

[54] MANUAL LABELING DEVICE

[76] Inventor: **Francisco Barcellona Corte, Garin,**
Argentina

[22] Filed: **Sept. 11, 1972**

[21] Appl. No.: **287,984**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 173,456, Aug. 20, 1971, Pat. No. 3,704,771.

[30] Foreign Application Priority Data

Jan. 25, 1972 Argentina 240,220

[52] U.S. Cl. **197/6.7, 101/18**

[51] Int. Cl. **B41j 1/30**

[58] Field of Search **197/6.7; 101/18**

[56] References Cited

UNITED STATES PATENTS

296,974	4/1884	Kimberly	197/6.7
3,181,679	5/1965	Stubbsmann	197/6.7
3,272,301	9/1966	Craig	197/6.7
3,289,803	12/1966	Pedersen	197/6.7
3,391,773	7/1968	Nicole et al.	197/6.7
3,587,810	6/1971	Alper	197/6.7

Primary Examiner—Robert E. Pulfrey

Assistant Examiner—William Pieprz

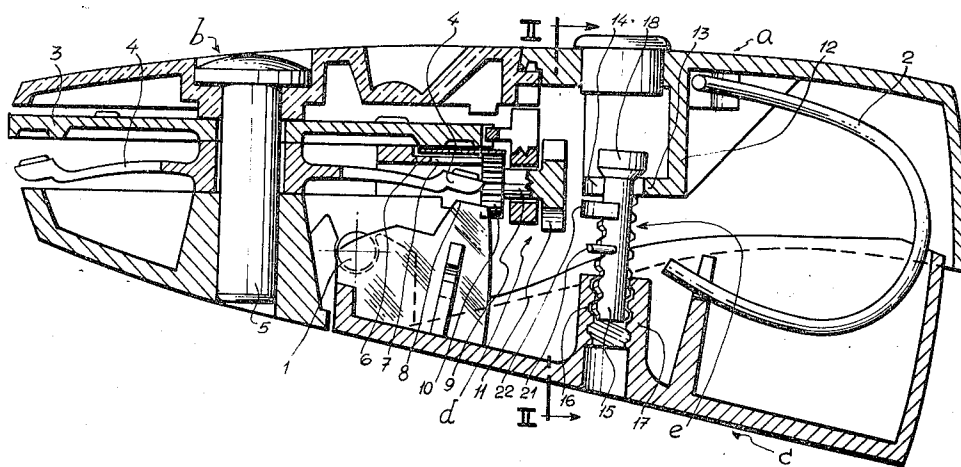
Attorney—A. W. Molinare et al.

