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RIBBON TREATING DEVICE

Filed March 7, 1932

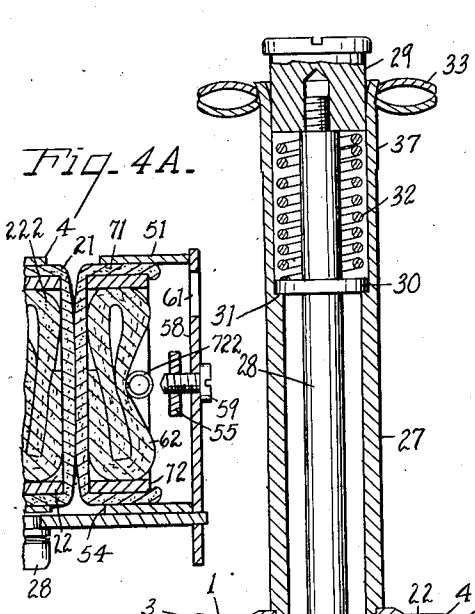


Fig. 4A.

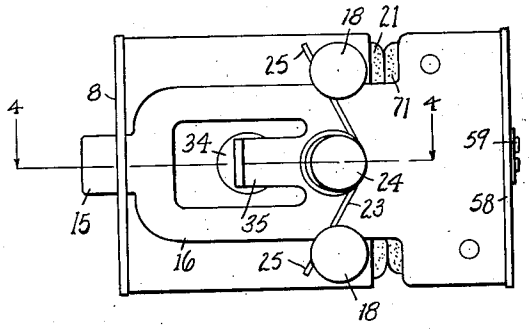


Fig. 3.

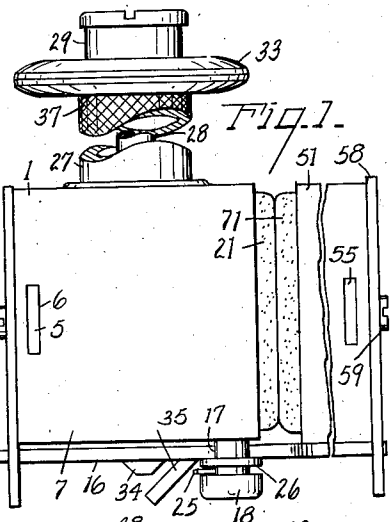


Fig. 1.

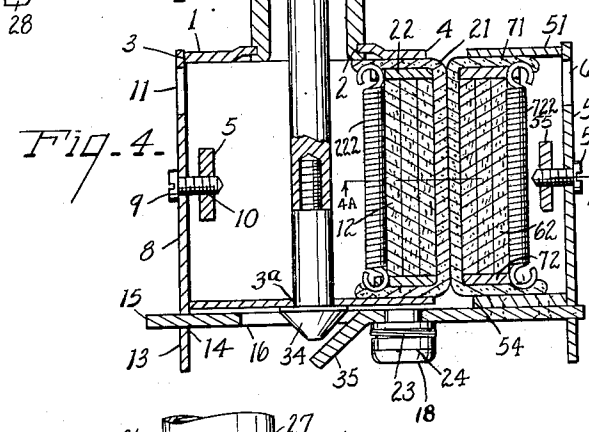


Fig. 4.

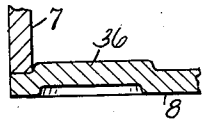


Fig. 5.

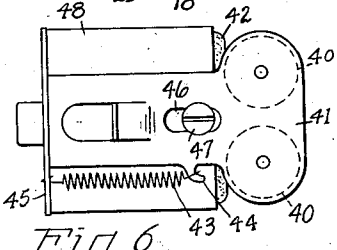


Fig. 6.

