NEWSPAPER DISPENSING APPARATUS
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2 Claims.
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The invention pertains to an apparatus which, from a stack of newspapers contained therein, will deliver a single copy of a newspaper in response to the operation of a lever actuated manually or by means of a pedal.

The apparatus may be combined with a mechanism which will permit the operation of the dispensing apparatus only upon insertion into said mechanism of a coin or a number of coins amounting to the price of a single copy of such a newspaper. However, as the means for reception of such coins and the means for locking a vending mechanism against operation unless coins to the proper amount have been inserted thereinto are well known, our invention is directed only to the dispensing mechanism which is self-contained and which will operate irrespective of whether it will be controlled by said coin-receiving mechanism or whether it will have no relation to such mechanism whatever.

We shall now describe our invention with reference to the accompanying drawings in which:

FIG. 1 is a rear elevational view of my apparatus;
FIG. 2 is a vertical sectional view on line 2—2 of FIG. 1;
FIG. 3 is a side elevational view of the apparatus as seen from the left side of FIG. 1;
FIG. 4 is the same side elevational view of the apparatus as shown in FIG. 3, but shown with its elements in different operative positions;
FIG. 5 is a top view of a detail of structure as seen from line 5—5 in FIG. 1;
FIG. 6 is a top elevational view of a pick-up assembly forming a part of my apparatus, parts of some elements being shown in fragment;
FIG. 7 is a side elevational view thereof;
FIG. 8 is an end view of said pick-up assembly;
FIG. 9 is a side elevational view of a mechanism at one end of said assembly;
FIG. 10 is the bottom view of the mechanism shown in FIG. 9;
FIG. 11 shows the same bottom view as said FIG. 10, but discloses two elements in different operative positions;
FIG. 12 is a perspective view of a glider which forms a part of the above-described mechanism, a part of the glider being broken off for a better disclosure of its structure;
FIG. 13 is a side elevational view of the pick-up assembly;
FIG. 14 is a top elevational view thereof;
FIG. 15 is a perspective view of a horizontal beam and other elements forming a part of the pick-up assembly;
FIG. 16 is a diagrammatic presentation of means serving to pick up a newspaper.

Similar numerals refer to similar parts throughout the several views.

The apparatus as a whole has the shape of a rectangular cabinet generally marked 10, the cabinet being supported by a pair of legs 11 at the front and by a similar pair of legs at the rear. Extending from one of said legs laterally, at the rear of the apparatus, as shown in FIG. 1, is a horizontal rail 12 reinforced by a vertical web 13.

Mounted on the rail is a vertical post 14 which extends to the top of the cabinet and fits into a bracket 15. Mounted on the post, for a vertical movement theron, is a tubular sleeve 16, the latter being provided at its base with a horizontal flange 17.

Formed integrally with the sleeve and extending radially therefrom into the cabinet, towards the front part thereof, is a vertically-disposed plate 18 which serves as a bracket for support from below of a horizontally-disposed platform 19. A heavy spring 20 is coiled about the post 14. The lower end of the spring bears from below against the flange 17 of the sleeve 16. Numeral 21 indicates a stack of newspapers deposited on said platform.

Journalled within brackets 22 mounted on the front legs 11 is a horizontal shaft 23, and secured thereto at each end is an upwardly-extending standard 24. Each of the standards is provided at the top with a transverse head 25.

The latter serves as a support for a pick-up assembly designed to lift single copies of newspapers and to deliver them out of the cabinet. The assembly includes a mechanism mounted above one of the standards, a similar mechanism mounted above the other standard, a single housing for both mechanisms, and means extending from one mechanism to the other for synchronized operation of both.

