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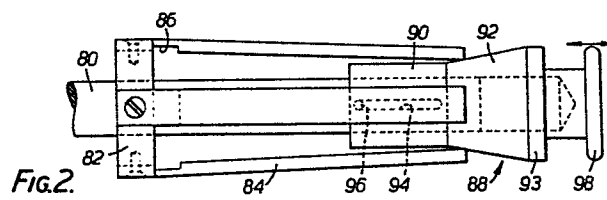
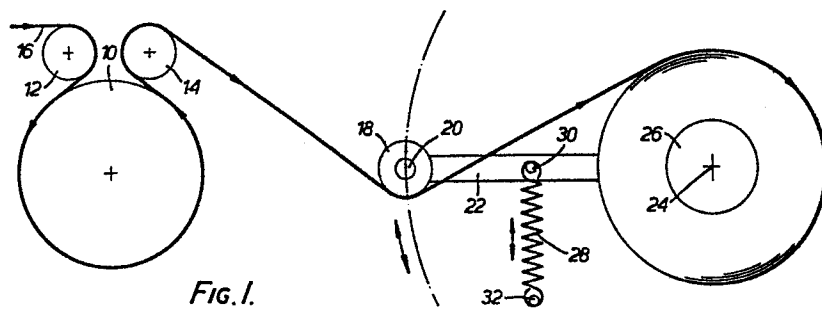
㉖ **Label overprinters.**

㉗ In a label overprinter or an overprinting applicator an arrangement for driving a label web (16) includes a roller (10) with a high friction surface and a substantial wrap-round of the web, and a rewind reel carrying a dancer roll (18) on an arm (22) which roll applies a tension to the web.

A web reel mounting includes resilient fingers (84) supported around a shaft (80) and a frusto-conical member (92) operative axially to expand the fingers (84) to engage the internal periphery of a reel.

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LABEL OVERPRINTERS.

This invention relates to label overprinters and label overprinting applicators, in particular certain aspects of the drive through the such machines for a label web and a mounting for a label web reel.

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In label web overprinters of the kind which are generally bench mounted, it is desirable that the individual features of the overprinter should facilitate use by unskilled operatives, that adjustments can be readily made and that the setting up of the overprinter prior to a production run should require the minimum of operator time.

Broadly, overprinters include a mounting reel holder for unused label web, means defining a guide path between the reel mounting and a take-up reel mounting for the spent backing strip of the web and indexing drive means which intermittently draw the label web through the overprinter. The overprinter will normally also incorporate means for applying printed labels to articles.

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The aspects of the present invention include an arrangement for driving the web through the overprinter and for maintaining tension in the web irrespective of the intermittent nature of the drive and a web re-wind mounting.

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It has been proposed in French Patent specification 73 23042 (Publication No. 2,234,771) to divide a wide web of metal foil into a plurality of narrower webs of foil, the control and drive of the web including a relatively large  
5 roller around which each divided web passes and is constrained to contact the periphery of the web by ... satellite rollers of smaller diameter the degree of contact of the periphery by the web being controlled by hydraulic or pneumatic actuators. Each main roller is free to rotate  
10 on its shaft and with the aid of the satellite rollers the tension in the web is controlled.

The problem to be solved by this aspect of the invention is the provision of an improved but simplified web drive  
15 and tensioning arrangement.

According to the present invention in this aspect there is provided an arrangement for driving intermittently a label web or other elongate member along a path on  
20 intermittently-driven roller with a peripheral high friction surface, means for guiding the web so that it contacts the peripheral high friction surface over a major proportion of the periphery, a rewind reel mounting downstream only the web path of said roller and a dancer roll  
25 mounted on an elongate member pivotal about the axis of rotation of the rewind reel and biasing means providing a

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biasing force at the dancer roller whereby to impart tension in the web over its path between the high friction roller and the rewind reel,

- 5 The web will normally comprise a series of pressure-sensitive adhesive coated labels mounted on a backing strip of release-agent coated paper.

In Swiss patent 422,621 a core or bobbin is disclosed  
10 which serves to control the tension developed in yarn when wound on a bobbin and the thread is subjected to various processes. For example if the tension is reduced so that the yarn becomes slack and is thus liable to become unwound, the resilient construction of the  
15 reel or bobbin takes up the slack and thereby maintains the desired tension. The construction of the reel is fairly complex to accommodate the varying requirements of yarn treatment.

- 20 The problem to be solved by the second aspect of the invention is to provide a simple device which enables a web to be wound and subsequently for the resultant reel to be detached without any difficulty or for a reel to be mounted initially.

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According to the present invention in a second aspect there is provided a web reel mounting device comprising a shaft mounting fingers extending substantially parallel to but inwardly towards the shaft and secured thereto at one end of each finger, each finger being resiliently deflectable relative to the shaft and a member operative to deflect the fingers outwardly to parallel relationships to the the shaft.

10 The two aspects of the invention will now be described, by way of example only, with reference to the accompanying drawings , in which;-

Figure 1 is a diagram illustrating an intermittent drive arrangement in accordance with the first aspect of the invention; and

Figure 2 is a longitudinal side elevation of a reel mounting device in accordance with the second aspect of the invention.

20 Referring now to the drawings and in particular Figure 1, the drive roller 10 of an intermittent drive device embodying the invention is provided with a friction surface such, for example, as sponge rubber (synthetic or natural) and this drive roller will be coupled to a clutch-brake unit or other drive means (not shown).

