

No. 704,868.

Patented July 15. 1902.

G. P. FENNER.

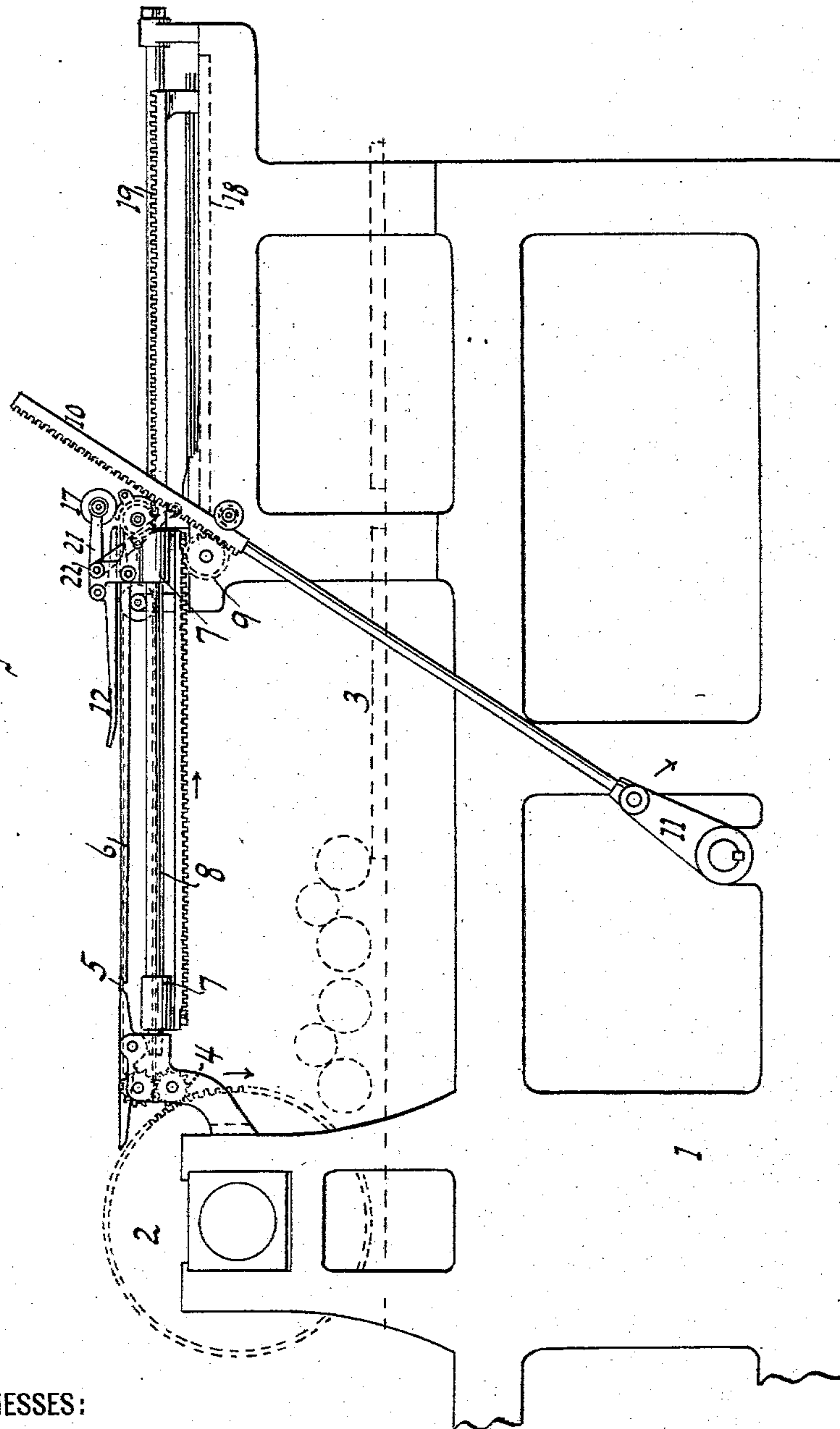
SHEET DELIVERY APPARATUS FOR PRINTING PRESSES.

(Application filed Jan. 2, 1902.)

(No Model.)

4 Sheets—Sheet 1.

Fig. 1.



WITNESSES:

William Miller
C. E. Penner

INVENTOR

George P. Fenner

BY

W. C. Hauff
ATTORNEY

G. P. FENNER.

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(No Model.)

