

Nov. 24, 1931.

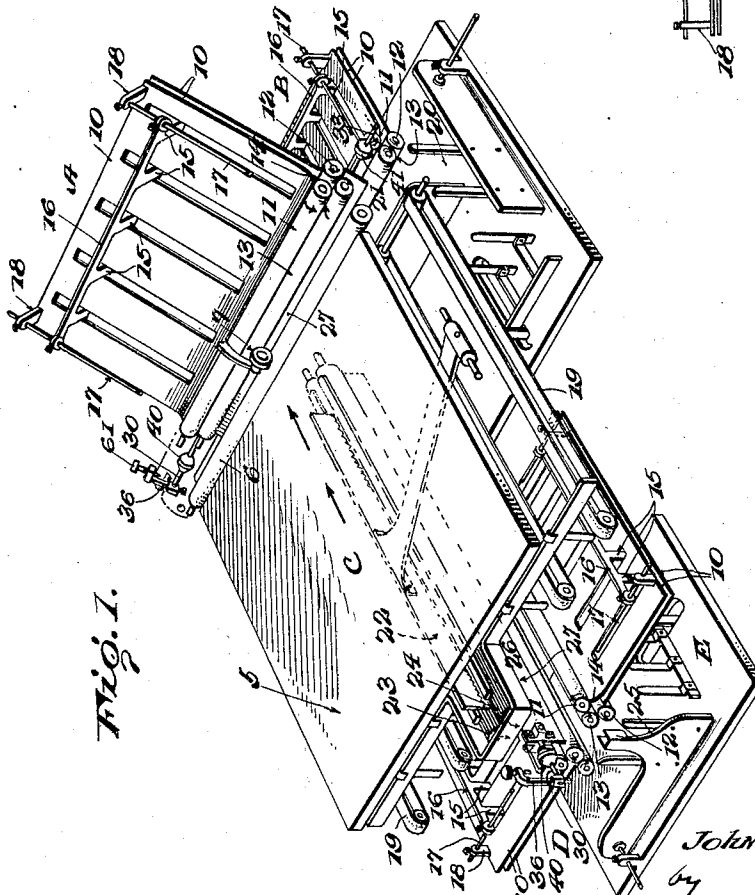
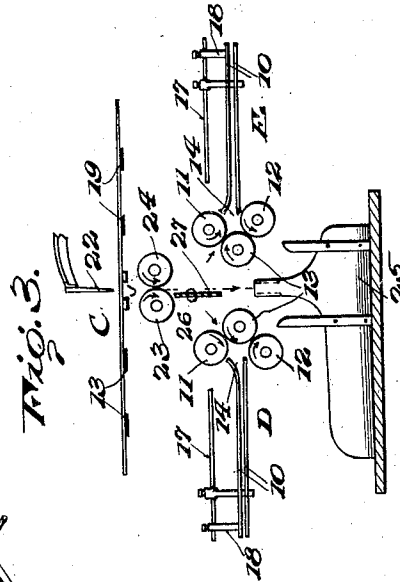
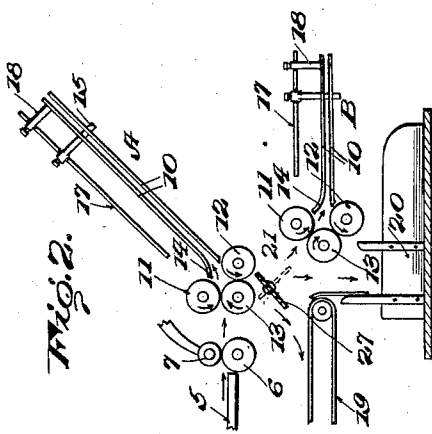
J. MENTGES

