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54 **Imprinter Apparatus.**

57 A motor driven imprinter apparatus (1, 60) for imprinting from a credit card (59), a date roller (12B, 70) and a merchants platen (12A, 69) onto a docket 61 comprises a housing (2, 62) and a carrier member (3, 63) pivotally mounted to the housing (2, 62). The carrier member (3, 63) is pivotal from an open position for receiving a credit card (59) and a docket (61), into a closed position where the data on the credit card (59) and the docket (61) are brought into pressure contact with an imprint roller (16, 77) which is driven by a motor (28, 99) through a chain and sprocket drive mechanism (20, 95). The roller (16, 77) is releasably mounted in a side block (15, 78) and a drive spud (23, 100) on one link of the chain (24, 96) engages an elongate slot (25, 101) in the block (15, 78) to pull the roller (16, 77) across the credit card (59) and docket (61). In one case imprinting takes place on one pass across the apparatus (1) only while in another case (60) imprinting from the credit card (59) to the docket (61) takes place on a first pass and from the merchants platen (69) and date roller (70) on a return pass. Means for locking the carrier member (3, 63) in the closed position is provided by a locking bar (30, 105) which is loosely mounted in a pair of spaced-apart cam brackets (31, 32, 107,

108). A pair of latch members (36, 120) extend from the carrier member (3, 63) and engage the locking bar (30, 105) by means of latch formations (37, 121) to retain the carrier member (3, 63) closed. The locking bar (30, 105) is released by a trip release lever (41, 140) activated by a trip release spud (43, 143) on the chain (24, 96). Switch operating means to operate the motor (28, 96) comprises a link member (46, 130) which engages a microswitch (48, 137) to activate and deactivate the motor (28, 96).

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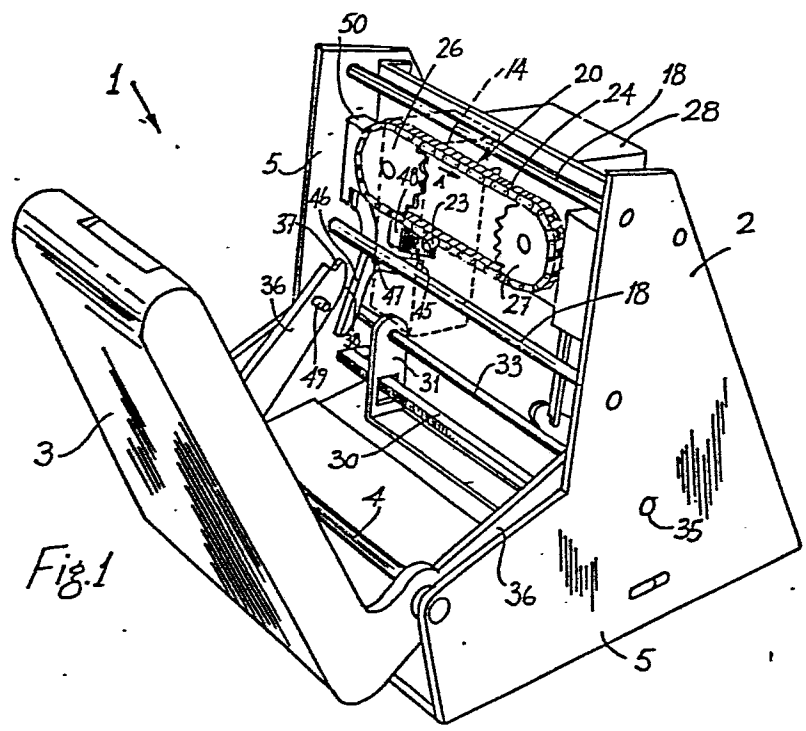


Fig. 1

The present invention relates to imprinter apparatus, for imprinting characters from a character imprint source member such as a credit card onto an imprint recording sheet such as a docket.

5 According to the invention, there is provided imprinter apparatus for imprinting characters from a character imprint source member such as a credit card onto an imprint recording sheet such as a docket, the apparatus comprising

10 an imprinter means housing section having movable imprinter means transversely movable across an imprint station in the housing section,

drive means for moving the imprinter means back and forth across the imprint station, and

15 a carrier member pivotally mounted to the housing section,

the carrier member having means for receiving a removable imprint source member and an imprint recording sheet,

the carrier member being pivotally movable from
an open position for insertion and withdrawal
of the imprint source member and imprint record-
ing sheet, to a closed position in which the
5 imprinter means travels across the imprint station
to imprint data from the imprint source member
onto the imprint recording sheet.

In one embodiment of the invention the drive means
comprises a pair of spaced-apart wheels and an endless
10 drive member trained about the wheels.

The wheels may comprise a pair of spaced-apart rotatable
sprockets and an endless drive chain trained about the
sprockets. Alternatively the wheels comprise a pair of
spaced-apart rotatable pulleys and drive member comprises
15 an endless drive belt trained about the pulleys.

In one embodiment of the invention the imprinter means
comprises a roller means including an elongated generally
cylindrical imprinter roller rotatable in a slide block
member. Preferably the drive chain has a drive spud
20 projecting therefrom to engage a slot in the slide
block member for driving the slide block member and
roller back and forth through advance and return
strokes spanning the imprint station as the spud
moves with the drive chain between the sprockets. In
25 one embodiment of the invention the roller is mounted

in a roller block which is substantially vertically
movable in the slide block, the spud projecting through
the slot in the slide block to engage the roller block
to move the roller block in the slide block as the
5 chain passes over the sprockets from a first raised
imprinting position to a second lowered imprinting
position.

In a particularly preferred embodiment of the invention
the roller means is releasably mounted to imprinter
10 means housing section. Preferably the roller block
is mounted on a spindle in the slide block, the roller
block being moved up or down on the spindle between
the two positions as the spud passes over a sprocket,
the spindle being releasably mounted to the slide block
15 for removal of the roller block from the slide block.
Typically the carrier member includes an additional
imprint source member, the imprinter roller imprinting
data from the additional imprint source member onto the
imprint recording sheet on one of the advance or return
20 strokes across the imprint station, and imprinting
data from the removable imprint source member onto
the imprint recording sheet on the other of the advance
or return strokes. Preferably the removable imprint
source member is mounted on a first platen and the
25 additional imprint source member is mounted or provided
on a second platen in the carrier member,
the first and second platens being independently

movable inwardly and outwardly relative to the imprint station to adjust the pressure with which the roller means engages the imprint recording sheet against the imprint source data.

5 In a further embodiment of the invention the roller means releasably engages a pair of spaced-apart guide track members which engage and slidably support the slide block member to guide the block member and roller along the imprint path. Preferably the guide track mem-
10 bers comprise a pair of parallel rods and the slide block member is of a vertically elongated rectangular configuration having upper and lower end portions provided with recesses to slide on the guide rods. Typically the rods are of substantially circular cross section,
15 the recesses are of substantially semi-circular cross section and engagement means are provided for engaging the slide block with the rods. In one case the recesses are of slightly greater-than-semi-circular to snap-fit and slide on the guide rods. Alternatively the engage-
20 ment means comprises a pair of facing arcuate lugs, one on each recess, the lugs snap fitting and sliding on the guide rods.

In another embodiment of the invention one of the sprockets is driven by an electric drive motor coupled to the
25 sprocket, switch means being provided to activate the drive motor and switch operating means on the carrier

member to activate the switch means when the carrier member is moved into the closed position.

In a further embodiment of the invention locking means are provided for locking the carrier member in the closed position. Preferably the locking means comprises a locking bar means in the imprinter housing section and a locking arm projecting from the carrier member, the locking arm having a latch formation to engage the locking bar means and latch the carrier member in the closed position. Typically the locking bar means comprises a locking bar which is mounted in a locating slot, the bar being movable by a biasing means from an open position with the carrier member open to a closed position with the carrier member closed, the locating slot being provided in a cam bracket having a forward cam surface engagable by the latch formation on the carrier member, the latch formation riding on the cam surface when the carrier member is open to prevent the carrier member being moved into the closed position. The latch formation may initially ride along the cam surface as the carrier member is being moved from the open towards the closed position and then disengages the cam surface allowing the carrier member to close.

In a still further embodiment of the invention trip
release means are provided for opening the carrier
member when the imprinter means has returned to its
initial rest position. The trip release means may
5 comprise a trip release lever having actuating means
engagable by a trip release spud provided on the chain,
the release lever engaging the cam plate to engage
the latch formation with the cam surface to override
the action of the biasing means for movement of the
10 carrier to the open position. Preferably the actuating
means comprises a trip release block engagable by
the trip release spud on the chain.

In another embodiment of the invention manually operated
override release means are provided to open the carrier
15 member in the event of apparatus jamming. Preferably
the manually operated override release means comprises
an extension on the trip lever which extends through
the imprinter housing section and terminates in a
plunger which is pressed downwardly to release the
20 latch formation and allow the carrier member to move
to the open position.

In one embodiment of the invention the switch operating means comprises a link member which is pivotally mounted to the imprinter housing section, the link member having a downwardly depending lower link arm and a forwardly projecting mid link arm, the
5 lower link arm being engaged by the locking bar means on closing of the carrier member, the movement of the lower link arm about the pivot pivoting the mid link arm to engage the switch means to activate the
10 motor.

In a further embodiment of the invention a damper is provided to dampen the action of the biasing means. Preferably the damper comprises a peg extending from the imprinter housing section and having a pair of forwardly projecting resilient forks which frictionally
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engage the locking arm projecting from the carrier member to slow down the movement of the carrier member into the open position.

