

May 8, 1962

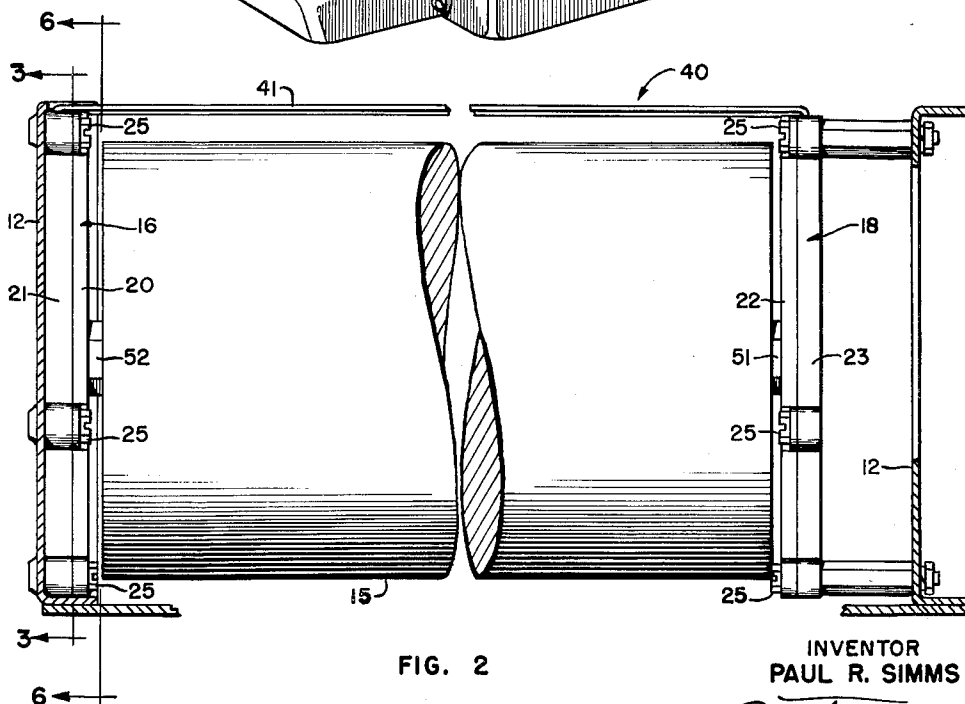
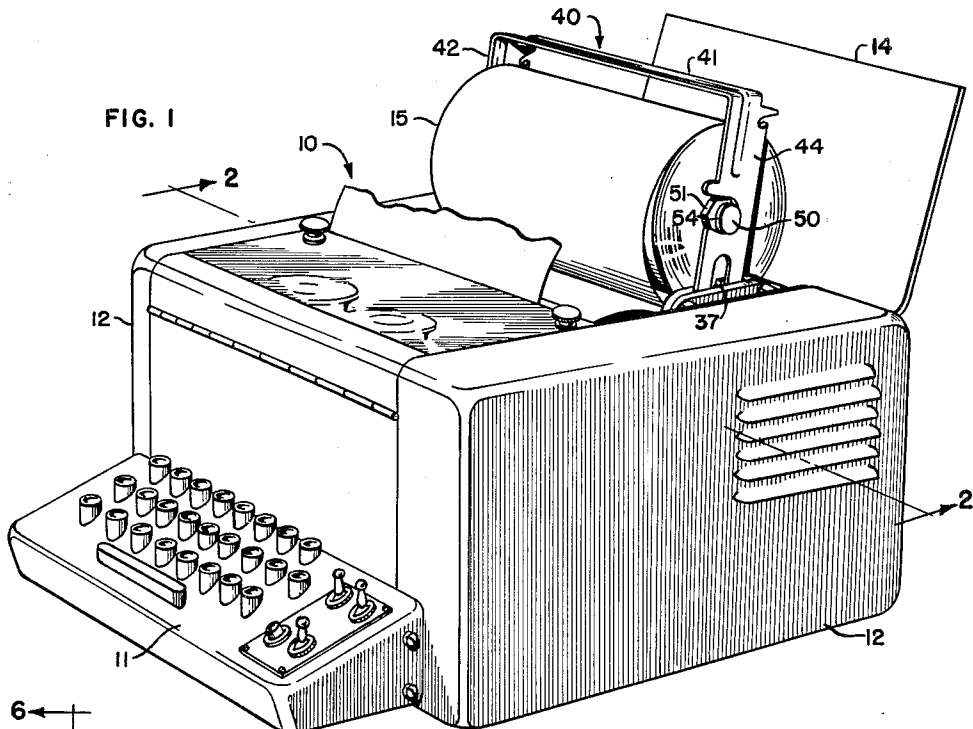
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3,033,339

