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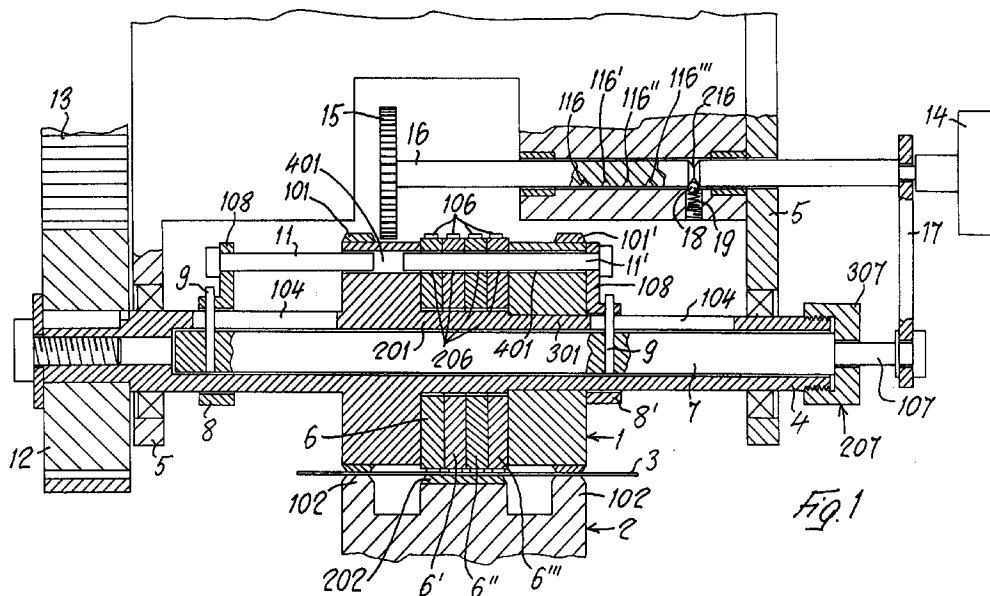
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(54) Device for feeding/drawing a web material such as webs of paper or the like

(57) A device for feeding/drawing a web material such as webs of paper or the like, comprises at least two parallel contrarotating rollers (1, 2) between which the web (3) is passed. One of the two rollers (1) is provided with at least one, preferably two or more peripheral impression punches (106) axially adjacent to one another and capable of being substituted and/or combined with each other, while the other roller (2) has an opposing surface (202). One of the rollers (1) carries, at an intermediate point, at least two circular or part-circu-

lar coaxial rings (6, 6', 6'', 6''', 306) of separate impression punches (106). Said two rings (6, 6', 6'', 6''') of impression punches (106) are freely rotatable about the axis of the roller (1), independently of each other, in order to provide many combinations of axially adjacent impression punches (106), while means (11, 11', 7, 8, 9, 401, 206) are provided for the disengageable rotary coupling of the rings (6, 6', 6'', 6''') with the roller (1).



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Description

The invention relates to a device for feeding/drawing a web material such as webs of paper, or the like, comprising at least two rollers rotating in opposite directions about parallel axes, at least one of which rollers is driven, while the web is passed between said two rollers which are urged towards each other and against the corresponding faces of the web with a predetermined pressure, one of the two rollers being provided with at least one, preferably two or more peripheral impression punches axially adjacent to one another and capable of being substituted and/or combined with each other, while the other roller has an opposing surface against said impression punches.

Feeding/drawing devices of this type are used to feed web material on which codes identifying, for example, the production batch, are impressed at regular and predetermined intervals in the longitudinal direction of the web. These codes have to be changed in order to differentiate one batch from another, so arrangements are made to enable at least some of the impression punches to be substituted, or to vary their combination with other associated impression punches.

The object of the invention is to provide a feeding/drawing device of the type described at the outset, which employs a simple and relatively inexpensive construction to enable the symbols or codes impressed on the web material to be altered extremely easily and reliably without compromising the smooth running of the feeding/drawing device itself.

The invention achieves these objects with a device of the type described at the outset, in which one of the rollers carries, in an intermediate axial position, at least two completely circular or part-circular coaxial rings of separate unlike impression punches, said two rings of impression punches being freely rotatable about the axis of the roller, independently of each other, in order to provide many combinations of axially adjacent impression punches, while means are also provided for the disengageable rotary coupling of the rings with the associated roller.

In a first improvement, the rings of impression punches are each supported on a disc mounted so as to be able to rotate on an intermediate or hub portion of said roller, the discs being adjacent to each other, and axial means being provided for the disengageable rotary coupling of the roller with each disc and of the discs with each other which are movable in the axial direction between a position of coupling and a position of uncoupling.

