

No. 671,493.

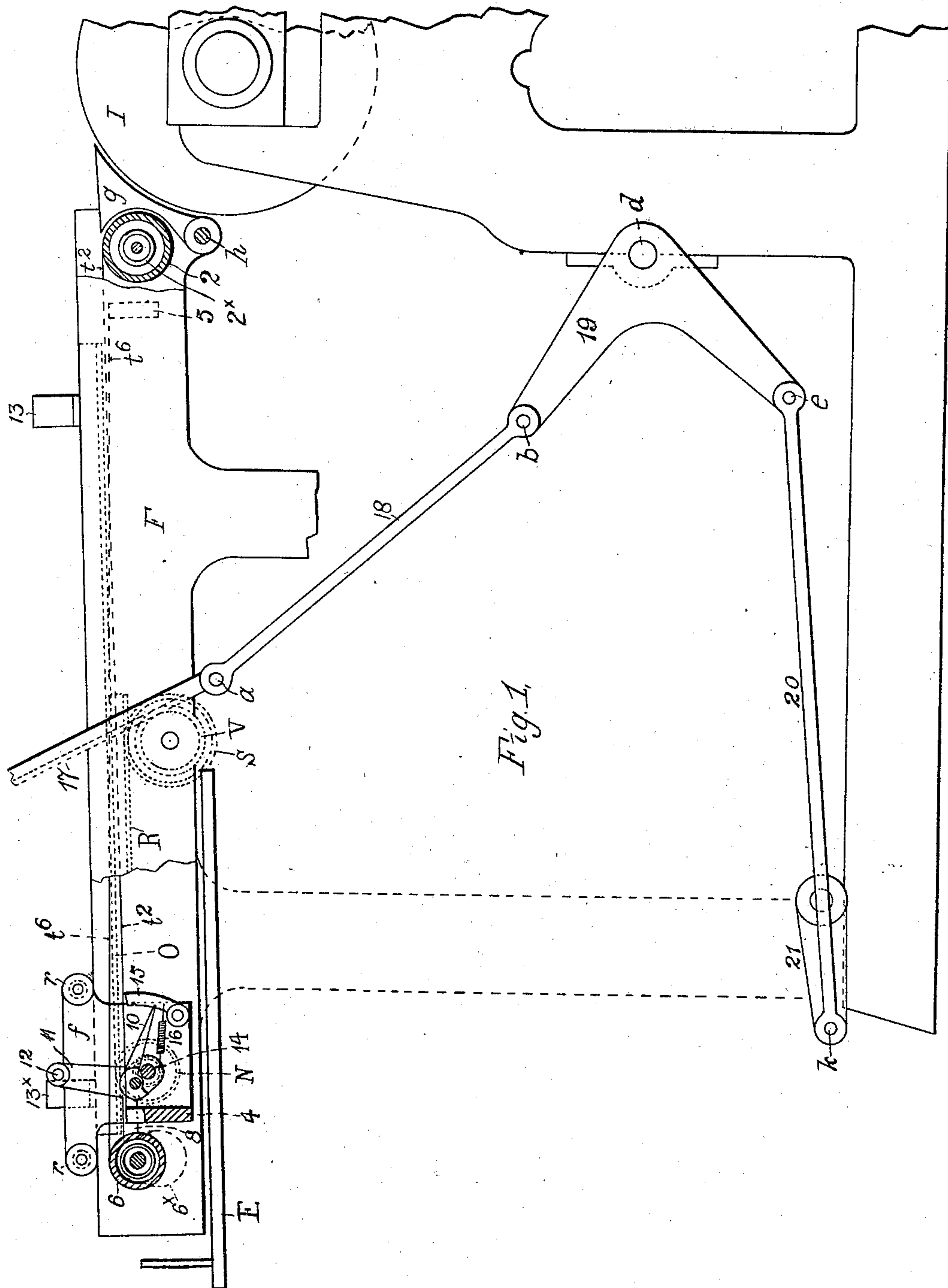
Patented Apr. 9, 1901.

W. SCOTT.
SHEET DELIVERY MECHANISM.

(Application filed June 15, 1897.)

(No Model.)

2 Sheets—Sheet 1.



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2 Sheets—Sheet 2.