PAPER ROLL CARRIER FOR PRINTING TELEGRAPH APPARATUS

Filed Dec. 30, 1959

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

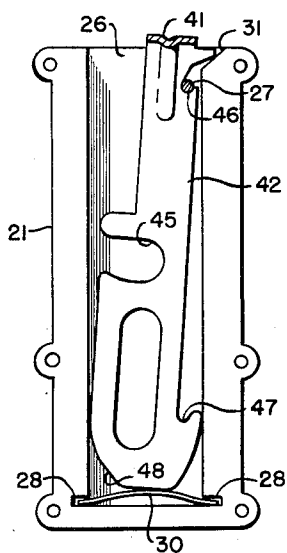


FIG. 3

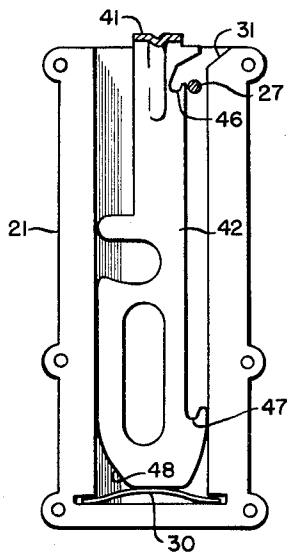


FIG. 4

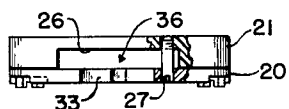


FIG. 7

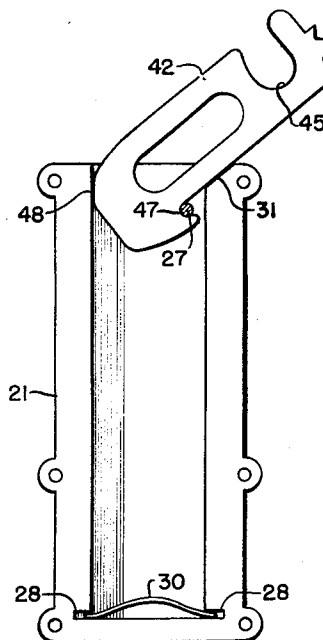


FIG. 5

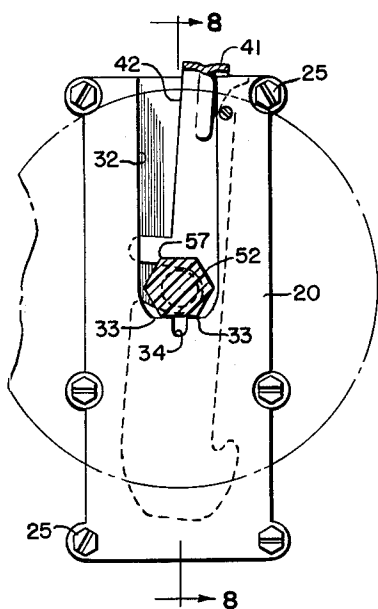


FIG. 6

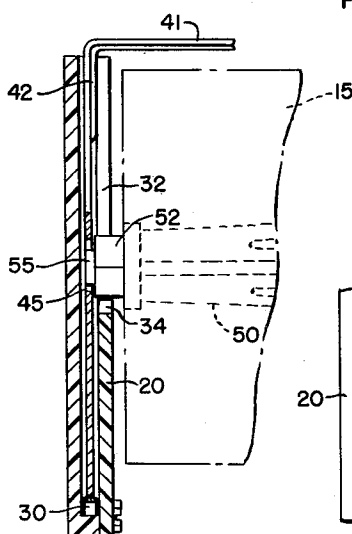


FIG. 8

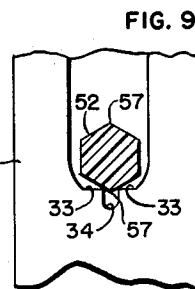


FIG. 9

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1

3,033,339

PAPER ROLL CARRIER FOR PRINTING TELEGRAPH APPARATUS

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Filed Dec. 30, 1959, Ser. No. 862,843
10 Claims. (Cl. 197-133)

This invention relates in general to an object supporting mechanism and more particularly to a manipulatable device for receiving and supporting an object in a loading position and for supporting the object rotatably in a utilization position.

In recent years it has become the practice to reduce the over-all size of teletypewriters and make them more compact. A major factor in the achieving of compactness is the proper positioning and supporting of the roll of paper on which printing is done since the roll of paper consumes a considerable portion of the space occupied by the components of the teletypewriter. In the past it has been the custom to position and support the roll of paper rearwardly of and in an elevated position with respect to the platen. Such positionment of the roll of paper requires that the cover or housing covering the teletypewriter be of rounded and irregular configuration which detracts from efforts to make the teletypewriter compact. The cover is usually provided with a lidded or door-like member which is opened by an operator to place a roll of paper into the teletypewriter, accordingly, the cover must be sufficiently large to permit the operator to place his hands inside the cover to load the roll of paper into the teletypewriter.

To achieve the desired compactness in design of a teletypewriter, it is necessary to position and support the roll of paper below the level of the platen which permits the top of the teletypewriter to be flat. It is further necessary to shape the teletypewriter cover such that it conforms very closely to the dimensions of the components of the teletypewriter since the more closely the walls of the