J. S. STOKES & J. D. REIFSNYDER.

SHEET FEEDING MECHANISM.

APPLICATION FILED MAY 29, 1914.

1,136,562.

Patented Apr. 20, 1915.

4 SHEETS—SHEET 1.

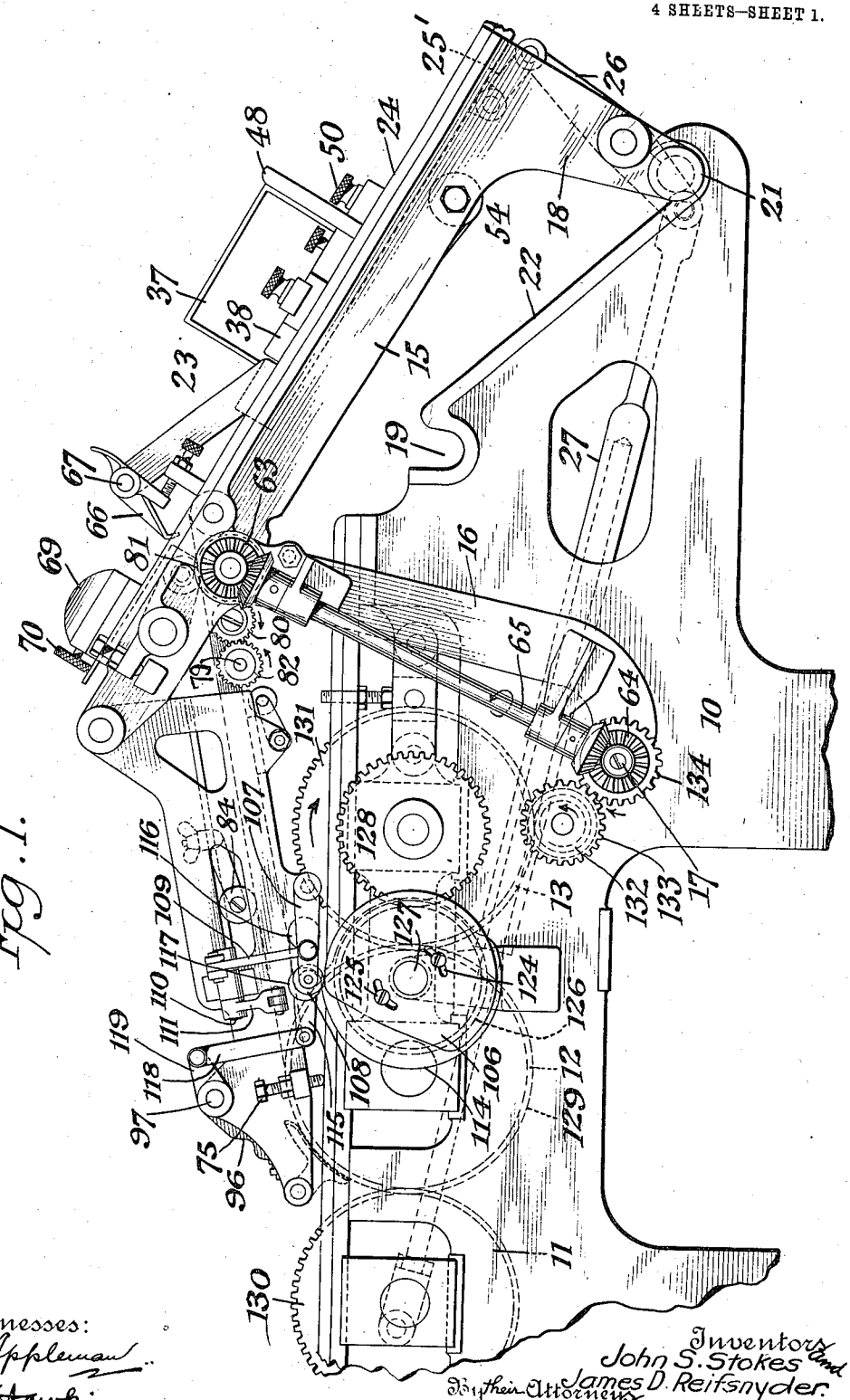


Fig. 1.

Witnesses:
A. R. Appleman
W. H. Hawkins.