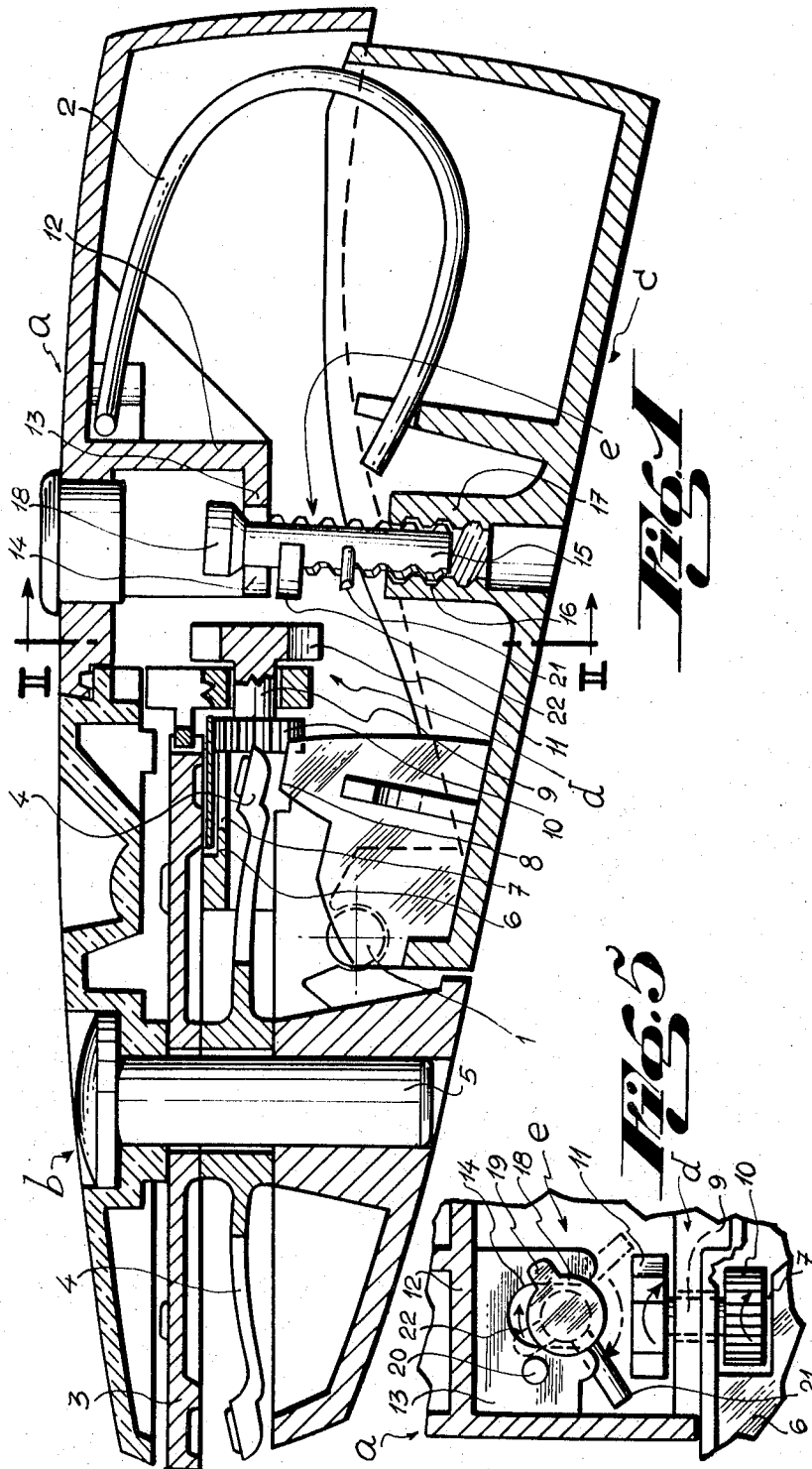
[57] ABSTRACT

A device for imprinting characters on a belt or the like. A body and a lever are pivotally connected with a spring normally urging them apart. A pair of closely positioned rotary character imprinting members, carried on the body, receive the belt therebetween, the

belt having the characters imprinted thereon by pressing the rotary members together. Means are provided for guiding the belt between the rotary members for the imprinting operation. One wheel engages the belt to drive it in response to the rotation of a drive wheel. The drive wheel is rotated after the body and lever have been moved or pressed together. A pin is rotatably and threadably received in the lever and has an enlarged upper head with an arm which operatively engages the drive wheel. When the lever and body are pressed together, the pin initially moves together with the lever. A platform is mounted on the body and movably receives the pin. When an appendage or stop element on the pin engages the belt after a selected translational movement of the pin has occurred, the stopping of the translational movement of the pin rotates the pin causing the arm to drive the drive wheel and thereby move the wheel which engages the belt to move the same a distance for having a character imprinted thereon. If no characters are to be imprinted, the spring returns the lever to the start position without imprinting. Alternatively, the lever is continued in its movement toward the body and the stop arm on the pin passes through a suitable opening in the platform permitting continued translational movement of the pin without rotation of the arm. After the characters have been imprinted by pressing, the spring returns the lever to the start position. The stop arm passes down through the opening in the platform and the drive arm moves below the drive wheel. When the enlarged head on the pin engages the platform, the rotary movement once again occurs and the pin and the drive arm are rotated back to the initial position, the drive arm being moved without engagement with the drive wheel.