cover confine the components of the teletypewriter the more compact the teletypewriter will be. However, if the roll of paper is closely confined to the degree which achieves the desired compactness, insufficient space will be available to permit an operator to place his hands into the teletypewriter through an opening formed by raising a door-like member located in the top of the teletypewriter, to load a roll of paper into the machine. And in many instances, the teletypewriter is mounted for operation in close proximity to a wall or bulkhead, as for example on a ship or aircraft, such that insufficient space is available above or rearward of the teletypewriter to permit an operator to manually load a roll of paper into the machine. Thus the need arises in general for apparatus for loading an object into a space assuming closely the dimensions of the object and for supporting the object in the space, and in particular for apparatus for loading the roll of paper into a cavity, formed in a teletypewriter, too small to permit manual loading and for supporting rotatably the roll of paper within the cavity formed in the teletypewriter.

Accordingly, it is an object of the invention to provide apparatus for facilitating the supporting of an object.

Another object of the invention is to provide a device for loading an object into a utilization position.

Another object of the invention is to provide a device for receiving and supporting an object in a loading position and for supporting the object rotatably in a utilization position.

Another object of the invention is to provide apparatus for receiving and supporting a shaft carrying a roll of paper in a loading position, and for loading the roll of

2

paper into a page printing telegraph receiver in a utilization position where the shaft is supported rotatably.

A feature of the invention is a loading member adapted to load an object into a utilization position.

Another feature of the invention is a U-shaped member having leg portions slidably positioned in guides which are mounted in spaced relation on a base, the U-shaped member being adapted to be partially withdrawn from the guides to permit the U-shaped member to receive an object to be supported in a loading position, and upon reinsertion of the U-shaped member into the guides the object is supported rotatably by the guides in a utilization position.