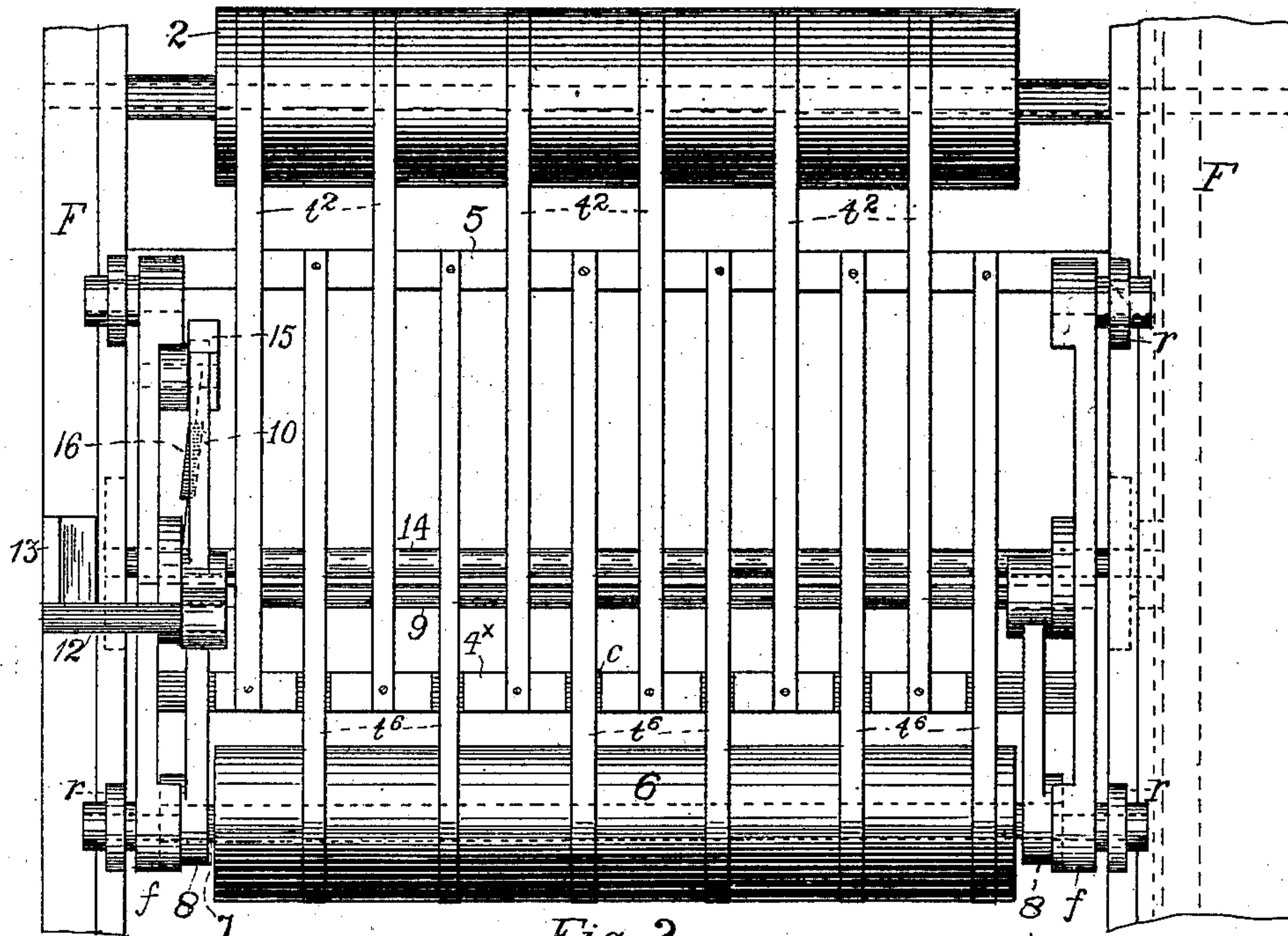


Fig. 2,

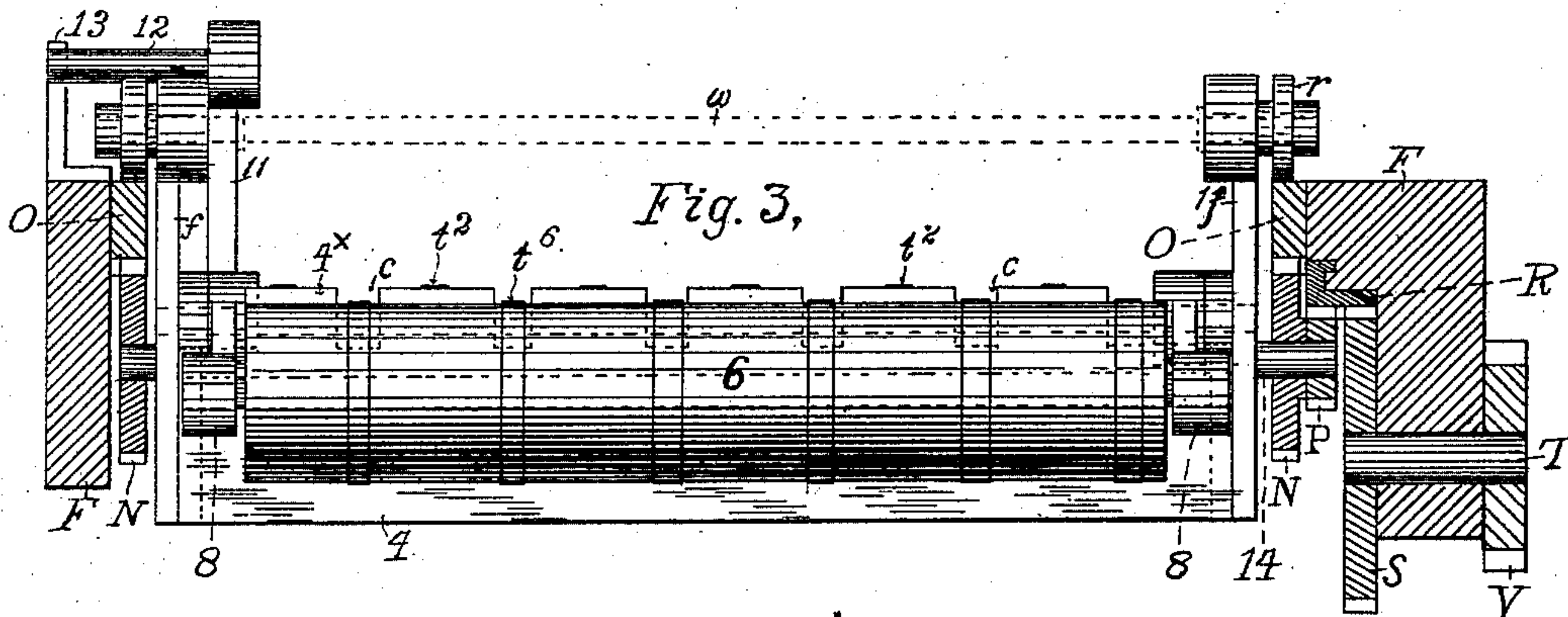


Fig. 3,