6 Claims, 6 Drawing Figures





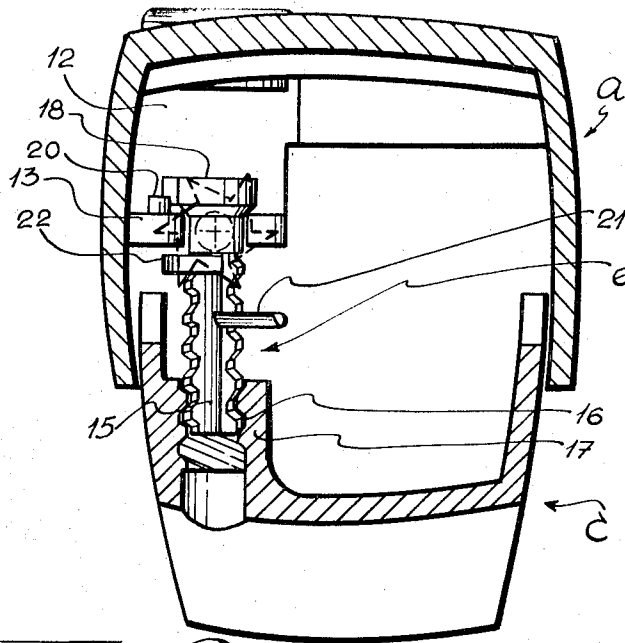


Fig. 2

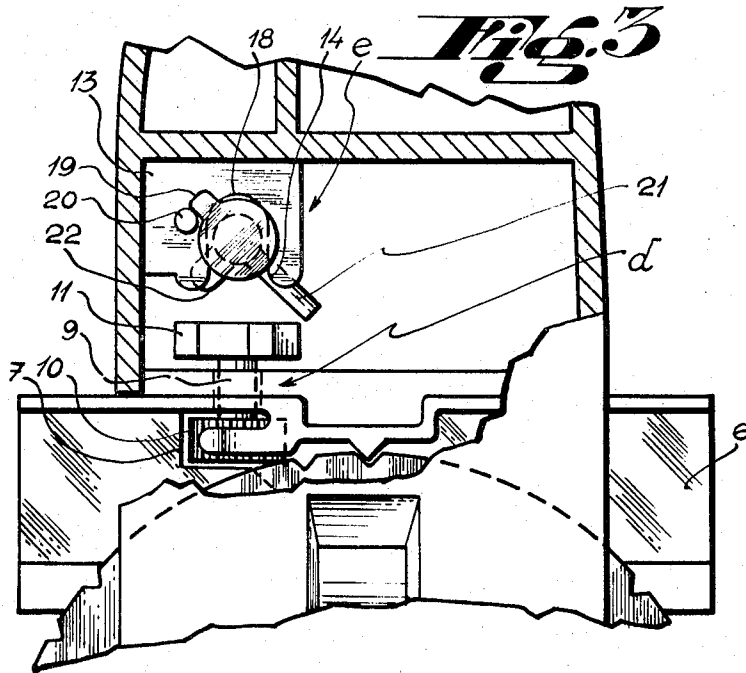
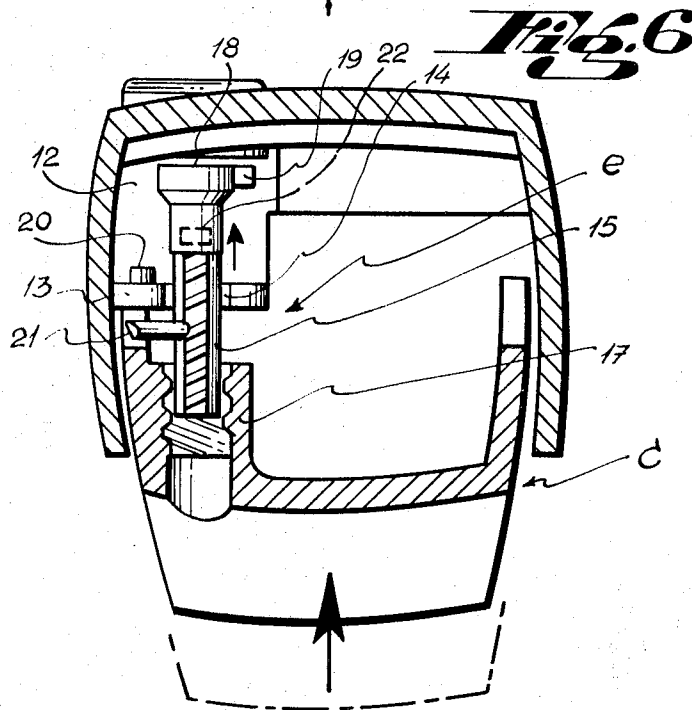
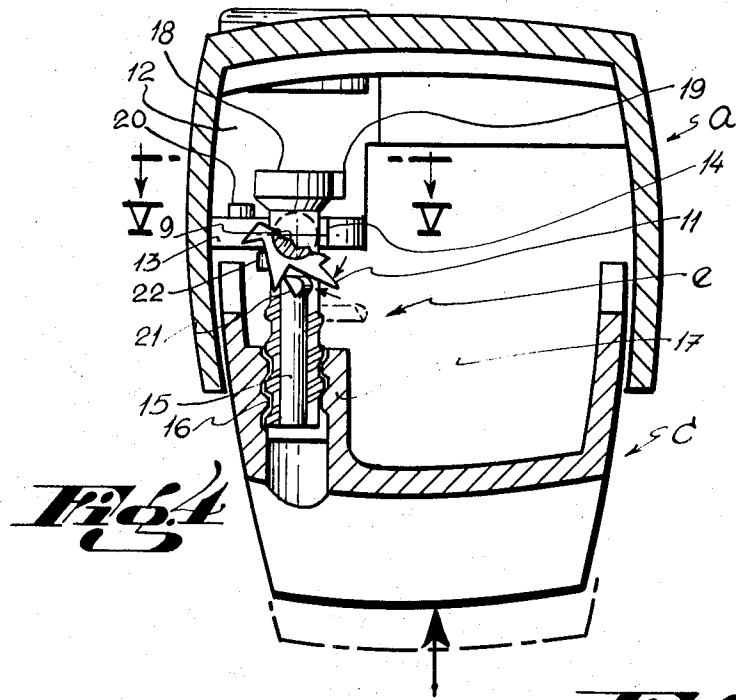