Inventors
John S. Stokes and
James D. Reifsnyder.
By their Attorneys
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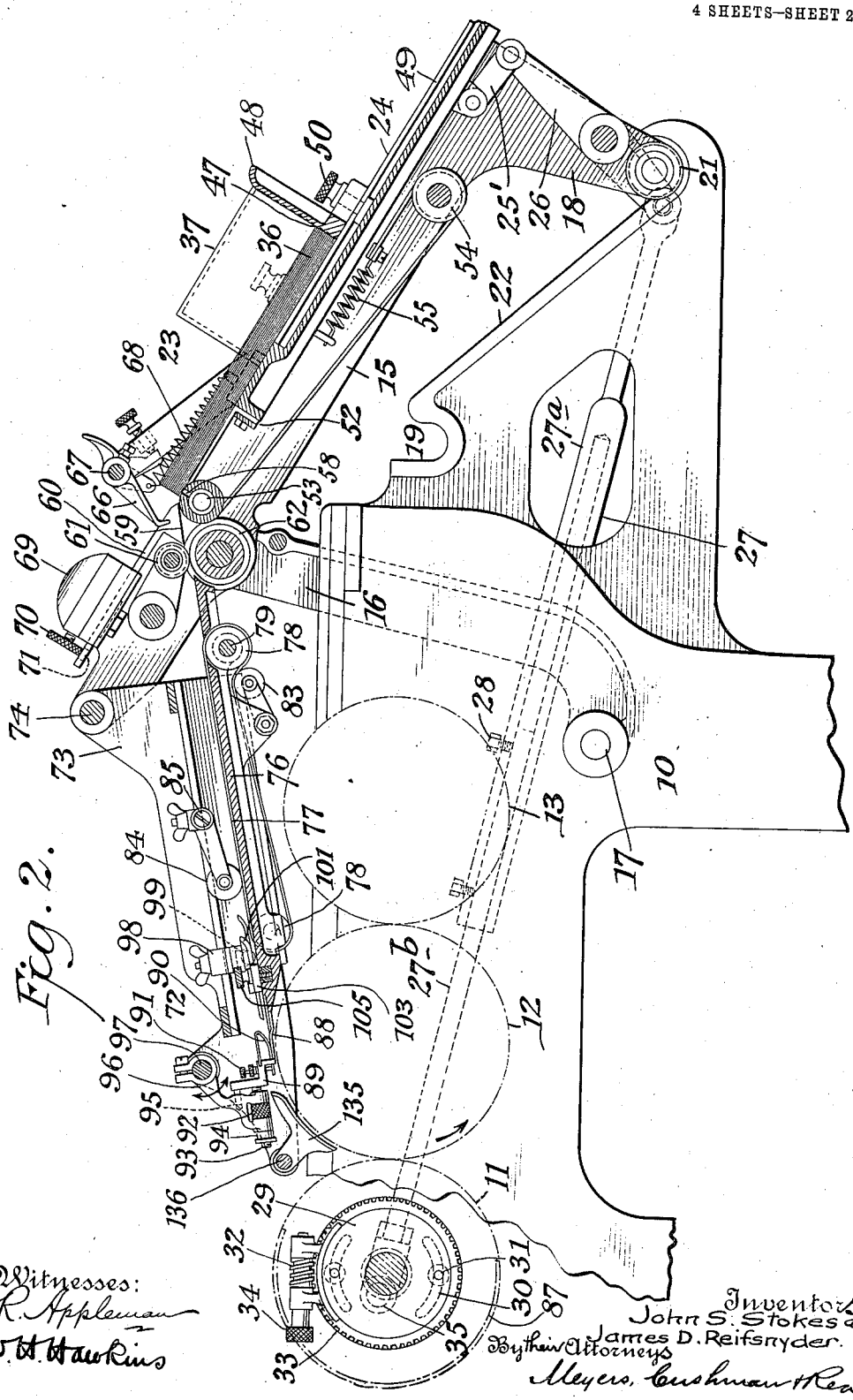


Fig. 2.

Witnesses:
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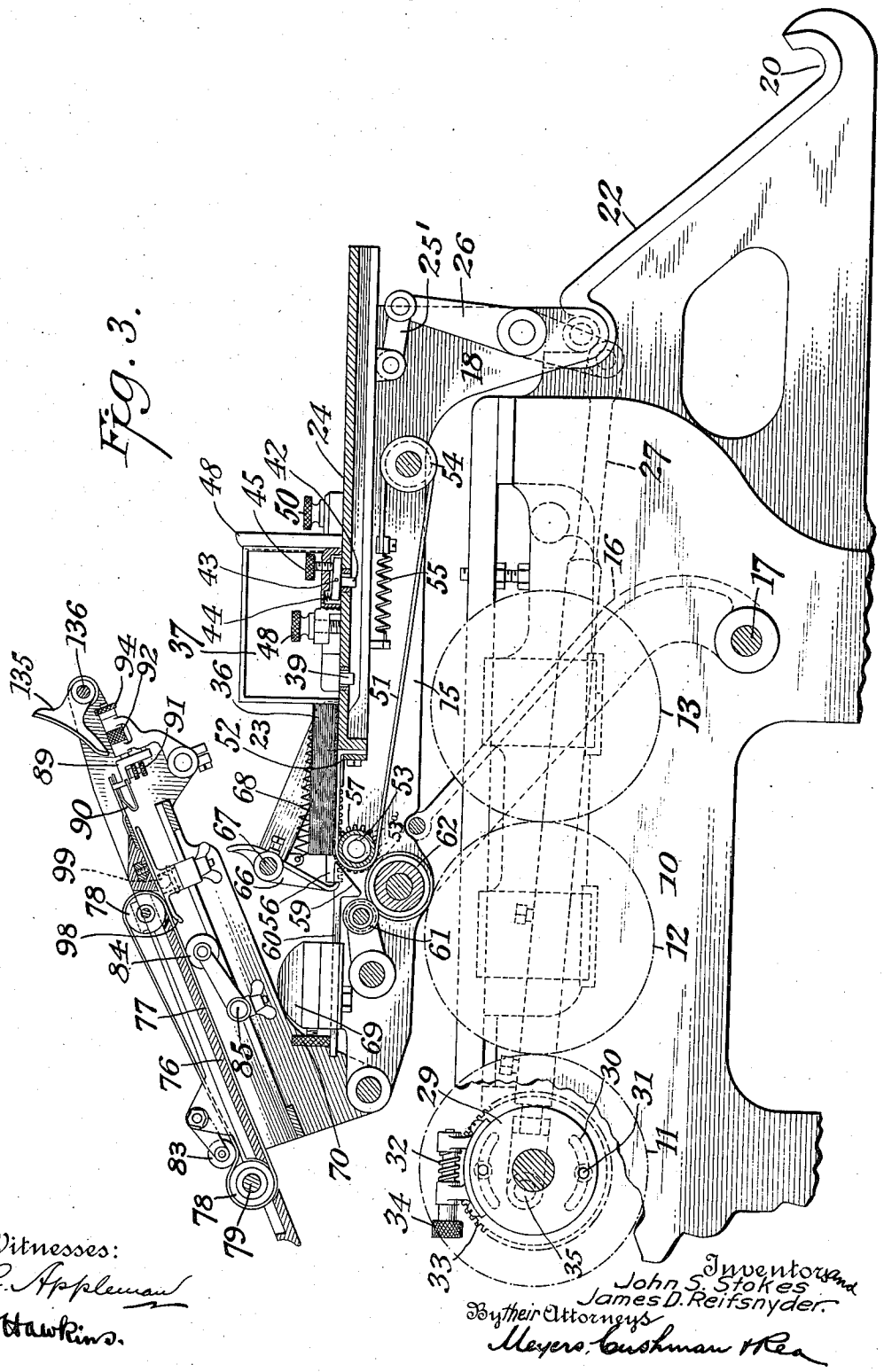
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4 SHEETS—SHEET 3.