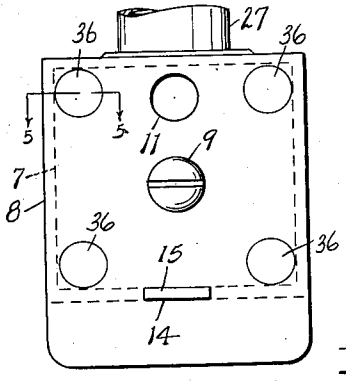


Fig. 2.

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RIBBON TREATING DEVICE

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13 Claims. (Cl. 91—62.5)

The main objects of this invention are:

First, to provide a handy and improved device for cleaning picture film and for re-inking and/or rejuvenating transfer ribbons, such as those used on typewriters, adding machines, and the like.

Second, to provide a device of this character, that is simple in construction, compact, economical to manufacture, and efficient and effective in operation.

Objects relating to details and economies of our invention will appear from the description to follow. A structure which is a preferred embodiment of our invention is illustrated in the accompanying drawing, in which:

Fig. 1 is a fragmentary view in side elevation of a device embodying the invention.

Fig. 2 is a fragmentary end elevation of the device.

Fig. 3 is a bottom plan view.

Fig. 4 is a vertical section of the device taken on line 4—4 of Fig. 3.

Fig. 4A is a fragmentary horizontal section on line 4A—4A of Fig. 4.

Fig. 5 is an enlarged fragmentary detail section taken on a line corresponding to line 5—5 of Fig. 2, and

Fig. 6 is a bottom plan view of a modification.

The parts are identified by their numerals of reference which are the same throughout the several views.

Referring to Figs. 1 to 5, inclusive, of the drawing, 1 is a box-like container having alined top and bottom openings 2 and 3a and open ends 3 and 4. A cross piece 5 is disposed adjacent the end 3 and engages slots 6 provided therefor in the sides 7, 7 of the container. A cover plate 8 is mounted over said open end 3 and is held in place by the screw 9 which is threaded to an opening 10 in the cross piece 5. The plate 8 is provided with a filling opening 11 through which ink or an ink solvent or cleaning fluid may be introduced to saturate the absorbent material 12 disposed in container 1. A portion 13 of the plate 8 extends below the bottom of the container 1 and has a slot 14 therein for the passage of the tongue-like extension 15 on the slide 16.

The slide 16 is slidably mounted in the grooves 17 of the supports 18, which are secured to the bottom of the container opposite the plate portion 13. The slide 16 has mounted thereon a box-like container 51, which is axially alined with, and faces the open end 4 of the container 1. The container 51 is somewhat similar to the container 1, the cover plate 58 being held in place by the cross piece 55 and screw 59. The container 51 is provided with absorbent material 62.

A piece of felt 21 is held in place over the opening 4 of the container 1 by the inner clamping shell 22, which forces the edges of the felt into clamping engagement with the interior walls of the container adjacent to the opening 4. A similar piece of felt 71 is held in place over the opening 54 of the container 51 by the inner shell 72. The ribbon to be cleaned, re-inked, or rejuvenated is passed between the felt 71 and the felt 21, the latter being in direct communication with the absorbent material filling within its container.

The interior of each clamping shell 22, 72 is filled with a strip of felt 12, 62 folded back on itself to form layers, which are held in place and urged into contact with the felt covers 21, 71 by tension springs 222, 722, the ends of the latter being connected to the shells 22, 72. The springs are disposed at right angles to the layers and to the direction of movement of the treated ribbon and in the center of the shells, so that the felt covers are each given a convex bulge, insuring full contact with the ribbon as it moves therebetween.

The container 51 is urged inwardly toward the container 1 by the spring 23 which is carried by the depending stud 24 on the slide 16 and has arms 25, 25 which engage the grooves 26, 26 in the supports 18. With this arrangement, when the ribbon is passed between the felt 71 and the felt 21, both sides of the ribbon are provided with parallel and direct contact by the felt faces by the action of spring 23 on slide 16.