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Immediately adjacent to the friction roller 10, two guide rollers 12, 14 are provided so that, in operation, a label or other web 16 is constrained to make contact with the cylindrical, peripheral friction surface of the roller 10 over a major proportion of its periphery, preferably at least  $270^{\circ}$ , the friction roller and the guide rollers will be mounted on appropriate spindles (not shown) and will be adjacent to but spaced from the roller 10.

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Next along the web path a dancer roller 18 is encountered by the web and this is mounted on a spindle 20 which is in turn mounted on an arm 22 pivotal about an axis 24 of a take-up reel mounting 26 such as that illustrated in Figure 2. The arm 22, is biased by a spring 28 of modest stiffness or other biasing means which is connected to the arm at a pin 30 and to a fixed point on an overprinter or other machine frame at a pin 32. The bias on the dancer roller may be provided by the self-weight of the arm 22 and of the roller 18.

The Figure readily indicates the mode of operation and set up of the drive system and the absence of any nip rollers will be readily apparent. The dancer roller 18 serves to maintain the required tension in the web despite the intermittent nature of the drive input to the friction

roller 10. The system enables improved efficiency between the drive roller and the web, lighter construction of the drive roller which permits higher speed and lower inertia, the elimination of nip rollers, easier threading and more satisfactory rewind of the spent backing strip. The wrap-round of the web on the friction roller 10 should be as large as possible consistent with preventing inadvertent peeling of labels from their backing strip. if the configuration of the associated overprinter or other machine is such that the labels must be on the outer periphery, at the wrap-round. For the same reason the guide rollers. 12, 14 must be of adequate diameter.

The second aspect of the invention is illustrated in Figure 2 which shows a side elevation of a web-rewind device which includes a friction-driven shaft or spindle 80 carrying a hub 82 extending transversely to the spindle and carrying a plurality of longitudinally-extending resilient fingers 84 which in their relaxed condition are inclined inwardly towards the spindle as shown in the Figure. The resilience is provided in each finger by a recess 86. The remaining portion of the finger is rigid under the forces normally encountered. The spindle also carries a sleeve 88 having a cylindrical portion 90 of smaller diameter, a frusto-conical portion 92, and a cylindrical portion 93 of large diameter, the sleeve being slidable within limits on the spindle. The sleeve has a slot 94



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(broken lines) co-operating with a pin 96 to define the outer travel limit. The sleeve also carries a knob 98 which enables manual movement of the sleeve.

5 In use, an end portion of a spent backing strip of a label web is threaded between one of the fingers 84 and the portion 90 of the sleeve. When the knob 98 is pushed in, the end portion is clamped between one or more of the fingers and the larger diameter portion 93. The device  
10 then defines a cylinder and the spent backing strip can be re-wound. To remove the wound web it is a simple matter to withdraw the knob so that the fingers 84 deflect inwards and the reel can be readily removed. The clamping action of the fingers and portion 93 on the web  
15 end portion is automatically released. The web-rewind device can also be used to mould a reel in form already wound or a reel having a core. The manner of operation remains the same.

20 Arrangements in accordance with the first aspect of the invention provide a simple but effective web drive involving intermittent motion. The combination of a dancer roll and associated loop together with a drive roller which relies only on frictional contact ensures that mal-  
25 function will not occur because of improper adjustment of

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conventional nip rollers. It is possible for the drive roller to be lighter than nip rollers and hence it is possible, owing to the lower inertia forces, to operate at higher speeds without undue wear on associated  
5 parts. Threading a web through the drive arrangement is particularly simple.

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CLAIMS.

1. An arrangement for driving intermittently a label web or other elongate member along a path comprising an intermittently-driven roller (10) with a peripheral high friction surface, means (12, 14) for guiding the web so that it contacts the peripheral high friction surface over a major proportion of the periphery, and a rewind reel mounting (26) downstream along the web path from said roller (10) characterized by a dancer roll (18) mounted on an elongate member (22) pivotal about the axis of rotation (24) of the rewind reel (26) and biasing means (28) providing a biasing force at the dancer roll (18) whereby to impart tension in the web over its path between the high friction roller (10) and the rewind reel (26).

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2. An arrangement according to claim 1 characterised in that guide means comprise two guide rollers (12,14) placed adjacent to but spaced from the high friction roller.

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3. An arrangement according to claim 1 characterized in the web path encompasses an arc of at least  $270^{\circ}$  of the periphery of the high friction roller.

4. A web reel mounting device comprising a shaft (80) mounting fingers (84) extending substantially parallel to but inwardly towards the shaft, characterized in that each finger mounted to the shaft, each finger being  
5 resiliently deflectable relative to the shaft, and a member (88) manually operative to deflect simultaneously the fingers outwardly to parallel relationships to the shaft.

10 5. A device according to claim 4, characterised in that the resilience of each finger is provided by a portion (86) of reduced cross-section adjacent to the mounting point to the shaft.

15 6. A device according to claim 4 or claim 5 characterised in that the fingers are mounted to the shaft through the intermediary of a hub (82).

7. A device according to claim 4, 5, 6 characterised in  
20 that deflecting member (88) comprises a sleeve with a first cylindrical portion (90) of smaller diameter, a frusto-conical portion (92) and a second cylindrical portion (93) of large diameter, the sleeve being slidable within limits axially of the shaft so that with the sleeve at  
25 an inner limit position the fingers (84) are deflected in-

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wardly towards the shaft and at an outer limit position the second cylindrical portion supports the free ends of the fingers so that the latter are in said parallel relationship with the shaft.