In describing the mechanisms we shall refer to the one shown at the right end in FIG. 6. It includes all the elements shown in the mechanism disclosed at the left end of FIG. 6, but in addition thereto has other elements which will be described herein. We will start the description beginning with the mounting plate 26 by means of which the mechanism at the right hand of FIG. 6 is mounted upon the head 25 of the respective standard 24. The mounting plate is best shown in FIG. 11 which discloses its underside, and in FIGS. 8 and 9 which show the plate in side elevation. Disposed on said plate 26 along its outer edge, in the direction from the front to the rear of the apparatus, is a bar 27 which, midway its length, is depressed, as shown at 28. Another similar bar 29, extending parallel to said first named bar 27, is disclosed on said plate along its opposite edge as shown in FIG. 9. Mounted upon both said bars, crosswise thereto, is a pair of rails 30. The rails straddle the depression 28 forming a track for a sliding member or glider to which we shall presently refer.

Supported on the bar 27, and pivotally secured thereto at one end by means of a bolt 31, is a flat finger 32 which extends beyond the inner edge of said mounting plate, inwardly towards the mid portion of the apparatus as shown in FIGS. 6 and 11. The outer portion of the finger remote from its pivotal connection to said plate 26, is provided on its under side with a plurality of short and sharp pins marked 33.

Mounted upon said rails 30 and extending over said fingers is a rectangular top plate 34, which along one end is aligned with the mounting plate but extends beyond the opposite end thereof and juts outwardly along each side of said mounting plate as best shown in FIG. 6. It is provided with a rectangular slot 35 opening into the plate from what will be called its outer end 36. Secured to said plate 34 along each side of the slot, is a vertical wall 37 which at said outer end of the plate includes a vertical standard 38. Fitting between said walls 37 is the above said glider, generally marked 39. The glider which with other elements connected thereto is shown best in FIG. 12, includes a flat bottom 40 and two upwardly extending side walls 41, the latter being in a sliding contact with the above named walls 37. Integrially connected to the rear ends of the respective side walls 41, the glider are two opposed ears 42, each being provided with a horizontal bore 43. The bores are aligned with each other for reception of a transversely disposed pin 44. Extending downwardly from the rear end of the glider and located directly beneath said ears 42 is a block 45, the lower end of which is welded to a horizontal strip 46, extending transversely to said ears 42. Secured to each
end of the strip at right angle thereto is a prong 47, the two prongs bearing laterally against the respective rails and resting within the depressed portion of the bar 27 as shown in FIG. 8. The relative positions of the prongs with respect to the glider are best illustrated in FIG. 12. It will be seen that the prongs extend forwardly from what is the rear end of the glider and that they are connected to the glider so as to form a unit therewith.

Supported by the standards 38 is an L-shaped lever 49, one arm of the lever forming a horizontal strike bar marked 59 while the other arm 51 is secured pivotally by means of a transverse shaft 44 to said ears 42.

The bottom 46 of the glider contains a longitudinal slot 52 extending parallel to the sides of the glider midway its walls 41 but curves in its front end portion into a lateral extension 53.

Mounted upon the top plate 34 forwardly of said glider to one side thereof is a flat V-shaped member 54 with at its constricted end, is pivotally secured to the plate by a rivet 55. One arm 56 of the member is disposed over an arcuate aperture 57 in said top plate and is connected through said aperture to the finger 32 by means of a screw 58. The finger as already stated is disposed under said top plate 34 and is held in place at one end by means of a bolt 31 which also serves as a means of joining the top plate 34 to the base plate 26 and to the members disposed therebetween. The other arm 60 of said V-shaped member 54 terminates with a circular tip 61 which fits into a correspondingly-shaped recess 62 in another flat but substantially rectangular member 63. The latter is pivotally secured at one corner to the top of the plate 34 by a rivet 55a at a point symmetrically opposed to the rivet 55 on a line parallel to the front end of the plate 34.