1,833,296

FOLDING MACHINE

Filed April 1, 1929

2 Sheets-Sheet 1



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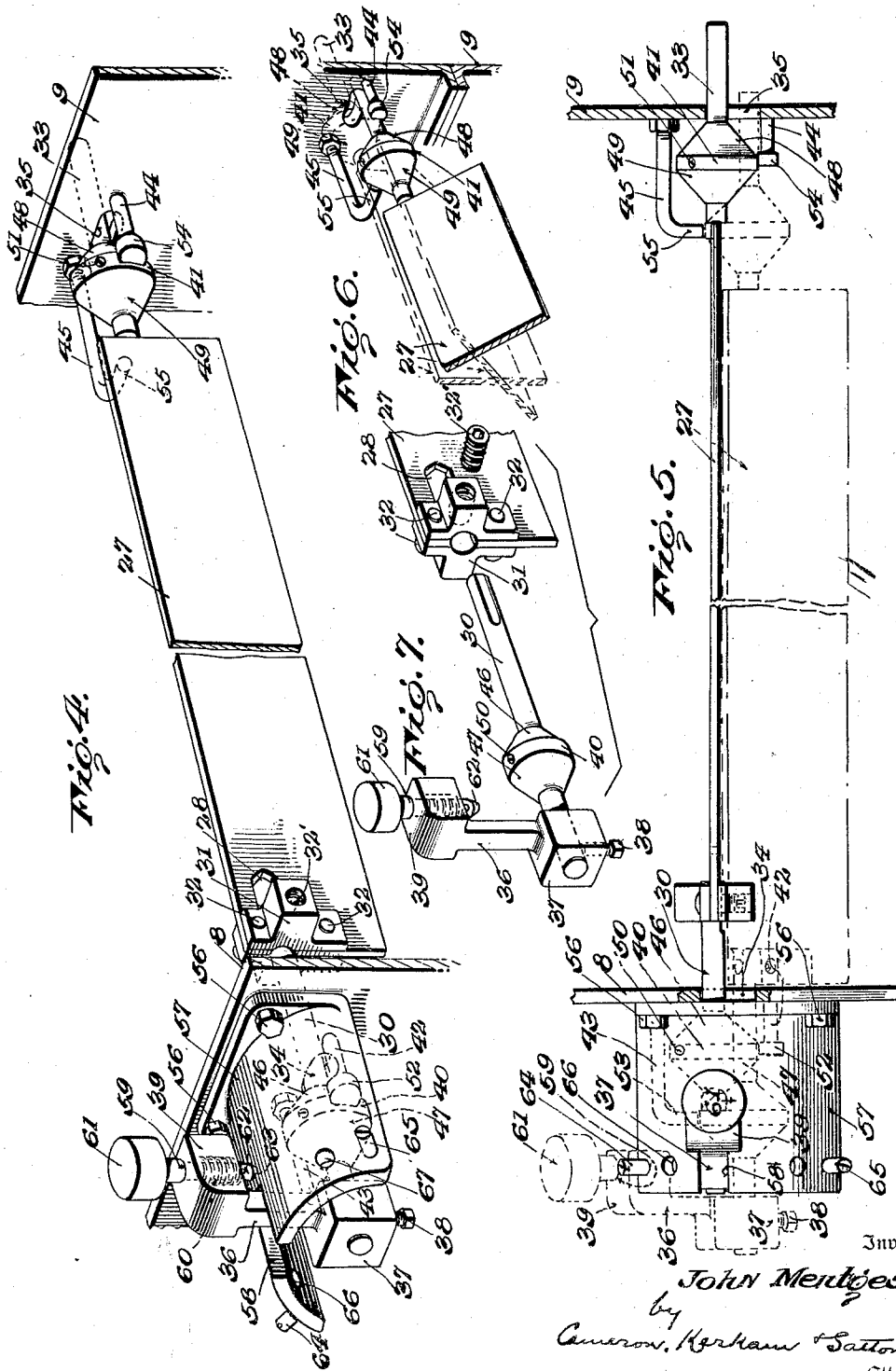
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FOLDING MACHINE

Application filed April 1, 1929. Serial No. 351,764.

This invention relates to folding machines and more particularly to an improved sheet deflector therefor.

In my copending application Serial No. 30,149, filed May 14, 1925, there is disclosed a pivoted sheet deflector comprising spaced plates over or between which the sheets pass in accordance with the position of said deflector. Certain objects of the present invention are to improve the efficiency of said deflector by employing only a single plate that can be arranged closer to the folding mechanism to secure better control of sheets passing therefrom over the deflector, and which can be shifted from at least one path of travel of the sheets to avoid friction between the same and the deflector as the sheets travel in said path.