Fig. 3



MANUAL LABELING DEVICE

REFERENCE TO RELATED APPLICATION

this is a continuation-in-part of my co-pending U. S. Pat. application Ser. No. 173,456, filed Aug. 20, 1971, 5 now U.S. Pat. No. 3,704,771.

BACKGROUND OF THE INVENTION

FIELD OF THE INVENTION and

DESCRIPTION OF THE PRIOR ART

This invention relates to a hand operated stamping or labelling machine which is of a size that permits placing in a purse or pocket, and it particularly relates to an improved mechanism for driving a belt or tape in a labelling machine of the type shown in my co-pending U. S. Pat. application Ser. No. 173,456, now U. S. Pat. No. 3,704,771.

One of the basic problems to solve in such types of labelling machines is the slipping of the belt or tape. When slippage occurs, the result is over printing or double printing or irregular spacing of the characters printed on tape. Although it has been possible to almost completely eliminate such slippage by using as the driving member of the tape drive mechanism a guide which forms a thread and screw set with multiple entrances, the mechanism still corresponds to the basic concept of such devices with respect to the driving thereof by a set of levers. In that way, the forward motion of the tape responds to the tension of the return spring of the set of levers.

In attempting to improve such devices so as to assure the appropriate forward motion of the belt or tape, free from slippage, attempts have been made to reverse the operation of the driving member, that is to say, the belt or tape has been caused to move forward in the step of the printing operation at the moment immediately preceding the pressing or pressure-applying needed in the printing operation, so that the forward motion of the tape is not responsive to the reaction of the return spring. At this time, the undesired slippage of the tape may result, contrary to the hand action exerted on the lever.

SUMMARY OF THE INVENTION

It is therefore an important object of this invention to provide an improved tape feeding device for manual labeling machines wherein there is substantially no tape slippage.

It is also an object of the invention to provide an improved tape feeding mechanism for a manual labeling machine wherein the operating efficiency is maximized.

It is yet another object of this invention to provide an improved tape feeder for a manual labeler wherein there is no tape slippage, particularly, during the movement of the tape, without printing, so as to provide space of a desired amount between characters.

It is still another object of the invention to provide a feeder for a manual labeler wherein the action of the operation of the lever is independent from the tension of the return spring, the sole function of the spring being to return the lever to the initial position, without interruption of the operation of the device.

It is still a further object of this invention to provide a manual labeling device which is efficient in operation

and yet the assembly of the device, particularly the return spring, is simplified.

Further purposes and objects of the present invention will be provided as the specification proceeds.

The foregoing objects are accomplished by providing a device for imprinting characters on a belt wherein the device includes a body, a lever pivotally carried on the body, a spring for urging the body and lever apart, imprinting means for imparting selected characters to the belt at a selected position, a wheel engaging the belt, and a toothed wheel rigidly interconnected with the belt wheel for simultaneous movement with the belt wheel, a pin having its axis positioned transverse to the pivot axis of the lever and being selectively rotatably supported by the lever, a drive arm projecting laterally from the pin and being movable in and out of driving engagement with the toothed wheel, the pivoting of the lever toward the body initially moving the pin together with the lever, means on the pin for at least momentarily stopping such movement while rotatably moving the arm into driving engagement with the toothed wheel to move the belt wheel a sufficient distance to move the belt an amount needed for the printing of a single character on the belt.