Each disc advantageously has a plurality of holes distributed around a coaxial circle or part of a circle of the same radius, each of which holes is radially in line with a corresponding impression punch of that disc, the axial locking means being an axial pin able to slide inside an axial supporting hole in the roller at a radial distance from the latter's axis equal to the radial distance of the holes, which pin can be moved axially back

and forth into a position of simultaneous engagement in the axial supporting hole in the roller and in the coinciding holes of the discs, and into a position of disengagement in which the axial pin is withdrawn from the coinciding hole of at least one or more discs simultaneously.

In an additional improvement, the discs have a peripheral ring of teeth or a toothed sector with an impression punch mounted on the radial top of each tooth, while a mating toothed wheel mounted on a drive spindle parallel with the axis of the roller is able, by sliding in the axial direction of the drive spindle, to engage with and disengage from the toothed ring of one disc at a time.

The rotary coupling pin is supported advantageously by a carrier mounted on and sliding axially along the roller supporting spindle and releasably lockable in the position of rotary coupling of the discs with the roller.

Connected with the rotary coupling pin are means of grasping and locking in axial positions that are connected to one end of the roller, in particular so as to be accessible from the outside.

Advantageously, the roller is mounted in the middle of a drive spindle which extends beyond the latter's ends, which spindle is made tubular and inside which spindle there slides a rod to which there is rigidly coupled by a radial pin, through an axial slot in the tubular spindle, at least one sleeve that can slide on one of the two extensions of the tubular supporting spindle of the roller and which sleeve carries axially in a projecting position the pin for the axial coupling of the discs with said roller.

By these means the construction of the feeding/drawing device is much simplified, while at the same time it is easy to alter the code impressed on the material web.

It can be constructed in such a way as to guarantee the necessary precision of feeding and the secure locking in position of the impression punches. Furthermore, changing the combination of punches or substituting them is greatly simplified from the point of view of both manipulation and the effort required.

The construction also offers in a simple way the possibility of fully automated changing of the impressed code, as the following description will show.

The invention also encompasses other features which further improve the device described above and which are covered by the dependent claims.

The special features of the invention and its advantages are treated in greater detail in the description of a preferred embodiment illustrated by way of a non-restrictive example in the accompanying drawings, in which:

Fig. 1 shows an axial section through a device according to the invention, with the rings of impression punches in rotary coupling.

Fig. 2 shows a similar view of the device according to the invention to that of Fig. 1, with one ring of impression punches uncoupled from the roller so that an impression code can be changed.

Fig. 3 is a schematic transverse view of the disc provided with a ring of impression punches engaged with a toothed wheel used to turn said ring.

Fig. 4 shows an enlarged cross section of the drive spindle of said toothed wheel for turning the ring of impression punches.

With reference to the figures, a device for feeding/drawing webs of material, for example webs of paper, such as those for forming wrappers made of foil, for instance, in cigarette packaging machines, comprises a pair of contrarotating drawing rollers 1, 2 urged with a certain force against each other, i.e. against a web of material 3 which is passed between them.

The rollers 1, 2 are mounted on a drive spindle 4 which is supported so as to be able to rotate in two opposite walls 5 by means of axial extensions projecting beyond the ends of the rollers 1, 2. These rollers 1, 2 are mounted in the middle of the spindles 4 and are formed by a pair of drawing wheels 101, 101' and 102, respectively, which are located at the ends of the two rollers 1, 2 and which occupy a certain axial length of said rollers 1, 2, whereas the middle of the roller 1 comprises two or more coaxial rings of punches 106, side by side with each other, and the roller 2 an opposing cylindrical surface 202 pressing against said rings.

The rings of punches 106 may be completely circular or part-circular with an angular amplitude less than a complete revolution and are each carried by a disc 6, 6', 6'', 6'''. The discs 6 to 6''' are adjacent to each other and are supported in such a way as to be free to rotate on a coaxial hub 201 which is integral with one of the drawing wheels 101 at one end of the roller 1. The pack of discs 6 to 6''' is kept in position at the opposite end of the roller 1 by the drawing wheel 101' which can be mounted removably on a coaxial extension 301 of the central hub 201. The extension 301 has a narrowing step level with the outer face of the last disc 6''', thus forming a radial stop shoulder for the removable drawing wheel 101' in a position such that the discs 6 to 6''' are axially locked together without compromising their ability to turn about the central hub 201, at least against a certain force.

By this means the roller 1 can also easily be fitted and removed and substitutions can be made of the discs or rings 6, 6', 6'', 6''' of impression punches 106.