Further objects of the invention are to provide a more compact arrangement of sheet folding mechanisms and sheet deflecting means; a mounting of the sheet deflecting means that does not require the trunnions thereof to be centered with respect to the folding mechanisms; and a construction wherein news and book imposition folding devices can be spaced as desired without changing the action of the deflector.

Other objects of the invention will appear as the following description thereof proceeds, and in order to more clearly understand the invention reference may be had to the accompanying drawings which illustrate one embodiment of the inventive idea and wherein:—

Fig. 1 is a detail perspective view of a folding machine equipped with sheet deflectors constructed in accordance with the present invention;

Fig. 2 is an enlarged vertical sectional view of loop folding mechanisms embodied in said machine and having one of said deflectors associated therewith;

Fig. 3 is a view similar to Fig. 2, showing knife and loop folding mechanisms forming part of the machine and having one of said sheet deflectors associated therewith;

Fig. 4 is an enlarged detail perspective view of the sheet deflector and operating means therefor;

Fig. 5 is a top plan view of the devices shown in Fig. 4;

Fig. 6 is a fragmentary detail perspective view of sheet deflector, showing in full and dotted lines various positions of adjustment thereof; and

Fig. 7 is a view similar to Fig. 6, showing trunnion adjusting means for the deflector and the parts thereof separated for purposes of clearer illustration.

The folding machine or instrumentality with which the sheet deflecting means is associated may be of any suitable construction such, for example, as disclosed in my copending application Serial No. 146,936, filed November 8, 1926, and illustrated in Figs. 1 to 3, inclusive, of the drawings of the present application. In said figures, five folding mechanisms or units are illustrated and indicated at A, B, C, D and E, respectively. These mechanisms, together with a feed table 5 and suitably operated feed and drop rollers 6 and 7 respectively, are mounted on suitable side frames of the machine such as indicated at 8 and 9 (Figs. 4 and 5). The sheets are fed successively from the table 5 by the feed and drop rollers, to mechanism A which comprises spaced, interconnected, inclined plates 10, 10 constituting a grid, and rollers 11, 12 and 13 arranged at the mouth of the grid and connected by suitable driven pinions (not shown) to rotate in the directions indicated by the arrows thereon. The sheet is advanced by the feed and drop rollers between the rollers 11, 13 which in turn advance the sheet into the grid, through the mouth 14 thereof.

As the sheet is advanced in the grid, the leading edge of said sheet strikes stop fingers 15, 15 which project into the grid from a bar 16. This bar and said fingers are adjustable to various positions along the grid on rods 17, 17 which are carried by brackets 18, 18 secured to or formed integrally with the uppermost of the plates 10, 10. When the leading edge of the sheet strikes the stops 15, 15, said sheet is buckled and folded between rollers 12, 13 and passes therethrough for delivery to mechanism B, or to suitably driven conveyor belts 19, 19, or to a packer 20

arranged under mechanism A and between mechanism B and said conveyor belts. The sheet is delivered to mechanism B, or to the conveyor belts 19, 19, or to packer 20, in accordance with the position of a deflector 21 associated with mechanism A and to be hereinafter described in detail. Mechanisms A and B are identical in their construction and operation except that the grid of the latter extends horizontally whereas the grid of the former is inclined. Mechanism B is adapted to make a fold in the sheet parallel with the fold formed therein by mechanism A. Packer 20 may be of any suitable type such as disclosed in my copending application Serial No. 146,935, filed November 8, 1926. Conveyor belts 19, 19 extend horizontally under the table 5 in spaced relation therewith, and in the event the folded sheet is delivered to said conveyor belts, the latter in turn deliver said sheet to mechanism C which is adapted to make a fold in the sheet at right angles to the fold formed therein by mechanism A.

Mechanism C is a knife folder and comprises a suitably operated knife 22, and rollers 23, 24 connected by suitably driven gears (not shown) to rotate in the direction indicated by the arrows thereon. The knife 22 is arranged under the table 5 to operate between the conveyor belts 19, 19 and tuck the sheet between the rollers 23, 24 which fold the sheet at right angles to its first fold and deliver said sheet to mechanism D, or to mechanism E, or to a packer 25 arranged below the rollers 23, 24 and disposed between said mechanisms. The delivery of the sheet from folding rollers 23, 24 to mechanism D, or to mechanism E, or to packer 25, depends on the position of a sheet deflector 26 which is associated with said folding rollers.

