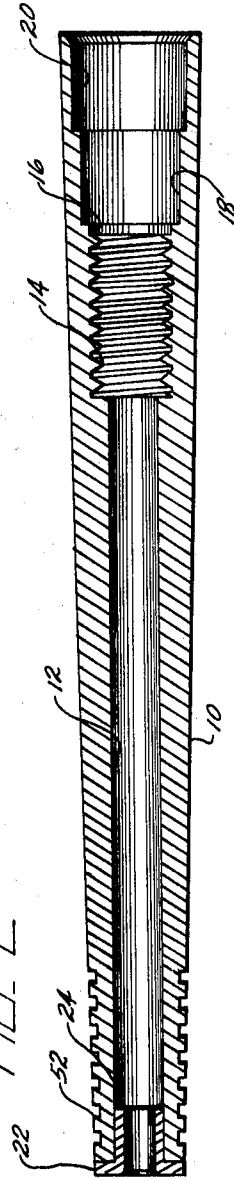


FIG. 2



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## BURNISHING TOOL

## BACKGROUND OF THE INVENTION

This invention relates to burnishing tools, and provides an improved burnishing tool which is particularly useful with dry transfer materials of the type in which an adhesive transfer (decalcomania) is transferred from a carrier sheet to a receiving surface.

Prior to this invention, images, designs, or printed matter (generally referred to hereinafter as "indicia") have been transferred by applying pressure with a rigid burnishing tool. Thus, unless the operator is skilled and familiar with the characteristics of the particular dry transfer material being used, the transfer of indicia is often unsatisfactory because of the great variations in pressure, or rubbing force, applied by different operators with the rigid burnishing tool. If sufficient pressure is not applied during the rubbing or burnishing operation, the indicia are not transferred from the carrier sheet to the receiving surface. If excessive burnishing force is used, the indicia may be broken or improperly transferred, or the carrier sheet may be damaged or distorted to such a degree that it cannot be subsequently used to transfer other indicia left on the carrier sheet.

This invention provides a burnishing tool in which the burnishing force applied by the operator is automatically held substantially constant by a spring which urges a plunger in the burnishing tool against the carrier sheet on which the indicia are mounted. Thus, regardless of which operator may be using the burnishing tool, and regardless of his experience, a substantially constant burnishing force is provided by the tool in accordance with the strength of the spring.

## SUMMARY OF THE INVENTION

Briefly, the burnishing tool of this invention includes a movable plunger mounted to slide in a bore in an elongated barrel. Spring means urge the plunger out of the bore, and stop means limit the travel of the plunger out of the bore. The tip of the plunger projects from the bore to provide a spring-loaded burnishing surface which operates at a substantially constant burnishing force as the tool is used.

Preferably, means are provided for adjusting and indicating the force of the spring. The bore extends entirely through the barrel, and a shank is threaded into the end of the barrel opposite the end from which the plunger tip projects. A follower between the spring and the shank is urged against the spring as the shank is turned down into the threaded end of the barrel.

Preferably, the barrel is made of plastic, and a tip ring is press fitted into the end of the barrel around the plunger to provide an inwardly extending annular shoulder which engages the plunger to limit plunger travel out of the bore.

## BRIEF DESCRIPTION OF THE DRAWING

These and other aspects of the invention will be more fully understood from the following detailed description of the preferred embodiment and the accompanying drawing, in which:

FIG. 1 is a side elevation, partly in section, of the preferred form of the burnishing tool; and

FIG. 2 is an enlarged sectional elevation view of the barrel of the burnishing tool.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings, an elongated barrel 10, preferably made of plastic such as Delrin, has an exterior taper which decreases the outside diameter of the barrel from one end to the other. A first elongated bore 12 of substantially uniform diameter extends from the narrow end of the barrel for about two-thirds the length of the barrel, and is continued as an internally threaded bore 14 for about one-sixth the length of the barrel. Bore 14 is then stepped up to a smooth cylindrical short bore 16 which is almost immediately stepped up to a larger smooth cylindrical bore 18, which terminates at the inner end of a smooth outwardly tapering bore 20 opening out of the larger end of the barrel. The taper of bore 20 is relatively small, being approximately one degree with respect to the longitudinal axis of the barrel.

A tip ring 22 is press-fitted into the outlet end of bore 12 at the small end of the barrel. The inner end of the tip ring forms with the wall of cylinder 12 an inwardly extending annular shoulder 24. An elongated cylindrical plunger 26 is disposed within cylinder 12 to make a close sliding fit. An elongated tip 28 is formed integrally with the end of the plunger near the smaller end of the barrel and projects outwardly from the barrel. The inner end of the tip is of a slightly smaller diameter than the plunger so that an annular shoulder 30 between the plunger and the tip engages the inwardly extending annular shoulder 24 to limit the travel of the plunger toward the smaller end of the barrel. A substantially spherical knob 32 on the outer end of the tip provides a burnishing surface.

