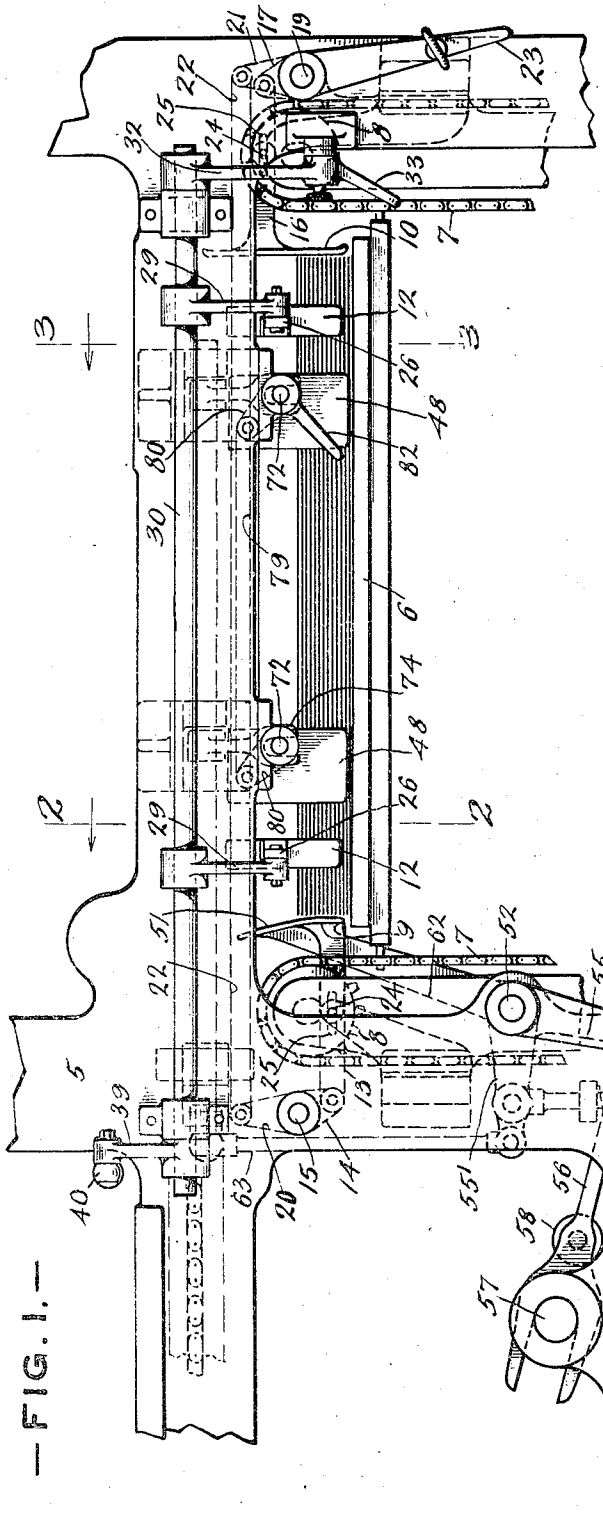
May 20, 1924. 1,494,339

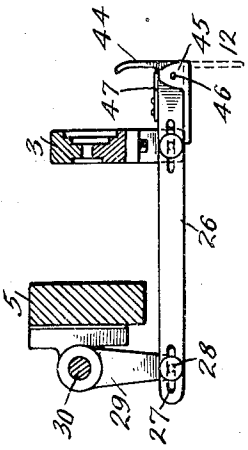
H. P. CLAUBERG

SHEET PILING MECHANISM

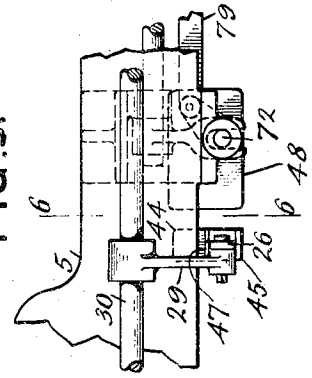
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—FIG. 1.—



