

No. 708,741.

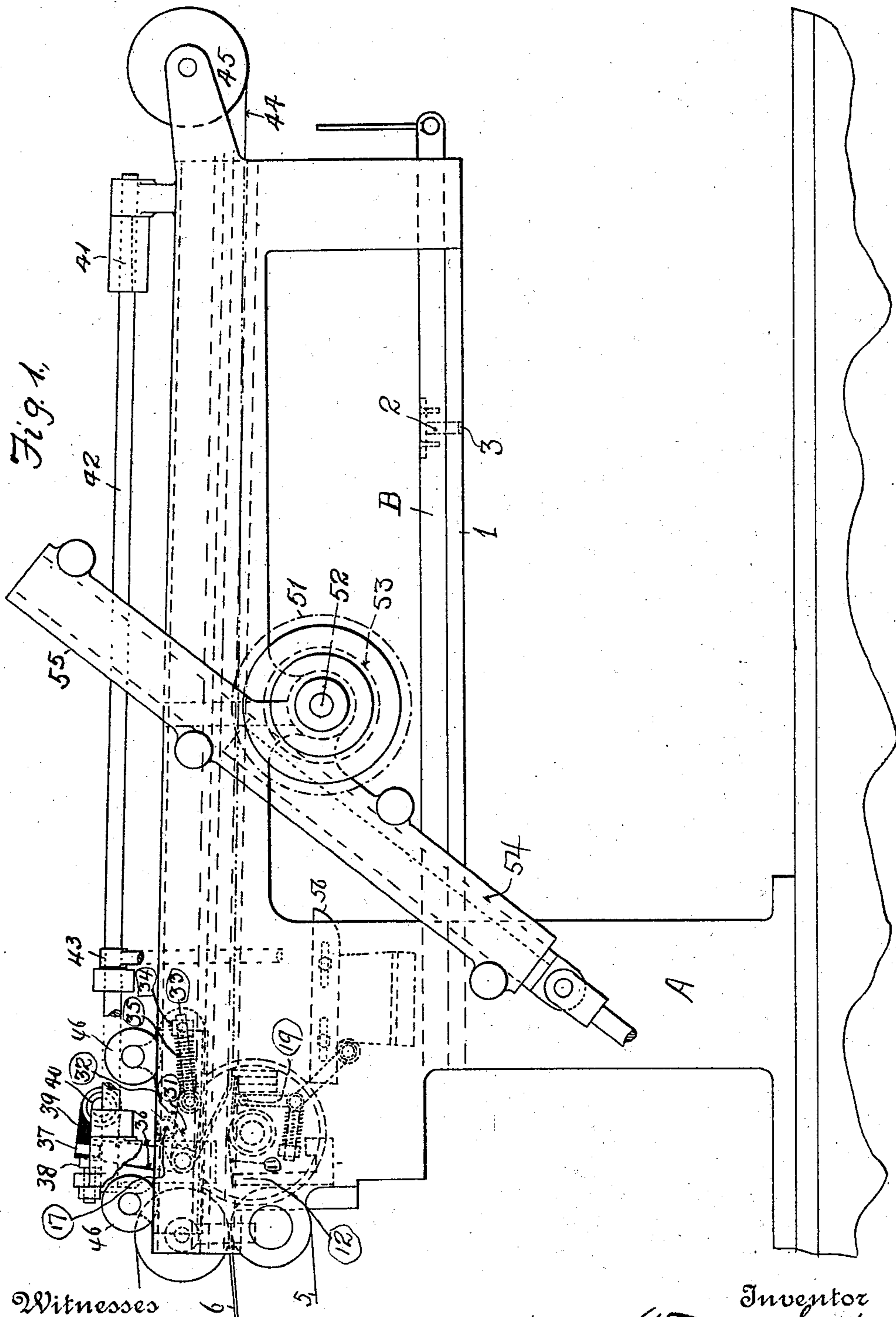
Patented Sept. 9, 1902.

W. SCOTT.  
SHEET DELIVERY MECHANISM.

(Application filed Aug. 18, 1898.)

(No Model.)

4 Sheets—Sheet 1.



Witnesses  
Frank Ryall  
Eus. C. Henning.

Inventor  
Walter Scott,  
By his Attorney  
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W. SCOTT.  
SHEET DELIVERY MECHANISM.

(Application filed Aug. 18, 1898.)

(No Model.)