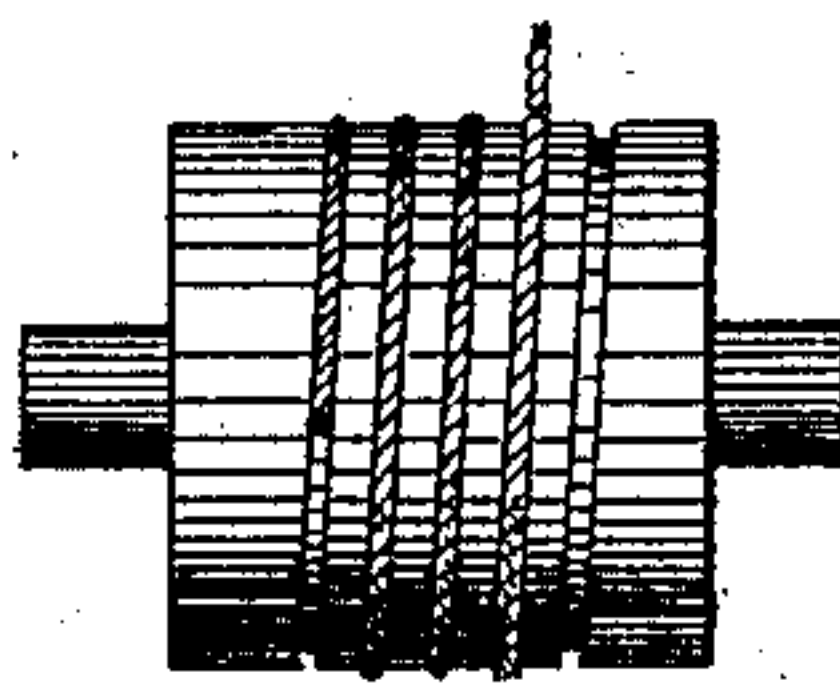


Fig. 4,

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UNITED STATES PATENT OFFICE.