5 In a further another embodiment of the invention a delay mechanism is provided to allow the roller means to run-on into an initial start position after the trip release is activated to move the carrier member into the open position. Preferably the delay mechanism comprises an upper link arm provided on the link member, the upper link arm engaging an interposer block to delay the pivoting of the mid-link arm away from the switch means. Usually the interposer block includes a ridge engagable by the upper link arm. Typically the interposer block is slidably movable from a position in which the ridge is engaged by the upper link arm to a position in which the ridge is moved out of the path of the upper link arm, the interposer block being moved from one position to the other by a motor-cut-out spud on the chain, the spud pushing the block sidewardly against the action of a biasing means to disengage the upper link arm from the ridge and allow the mid link arm to disengage from the switch means to stop the motor.

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25 In another embodiment of the invention the means for receiving an imprint recording sheet comprises a pocket which is of telescopic construction in a longitudinal direction to accept imprint recording sheets of

different length.

In a still further embodiment of the invention thickness setting means are provided for setting the number of imprint recording sheets which the imprint means
5 will imprint on. Preferably the setting means comprises a first sensor on the imprinter means housing section and a second sensor on the carrier members, the sensors facing each other when the carrier member is moved into the closed position and defining
10 therebetween an adjustable gap to accommodate a preset number of imprint recording sheets.

One particularly preferred embodiment of the invention provides an imprinter apparatus for imprinting characters from a character imprint source member onto
15 imprint recording sheet material such as document sheets or the like, comprising an imprinter means housing section including a casing having movable roller means for transversely rectilinearly traversing a path laterally spanning an imprint station and drive means
20 for moving said roller means back and forth along said path, the roller means including a vertically elongated generally cylindrical imprinter roller rotatable in a slide block member, the drive means comprising a pair of spaced-apart rotatable sprockets and an endless
25 drive chain trained about the said sprockets, the drive chain having a spud projecting therefrom, a pair of vertically spaced guide track members engaging and

and slidably supporting said slide block member to guide
the block member and roller along said path, the block
member having a slot receiving said spud therein
for driving the block member and roller therein back
5 and forth through advance and return strokes spanning
said imprint station as the spud moves with said drive
chain between said sprockets, and a carrier member hinged
for movement about a pivot axis to said housing section
adjacent the path traversed by the roller means at said
10 imprint station, said carrier member having a recess
for receiving the imprint source member therein and a
pocket formation for the recording sheet material, the
carrier being movable about said pivot axis from an open
position exposing said recess and pocket formation for
15 introduction and withdrawal of the source member and
sheet material and a closed position locating the
sheet material and source member at said imprint station,
said roller upon movement of said block member and roller
through said advance stroke by said spud and drive
20 chain pressing the sheet material by said roller against
said source member to produce a character imprint
thereon.

The invention will be more clearly understood from the following description of embodiment thereof, given by way of example only, with reference to the accompanying drawings, in which:

5 Fig. 1 is a perspective view of imprint apparatus according to the invention;

 Fig. 2 is a side view of the apparatus of Fig. 1 in one position;

 Fig. 3 is a side view of the apparatus of Fig. 1 in another position;

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 Fig. 4 is a perspective view of portion of the apparatus of Fig. 1;

 Fig. 5 is an elevational view of another portion of the apparatus of Fig. 1;

15 Fig. 6 is a perspective view of another portion of the apparatus of Fig. 1;

 Fig. 7 is a perspective view of the portion of Fig. 6 from a different direction,

 Fig. 8 is a perspective view of an imprinter apparatus according to another embodiment of the invention in an open position,

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Fig. 9 is a cross-sectional view of the imprinter apparatus of Fig. 8,

Fig. 10 is a perspective view of portion of the apparatus of Fig. 8,

5 Fig. 11 is a perspective view, from the rear, of the apparatus of Fig. 8,

Fig. 12 is a plan view of a detail of the apparatus of Fig. 8,

10 Fig. 13 is a cross-sectional view of another detail of the apparatus of Fig. 8,

Fig. 14 is a cross-sectional view of the apparatus of Fig. 8 in a closed position,

Fig. 15 is an end, partially cross-sectional view of the apparatus in a closed position,

15 Fig. 16 is a cross sectional view of a detail of the apparatus of Fig. 8,

Fig. 17 is a partial view of a door-opening detail of the apparatus of Fig. 8,

20 Fig. 18 is a perspective view of another detail of the apparatus and,

Fig. 19 is another view of the detail of Fig. 18.

Referring to the drawings, and initially to Figs. 1 to 7, there is illustrated imprint apparatus according to one embodiment of the invention, indicated generally by the reference numeral 1 for imprinting characters from a character imprint source member such as a credit card onto an imprint recording sheet such as a docket. The apparatus 1 comprises an imprinter means housing section 2. A means to receive the credit card and docket is provided by a carrier member 3 pivotal on a pivot shaft 4 extending between side walls 5 of the housing section 2. The carrier member 3 has a substantially flat surface 6 in which a recess 8 is provided to receive the credit card. A pocket 7 provided by a pair of side members 9 and a cross member 10 retains the docket on top of the credit card. In Fig. 4 the docket is illustrated by broken lines 11. The carrier member 3 also carries other permanently mounted imprint source merchant characters 12A which comprise the details of the merchant where the transaction is taking place and a dater 12B.

The carrier member 3 is pivotal from an open position illustrated in Figs. 1 and 2 to a closed position illustrated in Fig. 3 where the credit card and docket are brought into pressure contact with a movable imprinter means comprising a roller means 14.

In this case, the roller means is releasably mounted in the apparatus, as will be described below. The

roller means comprises a slide block member 15 in which is rotatably mounted an inked roller 16. As can be seen in Fig. 6, portion of the roller 16 projects through a front slot 17 in the block member 15.

5 Referring now to Fig. 1 in particular, the roller slide block 15 is slidable on a pair of spaced-apart tracks comprising guide rods 18 of circular cross section extending between the side walls 5. A pair
10 of substantially semi-circular grooves 19 in the roller slide block 15 releasably engage the tracks 18. In this particular case, the cross section of the grooves 19 is just slightly greater than semi-circular so that the grooves engage the tracks 18 with a slight snap-on action. The roller block 15 is driven from one
15 side, namely, the left-hand side of the apparatus of Fig. 1 to the right-hand side, and returned again to the left-hand side by a drive means which in this case comprises a chain drive mechanism, indicated generally by the reference numeral 20. On the pass from the
20 left-hand side to the right-hand side, the roller bears on the docket and card and imprinting takes place, and on the return pass from the right-hand side to the left-hand side, the carrier member is released from the roller into the open position of Fig. 1. The chain
25 drive mechanism comprises a chain 24 mounted around a pair of sprockets 26 and 27. The sprocket 26 is driven

by an electric motor 28, and the sprocket 27 is an idler sprocket. A drive spud 23 on one link of the chain 24 of the chain drive mechanism 20 engages a slot 25 in the roller slide block 15. As the chain moves in the direction of the arrow A of Fig. 1 from the left-hand side to the right-hand side with the drive spud 23 on the top portion of the chain, the roller slide block 15 is driven from the left to the right. When the spud is on the lower portion of the chain, the block is returned. The slot 25 accommodates lateral movement of the spud 23 as the chain passes around the sprockets between each pass.

The carrier member 3 is retained in the closed position of Fig. 3 by means of a lock means which in this case is provided by a locking bar 30. The bar 30 is loosely mounted in a pair of spaced-apart cam brackets 31 and 32, which are fast on a pivot shaft 33. The pivot shaft 33 is pivotal in holes 35 in the side walls 5. A pair of lock members 36 extend from the carrier member 3 and engage the locking bar 30 by means of latch formations comprising recesses 37 to retain the carrier member in the closed position. As can be seen, the ends of the lock members 36 are radiused at 38 to define cam surfaces so that as the carrier member is closed, the lock members 36 pivot the bar 30 clear. A tension spring 39 extending between the locking bar 30 and the pivot shaft 33 bias the locking bar 30 to engage the

recesses 37. In the locked position, the roller slide block 15 is over to the left-hand side of the apparatus of Fig. 1.

5 A release means to release the locking bar 30 from the recesses 37 is provided by a trip release lever 41. The release lever 41 is slidable in a block 42 and, as will be apparent from Fig. 3 engages a cranked portion 40 on the bracket 32. A trip release spud 43 on the rear of the chain 24 comes into engagement with the
10 trip lever 41, as it passes around the sprocket 27, and thus depresses the pin 41 downwardly in the direction of the arrow B in Fig. 3. This in turn pivots the bracket 31 about the pivot bar 33 in the direction of the arrow C which in turn pushes the locking bar 30 to
15 disengage it from the recesses 37 of the lock members 36. This releases the carrier member 3 to pivot outwardly into the open position under spring biasing (not shown). Thus, once the roller slide block 15 has completed its pass from the left-hand side to
20 the right-hand side of the apparatus, the carrier member opens.

Switch operating means to operate the motor 28 comprises a cranked link member 46 pivotal to one of the side walls 5 of the housing section 2 by a pivot pin 47
25 bears on a plunger 45 of a microswitch 48 which controls the circuit which activates and deactivates the electric motor 28. A lug 49 on one of the locking members

36 of the carrier member 3 bears on the link member 46 on closure of the carrier member, thereby depressing the microswitch plunger 45 to activate the motor.

Thus, on closure of the carrier member 3 the motor 28
5 is activated and the roller slide block 15 makes its first pass from the left-hand side to the right-hand side. On being moved into the active position by the lug 49, the link member 46 is retained in this position by a locking clip 50 slidable in a block 51
10 (see Fig. 5) and spring biased out from the side wall 5 by a compression spring 42. The trip release spud 43 on passing around the sprocket 26 trips the locking clip 50 out of engagement with the link member 46, thereby releasing the link member 46 and deactivating the microswitch, and in turn the electric motor 28.
15 In this way the motor 28 is retained activated until the roller block has completed its return pass back to the left-hand side of the apparatus of Fig. 1.

