Nov. 2, 1937. E. VAN DE VOORDE 2,098,171

IMPREGNATING AND FRESHING-UP DEVICE FOR DRY INK RIBBONS OF TYPEWRITING MACHINES

Filed March 18, 1936

Fig. 1

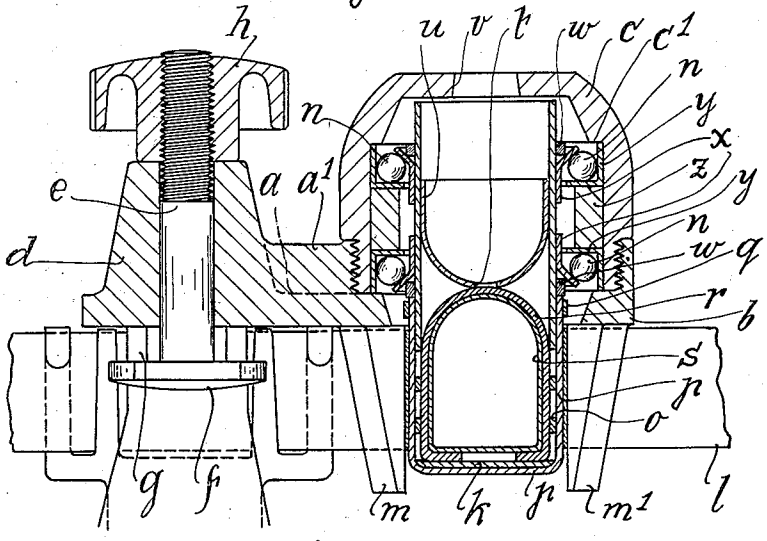


Fig. 2

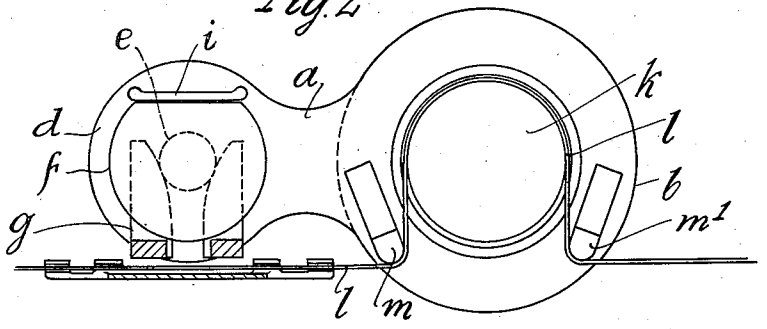
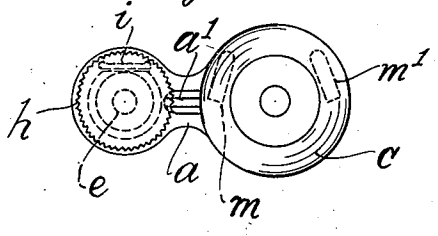


Fig. 3



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Patented Nov. 2, 1937

2,098,171

UNITED STATES PATENT OFFICE

2,098,171

IMPREGNATING AND FRESHING-UP DEVICE FOR DRY INK RIBBONS OF TYPEWRITING MACHINES

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Application March 18, 1936, Serial No. 69,598
In Germany December 6, 1935

8 Claims. (Cl. 91—49)

This invention relates to a device for freshing-up ink ribbons, especially of typewriting machines, which have dried, in order to give back to the dried ink ribbons their inking property by impregnation with colorless, easily flowing liquids applied as uniformly as possible, these liquids themselves possessing no inking effect.

Such ribbons are usually colored with coal-tar dyes possessing great yieldingness so that the ribbons produce intense prints as long as there is any color. The ribbons dry however rapidly so that the prints become gradually duller. The invention enables to effect, by means of an impregnating device adapted to be easily fixed on the machine and to be correctly adjusted, a rapid freshing-up of dried ink ribbons, so that without fresh application of ink and without unnecessarily strong wearing of the ribbon, the ribbon is rendered again capable to produce clear prints.

According to the invention an impregnating device is fixed on the typewriting machine by means of an adjustable arm adapted to be secured in adjusted position, the ink ribbon being conducted around and pressed against an impregnating roller freely projecting in downward direction.

Special features of the invention are the manner in which the impregnating device is fixed, the special construction of the casing of this device, the journalling of the impregnating roller and the employment of certain impregnating media.