WALTER SCOTT, OF PLAINFIELD, NEW JERSEY.

SHEET-DELIVERY MECHANISM.

SPECIFICATION forming part of Letters Patent No. 671,493, dated April 9, 1901.

Application filed June 15, 1897. Serial No. 640,819. (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 front-delivery apparatus for that class of machines commonly called "bed-and-cylinder printing-presses."

The main object of the invention is to deliver the sheets with their freshly-printed sides uppermost.

To this and other ends the invention includes a pair of extensible collapsible sheet-supports comprising juxtaposed sets of tapes or cords and mechanism for bringing the said sets of tapes or cords alternately uppermost, thus allowing one set to support the sheets as these are run out and the other set to support the sheets and deliver them.

The invention also includes a pair of extensible collapsible sheet-supports comprising juxtaposed sets of discontinuous tapes or cords and two members on the fixed framework, to which the said sets of tapes or cords are respectively connected at one end, and a spring-roller and a series of supports on the moving frame to which the other ends of said sets are respectively made fast, and mechanism for moving the said spring-roller or the said series of supports into positions to bring said sets of tapes or cords alternately uppermost.

The invention also includes other combinations of devices, as will hereinafter more fully appear.

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

Figure 1 is a side elevation of part of a printing-press, showing the invention applied thereto. Fig. 2 is a partial plan view showing the invention in a different position relatively to the framework of the press. Fig. 3 is a view, partly in section, from the delivery end of the apparatus. Fig. 4 is a view of a modification of the roller or pulleys for winding up tapes or cords.

In the practice of my invention I provide a suitable frame F, in which the moving and other parts are supported. The impression-

cylinder I is suitably journaled in the frame F, and the sheets are fed thereto in any usual or suitable manner. (Not shown.) I remark that the impression-cylinder may rotate continuously, or it may be a stop-cylinder, or it may be an oscillating cylinder. The invention is applicable or useful with all forms. In the drawings I show fixed guides *g*, onto which the sheets are run from the impression-cylinder, these guides being supported on the shaft or cross-bar *h*, as shown. From these guides *g* the sheets may be run directly or indirectly upon the extensible collapsible support that carries them out over the delivery-board E. In the case shown I provide a roller 2, which is journaled in the frame adjacent the bar *h* and which is preferably rotated in one direction by a spring 2^x after the manner of a well-known class of window-shades. Adjacent the roller 2 I place a bar 5 or the like for a purpose hereinafter referred to. Upon the frame F, I place a movable frame composed of the side bars *f*, the cross-bar 4, and one or more tie-bars *w*, which frame is provided with suitable rollers *r*, by which it is supported by and runs on the frame F or some part attached thereto. There are two shafts 9 and 14 journaled in the said movable frame. The shaft 9 is provided with arms 8, fast thereto, and a spring-roller 6 is journaled in these arms. The rollers 2 and 6 are similar in construction and operation except that roller 2 is rotated in one direction by its spring and the roller 6 is rotated in the other direction by its spring, so that the rollers are simultaneously rotated by their springs. The cross-bar 4 is provided with a series of supports 4^x, (these may be formed conveniently by notching the bar 4,) which are separated from each other by spaces *c*. I show a set of discontinuous tapes *t*², whose ends are fast to the supports 4^x and to the roller 2. I show a second set of discontinuous tapes *t*⁶, whose ends are fast to the roller 6 and to the bar 5. The tapes *t*⁶ *t*² lie between each other or are juxtaposed, as shown, the tapes *t*⁶ coming over the spaces *c*. The shaft 9 is preferably held in each of two positions by spring-pressure, as by means of the arm 10, fast on the shaft 9, and the pivoted and notched detent 15 on the bar *f* at that side of the machine and the spring 16, which is connected to the

detent and to the bar and presses the detent against the end of the arm.