4 Sheets—Sheet 2.

Fig. 2.

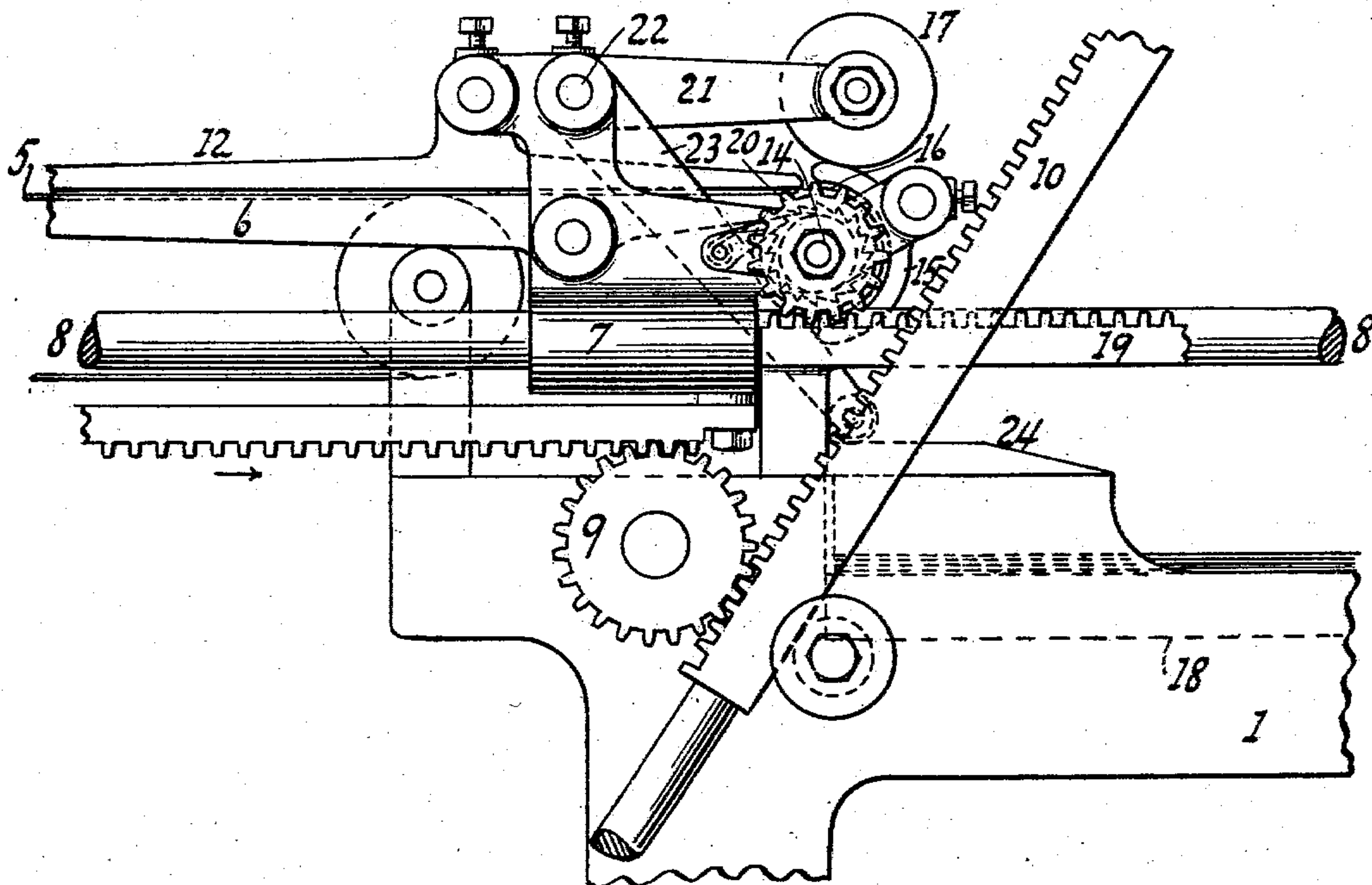