Fig. 3.



Witnesses:

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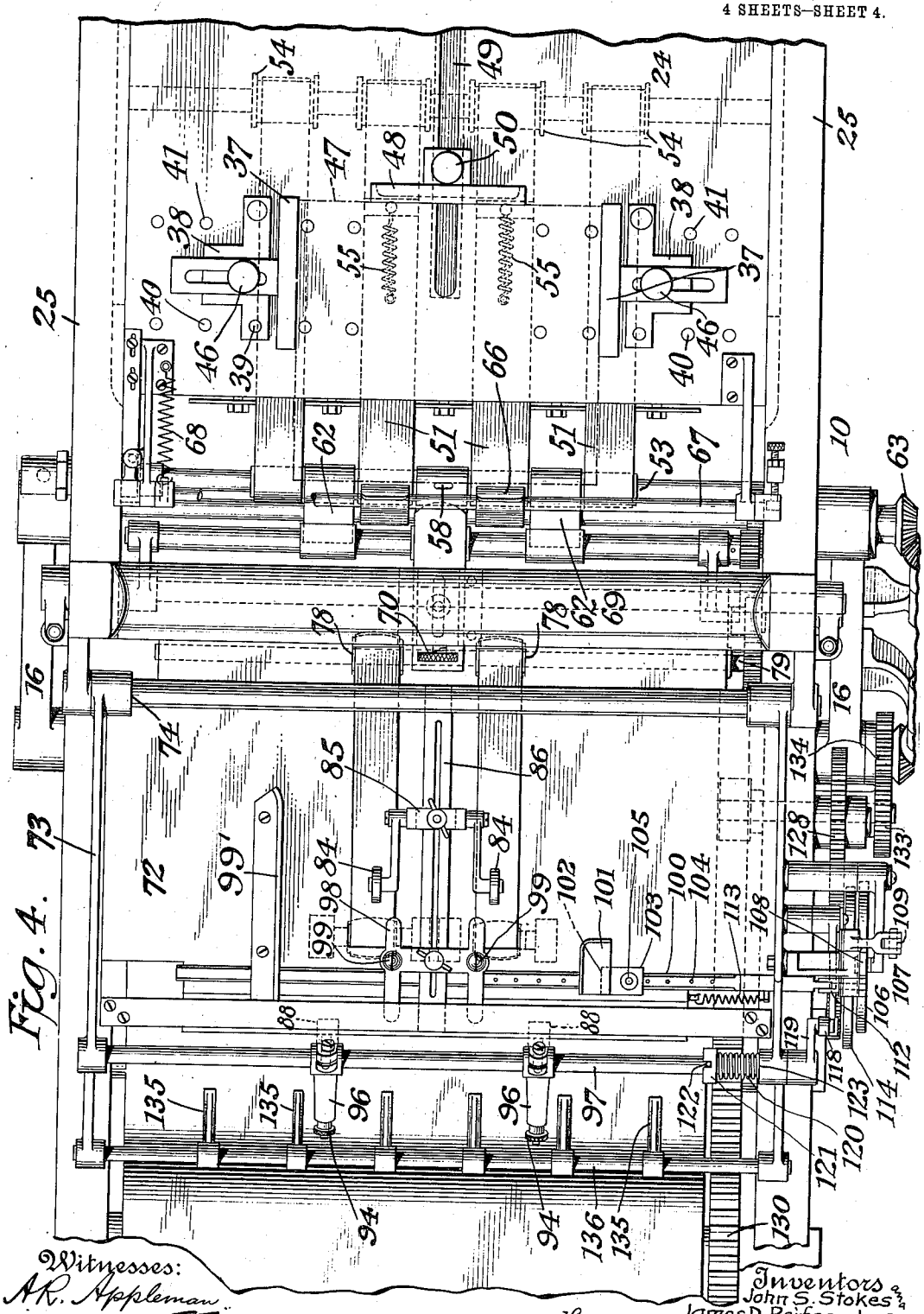


Fig. 4.

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UNITED STATES PATENT OFFICE.

JOHN STOGDELL STOKES, OF MOORESTOWN, NEW JERSEY, AND JAMES D. REIFSNYDER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNORS TO STOKES AND SMITH CO., OF SUMMERDALE, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

SHEET-FEEDING MECHANISM.

1,136,562. Specification of Letters Patent. Patented Apr. 20, 1915.

Application filed May 29, 1914. Serial No. 841,767.

To all whom it may concern:

Be it known that we, JOHN STOGDELL STOKES and JAMES D. REIFSNYDER, citizens of the United States, residing at Moorestown, county of Burlington, and State of New Jersey, and Philadelphia, in the county of Philadelphia and State of Pennsylvania, respectively, have invented new and useful Improvements in Sheet-Feeding Mechanism, of which the following is a specification.

