Feb. 7, 1961 F. HEIL 2,970,538

INKING DEVICE FOR ROTARY STAMPS

Filed Aug. 28, 1957

FIG.1

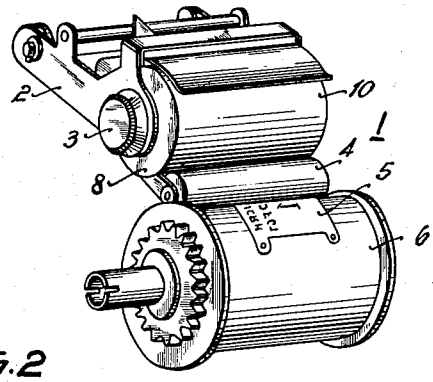


FIG.2

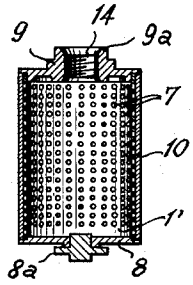


FIG.3

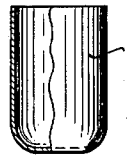


FIG.4

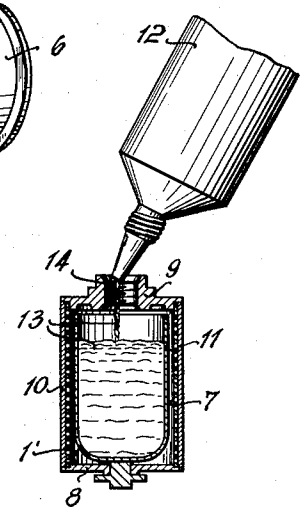


FIG.5

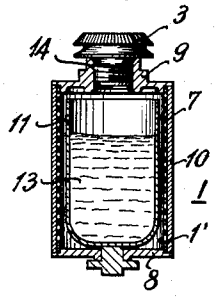
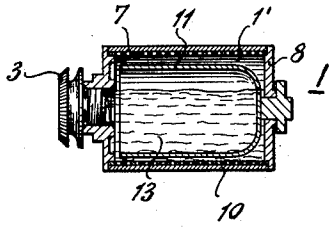


FIG.6



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INKING DEVICE FOR ROTARY STAMPS

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2 Claims. (Cl. 101—367)

This invention relates to inking devices for rotary printing stamps or printing plates as used in various printing apparatus as, for instance, postage meters.

Rotary printing stamps or printing plates call for rotary inking devices performing the function of a stamp pad, and such devices may be considered as rotary stamp pads.

It is a general object of this invention to provide improved inking devices of the aforementioned character.

The printing ink released from the inking device may directly be transferred upon the rotary stamp or printing plate. As an alternative, the ink may first be transferred from the inking device upon an intermediate roll and thereafter from the latter roll upon the printing stamp or printing plate. Both methods cause considerable difficulties when it is intended to use thin printing inks, i.e. printing inks having a relatively small degree of viscosity, or consistency.

It is, therefore, another object of the invention to provide improved means for applying printing inks of low viscosity to rotary printing stamps or printing plates.

Inking devices for rotary printing stamps or printing plates comprise a cylindrical porous ink-distributing surface. Such a surface may be formed by a cylindrical sleeve of felt mounted upon a perforated roll of sheet metal, or it may be formed by a cylinder of a sintered substance which is sufficiently porous to permit thin printing inks to flow transversely through the side wall of the cylinder from the inside thereof to the outer surface thereof.

The use of thin printing inks, i.e. of printing inks having a small degree of viscosity, is very desirable because such inks tend to establish even ink films on rotary stamps, or printing plates, tend to dry quickly and hence to preclude smearing of printed matter, and such printing inks tend also to preclude clogging of pores by deposition of particles of pigments, or like sedimentation.

However desirable the use of thin printing inks, their use in connection with inking devices of the aforementioned character tends to cause serious troubles on account of the fact that thin printing inks tend to flow through the porous ink-distributing surface of a rotary pad, or inking device, immediately upon being filled into the inner ink-receiving space thereof.

It is, therefore, another object of this invention to provide inking devices for rotary stamps or plates including means for effecting a controlled, sufficiently slow outflow of thin printing inks from the inside of the inking devices to the outer cylindrical ink-distributing surface thereof.

Further objects, advantages and features of this invention will become apparent as the following description proceeds, and the features of novelty which characterize the invention will be pointed out with particularity in the claims annexed to, and forming part of, this specification.

For a better understanding of the invention reference may be had to the accompanying drawing illustrating the invention, wherein

Fig. 1 is an isometric view of a rotary ink dispenser embodying the invention and of a rotary stamp adapted to be inked by the ink dispenser;

Fig. 2 is a longitudinal section of the ink dispenser per se in open condition;

Fig. 3 is an elevational view of an auxiliary ink-receiving receptacle, a portion of its side wall being shown as being broken away;

Fig. 4 illustrates the process of filling printing ink into the ink dispenser;

Fig. 5 show substantially in longitudinal section, and partially in front view, the ink dispenser with the auxiliary ink-receiving receptacle arranged therein and provided with an appropriate closing mean; and

Fig. 6 shows the same structure as Fig. 5 in another position.

Referring now to the drawing and more particularly Fig. 1 thereof, numeral **1** has been applied to generally designate a rotatable inking device, or stamp pad. Inking device or stamp pad **1** is rotatably mounted on a frame structure **2**. It has an ink-filling duct which is normally closed by a closing means, such as a closing screw **3**. Printing ink released from the cylindrical surface of device **1** is transferred to the intermediate roll **4**, and then further transferred from roll **4** to the cylindrically bent printing plate **5** mounted on rotatable printing roll **6**.