Briefly stated, a preferred embodiment of the invention comprises a U-shaped member including a transverse portion having leg portions at its extremities which are positioned in spaced guide members for limited sliding movement, each guide member having a bearing surface formed therein. An indentation is formed in each of the legs for receiving a shaft carrying a roll of paper, a latching shoulder is formed on each of said legs at a point adjacent to the free end of the legs, a second latching shoulder is formed on each of the legs adjacent to the point of connection of the legs with the transverse portion, and a pin fixed to each of the guide members is adapted to register with the first-mentioned latching shoulders when the leg portions are substantially withdrawn from the guide members to hold the U-shaped member in a position to permit the indentations to receive and support the shaft in a loading position. The pins are also adapted to register with the second-mentioned shoulders when the U-shaped member has its legs substantially within the guide members, which permits the shaft indentations to locate the shaft on the bearing surface formed in the guide members which support the shaft rotatably in a utilization position.

A more complete understanding of the invention may be obtained from the following detailed description of the object locating and supporting mechanism when read in conjunction with the appended drawings in which:

FIG. 1 is a perspective view of a teletypewriter adapted to utilize the present invention;

FIG. 2 is a partial sectional view taken substantially along the line 2-2 in FIG. 1, and the view is enlarged for clarity;

FIG. 3 is a sectional view taken along the line 3-3 in FIG. 2;

FIGS. 4 and 5 are similar to FIG. 3 but with the parts shown in various positions;

FIG. 6 is a view similar to FIG. 3 and taken along the line 6-6 of FIG. 2 but having superimposed thereon an outline of a roll of paper in utilization position;

FIG. 7 is a plan view of FIG. 6 but with some parts removed and some parts broken away for clarity;

FIG. 8 is a sectional view taken along the line 8-8 in FIG. 6 in the direction of the arrows; and

FIG. 9 is a fragmental view taken from FIG. 6.

Referring now to the drawings and more particularly to FIG. 1, there is shown a page printing teletypewriter 10 having a keyboard 11, walls 12, and a lidded or door-like member 14. The teletypewriter 10 is adapted to receive a roll of paper 15 on which printing is to be accomplished.

The walls 12 of the teletypewriter 10, as may be seen in FIG. 2, have guide members 16 and 18 attached thereto. The guide members 16 and 18 are comprised of relatively long and flat plates 20 and 21, and 22 and 23, respectively. The plates 20 and 21 are secured together and to the left-hand wall 12 by threaded fasteners 25 and the plates 22 and 23 are secured together and to the right-hand wall 12 by other threaded fasteners 25. The plate 21, as may be seen in FIGS. 3 and 7, is provided with a

cutout portion 26, a pin or removable shoulder screw 27, grooves 28 which accommodate a compressible spring 30 and an inclined surface 31. The plate 20, shown most clearly in FIG. 6, is provided with an open ended slot 32 having bearing surfaces 33 and a groove 34 formed at the bottom thereof. The plates 20 and 21, when fastened together by threaded fasteners 25, cooperate to form a guideway 36 as shown in FIG. 7. It will be understood that the plates 22 and 23 have the same configuration as 20 and 21 and they are also provided with a pin 27, compressible spring 30, bearing surfaces 33 and groove 34, and that they form a guideway 37 similar to guideway 36, as indicated at the top right of the teletypewriter 10 in FIG. 1.

A U-shaped loading member 40, shown in FIGS. 1 and 2, includes a transverse portion 41 having leg portions 42 and 44 at its extremities. The leg portion 42, as may be readily seen in FIG. 3, is provided with an indentation 45 and latching shoulders 46 and 47. It will be noted that shoulder 46 is inset from shoulder 47 with respect to a centerline of leg portion 42. The lower rounded left-hand extremity of the leg portion 42 may also be provided with a flat surface 48 which is adapted to engage the inner surface of the plate 21 when the loading member is in the position shown in FIG. 5. The leg portions 42 and 44 are positioned slidably in the guideways 36 and 37 for limited movement as the latching shoulders 47 preclude complete removal of the leg portions. However, removal of the shoulder screw 27 permits complete withdrawal of the leg portions from the guideways 36 and 37.

A spindle 50, carrying the roll of paper 15, is provided at its right and left, FIGS. 1 and 8, extremities with hexagonal hubs 51 and 52 and bearing surfaces 54 and 55, respectively.