—FIG. 6.—



—FIG. 5.—

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SHEET PILING MECHANISM

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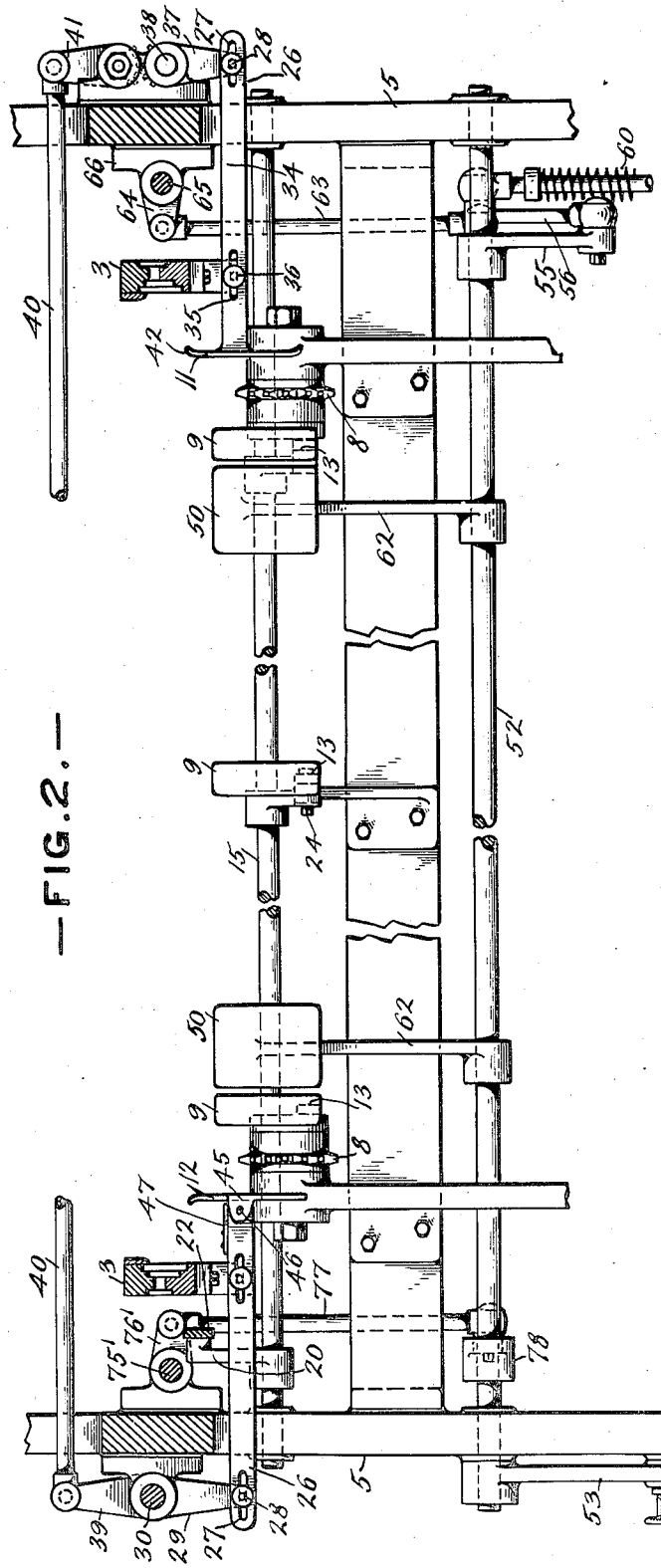


FIG. 2.