Mounted in the opening 2 in the top of the container 1, is a hollow vertical stem 27 through which extends the plunger 28 having a thumb piece 29 at its upper end projecting above the top of the stem. A washer 30 surrounds the plunger 28 and is seated on an annular shoulder 31 provided on the interior wall of the stem. The washer 30 constitutes a thrust end support for the compression spring 32 which surrounds the plunger 28 above the washer and bears at its upper end against the bottom of the thumb piece 29. The upper end of the stem 27 is sprung outwardly to frictionally engage the finger piece 33 disposed thereon, which consists of a pair of registering concavo-convex washers. The lower end of the plunger 28 extends through the opening 3a in the bottom of the container 1 and is provided with a conical cam 34 for coaction with the integral cam follower 35, provided on the slide 14, when the plunger 28 is depressed.

The cover plate 8, as illustrated by Figs. 2 and 5, is provided with insets 36 for engaging the internal

corners of the container 1, whereby the rotation or movement of the plate 8 about the screw 9 is prevented.

If the ribbon is to be rejuvenated, the absorbent material 12 and 62 within the containers 1 and 51 is saturated with an ink solvent, which is introduced through the filling openings 11 and 61 in the cover plates 8 and 58. The containers are then moved away from each other by pressing down the thumb piece 29, which causes the cam 34 to engage the cam follower 35 and move the slide 16, against the force of spring 23 carrying the container 51, away from the container 1. The ribbon is then inserted between the containers, and the thumb piece 29 is released, whereupon the compression spring 32 returns the plunger 28 to its initial position. The ribbon is then passed between felt faces 21 and 72 and is rejuvenated by the solvent, the spring 23 urging the containers toward each other to force the felt faces into direct parallel physical contact with the felt faces.

The device is used to re-ink ribbon in a similar manner, with the exception that the absorbent material is saturated with ink instead of a solvent.

The external surface of the stem 27 below the finger piece 33 is knurled at 37, Fig. 1, to prevent the device from turning, in use, between the fingers.

Referring to Fig. 6, there is illustrated a modification having rollers 40, 40 journaled to the slide 41 for urging the ribbon into direct physical contact with the absorbent material 42 as the ribbon is moved therebetween. In this case, the slide 41 is urged inwardly by the tension spring 43 having one end connected to a hook 44 provided on the slide and the other end connected to the closure plate 45. The slide is provided with a slot 46 which coacts with the screw 47 to slidably support the slide on the bottom of the container 48.

Our improved device is simple and compact in construction, yet highly effective for the purpose intended. With it, all kinds of transfer ribbons, films, and the like may be quickly cleaned, and rejuvenated or re-inked.

In our device, the felt faces are made to contact with and bear evenly on both sides of the ribbon. This uniform pressure on both sides of the ribbon prevents it from working out of the device as in prior devices of this character. This improved feature is brought about by supporting the containers, so that the felt faces are maintained in parallel relation throughout the relative movement between the containers. The uniform pressure on the ribbon, provided by the device, is not affected by wear.

Where the device is used for cleaning moving picture films and the like, the absorbent material may be saturated with an oil solvent such as "Carbona" or naphtha.

In our device, the ribbon is placed in position between the faces from the top, which is very convenient for the operator, and in addition the connecting slide provides a guide or lower stop for the ribbon. The latter prevents the ribbon from continually running out of the bottom, as in prior devices.

Further, our device may be held between two fingers, leaving the thumb free to depress the plunger, which forces the pressure member out at right angles to the axis of the plunger, enabling the operator to conveniently hold the same in this position, while positioning the ribbon between the opposed faces.

It is obvious that various changes and modifications may be made in the details of construction and design of the above specifically described embodiments of our invention without departing from the spirit thereof, such changes and modifications being restricted only by the scope of the following claims.

