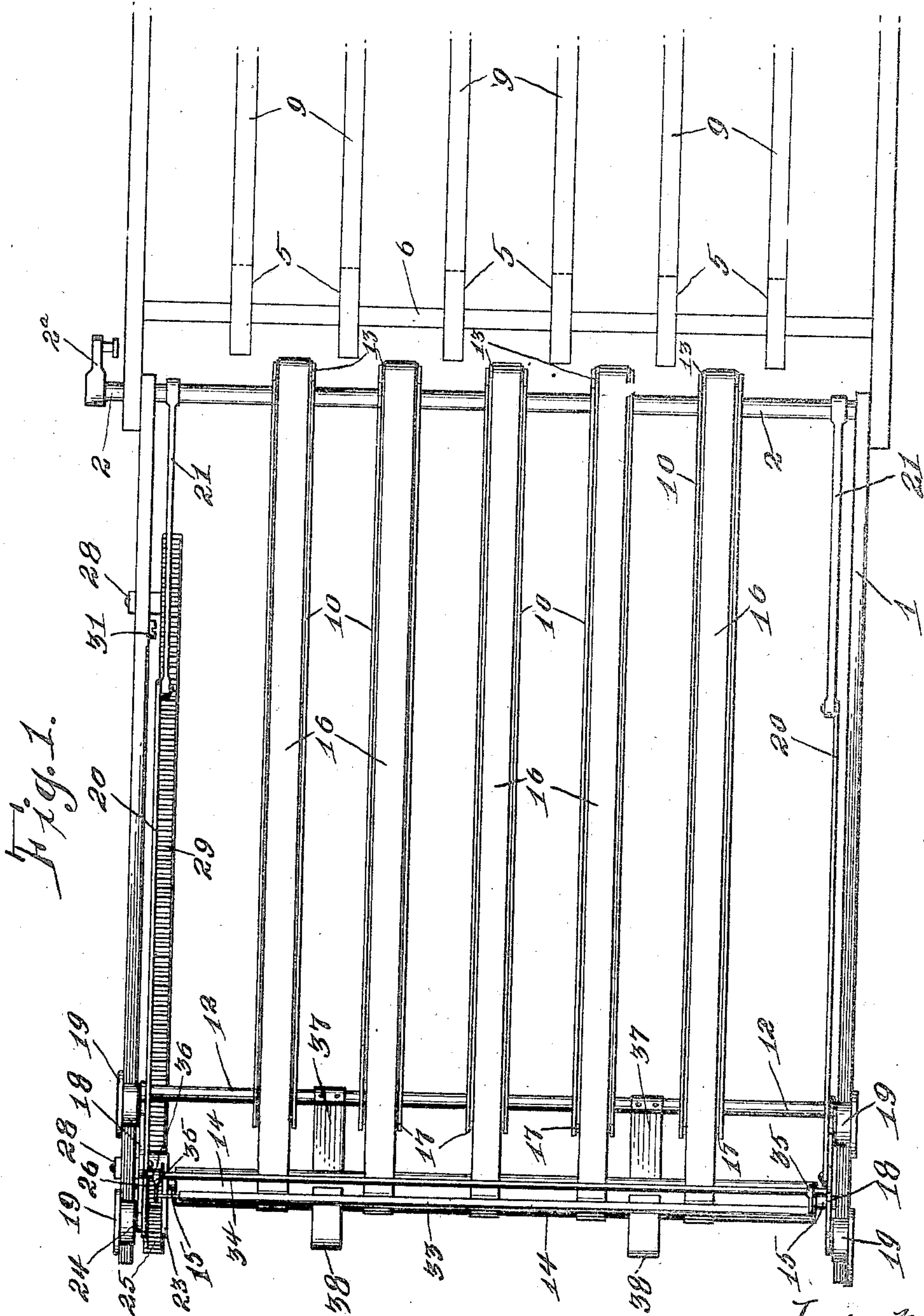


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SHEET DELIVERY MECHANISM FOR PRINTING PRESSES.  
APPLICATION FILED AUG. 5, 1910.

976,410.

Patented Nov. 22, 1910.  
2 SHEETS—SHEET 1.



Witnesses:  
Arthur E. Wesley  
W. R. Wilson.