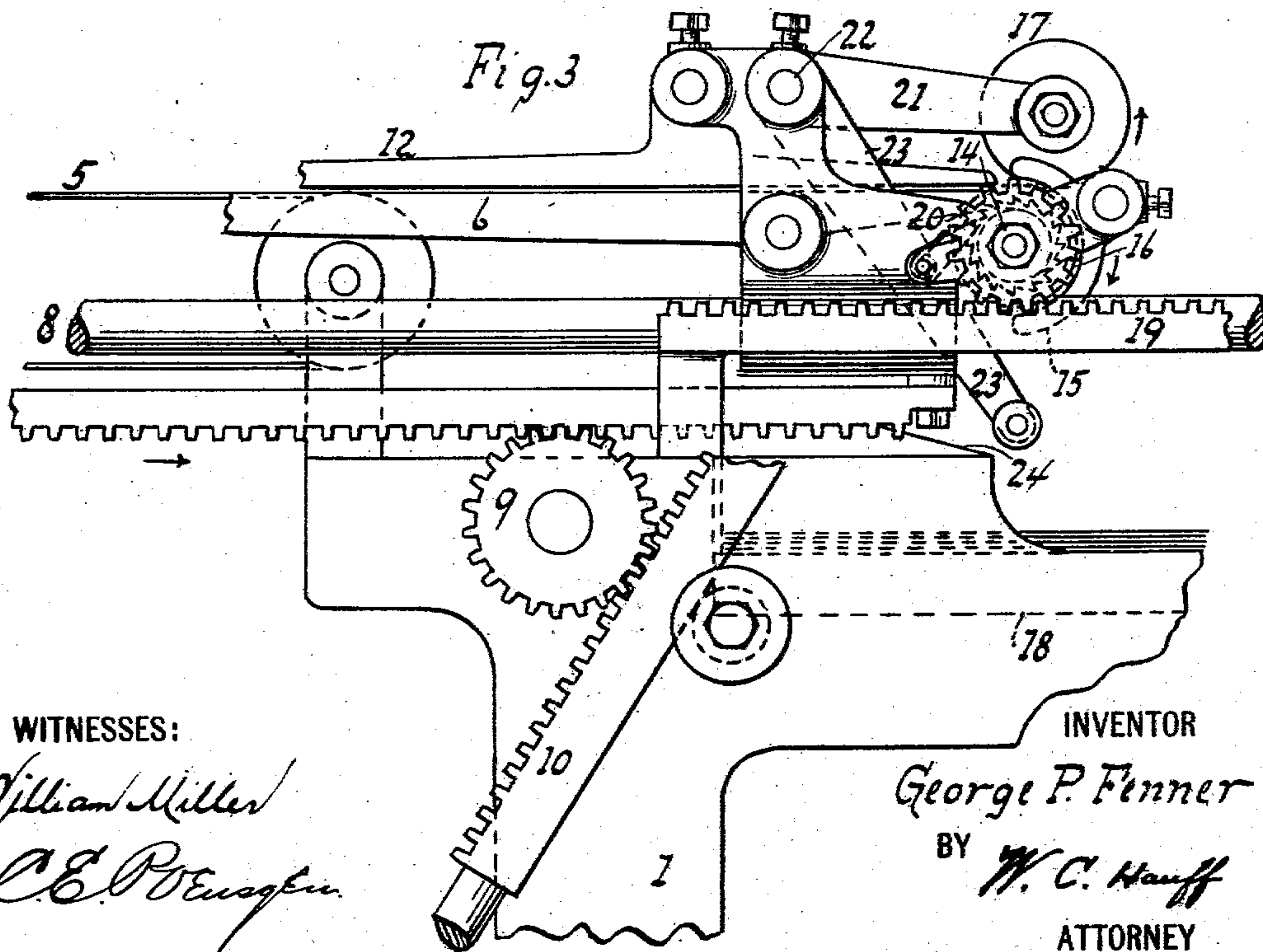