4 Sheets—Sheet 2.

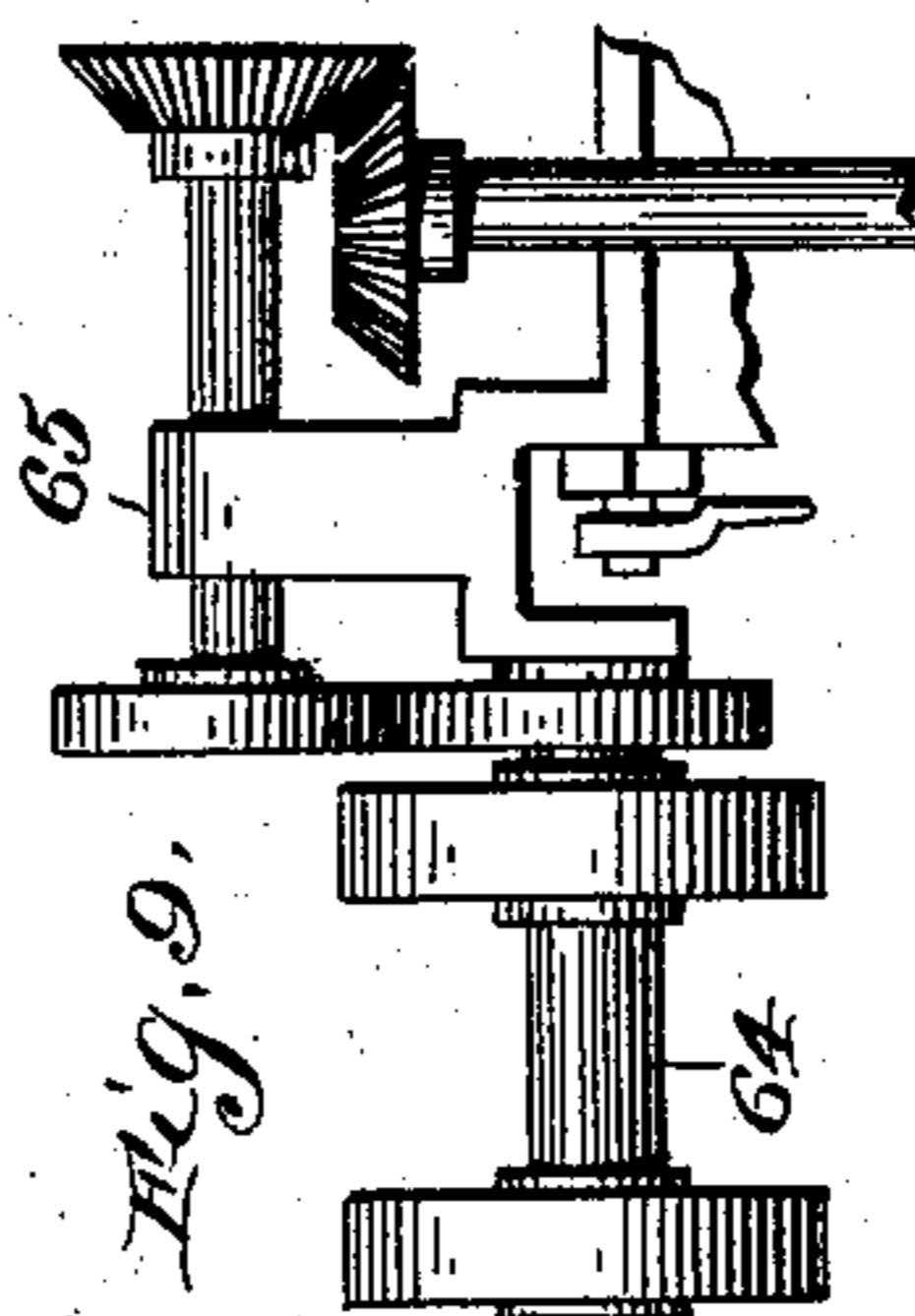
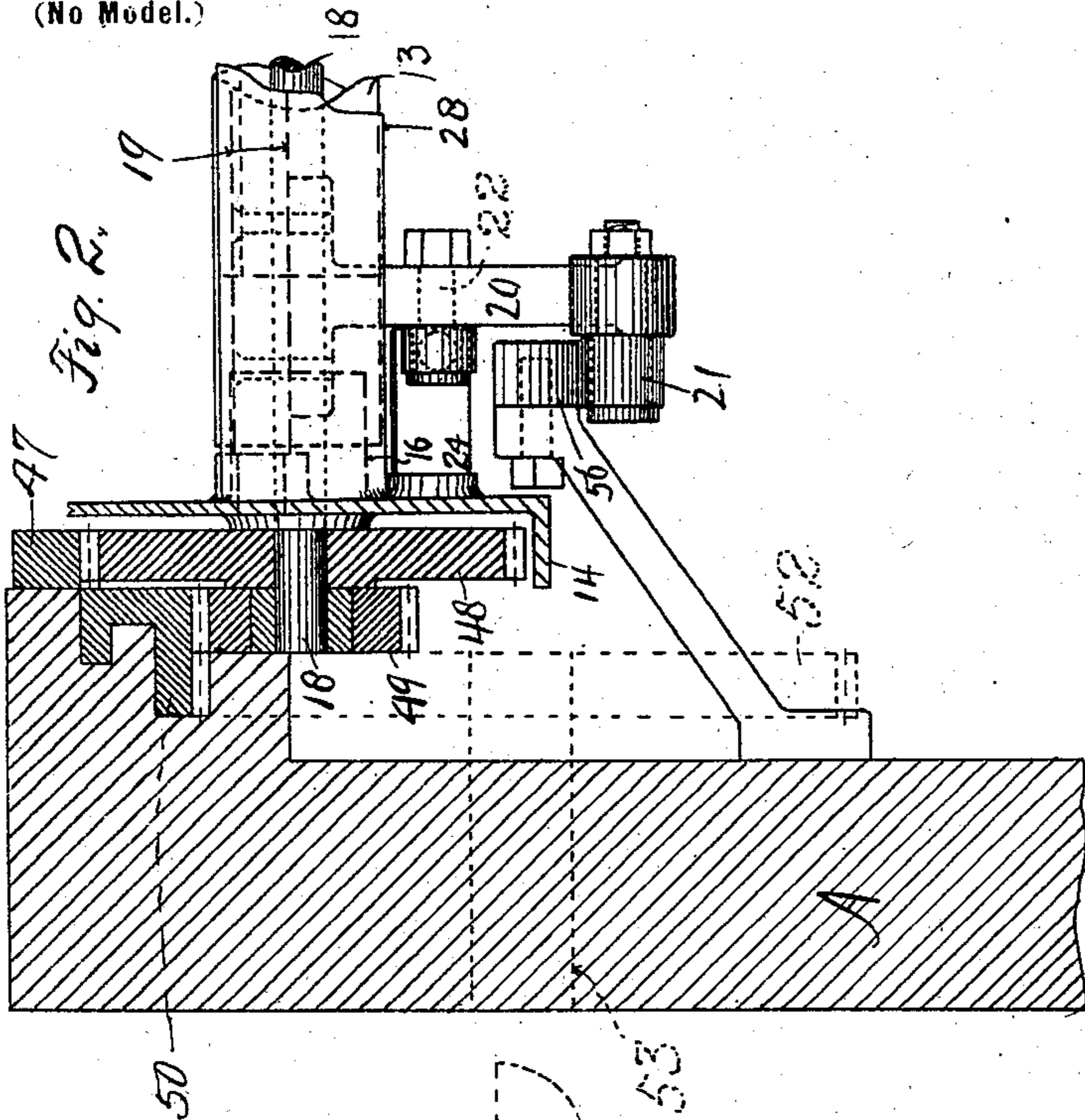


Fig. 3.

