

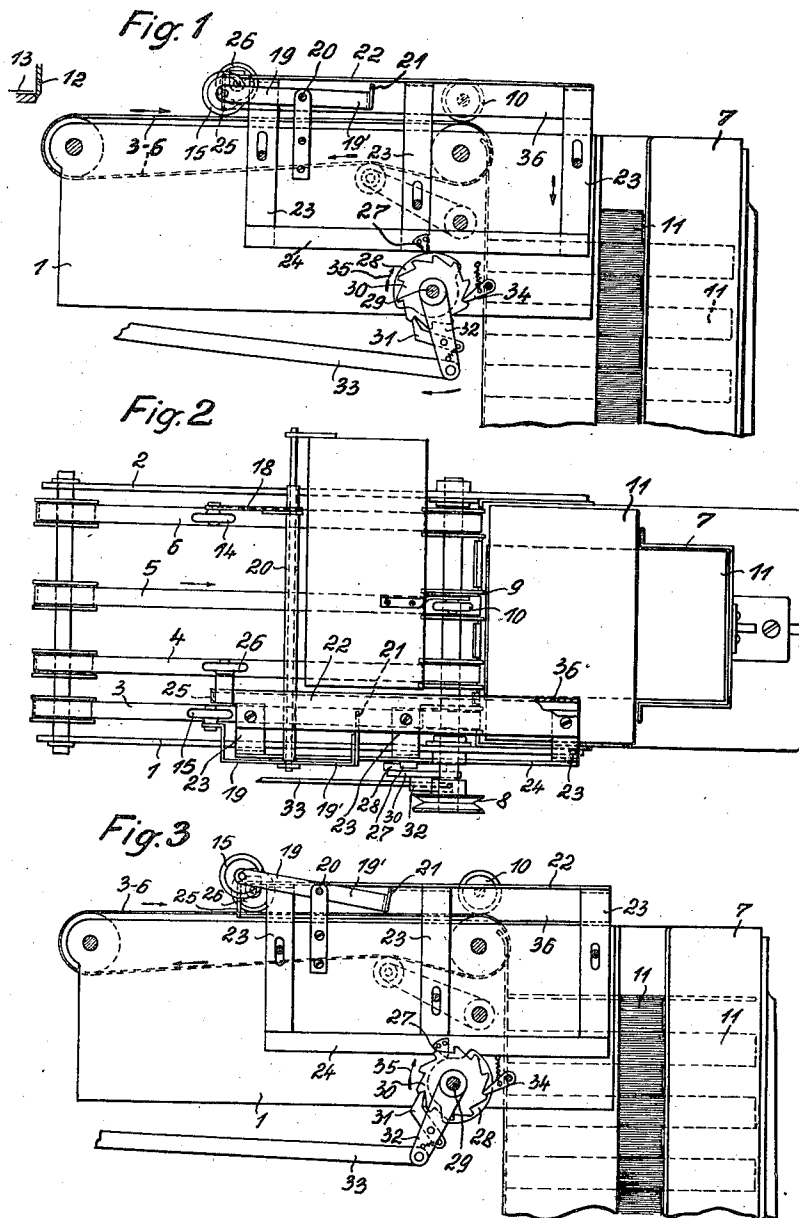
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J. KRELL  
DEVICE FOR THE CROSSWISE DELIVERY OR DEPOSITION OR THE  
COUNTING OF CARDS, SHEETS, ENVELOPES, OR THE LIKE

2,114,927

Filed Sept. 1, 1936

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 4

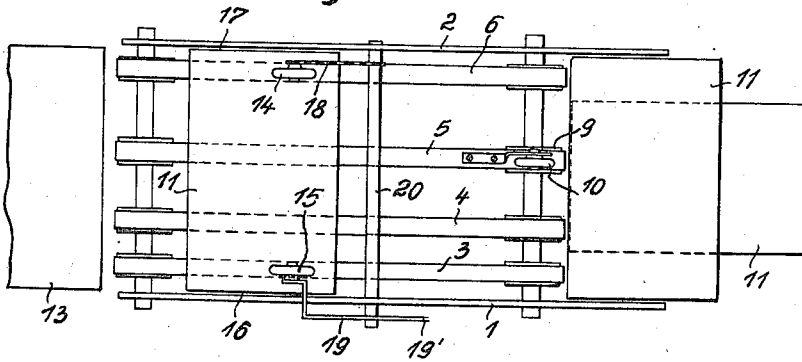
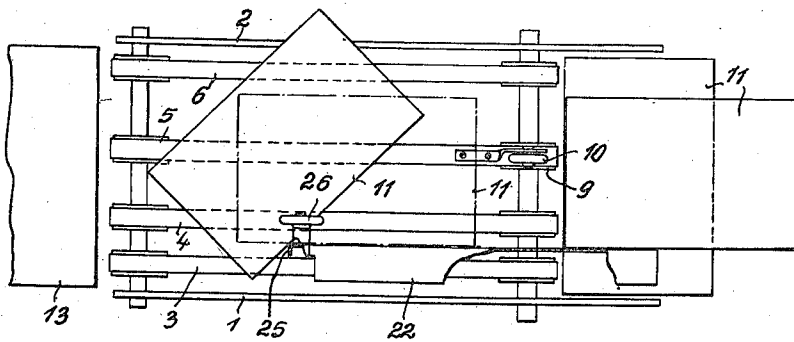