The drive spindle 4 of the roller is made tubular and houses inside itself a coaxial rod 7 able to slide axially. The rod 7 is fixed to two sleeves (8, 8') that slide along the axial extensions of the drive spindle 4 beyond the ends of the roller 1. The rod 7 is connected to the sleeves 8 by means of radial pins 9 passing through the tubular spindle 4, through axial slots 104 in the latter's extensions projecting beyond the ends of the roller 1.

Each sleeve 8 comprises a radial extension 108. The radial extensions 108 are axially in line with each other and support between them, in axial alignment, two pins 11, 11' lying parallel with the axis of the drive spindle 4. The pins 11, 11' are supported in such a way that they project towards each other and terminate with their opposing free ends a certain distance apart from each other. This distance is slightly greater than the axial thickness of one disc 6, 6', 6'', 6'''.

Each pin is engaged in a coinciding axial hole 401, 401' in a corresponding drawing wheel 101 of the roller 1, while at the radial distance from the axis of the drive spindle 4, each disc 6, 6', 6'', 6''' contains a hole 206 for each impression punch 106 of the peripheral ring of impression punches. The holes 206 are radially in line with the corresponding impression punches 106 and are distributed around a circle or around a part of a circle coaxial with the ring of impression punches 106 and with the axis of the roller 1. The axial length of the axial coupling pins 11, 11' and hence the axial distance of the supporting sleeves 8, and also the axial travel of said sleeves 8, i.e. the slots 104 with respect to the dimensions of the roller 1, are such that the two opposing axial coupling pins 11, 11', when moved together, always remain the same distance apart. Consequently the two coupling pins 11, 11' can be moved into a position of rotary coupling of all the discs 6 to 6''' with the roller 1, that is with the drawing wheels 101, 101', on the one hand, and on the other hand into a position (Fig. 2) in which the gap between them coincides radially with one disc 6, 6', 6'', 6''', so that at least this disc can be turned about its axis relative to the drawing wheels 101, 101' and/or to the other discs.

In an improvement, the device may be designed so that in the position of axial coupling, only one of the pins 11' engages simultaneously in the holes 401 of the end drawing wheels 101, 101' and in those 206 of the intermediate discs 6, 6', 6'', 6''', while the other opposing pin 11 has the function of axially locking some of the discs 6, 6', 6'', 6''' in a position in which one of the discs is uncoupled from the rotation thereof with the roller 1 (Fig. 2).

Advantageously, one of the axial end extensions of the spindle 4 carries a drive pulley 12 connected to a source of power by a transmission belt 13, while the other end of the tubular drive spindle 4 is open to allow the sliding rod 7 to project from it in the form of a coaxial pin 107 connecting it to grasping means. Mounted so as to be able to rotate freely on the coaxial pin 107 is a ring nut 207 that screws onto the threaded end of the tubular drive spindle 4 and has at least some radial shoulders for axial locking purposes or a transverse surface to form an axial stop 307 against the corresponding end of the rod 7 which can be locked releasably to prevent axial movement and in a position of axial coupling between the discs 6, 6', 6'', 6''' and the drawing wheels 101, 101' of the roller 1.

In another improvement which is especially clear in Figs. 3 and 4, the rings of impression punches take the

form of toothed rings or sectors, a different impression punch 106 being fixed to the outer peripheral face of each tooth 306. Engaging with the toothed rings or toothed sectors of the discs 6, 6', 6'', 6''' is a wheel 15 with mating teeth 115. The toothed wheel 15 for turning the discs 6, 6', 6'', 6''' is supported on a spindle 16 parallel with the axis of the roller 1 and this spindle 16 is mounted in such a way as to be able to slide axially. The toothed wheel 15 can be moved to a position of disengagement from the external toothed rings of all the discs 6, 6', 6'', 6''' and to a position of engagement with the toothed ring 306 of one disc 6, 6', 6'', 6''' at a time, it having an axial thickness equal to or slightly less than that of the discs.

The axial sliding of the toothed wheel 15 will advantageously be connected to the axial sliding of the pair of opposing axial-coupling pins 11, 11' in order that, at the same time as said pins 11, 11' are moved out of engagement with a particular disc 6, 6', 6'', 6''', the toothed wheel 15 is brought into a position of axial engagement with the toothed ring of that disc 6, 6', 6'', 6'''.

With reference to the example illustrated, the sliding rod 7 for moving the coupling pins 11, 11' axially is connected 17 at its external end to the supporting shaft 16 of the toothed wheel 15, while the toothed wheel 15 itself is arranged in a radially centred position coinciding with the gap between the two opposing ends of the coupling pins 11, 11'.

In another improvement, the toothed wheel 15 for turning the discs 6, 6', 6'', 6''' has click-action means for releasably locking them in the various positions corresponding to the position of disengagement from all discs and to the position of engagement with one of the discs 6, 6', 6'', 6'''. In the example illustrated said means consist of notches 116 to 116''' and 216 formed around the periphery of the spindle 16 and in which there engages an elastically radially retractable tooth, for example a ball 18 urged against the spindle 16 by a spring 19.