BRIEF DESCRIPTION OF THE DRAWINGS

A particular embodiment of the present invention is illustrated in the accompanying drawings, wherein:

FIG. 1 is a longitudinal sectional view of my improved pocket or purse labelling machine, according to the present invention;

FIG. 2 is a front sectional view taken along the line 2-2 of FIG. 1 wherein there is shown, in the non-operative position, the tape moving mechanism which constitutes the main purpose of the invention, the drive wheel being shown in broken lines;

FIG. 3 is a partially broken plan view of the tape feeding mechanism in the embodiment of FIG. 1, wherein the projection formed by the driving member and its relation to the drive wheel is shown;

FIG. 4 is a view, similar to FIG. 3, wherein there is shown how, upon operating the lever of the machine, the driving member angularly displaces the drive wheel which controls the forward motion of the tape;

FIG. 5 is a partial top plan view of the machine, illustrating the mechanism in correspondence with the position shown in FIG. 4, the arrows indicating the direction of the various displacements; and

FIG. 6 is a view, similar to FIG. 4, which shows the lateral projecting part of the top of the driving member reaching the end opening of the support thereof, the driving member continuing its axial displacement corresponding to the step of printing on the belt or tape.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIG. 1, my improved manual pocket or purse-size labelling machine, made according to the present invention, includes, as do similar machines, a main body *a* upon which there is mounted at one end, a stamping section *b* driven by a hollow lever *c*. The lever *c* is pivotally connected to the body *a* at 1. The lever *c* pivots in the operative movement against the tension of an internal spring 2, which returns the lever *c* to the start position. Inside the body *a* is the mechanism *d* for feeding the tape or belt forward. The mecha-

nism *d* responds to the angular displacement operation of the lever *c* through a driving member *e*.

The labelling or stamping mechanism is generally of well known construction and has been used in such stamping or labelling machines, which belong to the public domain. The stamping machine *b* includes a matrix or die wheel 3, which is rigidly and concentrically connected to a wheel 4 with arms having die ends which constitute punches defining a die set with the matrix wheel dies. A stem or rod 5 in the cavity of the body *a* concentrically carries the wheels 3 and 4.

Transverse of the body *a* there is mounted a member 6, the track for the belt. The track 6 has an opening 7 for the passage of a selected punch from the wheel 4 when an arm thereof is pushed by the upwardly projecting pressure-exerting member 8 positioned on the internal face of the lever *c*.

In a location substantially perpendicular to the passage of the belt or tape to the labelling machine a shaft or axis 9 is mounted within the body. A wheel 10 with grooves or teeth thereon is mounted on the shaft 9 and under the belt. The teeth on the wheel 10 constitute the drive means for the belt. On the opposite end of the shaft 9, there is located a drive wheel 11.

The wheel 11 has teeth with one of their sides substantially radial and the other side approximately normal to that of the adjacent tooth, thus defining between said adjacent teeth, substantially right angles. The radial side receives the driving force from the driving member. The wheel 10, the shaft 9, and the drive wheel 11 are preferably unitarily formed.

A thin partition 12 extends downwardly from the upper internal face of the body *a*. The lower edge of the partition 12 has a forwardly projecting platform 13. The edge of the platform 13 faces the unit formed by the wheels 10 and 11 and includes a projecting part 14 which presents a space for the stem 15 of the driving member *e* which is received in the space defined adjacent the projecting part 14.

The stem 15 has screw threads formed therein which are received by the threaded opening 16 in a projection 17 molded integrally with the wall of the bottom of the lever *c*, as seen in FIGS. 1, 4 and 6. The upper end of the stem 15 has, above the platform 13 in which it is received, a head 18 having a laterally projecting arm 19 which, in its inoperative position, engages against a projection 20 on the upper face of the platform 13, as shown in FIG. 3.

Under the platform 13, the stem 15 has a lower arm 21 which projects laterally and which acts as the pushing or driving force. The lower arm 21 constitutes the intermediate stop for the translational movement of the driving member *e*.

The operation of the forward drive mechanism for the belt or tape, is very simple and effective.

In operation, the lever *c* is pivoted inwardly as shown in FIG. 4, starting from the inoperative or rest position illustrated in FIGS. 1, 2, and 3. Upon pivoting of the lever *c*, the driving member *e* is also displaced until a lateral appendage 22 thereon engages the lower face of the platform 13, stopping the displacement of the stem 15. As lever *c* continues its pivoting motion, a motion in which stem 15 does not move therewith, the threaded opening 16, receiving the lower end of the stem 15, causes the stem 15 to rotate so that the lever *c* can be displaced relative to the stem 15. In effect, the

stem 15 screws into the threaded opening 16, thereby rotating.