Fig. 5



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# UNITED STATES PATENT OFFICE

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## DEVICE FOR THE CROSSWISE DELIVERY OR DEPOSITION OR THE COUNTING OF CARDS, SHEETS, ENVELOPES, OR THE LIKE

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7 Claims. (Cl. 93—93)

The invention relates to a device for the crosswise delivery or deposition or the counting of cards, sheets, envelopes or the like, more particularly for address-printing machines, the said device being characterized by its simple form of construction and its reliable operation, whereby it may also be used at the same time for counting the delivered or deposited cards, sheets or the like, in the manner of a stack-counting mechanism.

The essence of the device for the crosswise delivery or deposition of cards or the like consists in the fact that in the vicinity of the one edge of the depositing device, which comprises a plurality of parallel conveying belts, there is provided a stop, which is adapted to be shifted upwards and downwards and is moved periodically for a certain space of time into the path of the cards or the like conducted crosswise on to the depositing device, and to the side of which there is disposed a likewise upwardly and downwardly movable pressing or conveying roller which, upon a movement of the stop into the operative position, is also moved into the position of operation. The conveying or pressing rollers employed for conveying the cards or the like in transverse location and resting against the said cards or the like in the vicinity of their transverse edges are also arranged to be movable upwards and downwards and are so controlled that they are lifted from the conveying belts when the stop and the third roller are moved into the operative position.

In the latter condition the cards or the like, moving with their one edge against the stop, are moved on the conveying belts out of the transverse position into the longitudinal direction with the assistance of the third roller, and in this longitudinal position they are conducted to the depositing receptacle and deposited therein. The turning movement of the sheets or cards on the conveying device takes place for such period of time as the stop and the third roller have been moved out of the non-operative into the operative position.

For controlling the stop and the roller there is preferably employed a cam, which is rotated intermittently in rhythmical dependence on the cards being delivered by the gear of the machine to which the depositing or delivery device belongs through the medium of a ratchet mechanism.

It is then possible in accordance with the selection or embodiment of the cam always to deposit an equal number or also a different number of cards or sheets in the two different posi-

tions in the depositing container, whereby it may also be accomplished by corresponding embodiment of the cam and the appertaining ratchet mechanism that after the deposition or delivery in transverse disposal of a comparatively large number of cards or sheets, say one hundred or several hundred cards or sheets, in the container merely one card is deposited in the longitudinal direction, which permits of a ready counting of the printed matter, cards, sheets, envelopes or the like which have been deposited.

A possible form of embodiment of the depositing device according to the invention is illustrated by way of example in the accompanying drawings.

Fig. 1 is a side elevational view of the device during the movement of the cards or sheets in the transverse position.

Fig. 2 is a plan view of Fig. 1, and

Fig. 3 is a side elevational view corresponding to Fig. 1 during the conveyance of the cards or sheets in the longitudinal position.

Figs. 4 and 5 are diagrammatical plan views illustrating the operation of the device.

In the drawings, 1 and 2 are the side walls of the supporting frame of the device. The conveying means in the embodiment shown in the drawings are constituted by the four endless conveying belts 3 to 6 and the depositing container 7. There is employed in this embodiment for driving the belts 3 to 6 a pulley 8 fastened to one of the shafts supporting the belts 3 to 6. Above the rear roller 9, about which there is conducted the conveying belt 5, there is provided a co-operating roller 10, which ensures the additional passage of the cards or sheets delivered by the conveying device into the receptacle 7.

The cards or sheets 11 are conducted on to the conveying belts 3 to 6 in the transverse position shown in Fig. 1, being cut for example by means of a cutting device 12 from a delivery web 13, which constitutes for example part of an address-printing machine. To ensure conveyance of the cards or sheets 11 on the conveying belts in the transverse position according to Fig. 4 there are employed the two rollers 14, 15, which are situated above the outermost conveying belts 3 and 6 and accordingly bear against the cards or sheets 11 in the vicinity of the transverse edges 16 and 17.