Fig. 3.



WITNESSES:

William Miller
G. P. Fenner

INVENTOR

George P. Fenner

BY

W. C. Hauff

ATTORNEY

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G. P. FENNER.

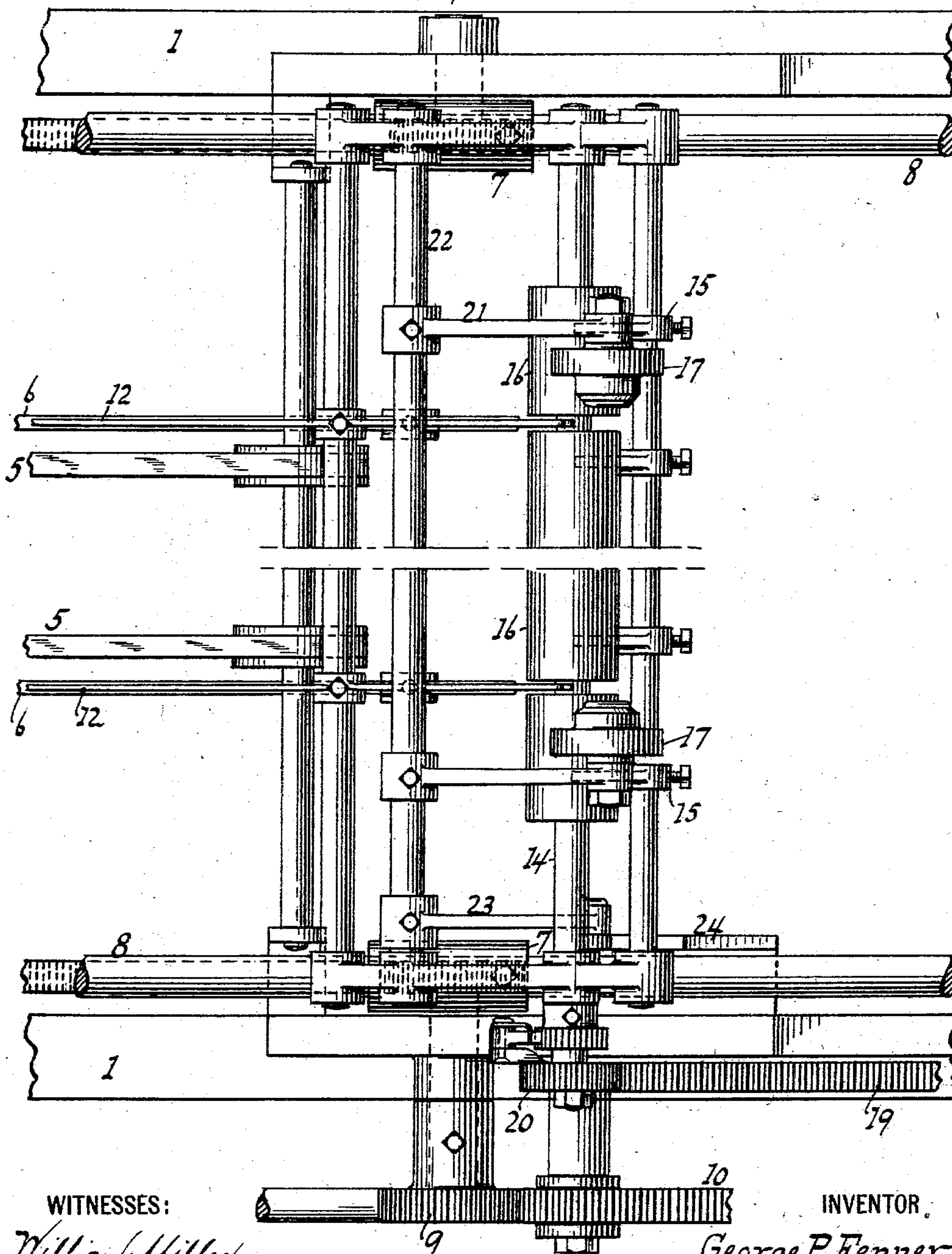
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(No Model.)

4 Sheets—Sheet 3.

Fig. 4.



WITNESSES:

William Miller

C. E. Kinsgen

INVENTOR

George P. Fenner

BY

W. C. Hauff
ATTORNEY

ATTORNEY

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(Application filed Jan. 2, 1902.)

4 Sheets—Sheet 4.

(No Model.)

Fig. 5.