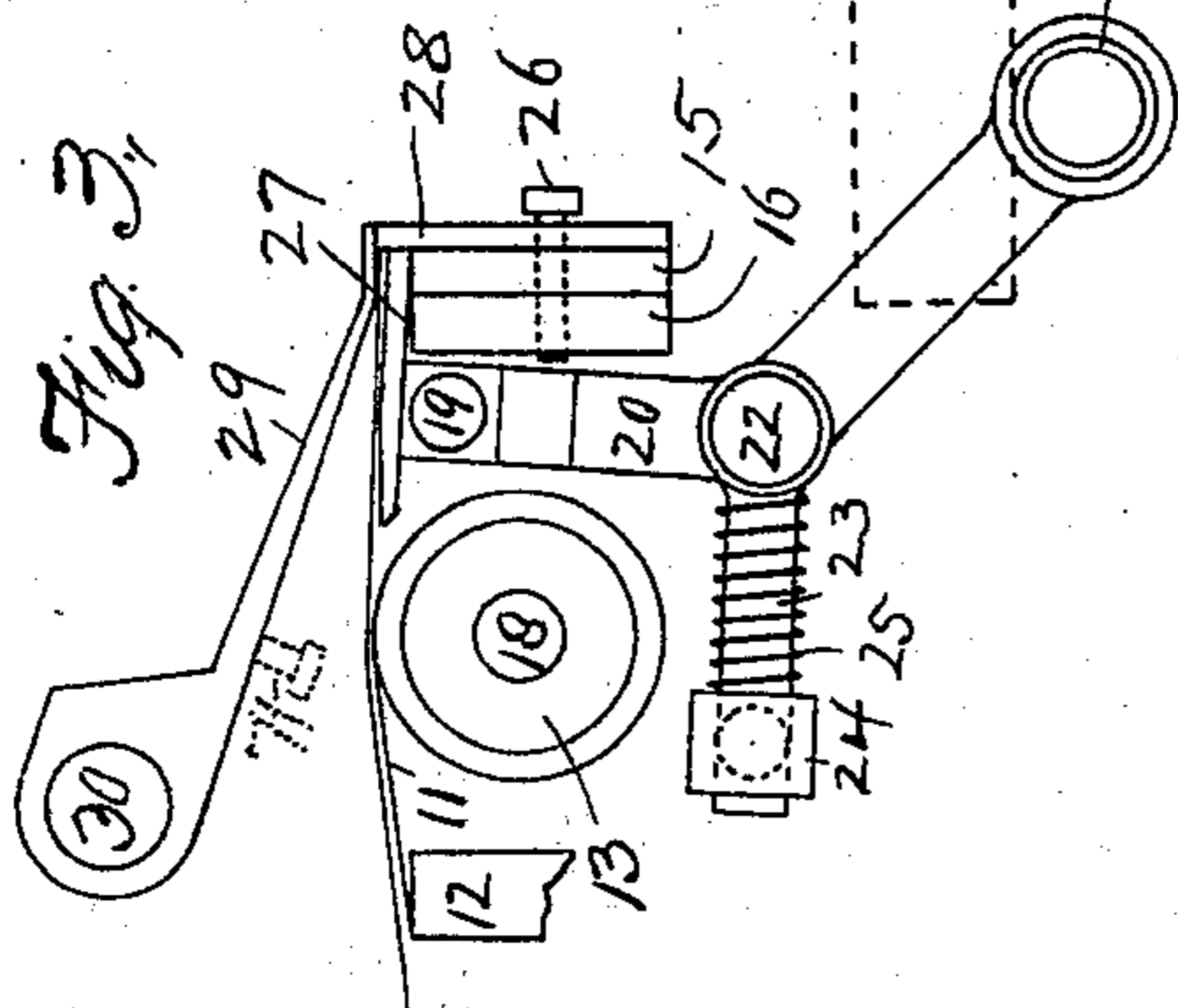
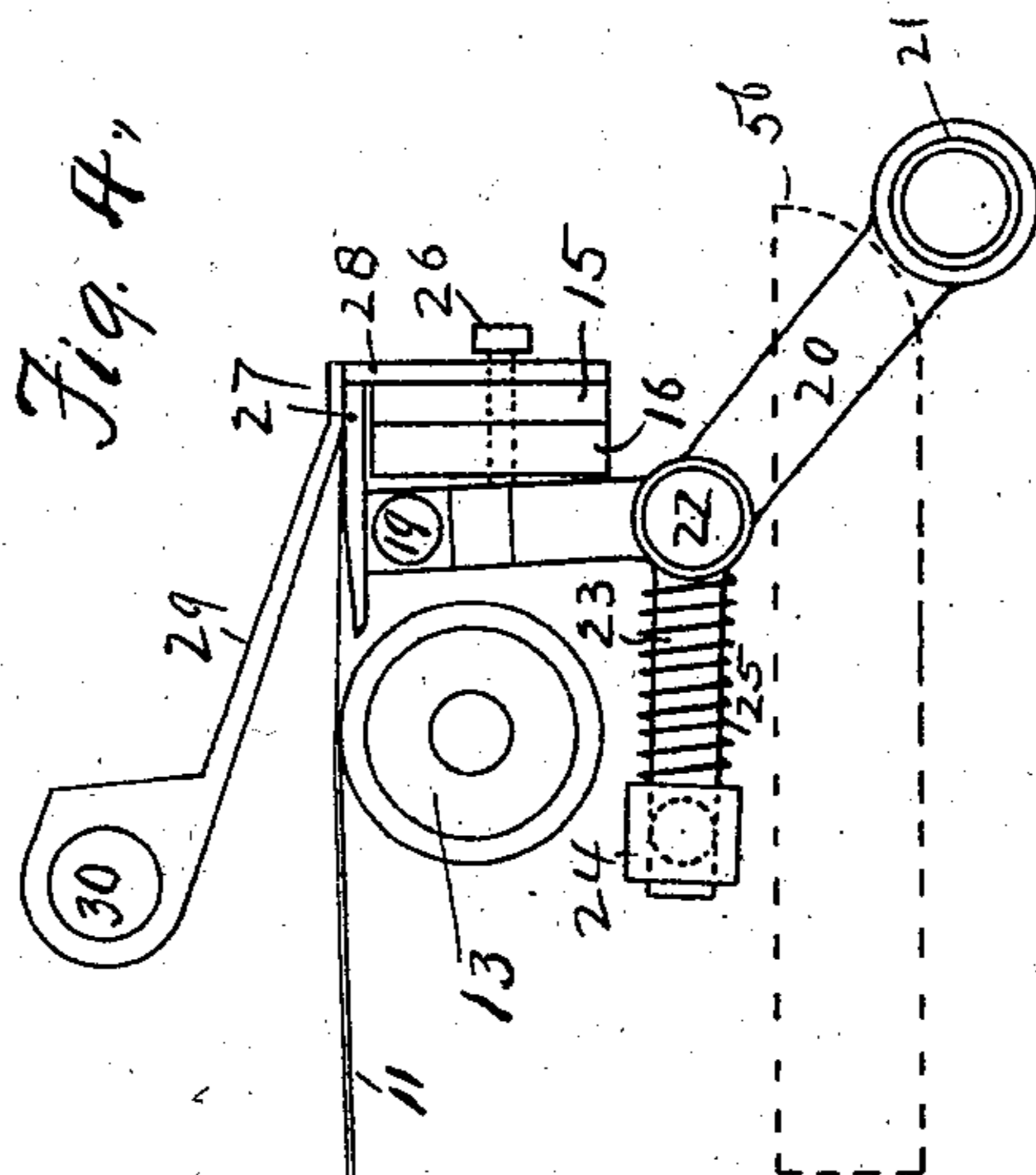


Fig. 4.



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Walker Scott,  
By his Attorney Richard W. Barkey.