It will be assumed that an operator desires to load the roll of paper 15 into the teletypewriter 10, and it will be further assumed that the lidded portion 14 is closed and that the leg portions 42 and 44 of the U-shaped loading member 40 are positioned in the guideways 36 and 37 and that the latching shoulders 46 formed on the leg portions 42 and 43 are in engagement with the pins 27 in the guideways 36 and 37 in the manner shown in FIG. 3. The operator raises the lidded portion 14, pivoted on hinges (not shown) rearward of the teletypewriter, to the position shown in FIG. 1, and grips the transverse portion 41 of the U-shaped loading member 40. The operator presses the U-shaped member 40 downwardly against the compressible springs 30 to unlatch the shoulders 46 from the pins 27; the leg portions 42 and 44 then occupy the same position in the guideways 36 and 37 as does leg portion 42 as shown in FIG. 4. Gripping the transverse portion 41, the operator pulls upwardly on the U-shaped loading member 40 sliding the leg portions 42 and 44 within the guideways 36 until the latching shoulders 47 engage the pins 27. Upon engagement of the pins 27 with the latching shoulders 47, the operator pivots the U-shaped loading member 40 towards the rear of the teletypewriter 10 about the pins 27 until the leg portions 42 and 44 engage the inclined surfaces 31 as shown in FIG. 5. The engagement of the latching shoulders 47 with the pins 27, the engagement of the flat surfaces 48 with the inner surfaces of the plates 21 and 23, and the engagement of the leg portions 42 and 44 with the inclined surfaces 31, hold the U-shaped loading member 40 in a loading position with the indentations 45 exposed and prepared to receive the bearing surfaces 54 and 55 of the spindle 50. The operator then places the roll of paper 15 on the U-shaped loading member 40 with the indentations 45 receiving the bearing surfaces 54 and 55 of the spindle. It will be noted that the weight of the roll of paper 16, when the U-shaped member is supporting the roll in the loading position, tends to pivot the U-shaped loading member 40 about the pins 27 and against the inclined surfaces 31 which arrangement tends

to hold the U-shaped loading member more securely in its loading position.

With the indentations 45 of the U-shaped loading member 40 supporting the bearing surfaces 54 and 55 of the spindle 50, the operator then grips the transverse portion 41 of the U-shaped loading member 40 and pivots the U-shaped loading member forward about the pins 27; the operator then permits the leg portions 42 and 44 to slide downwardly in the guideways 36 and 37. During the major portion of the downward movement of the leg portions 42 and 44, the indentations 45 as described are supporting the bearing surfaces 54 and 55 and hence are supporting the spindle 50, but towards the end of the downward movement of the leg portions 42 and 44, the hexagonal hubs 51 and 52 come to rest upon the surfaces 33, as shown in FIG. 6, formed in the guide plates 20 and 22, and the downward movement of the spindle 50 and roll of paper 15 is arrested. Continued downward movement of the leg portions 42 and 44 frees the bearing surfaces 54 and 55 from engagement with the indentations 45, and the ends of the leg portions 42 and 44 engage and compress the springs 30 until the latching shoulders 46 are below the pins 27. The operator then pushes the U-shaped loading member 40 rearwardly of the teletypewriter 10 and releases the U-shaped loading member 40 whereupon the compressible springs 30 force the leg portions 42 and 44 upwardly causing the latching shoulders 46 to engage the pins 27 and latch the leg portions against movement, as may be seen in FIG. 6. It will be noted that the rounded bearing surfaces 54 and 55 are spaced from the indentations 45 and that the hexagonal hubs 51 and 52 of the shaft are resting on the bearing surfaces 33, however, during rotation the indentations 45 serve as an upstop. Thus the bearing surfaces and indentations cooperatively confine the spindle. The operator then returns the lidded portion 14 to its closed position and the loading operation is completed.

Thus it is seen that the U-shaped loading member 40 functions as a loading device adapted to receive and hold the roll of paper 15 in a loading position and to load the roll of paper into the teletypewriter 10 where the spindle 50 of the roll of paper 15 is supported for rotation in a utilization position by the engagement of the hexagonal hubs 51 and 52 of the spindle with the bearing surfaces 33.