Mechanisms D, E and B are identical in their construction and operation except that one or the other of mechanisms D and E produce a fold in the sheet parallel with the fold produced therein by mechanism C and at right angles to the fold in the sheet produced by mechanism A. Mechanism D is employed for what is known as news imposition and mechanism E is employed for what is known as book imposition. The packer 25 is also preferably of the type disclosed in my copending application Serial No. 30,149, above referred to, and detailed description of packer 25, as well as packer 20, is unnecessary for a complete understanding of the present invention.

The deflectors 21 and 26 are identical in their operation and construction and it is therefore only necessary to describe one of the same. In accordance with the present invention, each deflector preferably comprises a single plate 27 arranged closer to the adjacent sheet folding mechanism than is possible with a double plate deflector, and

whereby a better control is secured of sheets passing from said mechanism over one or the other of the opposite sides of said plate when it is swung angularly to various operative positions as hereinafter described. Means are provided, in accordance with the present invention, for longitudinally and laterally shifting the deflector and for swinging the same, from an inoperative position relative to the adjacent sheet folding mechanism, to an operative position or positions with respect thereto, and for swinging and shifting said deflector laterally and longitudinally from said operative position or positions to said inoperative position. The deflector shifting and swinging means thus enables the deflector to be removed from at least one path of travel of sheets delivered from the adjacent folding mechanism, so as to avoid friction between said sheets and the deflector as the sheets travel in said path, and said deflector shifting and swinging means is preferably arranged and constructed as follows.

The plate 27 is provided in one end thereof with a slot 28 that extends longitudinally of the plate and receives the inner end of a trunnion 30. The trunnion 30 is secured to plate 27 by a two-part clamp 31 that embraces the inner end of said trunnion and is riveted or otherwise suitably secured as at 32, 32 to the opposite sides of the plate 27. The trunnion 30 is secured in clamp 31 by a set screw 32' that enables said trunnion to be adjusted in the clamp to increase or decrease the length of the pivotal axis of plate 27 as desired. Welded or otherwise rigidly secured on the plate 27 at the end thereof opposite that carrying the trunnion 30, is a trunnion 33 which, together with the trunnion 30, enables the plate 27 to be swung about said axis to various operative positions relative to the adjacent sheet folding mechanism. The trunnions 30, 33 are journaled in suitable bearings 34, 35 on the side frames 8, 9, as clearly shown in Figs. 4 and 5. The bearings 34, 35 provide for longitudinal and lateral reciprocating or shifting movements of the plate 27 relative to the adjacent folding mechanism, as well as for swinging movement of said plate relative to said mechanism. As herein shown, said bearings are preferably comprised by horizontally extending slots formed in the side frames 8, 9 and through which the trunnions 30, 33 project from the opposite ends of the plate 27 outwardly beyond the side frames 8, 9. The longitudinal reciprocating and swinging movements of the plate 27 are obtained by a lever or handle 36 the hub 37 of which is fixed on the free end of the trunnion 30, as by a set screw 38. The lever or handle 36 is thus disposed at the outer side of, and in spaced relation with, the frame 8, so that said lever or handle will be more readily accessible to operate the plate 27. The trunnion 30 is pref-

erably somewhat longer than the trunnion 33 to provide sufficient clearance for the lever or handle in its various movements hereinafter described. Said lever or handle 36 is provided with a laterally extending head 39 directed inwardly toward the side frame 8 and carrying locking means that will be later described in detail.

The lateral shifting or reciprocating movements of the plate 27 are obtained by double cam or conical members 40, 41 mounted on the trunnions 30, 33, respectively, and stationary means herein shown as pairs of spaced pins 42, 43 and 44, 45 mounted on the side frames 8 and 9 so that when the plate 27 is reciprocated longitudinally of the adjacent sheet folding mechanism, the ends of said pins engage the oppositely extending cam or conical surfaces 46, 47 and 48, 49 of the members 40, 41 respectively and reciprocate the plate 27 laterally of said folding mechanism.