Having thus described our invention, what we claim as new and desire to claim by Letters Patent is:

1. In a device of the class described, the combination of box-like containers each having open ends, a cross piece disposed adjacent the outer end and engaging slots provided therefor in the sides of the container, a plate covering said open end and having a filling opening, insets engaging the inner walls of the box, a portion depending below the box and provided with a slot, and means securing said plate to said cross piece, supports carried by the bottom of one of the containers opposite said grooves and having a tongue coacting with the slot in said depending plate portion, a slide carrying the other container in said grooves and having a tongue coacting with the slot in said depending plate portion, a stud depending from said slide, strips of absorbent material disposed in said containers and saturated with a solvent, a spring carried by said stud and engaging said supports for urging the containers toward each other, a hollow stem mounted on the top of said one container above alined openings therein, an integral cam follower on said slide below said alined openings, a plunger extending through said openings and said stem and having a thumb piece at its upper end and a conical cam at its lower end for coaction with said cam follower, a spring disposed in said stem and surrounding said plunger for urging the latter upwardly, and an annular finger piece on said stem adjacent said thumb piece.

2. In a device of the class described, the combination of box-like containers each having open ends, a plate covering said open end and having a filling opening and a portion depending below the box and provided with a slot, supports carried by the bottom of one of the containers opposite said grooves and having a tongue coacting with the slot in said depending plate portion, a slide carrying the other container and disposed adjacent the bottom of said one container in said grooves and having a tongue coacting with the slot in said depending plate portion, a stud depending from said slide, strips of absorbent material disposed in said containers, a spring carried by said stud and engaging said supports for urging the containers toward each other, a hollow stem mounted on the top of said one container above alined openings therein, a cam follower on said slide below said alined openings, a plunger extending through said openings and said stem and having a thumb piece at its upper end and a cam at its lower end for coaction with said cam follower, a spring surrounding said plunger for urging the latter upwardly, and a finger piece on said stem adjacent said thumb piece.

3. In a device of the class described, the combination of box-like containers each having open ends, a plate covering said open end and having a filling opening and a portion depending below the box and provided with a slot, supports carried by the bottom of one of the containers opposite said grooves and having a tongue coacting with the slot in said depending plate portion, a slide carrying the other container and disposed

adjacent the bottom of said one container in said grooves and having a tongue coacting with the slot in said depending plate portion, strips of absorbent material disposed in said containers, a spring engaging said supports for urging the containers toward each other, a hollow stem mounted on the top of said one container above alined openings therein, a cam follower on said slide below said alined openings, a plunger extending through said openings and said stem and having a thumb piece at its upper end and a cam at its lower end for coaction with said cam follower, a spring surrounding said plunger for urging the latter upwardly, and a finger piece on said stem adjacent said thumb piece.

4. In a device of the class described, the combination of a container having alined top and bottom openings and open ends, a cover plate on said open end and having a filling opening, insets engaging the inner walls of the container, and a portion depending below the container and provided with a slot, supports carried by the bottom of the container opposite said portion and having annular grooves, a slide disposed adjacent the bottom of the container in said grooves and having a tongue coacting with the slot in said depending plate portion, pressure means extending upwardly from said slide to cover the other open end of the container, strips of absorbent material disposed in said container, a spring engaging said supports for urging the pressure means toward said absorbent material, a hollow stem mounted on the top of the box above said alined openings, a cam follower on said slide, a plunger extending through said openings and said stem and having a thumb piece at its upper end and a conical cam on its lower end for coaction with said cam follower to move said pressure means away from the absorbent material when the plunger is depressed, a spring for urging the latter upwardly, and an annular finger piece on said stem adjacent said thumb piece.

5. In a device of the class described, the combination of a container having alined top and bottom openings and open ends, a cover plate on said open end and having a portion depending below the container and provided with a slot, a slide disposed adjacent the bottom of the container and having a tongue coacting with the slot in said depending plate portion, pressure means extending upwardly from said slide to cover the other open end of the container, strips of absorbent material disposed in said container, a spring for urging the pressure means toward said absorbent material, a hollow stem mounted on the top of the box above said alined openings, a cam follower on said slide, a plunger extending through said openings and said stem and having a thumb piece at its upper end and a cam on its lower end for coaction with said cam follower to move said pressure means away from the absorbent material when the plunger is depressed, and a spring for urging the latter upwardly.