Upon the completion of a line of printing by the teletypewriter 10, the paper 15 is pulled forward (by apparatus not shown) suddenly and sharply off of the roll 15 carried by the spindle 50 and sudden rotation is imparted to the spindle 50. Should the roll of paper be permitted to rotate freely, the roll would tend to lope and feed off more paper than is required in a line feeding operation of the teletypewriter. The engagement of the hexagonal hubs 52 and 53 with the surfaces 33 and groove 34, formed in the bottom of the open ended slots 32, as may be seen in FIG. 6, is adapted to provide a retarding effect and prevent undesired rotation of the shaft 50. When the paper is pulled forward sharply off of the roll 15, the hexagonal hubs 51 and 52 will rotate and the edges 57 of the hubs will fall successively into the grooves 34, as may be seen in FIG. 9, to provide a retarding effect, or intermittent feed, so as to negate any tendency of the roll of paper 15 to lope or rotate freely and feed out more paper than is required.

It will be understood that the preferred embodiment described and shown is merely illustrative of the invention and that many modifications may be made in the embodiment without departing from the spirit and scope of the invention.

What is claimed is:

1. An object loading and supporting mechanism, which comprises a pair of guides, means for supporting said guides in spaced and opposed relation, each of said guides having a bearing surface formed therein, a loading member having portions disposed slidably in said guides for

5

limited movement with respect thereto, each of said portions having object receiving means, means for limiting the movement of said loading member in one direction and for holding said member in position to permit said receiving means to receive said object, and means for holding said member adjacent to the end of the slidable movement of said portions in the opposite direction to permit said receiving means to locate said object on said bearing surfaces which support said object in a utilization position.

2. A device for supporting a rotatable object in a loading and a utilization position, which comprises a pair of guides, means for supporting said guides in spaced and opposed relation, each of said guides having a bearing surface formed therein, a U-shaped member having leg portions disposed slidably in said guides for limited movement, each of said leg portions having an indentation formed therein, means for limiting the movement of said U-shaped member in one direction of slidable movement of the leg portions in said guides to hold said U-shaped member in a position to permit the indentations formed in said leg portions to receive the object and support the object in said loading position, and means for latching said U-shaped member in substantially the extreme of the opposite direction of slidable movement of its leg portions in said guides whereupon the bearing surfaces in said guides support said object rotatably in said utilization position.

3. An object supporting mechanism, which comprises a pair of guides, means for supporting said guides in opposed spaced relation, each of said guides having a guideway and an open ended slot formed therein, a pin fixed to at least one guide and extending into the guideway formed therein, a U-shaped member having leg portions slidably disposed in said guideways, each leg portion having an indentation formed therein, a latching shoulder on at least one of said leg portions at a point adjacent to its free end for registration with said pin when the leg portions are substantially withdrawn from said guideways to hold the U-shaped member in position to permit said indentations to receive said object, a second latching shoulder formed on at least one of said leg portions adjacent to the end opposite the free end thereof for registration with said pin when said leg portions are substantially completely within the guides, and a spring member mounted in at least one of said guideways for holding the second mentioned latching shoulder in latching engagement with the pin whereby said U-shaped member is latched and said indentations locate said object in said open ended slots for support.

4. A manipulatable device for receiving and supporting a paper roll spindle in a loading position and for supporting the spindle rotatably in a page printing telegraph apparatus in a utilization position, which comprises a pair of guide members mounted in spaced relation on said apparatus, each of said guide members having an open ended slot formed therein, a U-shaped member including a transverse portion having leg portions at its extremities which are disposed in said guide members for limited slidable movement, each leg portion having an indentation for receiving said spindle, a latching shoulder formed on each of said leg portions at a point adjacent to the free end of the leg portions, a second latching shoulder formed on each of said leg portions adjacent to the point of connection of the leg portions with the transverse portion, a pin fixed to each of said guide members for registration with said first-mentioned latching shoulders when said leg portions are substantially withdrawn from the guide members to hold the U-shaped member in position to permit the indentations to receive and support said spindle in said loading position, said pins also being arranged for registration with said second-mentioned shoulders when the U-shaped member has its leg portions substantially completely within the guide members to permit said indentations to locate said spindle in said open ended slots for rotatable support in said utilization position, and a spring

6

member for forcing said second-mentioned shoulders into latching engagement with said pins to maintain said paper roll spindle in said utilization position, said spring being compressible for unlatching said second-mentioned shoulders to free said U-shaped member for movement into said loading position.