This invention relates to printing presses, and similar machines having means for automatically feeding sheets, blanks, or other articles, into the machine.

The invention is particularly applicable where the sheets or blanks are to be fed ordinarily without exercising great care as to their alinement, as they enter the machine, but which at times must be fed in a particular relation or alinement. For this reason the invention is particularly applicable to a printing press in which the sheets may be fed to be printed if desired without using great care, but which may at times be alined carefully so as to bring about accurate register, such register is desirable particularly where the sheets are printed on both sides, or where border lines are used of different colors which will not present a good appearance if they are not properly alined.

A principal object of the invention is to provide an automatic feeding mechanism which may be used ordinarily to feed the sheets directly into the machine with which the feeding mechanism is employed, but having coöperating with it a registering mechanism which may or may not be used as desired. When in use the registering mechanism operates to insure a proper alinement or register of the sheet as it goes into the machine.

A further object of the invention is to provide a construction for this purpose which is very simple and readily operated so as to change the machine from the ordinary feed to the register feed.

A further object of the invention is to arrange and construct the parts in such a way that it is unnecessary to make any changes in the connections to the feeding mechanism or the registering mechanism in shifting from the ordinary feed to the registering feed.

Further objects of the invention will appear more clearly hereinafter.

In the drawing which illustrates a preferred embodiment of our invention, Figure 1 is a side elevation, certain parts being broken away, showing a printing press to which our invention has been applied. This view illustrates the invention operating with the registering mechanism active or operative. Fig. 2 is a longitudinal vertical section through the machine showing the parts in the same relation illustrated in Fig. 1. Fig. 3 is a longitudinal vertical section also broken away but illustrating the feeding mechanism operating to deliver the sheets directly to the machine, the registering mechanism being held in an inoperative or inactive relation. Fig. 4 is a conventional plan of the machine, showing the frames which carry the feeding mechanism and the registering mechanism as though they were disposed in a horizontal position.

Referring more particularly to the parts, 10 represents the main frame of the machine which may be a printing press, such as illustrated, comprising a form cylinder 11, an impression cylinder 12, and a take-off frame or cylinder 13. The form cylinder may be driven by means of a gear wheel 130, which may mesh with a driving gear not illustrated.

In applying our invention to such a press we prefer to arrange the feeding mechanism and registering mechanism so that the feeding mechanism when operating in the ordinary manner is disposed adjacent to the impression cylinder to which it delivers the sheets directly to be printed, and we prefer to arrange the registering mechanism in such a way that at this time it may be held in an inoperative relation, but when desired instead of having the sheet pass by a direct path from the feeding mechanism to the machine, we may interpose the registering mechanism in its path, so as to give a proper control of the sheet to insure proper register as it passes into the machine.

The feeding mechanism is preferably mounted on a movable feed frame 15, which

is preferably supported at its inner end on a pair of links 16 pivotally attached at 17 to the sides of the main frame. The feed frame is preferably provided at its outer end with short legs 18, which coöperate with means on the main frame in such a way that the table or feed frame 15 can be in a substantially horizontal position as shown in Fig. 3, or in an inclined position, such as shown in Fig. 1. In the position shown in Fig. 3 the feed frame and its mechanism is adjacent the cylinder or other part which receives the sheet, but when in the position shown in Fig. 1, the feed frame is removed from the cylinder.

In order to hold the feed frame most conveniently in these two positions, we prefer to provide the end of the main frame 10 with sockets 19 and 20, which receive large pins 21 formed at the lower ends of the legs 18. The frame 10 preferably presents an inclined face 22 between these sockets, so that the feed frame can be pushed upwardly from the position in which it is indicated in Fig. 1. The studs or pins 21 drop into the sockets 19.

On the feed frame 15 we prefer to provide feeding mechanism 23, and provide an arrangement enabling this mechanism to be driven from a moving part on the main frame in both of the positions of the feed frame. This construction is such that the driving connection is maintained in throwing the feed frame from one position to the other without necessitating the removal or reassembly of any parts. For this purpose we prefer to employ the feeding mechanism of the type illustrated, comprising a reciprocating part preferably in the form of a plate 24, which is arranged to reciprocate longitudinally between side guides 25. This feed plate is preferably reciprocated by a link 25′ attached to its under side and connected to the upper end of a rocker or rocking lever 26 supported on one of the legs 18, and having its lower arm connected with a link 27. This link is preferably extensible, so as to adapt it to rock the lever 26 in either position of the feed frame. For this reason this link is preferably formed of two sections 27^a and 27^b, one of which is of tubular form and receives the other section which may be rigidly secured to it by any means such as the set screws 28. The moving part to which the extensible link 27 attaches, is preferably a disk 29, which may be co-axial with the form cylinder 11, and in order to provide for adjusting the position of the feed plate, we prefer to connect the disk or wheel 29 adjustably to the cylinder. For this purpose we prefer to provide the cylinder with circumferential slots 30, in which clamping bolts 31 are received, the said bolts being carried by the said disk, and when these bolts are loosened the angular position of the disk with respect to the cylinder may be adjusted by means of a small worm 32 mounted on the disk and meshing with the teeth of a worm wheel 33 rigid with the cylinder.