The position of the notch 16 corresponds to the position of disengagement of the toothed wheel 15 from the discs 6, 6', 6'', 6''', while the other notches 116, 116', 116'', 116''' are in relative positions corresponding to the positions in which the toothed wheel 15 is engaged with the respective disc 6, 6', 6'' or 6'''.

Advantageously, in order to indicate each advancing step of each ring of impression punches 106, in contrast to the notch 16 which consists of a continuous peripheral annular groove or waist around the spindle 16, at the notches 116, 116', 116'', 116''' are rings of notches, as indicated in Fig. 4. These notches are radially in line with a corresponding tooth or a corresponding recess between two teeth of the toothed wheel 15, and/or the angular distance between the notches of each ring is equal to the angular step of rotation of the toothed wheel 15 for advancing the toothed rings of discs 6, 6', 6'', 6''' by one tooth 306.

By these means, therefore, the personnel in charge of changing the impression code can act directly from the outside without having to remove any part. Once the locking ring nut 207 has been unscrewed, moving the knob 14 simultaneously moves the gap between the axial coupling pins 11, 11' and the toothed wheel 15 for turning the disc 6, 6', 6'', 6''' into radial alignment with a predetermined disc 6, 6', 6'', 6'''. Owing to the click-action means 116, 116', 116'', 116''', 18, 19, it is possible to detect, without direct visual contact, which disc 6, 6', 6'', 6''' has been released and which engaged by the toothed wheel 15. By means of the ring of notches 116, 116', 116'', 116''' it is also possible to substitute with certainty one predetermined mould punch with another and exactly determine its correct operating position.

The construction according to the invention also makes it possible to completely alternate the steps of changing the impression code, because the spindle 16 and the rod 7 can be connected to a common motorized axially sliding carrier fitted with position sensors. This carrier can carry a motor for turning the spindle 16. This can be connected to means for detecting the angular position of the motor spindle or to transmission means for turning the spindle 16 by predetermined steps, or it may take the form of a stepping motor.

Naturally, the invention is not limited to the embodiments described above and illustrated but can be greatly altered and modified, especially from the constructional point of view, without departing from the underlying principle set forth above and claimed below.