The double cam or conical members 40, 41 are adjustably mounted on the trunnions for plate 27 and secured in the desired position of adjustment thereon by set screws 50 and 51, respectively, the member 40 being positioned on trunnion 30 adjacent the outer side of frame member 8 and between the pins 42, 43, and the member 41 being positioned on the trunnion 33 adjacent the inner side of frame member 9 and between the pins 44, 45. The pair of pins 42, 43 project outwardly from the side frame 8 and are secured on said frame adjacent opposite ends of the slot 34 therein, the pin 42 being a short straight element having an enlarged end portion 52 for engagement with the cam or conical surface 46, and the pin 43 being longer than the pin 42 and having a bent end portion 53 for engagement with the cam or conical surface 47. The pair of pins 44, 45 project inwardly from the frame 9, the pin 44 being a short straight element having an enlarged end portion 54 for engagement with the cam or conical surface 48, and the pin 45 being longer than the pin 44 and having a bent end portion 55 for engagement with the cam or conical surface 49.

In accordance with the present invention, means are provided for locking the plate 27 against swinging and shifting movement in its operative and inoperative positions, and said means are preferably arranged and constructed as follows: Projecting outwardly from the frame member 8, and secured thereto as by machine screws 56, 56, is a curved keeper plate 57 provided therein with a slot 58 extending parallel with the pivotal axis of the plate 27. In the inoperative and preferable vertical position of the plate 27, as shown in Fig. 4, the handle 36 projects in slot 58 adjacent the inner closed end thereof, so that the plate 27 is locked against swinging movement. The head of the lever or han-

dle 36 is provided therein with an opening 59 for a spring locking bolt 60 having an operating head 61 and a nose 62. In the position of the parts shown in Fig. 4, the nose 62 of said locking bolt is adapted to engage in a recess 63 formed in plate 57 in alinement with, and at the closed inner end of, slot 58. The plate 27 is thus locked against longitudinal shifting movement until the bolt 60 is lifted by the head 61 to disengage the nose 62 from the opening 63. The handle 36 is reciprocated longitudinally in slot 58 to impart like motion to the plate 27, and when the handle is moved out of the slot 58 through the outer open end thereof, the plate 27 is shifted laterally from its inoperative position by the conical members and pins and may then be swung by the handle to various operative positions with respect to the adjacent folding mechanism. The swinging movement of the plate and handle is limited by stops 64, 65 projecting from the plate 57 at opposite sides of, and in spaced relation with, the slot 58, and said handle and the plate 27 may be locked in the aforesaid operative positions by engaging the nose 62 of bolt 60 in openings 66, 67 that are formed in plate 57 between the pins 64, 65 and opposite sides of the slot 58, respectively. When it is desired to move the plate 27 to its inoperative position, the handle 36 is unlocked and swung into alinement with slot 58. The handle is then moved into the slot longitudinally, whereupon the plate is moved longitudinally in the same direction by said handle and shifted laterally to its inoperative position by the conical members and pins.

The operation of the sheet deflectors will be clearly understood from the foregoing and, as respects the folding machine herein illustrated, may be briefly summarized as follows. If it is desired to deliver sheets from mechanism A directly into packer 20, the deflector 21 is swung and shifted laterally and longitudinally to its inoperative position at one side of the path of travel of said sheets. Should it be desired, however, to deliver the sheets from mechanism A to mechanism B and then into packer 20, the deflector is shifted longitudinally and laterally from its inoperative position and swung so as to direct the sheets from mechanism A to mechanism B from the latter of which the sheets pass into packer 20. In the event it is desired to deliver the sheets from mechanism A to conveyor belts 19, 19, the deflector 21 is swung so as to direct the sheets from said mechanism to said belts.

The sheets as they travel in succession on belts 19, 19, are then folded by mechanism C at right angles to the fold in the sheets imparted thereto by mechanism A. If it is then desired to deliver the sheets from mechanism C directly into packer 25, deflector 26 is swung and shifted laterally and longitu-

5 dinally to its inoperative position relative to mechanism C. Should it be desired, however, to impart another parallel fold in the sheets of the character known as news imposition, the deflector 26 is shifted longitudinally and laterally and swung so as to direct the sheets from mechanism C to mechanism D from the latter of which the sheets pass into packer 25. In the event it is desired to impart a parallel fold to the sheets of a character known as book imposition, the deflector 26 is swung to direct the sheets from mechanism C to mechanism E from the latter of which the sheets pass into packer 25.