Referring now to Figs. 2 to 6, the inking device comprises a cylindrical porous ink-distributing surface, and a pair of substantially disk-shaped closing members for said surface to form an ink-receiving space **1'** on the inside thereof. In the particular embodiment of the invention shown, the cylindrical ink-distributing surface is formed by a cylinder **7** of perforated metal upon which a sleeve **10** of felt is mounted. The closing members **8** and **9** have cylindrical shaft-like projections **8***a* and **9***a* adapted to be received by cooperating bearing means on frame structure **2**. Each closing member **8**, **9** is secured to metal cylinder **7**, as by solder joints (not shown). The closing member **9** defines an ink-filling duct **14** which is internally screw threaded and may be closed by the aforementioned cooperating closing screw **3**.

The ink-receiving space **1'** accommodates a pot-shaped ink-receiving receptacle **11** which is open at the end thereof juxtaposed to ink-filling duct **14**. The outer diameter of receptacle **11** is smaller than the inner diameter of perforated sheet-metal cylinder **7**, but considerably larger than the width of ink-filling duct **14**. Receptacle **11** is made of an elastomer which is sufficiently pliable and compressible to permit its insertion into the ink-receiving space **1'** through the relatively narrow duct **14**. Since receptacle **11** is intended to receive printing inks, the elastomer of which it is made must be highly resistant to the action of oil and volatile solvents. Polysulfide type synthetic rubbers comply with such requirements.

Figs. 4, 5 and 6 illustrate three consecutive steps in filling printing ink into the inking device. As shown in Fig. 4, printing ink is being poured from bottle **12** through opening **14** into auxiliary receptacle **11**. Reference numeral **13** has been applied in Fig. 4 to indicate the fine jet of printing ink flowing from bottle **12** into receptacle **11**. Fig. 5 shows the inking device as being closed by means of screw **3**. Receptacle **11** is partly filled with a body of printing ink to which numeral **13** has been applied. The next step in manipulating the device is tilting of the device to the position shown in Fig. 6. This results in spilling of the body **13** of printing ink from receptacle **11** into the ink-receiving space **1'** of cylinder **7**. Since space **1'** is sealed by screw **3** from the ambient atmosphere, escape of printing ink through the perforations in cylinder **7** and across sleeve **10** results in the formation of a slight vacuum inside of space **1'**.

This slight vacuum is, however, sufficient to control the rate of outflow of thin printing inks, i.e. to restrain their radial outflow to the required degree.

The auxiliary receptacle **11** remains inside of cylinder **7** when the latter is rotatably mounted on frame **2**. When cylinder **7** and closing members **8** and **9** are being jointly rotated, auxiliary receptacle **11** performs motions relative to parts **7**, **8** and **9**, thereby operating as an effective printing ink re-mixer, tending to preclude sedimentation of printing inks inside of cylinder **7**.

It will be apparent from Figs. 4, 5 and 6 that auxiliary receptacle **11** and closing member **9** define a gap therebetween allowing the printing ink inside of receptacle **11** to be emptied into ink-receiving space **1'**. Preparatory to so emptying receptacle **11** closing screw **3** is inserted into ink-filling duct **14** and tightened therein. By so doing a slight vacuum is caused to be produced inside of ink-receiving space **1'** upon emptying the contents of receptacle **11** into that space and absorption of some of that ink by the porous ink-distributing surface of the device.

Having disclosed a preferred embodiment of my invention it is desired that the same be not limited to the particular structure disclosed. It will be obvious to any person skilled in the art that many modifications and changes may be made without departing from the broad spirit and scope of the invention. Therefore it is desired that the invention be interpreted as broadly as possible and that it be limited only as required by the prior state of the art.

I claim as my invention:

1. An inking device for rotary stamps comprising a cylindrical porous ink-distributing surface, a pair of substantially disc-shaped closing members for said surface to form an ink-receiving space on the inside of said surface, means for transferring ink from said ink-receiving space to the outside of said surface, bearing means for rotatably supporting said pair of closing members and said surface, one of said pair of closing members defining a relatively narrow ink-filling duct, an auxiliary ink-receiving receptacle loosely arranged inside said ink-receiving space and open at the side thereof juxtaposed to said ink-filling duct, the size of said receptacle being large in comparison to the size of said ink-filling duct so as to normally preclude passage of said receptacle through said ink-filling duct, said receptacle being made of a sufficiently pliable and compressible elastomer to permit said receptacle to be compressed to the extent required for insertion thereof through said ink-filling duct into said ink-receiving space, and means for closing said ink-filling duct.

2. An inking device for rotary stamps comprising a cylindrical porous ink-distributing surface; a pair of substantially disc-shaped closing members for said surface to form an ink-receiving space on the inside of said surface; means for transferring ink from said ink-receiving space to the outside of said surface; bearing means for rotatably supporting said pair of closing members and said surface; one of said pair of closing members defining a relatively narrow, substantially bottle-neck-shaped, internally screw-threaded ink-filling duct having a predetermined internal diameter; a screw-threaded plug adapted to close said ink-filling duct and to establish a substantially gas-tight seal between said ink-receiving space and outer atmosphere; and an auxiliary ink-receiving receptacle having a cylindrical lateral surface loosely arranged inside said ink-receiving space and open at the side thereof juxtaposed to said ink-filling duct, the outer diameter of said cylindrical lateral surface by far exceeding said predetermined diameter of said ink-filling duct, and said receptacle being made of a sufficiently pliable and compressible elastomer to permit insertion thereof through said ink-filling duct into said ink-receiving space.

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