Jan. 29, 1929. 1,700,681

W. M. KELLY

SHEET HANDLING MACHINE

Filed Nov. 17, 1926 2 Sheets-Sheet 1

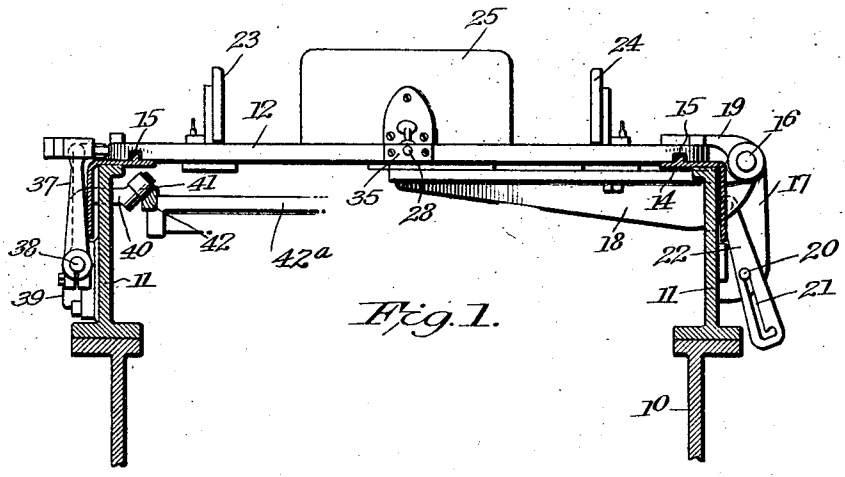
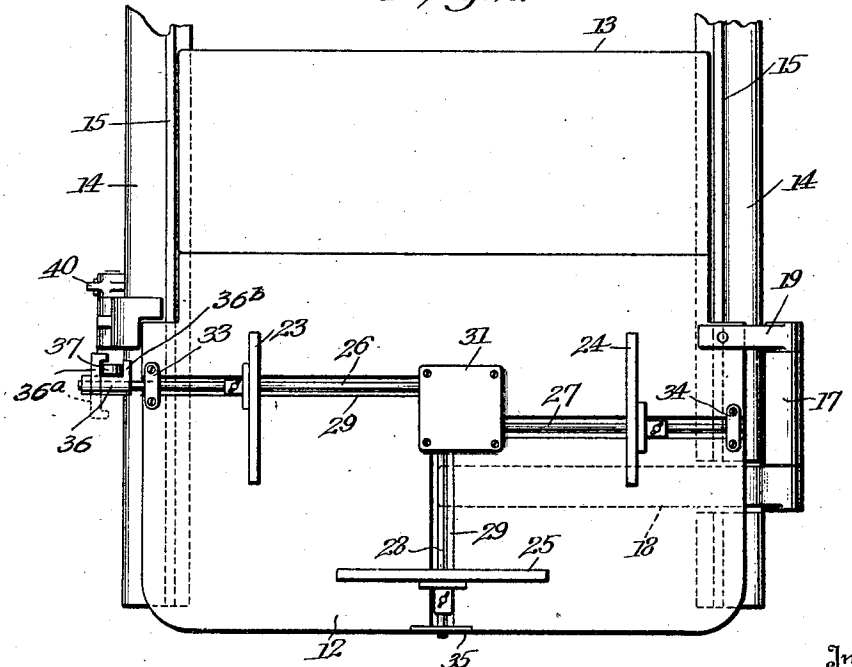


Fig. 1.

Fig. 2.



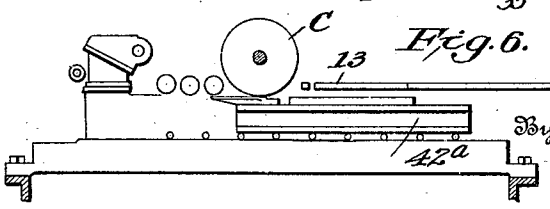


Fig. 6.

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Filed Nov. 17, 1926 2 Sheets-Sheet 2

Fig. 3.