10 15 The machine herein disclosed is only one of many types with which deflectors constructed in accordance with the present invention may be installed. In fact, such deflectors may be used with any machine or instrumentality for feeding or delivering sheets or webs and wherein it is desired to change the path of travel of the sheets or webs to various devices embodied in the machine. Regardless of the type of machine with which deflectors such as herein disclosed are associated, it will appear that by the present invention a more compact arrangement of parts is obtained, a better control of the sheets secured, and a highly efficient and simply constructed mechanism provided that avoids as far as possible, friction of the sheets as the same travel through the machine.

20 25 Moreover, the shifting mechanism of the present invention is adapted not only for sheet deflectors, but may also be employed in association with any member or instrumentality to be shifted. It is therefore to be expressly understood that the invention is not limited to the embodiment thereof herein disclosed or otherwise than by the terms of the appended claims.

40 What is claimed is:

1. In a folding machine, sheet folding mechanism, a pivoted laterally shiftable deflector movable from an inoperative position to an operative position and adapted to deflect a sheet folded by said mechanism, and means for bodily shifting the sheet deflector laterally and for thereafter swinging the same about its pivotal axis, to move said sheet deflector from said inoperative position to said operative position.

2. In a folding machine, sheet folding mechanism, a pivoted laterally shiftable deflector adapted to deflect a sheet folded by said mechanism and movable from an operative position to an inoperative position, and means for swinging the sheet deflector about its pivotal axis and for thereafter bodily shifting said sheet deflector laterally, to move the sheet deflector from said operative position to said inoperative position.

3. In a folding machine, sheet folding mechanism, a pivoted laterally shiftable sheet deflector movable from an inoperative position

70 to various operative positions, and means for bodily shifting the sheet deflector laterally and for thereafter swinging the same about its pivotal axis, to move said sheet deflector from said inoperative position to any one of said operative positions.

4. In a folding machine, sheet folding mechanism, a pivoted laterally shiftable sheet deflector having a plurality of operative positions and an inoperative position, and means for swinging the sheet deflector about its pivotal axis and for thereafter bodily shifting said sheet deflector laterally, to move the sheet deflector from any one of said operative positions to said inoperative position.

5. In a folding machine, sheet folding mechanism, a pivoted laterally shiftable sheet deflector having an inoperative position and a plurality of operative positions, and means for bodily shifting the sheet deflector laterally in one direction and for thereafter swinging the same about its pivotal axis, to move the sheet deflector from its inoperative position to any one of said operative positions, said means being adapted to swing the sheet deflector about said axis and thereafter bodily shift said sheet deflector laterally in the opposite direction, to move the sheet deflector from any one of its operative positions to said inoperative position.

6. In a folding machine, sheet folding mechanism, a pivoted laterally shiftable sheet deflector having an operative position and an inoperative position, means for swinging the sheet deflector about its pivotal axis and for thereafter bodily shifting said sheet deflector laterally, to move the sheet deflector from said operative position to its inoperative position, and means for locking the sheet deflector in said inoperative position.

7. In a folding machine, sheet folding mechanism, a pivoted laterally shiftable sheet deflector having an inoperative position and a plurality of operative positions, means for bodily shifting the sheet deflector laterally and for thereafter swinging the same about its pivotal axis, to move said sheet deflector from said inoperative position to any one of its operative positions, and means for locking the sheet deflector in each of said operative positions.

8. In a folding machine, sheet folding mechanism, a pivoted laterally shiftable sheet deflector having an inoperative position and a plurality of operative positions, means for bodily shifting the sheet deflector laterally in one direction and for thereafter swinging the same about its pivotal axis, to move said sheet deflector from said inoperative position to any one of its operative positions, said means being adapted to swing the deflector about said axis and thereafter bodily shift said sheet deflector laterally in the opposite direction, to move the sheet de-

flector from any one of said operative positions to its inoperative position, and means for locking the sheet deflector in each of said positions.

5 9. In a folding machine, sheet folding mechanism, a sheet deflector movable to various operative positions to deflect sheets in different directions from said sheet folding mechanism, and means for moving the
10 sheet deflector to said operative positions and an inoperative position and including devices for bodily shifting said sheet deflector laterally.

15 10. In a folding machine, sheet folding mechanism, a sheet deflector movable to an operative position and an inoperative position with respect to said sheet folding mechanism, and means for moving the sheet deflector to said positions and including devices
20 for bodily shifting said sheet deflector longitudinally and laterally.