Claims

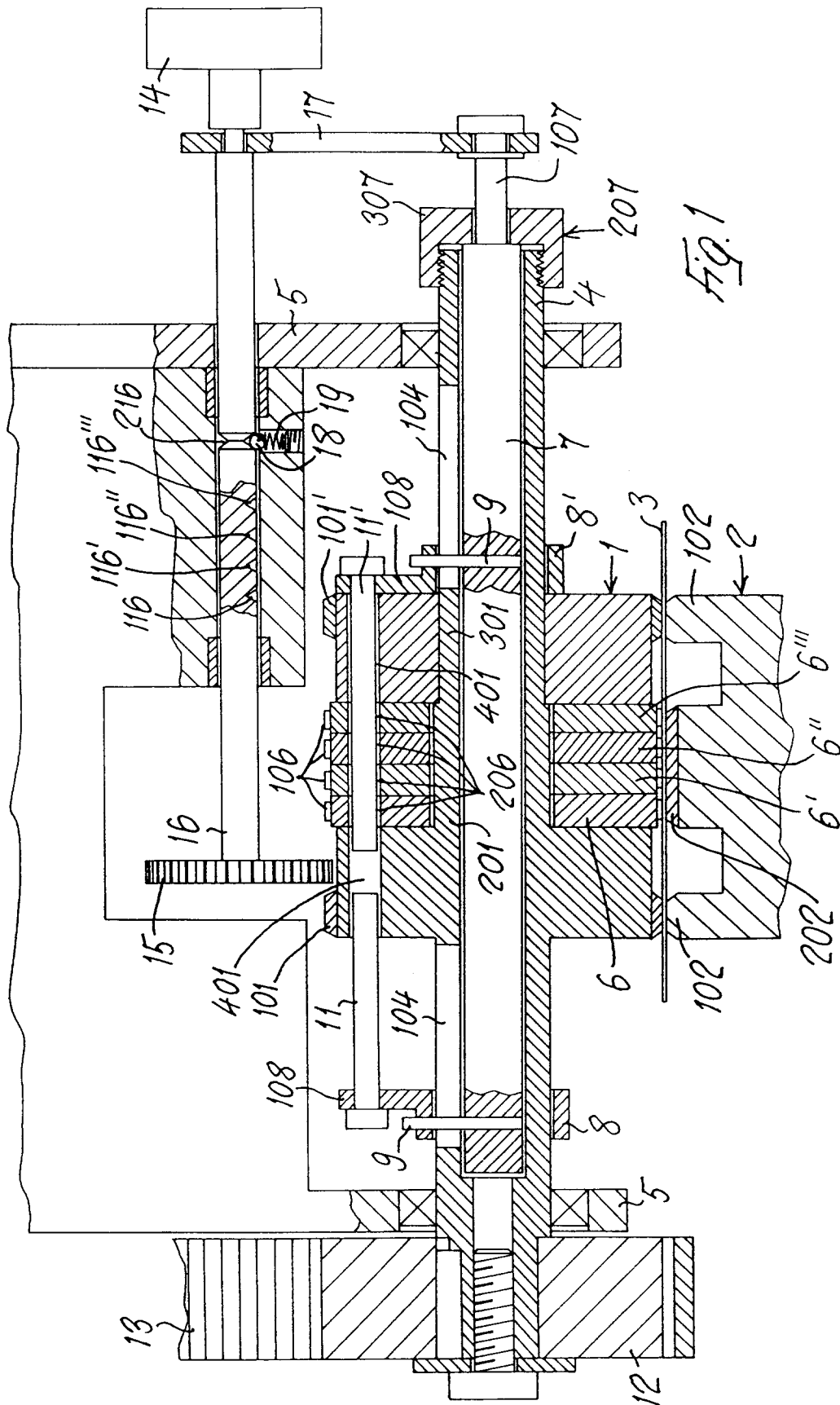
1. Device for feeding/drawing a web material such as webs of paper, or the like, comprising at least two rollers (1, 2) rotating in opposite directions about parallel axes, at least one of which rollers (1) is driven, while the web (3) is passed between said two rollers (1, 2), which are urged towards each other and against the corresponding faces of the web (3) with a predetermined pressure, one of the two rollers (1) being provided with at least one, preferably two or more peripheral impression punches (106) axially adjacent to one another and capable of being substituted and/or combined with each other, while the other roller (2) has an opposing surface (202) against said impression punches (106), the device being characterized in that one of the rollers (1) carries, in an intermediate axial position, at least two completely circular or part-circular coaxial rings (6, 6', 6'', 6''', 306) of separate unlike impression punches (106), said two rings (6, 6', 6'', 6''') of impression punches (106) being freely rotatable about the axis of the roller (1), independently of each other, in order to provide many combinations of axially adjacent impression punches (106), while means (11, 11', 7, 8, 9, 401, 206) are also provided for the disengageable rotary coupling of

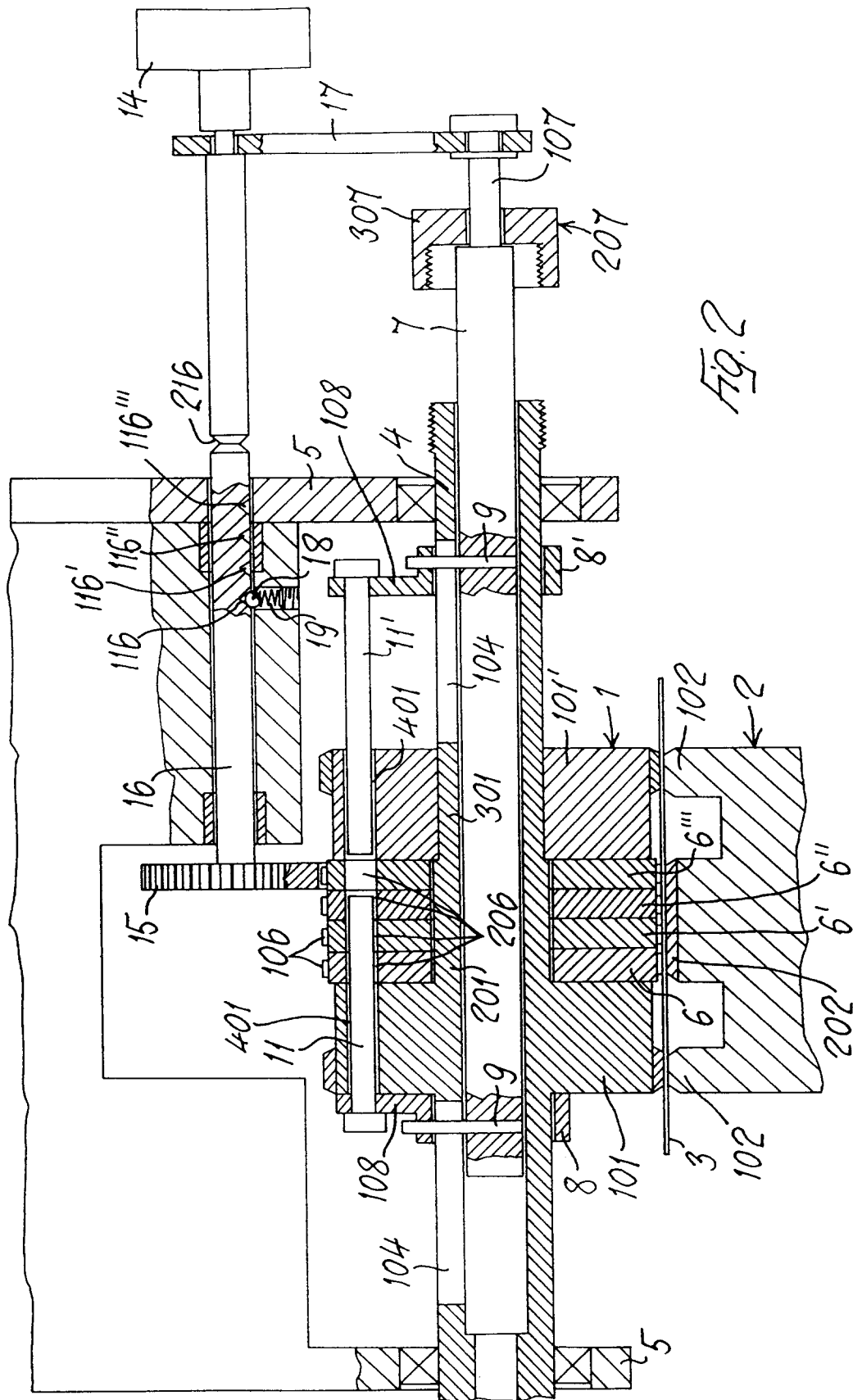
the rings (6, 6', 6'', 6''') of impression punches (106) with the associated roller (1).