The shaft 14 is provided with two equal pinions N at or near its ends, which pinions mesh with the rack-bars O, fast on the frame F and extending from the roller 2 to near the delivery. The shaft 14 is provided with a pinion P at one end, this pinion being smaller than the pinions N, which mesh with the movable rack-bar R. The rack R moves to and fro in a direction parallel with the racks O and is about one-half as long as the racks O. The rack is operated by the pinion S, which meshes therewith, this pinion being fast on the short shaft T, which is journaled in the frame F, and has a second pinion V fast thereto. The pinion V and shaft T are oscillated by means of the to and fro moving rack 17 and mechanism for reciprocating it. This mechanism may be of any suitable nature, as that shown in the drawings, which consists of the link 18, which is pivotally connected with the rack 17 at *a* and with a bell-lever 19 at *b*, the lever 19, which is fulcrumed at *d* on the framework F, and the link 20, which is pivotally connected with the lever 19 at *e* and with the crank-arm 21 at *k*. In practice the crank-arm is at the other side of the cylinder I and is merely shown in its present position in order to accommodate the drawings to the requirements of the rules of the Patent Office.

The shaft 9 is provided with an arm 11 above it, and the frame F is provided with two suitably-placed stops 13 13^x, which coact with said arm 11 or a stud 12 thereon and move the roller 6 up or down and so bring one or the other of the sets of tapes *t*² *t*⁶ uppermost. These stops 13 13^x are so located on the frame F that one moves the roller 6 to the position marked 6 in Fig. 1 when the parts are in the position therein shown. The second of these stops moves the roller 6 to the position marked 6^x in Fig. 1, but does so only when the parts are in the positions shown in Fig. 2. It will be seen that in the second case the tapes *t*² are uppermost and support the sheets while they are being run out and that in the first case the tapes *t*⁶ are uppermost, lifting the sheets from the other set of tapes as the roller 6 is raised and sustaining them while the roller 6 winds up its tapes as it rolls or is moved toward the impression-cylinder and the sheets fall head first onto the delivery-board E. I remark that the pair of sheet-supports are simultaneously extended and collapsed and that they collapse from opposite ends, though this is not essential. I further remark that it is not necessary that the whole of each set of tapes be brought above the other and, in fact, show an arrangement in which only so much of each set is so brought as will secure that the sheets shall be manipulated in the desired manner.

Any known means for operating the movable frame carrying the roller 6 and other parts may be employed. It will be seen,

therefore, that the essentially-novel features lie in the means whereby the sheets are supported and delivered. I am not to be understood, however, as limiting myself to the precise form of my invention shown in the drawings and herein described, for I am aware that many changes and rearrangements may be made without departing from the spirit of my invention.

Concerning the arrangement shown in Fig. 4 I remark that the roller or the equivalent pulley is provided with a peripheral spiral groove for each tape or cord and that the latter is fastened to the roller in the groove and winds up in the groove. In this way there is no variation in the diameter of the roller or pulley, and the tapes or cords are always taut without requiring compensating devices.

The operation of the above-described devices is as follows: The sheet is run out from cylinder I over guides *g* and onto tapes *t*² at a time when the rollers 2 and 6 and their sets of tapes are in the positions shown in Fig. 2, at which time the roller 6 and tapes *t*⁶ are in the positions thereof shown in Fig. 3. The frame or carriage for roller 6 starts outward or away from cylinder I, so as to move with and support the sheet until the carriage nearly reaches the position thereof shown in Fig. 1, when the arm 12 strikes and is moved by stop 13^x to cause roller 6 to lift the tapes *t*⁶ above the tapes *t*² and so lift the sheet off the latter, while the carriage moves on to the position thereof shown in Fig. 1 or to the end of its outward movement. As the carriage moves outward the sets of tapes *t*² and *t*⁶ both unwind from their rollers, and as the carriage moves back toward cylinder I the tapes *t*⁶ wind up from under the sheet, beginning at its head, and the sheet thereupon falls head first upon the table E. The said carriage is moved in and out by the described mechanism, and the rollers 2 and 6 are rotated in one direction each by its own spring and in the other direction by the pull of the unwinding tapes.

What I claim is—

1. In a sheet-delivery for printing-presses, the combination of a carriage moving to and fro on the main frame, a rock-shaft 9 on said carriage, arms 8 on said shaft, a spring-roller 6 carried by said arms, a set of discontinuous tapes or cords fast to said roller, a bar 5 on the main frame to which the said set of tapes or cords is fast, a series of supports carried by said carriage, a roller on the main frame adjacent the bar 5, a set of discontinuous tapes or cords fast to said supports and to said second roller, and mechanism for moving or rocking shaft 9 to bring the sets of tapes or cords alternately uppermost, substantially as described.