25 11. In a folding machine, sheet folding mechanism, pivoted means for deflecting sheets in different directions from said sheet folding mechanism, and means for shifting said pivoted means laterally of the sheet
folding mechanism,

30 12. In a folding machine, sheet folding mechanism, pivoted means for deflecting sheets in different directions from said sheet folding mechanism, and means for shifting said pivoted means longitudinally and laterally of the sheet folding mechanism.

35 13. In a folding machine, sheet folding mechanism, a single-plate sheet deflector movable to various operative positions to deflect sheets in different directions from the sheet folding mechanism and bodily shiftable to
40 and from an inoperative position, and means for moving said deflector to and from said positions.

45 14. In a folding machine, sheet folding mechanism, a pivoted, single-plate sheet deflector associated with said sheet folding mechanism and bodily shiftable to and from an inoperative position relative thereto, and
means for swinging said sheet deflector to various operative positions when it is shifted bodily from its inoperative position.

50 15. In a folding machine, sheet folding mechanism, a pivoted, single-plate sheet deflector associated with said sheet folding mechanism and bodily shiftable to and from an inoperative position relative thereto,
55 means for swinging said sheet deflector to various operative positions when it is shifted bodily from its inoperative position, and means for locking the sheet deflector in each of said positions.

60 16. In a folding machine, sheet folding mechanism, and a sheet deflector associated with the sheet folding mechanism and shiftable longitudinally and laterally of said sheet folding mechanism to and from an inoperative
65 position relative thereto.

17. In a folding machine, sheet folding mechanism, a sheet deflector associated with said sheet folding mechanism and shiftable longitudinally and laterally thereof, means
70 for shifting the sheet deflector longitudinally and cooperating devices on the sheet deflector and the folding machine framework for shifting said sheet deflector laterally when it is shifted longitudinally.

18. In combination, a member arranged for shifting and swinging movement, means for
75 shifting the member longitudinally and for swinging it to various positions, and means for shifting said member laterally when it is shifted longitudinally.

80 19. In combination, a member movable longitudinally in opposite directions and having oppositely extending conical surfaces, means adapted to engage one of said surfaces and shift the member laterally when it is
85 moved longitudinally in one direction, and means adapted to engage the other of said conical surfaces and shift said member laterally when it is moved longitudinally in the opposite direction.

90 20. In combination, a member movable longitudinally in opposite directions and having oppositely extending conical surfaces, a pin adapted to engage one of said surfaces and shift the member laterally when it is
95 moved longitudinally in one direction, and a second pin having a bent end portion adapted to engage the other of said conical surfaces and shift said member laterally when it is moved longitudinally in the opposite
100 direction.

21. In combination, a member arranged for reciprocating and swinging movement and provided with oppositely extending conical surfaces, a lever for reciprocating the member
105 longitudinally and for swinging it to various positions, and devices for engaging said conical surfaces to reciprocate said member laterally when it is reciprocated longitudinally.

110 22. In combination, a member arranged for reciprocating and swinging movement, a slotted plate, a lever on said member movable into and out of the slot of said plate to reciprocate the member longitudinally, and
115 means adapted to reciprocate said member laterally as the lever is moved into and out of said slot.

23. In combination, a member arranged for reciprocating and swinging movement, a slotted
120 plate, a lever movable into and out of the slot in said plate and adapted to reciprocate the member longitudinally when moved in opposite directions in said slot and to swing the member to various positions when moved
125 out of the slot and swung to either side thereof, means for reciprocating the member laterally as the lever is moved into and out of the slot, and means for locking the member against swinging movement when the lever
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is moved out of the slot and swung to either side of the same.

24. In combination, a member arranged for reciprocating and swinging movement, a slotted plate, a handle movable into and out of the slot in said plate and adapted to reciprocate the member longitudinally when moved in opposite directions in said slot and to swing the member to various positions when moved out of the slot, means for reciprocating the member laterally as said handle is moved into and out of the slot, and stops on the plate for limiting swinging movement of the handle and said member.