Although not illustrated, an override release linkage
20 is provided in the carrier member to release the carrier member from the closed position in the event of a jam in the apparatus. It is envisaged that a member will extend from the top portion 53 of the carrier member for activation by a users thumb, and would be
25 pivoted in the carrier member to activate a lower linkage extending from the lower portion 54 of the carrier member 3 to extend inwardly into the apparatus to engage the locking bar 30. Thus, by activating the linkage

the member extending to engage the bar 30 would pivot the bar 30 in the direction of the arrow C as illustrated in Fig. 3, thereby releasing the carrier member.

In use, a credit card is placed in the recess 8 with the carrier member open. A docket is placed in the pocket 7 overlying the credit card. The carrier member 3 is then closed into the position of Fig. 3. On being closed, the carrier member 3 is locked in the closed position by the locking bar 30. The lugs 49 pivot the link member 46 as the carrier member is just about to be locked by the locking bar 30, thereby activating the electric motor 28. This moves the roller slide member 15 across from the left-hand side to the right-hand side of the apparatus of Fig. 1, thus causing the roller 16 to bear with pressure on the docket 11, and forming the imprint thereon. When the roller slide block 15 has reached the right-hand side of the apparatus, the spud 43 depresses the trip lever 41, thereby releasing the locking bar 30, and in turn the carrier member 3 which opens. The roller block 15 continues to return to the left-hand side of the apparatus, at which stage the trip release spud 43 trips the locking clip 50 which releases the link member 46 and deactivates the motor 28. Thus, the roller block 15 is ready for the next operation. Once the carrier member 3 has sprung open, the credit card and docket are removed.

After some time when the ink roller 16 is exhausted of
ink, the roller slide block 15 is replaced by a fresh
one. This merely requires unclipping the roller block
15 from the tracks 18 and clipping a new block onto the
5 tracks ensuring that the drive spud 23 is engaged in
the slot 25 of the fresh roller slide block 15.

The invention has many advantages over devices known
heretofore, and one of the important advantages is that
by virtue of the drive mechanism, a relatively trouble
10 free device is provided. Further, because of the con-
struction of the drive arrangement a particularly com-
pact apparatus is provided. Furthermore, the device
is considerably more silent than devices known heretofore.

Referring to Figs. 8 to 19 there is illustrated an imprinter apparatus according to another embodiment of the invention indicated generally by the reference numeral 60 for imprinting characters from a character
5 imprint source member such as a credit card 59 onto an imprint recording sheet such as a docket 61, which is illustrated by broken lines in Figs. 9, 13 and 14. The apparatus 60 comprises an imprinter means housing section 62. A means to receive the credit card 59
10 and docket 61 is provided by a carrier member 63 pivotal on a pivot shaft 64 extending between side walls 65 of the housing section 62. The carrier member 63 has a substantially flat surface 66 on which is mounted an upper credit card platen 67 to receive the credit
15 card 59 and a lower merchants platen 69 carrying permanently mounted characters 69A which comprise the details of the merchant where the transaction is taking place. A date roller 70 is also provided which is snap fitted to a slot in the lower platen 69 by snap arms
20 70A (see Fig. 8).

The upper platen 67 includes a central upper slot 68 for ease of insertion and withdrawal of a credit card 59. The card 59 is retained in position on the platen 67 in a pair of side clips 71 and by upper locating
25 lugs 72 and lower lugs 73. For imprinting data from the merchants platen 69 and date roller 70 onto a cheque or the like a cheque is clipped into position under the lower side edges of the side clips 71.

A pocket 87 for retaining the docket 61 over
5 the credit card platen 67, the merchants platen
69 and the date roller 70 is provided by a U-shaped
plate member 88 having docket retaining end walls 89.
The plate member 88 is of telescopic construction
as illustrated by interrupted lines in Fig. 11 for
10 receiving standard short and long sized docket 61.

It will be noted that the plate member 28 is cut-away at 89A to allow larger docket to be inserted into the pocket 72 if desired. This is sometimes required in the case where data has to be embossed onto a larger or additional docket, for example a hotel bill.

The carrier member 63 is pivotal from an open position illustrated in Figs. 8, 9 and 11 to a closed position illustrated in Figs. 14 and 15 where the data on the credit card 59, merchants data and docket 61 are brought into pressure contact with an imprint means comprising a roller means 77. The roller means 77 which is illustrated on an enlarged scale in Fig. 10 comprises a carrier slide block 78 in the direction of the arrows R and a roller block 79. The roller block 79 is slidably mounted on a spindle 80 for movement between upper and lower imprinting positions which is releasably mounted at its upper end 81 in a forwardly projecting seat 82 provided on the carrier block 78 and at its lower end 83 on a pivot pin 84 extending through the spindle 80 to engage a pair of lower seats 85 also provided on the carrier block 78. An inked roller 86 is rotatably mounted on the spindle 80 in the roller slide block 79. To change the roller 86, the spindle 80 is pivoted outwardly on the pivot pin 84 until the spindle 80 disengages from the upper seat 82 allowing the roller

cassette comprising the block 79 and the roller 86
to be removed from the spindle 80 and a fresh cassette to be inserted. The roller block 79 is provided with
a ridge 79A which defines, together with the adjacent
5 side edge of the slide block a slot for receiving a coin
or the like to lever the spindle 80 out of engagement
with the upper seat 82. This has the advantage of allowing the roller cassette comprising the roller 86 and
block 79 to be easily replaced when the ink is exhausted.
10 Alternatively instead of a ridge the roller block 79
is provided with a slot for receiving a coin or the like.

The carrier slide block 78 is slidable on a pair of
spaced-apart guide tracks comprising guide rods 90
of circular cross section extending between the side
15 walls 65 of the housing 62. A pair of substantially semi-circular grooves 91 in the carrier slide block 78 are
releasably engaged in the tracks 90. In this case the
grooves 91 are provided with a pair of facing lugs 91A
which together with the grooves 91 are greater than semi-
20 circular in cross section so that the lugs 91A engage the
rods 90 with a snap-on action. This allows the carrier
block 78 with the roller block 79 and roller 86 attached
to be easily removed for maintenance. Alternatively
the grooves 91 are slightly greater than semi-circular so
25 that the grooves 91 engage the rods 90 with a snap-on action.

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The carrier block 78 and hence the ink roller 86 is driven from one side, namely the right hand side of the apparatus of Fig. 8 to the left hand side, and returned again to the right hand side by a drive means 5 which in this case comprises a chain drive mechanism, indicated generally by the reference numeral 95.

On the pass from the right hand side to the left hand side the roller 86 bears on the docket and credit card 59 and imprinting takes place, and on the return pass from the left hand side to the right hand side, 5 the roller 86 bears on the docket and merchants characters so that imprinting also takes place on the return pass. The particular advantage of this arrangement is that a more even print is obtained on the docket.

It will be noted that the roller 86 is illustrated in 10 the top half of Fig. 14 in a position for imprinting credit card characters onto a docket and in the bottom half of Fig. 14 in a second position for imprinting merchants characters onto the docket.

The chain drive mechanism 95 comprises a chain 96 15 mounted around a pair of sprockets namely a driven sprocket 97 which is driven by an electric motor 99 and an idler sprocket 98. The sprockets 97,98 are mounted on a mounting plate 103. A drive spud 100 on one link of the chain 96 engages an elongate slot 101 in the carrier 20 slide block 78 as will be particularly apparant from Fig. 10. As the chain 96 moves in the direction of the arrow X in Fig. 8 from the right hand side to the left hand side with the drive spud 100 on the upper leg of the chain, the roller block 79 and hence the 25 roller 86 is driven from the right to the left causing the credit card information to be imprinted on the docket 61. As the spud 100 travels around the idler sprocket

98 the roller block 79 is pulled downwardly on the spindle 80 in the slide block 78 so that on the return pass of the chain 96 from the left hand side to the right hand side the roller 86 is in a position for imprinting
5 the merchants data carried by the lower platen 69 onto the docket 61.

The carrier 63 is retained in the closed position illustrated in Figs. 14 and 15 by a lock means which in this case is provided by a locking bar 105 which is
10 loosely mounted in slots 106 provided in a pair of spaced-apart side brackets 107,108 which are interconnected by a cross member 109 and are fast on a pivot shaft 110. The locking bar 105 also extends through a pair of opposed slots 111 provided in the housing
15 side walls 65. A pair of latch members 120 extending from the carrier 63 engage the brackets 107,108 by a rod 121 which defines a latch formation and extends between the side walls 65 and engages against the front edges of the brackets 107,108 in the open position
20 illustrated in Fig. 8. It will be noted that the front edges of the brackets 107,108 are shaped to form cam surfaces 122 on which the rod 121 acts in the open position to prevent the carrier 63 from travelling into the closed position under the biasing of a pair of
25 coil springs 123 connected between the locking bar 105

and the rod 121. A damper which in this case comprises a peg 124 extends between the motor mounting plate 103 and the rod 121 to dampen the biasing action of the springs 123 when the carrier 63 moves between the closed and opened position. The peg 124 includes a pair of spaced-apart resilient forked legs 125 which frictionally engage the rod 121 to slow down the opening of the carrier 63.

As the carrier 63 is moved into the closed position, the rod 121 travels along the cam surfaces 122 and after a short inward movement of the carrier 63 the rod 121 disengages from the cam surfaces 122 allowing the carrier 63 to be pulled into the closed position illustrated in Fig. 14 under the biasing of the springs 123.

Referring particularly to Figs. 9, 14 and 18 switch operating means to operate the motor 99 in this case comprises a link member 130 having three link arms, namely an upper link arm 131, a lower link arm 132 and a rearwardly extending mid link arm 133. The link member 130 pivotally mounted on a pivot pin 134 to a side wall 65 of the housing 62. The mid link arm 133 is formed with a lug 136 which bears on a plunger 135 of a microswitch 137 which controls the circuit which activates and de-activates the electric motor 99.