Evidently by rotating the thumb head 34 on the worm the disk 29 can be nicely adjusted. The extensible rod 27 performs the function of a pitman or connecting rod, its end being connected to a crank pin 35 on the disk. It is evident that when the cylinder rotates the disk 29 moves with it and the motion will be imparted through the rocker 26 to the reciprocating plate. For the purpose of holding a pile or supply 36 of sheets or blanks on the feed plate we prefer to provide alining plates 37 which engage the side edges of the pile, and these alining plates are adjustable inwardly in suitable brackets 38 which may be secured in different positions on the feed plate. For this purpose the brackets are preferably provided with dowel pins 39 which may be received in any one of a plurality of sockets 40. Similar sockets 41 are provided in a row opposite the sockets 40, and coöperating with a movable locking pin 42 which may be pivotally supported at 43 and pressed by a spring 44, and an adjusting screw 45 is provided which may swing the pin laterally after it is in its socket as indicated in Fig. 3, so as to lock the bracket in position.

Each alining plate or gage 37 is provided with a clamping screw 46 mounted in the bracket for holding it in position. The outer edge 47 of the pile of sheets is alined by means of an alining plate 48, which may be adjusted longitudinally of the feed plate through the medium of a slot 49 in the feed plate, and a clamp 50 carried on plate 48.

When the feed plate 24 slides away from the cylinder 11, the forward edge of the pile of sheets 36 overhangs the forward edge of the plate, but the sheets are all supported by means of flat straps or bands 51 of stout tape or similar material, one end of these tapes being attached at 52 to the forward edge of the feed plate so that the tapes form loops passing around a horizontal feed roller 53 mounted in the feed frame. The outer portions of these tapes pass around guide rollers 54 and their ends are connected to springs 55 on the under side of the feed plate. These springs maintain tension in the tapes so as to resist the weight of the sheets. The roller 53 is preferably rotated at each reciprocation of the feed plate by means of a rack 56 which meshes with a pinion 57 on the roller, and the roller is of tubular form and provided with a perforation 58 so that when connected with a vacuum device a partial vacuum in the roller operates through the perforation 58 to at-

tract the lowermost sheet of the pile and carry it partly around the roller when the feed plate moves forwardly. In this way the sheet which is being fed is made to pass under the inclined lower face 59 of a finger 60 which projects toward the feed table. The sheet then passes downwardly under a presser roller 61 onto the impression cylinder 12, where it is engaged by grippers not illustrated.

The presser roller 61 coöperates with a roller 62, which roller 62 is continuously rotated by a mechanism which will now be described. This mechanism preferably comprises bevel gears 63, 64, carried co-axially on the axes of the pivot pins at the ends of the links 16, the motion being imparted from the bevel gear 64 to the bevel gear 63 through a shaft 65 extending radially from the point 17. This shaft is suitably mounted on brackets. In order to retain the pile of sheets 36 in position we prefer to provide a keeper device 66 preferably in the form of hooked arms mounted on a rod 67, said arms being pulled over toward the pile of sheets by an adjustably attached spring 68. The inner end of the table or feed frame 15 preferably projects beyond the axis of the gear 63, that is beyond the axis of the upper pivotal connection of the links 16, and this overhanging portion is preferably provided with a cross head 69. This cross head may present means for holding the finger 60, which may include an adjusting screw 70, the periphery of which may engage a slot 71 in the rear end of the plate for adjusting it backward and forward.

When the invention is to operate to feed the press not directly but through the medium of the registering mechanism, the registering mechanism is interposed so that it will receive the sheet from the feeding mechanism and deliver it in a proper relation or alinement to the press. In order to accomplish this we prefer to provide registering mechanism 72 on a movable register frame 73. This frame is preferably supported pivotally at 74 on the overhanging end of the feed frame. The outer portion of the register frame may be provided with set screws 75 which may rest on the upper face of the main frame 10 so as to support the registering mechanism in its operative position, as indicated in Fig. 1.

The registering frame preferably includes a rigid feed plate 76, the upper end of which lies near the point of tangency between the rollers 61 and 62, and this feed plate may be provided with feed belts 77, arranged to be driven at a high speed, and guided over rollers 78 so that the upper run of the belt moves rearwardly on the upper face of the feed plate 76. The rollers 78 are carried on a shaft 79 which may be driven through an idle gear 80 meshing with a gear 81, which is rigid with the bevel gear wheel 63, said idle gear 80 meshing with the gear wheel 82 rigid with the shaft 79. These belts 77 may be tightened by means of belt tighteners 83. As the sheet comes from the rollers 61 and 62 it passes down the feed plate 76 and passes under presser rollers 84 which run upon the upper faces of the belts 77, said rollers being mounted on arms which are adjustable on a bracket 85, which may be secured at any point desired in a slotted bar 86 extending longitudinally of the feed plate.

We provide means for arresting the advance of the sheet being fed on the registering mechanism, and then we aline, and release the sheet at a predetermined time which will insure that the sheet will have the proper register or alinement with relation to the printing matter 87 on the form cylinder. For this purpose we prefer to provide the lower end of the feed plate 76 with projecting fingers 88, and near the ends of these fingers stops 89 are provided, the ends of which project into the path of the sheet and engage its forward edge as it advances. These stops 89 are preferably provided with spring fingers 90, which may be adjusted by small screws 91 so as to adjust them toward or away from the coöperating fingers 88. These stops 89 are preferably mounted so as to be adjusted toward or away from the feed plate 76. This may be accomplished by means of an adjusting nut 92 mounted on an adjusting screw 93 coöperating with a check nut 94. In addition to this a dowel pin 95 may be provided for guiding the stop 89 as it is adjusted in or out. These adjusting screws 93 are mounted in rocker arms 96 which support the stops 89, said rocker arms being adjustably secured on a transverse rock shaft 97 which extends across the register frame. Arrangements have been made for rocking this rock shaft 97 at a predetermined moment so as to swing it rearwardly and upwardly and release the sheet. This mechanism will be described hereinafter.