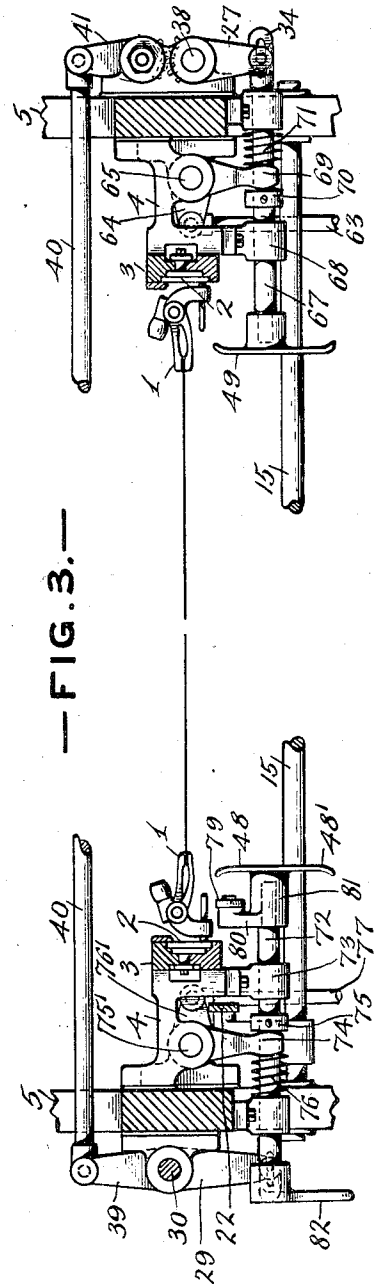


FIG. 3.

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SHEET PILING MECHANISM

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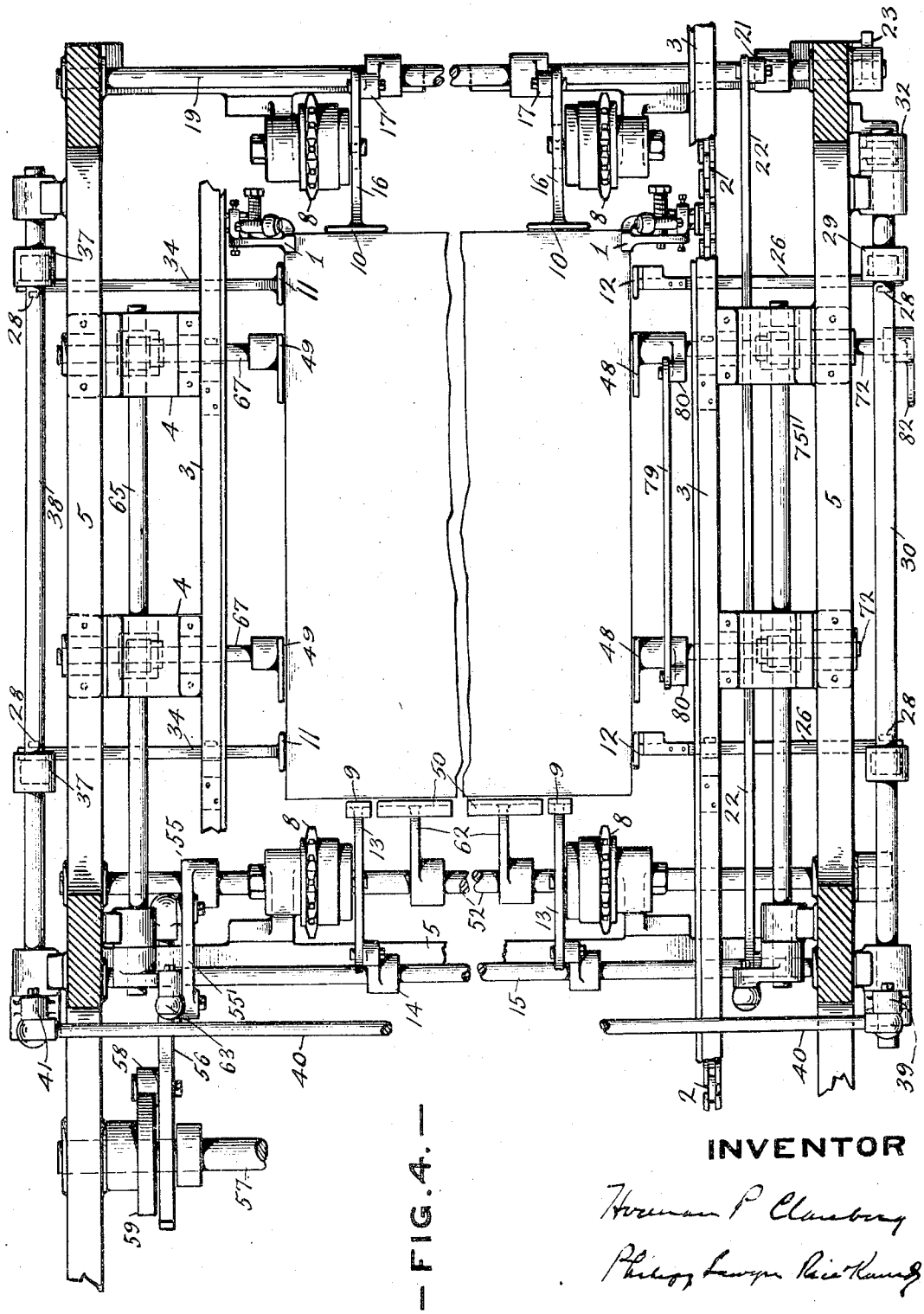


FIG. 4.