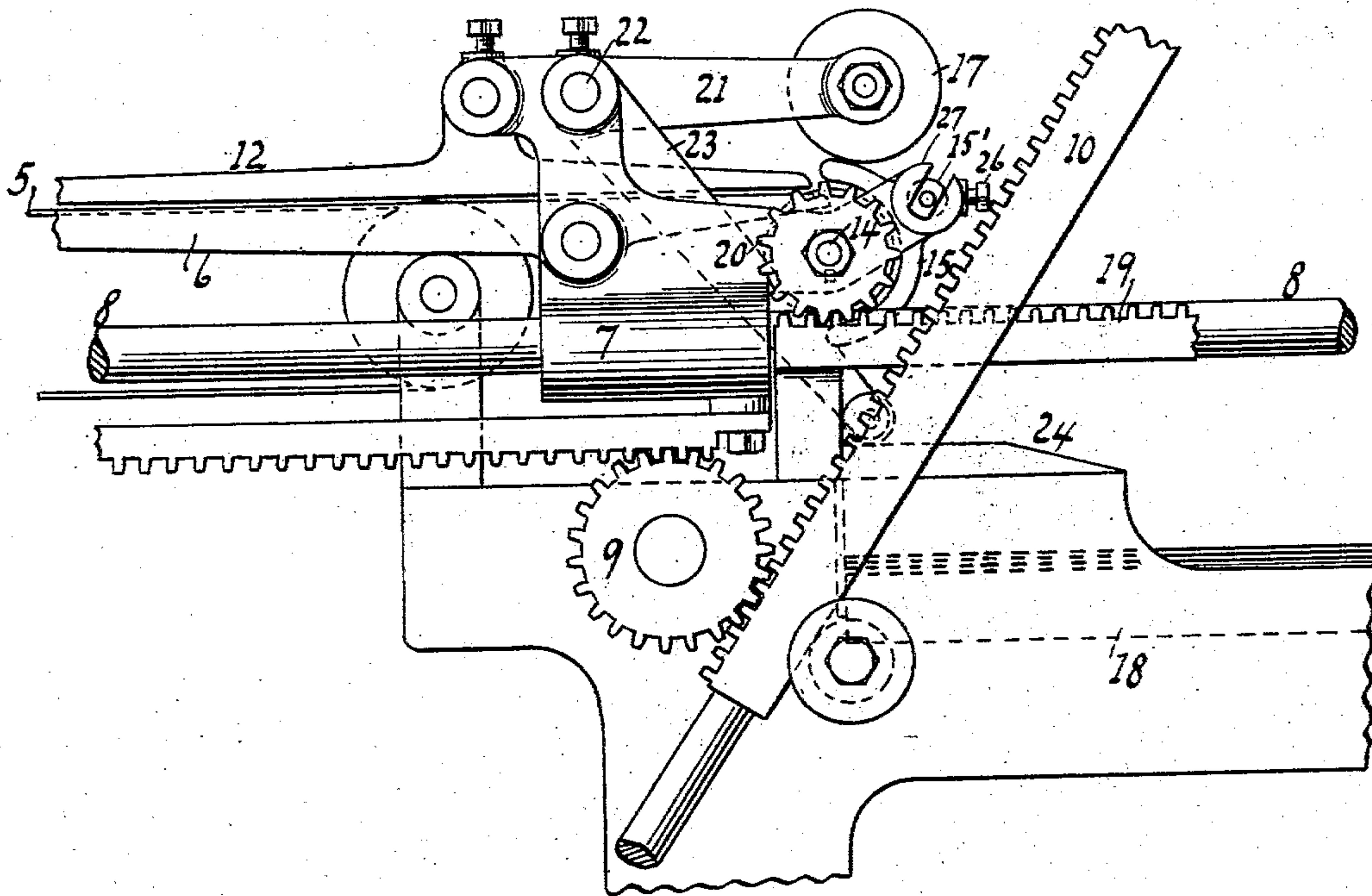
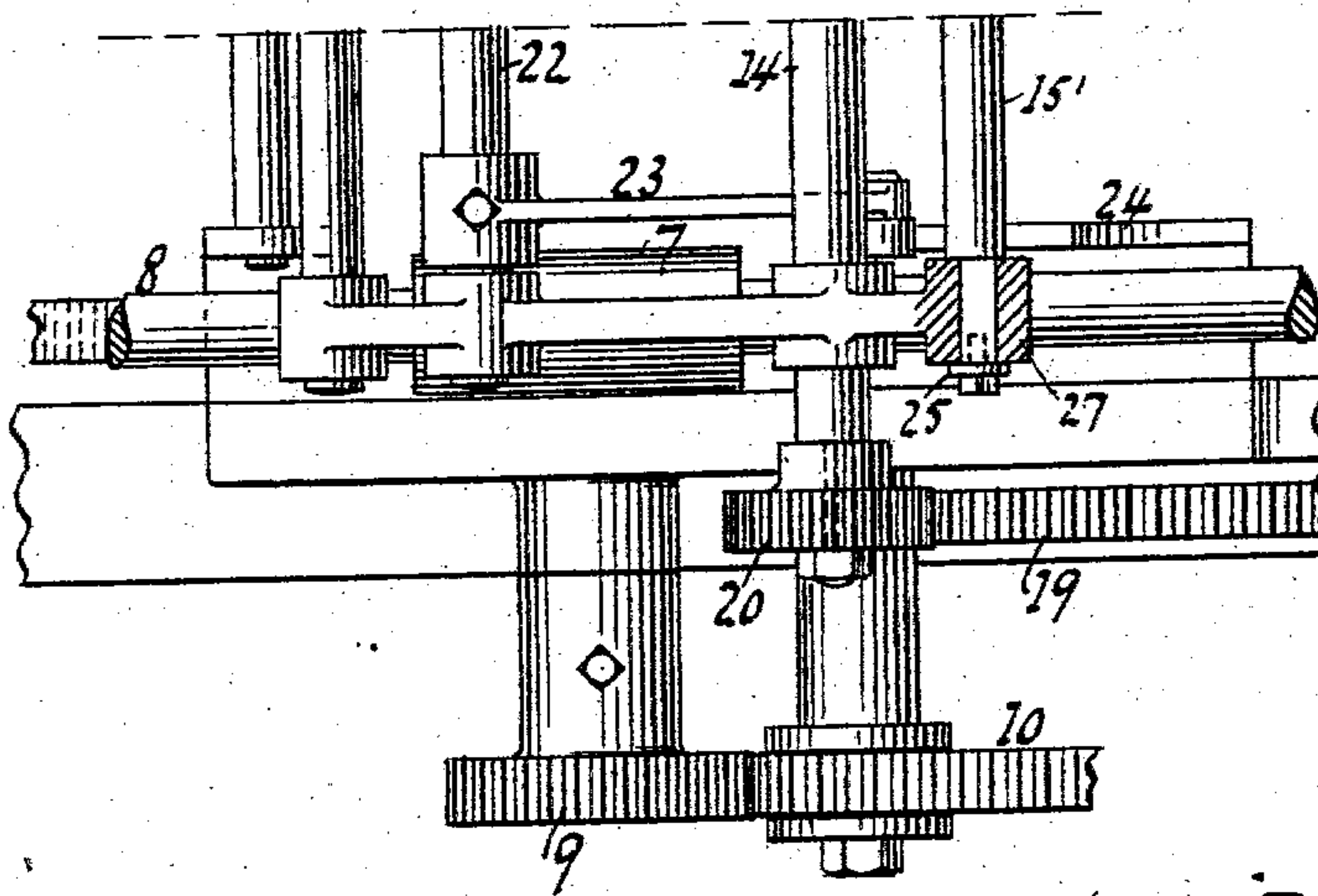


