Nov. 12, 1968 G. F. ROONEY, JR 3,410,424

RACK FOR HOLDING A STACK OF PRINTED SHEETS

Filed Feb. 27, 1967 3 Sheets-Sheet 1

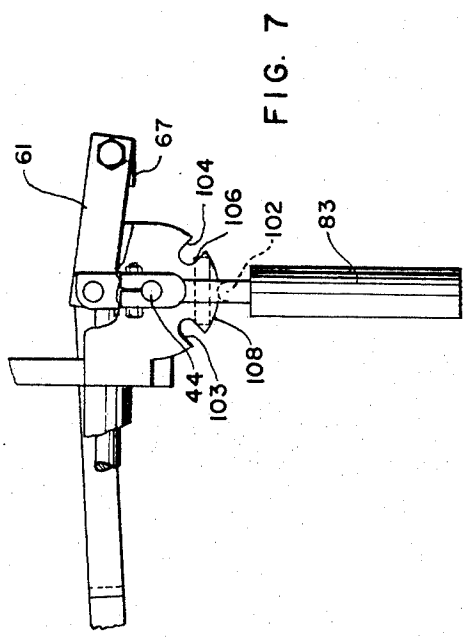


FIG. 7

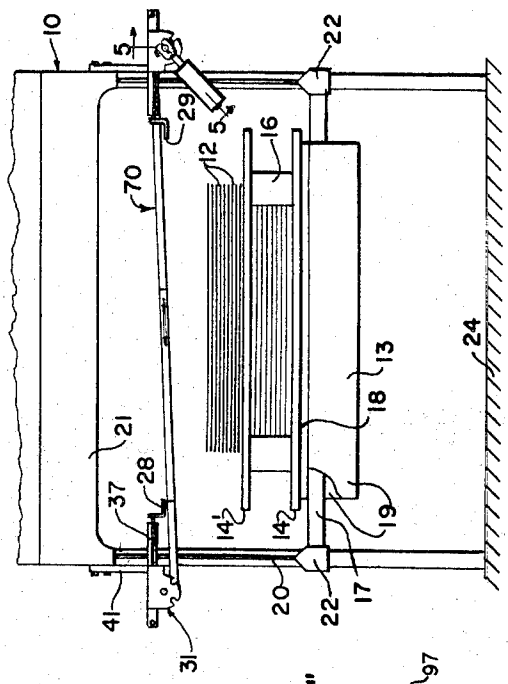


FIG. 1

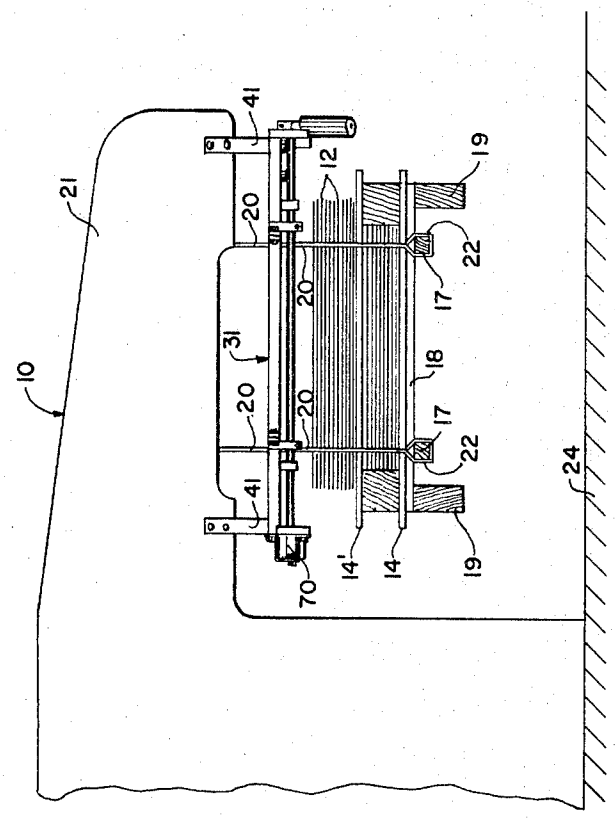


FIG. 2

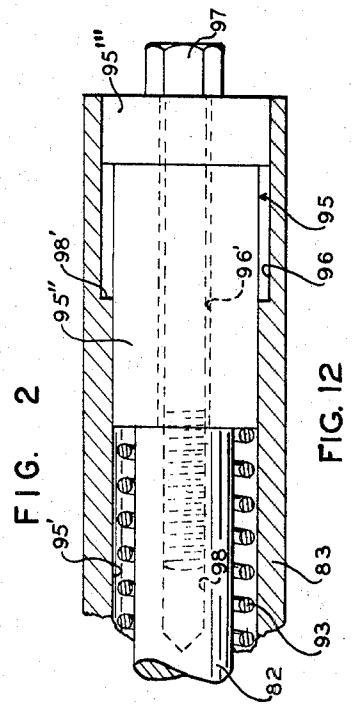


FIG. 12

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RACK FOR HOLDING A STACK OF PRINTED SHEETS