The member 63 is attached by means of a screw 58a to another finger 32 which is pivotally held in place by a bolt 31b. Said member 63 is connected to the last-named finger located under the plate 34 through an arcuate aperture similar to aperture 57. A part of the member 63 is positioned beneath the bottom 40 of the glider 31. Projecting from said bottom 40 upwardly into the slot 52 in said bottom 40 is a short pin 64. Each side wall of the glider is provided on its interior face with a bearing 65 for support of a transverse member 66 whereby the glider is connected to one end of a rod 67. The other end of the rod is pivotally connected to one end of a horizontal beam 68 which, intermediate its ends, is pivotally mounted upon a vertical arbor 69 to which we shall return presently.

The above description pertaining to the mechanism at one end of the pick-up assembly and mounted directly upon one of the standards 24 pertains to a similar mechanism supported by the other standard 24, except that the last-named mechanism does not include a lever such as lever 50. Both of these mechanisms are covered from the top by a sheet metal housing marked 70 in FIGS. 6 to 8. The housing, having the form of an inverted oblong pan, is defined by a flat top 71 and two side walls 72, each having an outwardly-extending flange 73. The flanges, resting on small rectangular spacers 59 best shown in FIG. 6, are provided at each end with holes for application of the already-identified bolts 31 and 55, respectively, whereby the housing is held in place.

Secured to the flanges on the underside of the housing, intermediate its ends, is a rectangular plate 74. Centrally located thereon is a socket 75 for reception of said arbor 69 which at its upper end fits into a hole 76 in the top 71 of said housing.

As already stated, one end of the beam mounted on said arbor is connected by a rod to the glider shown at the right in FIG. 6. The other end of the beam is similarly connected to one end of a rod 67c which at its other end is connected to the glider and the pick-up assembly. An arm 77, extending from said beam 68 at right angle thereto, is joined pivotally to a short rod 78. Mounted on one flange 79 of the housing is an L plate 80 which is disposed in a spaced relation to the side wall of the housing. The above-said rod 78 projects outwardly from the housing through an opening in its wall and through an opening in said vertical member 80, as best shown in FIGS. 6, 13, and 14.

To further describe the operation of the pick-up mechanism, we wish to add that secured to each top plate 34, on the underside thereof, is a stationary metal pad 81 located intermediate the two grippers, the pad being provided with a plurality of short and sharp pins 82 projecting downwardly.

The pick-up assembly, generally identified by numeral 100, is composed of two similar mechanisms, one of which is mounted on one standard 24 and the other on the opposite standard. The two mechanisms are covered by the above-described housing which extends transversely with respect to the front of the apparatus, the operative parts of the two mechanisms being in contact with the uppermost in the stack of the newspapers 21 supported on the platform 19.

The end portions of the pick-up assembly project outwardly through the side walls of the apparatus, which side walls are provided at one end by means of a bolt 31c which also serves as a means of joining the top plate 34 to the base plate 26 and to the members disposed therebetween. Each of said side panels is provided with an arcuate slot 84, the two slots forming guide ways for the pick-up assembly towards a transverse stop bar 85. The latter is secured at each end to the respective panel for encounter with the outer end of the rod 78 projecting forwardly of said pick-up assembly.

Pivotally connected to the framework of the apparatus, at the rear end and to one side thereof, as shown at 86, is an arm 87 which, by means of a spring 88, is kept in its normal position extending forwardly at an angle over the strike bar 59 of the pickup assembly 100. The arm passes through a narrow slot in a bow-shaped guiding strip 89 which, at its lower end, is welded to a stationary bracket 90. Forming an integral part of the strip, at its upper end, is a web 91, and pivotally mounted thereon is a dog 92.

At the outer end, said arm 87 is equipped with a roller 93, and at a point spaced from said roller, the arm is provided with a short pin 94 which extends laterally therefrom.