Before the sheet comes against the stops 89 its motion is partially arrested by means of a brake device 98, the lower end of which retains a ball 99 resting on the feed plate 76. As the sheet passes under this ball 99 it has to raise it off the table, and this acts as a brake tending to stop the sheet. After the sheet comes against the stops 89 it is shoved over against an alining gage or bar 99′ at one side of the feed plate, see Fig. 4. In order to shove the sheet over against the gage 99 we prefer to provide a cross bar 100 on which is mounted a pusher 101 which is adapted to overhang the edges of a sheet. and which presents a shoulder 102 adapted to engage the edge of the sheet. This pusher

101 also comprises a sleeve 103 which may be attached at any desired point on the rod or bar 100 by reason of a row of perforations or sockets 104 in the upper side or bar with which coöperates a removable pin 105 carried by the pusher.

The pusher is shoved over at a predetermined time by means of a cam 106, see Fig. 1, the edge of said cam operating to raise a lever 107 through the medium of the roller 108, said lever having a link 109 connecting the same through a rock shaft 110 with an arm 111, said arm being connected by a short link 112 with the bar 100. A spring 113 attached to the bar tends to push it against the sheet whenever the cam 106 will permit.

In order to effect the release of the sheet at any predetermined time we provide the cam 114 which is mounted on the same axis with the cam 106, and this cam rocks an arm 115 fulcrumed at 116 and carrying a roller 117 which rolls on the cam. The outer end of the arm 115 connects by a link 118 and arm 119 with the aforesaid rock shaft 97. A helical spring 120 is provided around the rock shaft which tends to hold the roller 117 firmly against the cam 114. One end of this spring may be provided with a rigidly secured collar 121 having a socket 122 which may engage a pin on the rock shaft in different positions so as to regulate the force of the spring, the other end of the spring being secured at 123 to the side of the register frame.

In order to enable the cams to be adjusted so as to regulate the time at which the sheet is released the cams are provided with circumferential slots 124 through which clamping bolts 125 pass, attaching the cams to a gear wheel 126, said gear wheel being rotatably mounted on a stud 127 on the main frame, and driven by a gear wheel 128 on the shaft of the take-off cylinder 13. The take-off cylinder is driven from a gear wheel 129 meshing with the gear wheel 130 rigid with the slide 14. The take-off cylinder may be provided with a gear wheel 131 meshing with the gear wheel 129. In order to drive the shaft 65 to drive the feed belts of the registering mechanism we prefer to provide a pinion 132 which meshes with the gear wheel 131, and which is rigid with a gear wheel 133, meshing with a gear wheel 134, rigid with the bevel gear 64. In order to guide the sheet in passing onto the impression cylinder 12, we prefer to provide curved guide shoes 135 which may be arranged as indicated in Fig. 2, and secured to a cross bar 136 carried by the register frame.

The general mode of operation of the machine will now be described. When the ordinary feed is in use the feed frame 15 has the position shown in Fig. 3, and the sheet is fed from under the pile 36 between the rollers 61, 62, and directly onto the impression cylinder, at this time the register frame is held in an uppermost position, such as that indicated in Fig. 3, supported on a cross head or cross bar 69. In order to shift to the other position or relation with the registering mechanism in operation, it is only necessary to raise the outer end of the feed frame 15 to disengage it from the socket 19 and then drop it down until it is supported in the socket 20. At the same time the register frame may be swung forwardly so as to come down to the position in which it is shown in Fig. 1. Before moving the feed frame 15 to this position the set screws 28 should be loosened so as to permit the extension of the extensible rod 27. When the register frame swings down into the operative position of the registering mechanism the rollers 108 and 117 rest on their corresponding cams so that connection is made in this way to drive the registering mechanism. Evidently by swinging the register frame upwardly the connection from the register frame is disconnected.

It is understood that the embodiment of the invention described above is only one of the many embodiments or forms of the invention, and we do not wish to be limited in the practice of the invention, nor in the claims, to the embodiments set forth.

The use of the pneumatic hose 53^a enables connection to be maintained to the pneumatic feed roller in any position of the feed frame, so that a pneumatic feed is particularly advantageous when used in the invention set forth.

What we claim is:—

1. In a printing press in combination, registering mechanism for controlling the alinement of the sheet on the press, feeding mechanism arranged to feed a sheet directly into the press independently of said registering mechanism operating when the said registering mechanism is not in use, said registering mechanism being movable into a position to coöperate with said feeding mechanism to assist in feeding the sheet and movable into an inoperable position when it is not in use and when the said feeding mechanism operates independently thereof.

2. In a printing press in combination, feeding mechanism arranged to advance the sheet directly from the same into the press, and registering mechanism removably interposable in the path of the sheet for controlling the alinement thereof in the press.

3. In a printing press in combination, a main frame, a feed frame movably mounted thereupon, feeding mechanism mounted on said feed frame for advancing the sheet directly from the same into the press, a registering frame, registering mechanism car-

ried thereby arranged for taking a sheet from the said feeding mechanism to control the alinement of the sheet as it passes to the press, said registering frame being movable so as to occupy a position in which said registering mechanism coöperates with said feeding mechanism, and having a second position rendering said registering mechanism inoperative.

4. In a printing press in combination, a main frame, a feed frame movably mounted thereupon, feeding mechanism mounted on said feed frame for advancing the sheet directly from the same into the press, a registering frame, registering mechanism carried thereby arranged for taking a sheet from the said feeding mechanism to control the alinement of the sheet as it passes to the press, said registering frame being movable so as to occupy a position in which said registering mechanism coöperates with said feeding mechanism, and having a second position rendering said registering mechanism inoperative, said feeding frame and said registering frame being connected together and movable simultaneously when said registering frame moves from the operative position of said registering mechanism to the inoperative position thereof.