The two rollers 14 and 15 are carried by the arms 18 and 19 mounted on a common shaft 20 which is rotatably borne by the frame of the device. In the form of embodiment illustrated in the drawings the one arm 19 possesses an exten-

sion 19' towards the rear having an upwardly directed stop 21.

This stop 21 is situated below a bar 22 which by means of a frame comprising the three vertical rods 23 and the horizontal rod 24 is mounted to be shiftable in a vertical direction on the wall 1. The front end of the bar 22 is bent downwards, this end being designated 25. The bar 22 carries, in addition to the stop portion 25, above the conveying belt 4 the roller 26. Secured to the transverse member of the frame 23, 24 there is provided in the embodiment shown a tooth or projection 27, which bears against a cam 28 mounted on a shaft 29 on which there is also provided a ratchet wheel 30. For driving the ratchet wheel 30 there is employed a pawl 31 on the lever 32, which is capable of rocking about the shaft 29 and is oscillated by means of a connecting rod 33, which is driven, for example, by the driving gear for the cutting device 12. A locking lever 34 prevents movement of the ratchet wheel 30 in the reverse direction.

The operation of the device as illustrated is as follows:

So long as the parts of the device assume the positions shown in Figs. 1, 2 and 4 the bar 22 is situated in its upper position, in which the stop 25 is located above the plane of the conveying belts 3 to 6 and the roller 26 is also lifted away from the conveying belt 3, whilst the rollers 14, 15 rest under gravity against the belts 3 and 6.

When the parts of the device are in this position the cards or sheets 11, conducted on to the conveying belts 3 to 6 in the transverse position in accordance with Fig. 4, are engaged in the vicinity of their two transverse edges 16 and 17 by the rollers 14 and 15 and are thus conveyed in this transverse position along the conveying belts 3 to 6, to be finally deposited in the transverse position in the receptacle 7 with the assistance of the roller 10. In the embodiment illustrated in the drawings the cam 28 is so formed that for one-half of a revolution it holds the frame 23, 24 with the bar 22 in the upper position. Since the ratchet wheel 30 is shown as having ten teeth, the cam 28 will accordingly hold the rail 22 in the upper position during five working strokes as the cam is advanced intermittently in the direction of the arrow 35 corresponding to the rhythmic feeding of the cards or sheets 11 on to the depositing device.

Following these five working strokes, i. e., after a half-turn on the part of the ratchet wheel 30 and the cam 28, the constricted portion of the cam 28 moves below the projection 27 and the frame 23, 24 together with the bar 22 drops into the position in Fig. 3. In consequence the rollers 14 and 15 are lifted, the bar 22 meeting against the stop 21 on the arm 19', and at the same time the roller 26 carried by the bar 22 is moved against the belt 4. Upon the downward movement of the bar 22 the abutment end 25 (Fig. 3) also moves into the path of the cards or sheets 11 which, as shown by Fig. 5, now meet on the one side against the stop 25.

They are accordingly moved on the conveying belts, with the assistance of the roller 26, out of the transverse position into the longitudinal position indicated in dot and dash lines in Fig. 5, and are then situated only above the belts 4, 5. The cards or sheets 11 are then additionally conveyed in this position on the belts and with the assistance of the roller 10 they are deposited in the longitudinal position in the container 7.

Following an additional half-turn of the cam 28

the parts are returned into the position shown in Fig. 2 and a number of cards or sheets 11 are then again deposited in the container 7 in the transverse direction, this operation being repeated continuously.

To prevent the cards or sheets 11 from being moved to an excessive extent out of the transverse position by way of the full-line position into the dot and dash position in Fig. 5 the bar 22 possesses on its inner side a downwardly directed wall 36, or is bent downwards accordingly, so that the cards or sheets moved into the longitudinal direction move with their one longitudinal edge against the wall 36 and are then unable to turn further.

It is naturally also possible to employ in place of a ratchet wheel 30 having ten teeth a wheel having a larger number, say one hundred teeth, and further the cam 28 may be formed quite differently to the example shown, for example in such fashion that always a larger number of sheets are deposited in the container 7 in the transverse position than in the longitudinal position.

This may be carried to such extent that after the deposition of one hundred sheets or more in the transverse direction merely one single sheet is deposited in the container 7 in the longitudinal direction. In this case it may be found convenient to mount the cam 28 not on the same shaft as the ratchet wheel 30, but to provide transmission gears between the wheel 30 and the cam 28.