**No. 708,741.**

**Patented Sept. 9, 1902.**

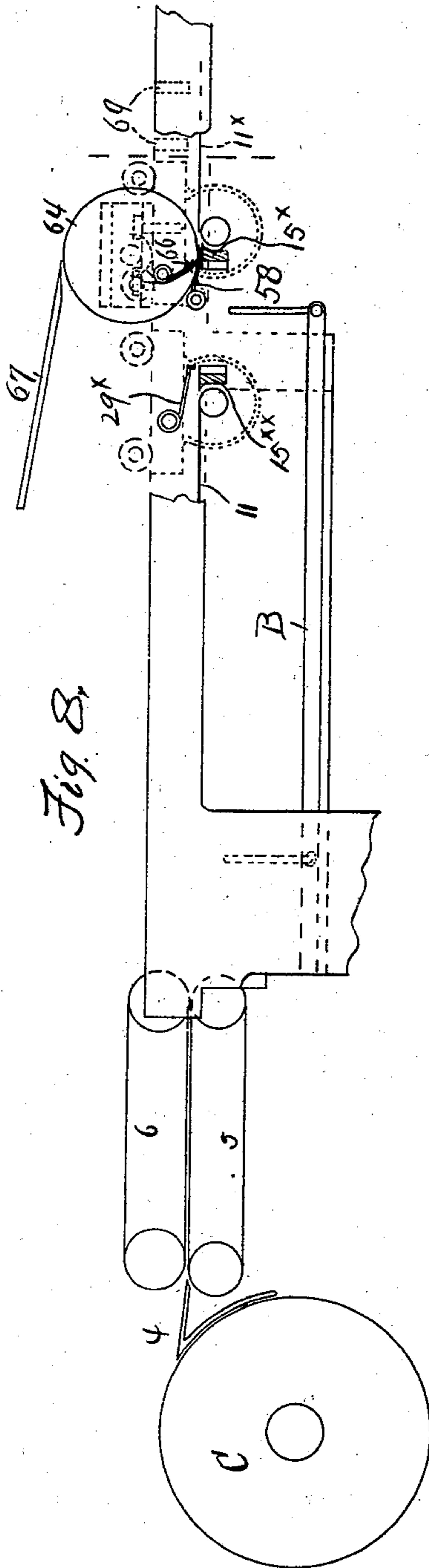
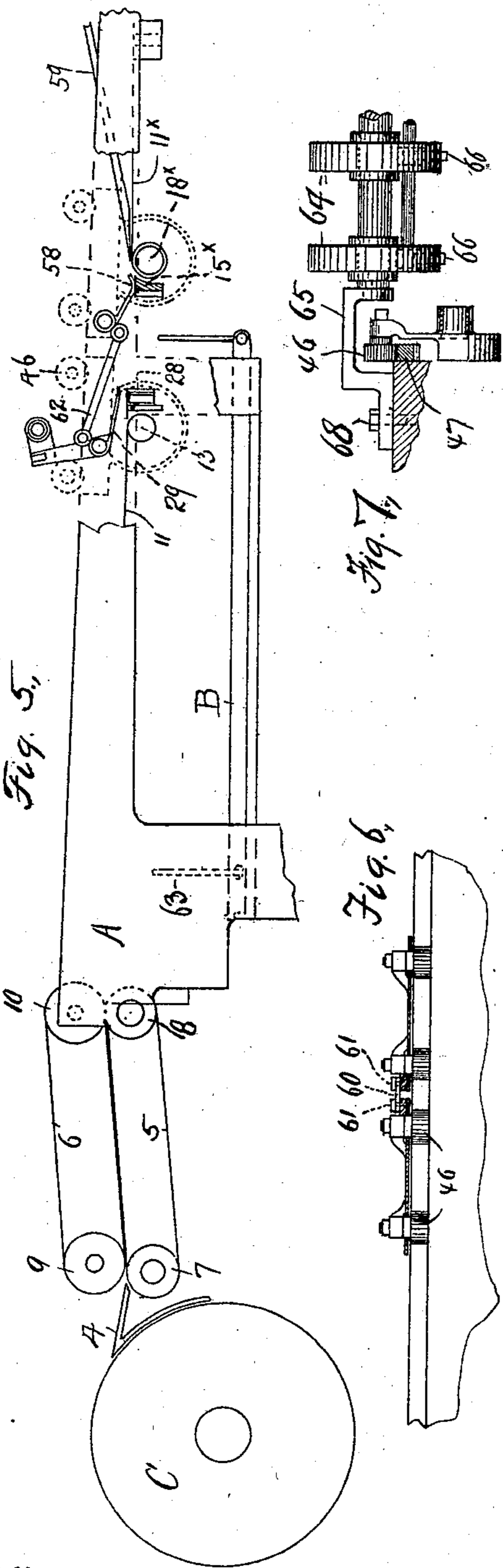
**W. SCOTT.**

## SHEET DELIVERY MECHANISM.

(Application filed Aug. 18, 1898.)

(No Model.)

**4 Sheets—Sheet 3.**



Witnesses  
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Inventor  
Walter Scott,  
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Richard W. Parkley.

No. 708,741.

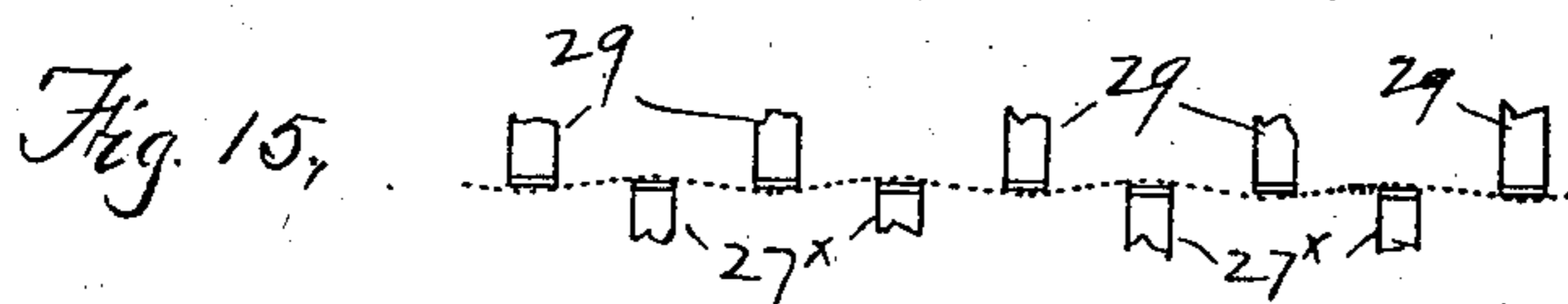
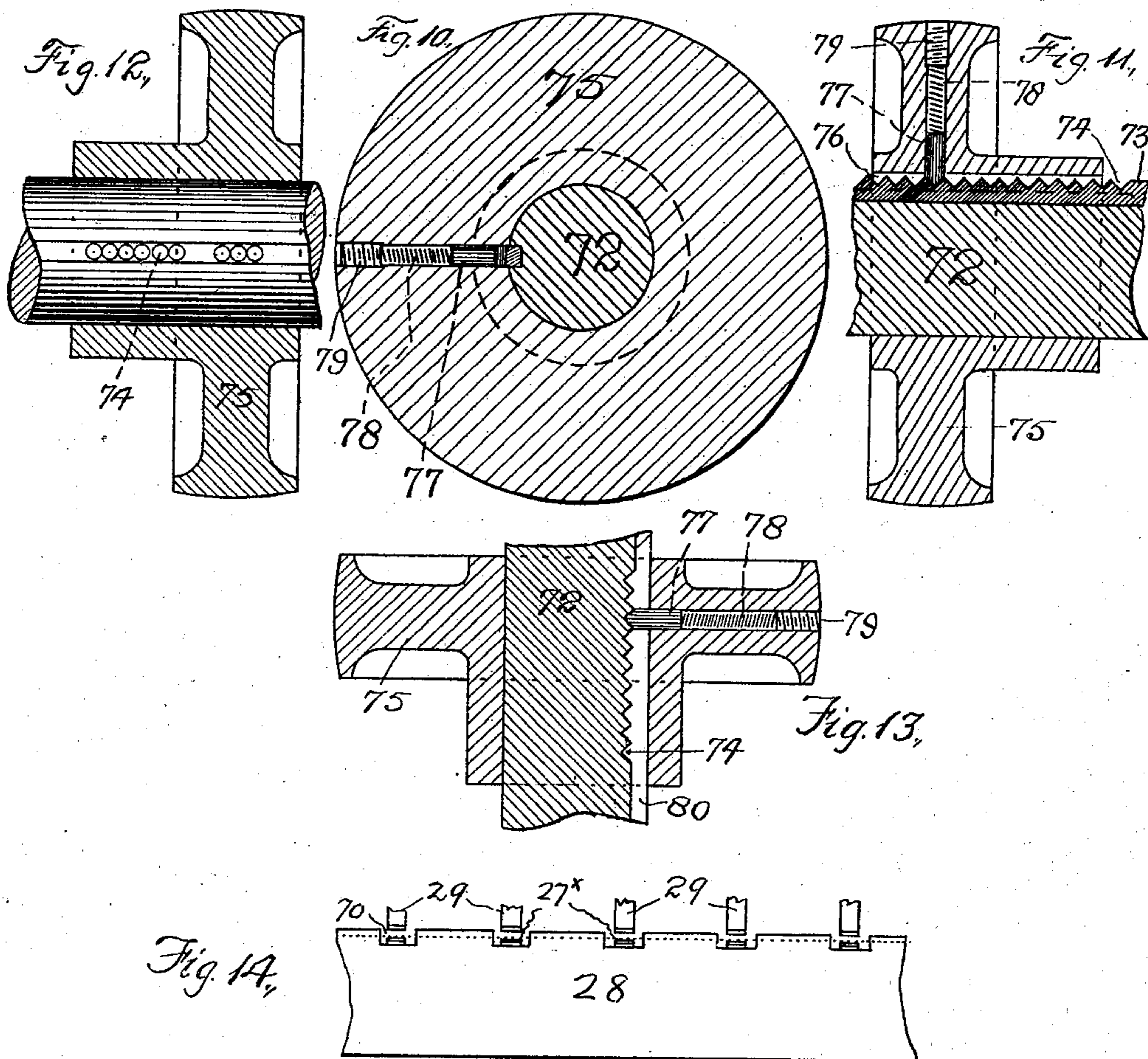
Patented Sept. 9, 1902.