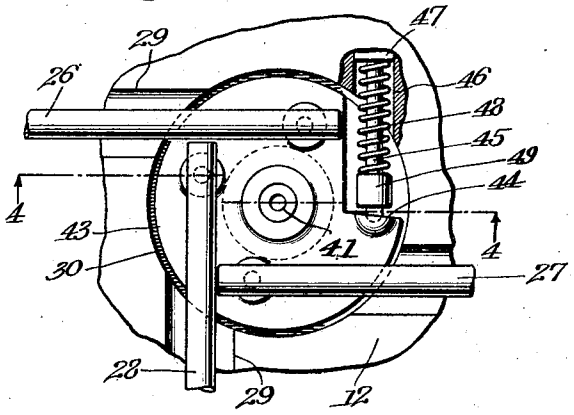
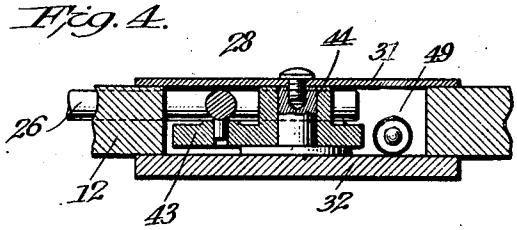
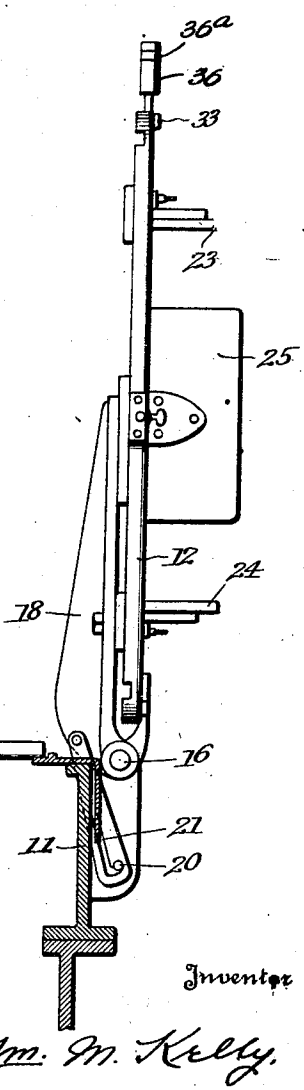


Fig. 4.





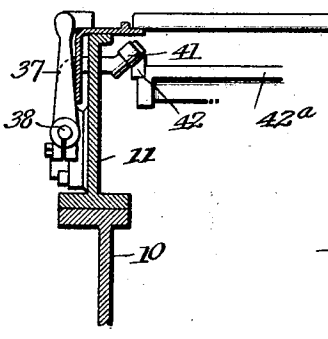


Fig. 5.

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UNITED STATES PATENT OFFICE.

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SHEET-HANDLING MACHINE.

Application filed November 17, 1926. Serial No. 148,961.

The present invention relates to sheet handling machines, and comprises certain improvements in the sheet delivery table.

According to the present invention, which is illustrated in connection with a bed and cylinder press, although not limited thereto, the delivery table carrying the joggers is mounted so that it may be removed, the jogger operating connections being constructed and arranged to permit this.

An additional feature of the invention resides in a board which may be provided to normally form a continuation of the delivery board up to a line adjacent the cylinder, this extra board being movably mounted so that when the delivery table is removed, the inner board may be placed in the position normally occupied by the delivery board. The extra or inner board extends to a line adjacent the cylinder and thereby provides a protective cover for the form on the bed during the operation of the press. When the form is being made up, the delivery board is raised or removed and the extra board is removed or moved into the former position of the delivery board so as to expose the form and provide a convenient temporary support for parts of the form, furniture and the like.

Other objects and features of novelty of the invention will be apparent from the description taken in connection with the drawings, in which:

Fig. 1 is an end elevation of the delivery table and associated jogger mechanism, the supporting frame being shown in section;

Fig. 2 is a plan view of these parts;

Fig. 3 is a plan view of a portion of the jogger operating connections;

Fig. 4 is a sectional elevation taken substantially on the line 4—4 of Fig. 3;

Fig. 5 is a view similar to Fig. 1, but showing the delivery table in raised position; and

Fig. 6 is a diagrammatic side elevation showing the relation of the cylinder, delivery boards and bed.