As will be apparent from Fig. 18 the lower link arm 132 is engaged by the locking bar 105 and on closure of the carrier member 63 the link arm 132 is pushed rearwardly about the pivot 134 thereby depressing the microswitch plunger 135 to activate the motor 99. Thus, on closure of the carrier 63 the motor 99 is activated and the roller 86 makes its first pass from the right hand side to the left hand side in Fig. 8.

10 A trip release means for releasing the brackets 107, 108 to allow the carrier member 63 to be opened when the imprinting procedure is finished is provided by a trip lever 140 the operation of which is most clearly illustrated in Figs. 15 and 17. A
15 block 141 is mounted on the trip rod 140 and includes a sidewardly extending trip arm 142. A trip release spud 143 on the rear of the chain 96 comes into engagement with the trip arm 142 as it passes around the idler sprocket 98 and thus depresses the arm 142
20 and hence moves the trip lever 140 downwardly in the direction of the arrow Y which in turn pivots the brackets 107,108 in the direction of the arrow Z until the rod 121 engages the cam surfaces 122 of the brackets 107,108 allowing the rod 121 to travel up the cam surfaces 122 to open the carrier 63. The trip release spud
25 143 engages the trip arm 142 when the roller 86 has moved from right to left and returned from left to right in

Fig. 8, in other words when it has completed the imprinting procedure.

A delay mechanism to prevent the motor 99 being switched off immediately the trip release spud 143 engages the arm 142 is activated by a motor cut-off spud 145 projecting from the rear of the chain 96. As will be particularly apparant from Figs. 18 and 19 the motor cut-off spud 145 is positioned on the chain 96 at the opposite end to the trip release spud 143 so that the motor cut-off spud 145 engages a slide interposer block 146 as the trip release spud 143 is engaging the trip arm 142 of the trip lever 140. The slide interposer block 146 is slidably mounted to the mounting plate 103 and includes a rearwardly projecting ridge 147 on which the upper link arm 131 of the link member 130 rides when the trip release spud 143 engages the trip arm 142 of the trip lever 140 at the other end of the apparatus. In this position the lug 136 on the mid link arm 133 is still engaged with the microswitch plunger 135 through the action of the upper link arm 131 riding on the ridge 147. When the motor cut-off spud 145 on the chain 96 engages the slide interposer block 146 it pushes the block 146 sidewardly in the direction of the arrow S in Fig. 19 into the position illustrated in Fig. 18. The slide block 146 is pushed against the biasing of a spring 148,

-30-

disengaging the upper link arm 131 from the ridge 147 and allowing the lug 136 of the mid link arm 133 to disengage from the microswitch plunger 135 to turn off the motor 99. This delay mechanism allows
5 the motor 99 to continue running for a short period after the trip release spud 143 engages the trip arm 142 of the trip rod 140. Thus, the roller block is allowed to run on to its start position at the extreme right hand side of the apparatus as illustrated in Fig.
10 8 after the trip mechanism has been operated to open the carrier member 63.

An override release mechanism is also provided for releasing the carrier 63 in the event of the apparatus becoming jammed. In this case the override mechanism
15 comprises an extension 150 on the trip lever 140 which extends through the housing 62 and terminates in a plunger button 151. In the event of the carrier 63 becoming jammed in the closed position the plunger button 151 is pressed downwardly to operate the trip rod 140
20 to release the cam rod 121 and hence allow the carrier 63 to be opened.

Means for independently adjusting the position of the upper and lower platens 67,69 is provided by three adjusting screws 160 for each of the platens 67,69. Referring particularly to Fig. 16 each of the platens is
25 screwed to a cover 161 and the head 163 of the adjusting screw 160 is housed

in a recess 164 in the platen 67. The screw 160 thread-
ingly engages a nut 165 provided on the cover 161 of
the carrier 63. The head 163 of the screw 160 is dome-
shaped and the recess 164 is oversized with respect to
5 the dome head for adjusting the orientation of the platen
67. A lock nut 166 extends around the shank of the screw
160 and the screw is operated by engaging the head of a
screwdriver or an allen key in a hole 167 provided in
the free end of the screw 160. In use, the screws 160
10 allow the platens 67,69 to be adjusted to facilitate
good quality printing of characters from the credit
card 59, merchants characters and date roller 70 on a
docket 61. Because the platens 67,69 are independently ad-
justable and the roller imprinters from a credit card 59
15 onto the docket 61 and from the merchants card onto the
docket 61 in different passes the platens 67,69 can be
finely adjusted to give even printing on the docket 61.

Referring particularly to Fig. 12 it will also be noted
that the side edges of the platens 67,69 are bevelled for
20 pressure relief or clearance of the roller 87 when the
carrier member 63 is closed at either end of the stroke.

Means for adjusting the number of dockets which the imprinter
will accept is in this case provided by a sensor arm 170
on one side of the wall 65 of the housing 62 and a

corresponding sensor 171 on the carrier 63. As will be apparant from Fig. 13 the gap between the sensors 170 and 171 in the closed position is set to accommodate a preset number of docket so that if an additional

5 docket is inserted the carrier 63 will not close and hence the imprinter roller will not operate. The desired thickness of and hence the number of dockets accepted is set by slightly bending the sensor 170 using a pliers or the like.

10 In use, a credit card placed on the upper platen 67 with the carrier member 63 open. The docket 61 is then placed in the pocket 72 overlying the credit card 59. The carrier member 63 is closed and, on closing, is locked in the closed position by the locking bar 105.

15 On closing, the lug 137 of the mid link arm 133 of the link member 130 engages the microswitch plunger 135 thereby activating the electric motor 99. This moves the carrier block 78 across from the right hand side to the left hand side of the apparatus of Fig. 8

20 causing the roller 86 to bear with pressure on the docket 61 forming the imprint of the credit card 59 thereon. When the carrier slide block 78 has reached the left hand side of the apparatus the drive spud 100 travelling around the idler sprocket 98 pulls the roller block 79

25 downwardly and on its return pass from the left hand side

to the right hand side the roller 86 presses the docket
61 against the merchants characters 69,70 causing the
merchant imprint on the docket. When the carrier
slide block 78 has returned almost to the end of its
5 travel on the right hand side the trip release spud
143 depresses the trip rod 140 however, the motor is
not switched off immediately as the mid link arm 143 of
the link member 130 rides on the ridge 147 of the slide
block 146 keeping the microswitch plunger 135 closed.
10 When the motor cut-off spud 145 engages the slide block
146 the block 146 is pushed sidewardly so that the mid
link arm 133 is disengaged from the ridge 147, rel-
easing the mid link arm 133 from the microswitch plunger
138 and de-activating the motor. The locking
15 bar 105 is also released, allowing the carrier members
63 to open. Thus, the carrier block 78 is in
position ready for the next operation. When the carrier
member 3 is open the credit card and docket are removed.

The motor may be a gear reduced brake motor which
20 stops quickly when imprinting is complete. For ease of
connection and disconnection the imprinter housing may
be provided with a socket for connection to a mains
supply by a lead having a mains plug at one end and an
imprinter socket engaging plug at the other end.

It will of course be appreciated that while a particular shape and configuration of housing and carrier member has been described, any other suitable housing or carrier member could be provided. Further, it will be appreciated
5 that other locking means besides that described for locking the carrier member in the closed position, could be provided, without departing from the scope of the invention. It will also of course be appreciated that other release means may be provided, and in certain cases
10 it is envisaged that release means may be dispensed with altogether, and the carrier member could be released manually.

Further, it will be appreciated that override release mechanisms could be dispensed with. It is also en-
15 visaged that instead of using an electric motor, a crank handle or the like could be used for traversing the roller blocks.

Further, it will be appreciated that means other than those described for releasing the microswitch could
20 be provided, and similarly other means besides a link member could be used for both activating and deactivating the microswitch.

While having a releasably mounted roller block has considerable advantages, it will of course be appreciated
25 that the device could be provided with a non-releasable

roller block. Indeed, it is envisaged in certain cases that a roller merely mounted on a framework or a pair of spaced-apart brackets could be provided. It will also of course be appreciated that it is not necessary for the ink roller to be inked. Where it is desired to provide a releasable roller mechanism, it will be appreciated that other suitable constructions of release roller could be provided.

It is further envisaged that the ink roller may be mounted eccentrically so that by rotation of the eccentric mounting the pressure of the roller in use may be increased or decreased.

Furthermore, it will be appreciated that while the apparatus has been described for imprinting embossed information on a credit form onto a docket, the apparatus could be used for imprinting any information onto any type of docket or other sheet of material.

In addition it will be appreciated that a drive means other than the sprocket and chain drive mechanism described with reference to the drawings could be used. For example the drive means may comprise a pair of pulley wheels and an endless drive belt trained around the pulley wheels.

CLAIM

1 Imprinter apparatus (1,60) for imprinting characters from a character imprint source member such as a credit card (59) onto an imprint recording sheet such as
5 a docket (61), the apparatus (1,60) comprising

 an imprinter means housing section (2,62) having movable imprinter means (16,77) transversely movable across an imprint station in the housing section (2,62),

10 drive means (20,95) for moving the imprinter means (16,77) back and forth across the imprint station, and

 a carrier member (3,63) pivotally mounted to the housing section (2,62),

15 the carrier member (3,63) having means (7,87) for receiving a removable imprint source member (59) and an imprint recording sheet (61),

 the carrier member (3,63) being pivotally movable from an open position for insertion and withdrawal
20 of the imprint source member (59) and imprint recording sheet (61), to a closed position in which the imprinter means (16,77) travels across the imprint

station to imprint data from the imprint source member (59) onto the imprint recording sheet (61).