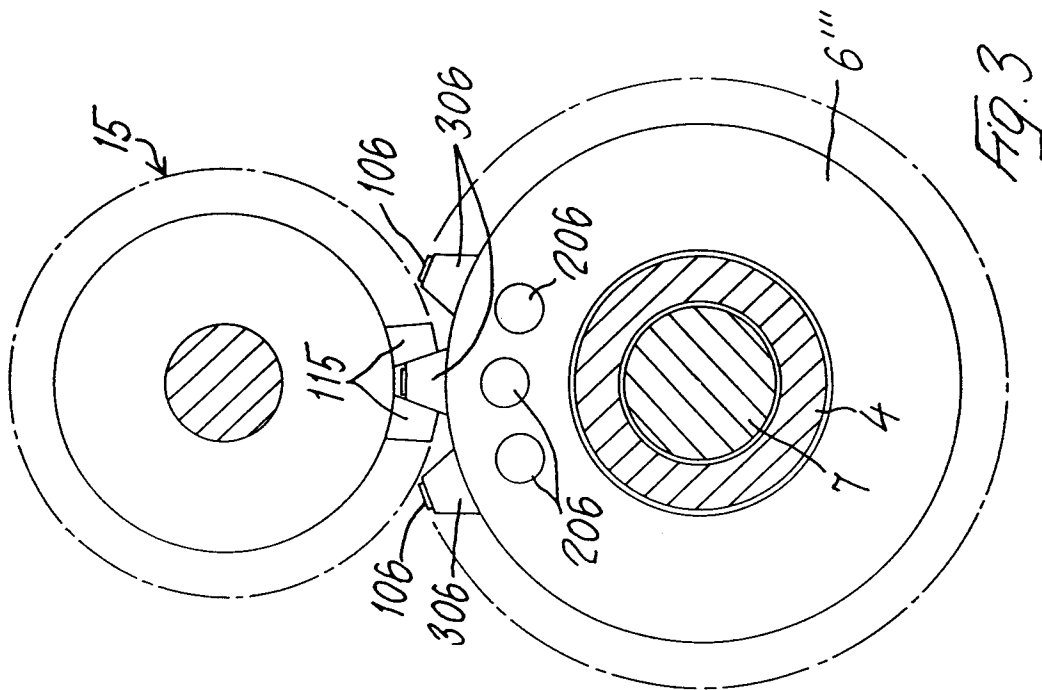
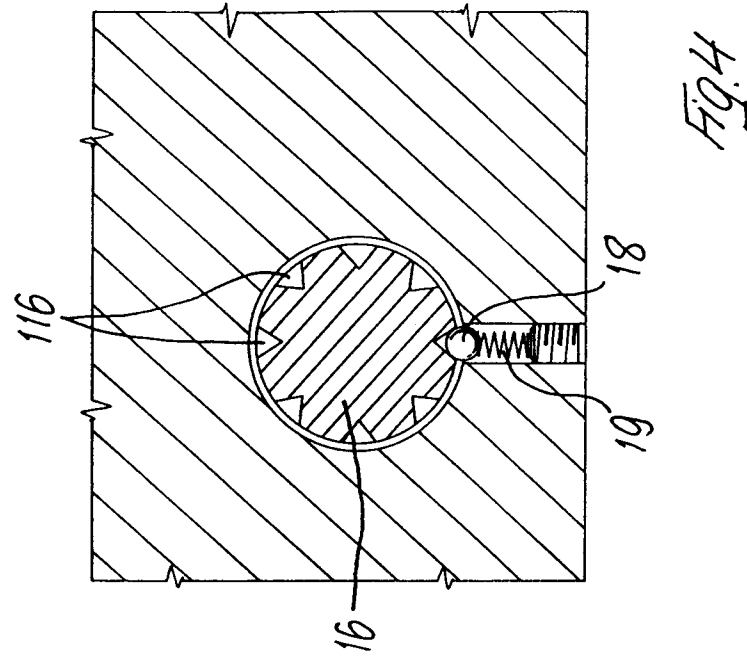
2. Device according to Claim 1, characterized in that the rings of impression punches (106) each consist of a disc (6, 6', 6'', 6''') around whose periphery the impression punches (106) are located, which disc is mounted on and able to turn about a hub (201) of the roller (1), the discs (6, 6', 6'', 6''') being adjacent to each other, and axial means (11, 11', 401, 206) being provided for the disengageable rotary coupling of the roller (1) with each disc (6, 6', 6'', 6''') and of the discs (6, 6', 6'', 6''') with each other which are movable in the axial direction between a position of coupling and a position of uncoupling of at least one or all of said discs (6, 6', 6'', 6''').
3. Device according to Claim 2, characterized in that each disc has a plurality of holes (206) distributed around a coaxial circle or part of a circle of the same radius for all the discs (6, 6', 6'', 6'''), each of which holes (206) is radially in line with a corresponding impression punch (106) of that disc (6, 6', 6'', 6'''), the axial means of rotary coupling being at least one axial pin (11, 11') able to slide inside an axial supporting hole (401) in the roller (1) at a radial distance from the latter's axis equal to the radial distance of the holes (206) in the discs (6, 6', 6'', 6'''), which pin (11, 11') can be moved axially back and forth into a position of simultaneous engagement in the axial supporting hole (401) in the roller (1) and in the coinciding holes (206) of the discs (6, 6', 6'', 6'''), and into a position of uncoupling in which the axial pin (11, 11') is withdrawn from the coinciding hole (206) of at least one or more discs (6, 6', 6'', 6''') simultaneously.
4. Device according to Claim 3, characterized in that the discs (6, 6', 6'', 6''') have a peripheral ring of teeth (306) or a toothed sector with an impression punch (106) mounted on the top of each tooth (306), while a toothed wheel (15) having mating teeth (115) and mounted on a drive spindle (16) parallel with the axis of the roller (1) is able, by sliding in the axial direction of the drive spindle (16), to disengage from the toothed rings (306) of the discs (6, 6', 6'', 6''') and engage with the toothed ring (306) of one disc (6, 6', 6'', 6''') at a time.
5. Device according to Claim 4, characterized in that the rotary coupling pin (11, 11') is supported by a carrier (7, 8, 8', 9) carried by and sliding axially along the drive spindle (4) of the roller (1) and releasably lockable (307) in the position of rotary coupling of the discs (6, 6', 6'', 6''') with the roller (1).