W. SCOTT.  
SHEET DELIVERY MECHANISM.

(Application filed Aug. 18, 1898.)

(No Model.)

4 Sheets—Sheet 4.



Witnesses  
Frank Ryall  
Geo. C. Henning.

Inventor  
Walter Scott,  
By his Attorney  
Richard W. Barkley.

# UNITED STATES PATENT OFFICE.

WALTER SCOTT, OF PLAINFIELD, NEW JERSEY.

## SHEET-DELIVERY MECHANISM.

SPECIFICATION forming part of Letters Patent No. 708,741, dated September 9, 1902.

Application filed August 18, 1898. Serial No. 688,854. (No model.)

*To all whom it may concern:*

Be it known that I, WALTER SCOTT, a citizen of the United States, and a resident of Plainfield, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Sheet-Delivery Mechanism, of which the following is a specification.

This invention relates to mechanism for delivering sheets on delivery-boards, and more especially that class of mechanism wherein the sheets are run out flat and then dropped on a horizontal delivery-board.

One object of the invention is to deliver the sheets uniformly upon the board; and another object is to automatically place "slip-sheets" between printed sheets on the delivery-board. Other objects will hereinafter more fully appear.

To these ends the invention includes features of construction and combinations of devices hereinafter more fully described, and more particularly pointed out in the claims concluding this specification.

The preferred form of the invention is illustrated in the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of part of a machine, showing a sheet-stop, upper and lower movable grippers, a sheet-support, and operating mechanism for the parts. Fig. 2 is a cross-section of one side of the frame shown in Fig. 1 and showing certain of the parts shown in Fig. 1 and also part of the operating mechanism. Fig. 3 is a diagrammatic side view showing the position of the grippers and sheet-stop at the moment a sheet is run in between the grippers. Fig. 4 is a like view showing the positions of the parts when the grippers close to grip the sheet between them. Fig. 5 is a side elevation, partly broken away, to show the working parts behind of a mechanism embodying the automatic slip-inserting feature of my invention. Fig. 6 is a plan view of certain features of one form of my invention. Fig. 7 is a detail view of certain features shown in side elevation in Fig. 8. Fig. 8 is a side elevation, partly broken away to show working parts behind of a modification of the mechanism shown in Fig. 5. Fig. 9 is a side elevation showing an arrangement of gearing for driv-

ing the feed-cylinder shown in Fig. 8. Fig. 10 is a cross-section of a pulley and a shaft, showing a yielding connection between the pulley and shaft. Fig. 11 is a longitudinal section of the same device. Fig. 12 is a view, partly in cross-section, of a modification. Fig. 13 is a longitudinal sectional view showing a modification of the same. Fig. 14 is a diagrammatic view showing a modification of the sheet-stop and gripper mechanism. Fig. 15 is a diagrammatic view showing a different relative arrangement of the gripper mechanism.

The same part will be found designated by the same character of reference in all the drawings in which it is shown.

The reference-letter A indicates a suitable frame in which the working parts are mounted for operation.

B marks a delivery-board, which is supported at its sides upon horizontal flat bars 1 and is connected therewith by means of a pin 2, fast to the board, and a hole 3 in the bar 1, into which the pin enters, there being preferably one such pin-and-hole connection at each side of the board. By lifting up the end of the board the pins are withdrawn from the holes, and the board may then be slid along on the bars, as toward the cylinder, the pins resting on the bars. This arrangement provides for getting at the inking apparatus without hindrance from the overhead delivery-board.

C indicates the impression-cylinder, which may be driven in any usual or suitable way. It may oscillate, revolve continuously, or stop, as circumstances may require. The sheets may be fed to the cylinder C in any suitable or desired manner and are then delivered thereby upon the fixed guides 4 and between the sets of tapes 5 6. The tapes 5 are carried by the rollers or pulleys 7 8, the first of which are journaled in the frame adjacent the impression-cylinder C and the second of which are journaled in the frame at a distance from the cylinder C. In some cases it is advisable to provide that the sheet shall not be lifted or blown from the tapes 5, and for the purpose of preventing such mishap the tapes 6 are provided. By preference the tapes 6 only bear upon the margins of the sheets. The tapes 6 are carried by rollers or

pulleys 9 10, the first of which are journaled  
 over the pulleys 7 and the second of which  
 are shown as being journaled in the frame  
 over the pulleys 8. The tapes 5 6 are driven  
 5 in any suitable way. (Not shown.) From  
 the rollers or pulleys 8 10 the sheets are in the  
 specific embodiment of my invention shown  
 in the drawings, Figs. 1, 3, 4, and 5, run upon  
 the web or ribbon 11, of fabric, one end  
 10 thereof being fast to the cross-bar 12 on the  
 fixed frame of the machine and the other end  
 thereof being fast to a hollow roller 13 on a  
 to-and-fro-movable carriage. This carriage  
 is composed of end pieces 14, (but one is  
 15 shown,) which are tied together by means of  
 a bar 15, fast at its ends to lugs 16 on the end  
 pieces 14, and a bar 17, fast at its ends to the  
 said end pieces. The end pieces 14 are pro-  
 vided with suitable bearings for a shaft 18,  
 20 on which the roller 13 is loosely mounted, so  
 as to turn independently thereof, and with  
 bearings for the ends of a bar or shaft 19,  
 which carries part of the sheet-gripping mech-  
 anism, as will presently appear. The shaft  
 25 19 lies between the roller 13 and the bar 15  
 and is provided with an arm 20 below it.  
 The arm 20 is bent, as shown, and is provided  
 with an antifriction-roller 21 and with a stud  
 or bearing 22, on which a bar 23 is provided.  
 30 The adjacent end piece 14 is provided with a  
 perforated lug 24, through which the bar 23  
 projects. A spring 25 is coiled around the bar  
 23 between the lug 24 and the enlarged end  
 thereof, which is pivoted upon the stud 22 and  
 35 acts to press the arm 20 away from the lug 24.  
 The arm 20 is stopped when free to move by  
 coming in contact with a lug 16 or an adjust-  
 able stop 26, passing through the bar 15 and  
 the lug 16, or any other adjustable stop may  
 40 be used. By preference the gripper carried  
 by the bar or shaft 19 is in the form of a con-  
 tinuous bar or plate 27, though this may be  
 replaced by two or more flat bars or grip-  
 pers. The gripper 27 is in front of a sheet-  
 45 stop 28, which is secured to the bar 15 and  
 projects above the same. When the bar 19  
 is free to move under the influence of spring  
 25 and the arm 20 is stopped, as described,  
 the top surface of the gripper 27 is flush with  
 50 or slightly above the top of the stop 28, or it  
 may be held flush with said top and after-  
 ward be raised slightly above the same, all  
 as will hereinafter more fully appear. By  
 rocking the shaft 19 in one direction the grip-  
 55 per 27 may be depressed below the top of the  
 stop 28. Above the stop 28 is the gripper or  
 set of grippers 29. This set of grippers is  
 borne by a shaft 30, which is journaled in  
 arms 31 from the shaft or bar 17. The shaft  
 60 30 is provided with an arm 32, to the end of  
 which a rod 33 is pivoted. The other end of  
 rod 33 passes loosely through a lug 34 on the  
 adjacent end piece 14, between the enlarged  
 end of the pivoted end of the rod 33 and the  
 65 lug 34, and tends to move the shaft 30 one  
 way or the other, according as the pivot con-  
 necting the arm 32 and the rod 33 is above or