2. Imprinter apparatus as claimed in claim 1 wherein the drive means (20,95) comprises a pair of spaced-apart wheels (26,27,97,98) and an endless drive member (24,96) trained about the wheels.
5
3. Imprinter apparatus as claimed in claim 2 wherein the wheels (26,27,97,98) comprise a pair of spaced-apart rotatable sprockets (26,27,97,98) and an endless drive chain (24,96) trained about the sprockets (26,27,97,98).
10
4. Imprinter apparatus as claimed in any of claims 1 to 3 wherein the imprinter means (16,77) comprises a roller means including an elongated generally cylindrical imprinter roller (16,86) rotatable in a slide block member (15,78).
15
5. Imprinter apparatus as claimed in claim 4 wherein the roller means is releasably mounted to the imprinter means housing section (2,62).
6. Imprinter apparatus as claimed in claim 4 or 5 wherein the drive chain (24,96) has a drive spud (23,100) projecting therefrom to engage a slot (25,101) in the slide block member (15,78) for driving the slide block member (15,78) and roller (16,86) back and forth through
20

advance and return strokes spanning the imprint station as the spud (23,100) moves with the drive chain (24,96) between the sprockets (26,27,97,98).

7. Imprinter apparatus as claimed in claim 4 or 5
5 wherein the roller (86) is mounted in a roller block (79) which is substantially vertically movable in the slide block (78), the spud (100) projecting through the slot (101) in the slide block (78) to engage the roller block (79) to move the roller block (79) in the slide
10 block (78) as the chain (96) passes over the sprockets (97,98) from a first raised imprinting position to a second lowered imprinting position.

8. Imprinter apparatus as claimed in claim 7 wherein
the roller block (79) is mounted on a spindle (80) in
15 the slide block (78), the roller block (79) being moved up or down on the spindle (80) between the two positions as the spud (101) passes over a sprocket (97,98), the spindle (80) being releasably mounted to the slide
block (78) for removal of the roller block (79) from the
20 slide block (78).

9. Imprinter apparatus as claimed in claim 7 or 8
wherein the carrier member (63) includes an additional
imprint source member (69,70), the imprinter roller (86)
imprinting data from the additional imprint source member
25 (69,70) onto the imprint recording sheet (61) on one of the advance or return strokes across the imprint

station, and imprinting data from the removable imprint source (59) member onto the imprint recording sheet (61) on the other of the advance or return strokes.

10. Imprinter apparatus as claimed in claim 9 wherein
5 the removable imprint source member (59) is mounted on a first platen (67) and the additional imprint source member (69) is mounted or provided on a second platen in the carrier member (63), the first and second platens (67,69) being independently movable inwardly and out-
10 wardly relative to the imprint station to adjust the pressure with which the roller means (77) engages the imprint recording sheet (61) against the imprint source data.

11. Imprinter apparatus as claimed in any of claims 4 to 10 wherein the roller means (16,77) releasably engages
15 a pair of spaced-apart guide track members (18,90) which engage and slidably support the slide block member (15,78) to guide the block member (15,78) and roller (16,77) along the imprint path.

12. Imprinter apparatus as claimed in claim 11 wherein
20 the guide track members (18,90) comprises a pair of parallel rods (18,90) and the slide block member (16,77) is of a vertically elongated rectangular configuration having upper and lower end portions provided with recesses (19,91) to slide on the guide rods.

13. Imprinter apparatus as claimed in claim 12 wherein
the rods (18,90) are of substantially circular cross
section, the recesses (19,91) are of substantially
semi-circular cross section and engagement means (91A)
5 are provided for engaging the slide block (16,77) with
the rods (18,90).

14. Imprinter apparatus as claimed in claim 13 wherein
the recesses (19,91) are of slightly greater-than-semi-
circular to snap-fit and slide on the guide rods (18,90).

10 15. Imprinter apparatus as claimed in claim 13 wherein
the engagement means (91A) comprises a pair of facing
arcuate lugs (91A), one on each recess (19,91), the lugs
(91A) snap fitting and sliding on the guide rods (18,90).

15 16. Imprinter apparatus as claimed in any of claims 3
to 15 wherein one of the sprockets (26,97) is driven by
an electric drive motor (28,99) coupled to the sprocket
(26,97), switch means (48,137) being provided to activate
the drive motor (28,99) and switch operating means on the
carrier member (3,63) to activate the switch means (48,137)
20 when the carrier member (3,63) is moved into the closed
position.

17. Imprinter apparatus as claimed in any preceding
claim wherein locking means (30,105) are provided for
locking the carrier member (3,63) in the closed position.

18. Imprinter apparatus as claimed in claim 17 wherein
the locking means (30,105) comprises a locking bar means
(30,105) in the imprinter housing section (2,62) and a
locking arm (36,120) projecting from the carrier member
5 (3,63), the locking arm (36,120) having a latch formation
(37,121) to engage the locking bar means (30,105) and
latch the carrier member (3,63) in the closed position.

19. Imprinter apparatus as claimed in claim 18 wherein
the locking bar means (30,105) comprises a locking bar
10 (30,105) which is mounted in a locating slot (106),
the bar (30,105) being movable by a biasing means (39,123)
from an open position with the carrier member open to a
closed position with the carrier member (3,63) closed,
the locating slot (106) being provided in a cam bracket
15 (31,32,107,108) having a forward cam surface engagable
by the latch formation (37,121) on the carrier member (3,63),
the latch formation (37,121) riding on the cam surface
when the carrier member (3,63) is open to prevent the
carrier member (3,63) being moved into the closed pos-
20 ition.

20. Imprinter apparatus as claimed in claim 19 wherein
the latch formation (37,121) initially rides along the
cam surface as the carrier member (3,63) is being moved
from the open towards the closed position and then dis-
25 engages the cam surface allowing the carrier member (3,63)
to close.

21. Imprinter apparatus as claimed in claim 19 or 20 wherein trip release means (41,43,140,143) are provided for opening the carrier member (3,63) when the imprinter means (16,77) has returned to its initial rest position.

5 22. Imprinter apparatus as claimed in claim 21 wherein the trip release means (41,43,140,143) comprises a trip release lever (41,140) having actuating means engagable by a trip release spud (43,143) provided on the chain (24,96), the release lever (41,140) engaging the cam
10 plate (31,32,107,108) to engage the latch formation (37,121) with the cam surface to override the action of the biasing means (39,123) for movement of the carrier to the open position.

23. Imprinter apparatus as claimed in claim 21 wherein
15 the actuating means comprises a trip release block (50,141) engagable by the trip release spud (43,143) on the chain (24,96).

24. Imprinter apparatus as claimed in any of claims
21 to 23 wherein manually operated override release means
20 (150,151) are provided to open the carrier member (3,63) in the event of apparatus jamming.

25. Imprinter apparatus as claimed in claim 24 when dependent on claim 22 or 23 wherein the manually operated override release means comprises an extension (150) on the trip
25 lever (41,140) which extends through the imprinter housing

section (2,62) and terminates in a plunger (151) which is pressed downwardly to release the latch formation (37,121) and allow the carrier member (3,63) to move to the open position.

5 26. Imprinter apparatus as claimed in any of claims 16 and 18 to 25 wherein the switch operating means comprises a link member (46,130) which is pivotally mounted to the imprinter housing section (2,62), the link member (46,130) having a downwardly depending lower link arm (132)
10 and a forwardly projecting mid link arm (133), the lower link arm (132) being engaged by the locking bar means (30,105) on closing of the carrier member (3,63), the movement of the lower link arm (132) about the pivot (134) pivoting the mid link arm (133) to engage the
15 switch means (48,137) to activate the motor (28,96).

27. Imprinter apparatus as claimed in claim 19 wherein a damper (124) is provided to dampen the action of the biasing means (39,123).

28. Imprinter apparatus as claimed in claim 27 wherein
20 the damper (124) comprises a peg (124) extending from the imprinter housing section (62) and having a pair of forwardly projecting resilient forks (125) which frictionally engage the locking arm (121) projecting from the carrier member (63) to slow down the movement of the carrier member
25 (63) into the open position.

29. Imprinter apparatus as claimed in any of claims
21 to 28 wherein a delay mechanism (131,145,146,147) is
provided to allow the roller means (77) to run-on into
an initial start position after the trip release
5 (43,50,141,143) is activated to move the carrier member
(3,63) into the open position.

30. Imprinter apparatus as claimed in claim 29 when
dependent on any of claims 26 to 28 wherein the delay
mechanism comprises an upper link arm (131) provided on
10 the link member (130), the upper link arm (131)
engaging an interposer block (146) to delay the pivoting
of the mid-link arm (133) away from the switch means (137).

31. Imprinter apparatus as claimed in claim 30 wherein
the interposer block (146) includes a ridge (147) en-
15 gagable by the upper link arm (131).

32. Imprinter apparatus as claimed in claim 31 wherein
the interposer block (146) is slidably movable from a
position in which the ridge (147) is engaged by the
upper link arm (131) to a position in which the ridge
20 (147) is moved out of the path of the upper link arm (131),
the interposer block (146) being moved from one position
to the other by a motor-cut-out spud (145) on the chain
(96), the spud (145) pushing the block (146) sidewardly
against the action of a biasing means (148) to disengage
25 the upper link arm (131) from the ridge (147) and allow
the mid link arm (133) to disengage from the switch means

(137) to stop the motor (99).

33. Imprinter apparatus as claimed in any preceding claim wherein the means (7,87) for receiving an imprint recording sheet comprises a pocket (7,87) which is of
5 telescopic construction in a longitudinal direction to accept imprint recording sheets (3) of different length.