Various embodiments of the invention are possible and one of these embodiments is illustrated by way of example in the accompanying drawing in which

Fig. 1 shows in longitudinal section and in double the natural size an impregnating device fixed on the type guide of the typewriting machine.

Fig. 2 is a bottom plan view of Fig. 1.

Fig. 3 shows the device in top plan view and in natural size.

The impregnating device consists of a casing *b* closed by a screw threaded cover *c* and having a pivotally adjustable arm *a*. This arm *a* has a hub *d* in which from below a screw bolt *e* is inserted which has a head *f* designed to clamp the pivotally adjustable arm and by the same the casing *b* onto the horizontal arm *g* of the type-guide of a typewriting machine. A nut *h* screwed on the threaded end of bolt *e* serves for the fixation. From the pivotally adjustable arm *a* extends in downward direction a plate *i* bearing against a flattened portion of or into a recess in the head *f* of the bolt, securing the bolt against turning.

The ink ribbon *l* passes over an impregnating roller *k* mounted in the casing *b*, arms *m*, m_1 at the sides of the casing guiding the ink ribbon so that it tightly bears against the roller.

The casing *b* is connected with the hub *d* and reinforced above the pivotally adjustable arm *a* by a bridge a_1. The casing *b*, pivotally adjustable arm *a*, bridge a_1, hub *d*, locking plate *i* and arms *m*, m_1 are made of one piece of artificial press mass.

The impregnating roller *k* consists of a tubular capsule closed at the lower end and supported in the casing *b* by roller- or ball-bearings *n*. An impregnating wick *p* is held by means of a clamping ring *q* on the portion of the capsule *k* which has holes *o*. A second capsule *s* covered with a wick *r* is inserted in the lower portion of the impregnating roller *k*. The wick *r* is pulled from above over the domed top end of the capsule *s*. A vessel *u* filled with liquid and having a central outlet opening *t* is arranged above the wick *r* and below an aperture *v* in the lid *c* of the casing.

The impregnating roller *k* with its internal wick and the liquid filled vessel is mounted in the casing so that it can be easily turned. With this object in view shiftable guide rings *x* are pushed over the capsule *k* and securely held a suitable distance apart by clamping rings *w*, said guide rings bearing from above and from below against the balls *n* resting in bearing rings *y*. The ball-bearing rings *y* are spaced by a distance ring *z* mounted in the casing cover *c*, the lower ball-bearing ring *y* bearing against a chamber c_1 in the cover *c*.

Colorless, slightly fatty and if necessary volatile liquids such as naphtha distillates of certain fraction, turpentines or the like serve as impregnating medium. A condition for clean prints is that the quantity of fat or oil is little and a certain evaporation besides the colorlessness is necessary for the dry printing of this character.

The device is used in the following manner:— After the device has been mounted on the typewriting machine and adjusted in correct position, liquid is filled with the aid of a pipette through the hole *v* in the cover into the vessel *u*, the ink ribbon having been inserted in the manner described. After a short time the wicks are moistened to an accurately determined degree. The ink ribbon is then moved from one drum and wound upon the other drum. The impregnating liquid flows continuously in measured quantity

through the outlet opening *t* into the wick *r* and through the holes *o* of the capsule *k* into the wick *p* and is transferred by this wick onto the moving ink ribbon conducted around the impregnating roller, the impregnating capsule being rotated at the same time. This accurate dosing is necessary to impregnate the ink ribbon so that it produces intense prints.

As the middle type guides of typewriting machines are standardized, the device can be always mounted parallel to the ink ribbon. Its position can be accurately adjusted owing to its being pivotally mounted. As the width of ink ribbons for typewriting machines is standardized to 11 mms. this width is chosen for the device. Wider ink ribbons can, however, also be impregnated as usually only the upper half of the ribbon is used. The impregnating roller may be wider if desired. The impregnating rollers may project more than shown in the drawing if the device is to be used for other ink ribbons, of for instance, type printing machines, calculating and bookkeeping machines.

The nut *h* may also be made of artificial press mass, such as artificial horn or the like to ensure the uniformity of construction.

I claim:—

1. In a typewriter ribbon impregnating device, a pivotally adjustable arm having a guide hub at one end, a threaded bolt projecting upwardly through said hub and having a head on its lower end provided with a flat side, a locking plate projecting downwardly from said arm and bearing against the flat side of said head, a casing carried by said arm, an impregnating roller projecting downwardly from said casing, and means for guiding a typewriter ribbon around said roller.

