

INKING UNIT FOR FRANKING AND VALUE

STAMPING MACHINES

This invention relates to an inking unit for use with the printing drum of a franking or value-stamping machine, the inking unit comprising an ink pick-up roller, a transfer roller, and an ink-application roller which are mounted in a common housing.

Inking units for franking and value-stamping machines are known. Systems with one to three rollers are used which receive ink from an ink supply for the type wheels, printing types or blocks, and apply these. Thus, by means of a roller which carries the ink supply inside the hollow space of the roller, direct application of the ink onto the type wheels of a printing drum is known.

The roller is tiltably mounted to prevent an over-saturation of ink on the type wheels. The force of pressure thus determines the intensity of the inking of the type wheels and blocks.

It is further known, in order to avoid excessive inking, to place an ink application roller between the roller with the ink supply and the printing drum, which ink application roller is provided with an absorbent material coating, to receive and pass on stamp ink from the supply of the other roller. Even with this system a uniform application of ink onto the type wheels, printing types or blocks is not guaranteed since the absorbency of the ink application roller is reduced, after a fairly long period of being stationary, by the formation of sediment and drying-out of the stamp ink.

Inking units with three rollers are also known, with which an ink transporting roller takes the stamp ink from an ink supply, conveys it to an inking roller which again provides an ink application roller with stamp ink. Even with a three roller system like this, applications of constant amounts of ink are not guaranteed for the above reasons and if there is too high a pressure of the ink

12 application roller on to the printing drum, there is clogging of the printing types, type wheels and blocks of franking machines within relatively short times.

The present invention has therefore been developed
5 primarily, though not exclusively, with a view to provide an inking unit for franking and value-stamping machines which can provide substantially uniform supply of ink for an ink application roller, a simple determination of the inking intensity and therefore impressions of almost
10 uniform strength, and which can be assembled without any large expense on adjustment and can also be used with an increase in volume as an inking unit for high-output franking machines.

According to the invention there is provided an
15 inking unit for use with the printing drum of a franking or value-stamping machine, the unit comprising:

- an ink reservoir;
- a pick-up roller co-operable with the reservoir;
- an ink-application roller which is adapted to
20 cooperate with the printing drum;
- a transfer roller arranged to transfer ink picked-up by the pick-up roller to the ink-application roller;
- a common housing in which the rollers are mounted;
- 25 first drive means for transmitting drive from the printing drum to the ink-application roller;
- second drive means for transmitting drive from the ink-application roller to the transfer roller;
- third drive means for transmitting drive from the
30 transfer roller to the pick-up roller so that, in use, ink picked-up from the reservoir forms an intermediate ink store in the cusp defined between the pick-up roller and the transfer roller;
- and an ink-control blade arranged to cooperate
35 with the transfer roller

_____ in order to control the quantity of ink which is transferred from the intermediate ink store to the ink-application roller.

One embodiment of inking unit according to the invention will now be described in detail, by way of example only, with reference to the accompanying drawing, in which:

Figure 1 is a vertical section through the inking unit;

Figure 2 is a plan view with the cover removed; and

Figure 3 is an enlarged detail illustration of the mounting in the unit of an ink-control blade.

In all the Figures like parts have the same reference numerals.

The inking unit of the invention comprises a three roller system. An ink pick-up or transport roller 1, transfer roller 2 and an ink application roller 3 are arranged in a common housing 4, wherein the ink application roller 3 and the inking roller 2 directly touch over the entire width of their mutually contacting cylindrical surfaces (forming second drive means). The ink transport roller 1 is in engagement with the inking roller 2 by means of two friction rings 11, 111, forming third drive means. The inking unit is driven by the printing drum (not shown), which drives the ink application roller 3 by means of a friction wheel 12, forming first drive means. Instead of friction wheel drives, toothed wheels can also be used to transfer rotary movement from the printing drum to the inking unit.

By placing the ink application roller 3 onto the inking roller 2 the latter is carried along (driven) and drives the ink transport roller 1 by means of the friction wheels 11, 111.