5. In a printing press in combination, a main frame, a feed frame movably mounted thereupon, feeding mechanism mounted on said feed frame for advancing the sheet into the press, a registering frame, registering mechanism carried thereby for controlling the alinement of the sheet as it passes to the press, said registering frame being movable so as to occupy a position in which said registering mechanism coöperates with said feeding mechanism, and having a second position rendering said registering mechanism inoperative, said feed frame having two positions corresponding to the two positions of said registering frame, in one of which positions said feed mechanism feeds the sheet directly from itself into the press, and means for driving said feed mechanism in either of the positions of said feed frame.

6. In a printing press in combination, a main frame, a feed frame movably mounted thereupon, feeding mechanism mounted on said feed frame for advancing the sheet into the press, a registering frame, registering mechanism carried thereby for controlling the alinement of the sheet as it passes to the press, said registering frame being movable so as to occupy a position in which said registering mechanism operates to take the sheet from said feeding mechanism, and having a second position rendering said registering mechanism inoperative, said feed frame having a corresponding position in which the said feed mechanism feeds the sheet directly into the press, and means for driving the said registering mechanism when said registering mechanism is in its operative position.

7. In a printing press in combination, a main frame, a feed frame movably mounted thereupon, feeding mechanism mounted on said feed frame for advancing the sheet into the press, a registering frame, registering mechanism carried thereby for controlling the alinement of the sheet as it passes to the press, said registering frame being movable so as to occupy a position in which said registering mechanism coöperates with said feeding mechanism, and having a second position rendering said registering mechanism inoperative, said feed frame having two positons of said registering frame, means for driving said feed mechanism in either of the positions of said feed frame, and means for driving the said registering mechanism when in its operative position.

8. In a printing press in combination, a main frame, a feed frame movably mounted thereupon, feeding mechanism mounted on said frame for advancing the sheet into the press, a registering frame, registering mechanism carried thereby for controlling the alinement of the sheet as it passes to the press, said registering frame being movable so as to occupy a position in which said registering mechanism coöperates with said feeding mechanism, and having a second position rendering said registering mechanism inoperative, said feed frame having two positions corresponding to the two positions of said registering frame, means for driving said feed mechanism in either of the positions of said feed frame, including an extensible link, and a movable part on said main frame connected with said link and transmitting the driving force.

9. In a press in combination, a main frame, a feed frame, links movably connecting said feed frame with said main frame, means coöperating with said links for holding said feed frame in two positions, feeding mechanism on said feed frame for advancing the sheet to the press, and registering mechanism movably connected with said feed frame and movable into an inoperative position, and into a position in which said registering mechanism coöperates with said feeding mechanism.

10. In a press in combination, a main frame, a feed frame, links movably connecting said feed frame with said main frame, means coöperating with said links for holding said feed frame in two positions, feeding mechanism on said feed frame for advancing the sheet to the press, and registering mechanism movably connected with said feed frame and movable into an inoperative position, and into a position in which

said registering mechanism coöperates with said feeding mechanism, a moving part on said main frame, and means for driving said feeding mechanism therefrom in either of the positions of said feed frame.

11. In a press in combination, a main frame, an impression cylinder mounted therein, a feed frame supported on said main frame, and movable into position near said impression cylinder, feeding mechanism on said feed frame for advancing the sheet directly from the feeding mechanism onto said impression cylinder, and means for supporting said feed frame in a second position remote from said impression cylinder, registering mechanism adapted to move into position between the said cylinder and said feeding mechanism to register the sheets passing onto the cylinder, a moving part on said main frame, and means for maintaining a driving connection from said moving part to said feeding mechanism in the different positions of said feed frame.

12. In a press in combination, a main frame, a feed frame mounted on said main frame, feeding mechanism on said feed frame arranged to advance the sheet directly into the press, a registering frame movably mounted on said feed frame, registering mechanism carried on said registering frame, said registering frame being arranged to occupy a position in which said registering mechanism operates to take the sheet from said feeding mechanism, a movable part on said main frame, means for driving said registering mechanism from said movable part when said registering mechanism is in its operative position, said registering frame being arranged to move into an inoperative position or an operative position.

13. In a press in combination, a main frame, an impression cylinder therein, a feed frame, feeding mechanism mounted thereon, means for movably supporting said feed frame on said main frame in a position in which said feeding mechanism feeds the sheet directly to said impression cylinder, means for holding said feed frame in a second position removed from said impression cylinder, and a registering frame pivotally supported adjacent said feeding mechanism and adapted to coöperate therewith when said feed frame is in said second position to register a sheet passing to said impression cylinder, said registering frame being movable into an inoperative position.

14. In a press in combination, a main frame, an impression cylinder mounted thereon, a feed frame, links pivotally supporting said feed frame on said main frame, means for supporting said feed frame at two points independently of said links in different positions, movable registering mechanism adapted to coöperate with said feeding mechanism in one of the positions of said feed frame, said feed mechanism comprising a reciprocating part, means on said main frame moving when said impression cylinder moves, and means connected therewith for driving said reciprocating part.

15. In a press in combination, a main frame, an impression cylinder mounted thereon, a feed frame, feeding mechanism mounted thereon, a pair of links pivotally supporting said feed frame on said main frame and adapting said feed frame to swing into a position adjacent to said cylinder, said main frame and said feed frame having coöperating parts for holding said feed frame adjacent said cylinder, and coöperating means between said main frame and said feed frame for holding said feed frame in position removed from said impression cylinder.