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SHEET-PILING MECHANISM.

Application filed January 21, 1922. Serial No. 530,788.

To all whom it may concern:

Be it known that I, HERMAN P. CLAUBERG, a citizen of the United States, residing at Jersey City, county of Hudson, and State of New Jersey, have invented certain new and useful Improvements in Sheet-Piling Mechanism, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to certain improvements in sheet piling mechanism, and more particularly to the jogging or evening devices and guides used with sheet piling mechanisms to keep the sheets even on the pile.

In these piling mechanisms the sheets are forwarded from a printing machine or other source and dropped on to a table which is lowered as the pile of sheets increases in height. To guide the sheets into position on the pile, sheet guides are employed and to cause the sheets to pile evenly certain devices, known as joggers, are used which are given a movement to and from the pile and act with the guides to pile the sheets evenly. In the usual constructions these guides are provided on the four sides of the pile and the joggers are provided on two or more sides. These guides and joggers, to effect their function, extend down several inches below the top of the pile so as to engage with a considerable number of sheets. The pile after it has reached its predetermined height is removed, usually sidewise from the piling mechanism. In constructions heretofore employed the pile must be lowered so that the top sheets would clear the lower end of the guides and joggers. As these, as before stated, extend several inches below the top of the pile this height was lost to the pile and consequently a less number of sheets could be piled on one pile before removal. To overcome this and permit a pile to be produced within the full limits of the piling mechanism, joggers and guides at one side were removed from the machine, and this removal and replacement consumed time and was otherwise objectionable.

It is the especial object of the present invention to provide an improved guiding and jogging mechanism in which the guides and joggers will extend down from the top of the pile a sufficient distance to effect their guiding and jogging functions, but which may be readily manipulated so as to move out of the path of sheets extending above them so that a full height pile within the limits of the machine may be removed sidewise therefrom past the guides and joggers without the necessity of removing the guides and joggers from their supports in the machine.

A further object of the invention is to produce a simple mechanism for effecting this and one which may be easily and quickly manipulated so as to free the joggers and guides on one side of the pile so that the pile may be moved sidewise past these devices.

It is a further object of the invention to produce a construction employing joggers on three sides of the pile which may be all manipulated from a single shaft either automatically or by hand.

With these and other objects not specifically referred to in view, the invention consists in certain novel parts, arrangements and combinations, which will be fully described in connection with the accompanying drawings and the novel features then pointed out in the claims annexed hereto.

In these drawings—

Figure 1 is a side elevation, partly broken away of so much of a sheet piling mechanism as is necessary for an understanding of the invention.

Figure 2 is a sectional view taken on line 2—2 of Fig. 1.

Figure 3 is a similar view taken on line 3—3 of Fig. 1.

Figure 4 is a plan view, partly broken away and partly in section of the machine illustrated in Fig. 1.

Figure 5 is a detail view, partly broken away of the front jogger and guide, that is, the jogger and guide at the side of the machine from which the pile is to be removed; and

Figure 6 is a detail sectional view taken on line 6—6 of Fig. 5.

Referring now to these drawings, which illustrate one preferred embodiment of the invention, the sheets are forwarded from a printing mechanism or other suitable source of supply, not illustrated, by means of grippers 1, mounted on a pair of forwarding chains 2 which run in guides 3 carried from brackets 4 suitably supported from the main frames 5 of the machine, these chains being driven in any suitable or desired manner, the grippers being operated in any usual or suitable way to release the sheet when it has been forwarded to the piling point. In the particular machine illustrated, this piling point includes a piling table 6 supported so as to be intermittently lowered in chains 7 passing over sprockets 8, these chains being operated intermittently to lower the table through any usual or desired mechanism, not illustrated.