Fig. 6.



WITNESSES:

William Miller
G. P. Fenner

INVENTOR

George P. Fenner

BY

W. C. Hauff
ATTORNEY

UNITED STATES PATENT OFFICE.

GEORGE P. FENNER, OF NEW LONDON, CONNECTICUT.

SHEET-DELIVERY APPARATUS FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 704,868, dated July 15, 1902.

Application filed January 2, 1902. Serial No. 88,187. (No model.)

To all whom it may concern:

Be it known that I, GEORGE P. FENNER, a citizen of the United States, residing at New London, in the county of New London and State of Connecticut, have invented new and useful Improvements in Sheet-Delivery Apparatus for Printing-Presses, of which the following is a specification.

This invention relates to an attachment for delivering the sheet printed side down, if desired; and the invention resides in certain novel features of construction set forth in the following specification and claims and illustrated in the annexed drawings, in which—

Figure 1 is a side elevation of a sheet-delivery arrangement embodying this invention. Fig. 2 is a detail view of part of Fig. 1 enlarged, showing the presser-roll out of action or raised, as on the recovery or return stroke. Fig. 3 is a view like Fig. 2, showing the presser-roll in action or pressing onto the feed or curler roll. Fig. 4 is a plan view of Fig. 2. Figs. 5 and 6 show a side and plan view, respectively, of a modified form.