6. In a device of the class described, the combination of a box-like container having alined top and bottom openings and an open end and having a filling opening, supports carried at the bottom of the box, a slide disposed adjacent the bottom of the box, pressure means extending upwardly from said slide to cover the open end of the container and having beveled ends, strip-absorbent material disposed in said container, a spring urging the pressure means toward said absorbent material, a hollow stem mounted on the top of the container above said alined openings, an integral cam follower on said slide below said alined openings, a plunger extending through said openings and said stem and having a thumb piece at its upper end and a conical cam at its lower end for coaction with said cam follower to move said pressure means away from the absorbent material when the plunger is depressed, a spring disposed in said stem and surrounding said plunger for urging the latter upwardly, and an annular finger piece on said stem adjacent said thumb piece.

7. In a device of the class described, the combination of a box-like container having alined top and bottom openings and an open end and having a filling opening, a slide disposed adjacent the box, pressure means extending from said slide to cover the open end of the container, strip-absorbent material disposed in said container, a spring urging the pressure means toward said absorbent material, a hollow stem mounted on the top of the container above said alined openings, a cam follower on said slide below said alined openings, a plunger extending through said openings and said stem and having a cam for coaction with said cam follower to move said pressure means away from the absorbent material when the plunger is depressed, and a spring for urging the latter upwardly.

8. In a device of the class described, the combination of strip-absorbent material containers having parallel opposed faces exposing the material, means limiting the relative movement of said containers to a line normal to said faces, resilient means urging said containers toward each other, a stem communicating with one container, a spring actuated plunger extending through said stem for manually moving said containers apart against said resilient means to facilitate the insertion of a ribbon therebetween, and an annular finger piece on said stem adjacent the outer end of said plunger.

9. In a device of the class described, the combination of strip-absorbent material containers having parallel opposed faces exposing the material, means limiting the relative movement of said containers to a line normal to said faces, resilient means urging said containers toward each other, a stem communicating with one container, and a spring actuated plunger extending through said stem for manually moving said containers apart against said resilient means to facilitate the insertion of a ribbon therebetween.

10. In a device of the class described, the combination of a strip-absorbent material container having a face exposing the material, pressure means for said face having rollers for the passage of a ribbon between them and the exposed absorbent material face, resilient means urging said pressure means toward said material, a stem communicating with said container, and a spring retracted plunger extending through said stem for manually moving said pressure means against said resilient means and away from said material to facilitate the insertion of a ribbon therebetween.

11. A device of the class described, provided with a container having an arched ribbon engaging face and a vertical hollow handle, means for pressing the ribbon uniformly against said face and including a bottom slide associated with said container, and means including a plunger accessible at the top of said handle for actuating said pressure means at right angles thereto.

12. A device for applying solvent to a type-

writer ribbon or the like to distribute dried ink thereon when the ribbon is on the typewriter, comprising a pair of opposed parallel ribbon engaging faces at least one of which has absorbent material thereon to retain and apply the solvent to the ribbon, a frame bearing one of said faces, a vertical handle attached to said frame, means to support the other of said faces and to maintain said faces in parallel relation comprising a member sliding in ways on said frame and means borne by said handle to move said faces to or away from one another while maintaining said parallel relation.

13. A device for applying solvent to a typewriter ribbon or the like to distribute dried ink thereon when the ribbon is on the typewriter, comprising a pair of opposed parallel ribbon engaging faces at least one of which has absorbent material thereon to retain and apply the solvent to the ribbon, a frame bearing one of said faces, a vertical handle attached to said frame, means to support the other of said faces and to maintain said faces in parallel relation comprising a member sliding in ways on said frame and means to move said faces to or away from one another while maintaining said parallel relation.

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