25. In combination, a member arranged for reciprocating and swinging movements, a plate having a slot and provided with an opening aligned with the slot and openings at opposite sides thereof, a handle movable into and out of the slot and adapted to reciprocate said member longitudinally when moved in opposite directions in the slot and to swing the member to various positions when moved out of the slot, means for reciprocating said member laterally as the handle is moved into and out of the slot, and a spring locking bolt carried on said handle and adapted to be engaged in any one of the openings in said plate.

26. In a folding machine, sheet folding mechanism, a sheet deflector associated therewith and bodily shiftable to and from an inoperative position relative thereto, and means for moving said sheet deflector to various operative positions when it is shifted bodily from its inoperative position.

27. In a folding machine, sheet folding mechanism, a sheet deflector associated with said sheet folding mechanism and shiftable longitudinally thereof, and means for shifting the sheet deflector laterally of said sheet folding mechanism.

28. In a folding machine, sheet folding mechanism, a sheet deflector associated therewith, means for shifting the sheet deflector longitudinally of the sheet folding mechanism, and means for shifting said sheet deflector laterally of said sheet folding mechanism when it is shifted longitudinally thereof.

29. In a folding machine, sheet folding mechanism, a member adapted to deflect sheets in different directions from said sheet folding mechanism, and means for moving the member to and from an inoperative position and including devices for bodily shifting said member laterally in opposite directions.

30. In a folding machine, sheet folding mechanism, a member thereunder adapted to deflect sheets folded by said mechanism, and means for moving the member to and from an inoperative position and including devices for bodily shifting said member laterally in opposite directions below the sheet folding mechanism.

31. In a folding machine, sheet folding mechanism, a single plate sheet deflector movable to various operative positions to deflect sheets in different directions from said sheet folding mechanism, and means for moving the deflector from any one of its operative positions to an inoperative position and including devices for bodily shifting said sheet deflector laterally.

32. In a folding machine, sheet folding mechanism, a single plate sheet deflector movable from an inoperative position to various operative positions to deflect sheets in different directions from said sheet folding mechanism, and means for moving the deflector from its inoperative position to any one of said operative positions and including devices for bodily shifting said sheet deflector laterally.

33. In a folding machine, sheet folding mechanism, a single plate sheet deflector adapted to deflect sheets in different directions from said sheet folding mechanism and movable to operative and inoperative positions with respect thereto, and means for moving the sheet deflector to and from said positions and including devices for bodily shifting said sheet deflector laterally in opposite directions.

34. In a folding machine, sheet folding mechanism, a single plate sheet deflector associated with said sheet folding mechanism and movable to an operative position and an inoperative position, and means for moving the sheet deflector to and from said positions and including devices for shifting said sheet deflector longitudinally and laterally in opposite directions.

35. In a folding machine, sheet folding mechanism, a single plate sheet deflector adapted to deflect sheets in different directions from said sheet folding mechanism and movable to operative and inoperative positions with respect thereto, means for moving the sheet deflector to and from its operative and inoperative positions and including devices for bodily shifting the sheet deflector laterally in opposite directions, and means for locking said sheet deflector in said positions.

36. In a folding machine, sheet folding mechanism, a single plate sheet deflector associated with said sheet folding mechanism and movable to an operative position and an inoperative position, means for moving the sheet deflector to and from its operative and inoperative positions and including devices for shifting the sheet deflector longitudinally and laterally in opposite directions, and means for locking said sheet deflector in each of said positions.

37. In a folding machine, a sheet deflector therefor movable to an operative position and an inoperative position, and mechanism for moving said sheet deflector to said posi-

tions and including cam means adapted to bodily shift said sheet deflector laterally.

38. In a folding machine, a laterally shiftable sheet deflector therefor movable to an operative position and an inoperative position, and mechanism for moving the sheet deflector to and from said positions and including cam means adapted to shift said sheet deflector laterally in opposite directions.

39. In a folding machine, a longitudinally and laterally shiftable sheet deflector therefor movable to an operative position and an inoperative position, and mechanism for moving said sheet deflector to said positions including a device for shifting said sheet deflector longitudinally and cam means for shifting it laterally.

40. In a folding machine, a sheet deflector therefor movable to an operative position and an inoperative position, and mechanism for moving said sheet deflector to said positions including cam means and stationary means cooperating therewith to bodily shift said sheet deflector.

In testimony whereof I have signed this specification.

JOHN MENTGES.

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