34. Imprinter apparatus as claimed in any preceding claim wherein thickness setting means (170,171) are provided for setting the number of imprint recording sheets
10 (61) which the imprinting means (16,77) will imprint on.

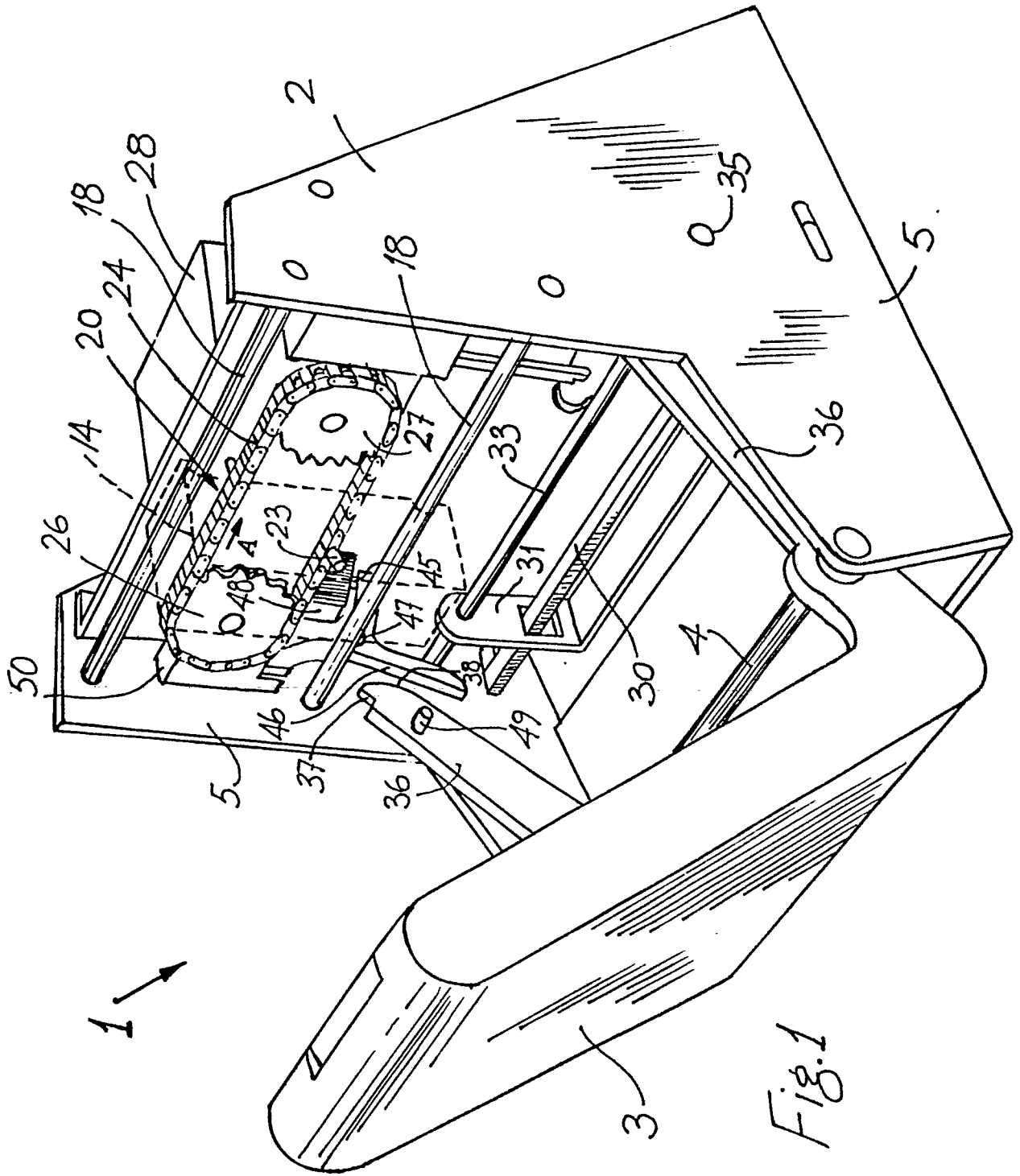
35. Imprinter apparatus as claimed in claim 34 wherein the setting means (170,171) comprises a first sensor (170) on the imprinter means housing section (62) and a second sensor (171) on the carrier member (63), the
15 sensors (170,171) facing each other when the carrier member (63) is moved into the closed position and defining therebetween an adjustable gap to accommodate a preset number of imprint recording sheets (61).

36. Imprinter apparatus as claimed in claim 2 wherein
20 the wheels comprise a pair of spaced-apart rotatable pulleys and drive member comprises an endless drive belt trained about the pulleys.

37. Imprinter apparatus for imprinting characters from

a character imprint source member (59) onto imprint recording sheet material such as document sheets (61) or the like, comprising an imprinter means housing section (2,62) including a casing having movable roller means (16,77) for transversely rectilinearly traversing a path laterally spanning an imprint station and drive means (20,95) for moving said roller means (16,77) back and forth along said path, the roller means (16,77) including a vertically elongated generally cylindrical imprinter roller (16,77) rotatable in a slide block member (15,78), the drive means comprising a pair of spaced-apart rotatable sprockets (26,27,97,98) and an endless drive chain (24,96) trained about said sprockets, the drive chain (24,96) having a spud (23,100) projecting therefrom, a pair of vertically spaced guide track members (18,90) engaging and slidably supporting said slide block member (15,78) to guide the block member (15,78) and roller (16,77) along said path, the block member (15,78) having a slot (25,101) receiving said spud (23,100) therein for driving the block member and roller therein back and forth through advance and return strokes spanning said imprint station as the spud (23,100) moves with said drive chain (24,96) between said sprockets (26,27,97,98), and a carrier member (3,63) hinged for movement about a pivot axis to said housing section (2,62) adjacent the path

traversed by the roller means (16,7) at said imprint station, said carrier member (3,63) having a recess for receiving the imprint source member (59) therein and a pocket formation (7,87) for the recording sheet material (61), the carrier (3,63) being movable about said pivot axis from an open position exposing said recess and pocket formation (7,87) for introduction and withdrawal of the source member (59) and sheet material (61) and a closed position locating the sheet material (61) and source member (59) at said imprint station, said roller (16,77) upon movement of said block member (15,78) and roller (16,77) through said advance stroke by said spud (23,100) and drive chain (24,96) pressing the sheet material (61) by said roller (16,77) against said source member (59) to produce a character imprint thereon.