Supported within bearings 95 which are mounted on two rear legs 11, as shown in FIG. 1, is a shaft 96. Extending from one end of the shaft is a radial arm 97, best shown in FIG. 3, which at its outer end is connected by a rod 98 to said arm 87, as shown at 99. Secured to the same shaft 96, in a radial relation thereto, is a pedal 101 which extends to the front of the apparatus and is equipped with a pad 102 by means of which the surface may be depressed. It will be understood that the pedal serves to impart a limited rotary movement to the shaft 96 about its axis, and that the arm 97, being connected to said shaft, will move in unison with said pedal. A coiled spring 102a, attached at one end to said pedal, extends upwardly into the framework of the apparatus, and is connected thereat to the outer end which is shown, the object being to hold the pedal normally in its upwardly-swung position, as shown in FIG. 3.

Pivotally secured to arm 97 is one end of a short link 103, its other end being connected to a vertical rod 104. The rod, as shown in FIG. 1, is disposed within bearings 105 mounted on the rear wall 106 of the apparatus, and includes a length in its upper portion which is serrated, as shown at 107. At the top the rod carries a radially-extending horizontal member 108 whereby the rod may be turned about its axis. For this purpose said member 108 is connected by a short wire 109 with a V-shaped crank 110 which is pivotally supported by a bracket 111 at the opposite end of said arm 87. Said crank 110 is, in turn, joined by means of a wire 112 to one end of said dog 92, best shown in FIG. 3.
Pivoted at one end to a bracket 114, on one side of the apparatus, at the rear portion thereof, as shown in FIG. 3, is a link 115 which, with another link 116, forms a toggle for the operation of a crank 117. At the point of their connection to each other, the two links form a knee joint, as shown in FIG. 3, and 318. The crank 117, which at one end is secured to one end of said link 116, as shown in FIG. 11, is secured at the other end to said shaft in a radial relation thereto. It is this shaft which supports the standards 24, the latter serving to carry at their tops the above-described pick-up assembly. Attached to each standard is one end of a coiled spring 48 which at its other end is connected to the frame of the apparatus.

To complete the description of the apparatus, we wish to refer again to the sleeve 16, shown best in FIG. 1. Extending laterally from said sleeve, and disposed in a vertical plane, is a plate 120, defined, in part, by a vertical edge which is formed into a rack 121 for engagement with the serrated length 107 of the rod 104.

We wish also to refer to the front portion of the apparatus, and especially to the side panels 83, each of which is provided with an arcuate slot 84. Disposed transversely between said panels, and supported thereby, is what may be called a sheet metal strip 122, defining an arcuate support for single copies of a newspaper as said copies are delivered, one by one, from the interior of the cabinet by said pick-up mechanism.

We shall now describe the operation of our said apparatus:

It will be understood that the apparatus is provided with a door or another suitable opening through which a stack of newspapers may be deposited upon the platform 19. A door of this type is not shown, but in the apparatus described herein it may be located on the right side of the apparatus as seen from the rear in FIG. 1. As the platform is supported by the sleeve 16, which, in turn, is supported by a heavy coiled spring 20, the spring acting upon the sleeve will lift the platform with the newspapers deposited thereon, till the uppermost of said papers will bear against the underside of the pick-up assembly. As a result, it will be the fingers 32 of the pick-up mechanism, at the opposite ends of said pick-up assembly, which will be in contact with said topmost paper. This position of the pick-up assembly, marked 100, with respect to the stack of newspapers on said platform 19 is shown in FIG. 2.

As already stated herein, the apparatus was designed for use in combination with a counter-rotative device which ordinarily keeps the dispensing apparatus locked. Now, assuming that the apparatus has been unlocked and that a person wants to obtain a copy of a newspaper, said person has to depress the pedal 101 from its normal position shown in FIG. 3 to the position shown in FIG. 4. As the pedal is depressed against the tension of the spring 102a to the position shown in FIG. 4, the arm 97 secured to the shaft 96, which is turned about its axis by said pedal 102, will move with the pedal to the horizontal position shown in FIG. 4. The rod 98, secured to the end of said arm 97, will pull the arm 87 downwardly. The outer end of the arm 87 will strike the bar 59 of the lever fulcrummed in standards 38 and press it downwardly. The other arm 51 of said lever will shift the glider 39 from its position at the outer edge of top plate 34 inwardly towards the other end of the pick-up assembly.