In accordance with the invention guides are provided for guiding the sheets into position as they are dropped on the pile, and joggers for jogging the sheets against the guides to even the sheets in the pile. While these guides and joggers may be mounted and operated in various ways, means will be provided whereby the guides and joggers at one side of the pile may be moved out of the way of the pile without removing them from the machine. The guides and joggers will, furthermore, preferably be arranged so that they can be moved away slightly from the pile on all sides so as to free the pile when it is desired to remove it from the machine. A simple and effective construction for effecting this is provided, and the construction shown is that preferred. In the particular construction illustrated there are provided a set of guides for each side of the pile, and a set of joggers for three sides of the pile. Thus there is provided a pair of guides 9 at one end of the pile, and a pair of guides 10 at the opposite end. At the rear side of the pile are guides 11 and at the front, as looked at in Fig. 1, a pair of front guides 12. These guides are preferably arranged so that two sets may be operated to move back slightly from the pile from one operating lever. As shown, the two sets of end guides 9, 10 are operated from one lever, and back and front sets 11, 12 operated from a second operating lever. While this may be done in various ways, in the particular construction illustrated, the guides 9 are carried on or form the ends of arms 13 which are secured to one end of levers (see Fig. 1) 14 on a rock shaft 15 extending transversely of the machine, and suitably supported in the frames 5, before referred to. The guides 10 are secured to or form the end of arms 16 which are secured to one arm of levers (see Fig. 1) 17 on a shaft 19 extending transversely of the machine at the other end. Means are provided whereby the end guides 9, 10 may be simultaneously operated to withdraw the guides from contact with the pile. In the particular construction illustrated, this is effected by providing levers 20, 21 on the shafts 15 and 19, respectively, which are connected by a shaft 22 extending lengthwise of the machine. Also on the shaft 19 there is provided a hand lever 23 by which the two shafts 15 and 19 may be simultaneously rocked and the guides moved. The guides 9, 10 are supported from guide pins 24 suitably supported from the frame of the machine, these pins taking in slots 25 in the guide arms, so that this movement toward and from the pile is permitted.

Simultaneously the back and front guides 11, 12 are mounted so as to have a movement toward and from the pile to free the pile, and in the best constructions this movement will be imparted to both sets of guides simultaneously. In the construction shown the front guides 12 are secured to the ends of the arms 26 (see Fig. 2) provided with slots 27 into which take supporting pins 28 suitably secured from the machine frame. The outer ends of these arms are adjustably connected to levers 29 on a rock shaft 30 extending lengthwise of the machine. This shaft 30 at one end (see Fig. 1) is provided with a lever 32 operated from a handle 33 by which the shafts can be rocked and the guides 12 moved toward and from the pile.

The other set, or rear set, of guides 11 form the end of or are secured to arms 34 having slots (see Fig. 2) 35 into which take pins 36, these arms 34 at their outer ends having an adjustable connection to a sector lever 37 on a rock shaft 38 extending longitudinally of the machine. The other end of the shaft 30 opposite the hand lever 33, has secured thereto a lever arm 39 to which is connected one end of a connecting rod 40 extending transversely of the machine, its other end connecting with a segment lever 41, engaging with the segment lever 37, before referred to. With this construction, when the hand lever 33 is operated, the back and front guides 11, 12 are simultaneously moved toward and from the pile to free the pile.

These guides are all formed with faces arranged to extend down some distance, about three inches in practice, against the edges of the upper sheets of the pile, and the guides are formed, as shown, (see the

guides 11 in Fig. 2 for instance) with curved edges indicated at 42, so as to effectively guide the sheets on to the pile.

In the particular construction illustrated, the pile of sheets is removed from the machine from the front, as shown in Fig. 4. When the pile is thus to be removed from the machine the guides 9, 10 and 11 may be formed integral with their supporting arms. In accordance with the invention, however, the guides 12 are formed so that the part thereof which extends downwardly below the top of the sheet pile may be moved out of the way of the pile of sheets so that the pile of sheets may increase in height the distance the guides extend downwardly and at the same time the pile may be moved past the guides. While this may be effected in various ways, in the particular construction illustrated, these guides 12 may be in two parts (see Fig. 6). The upper part 44 may, if desired, be integral with the arms, but the lower part, or the part which extends downwardly against the edges of the sheets is in the form of a pivoted member 45, pivoted at 46 to the arm 26 so that it can be snapped upwardly and rearwardly against the bottom of the arm against a spring 47. When, therefore, it is desired to remove a pile of sheets sidewise past the guides the pivoted portions 45 of the front guides 12 may be snapped up out of the way, this allowing for a full height pile of sheets to be moved out of the machine past the guides, without it being necessary to remove the guides from their position in the machine.