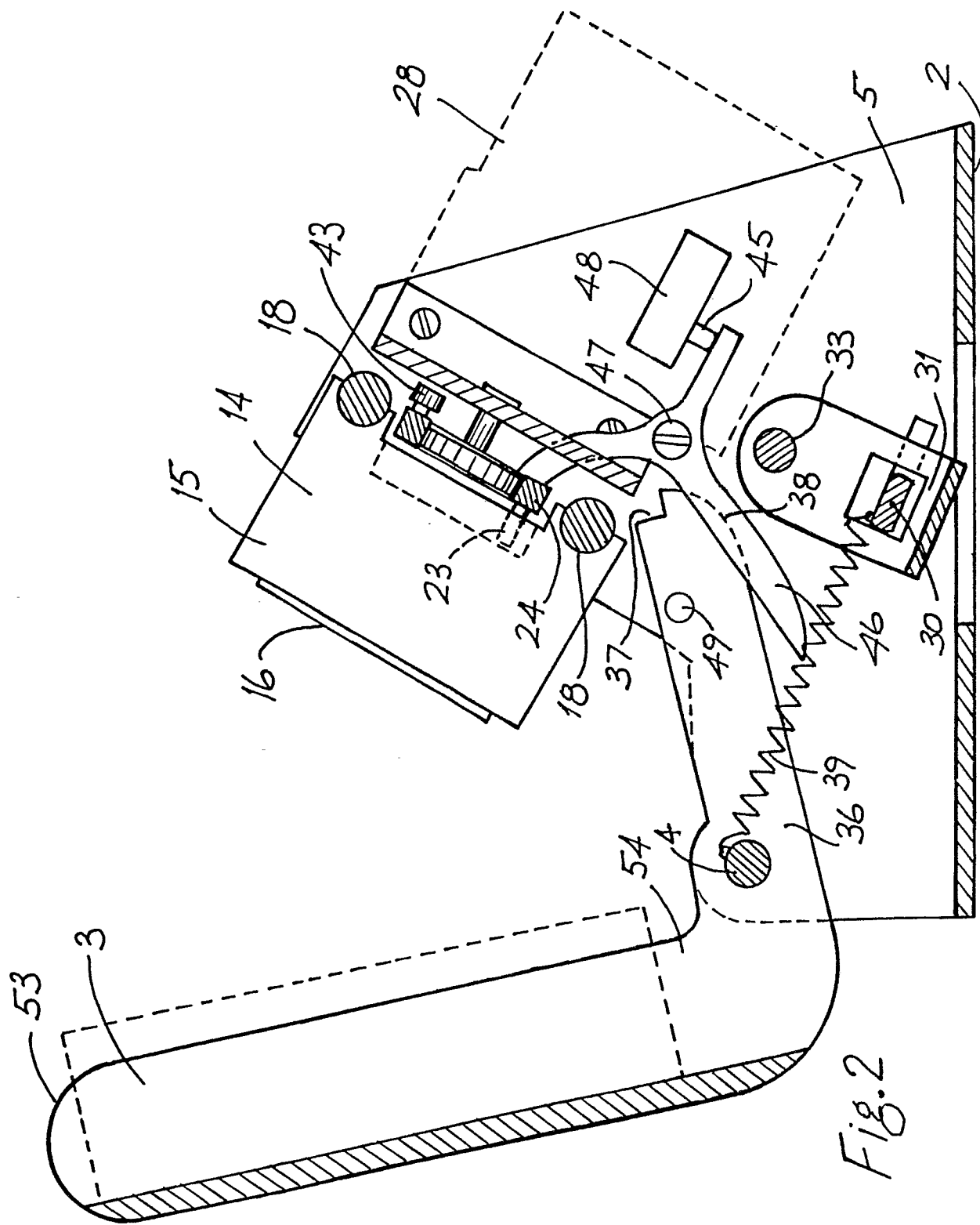
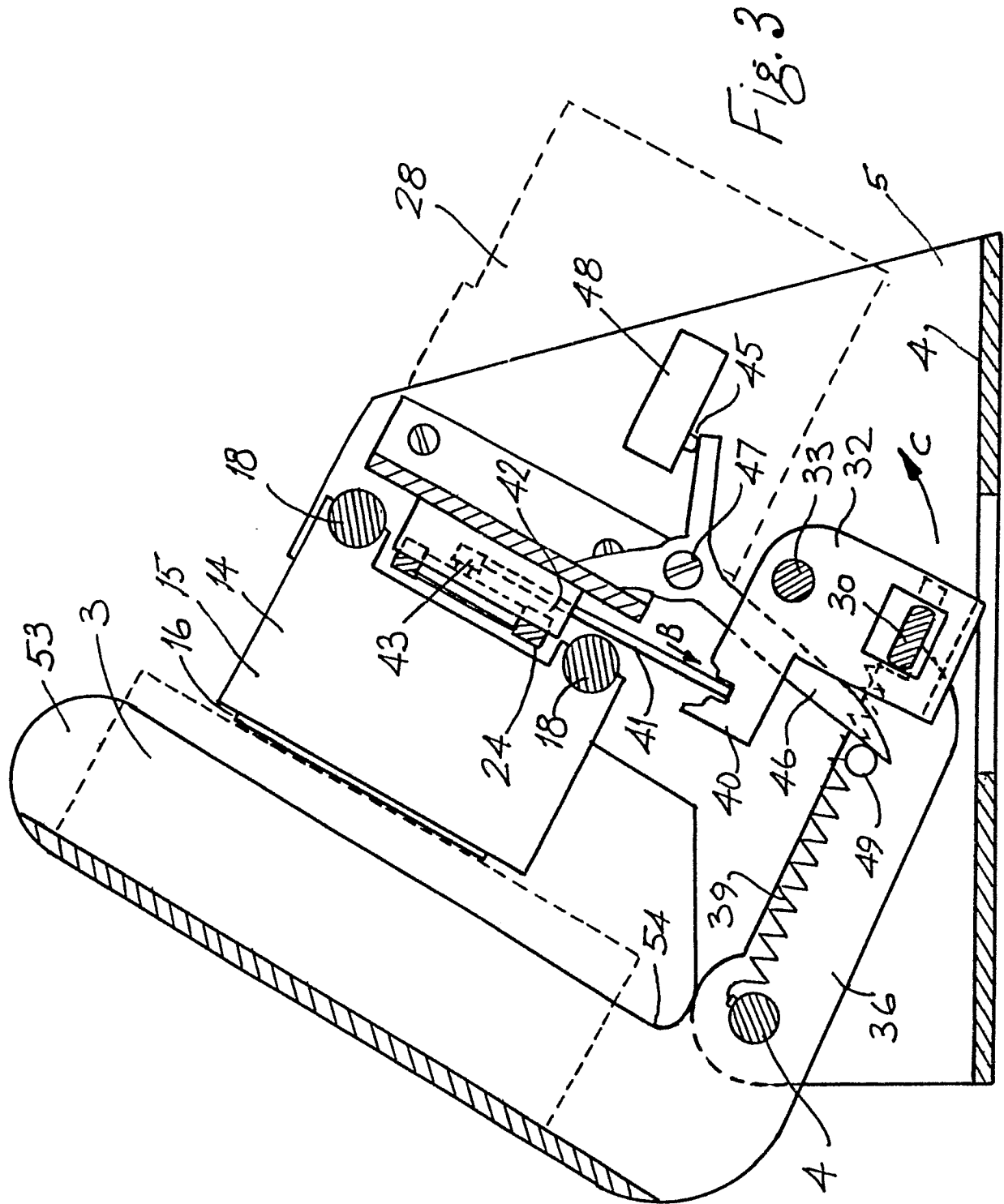