In the course of said movement the pin 64, which projects upwardly through the slot 52 in the bottom 40 of said glider, will be forced from its normal position in the right angled portion extension 53 of the slot into the portion which is parallel to the sides of the glider. As the pin 64 is mounted upon the underlying member 63, said member will be swivelled about the rivet 55a and will turn the finger 32 disposed under said plate 34 from its normal position 32, shown in dotted lines in FIG. 6 and in solid lines in FIG. 11, to a new position shown in dotted lines 32a in said FIG. 11. A similar turn of the other finger under the same plate 34 will be brought about by the swing of the other member 69, one arm of which fits into the recess 62 in said member 63. As the fingers rest on the newspaper at the top of the stack of papers 21, the pins 33 on the underside of each finger will engage the top sheets of the uppermost copy of the newspaper, and in their converging movement will shift the portions of the sheets immediately beneath said fingers toward the pad 81. The pad is in a stationary position, it pins 82 limiting against said pad from above and holding it against movement. As the result of the swing of the grippers towards each other, an upward curl will be formed in the uppermost sheets of papers on each side of the stationary pad 81. This is shown in the diagram in FIG. 16 in which numeral 123 indicates a newspaper, numeral 81 indicates the stationary pad under the top plate 34, and numerals 32a indicate the movable fingers, while numeral 124 indicates a curl formed in the sheets on each side of the pad by the movements of the fingers towards said pad.

Moving with said glider are two horizontally-disposed prongs 47 which in the center of the movement of said glider as effected by said lever 48 will enter into said curds 124 so that the top sheets of the paper will be held from the top by said fingers and the pad, and from below by said prongs 47. As the glider, equipped with the lever 48, is connected to the beam 68 shown in FIGS. 6 and 15, the forward movement of said glider will, by means of said beam and the rod 67a, bring about a similar movement of the glider at the opposite end of the pick-up assembly. Said last-mentioned glider and the elements actuated thereby are shown at the left end of FIG. 6. The glider therein is also equipped with identical prongs 47 and identical fingers as those described herein, so that as a result the newspaper will be seized by the prongs and the fingers at both ends of the pick-up assembly.

Now we shall return to the arm 87 in its downward swing in response to the depression of the pedal 101. After the arm has depressed and passed the strike bar 56, the short latorial pin 94 on said arm will encounter the lower portion of the dog 92, shown best at the top of FIG. 3. The dog, connected by wire 113 with the crank 110, shown in FIG. 5, and, thereby, to member 108, will turn the rod 104, best shown in FIG. 1, about its axis to bring the serrated portion 107 into engagement with the teeth of rack 121 at the vertical edge of member 126. The rod described above is at its lower end connected to the radial arm 97 mounted on the shaft 96, and moving in unison with the pedal 101. As the pedal is being depressed, the arm 97 moving with it will exert a downward pull on the link 103, and by means of said link and the rod 104 upon the sleeve 16 against the tension of said spring 20. As the sleeve supports the platform wherein the papers thereon, the lowering of the table will relieve the uppermost paper from the frictional contact with the papers underneath to permit the pick-up assembly to shift the paper outwardly towards the front of the apparatus. This is effected, as follows, by the movement of the standards 24 which support said pick-up mechanism. After the arm 87 has depressed said dog 92, the roller 93 at the outer end of said arm will encounter the two links 115 and 116 at their junction at 118, and will depress both links downwardly from the position shown in FIG. 3 to the position shown in FIG. 4. The downward movement of the link 116 will impart an accurate swing in an anti-clockwise direction to the crank 117, and thereby will impart a limited rotary movement in the same direction to the shaft 23 which supports said two standards 24. As a result thereof, the standards, also swinging in the same direction, will carry the pick-up assembly through the slots 84 in the side panels 83 from the position shown in FIG. 3 to the position in FIG. 4, and past said position. This
will bring the end of the rod 78, projecting out of the housing of the pick-up assembly, into encounter with the stop bar 85.