2. In a sheet-delivery for printing-presses, the combination of a carriage reciprocating on the main frame, two sets of juxtaposed tapes or cords, a roller on the main frame and supports on the carriage to which one set is

fast, a roller on the carriage and a bar on the main frame to which the second set of tapes is fast, and mechanism for raising and lowering one of said roller and support elements on said carriage to bring said sets of tapes alternately uppermost, substantially as described.

3. In a sheet-delivery for printing-presses, the combination of a carriage reciprocating on the main frame, a spring-roller on said carriage, a bar on the main frame, a set of discontinuous tapes or cords fast to said roller and said bar, a series of supports on said carriage, a roller on the main frame adjacent the aforesaid bar, and a set of tapes on said supports and said second-named roller with mechanism for raising and lowering said spring-roller to bring said sets of tapes alternately uppermost, substantially as described.

4. In a sheet-delivery for printing-presses, the combination of a pair of independent extensible collapsible sheet-supports comprising juxtaposed sets of tapes or cords, and mechanism for bringing said sets alternately uppermost, by causing relative up-and-down motion of said sets, substantially as described.

5. In a sheet-delivery for printing-presses, the combination of a pair of independent extensible collapsible sheet-supports comprising juxtaposed sets of discontinuous tapes or cords and a roller for and to which each set is fast at one end, and mechanism for bringing said sets alternately uppermost by causing relative up-and-down motion of said sets, substantially as described.

6. In a sheet-delivery for printing-presses, the combination of a carriage reciprocating on the main frame, a spring-roller on said carriage, a bar on the main frame, a set of discontinuous tapes or cords fast at its ends to said roller and said bar, a bar on the carriage provided with a set of supports, discontinuous tapes or cords fast at one end to said supports, means on the main frame for keeping taut the second set of tapes, and mechanism for raising and lowering said roller on the carriage to bring the said sets of tapes alternately uppermost, substantially as described.

7. In a sheet-delivery for printing-presses, the combination of a carriage reciprocating on the main frame, a series of supports on said carriage, a roller on the main frame, a set of discontinuous tapes or cords fast at their ends to said supports and said roller, a

bar on the main frame, a roller on the carriage, a set of discontinuous tapes or cords fast at their ends to said bar and said second-named roller, a rock-shaft on said carriage, arms on said shaft carrying one of said roller and support elements, detent mechanism for holding said shaft in position when it has lifted a set of tapes, and means for rocking said shaft to bring said sets of tapes alternately uppermost, substantially as described.

8. In a sheet-delivery for printing-presses, the combination of a carriage reciprocating on the main frame, the bar 4 on said carriage provided with the spaced supports 4^x, the shaft 9 journaled in said carriage, the spring-roller 6 carried by arms on said shaft, a spring-roller 2 on the main frame, the bar 5 on the main frame near the roller 2, the two sets of juxtaposed discontinuous tapes or cords respectively fast to said roller 6 and bar 5 and to said roller 2 and supports 4^x, and mechanism for rocking the shaft 9 to bring said sets of tapes or cords alternately uppermost, substantially as described.

9. In sheet-delivery, the combination of a roller mounted in stationary bearings, a carriage, a bar fixed on said carriage discontinuous tapes fast to said bar and roller, a stationary bar, a roller mounted to have vertical motion on said carriage, a set of discontinuous tapes fast to said stationary bar and to said last-named roller and intercalated with the first-named tapes, and means for raising and lowering said last-named roller to bring the tapes connected thereto above and below the first-named set of tapes, substantially as described.

10. In a sheet-delivery, the combination of a to and fro moving carriage, a set of discontinuous tapes fast at their ends to a roller on the fixed framework and to a part on said carriage, a second set of similar tapes fast at their ends to a roller mounted on the carriage and to a part on the fixed framework, said sets of tapes being juxtaposed, and means for causing relative vertical motion of said sets of tapes on said carriage, substantially as described.

Signed at New York city, in the county of New York and State of New York, this 11th day of June, A. D. 1897.

WALTER SCOTT.

Witnesses:

R. W. BARKLEY,
MAY F. PETITTE.