In the drawings is shown a frame or part of a frame or support 1. The impression-cylinder 2 and bed 3 are known in the art and require no detailed description. Suitable gears 4 drive the rollers about which run the delivery-tapes 5. A sheet from cylinder 2 is carried by the tapes onto or over a table or fingers 6 on reciprocating carriage 7, made to travel back and forth along a way or track 8. Any suitable carriage-driver will reciprocate the carriage. The actuator shown, comprising a carriage-rack engaged by gear 9, driven by the reciprocating rack 10 and crank 11, has been found satisfactory.

It has been found advisable to apply guides or fingers 12, which prevent the leading edge of the sheet curling up or rising away from the table or board 6.

The attachment for reversing a sheet or delivering the same printed side down is shown comprising a shaft 14, supporting curlers 15 and also a curler-roll 16. The curler-roller has its upper or acting surface made to revolve in the direction of motion of the carriage. When the carriage moves forward or away from cylinder 2 and a sheet or the lead-

ing edge of the sheet passes between the curler-roller 16 and presser-roller 17, such sheet being fed against the curlers will be bent or reversed, so as to land on the delivery-board 18 with the face or printed side down.

A rack 19 is engaged by gear 20 on the curler-shaft, and as the gear runs back and forth on the rack its rotation is communicated to the curler-rollers. On the return stroke of the carriage after a sheet has been delivered the curler gear and roller can rotate backward without objection, as no sheet is between the curler-roller and presser-roller, or, if desired, the gear and curler-roller can have a ratchet-and-pawl connection to cause the curler-roller to be rotated in only one direction. Such a ratchet-and-pawl connection is shown at gear 20 in Figs. 2, 3, and 4; but in Figs. 5 and 6 the gear 20 is shown without ratchet-and-pawl connection. In the construction of Figs. 5 and 6 the curler-roller rotates backward on the return stroke of the carriage.

The presser-roller 17 can be temporarily raised or idle to allow the leading edge of a sheet to pass readily onto the curler-roller 16, after which the presser-roller can drop or cause the sheet to be taken or fed between such presser and curler rollers. The presser roller or disks 17 are mounted on arms 21 on the shaft or fulcrum 22, having arm 23, the free end or roller of which when riding or resting on the high part of the rail or incline 24 holds the roller or drop-wheels 17 idle or raised from the curler-roller.

When not to be used, the curling attachment can be put out of action or removed.

In Figs. 5 and 6 the curlers 15, or rather their support or cross-bar 15', are shown mounted in slotted seats or arms 27, from which seat these curlers or bar can be loosened and lifted out or removed when the fastenings or nuts 25 are loosened or removed. When the curlers are removed, the roller 16 will deliver the sheets printed side up instead of reversed or printed side down. The curlers 15 can be slipped onto bar 15' and secured or held in suitable adjusted position by fastenings or screws 26. The arm 27 extending upward and forward from the shaft 14 of front roller

16, the curler 15 is in position to clasp the upper and lower front portion of said roller.

The carriage top or table 5 is shown in form of fingers; but could be otherwise shaped—
5 as, for example, in shape of a board.

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

1. A reciprocating carriage having a shaft, a curler and curler-roll mounted on the shaft,
10 a driving-gear and rack for the curler-roll, a presser-roll, a supporting-arm for the presser-roll mounted on the carriage, and a lifting-arm and incline for the presser-roll substantially as described.

15 2. A delivery-tape, a reciprocating carriage made to take a sheet from the tape, a curler-shaft on the carriage, a curler-roll and curler on the shaft, a presser-roll, and a lifting-arm and incline for moving the presser-roll out of
20 action, said presser and curler roll being made to feed a sheet to the curler for reversing or

bending down the printed side of the sheet substantially as described.

3. A reciprocating carriage having a shaft with a curler, a curler-roll and curler-roll-driving gear all mounted on said shaft, said curler
25 being removable or dismountable substantially as described.

4. A reciprocating carriage having a shaft with arms extended upward and forward
30 therefrom, a front roller on the shaft, a cross-shaft on said arms, a curler on said cross-shaft made to clasp the upper and lower front portion of the front roller, and a gear for driving the front roller.
35

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

GEORGE P. FENNER.

Witnesses:

CHAS. E. POENSGEN,
E. F. KASTENHUBER.