Filed Feb. 27, 1967 3 Sheets-Sheet 2

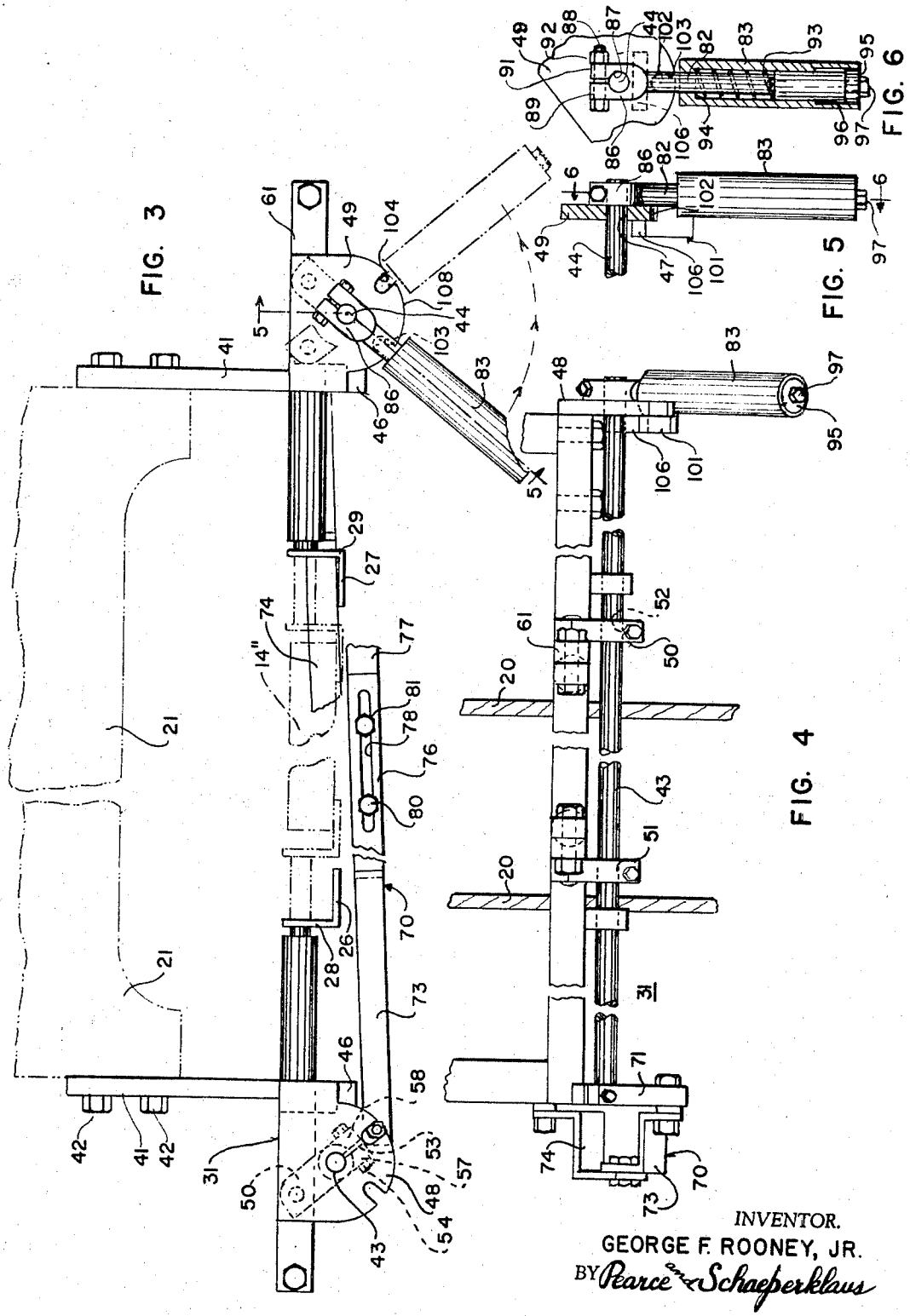


FIG. 3

FIG. 4

FIG. 5

FIG. 6

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RACK FOR HOLDING A STACK OF PRINTED SHEETS