5. A manipulatable device for supporting an object rotatably which comprises a pair of guide members, means for mounting said guide members in opposed spaced relation, each of said guide members having an open ended slot formed therein, a U-shaped member including a transverse portion having leg portions at its extremities which are positioned in said guide members for limited slidable movement, each leg portion having an indentation for receiving said object, a latching shoulder formed on each of said leg portions at a point adjacent to the free end of the leg portions, a second latching shoulder formed on each of said leg portions adjacent to the point of connection of the leg portions with the transverse portion, a pin fixed to each of said guide members for registration with said first-mentioned latching shoulders when said leg portions are substantially withdrawn from the guide members to hold the U-shaped members in position to permit the indentations to receive and support said object, said pins also being arranged for registration with said second-mentioned shoulders when the U-shaped member has its leg portions substantially completely within the guide members, in which position of the leg portions said indentations and said open ended slots cooperatively support said object rotatably in said utilization position, and a spring member mounted in said guides for forcing said second-mentioned shoulders into latching engagement with said pins to maintain said object rotatably in said utilization position, said spring being compressible for unlatching said second-mentioned shoulders to free said U-shaped member for movement into said loading position.

6. A manipulatable device for supporting rotatably a spindle carrying a roll of paper in a page printing apparatus in a loading position and a utilization position, which comprises a pair of guide members mounted in spaced relation on said apparatus, each of said guide members having an open ended slot formed therein and an inclined surface formed thereon, rotation retardation means formed in said slots, a U-shaped member including a transverse portion having leg portions at its extremities which are disposed in said guide members for limited slidable movement, each leg portion having an indentation for receiving said spindle, a latching shoulder formed on each of said leg portions at a point adjacent to the free end of the leg portions, a second latching shoulder formed on each of said leg portions adjacent to the point of connection of the leg portions with the transverse portion, a pin fixed to each of said guide members for registration with said first-mentioned latching shoulders when said leg portions are substantially withdrawn from the guide members to hold the U-shaped member in a loading position on said inclined surfaces to permit the indentations to receive said spindle, said pin also being arranged for registration with said second-mentioned shoulders when the U-shaped member has its leg portions substantially completely within the guide members to permit said indentations to locate said spindle in said open ended slots, said indentations and said slots being cooperatively effective to support said spindle rotatably in said utilization position, and a spring member for forcing said second-mentioned shoulders into latching engagement with said pin to maintain said spindle in said utilization position, said spring being compressible for unlatching said second-mentioned shoulders to free said U-shaped member for movement into said loading position.

7. In combination with an object receiving structure including a base member and a pair of guide members mounted vertically in spaced relation on said base member and each having a guideway formed therein, an inclined surface formed thereon and a pin affixed thereto and ex-

tending into said guideway, a device for loading an object into a utilization position in said object receiving structure, which comprises a U-shaped member having leg portions slidably disposable in said guideways, each leg portion having an indentation formed therein for receiving said object and carrying said object into said loading position, a first latching shoulder formed on each of said leg portions adjacent to the free end of each leg portion for registration with said pins when said leg portions are substantially withdrawn from said guide members and being cooperatively effective with said pins to preclude withdrawal of said leg portions from said guideways and to provide points for pivotal movement of said U-shaped member into engagement with said inclined surfaces, and a second latching shoulder formed on each of said leg portions adjacent to the end opposite the free end thereof for registration with said pins when said leg portions are substantially completely within said guideways, said second latching shoulders being cooperatively effective with said pins to latch said leg portions substantially completely within said guideways.