In machines constructed in accordance with the invention, there will be provided jogging devices for evening up the sheets on the pile, these jogging devices acting to move or jog the sheets against the guides. These jogging devices may be provided in suitable or desired numbers. In the particular machine illustrated there are provided three sets of these jogging devices arranged in pairs mounted at the front and the back and at one end of the pile. These jogging devices are mounted so that they may be operated by hand or automatically, and so that they can all be operated from a common operating device. As shown the back jogging devices are marked 49, the front jogging devices 48 and the end jogging devices 50. These joggers are all mounted so as to have a slight reciprocating movement toward and from the pile and are provided with curved faces indicated at 51 in Fig. 1, so as to permit the sheets to readily slide by them as the sheets go into position on the pile.

The means whereby these joggers may be mounted so that they may operate from one shaft and both by hand and automatically may be somewhat varied in construction. In the particular construction illustrated, however, there is provided (see Fig. 1) an operating rock shaft 52 extending transversely of the machine and suitably journaled in the frames 5, before referred to. This shaft has secured thereon a lever arm 53 having a handle 54 by which the shaft may be rocked to operate the joggers by hand. The shaft also has secured thereon a bell crank lever 55 to which is secured one end of a forked arm 56 taking over a shaft 57 driven from any suitable source of power. This arm 56 has secured thereto a cam roll 58 operated by a cam 59 (see Fig. 4) on the driven shaft 57, before referred to. The other end of the arm 55′ of the bell crank lever 55, has connected therewith a spring rod construction 60, by which the shaft 52 is rocked in the opposite direction. The end joggers 50 are formed on the ends of arms 62 fast at their other ends on the operating shaft 52, before referred to, and are operated directly therefrom. The back joggers 49 are also operated from the shaft 52 through the following connections. Referring to Figs. 1 and 2, the arm 55′ of the bell crank 55 carries a connecting rod 63 secured at its other end to a lever 64 on a rock shaft 65 journaled in suitable brackets 66 secured to the machine frame. The joggers 49 are carried at the ends of rods 67 slidably mounted in bearings 68 suitably supported from the side frames of the machine. Depending from the rock shaft 65 are forked levers 69 which straddle the jogger rods 67 and operate between collars 70 fast on the jogger rods and springs 71, whereby the back joggers 49 are given reciprocating movements toward and from the pile by the shaft 52.

The front joggers 48 are carried at the ends of rods 72 rotatably and slidably mounted in bearings 73 supported from the frame of the machine, and are operated from forked levers 74 which straddle the jogger rods between collars 75 and springs 76. These forked levers 74 are mounted on a rock shaft 75′ carrying a lever 76′ secured to a connecting rod 77 in turn secured to a lever 78 on the shafts 52, before referred to. With this construction the joggers 48, 49 and 50 are all simultaneously operated by the shaft 52 and may be moved away from the pile to clear the pile simultaneously by the hand lever 53, before referred to.

In accordance with the invention, the joggers 48 which, in the particular construction, are the front joggers past which the pile of sheets are removed from the machine, are arranged so that the lower part 48′ of the joggers which extends downwardly below the top of the pile, may be moved out of the way to permit a full height pile to pass as the pile is removed. While this may be effected in various ways, the jogger rods 72 are, as before stated, rotatable in their bearings and the two joggers are connected by a

link 79 which is secured to arms 80 on hubs 81 secured on the jogger shafts. One of the jogger shafts is provided with a hand lever 82 by moving which the jogger rods may be turned on their axes and the joggers turned so that the lower portions 48' which bear normally against the pile are turned upwardly so as to be free of the pile when the pile is removed.