Filed Feb. 27, 1967 3 Sheets-Sheet 3

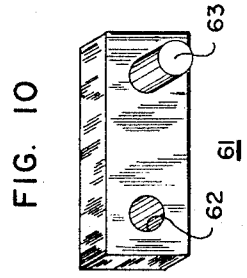


FIG. 10

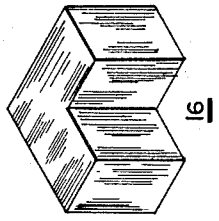


FIG. 9

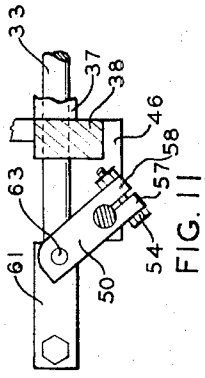


FIG. 11

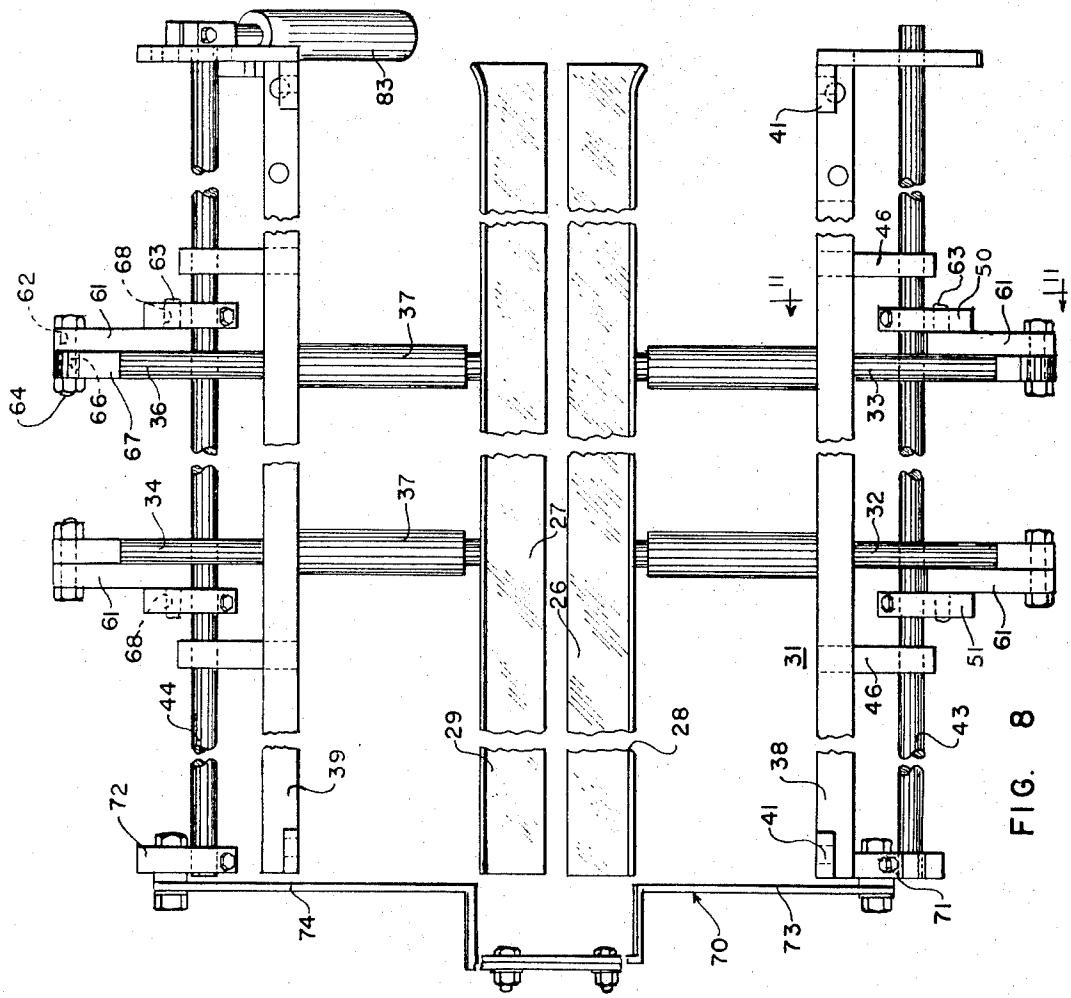


FIG. 8

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3,410,424

RACK FOR HOLDING A STACK OF PRINTED SHEETS

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Filed Feb. 27, 1967, Ser. No. 618,704
1 Claim. (Cl. 214—6)