Referring to the drawings, which illustrate one embodiment of the invention, the main frame of a printing press or other machine is designated by the reference character 10. The sheet delivery board 12 and the inner or extra board 13 are supported on the longitudinal members 11 resting on top of the side members of the frame 10. These boards rest directly on guard plates 14 secured to the members 11. The guard plates have horizontal portions resting on top of the members 11 and vertical portions disposed at the sides of said members. Each of the plates 14 is formed with a longitudinal rib 15 which engage in grooves in the under side of delivery board 12. The inner portion of board 12 is cut away to form a portion reduced in width, as clearly shown in Fig. 2, the edges of this reduced portion resting on the ledges of plates 14 which project inwardly from ribs 15. The extra board 13 forms a continuation of the reduced portion of board 12 and extends to a line adjacent the periphery of the impression cylinder C.

The delivery board 12 is removable. As shown it is hinged at the side of the frame, so that it can be raised into the position shown in Fig. 5. The hinge of board 12 comprises a pin 16 revoluble in a bracket 17 secured to the outside of housing member 11. A relatively long arm 18 is secured to one end of pin 16 and projects through a depressed portion, or notch, in member 11 and is secured to the under side of board 12, the guard plate 14 being cut away at this point to permit the arm to be raised. A short arm 19 is secured to the other end of pin 16 and projects over the edge of board 12 and is secured thereto. The board is held in the raised position shown in Fig. 5 by a pin 20 on bracket 17 engaging the angular portion of a bayonet slot 21 in an arm 22 which is pivoted to arm 18.

The three jogger boards 23, 24 and 25 are adjustably secured to rods 26, 27 and 28, respectively. These rods are disposed below the surface of board 12 in slots 29 and the inner ends of said rods project into a circular aperture 30 (Fig. 3) cut through the board. This aperture is covered by top and bottom plates 31 and 32. The outer ends of rods 26, 27 and 28 are slidably supported in bearings 33, 34 and 35, respectively.

For operating the joggers, the outer end of rod 26 carries a yoke 36 in which works the upper rounded end of an arm 37 secured to one end of a shaft 38 which is pivoted in a bracket 39 attached to the side of housing member 11. To the other end of shaft 38 is secured an arm 40 which projects vertically

from the shaft and then horizontally through openings in guard plate 14 and housing member 11 and has an inclined end supporting a roller 41. Roller 41 engages a cam 42 secured to the reciprocating bed 42ª. The inner ends of rods 26, 27 and 28 have depending pins (Fig. 4) which engage holes in a circular disk 43 mounted in the circular aperture 30 of the board. Disk 43 is rotatable on a pin 44 screwed to the top plate 31 and having a head 41′ resting on the bottom plate 32. As shown in Fig. 3, disk 43 is cut away at one side to form a shoulder 44. This shoulder has a socket in which works the rounded end of a rod 45 which extends into a recess 46 in the board and is slidable in a bearing 47 secured in said recess. A compression spring 48 surrounds rod 45 and bears at its ends respectively against bearing 47 and a collar 49 on the rod.

When the bed moves in one direction, the coaction of roller 41 with cam 42 causes rod 26 with its jogger board 23 to move outwardly and to rotate the disk 43 in a counter-clockwise direction, looking at Fig. 3, which also moves the rods 27 and 28 outwardly with their attached jogger boards 24 and 25. The counter-clockwise rotation of disk 43 places spring 48 under compression, so that on the return stroke of the bed, the disk is rotated clockwise by said spring, with consequent inward movement of the jogger boards.

The extra board 13 forms with the delivery table 12 a complete cover for the delivery end of the press protecting the form and interior mechanism from dust and dirt, and preventing sheets from falling through onto the form. When the form is to be made up and the press is stopped, the delivery table 12 with the jogger mechanism carried thereby is raised up about hinge 16 and held in the elevated position shown in Fig. 5 by engagement of the pin 20 with the bayonet slot in arm 22. The extra board 13 is then slid into the position normally occupied by the delivery board, exposing the bed for making up the form. The extra board 13 provides in this position a convenient table for temporarily holding parts of the form, etc. It will be observed that the jogger operating connections, including the yoke 36 on rod 26 and arm 37 permit table 12 to be raised and will automatically reengage when the table is lowered. The yoke is constructed so that it may give way in case the opening in the yoke does not register with arm 37 when returning the board to normal position. For this purpose the yoke may be made with one arm 36ª pivoted on rod 26, the other arm 36ᵇ being rigid with the base of the yoke. When the board is in raised position, spring 46 holds the rod 26 and the yoke at the right hand end of its stroke as viewed in Fig. 2. When returning the board, if the arm 37 and yoke do not register, the arm 36ª of the yoke will strike the upper end of arm 37 and be turned upwardly. Thereafter the operator will merely pull rod 26 to the left until arm 36ª drops over the outside of arm 37.