2. In a typewriter ribbon impregnating device, a pivotally adjustable arm having a guide hub at one end, a threaded bolt projecting upwardly through said hub and having a head on its lower end provided with a flat side, a locking plate projecting downwardly from said arm and bearing against the flat side of said head, a casing carried by said arm, a capsule having its upper end rotatably mounted in said casing and its lower end provided with lateral perforations, and an impregnating wick covering the perforated part of said capsule.

3. In a typewriter ribbon impregnating device, a pivotally adjustable arm having a guide hub at one end, a threaded bolt projecting upwardly through said hub and having a head on its lower end provided with a flat side, a locking plate projecting downwardly from said arm and bearing against the flat side of said head, a casing carried by said arm, a capsule having its upper end rotatably mounted in said casing and its lower end provided with lateral perforations, an impregnating wick covering the perforated part of said capsule, a second capsule in the lower part of the first capsule, an intermediate wick on said second capsule and covering the perforations of the first capsule, and a liquid receptacle having a perforated bottom resting on the second capsule.

4. In a typewriter ribbon impregnating device, a pivotally adjustable arm having a guide hub at one end, a threaded bolt projecting upwardly through said hub and having a head on its lower end provided with a flat side, a locking plate projecting downwardly from said arm and bearing against the flat side of said head, a casing carried by said arm, an impregnating roller projecting downwardly from said casing, means for guiding a typewriter ribbon around said roller, ball races mounted on said roller within said casing, clamping rings on said roller restraining the ball races from movement from each other, balls carried between the ball races on the roller, and a spacing ring between the ball races.

5. In a typewriter ribbon impregnating device, a pivotally adjustable arm having an opening at one end, a hollow cap member covering said opening and removably attached to said arm, said cap member having a filling opening in its upper end, a tubular member having an open upper end and lateral openings in its lower part, said tubular member having its upper portion rotatable in the cap and its lower portion projecting below the arm through the opening therein, a closed wick covered capsule fitted within the tubular member with the wick covering the lateral openings therein, the upper end of said capsule being of substantially hemispherical form, an outer wick covering the lower part of the tubular member and closing the openings therein, and a fluid receptacle in said tubular member, said fluid receptacle being open at the top and having a rounded bottom resting on top of said capsule and provided in its botton with a fluid escape opening.

6. In a typewriter ribbon impregnating device, a pivotally adjustable arm having an opening at one end, a hollow cap member covering said opening and removably attached to said arm, said cap member having a filling opening in its upper end, a tubular member having an open upper end and lateral openings in its lower part, said tubular member having its upper portion rotatable in the cap and its lower portion projecting below the arm through the opening therein, a closed wick covered capsule fitted within the tubular member with the wick covering the lateral openings therein, the upper end of said capsule being of substantially hemispherical form, an outer wick covering the lower part of the tubular member and closing the openings therein, a fluid receptacle in said tubular member, said fluid receptacle being open at the top and having a rounded bottom resting on top of said capsule and provided in its bottom with a fluid escape opening, and ball bearings interposed between said cap and the upper part of said tubular member.

7. In a typewriter ribbon impregnating device, a pivotally adjustable arm having an opening at one end, a hollow cap member covering said opening and removably attached to said arm, said cap member having a filling opening in its upper end, a tubular member having an open upper end and lateral openings in its lower part, said tubular member having its upper portion rotatable in the cap and its lower portion projecting below the arm through the opening therein, a closed wick covered capsule fitted within the tubular member with the wick covering the lateral openings therein, the upper end of said capsule being of substantially hemispherical form, an outer wick covering the lower part of the tubular member and closing the openings therein, a fluid receptacle in said tubular member, said fluid receptacle being open at the top and having a rounded bottom resting on top of said capsule and provided in its bottom with a fluid escape opening, said arm having a bolt opening at its other end, a bolt passing through said bolt opening and having a clamping head on its lower end to coact with the underside of the arm whereby to form a clamp for attaching the device to a typewriter, means to hold the head against rotation, and a nut on the upper end of said bolt.

8. In a typewriter ribbon impregnating device, a pivotally adjustable arm having a guide hub at one end, a threaded bolt projecting upwardly through said hub and having a head on its lower end provided with a flat side, a locking plate projecting downwardly from said arm and bearing against the flat side of said head, a casing carried by said arm, an impregnating roller projecting downwardly from said casing, and means for guiding a typewriter ribbon around said roller, said arm, guide hub, locking plate and guiding means being formed of a single piece of artificially pressed mass.

EUGEN VAN DE VOORDE.