below the line joining the centers of shaft 30  
 and the hole in lug 34, as will be understood.  
 The shaft 30 is also provided with an arm 36, 70  
 by which it is moved or rocked when it is de-  
 sired to open or to close the grippers 29. This  
 arm 36 has a lug 37 at one side thereof for  
 coaction with a fixed or adjustable abutment  
 38 on the frame A and with an arm 39, to 75  
 which an antifriction-roller 40 is attached.  
 The abutment 38 acts to close the gripper 29  
 down upon the top of stop 28, and a lifter 41  
 coacts with the roller 40 to raise the grippers  
 29 from said stop-top. The lifter 41 is pref- 80  
 erably an arm on a shaft 42, which is suitably  
 journaled in bearings on or borne by the  
 frame A. The shaft 42 is rocked at suitable  
 times to cause the arm 41 to lift the roller 40  
 and so cause the shaft 30 to rock until the 85  
 pivot-connecting arm 32 and rod 33 is above  
 the line of centers referred to above, where-  
 upon the spring 35 completes the motion of  
 the shaft 30. The shaft 42 is provided with  
 an arm to which a rod 43 is pivoted. The rod 90  
 is connected with a suitable cam or other part,  
 (not shown,) by which it is moved at the ap-  
 propriate times to cause the arm 41 to rise,  
 as above described.

The hollow roller 13 may be rotated in any 95  
 suitable manner, as by means of the fabric  
 11 and a tape 44, which may be secured to the  
 roller at one edge of the fabric and to a roller  
 or pulley 45, which is journaled on the frame-  
 work A and is connected therewith by a 100  
 spring coiled about the shaft on which the  
 pulley is journaled and having its ends fast  
 to the frame and to the pulley, (spring not  
 shown,) as in my pending application for  
 Letters Patent filed the 19th day of May, 105  
 1897, Serial No. 637,173.

The carriage carrying the roller 13 may be  
 reciprocated by any suitable mechanism,  
 such as shown in several prior applications  
 of mine, and one of which is partly shown 110  
 herein. The end pieces 14 are provided with  
 rollers 46, which run on the smooth backs of  
 a pair of racks 47 (but one is shown) at the  
 sides of the machine. The shaft 18 is pro-  
 vided with pinions 48 at its ends (but one 115  
 such pinion is shown) which mesh with the  
 racks 47. The shaft also has a pinion 49 fast  
 thereto at one end, and this pinion 49 meshes  
 with a reciprocating rack-bar 50, which is  
 suitably guided on the frame A. The rack 120  
 50 is driven to and fro by means of a gear 51  
 on a shaft 52, journaled in frame A. The  
 shaft 52 is provided with a second gear 53,  
 which is driven by a reciprocating rack 54,  
 working in a guideway 55, bolted to the frame 125  
 A in an oblique position, and driven from a  
 crank or cam. (Not shown.)

The operation of the foregoing devices is  
 as follows: The sheets are run out by the  
 tapes 5 6 onto the web 11 and between the 130  
 grippers 27 and 29, which at this time are in  
 the relative positions shown in Fig. 3 and  
 against the stop 28. The sheets may reach  
 the stop 28 at the moment the carriage is re-

versing its motion or at any time thereafter prior to the time when the roller 21 runs from under the cam 56, and so permits the spring 25 to move the gripper 27 up against the gripper 29, as shown in Fig. 4. After the closing of the grippers the sheet is drawn out over the supporting-web 11 until the carriage reaches the limit of its movement away from the impression-cylinder C. As the carriage comes to rest or while it is at rest the lifter 41 raises the roller 40 and rocks shaft 30, as described, to open the grippers 29—that is, these grippers are lifted from the top of the stop 28, and the sheet is now free to pass over the stop and onto the board B during the return movement of the carriage. Accordingly as the fabric 11 is now wound up on the roller 13 through the action of the tape 44 the sheet drops, head first, onto the board B and against the end stop 57. As the carriage reaches the end of its return movement the arm 36 or lug 37 is acted upon by the abutment 38, and the gripper 29 is thrown down against the top of the stop 28, while the gripper 27 is moved down by the cam 56 in ample time for the sheet to be run out, as in Fig. 3.

The devices shown in Fig. 5 will now be described. The means for running out the printed sheets may be identical with those hereinbefore described. Hence no further description thereof is required. In case slip-sheets are to be inserted between the sheets so run out almost identical mechanism may be used for the purpose of carrying out such slip-sheets and laying them on the sheets on the board B. In case the slip-sheets are to be fed by hand to the grippers 58 and bar 15<sup>x</sup> a feed-board 59 is provided, and the shaft carrying the grippers 58 is placed so that the bar 15<sup>x</sup> is between it and the shaft 18<sup>x</sup>. (All the parts having the superior “x” are or may be identical with the like parts hereinbefore described and referred to without the superior “x” to their references, and therefore do not need further description.) The carriage for the slip-sheet-delivering mechanism may be driven independently or it may be connected at each side to the end piece 14, as by the bars 60 and the screw-bolts 61, connecting the bars with the end pieces 14. The grippers 58 may be opened and closed in any suitable way. Thus they may be connected with the grippers 29, as by a rod 62, which is pivotally connected with arms on the shafts of the said grippers 29 and 58. The slip-sheets are dropped on the board B and against a stop 63 in substantially the same manner as the sheets from the printing-press. It will be observed that the two mechanisms deliver their sheets in alternation, one beginning at one end of the board B and the other at the other end thereof. The feed-board 59 may be adjustable toward and from the cylinder C, as may also be the stop 63, thus providing for cases where the sheets delivered from the printing-press vary in length. In such cases