A compression spring 34 is disposed in the cylinder between the inner end of the plunger and an elongated spring follower 36 which has a cylindrical portion 38 that makes a close sliding fit in cylinder 12. The end of the spring follower extending toward the larger end of the barrel is of enlarged diameter to provide a flat cap or head 40 which is engaged by the inner end of an externally threaded shank 42 threaded into the threaded bore 14. An enlarged cylindrical bearing section 44 formed integrally with shank 42 makes a close sliding fit in bore 18 of the barrel and within a metal shank ring 46 press-fitted into the tapered bore 20 at the larger end of the barrel. A flat blade or handle 48 is formed integrally with the outer end of the shank to provide a convenient means for screwing the threaded portion of the shank into and out of threaded bore 14 in the barrel. A series of marks or numbers on the outer end of the shank at 50 provide an arbitrary scale for indicating the compression force applied to the spring, which sets the burnishing force applied by the tip of the tool.

In operation, the blade or handle is turned until the desired spring force is indicated by the alignment of the markers at 50 with the outer end of metal shank ring 46. The tool is then held with the fingers near the small end of the barrel. A series of annular grooves 52 around the exterior portion of the smaller end of the barrel prevent slipping and facilitate accurate positioning of the force applied by the tip of the burnishing tool.

Thus, with the tool of this invention a substantially uniform burnishing force is applied by any operator, regardless of his skill, as long as he does not apply suffi-

cient force to compress the spring to its minimum length.

The full range of dry transfer indicia sizes from all present commercial suppliers is easily accommodated if the tool is equipped with two interchangeable plunger-tips, the spherical knob being approximately 0.075 inch on one and approximately 0.125 inch on the other.

The graphic artist or draftsman normally uses a soft pencil, ballpoint pen, or a blunt-ended rigid burnisher to apply the required force to the dry transfer materials. To prevent distorting, cracking, or wrinkling the transfers, the user must very carefully control the force applied by the burnisher. With the burnisher of this invention, even the occasional user can readily apply dry transfers because the spring-loaded plunger and tip provides a substantially uniform burnishing force during operation.

The spring follower 38 prevents "wind-up" of the spring 34 when the shank 42 is rotated to adjust spring pressure.

At the present time, we have found that the user of the tool should select a smaller ball tip for letters up to approximately 36 point size, and a larger ball tip for broad lines and characters greater than 36 point. The lowest ball tip force which will just release the indicia from the carrier sheet should be selected. This is accomplished by rotating the handle to screw the shank into the barrel until the first spring force marker is at the larger end of the barrel. If this tip force is too low to transfer, the shank should be rotated to increase the compression of the spring until consistent transfer of indicia from the carrier sheet is accomplished when burnishing. After the indicia have been applied to the receiving surface, the carrier sheet should be placed over the applied letter and the indicia firmly attached to the receiving surface using the flat blade of the handle as a burnisher.

We claim:

1. A burnishing tool for transferring indicia from a carrier sheet to a receiving surface, the tool comprising an elongated barrel having a bore in it, a movable plunger mounted in the bore, spring means urging the plunger out of the bore, stop means limiting the travel of the plunger out of the bore, a fixed ball tip formed integrally with the plunger and projecting from the bore to provide a spring-loaded burnishing surface, and means for adjusting the force applied by the spring to the plunger comprising a shank threaded into the bore and engaged with the spring to adjust pressure in the spring, and an elongated handle formed integrally with the shank and shaped as a flat blade to provide means for conveniently threading the shank into and out of the bore and to serve as a burnisher for the indicia transferred to the receiving surface.

2. Apparatus according to claim 1 including indicia formed on the outer surface of the shank to be aligned relative to the barrel as the shank is threaded in and out of the bore for indicating the force of the spring.

3. Apparatus according to claim 1 including a follower between the spring and shank.

4. Apparatus according to claim 1 in which the barrel is made of plastic, and including a tip-ring press-fitted in the bore of the barrel and arranged to engage a portion of the plunger to provide the stop means for limiting the travel of the plunger out of the bore.

5. Apparatus according to claim 2 including a follower between the spring and shank.

6. Apparatus according to claim 5 in which the barrel is made of plastic, and including a tip-ring press-fitted in the bore of the barrel and arranged to engage a portion of the plunger to provide the stop means for limiting the travel of the plunger out of the bore.

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