6. Device according to Claim 4 or 3, characterized in that the drive spindle (16) of the toothed wheel (15) for turning the discs (6, 6', 6'', 6''') is coupled (7, 8, 8', 9, 307) in such a way that it is able to slide axially with the pin (11, 11') for the rotary coupling of the discs (6, 6', 6'', 6''') with the roller (1).
7. Device according to Claim 6, characterized in that the toothed wheel (15) for turning the discs (6, 6', 6'', 6''') and the axial pin (11, 11') for the rotary coupling of the discs (6, 6', 6'', 6''') with the roller (1) are arranged in a position relative to each other such that the toothed wheel (15) engages with the external teeth (306) of one disc (6, 6', 6'', 6''') when the pin (11, 11') is withdrawn from its hole (206).
8. Device according to Claim 7, characterized in that the toothed wheel (15) for turning the discs (6, 6', 6'', 6''') and the axial coupling pin (11, 11') have click-action means for releasably locking them (216, 116, 116', 116'', 116''', 18, 19) in the various positions of axial coupling of the discs (6, 6', 6'', 6''') with the roller (1) and of simultaneous disengagement of the toothed wheel (15) from the discs (6, 6', 6'', 6''') and in the positions of uncoupling each disc (6, 6', 6'', 6''') from the roller (1) and of simultaneous engagement of the toothed wheel (15).
9. Device according to Claim 8, characterized in that the toothed wheel (15) or its drive spindle (16) is provided with click-action means (116, 116', 116'', 116''', 18, 19) for advancing it in rotary steps whose angular amplitude is equal to the advancing of one tooth (306) of the disc (6, 6', 6'', 6''') engaged with the toothed wheel (15) for turning said disc.
10. Device according to Claim 8 or 9, characterized in that said click-action means for releasably locking the toothed wheel (15) and rotary coupling pin (11, 11') in an axial position consist of peripheral notches (116, 116', 116'', 116''', 216) in relative positions corresponding to those of the discs (6, 6', 6'', 6''') in the spindle (16) for turning the toothed wheel (15), and engaging with an elastically radially retractable tooth (18).
11. Device according to one or more of the previous claims, characterized in that connected with the rotary coupling pin (11, 11') and separately or in combination with the spindle (16) are means of grasping and turning (14) and also means (307) for locking the pins (11, 11') in the coupled position and disengaging the toothed wheel (15) that are connected to one end of the roller (1, 4), in particular so as to be accessible from the outside.
12. Device according to one or more of the previous claims, characterized in that the roller (1) is mounted in the middle of a drive spindle (4) which extends beyond the latter's ends, which spindle (4) is made tubular and inside which spindle (4) there slides a rod (7) to which there is rigidly coupled by