the rods 60 and 62 may be replaced by others of the proper length to cause the grippers 58 and their carriage to have the proper position to drop the slip-sheets (of nearly the same length of printed sheets) upon the printed sheets on the board B. In Fig. 8 the feed-board 59 is replaced by a feed-cylinder 64, which is journaled in brackets 65, bolted to the top of frame A at each side of the machine. The cylinder 64 is provided with grippers 66, which are operated at suitable intervals by any appropriate means. (Not shown.) The sheets are fed to the cylinder 64 from a feed-board 67 above the same and pointing away from the cylinder C, (the board 59 points toward said cylinder C,) thus saving space as compared with the arrangement in Fig. 5. The slip-sheets are fed by hand from the board 67 to the grippers of cylinder 64 and are delivered by the grippers 66 to the grippers 58 and bar 15<sup>x</sup> at the moment these begin to move toward the cylinder C. The cylinder 64 is driven by any suitable mechanism (not shown) and takes the sheets from the board 67 and delivers them to the grippers 58 and bar 15<sup>x</sup>, the cylinder being so driven at this time as will secure that the slip or other sheets shall be taken by the reciprocating delivery without undue strain being brought upon the sheets. For this purpose a cylinder 64 may be caused to move at the same speed as the reciprocating and delivery mechanism during the time it is delivering the sheet thereto. At other times the cylinder 64 may be at rest or move progressively, as may be desired. The cylinder 64 and board 67 may be adjusted toward and away from the cylinder C to meet the cases where the lengths of the sheets vary, as by removing the bolts 68, by which brackets 65 are secured in place, and moving the parts along on the frame A to another set of threaded holes 69 and attaching the brackets there to the frame A and also changing rods 60 and 63 for others of the proper length.

In the modification illustrated in Fig. 14 the stop-plate 28 is provided with notches 70, opposite the grippers 29—that is, the grippers 29 are not stopped by the stop-plate, but by independent means, as a stop 71 in the path of the arm 36. The gripper 27 is replaced by a series of fingers 27<sup>x</sup>. The dotted line indicates the position of a sheet before the grippers 27<sup>x</sup> close.

In the modification illustrated in Fig. 15 the grippers 29 and 27<sup>x</sup> are not placed opposite each other, but the grippers of each set are placed opposite intervals between the grippers of the other set, and the parts have motion such that the upper surfaces of the grippers 27<sup>x</sup> rise somewhat above the plane of the lower surfaces of the grippers 29 when both sets are in position to grip sheets, thus bending the sheet, as indicated by the dotted line in said Fig. 15, and holding it.

It is stated above that it is preferred that the tapes 6 shall bear only upon the margins

of the sheets. In order to provide for carrying out sheets of various widths between the tapes 5 and 6, I arrange to have the pulleys carrying one or more sets of such tapes 5 and 6 adjustable along their shafts. The means forming part of the present invention whereby this adjustment is readily secured are shown in Figs. 10, 11, 12, and 13. Inasmuch as the device is applicable to all the shafts and pulleys, I shall in these figures give independent reference-numerals to the parts. The shaft 72 is provided with a feather or spline 73, and this feather or spline is provided along its length with transverse notches 74. The pulley 75 is provided with a groove 76 to fit over said spline, whereby the pulley is prevented from turning independently of the shaft. The pulley is provided with a perforation from its rim to its bore, said perforation opening into the said groove 76. Slidable in said perforation is a pin 77, having one end shaped to fit the notches 74 and the other end shaped to receive the end of a coil-spring 78, lying behind the said pin in the said perforation. A screw 79, engaging the threaded end of the perforation, acts as an abutment against which the said spring 78 bears. When it is desired to adjust the tape-pulley 75 along the shaft, it is only necessary to press with some force upon one side of the pulley, and thus cause the pin 77 to move radially outward of the pulley against the force of the spring and jump over into the next notch 74 as the pulley moves or is forced along the shaft. In this way the pulleys and their tapes may be adjusted along the shafts to suit any width of sheet and bear upon the margins or other parts thereof, as may be desired.

No claim is made herein to the adjustable pulley illustrated in Figs. 10 to 13, inclusive, as that subject-matter forms the basis of an application for Letters Patent, a division of this application, filed March 26, 1901, Serial No. 52,875.

In the modification shown in Fig. 13 the spline is omitted and the shaft 72 is provided with a groove 80, whose bottom is notched at 74 to receive the pin 77. The pin 77 in this instance acts as a means of preventing the shaft and the pulley from rotating independently of each other—that is, the pin has a function making it the equivalent of the spline. By preference the notches 74 are flaring, as by being conical, and the pin 77 is shaped to fit them, or the notches 74 may be of the same width all the way across the spline or groove, and pin 77 may have a wedge-shaped end to fit them, or the notches may have other cross-sections and the pin be shaped to fit them. The essential point is that the shaft and wheel shall have coacting locking members, at least one of which shall present a concave or convex surface to the other.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a sheet-delivery having a to-and-fro-moving sheet support or carrier, a combined sheet stop and gripper comprising a relatively fixed sheet-stop against which the sheet is fed, and two independently-movable gripper members, coacting to grip the sheets between them, substantially as described.

2. In a sheet-delivery having a to-and-fro-moving sheet support or carrier, a relatively fixed sheet-stop moving with said carrier or support and against which the sheet is fed, a gripper above said stop and adapted to move up and down, and a gripper in front of said stop adapted to be depressed below the said stop, substantially as described.

3. In a sheet-delivery having a to-and-fro-moving sheet support or carrier, a relatively fixed sheet-stop moving with said carrier or support, a gripper above said stop adapted to move up and down, a spring for pressing the gripper downwardly, a second gripper in front of and adapted to be depressed below said sheet-stop, and a spring for pressing said second gripper upward, all in combination, substantially as described.

4. In a sheet-delivery having a to-and-fro-moving sheet carrier or support, a relatively fixed sheet-stop moving with said carrier or support, a gripper above said sheet-stop, means for moving and holding said gripper in each of two positions, a second gripper in front of and adapted to be depressed below said sheet-stop, and mechanism for moving said second gripper toward and from the first-named gripper, substantially as described.

5. In a to-and-fro-moving sheet-delivery, the combination of a to-and-fro-moving sheet support or carrier, a sheet-stop fixed thereto and moving therewith, a gripper above said stop, mechanism for operating said gripper to open and close the same, a second gripper in front of and adapted to be depressed below the said sheet-stop, and mechanism for depressing said second gripper while sheets are being run in over it and against said stop and for closing said gripper, substantially as described.

6. In a sheet-delivery, the combination of a to-and-fro-moving sheet carrier or support, a combined sheet and gripper stop moving with said support or carrier, a gripper above said stop and arrested in its downward movement thereby, a second gripper below the first-named gripper and in front of the sheet-stop, mechanism for moving said grippers downwardly and holding them apart while the sheets are fed in between them and against said stop and for releasing or closing said second gripper, and mechanism for opening said first-named gripper to release the sheets for delivery, substantially as described.

7. In a sheet-delivery, a to-and-fro-moving sheet carrier or support, a combined sheet and gripper stop moving with said carrier or support, a gripper above said stop adapted to be arrested in its downward movement thereby, mechanism for moving and holding

said gripper against and away from said stop, a second gripper below and in front of said stop, a spring for pressing said gripper upward against the first-named gripper, and a cam on the framework for depressing said second gripper to provide a space between it and the first gripper into which the sheets are fed against said stop said second gripper raising said sheets up against said first-named gripper in position to be delivered over said stop, substantially as described.