What I claim as new and desire to secure by Letters Patent is:

1. In a depositing and counting device for sheets, cards, envelopes and the like, a plurality of belts for conveying the said sheets, a container into which the said sheets are deposited, a stop arranged to be shiftable upwards and downwards towards the one side of the said conveying belts, means for moving the said stop periodically into the path of sheets conveyed in transverse position on the said belts, a roller arranged to the side of the said stop and adapted to be moved together with the said stop into the operative position, conveying rollers adapted to bear against the said sheets in the vicinity of their transverse edges for conducting the said sheets in transverse position along the said belts, and means for lifting the said conveying rollers away from the said belts when the said first roller and the said stop are moved into the operative position.

2. In a depositing and counting device for sheets, cards, envelopes and the like, a plurality of belts for conveying the said sheets, a container into which the said sheets are deposited, a bar mounted to be shiftable upwards and downwards on the side frame of the device, a stop mounted on the said bar, means for moving the said stop periodically into the path of sheets conveyed in transverse position on the said belts for the purpose of turning the said sheets out of the transverse into the longitudinal position, a roller arranged to the side of the said stop assisting in the turning of the said sheets and adapted to be lifted together with the said stop into the operative position, conveying rollers adapted to bear against the said sheets in the vicinity of their transverse edges for conducting the said sheets in transverse position along the said belts, and means for lifting the said conveying rollers away from the said belts when

the said first roller and the said stop are moved into the operative position.

3. In a depositing and counting device for sheets, cards, envelopes and the like, a plurality of belts for conveying the said sheets, a container into which the said sheets are deposited, a bar mounted to be shiftable upwards and downwards on the side frame of the device, a stop mounted on the said bar, means for moving the said stop periodically into the path of sheets conveyed in transverse position on the said belts for the purpose of turning the said sheets out of the transverse into the longitudinal position, a roller arranged to the side of the said stop assisting in the turning of the said sheets and adapted to be lifted together with the said stop into the operative position, conveying rollers adapted to bear against the said sheets in the vicinity of their transverse edges for conducting the said sheets in transverse position along the said belts, arms carrying the said conveying rollers, a common shaft about which the said arms are adapted to be rocked, and a rearward projection in association with at least one of the said arms and extending into the path of the said shiftable bar, so that the said bar upon its downward movement bears against the said projection and rocks the said conveying rollers away from the said belts.

4. In a depositing and counting device for sheets, cards, envelopes or the like, a plurality of belts for conveying the said sheets, a container into which the said sheets are deposited, a frame mounted to be vertically shiftable on the side wall of the device, a bar mounted on the said frame to be shiftable therewith, a stop mounted on the said bar adapted to be moved periodically into the path of sheets conveyed in transverse position on the said belts for the purpose of turning the said sheets out of the transverse into the longitudinal position, a roller arranged to the side of the said stop assisting in the turning of the said sheets and adapted to be lifted together with the said stop into the operative position, conveying rollers adapted to bear against the said sheets in the vicinity of their transverse edges for conducting the said sheets in transverse position along the

said belts, a cam, a projection on the said frame bearing against the said cam, a pawl and ratchet mechanism for intermittently rotating the said cam rhythmically with the sheets supplied to the device, and means for lifting the said conveying rollers away from the said belts when the said first roller and the said stop are moved into the operative position.

5. In a depositing device for sheets, cards, envelopes and the like, a plurality of sheet conveying belts, a container into which said sheets are deposited, a vertically movable bar having a stop, a pressing roller arranged on said bar at one side of said stop, and mechanical means for periodically moving said stop into the path of one end of a sheet conveyed by said belts in order to turn the sheet about 90° and for operatively positioning said roller automatically with respect to said sheet.

6. In a depositing device for sheets, cards, envelopes and the like, a plurality of sheet conveying belts, a container into which said sheets are deposited, a vertically movable bar having a stop, a pressing roller arranged on said bar at one side of said stop, and mechanical means for periodically moving said stop into the path of one end of a sheet conveyed by said belts in order to turn the sheet about 90° and for operatively positioning said roller automatically with respect to said sheet, said mechanical means comprising a cam, a ratchet device for periodically turning the cam and a tooth on said bar engaging with the cam.

7. In a depositing device for sheets, cards, envelopes and the like, a plurality of sheet conveying belts, a container into which said sheets are deposited, a vertically movable bar having a stop, a pressing roller arranged on said bar at one side of said stop, mechanical means for periodically moving said stop into the path of one end of a sheet conveyed by said belts in order to turn the sheet about 90° and for operatively positioning said roller automatically with respect to said sheet, and a vertical wall on said bar for guiding the sheet in its turned position.

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