If it is desired to operate the press without actuating the jogger mechanism then the arm 36ª may be moved to the dotted line position shown in Fig. 2. Thereafter arm 37 will oscillate without reciprocating the rod 26.

Changes may be made in the specific mechanism described without departing from the scope of the invention as defined in the claims.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In a bed and cylinder press, in combination, a sheet delivery board hinged adjacent one edge so that it may be raised to an elevated position, and a board forming an inner continuation of said sheet delivery board and extending to a line adjacent the cylinder, said extra board being slidably mounted so that it may be slid into the position normally occupied by the sheet delivery board.

2. In a bed and cylinder press, in combination, a sheet delivery board hinged to swing about an axis at one side of the press frame so that it may be raised to an elevated position, and a board between the inner edge of the sheet delivery board and the cylinder, said extra board being movable into the position normally occupied by the sheet delivery board.

3. In a bed and cylinder press, in combination, a sheet delivery board hinged to swing about an axis at one side of the press frame so that it may be raised to an elevated position, jogger mechanism mounted on said board, operating means for said mechanism at the other side of the frame permitting the board to be raised, and a board between the delivery board and the cylinder adapted to be moved into the position normally occupied by the sheet delivery board.

4. In a bed and cylinder press, in combination, a sheet delivery board, jogger mechanism mounted thereon, a rod slidably mounted on said board operatively connected to said jogger mechanism and projecting from the board at one side, a yoke on the projecting end of said rod, an arm pivoted to the press frame having its free end loosely embraced by said yoke, means for oscillating said arm in the operation of the press, said board being hinged at the opposite side of the frame so that it may be raised and held in an elevated position, and a board normally forming an inner continuation of said delivery board adapted to be moved into the position normally occupied by the latter.

5. In a sheet handling machine, in combination, a hinged sheet delivery table, jogger mechanism mounted on said table, and means for operating said mechanism automatically

disconnected when the table is raised about its hinge.

6. In a sheet handling machine, in combination, a sheet delivery table hinged adjacent one edge, jogger mechanism carried by said table, a rod slidably mounted on said table connected to said mechanism and projecting from an edge thereof, a yoke on the projecting end of said rod, a pivoted arm having its free end loosely embraced by said yoke, and means for operating said arm.

7. In a sheet handling machine, in combination, a sheet delivery table hinged adjacent one edge, jogger mechanism mounted on said table, means for operating said mechanism automatically disconnected when the table is raised about its hinge, and means for holding the table in elevated position.

8. In a sheet handling machine, in combination, a sheet delivery table hinged adjacent one edge, jogger mechanism mounted on said table, means for operating said mechanism automatically disconnected when the table is raised about its hinge, and means for holding the table in elevated position comprising an arm pivoted to the table adjacent the hinge thereof having a bayonet slot and a fixed pin engaging said slot.

9. In a bed and cylinder press, in combination, a delivery table hinged adjacent one edge, jogger mechanism mounted on the table, a rod slidable on the table operatively connected with said mechanism and projecting from an edge of the table, a shaft pivoted to the frame of the press, an arm rigid with the shaft having its free end engaging the projecting end of said rod, a second arm rigid with said shaft, a cam on the bed of the press engaging the end of said second arm, and a spring holding said second arm engaged with the cam.

10. In a sheet handling mechanism, in combination, a frame, a sheet delivery table removably supported on said frame and adapted to support a pile of sheets, jogger devices mounted on said sheet supporting delivery table, and means to actuate said devices, said table being removable without interference from said means.

11. In a sheet handling machine having a reciprocating member, in combination, a removably mounted delivery table, jogger mechanism mounted on said table, and means actuated by said reciprocating member and in constant engagement therewith for operating said mechanism, said mechanism being automatically disconnected when the table is removed.

12. In a sheet handling machine having a reciprocating member, in combination, a hinged delivery table, jogger mechanism mounted on said table, means actuated by said reciprocating member for operating said mechanism, said mechanism being automatically disconnected when the table is raised about its hinge, and means for holding the table in elevated position.

In testimony whereof I hereunto affix my signature.

WILLIAM M. KELLY.