8. In combination with an object receiving structure including a base member and a pair of guide members mounted vertically in spaced relation on said base member and each having a guideway and an open-ended slot formed therein, an inclined surface formed thereon and a pin affixed thereto and extending into said guideway, a device for loading an object into a utilization position in said object receiving structure, which comprises a U-shaped member including a transverse portion having leg portions at its extremities which are disposable in said guideways for limited vertical slidable movement, each leg portion having an indentation formed therein for receiving said object and for carrying said object into said loading position, a first latching shoulder formed on each of said leg portions at a point adjacent to the free end of the leg portion for registration with said pins when said leg portions are substantially withdrawn from the guide members to limit the upward movement of said U-shaped member, said first shoulders being cooperatively effective with said pins to provide points for pivotal movement of said U-shaped member into engagement with said inclined surfaces whereupon said indentations are presented for the reception of said object, a flat surface formed on the end of each of said leg portions at a point adjacent to the free end thereof and on the side opposite said first latching shoulder for engagement with a surface of said guideways when said U-shaped member is pivoted about said pins and effective to prevent sliding movement of said U-shaped member down said inclined surfaces, and a second latching shoulder formed on each of said leg portions adjacent to the point of connection of the leg portions with the transverse portion and for registration with said pins when said U-shaped member has its leg portions in a vertical position substantially completely within the guideways to permit said indentations to locate said object in said open-ended slots, said indentations being effective to also provide up-stops to preclude upward movement of said object after said object is loaded into said utilization position, said second latching shoulders being cooperatively effective with said pins to securely latch said leg portions substantially completely within said guideways.

9. Apparatus for rotatably supporting a roll both in an operative position and in a loading position comprising a generally U-shaped bail having parallel legs and an inter-

connecting yoke, guide structures defining slots for slidably receiving respective ones of said legs, pin and slot means for releasably limiting relative movement of said bail with respect to said guide structures, said pin and slot means including first members, one in each of said slots, alternatively cooperable with second and third members adjacent the free ends and the yoke ends respectively of said legs, said first and third members being cooperable when said legs are fully inserted in said slots to maintain said legs releasably in fully inserted position, said first and second members being cooperable when said legs are substantially removed from said slots to limit outward sliding movement and to permit pivotal movement of said legs and said bail with respect to said guide structures, whereby said bail when said first and second members are in cooperation may pivot about an axis defined by said said first members between a roll-receiving position and a position wherein said legs are aligned with said slots, and means on said legs defining roll-receiving recesses, said recesses opening in a direction generally perpendicular to the general plane of said bail, said recess-defining means cooperating with said guide structures to confine the ends of a roll received in said recesses when said bail is inserted in said slots.

10. Apparatus for rotatably supporting a roll both in an operative position and in a loading position comprising a generally U-shaped bail having parallel legs and an interconnecting yoke, guide structures defining slots for slidably receiving respective ones of said legs, the free ends of said legs being relatively snugly received within said slots at least when said legs are fully inserted in said slots, and the portions of said legs adjacent said yoke being received within said slots with substantial clearance in a direction perpendicular to the general plane of said bail, whereby said bail may rock about the free ends of its legs when received by said slots, pin and slot means for releasably limiting relative movement of said bail with respect to said guide structures, said pin and slot means including first members, one in each of said slots, alternatively cooperable with second and third members adjacent the free ends and the yoke ends respectively of said legs, said first and third members being cooperable when said legs are fully inserted in said slots to maintain said legs in fully inserted position when said bail is rocked in one direction and to release said legs when said bail is rocked in the other direction about the free ends of said legs, said first and second members being cooperable when said legs are substantially removed from said slots to limit outward sliding movement and to permit pivotal movement of said legs and said bail with respect to said guide structures, whereby said bail when said first and second members are in cooperation may pivot about an axis defined by said first members between a roll receiving position and a position wherein said legs are aligned with said slots, and means on said legs defining roll-receiving recesses, said recesses opening in a direction generally perpendicular to the general plane of said bail, said recess-defining means cooperating with said guide structures to confine the ends of a roll received in said recesses when said bail is inserted in said slots.

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