Fig. 2



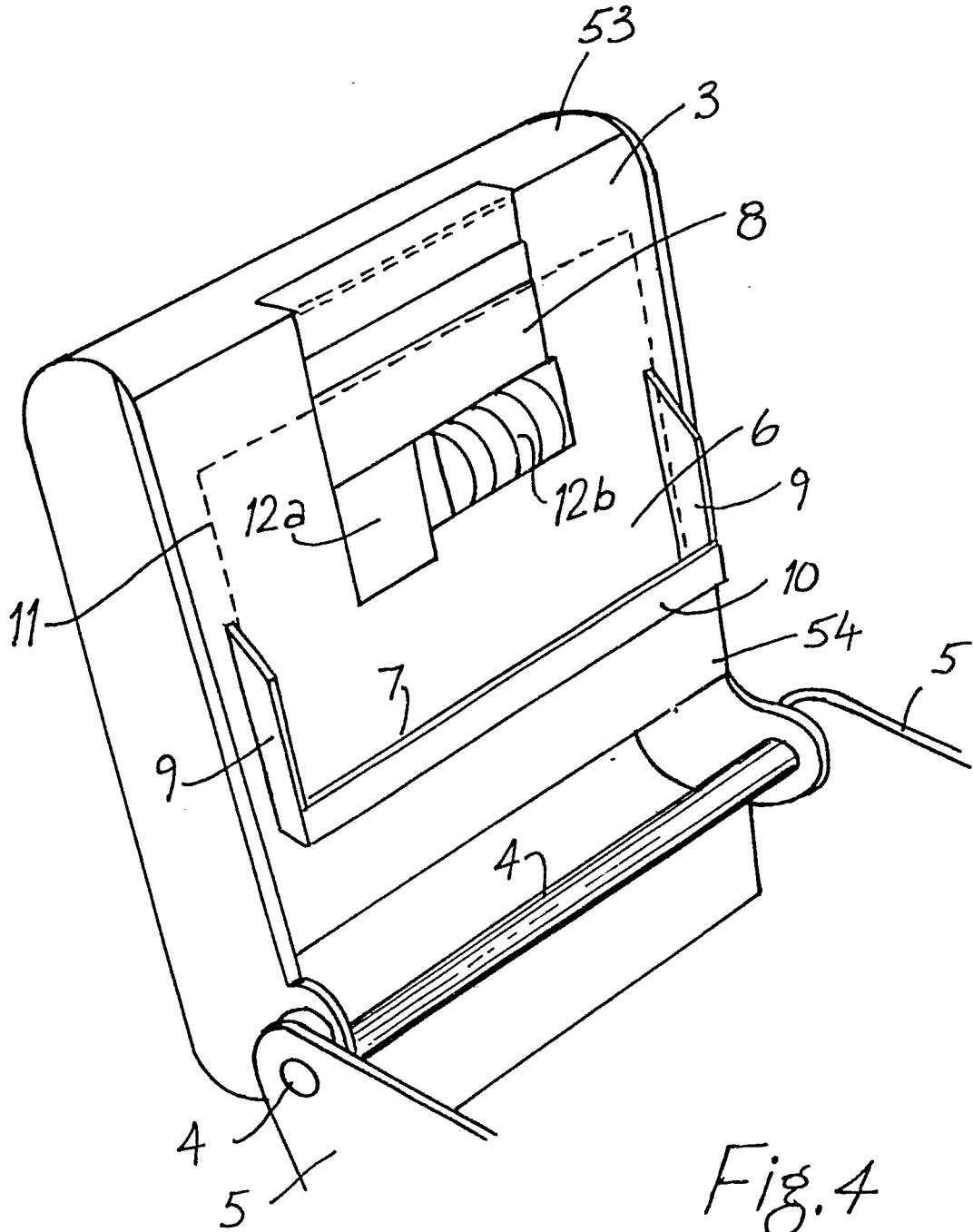


Fig. 4

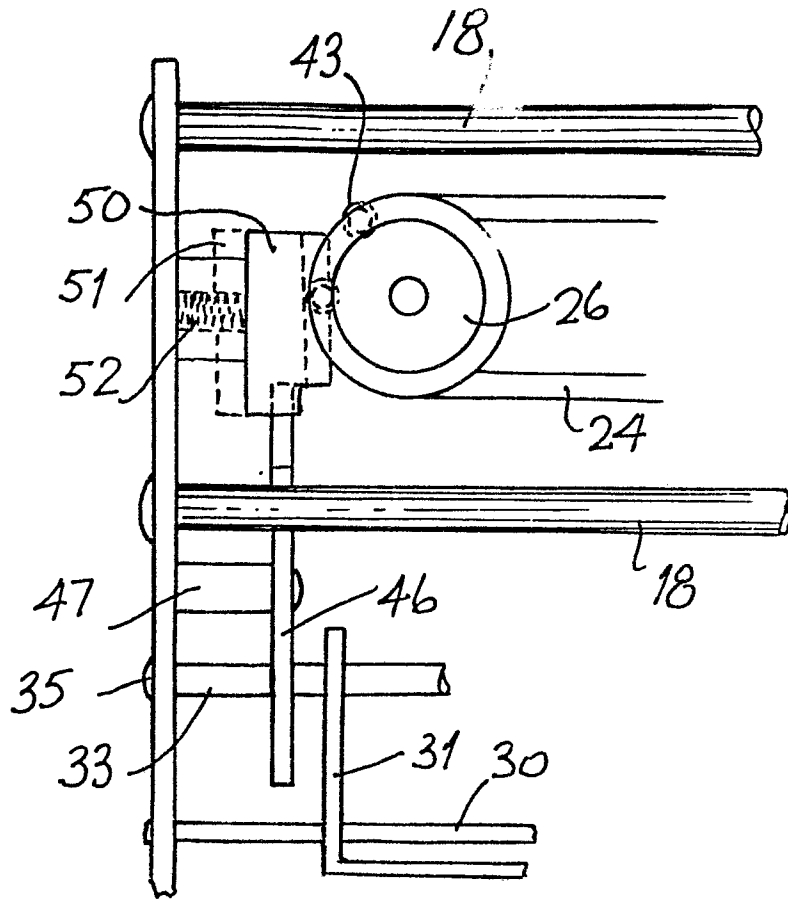


Fig. 5

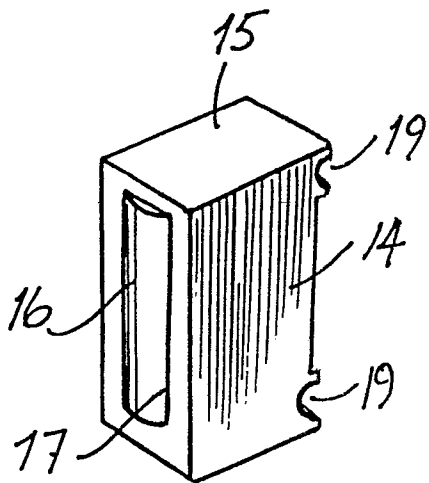


Fig. 6

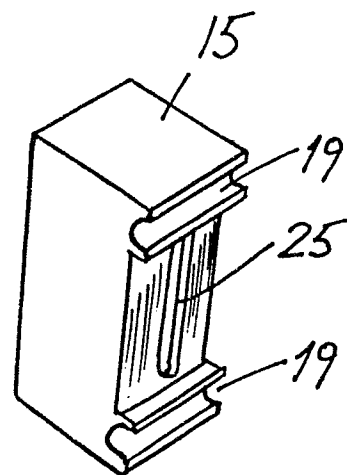


Fig. 7

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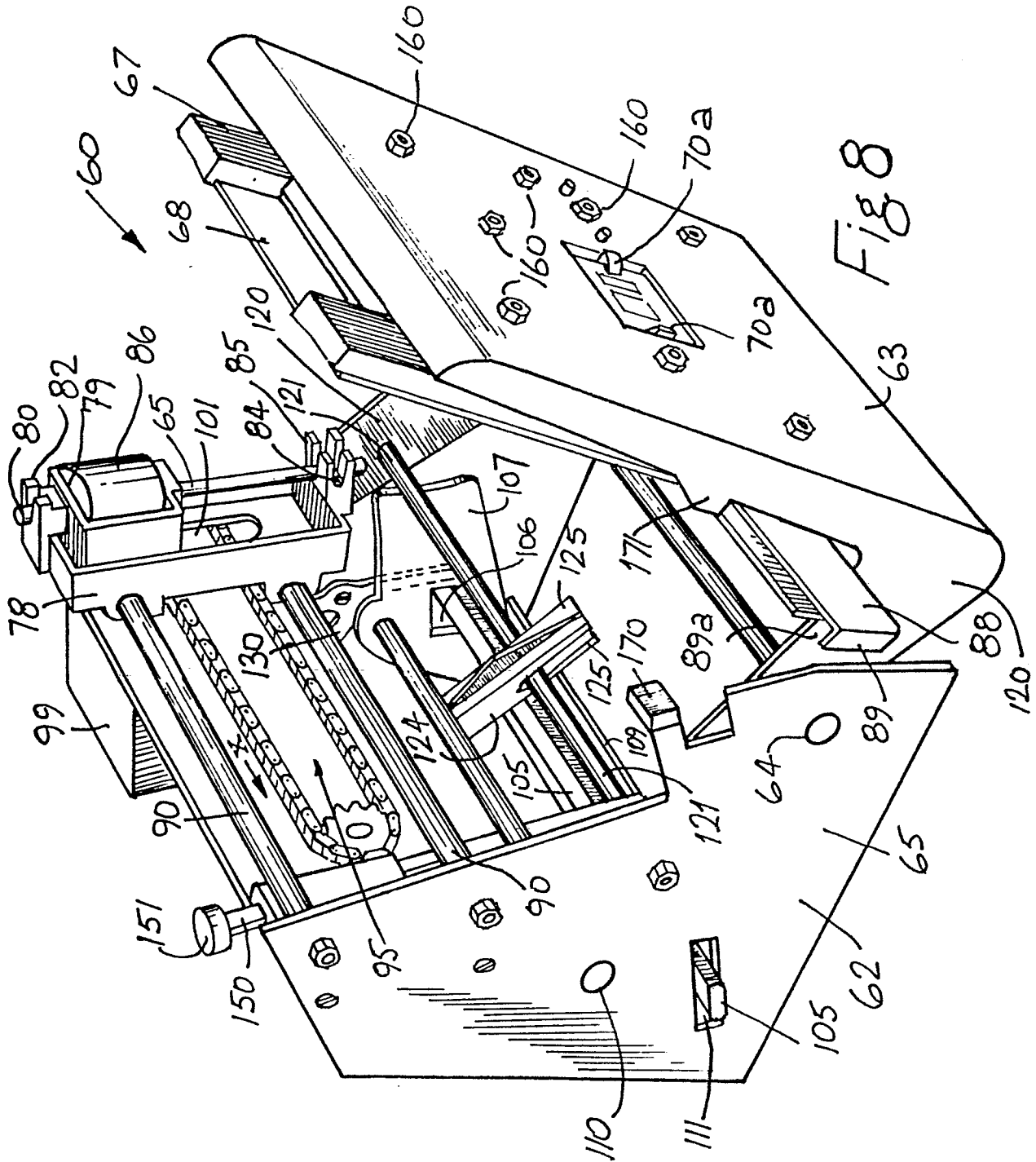


Fig 8

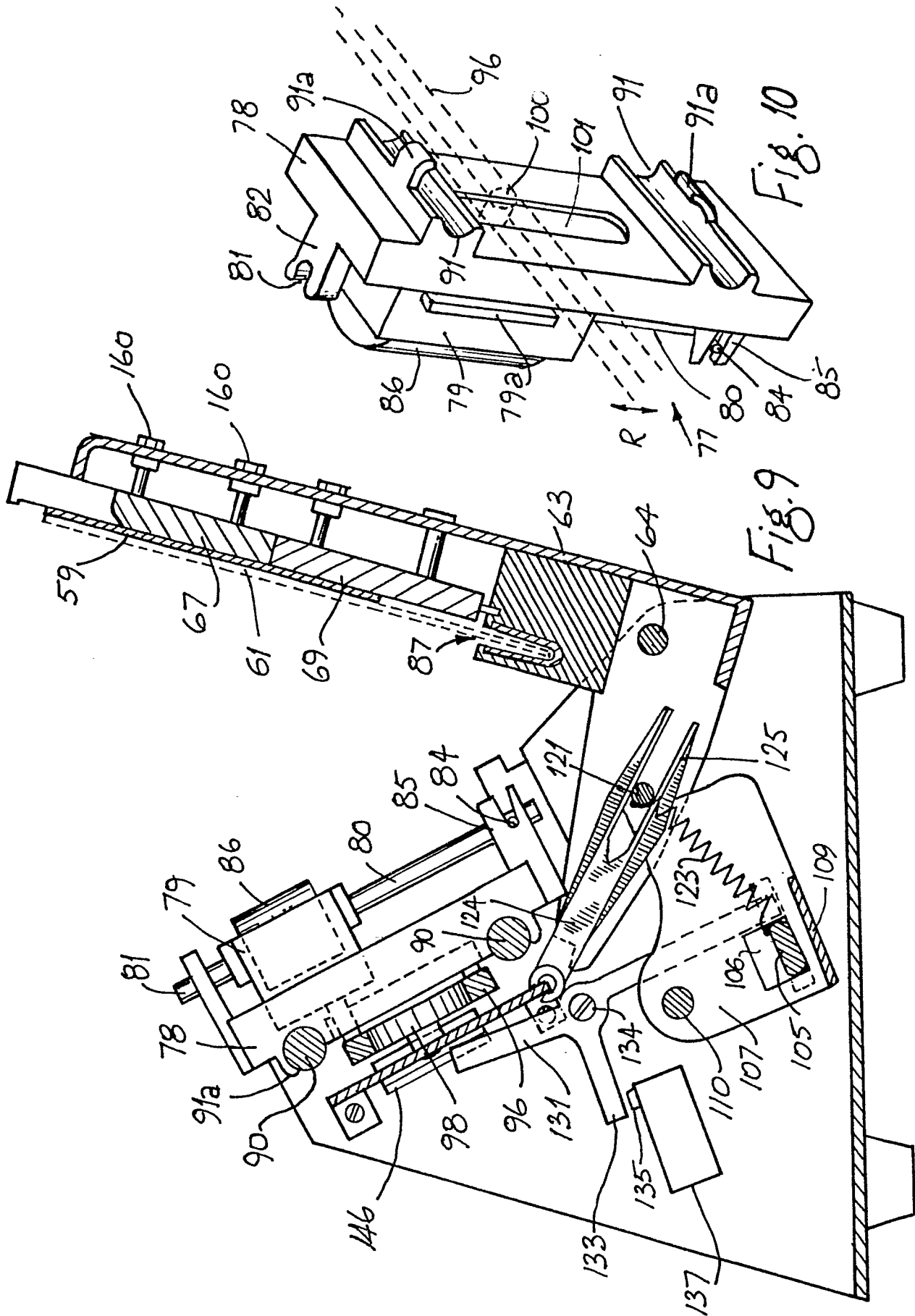


Fig. 10

Fig. 9