With the construction illustrated the jogging and guiding of the sheets is effectively accomplished and a higher pile of sheets may be produced in a given machine than with other mechanisms heretofore used without removing either the guides or the jogging mechanisms from their position, and an operator can quickly free the joggers and the guides from the piles and remove the pile, and a machine of increased efficiency is produced by the construction shown and described.

While such a construction is that preferred, it will be understood that changes and variations in the mechanism for operating the joggers and for moving the joggers so that they may clear a pile of sheets may be made without departing from the invention as defined by the appended claims.

What I claim is:

1. In a sheet piling mechanism, the combination with a pile support, of means for delivering sheets thereto, jogging or evening devices having parts normally extending below the top of the sheet pile, and means for manipulating the jogging devices so that the downwardly depending parts will clear the top of the sheet pile at one side whereby the pile may be moved sideways from the mechanism past the jogging devices.

2. In a sheet piling mechanism, the combination with a pile support, of means for delivering sheets thereto, sheet guides having parts normally extending below the top of the sheet pile arranged at one or more sides of the pile, and means for manipulating the guides on at least one side of the pile so that the depending portions will clear the top of the pile at that side, whereby the pile may be moved sideways from the mechanism past the guides.

3. In a sheet piling mechanism, the combination with a pile support, of means for delivering sheets thereto, sheet guides having parts normally extending below the top of the sheet pile arranged at one or more sides of the pile, joggers having parts normally extending below the top of the pile arranged at one or more sides of the pile, and means for manipulating the guides and joggers on at least one side of the pile so that the depending portions of the guides and joggers will clear the top of the pile at that side, whereby the pile may be moved sideways past the guides and joggers.

4. In a sheet piling mechanism, the combination with a pile support having a clear side, of means for delivering sheets thereto, sheet jogging devices arranged on three sides of the pile, an operating shaft, connections from the shaft for simultaneously reciprocating the joggers to and from the pile, and means for manipulating the joggers on one side of the pile so as to clear the top thereof while the pile is being removed sidewise from beneath the joggers.

5. In a sheet piling mechanism, the combination with a pile support having a clear side, of a sheet jogging device at one side of the support, and means for turning the jogger to cause it to clear the top of a pile on the support and to hold it turned while the pile is being removed sidewise beneath the same.

6. In a sheet piling mechanism, the combination with a pile support having a clear side, of a pair of sheet joggers pivotally mounted at one side of the support, and means for simultaneously turning the joggers on their pivots and holding the joggers in turned position while the pile is being removed sidewise beneath the same.

7. In a sheet piling mechanism, the combination with a pile support having a clear side, of a pair of sheet joggers pivotally mounted at one side of the support, connections for reciprocating the joggers, and connections for simultaneously turning the joggers on their pivots and holding the joggers in turned position while the pile is being removed sidewise beneath the same.

8. In a sheet piling mechanism, the combination with a pile support having a clear side, of a sheet guide at one side of the support, said guide having a pivoted end that can be swung away from a sheet pile on the support and held in its moved position while the pile is being removed sidewise beneath the same.

9. In a sheet piling mechanism, the combination with a pile support, of a set of sheet guides at one side of the support having pivoted lower ends arranged to be swung upwardly to clear a pile of sheets on the support, and means for simultaneously moving the guides away from the pile.

10. In a sheet piling mechanism, the combination of a pile support, sheet jogging mechanisms arranged in sets on three sides of the support, an operating shaft, connections from the shafts for reciprocating the jogging mechanisms simultaneously, sheet guides arranged in sets on each side of the support, connections for reciprocating two sets of guides simultaneously, and means whereby the guides and joggers on one side may be moved to clear a pile of sheets and permit the pile to be moved sidewise past them.

11. In a sheet piling mechanism, the combination with a pile support, of a sheet guide

at one side of the support, said guide having a pivoted lower end that can be swung upwardly and away from a sheet pile on the support and a spring for controlling the movement of the guide.

12. In a sheet piling mechanism, the combination with a pile support, of a sheet guide support arranged at one side of the pile support, a sheet guide having a movement in its support toward and away from the pile, said sheet guide being provided with a pivoted lower end that can be swung up and away from the pile on the support, and a spring for controlling the pivotal movement of the guide.

In testimony whereof, I have hereunto set my hand.

HERMAN P. CLAUBERG.