a radial pin (9), through an axial slot (104) in the extensions of the tubular spindle (4), at least one sleeve (8, 8') that can slide along the corresponding extension of the tubular drive spindle (4) of the roller (1) and which sleeve (8, 8') carries axially in a projecting manner the pin (11, 11') for the rotary coupling of the discs (6, 6', 6'', 6''') with said roller (1).

13. Device according to one or more of the previous claims, characterized in that there are two opposing pins (11, 11') for the rotary coupling of the discs (6, 6', 6'', 6'''), which pins (11, 11') are axially in line with each other, are separated from each other at their opposing free ends by a distance slightly greater than the thickness of one disc (6, 6', 6'', 6''') and are movable axially together, in such a way as to position the gap between the opposing ends against one disc (6, 6', 6'', 6''').
14. Device according to Claim 13, characterized in that the toothed wheel (15) for turning the discs (6, 6', 6'', 6''') is positioned so as to coincide radially with the gap between the two opposing ends of the axial coupling pins (11, 11').
15. Device according to Claim 13 or 14, characterized in that the length of the two opposing coupling pins (11, 11') and their travel with respect to the roller (1) is such that only one of the two pins (11, 11') constitutes the pin for the rotary coupling of all discs (6, 6', 6'', 6''') with the roller (1), while the other pin is for preventing any relative rotation with respect to the roller by the discs (6, 6', 6'', 6''') on the opposite side of the gap between said pins (11, 11').
16. Device according to one or more of the previous claims, characterized in that the roller (1) is formed by two drawing wheels (101, 101') and the two ends, while between these, on a middle or hub part (201) there rotates a pack of discs (6, 6', 6'', 6'''), which hub (201) is integral with one of the drawing wheels (101), while the other wheel (101') can be mounted removably on an axial extension (301) of the hub (201) which has an annular radial stop shoulder generally in line with the face of the last disc (6''') facing said removable drawing wheel (101), within the ambit of the tolerances for locking the discs (6, 6', 6'', 6''') axially and allowing them to turn freely.









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EUROPEAN SEARCH REPORT

Application Number
EP 96 10 6842

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
Y	FR-A-2 226 281 (HILTI AG) 15 November 1974 * page 4, line 27 - page 5, line 28 * * page 6, line 10 - line 18 * * page 7, line 5 - line 15 * * page 9, line 24 - line 34 * * figures 1-3 *	1,2	B26F1/04 B26F1/10 B41K3/12 B44B5/00
Y	US-A-4 448 122 (HOLLAND-LETZ GUENTER) 15 May 1984	1,2	
A	* abstract; figure 1 *	3,4	
A	DE-A-24 09 334 (PHILIPP WILFRIED) 28 August 1975 * figure 1 *	8,10	
A	DE-A-21 41 544 (HERMANN CLAUS DIETER) 22 February 1973 * figures 1,2 *	4,7,8	
A	DE-C-340 063 (MARKEM MACHINE COMPANY) 31 August 1921 * figure 2 *	3,4,6,7, 11,13-15	TECHNICAL FIELDS SEARCHED (Int.Cl.6) B41K B26F B44B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 19 July 1996	Examiner Guthmuller, J
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document			

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