8. In a sheet-delivery, the combination of a to-and-fro-moving carriage, a sheet-stop fixed thereto, a sheet support or carrier connected with said carriage, a gripper intermediate the stop and the support or carrier adapted to lie in or slightly above the horizontal plane including the top of the stop and to be depressed below said top, a gripper above said stop adapted to be stopped in its downward movements by said stop and to coact with the lower gripper to grip sheets, springs pressing said grippers toward each other, and mechanism for separating said grippers to allow the sheets to be fed in between them and to allow the sheets to be dropped or moved from said support or carrier, substantially as described.

9. In a sheet-delivery, the combination of a to-and-fro-moving carriage, a sheet and gripper stop fixed thereto, a sheet support or carrier connected with said carriage, a gripper between said stop and said support or carrier adapted to lie in or slightly above the top of said stop, a spring pressing said gripper upwardly, an adjustable stop for limiting the upward motion of said gripper, a cam for moving said gripper against the force of said spring to move the gripper below said stop-top, a gripper above the stop adapted to be stopped in its down movement by said top and to coact with the lower gripper to grip sheets, and mechanism for moving and holding said upper gripper toward and away from said stop-top and lower gripper, substantially as described.

10. In a sheet-delivery having a to-and-fro-moving sheet support or carrier, a combined sheet stop and gripper comprising a relatively fixed sheet-stop against which the sheet is fed, and two independently-movable gripper members, one of which is stopped by said sheet-stop and the other of which is stopped by the first-named gripper, substantially as described.

11. In a sheet-delivery having a to-and-fro-moving sheet support or carrier, a relatively fixed sheet-stop moving with said carrier or support and against which the sheet is fed, a gripper above said stop and adapted to be stopped thereby in its downward movement, a gripper in front of said stop adapted to be depressed below the said stop and to be stopped in its upward movements by the first-named gripper, substantially as described.

12. In a sheet-delivery having a to-and-fro-moving sheet support or carrier, a relatively

fixed sheet-stop moving with said carrier or support, a gripper above said stop adapted to move up and down, and to be arrested thereby in its downward movement, a spring for pressing the gripper downwardly, a second gripper in front of and adapted to be depressed below said sheet-stop and to coact with said first-named gripper to grip sheets, and a spring for pressing said second gripper upward, all in combination, substantially as described.

13. In a sheet-delivery having a to-and-fro-moving sheet carrier or support, a relatively fixed sheet-stop moving with said carrier or support, a gripper above said sheet-stop adapted to be arrested thereby in its downward movement, means for moving and holding said gripper in each of two positions against and away from said sheet-stop, a second gripper in front of and adapted to be depressed below said sheet-stop and coacting with said first-named gripper to grip sheets, and mechanism for moving said second gripper toward and from the first-named gripper, substantially as described.

14. In a to-and-fro-moving sheet-delivery, the combination of a to-and-fro-moving sheet support or carrier, a sheet-stop fixed thereto and moving therewith, a gripper above said stop and arrested by the top thereof as it moves downwardly, mechanism for operating said gripper to open and close the same, a second gripper below the first gripper and coacting therewith to grip sheets said second gripper being in front of and adapted to be depressed below the said sheet-stop, and mechanism for depressing said second gripper while sheets are being run in over and against said stop and for closing said gripper against the first-named gripper, substantially as described.

15. The combination of a delivery-board, a to-and-fro-moving sheet-delivering mechanism receiving printed sheets at one end of its path of motion and delivering them as it returns toward that end of its path on said board, and a second sheet-delivering mechanism adjustably connected with said first-named sheet-delivering mechanism, whereby the first-named mechanism begins its delivery at one point and the point of beginning of the delivery by the second mechanism may be varied, substantially as described.

16. The combination of a delivery-board, a to-and-fro-moving carriage, a set of grippers carried thereby, a sheet support or carrier connected with said carriage, means for delivering printed sheets to said grippers and support or carrier, a second set of grippers and a sheet support or carrier adjustable along said carriage toward and from said first set and carrier or support, and an adjustable feed-board from which sheets are supplied to said second set of grippers and carrier or support, substantially as described.

17. The combination of a delivery-board, a sheet-delivering mechanism movable to and

fro over said board and provided with a set of movable grippers and delivering printed sheets on said board, a second sheet-delivering mechanism also movable to and fro over said board in the same direction as the first mechanism and also provided with a set of movable grippers, and a connection between said sets of grippers for moving them simultaneously, substantially as described.

18. The combination of a delivery-board placed over the inking apparatus of a printing-press, a pair of side supports for said board, and a pin-and-hole connection between said board and said supports, whereby the board may be disconnected from said supports and slid along the same, substantially as described.

19. The combination of a delivery-board, horizontal bars for supporting the same at opposite edges thereof, and connections for holding said board in place on said bars and disconnectible by lifting or tilting said board, whereby the board may be disconnected from and be slid along said bars, substantially as described.

20. In a sheet-delivery having a to-and-fro-moving sheet supporter or carrier, a relatively fixed sheet-stop moving with said carrier or support and against which the sheet is fed, a movable gripper above said stop, and a movable gripper in front of said stop adapted to be depressed below the same while the sheet is being fed between the grippers, substantially as described.

21. In a sheet-delivery having a to-and-fro-moving sheet supporter or carrier, a relatively fixed sheet-stop moving with said carrier or support and against which the sheet is fed, a movable gripper above said stop, and a movable gripper in front of said stop adapted to be depressed below the same while the sheet is being fed between the grippers and raised to grip the sheet after the delivery has commenced its outward stroke, substantially as described.

22. In a sheet-delivery having a to-and-fro-moving sheet support or carrier, a relatively

fixed stop against which the sheet is fed, combined with a depressible gripper member in front of said stop and adapted to lie flush with or slightly above the top of said stop, whereby the sheet is first arrested by the stop and is afterward lifted into position to be run out over said stop.

23. In a printing-press, the combination of two rotatable shafts each provided with a plurality of flaring notches along the same, a pulley for and mounted on each of said shafts to slide along the same, a spring-pressed pin for each slidable pulley adapted to engage with the notches of the corresponding shaft, whereby the slidable pulleys may be moved along their shafts by pressure applied to their sides, and a tape on and moved in two directions by said pulleys, substantially as described.

24. In a printing-press, the combination of two rotatable shafts each provided with a plurality of notches therealong, a pulley for and mounted on each of said shafts to slide therealong, a spring-pin for each of said pulleys adapted to engage with the notches of the corresponding shaft, the coacting parts of the pins and notches being oblique to the axes of said shafts and a tape on and moved in two directions by said pulleys, substantially as described.

25. In a printing-press, the combination of a rotatable shaft having a plurality of flaring notches therealong, a pulley slidable along said shaft, a spring-pressed pin on said pulley engaging with said notches, whereby the pulley may be slid along the shaft by pressure thereon and the pin snap from one to another of said notches, and a sheet-moving tape on and moved in two directions by said pulley, substantially as described.

Signed at New York, in the county of New York and State of New York, this 15th day of August, A. D. 1898.

WALTER SCOTT.

Witnesses:

CHAS. A. BRODEK,  
RICHARD W. BARKLEY.