When the stem 15 is thereby subjected to such angular displacement from such rotary motion, the lateral arm 21 engages the radial edge of a tooth of the drive wheel 11, causing rotation or angular displacement of the wheel 11, the shaft 9, and the wheel 10. The wheel 10 displaces in a direction to cause feeding of the belt or tape to the stamping position for the stamping device 8.

If the angular displacement of the lever *c* remains at this position, the machine has moved the belt a space without printing. When the lever *c* is released, the tension of the spring 2 returns the lever *c* to its initial position, without the stamping device 8 having lifted a punch from the wheel 4 to stamp the belt between itself and a respective die on the wheel 3.

If it is desired to stamp a character on that blank stretch of belt or tape which has been moved forward, as described, the pivoting or angular displacement of the lever *c* is continued in the same direction of operation, causing a continuation of the angular displacement of the stem 15 until the appendage 22 passed up through the opening in the platform 13. When this occurs, the stem 15 stops rotating, moves upwardly to the top with said lever *c* until the pressing element 8 causes stamping on the belt or tape by moving a punch on the wheel 4 upwardly into the die on the wheel 3, causing the desired character to be printed on the tape.

When the lever *c* is released from the pressure exerted on it, the tension of the spring 2, which has been compressed, causes the pivoting return of the lever *c* to the start position. The driving member *e* for moving the belt, in the first step of return movement, is displaced together with the lever *c*, in a direction which is opposite that indicated by the large arrow in FIG. 6. During such displacement, the lateral appendage 22 passes down the opening in the platform 13 to move therebelow. When the head 18 of stem 15 engages the upper face of the platform 13, it is prevented from further downward displacement. The threaded opening 16 in the projection 17 continues moving so as to rotate the stem 15 in an opposite direction to the previous rotation, until the lateral arm or projection 19 on the head 18 engages the stop post 20. The cycle of operation is thus complete.

The return movement of the lever *c* causes no operation of the machine. When the lever *c* returns to its initial or start position, the driving stem or arm 21 is located below the teeth of the driving wheel 11 as shown in FIG. 2, so that there will be no contact therebetween during the return operation. The wheel 11 thus remains immobile with the tape drive wheel 10 and the tape or belt, until lever *c* is again operated, as described above.

While in the foregoing there has been provided a detailed description of a particular embodiment of the present invention, it is to be understood that all equivalents obvious to those having skill in the art, are to be included within the scope of the invention as claimed.

I claim:

1. A device for imprinting characters on a belt, said device comprising, in combination, a body, a lever pivotally carried on said body, means for normally urging said body and said lever apart, means movably carried on said body for imparting selected characters to a belt at a selected position, means for moving said belt to and from said selected position, said moving means in-

5

cluding a first wheel for drivably engaging said belt and a second wheel, said wheels being rigidly interconnected for simultaneous movement, a drive member having its axis positioned transverse to the pivot axis of said lever and being rotatably supported by said lever for movement about its own axis, engagement means projecting laterally from said drive member and being movable in and out of driving engagement with said second wheel, the pivoting of said lever toward said body initially also displacing said drive member together with said lever, stopping means on said drive member for at least momentarily stopping said displacement while rotatably moving said engagement means into driving engagement with said second wheel and to move said first wheel sufficiently to move said belt an amount at least sufficient for imprinting a single character on said belt.

2. The device of claim 1 including means for disengaging said stopping means and permitting the continued displacement of said drive member with said lever, and means for activating said character imparting means to impart a selected character on said belt, and the return pivoting movement of said lever away from said body displacing said drive member together with said lever, and means for returning said engagement

6

means to the start position while avoiding contact with said second wheel.

3. The device of claim 1 wherein said engagement means is a laterally projecting arm.

4. The device of claim 3 wherein said stopping means includes a second arm positioned on said drive member angularly offset above said arm, and a platform extending from said body and having an opening therein through which said drive member passes, said platform engaging said second arm for at least momentarily stopping said displacing movement.

5. The device of claim 2 including cooperating means on said drive member and on said body for stopping the rotary movement of said drive member at a desired stop position.

6. The device of claim 1 wherein said drive member includes an enlarged head and said body includes a platform having an opening therein for receiving said drive member, said head being positioned between said platform and the upper wall of said body, said head limiting movement of said drive member in one direction by engaging the upper wall defining said body and in the opposite direction by engaging said platform.

* * * * *

30

35

40

45

50

55

60

65