ABSTRACT OF THE DISCLOSURE

A rack for holding a stack of printed sheets having spaced parallel board supporting flanges which can be moved inwardly to a board holding position and outwardly to a board released position, a handle locks in both positions. The handle turns shafts that drive cranks which are linked to flange driving members.

This invention relates to printing presses of the type which deliver printed sheets in stacked relation and more particularly relates to apparatus for supporting a stack of printed sheets as the sheets are delivered by a printing press while another stack is removed from the press.

Printed sheets may not be fully dry when delivered by a printing press and stacked. Newly printed sheets must therefore be handled carefully to prevent smearing of the ink thereon. An object of this invention is to provide means for removing a stack of printed sheets from a printing press without disturbing the sheets and without need for stopping the press.

A further object of this invention is to provide a rack for supporting a stack of printed sheets while another stack is removed from a printing press.

A printing press of this type may be provided with a board or plate on which printed sheets are automatically piled by the press. A further object of this invention is to provide a rack for holding a plate on which a stack is formed while another stack is removed together with a board on which the other stack is piled.

Such a printing press may be provided with skid carrying bars which can support a skid with a stack carrying plate upon the skid. The bars are lowered gradually while a stack is forming to maintain the top of the stack at a constant level and are raised again when a stack is removed and a new stack is started. A further object of this invention is to provide a board holding rack having flanged board supporting members between which a skid carried by the bars can be raised to raise the board off the flanged members so that the flanged members can be withdrawn without disturbing printed sheets stacked on the board.

A further object of this invention is to provide a rack for supporting a stack carrying plate which rack includes flanged members for supporting the plate and means for retracting the flanged members from plate supporting position to free the plate from the flanged members.

A further object of this invention is to provide a rack of this type having an improved driving mechanism for moving the flanged members which includes a shaft rotatably mounted adjacent each flanged member, cranks on the shaft, drive rods attached to the flanged members and links between the cranks and the drive rods so that the flanged members are positively driven in and out when the shafts are swung through limited arcs.

A further object of this invention is to provide such a rack in which the shafts are linked by a cross rod and cranks which cause the shafts to turn together but in opposite directions to advance the flanged members inwardly and outwardly together.

A further object of this invention is to provide a rack

of this type in which a crank operator is mounted on one of the shafts for turning the shaft, a handle is slidably mounted on the crank, and means resiliently urges the handle inwardly toward the shaft associated therewith and into engagement with a slotted plate which rotatably supports the shaft, the handle being releasably engageable in slots of the slotted plate to lock the shaft and flanged members in a flange-out position and in a flange-in position.

The above and other objects and features of the invention will be apparent to those skilled in the art to which this invention pertains from the following detailed description and the drawings, in which:

FIG. 1 is a somewhat schematic, fragmentary view in end elevation of a printing press provided with a board changing rack constructed in accordance with an embodiment of this invention;

FIG. 2 is a fragmentary view in side elevation of a delivery end portion of the printing press shown in FIG. 1;

FIG. 3 is a view in end elevation of the rack on an enlarged scale, a fragmentary portion of the printing press being shown in association therewith, the flanged members thereof being shown in retracted position in full lines and in advanced position in double dot-dash lines;

FIG. 4 is a view in side elevation of the rack, skid lowering cables of the printing press being shown in association therewith.

FIG. 5 is a view in section taken on the line **5—5** in FIG. 3;

FIG. 6 is a view in section taken on the line **6—6** in FIG. 5;

FIG. 7 is a fragmentary view in end elevation showing the handle in an intermediate position, parts being broken away to reveal details of construction;

FIG. 8 is a fragmentary plan view of the rack;

FIG. 9 is a perspective view showing a corner block;

FIG. 10 is a perspective view of a link which forms part of the rack;

FIG. 11 is a view in section taken on the line **11—11** in FIG. 8; and

FIG. 12 is a fragmentary view in transverse section of a lower end portion of the handle on an enlarged scale.