The rod 78, as shown in FIG. 6, is connected to the beam 69, the ends of which are pivotally joined to the two rods 67 and 67a respectively. The gliders move towards each other, the beam 68 is swivelled upon its supporting arbor 69. As a result thereof, the arm 77, connected to the beam, moves the rod 78 outwardly so that it projects beyond the upward flange 80 of plate 79 which is secured to the housing of the pick-up assembly. When, however, the assembly is brought towards the stop bar 85 disposed crosswise in the slots 84 of the side panels 83, the rod 78, encountering said stop bar, is pushed back, causing the beam to reverse its direction. This, in turn, imparts a clockwise turn to the beam, the beam pushes the rods 67 and 67a outwardly in opposite directions, and shifts the gliders back to their original positions. This causes the prongs 47 to slide outwardly from the curls in the upper sheets of the newspaper which, because of that, is allowed to drop down by gravity on the underlying apron 112. From said apron the paper may be lifted by hand or may slide into a suitable receptacle or chute.

On release of the pedal, the spring 20 again lifts the table, with the stack of papers, into engagement with the pick-up assembly which is returned back to its normal position, as shown in FIG. 2, by standards 24 under the pull of the springs 48.

After having described our apparatus, what we wish to claim is as follows:

1. A newspaper-dispensing apparatus including a framework having an enclosed cabinet therein, said cabinet having a front portion provided with a transverse horizontal aperture, a vertically movable platform in said cabinet for support of a stack of newspapers therein, a pick-up assembly disposed transversely over the newspapers resting on said platform, spring means urging the platform upwardly to bring the papers for contact from below with said pick-up assembly, a pick-up mechanism at one end of said assembly slidably mounted thereon including a plurality of prongs adapted to enter between the sheets of the topmost of the newspapers at right angles to one of its side edges, a similar pick-up mechanism oppositely disposed at the other end of the pick-up assembly slidably mounted thereon and including a plurality of prongs adapted to enter between the sheets at right angles to its opposite side edge, a plurality of fingers in each mechanism adapted to bear against said sheets from above to effect a hold of said sheets between said prongs and said fingers, means interconnecting said pick-up mechanisms for simultaneous opposed inward and successive outward movements, two vertical standards for support of the pick-up assembly at its opposite ends, each of the standards being pivotally secured at its lower end to the framework, a manually operative lever means pivoted on the framework, and intermediate linkage means pivotally mounted on said framework actuated by said lever means to move each pick-up mechanism and its prongs and fingers for engagement with the sheets of the topmost newspaper from its opposite side and to successively swing the standards with said pick-up assembly forwardly for delivery and ejection of the newspaper through said aperture.

2. In a newspaper-dispensing apparatus, a pick-up assembly disposed over a stack of newspapers, the assembly including a pick-up mechanism at one and to one side of the top paper in the stack, another pick-up mechanism at the other end of the assembly and to the other side of said newspaper, a member connecting said mechanisms to form a unit, each of the mechanisms including a plate, two fingers disposed under the plate, the fingers being each pivotally connected at one end to the plate, while the other or outer end of each finger is in a grasping contact with the top sheets of the paper for buckling portions thereof, a glider mounted upon said plate for movement at right angle to one side of the adjoining paper, two parallel prongs connected to the glider and disposed under the plate, a lever supported above the plate of one of the mechanisms to impart a sliding movement to the glider, with said prongs, in the direction of the paper and for entry between the buckled portions and the sheets thereof, means mounted on said plate and actuated by the glider to impart to the fingers a converging movement towards each other effecting said buckling action, and means connecting the lever-actuated glider of one mechanism with the glider of the opposite mechanism to obtain synchronized movement of both.

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