16. In a press in combination, a main frame, an impression cylinder mounted thereon, a feed frame, feeding mechanism mounted thereon, a pair of links pivotally supporting said feed frame on said main frame and adapting said feed frame to swing into a position adjacent to said cylinder, said main frame and said feed frame having cooperating parts for holding said feed frame adjacent said cylinder, and coöperating means between said main frame and said feed frame for holding said feed frame in a position removed from said impression cylinder, and registering mechanism adapted to cooperate with said feeding mechanism in the removed position of said feed frame, said registering mechanism being movable into an operative position to permit said feeding mechanism to feed sheets directly to said impression cylinder.

17. In a press in combination, a main frame, an impression cylinder mounted thereon, a feed frame movably mounted on said main frame, feeding mechanism mounted on said main frame, means for holding said feed frame in a position such that said feeding mechanism feeds the sheet directly to the impression cylinder, means for holding said feed frame in a second position removed from said cylinder, a moving part on said main frame arranged to be driven when said impression cylinder moves, a driving connection from said moving part to said feeding mechanism for driving the same in either position of said feed frame, and means for adjusting the position of said moving part with respect to said impression cylinder, so as to control the time of actuation of said feeding mechanism.

18. In a press in combination, a main frame, feeding mechanism supported thereupon for feeding the sheet to the cylinder, a movable registering frame, registering mech-

anism carried thereby adapted to coöperate with said feeding mechanism to register a sheet passing onto said impression cylinder, said frame being movable into an inoperable position, a moving part on said main frame arranged to move when said impression cylinder moves, means driven thereby for actuating said registering mechanism, and means for adjusting said movable part with respect to said cylinder to control the time release of the sheet from said registering mechanism.

19. In a press in combination, a main frame, an impression cylinder mounted thereupon, feeding mechanism supported on said main frame having a position adapted to feed the sheet directly to said impression cylinder, and having a second position registering mechanism, a movable registering frame carrying the same, adapted to hold the registering mechanism in a position to coöperate with said feeding mechanism in said second position to feed the sheet to the cylinder through the said registering mechanism, said registering frame being adapted to swing up into an inoperative position, a moving part mounted on said main frame and adapted to contact with a part of said registering mechanism to actuate the same when said registering mechanism is in its operative position and disengageable therefrom by the upward swinging movement of said registering frame.

20. In a press in combination, a main frame, an impression cylinder mounted thereon, feeding mechanism for feeding the sheet toward said impression cylinder, registering mechanism, a registering frame carrying the same and adapted to occupy a position in which said registering mechanism coöperates with said feeding mechanism to register the sheet passing to said cylinder, cams mounted on said main frame and engaging a part of said registering mechanism to actuate the same, said registering frame being arranged to swing up into an inoperative position.

21. In a press in combination, a main frame, an impression cylinder mounted thereon, feeding mechanism for feeding the sheet toward said impression cylinder, registering mechanism, a registering frame carrying the same and adapted to occupy a position in which said registering mechanism coöperates with said feeding mechanism to register the sheet passing to said cylinder, cams mounted on said main frame and engaging part of said registering mechanism to actuate the same, said registering frame being arranged to swing up into an inoperative position, a feed frame supporting said feeding mechanism, and means for movably supporting the same to permit swinging said frame toward said cylinder for feeding the sheet directly thereto.

22. In a press in combination, a main frame, an impression cylinder mounted thereupon, a feed frame, feeding mechanism mounted on said feed frame, said feed frame being arranged to swing into a position adjacent said cylinder so as to feed the sheet directly thereto and movable into a second position remote therefrom, registering mechanism arranged to coöperate with said feeding mechanism when said feed frame is in its remote position from said cylinder, said feeding mechanism comprising a reciprocating part, a lever mounted on said feed frame moving when said cylinder moves, and an extensible connection from said moving part to said lever for actuating said reciprocating part.

23. In a printing press in combination, a main frame, a feed frame movably mounted thereupon, feeding mechanism mounted on said feed frame including a pneumatic feed device for advancing the sheet into the press, a registering frame, registering mechanism carried thereby for controlling the alinement of the sheet as it passes to the press, said feed frame being movable so as to permit said registering frame to occupy a position in which said registering mechanism coöperates with said feeding mechanism, and a hose for maintaining pneumatic connection to said pneumatic feed device in any position of said feeding mechanism.

24. In a printing press in combination, a feed frame, feeding mechanism thereon for advancing the sheet directly into the press and including a pneumatic feed roller, a movable feed frame carrying said feeding mechanism, registering mechanism interposable in the path of the sheet for controlling the alinement thereof in the press, and adapted to assume an operative position or an inoperative position, said feeding frame having two positions corresponding to the two positions of said registering mechanism, and a hose connecting with said pneumatic roller for maintaining pneumatic connection thereto in the different positions of said feed frame.

25. In a printing press in combination, printing mechanism, registering mechanism and feeding mechanism, and means whereby said feeding mechanism may feed the sheets to be printed through said registering mechanism to the printing mechanism or to the latter direct.

26. In a press, in combination, a main frame, an impression cylinder mounted thereupon, feeding mechanism supported on said main frame for feeding the sheet to said impression cylinder, registering mechanism, a movable registering frame carrying the same, adapted to hold the registering mechanism in a position to coöperate with said feeding mechanism in feeding the sheet to the cylinder, said registering frame being

adapted to swing up into an inoperative position, a moving part mounted on said main frame and adapted to contact with a part of said registering mechanism to actuate the same when said registering mechanism is in its operative position and disengageable therefrom by the upward swinging movement of said registering frame.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

JOHN STOGDELL STOKES.
JAMES D. REIFSNYDER.

Witnesses:
CARL E. SCHAEFFER,
SILAS E. CHILD.