In the following detailed description and the drawings, like reference characters indicate like parts.

In FIGS. 1 and 2 is shown a fragmentary portion of a printing press **10**, details of construction of which are omitted. Mechanism in the press (not shown in detail) delivers printed sheets **12** to a stack of sheets, the sheets falling onto the stack. The sheets are supported on a skid **13** which carries boards **14** on which stacks of sheets are formed. When a stack of sheets of suitable size has been accumulated on the lowermost board **14**, angle-shaped corner blocks **16** are disposed at the corners of the stack of printed sheets on the board **14**, and a second board **14'** is disposed on the angle-shaped blocks **16** so that a further stack can be accumulated on the board **14'**. The skid **13** is carried by transverse bars **17** which underlie a top panel **18** of the skid **13** intermediate legs **19** thereof. Cables **20**, which extend downwardly from a cantilever head portion **21** of the press, carry clamps **22** which support the ends of the bars **16**. Mechanism of the press, not shown in detail, advances the cables as sheets are delivered at such a speed that, as the sheets accumulate, the top of the stack receiving sheets can remain at a substantially constant height. When a sufficiently high stack or series of stacks of sheets have been accumulated on the skid **13**, the cables **20** can be ad-

vanced more rapidly (by means not shown) to lower the skid **13** to the ground **24**. When the skid **13** is lowered to the ground, the clamps **22** can be removed to release the transverse bars **17**. Then the skid **13** together with the boards **14** and the stacks of printed sheets may be removed from the press. When the skid and stack have been removed, a new skid can be supported upon the transverse bars **17**, and when the clamps **22** have been re-attached to the ends of the transverse bars **17**, the cables can be retracted to raise the bars and skid for supporting new stacks of sheets.

While the skid is being changed, sheets delivered by the press are received on a board **14''** (FIG. 3) which is supported on inwardly directed flanges **26** and **27** of angle-shaped flanged support members **28** and **29**, respectively. The flanged members **28** and **29** are part of a rack indicated generally at **31**. The flanged member **28** is mounted on a pair of pins **32** and **33** (FIG. 8), and the flanged member **29** is mounted on a similar pair of pins **34** and **36**. The pins are slidably and telescopically mounted in horizontal tubular sleeve members **37** which are attached to frame bars **38** and **39**. The frame bars **38** and **39**, in turn, are provided with upwardly extending hanger arms **41**. The hanger arms **41** are attached to the cantilever head portion **21** of the printing press by fasteners **42** as shown in FIGS. 1, 2, and 3. Pivoting shafts **43** and **44** are rotatably mounted adjacent the frame bars **38** and **39**, respectively. Each of the shafts is rotatably mounted in a pair of journal members **46** (FIG. 8) which are attached to the frame bar associated therewith. In addition, the shafts are rotatably mounted in bores **47** (FIG. 5) in slotted plates **48** and **49** mounted on outer ends of the frame bars **38** and **39**, respectively. As shown in FIGS. 3 and 4, the shaft **43** carries cranks **50** and **51** (FIG. 4) which are attached thereto and turned therewith. As shown in FIG. 4, each of the cranks has a transverse bore **52** in which the shaft **43** is received. A slot **53** (FIG. 3) in the crank intersects the bore **52**. A bolt **54** which extends through the slotted portion of the crank draws bifurcations **57** and **58** of the crank together to cause the crank to grip the shaft **43** so that the crank and shaft turn together.

Each of the cranks **50** and **51** is linked to one of the pins **34** by a link **61**. Details of construction of one of the links are shown in FIG. 10. The link **61** includes an elongated body having a bore **62** adjacent one end thereof. A pin **63** projects outwardly from the body parallel to the axis of the bore **62** and adjacent an opposite end of the body. As shown in FIG. 8, a pivot bolt **64** extends through the bore **62** of the link and through a bore **66** in a head portion **67** of the pin **36** to provide a pivotal connection therebetween. The pin **63** of the link extends into a bore **68** of the crank associated therewith to provide a pivotal connection between the crank and the link.

As the shafts **43** and **44** swing, the flange members **28** and **29** are moved from the full line to the double dot-dash line position of FIG. 3, the cranks and links passing through the intermediate position shown in FIG. 7, and there is a positive drive connection throughout the movement.