The ink pick-up or transport roller 1 runs in an ink supply container or reservoir 6, which is integrated

in the housing 4 and from this, ink is transported to the inking roller 2 by the rotation of the roller. In this process an ink wedge 61 (intermediate ink store) is formed in the cusp between the ink transport roller 1 and the inking roller 2.

By means of an L-shaped, e.g. resilient clamping device 7 an ink-control blade 8 is secured in a groove of the housing 4. The blade 8 is a thin metal sheet which is fixed in a U-shaped holder 81. This holder 81 is so clamped by the clamping device 7 in its position in the groove of the housing 4, that measuring-out of the amount of ink supplied from the ink wedge 61 onto the inking roller 2 is carried out by the blade 8 to the necessary ink film thickness. This ink film is taken up by the ink application roller 3 and supplied to the type wheels, printing types and blocks (not shown) of the printing drum of the franking or value stamping machines (also not shown) lying on the ink application roller 3. The stamp ink of the ink application roller 3 that is not used is again delivered to the inking roller 2, so that during the next cycle the blade 8 again guarantees a uniform ink film strength on the ink application roller 3. By means of the blade 8 one can avoid over-saturation of ink on the ink application roller 3 and hence also clogging of the stamp- and/or block impression. Ink impressions of great uniformity are thus guaranteed.

This constant inking density of the ink application roller 3 also makes possible an exact determination of the time for the subsequent filling of stamp ink.

The inking unit disclosed herein offers a further advantage by its use in large size inking units. For high capacity franking machines, for example, there must be available an ink supply corresponding to the large number of impressions to be made. For this purpose the inking unit is provided with two connections 9, 10 for

(13)

the supply and return of the stamp ink. By means of flexible tubes, the connections 9, 10 are connected to an ink container of any size, with a pump system being connected inbetween. The pump system causes a constant supply of stamp ink, whereby a uniform high level of the ink supply container 6 is determined by the position of the return connection 10. The cycle of the stamp ink from an ink container into the ink supply container 6 is not dependent on the work cycle of the machine. This has the advantage that when the machine is switched on, immediately the cycle of the stamp ink is initiated and any ink sediment, which may have formed during a long period of being stationary, is quickly dissolved.

Claims:

1. An inking unit for use with the printing drum of a
franking or value-stamping machine, the unit comprising:
an ink reservoir;
5 a pick-up roller co-operable with the reservoir;
an ink-application roller which is adapted to
cooperate with the printing drum;
a transfer roller arranged to transfer ink
picked-up by the pick-up roller to the ink-application
10 roller;
a common housing in which the rollers are mounted;
first drive means for transmitting drive from the
printing drum to the ink-application roller;
second drive means for transmitting drive from the
15 ink-application roller to the transfer roller;
third drive means for transmitting drive from the
transfer roller to the pick-up roller so that, in use,
ink picked-up from the reservoir forms an intermediate
ink store in the cusp defined between the pick-up roller
20 and the transfer roller;
and an ink-control blade arranged to cooperate
with the transfer roller _____
_____ in order to
25 control the quantity of ink which is transferred from the
intermediate ink store to the ink-application roller.
2. An inking unit according to claim 1, in which the
ink-control blade is mounted in a U-shaped holder.
3. An inking unit according to claim 2, in which the
30 blade is mounted in a groove in the housing by means of a
resilient L-shaped clamping device.
4. An inking unit according to any one of the
preceding claims, including an in-feed connection and a
return connection on the housing to connect the reservoir
35 to a pumped supply of ink.
5. An inking unit according to any one of the



preceding claims, in which the first drive means comprises a friction wheel mounted on the ink-application roller.

6. An inking unit according to any one of the preceding claims, in which the second drive means is formed by mutual contact throughout the length of the cylindrical surfaces of the ink-application roller and the transfer roller.

7. An inking unit according to any one of the preceding claims, in which the third drive means comprises a pair of friction rings co-acting between the transfer roller and the pick-up roller.

8. An inking unit according to claim 1 and substantially as hereinbefore described with reference to, and as shown in the accompanying drawing.

9. A franking or value-stamping machine including an inking unit according to any one of the preceding claims.