The shafts are linked together to turn in unison but in opposite directions by a linkage **70**. The linkage **70** includes linking cranks **71** and **72**, which are mounted on the shafts **43** and **44**, respectively, and link members **73** and **74** which link outer ends of the cranks **71** and **72**. Each of the cranks **71** and **72** can be generally similar in construction to the cranks already described. Inner end portions **76** and **77** of the link members **73** and **74**, respectively, overlap. As shown in FIG. 3, a slot **78** in the end portion **76** receives fasteners **80** and **81**, which are mounted in the end portion **77**, to provide an adjustment in the effective length of the linkage.

The shafts **43** and **44** are turned by means of an operating crank **82** mounted on the shaft **44** and a handle **83** slidably mounted on the crank **82**. A slotted head **86** at an upper end of the crank **82** is provided with a transverse bore **87** which receives an end of the shaft **44**. A bolt **88** (FIG. 6) which extends through bifurcations **89** and **91** of the head and a nut **92** threaded on the bolt **88** draw the bifurcations toward each other to clamp the crank **82** on the shaft **44**. The handle is hollow and houses a compression spring **93** which bears on an inwardly directed shoulder **94** of the handle. The compression spring **93** also bears on a piston **95** (FIG. 12) which is slidable in a counterbored portion **95'** of the handle. The piston **95** includes a cylindrical body **95''** which slides in the counterbored portion **95'** and a cylindrical head **95'''** which is received and slides in a doubly counterbored portion **96** of the handle. The piston **95** has an axial bore **96'** which receives the shank of a bolt **97**. The bolt **97** is received in an axial threaded bore **98** in the crank **82** to hold the piston **95** and the crank **82** in assembled relation. The spring **93** urges the handle **83** inwardly toward the shaft **44** as shown in FIG. 6. The head **95'''** is engageable with a shoulder **98'**, which separates the counterbored portions **95'** and **96**, to limit downward and outward movement of the handle **83**.

A stop member **101** is attached to the handle **83** as by welding or the like. The stop member **101** includes a stop portion **102**, which is releasably received in circumferentially spaced radial slots **103** and **104** of the slotted plate **49**. A T-shaped extension **106** of the stop member **101** extends behind the slotted plate **49** to guide the stop portion into the slots **103** and **104**. When the flanged members are to be moved inwardly or outwardly, the handle **83** can be withdrawn to the position shown in FIG. 7 to bring the stop portion **102** free of the slots **103** and **104** so that the crank can be swung, as to the position shown in FIG. 7, between the slots **103** and **104**, the slotted plate **49** being provided with a circularly curved edge portion **108**, which is co-axial with the shaft **44**, along which the stop portion **102** can slide until it reaches one of the slots **103** and **104** whereupon it is urged into the slot to lock the shafts and flange members in position.

When a new skid has been brought into position, the bars **17** (FIGS. 1 and 2) have been disposed beneath the top panel **18** thereof, and the bars are supported by the clamps **22**, the cables **20** can be drawn upwardly to bring the skid to a position where it supports the board **14''** (FIG. 3) slightly above and free of the flanges **26** and **27**. Then the flanged members **28** and **29** can be withdrawn to the full line position of FIG. 3, and the cables can be advanced to lower the skid and board to the position required for continued operation of the printing press.

Having described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A rack for supporting and stacking sheets discharging from a printing press which comprises a pair of elongated spaced substantially parallel frame members arranged to be supported on opposite sides of the sheets as the sheets are delivered, means for attaching said frame members to the framework of the printing press, a plurality of horizontal pins mounted for reciprocation in each frame member transversely thereof, an elongated flanged support member attached to the pins of each frame member, the flanges of said support members being horizontal, extending toward each other, and being adapted to support opposite edges of a board in the path of the sheets for receiving the sheets, journal members attached to each frame member, a shaft journaled in the journal members attached to each frame member, a crank carried by each shaft adjacent each horizontal pin, means connecting each pin and the crank adjacent thereto and so arranged that swinging of the shafts causes inward and outward advance of the flanged members between an inner board supporting position and an outer board released position, a linking crank attached to each shaft, a transverse connecting member connecting the linking cranks to cause the shafts to turn together to drive the support members toward and away from each other in unison, an

operating crank attached to one of the shafts, a handle slidably mounted on the operating crank for sliding toward and away from the shaft on which the operating crank is mounted, means resiliently urging the handle toward said one of the shafts, a stop member mounted on the handle, and a stationary slotted plate mounted on the frame member associated with said one of the shafts, there being spaced radial slots in the slotted plate adapted to receive the stop member when the shafts and flanged members are in inner and outer positions.

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