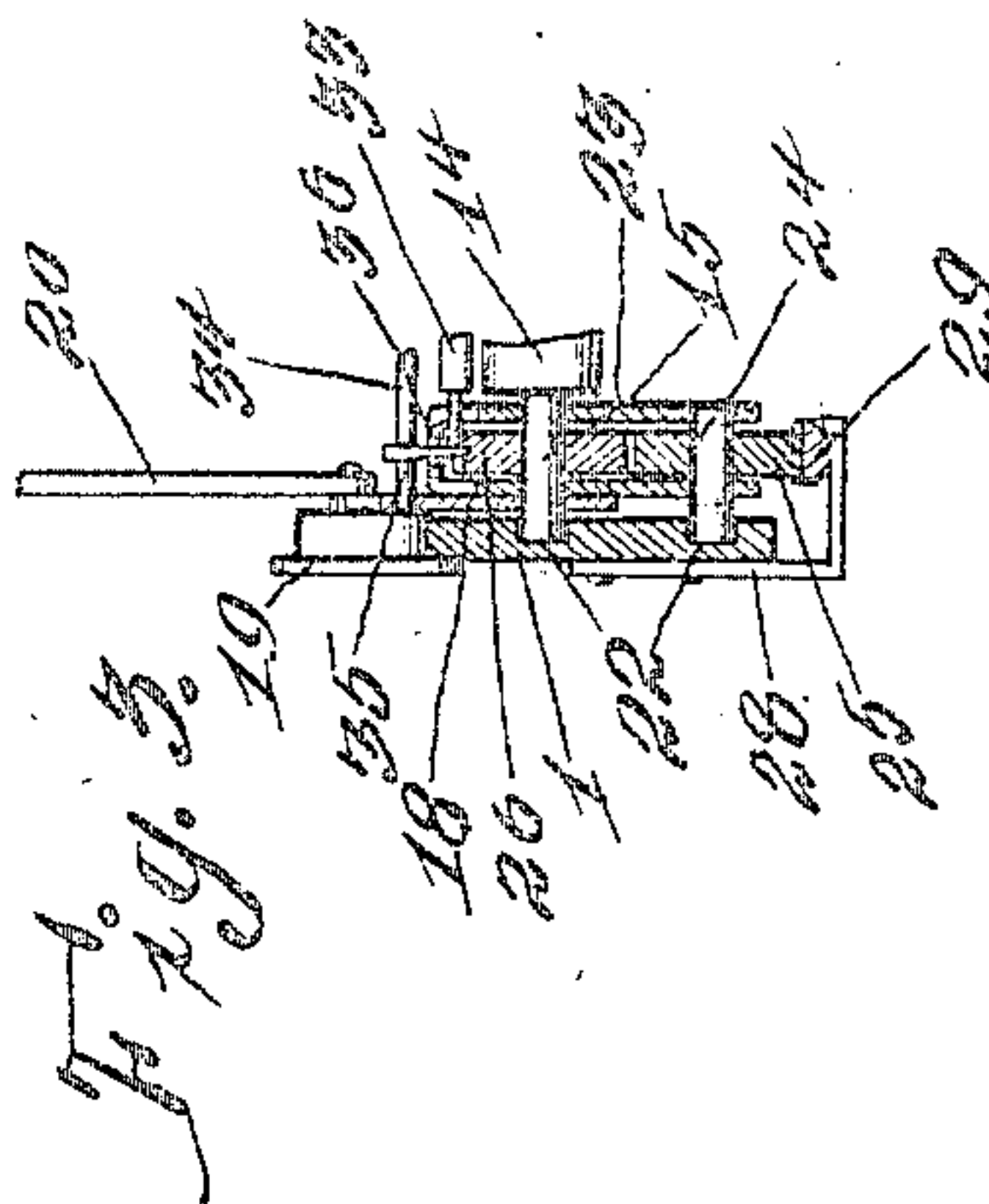
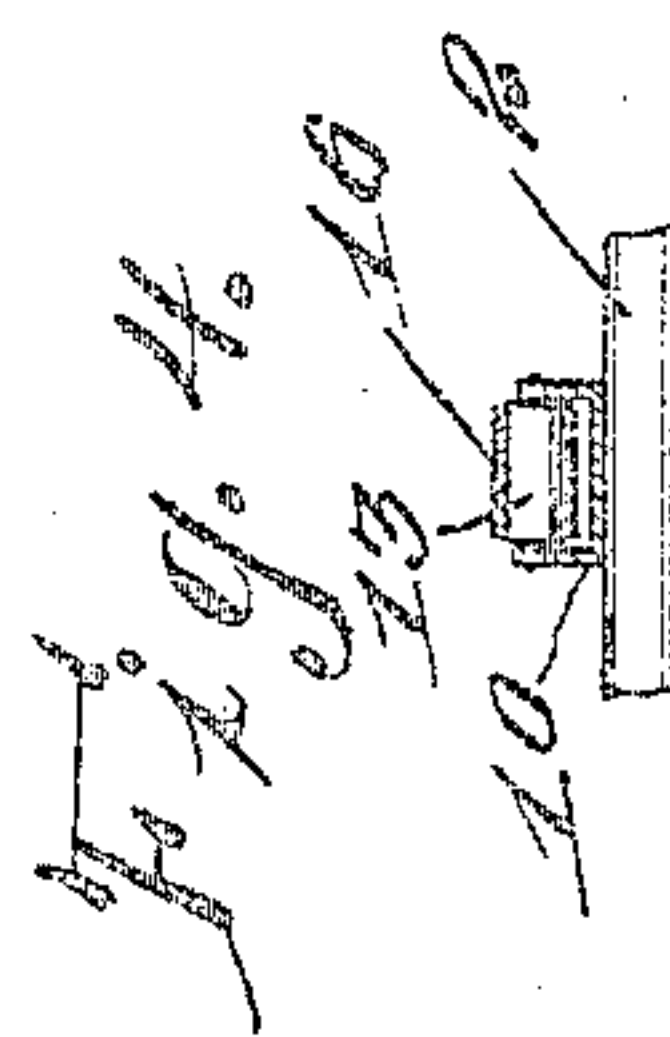
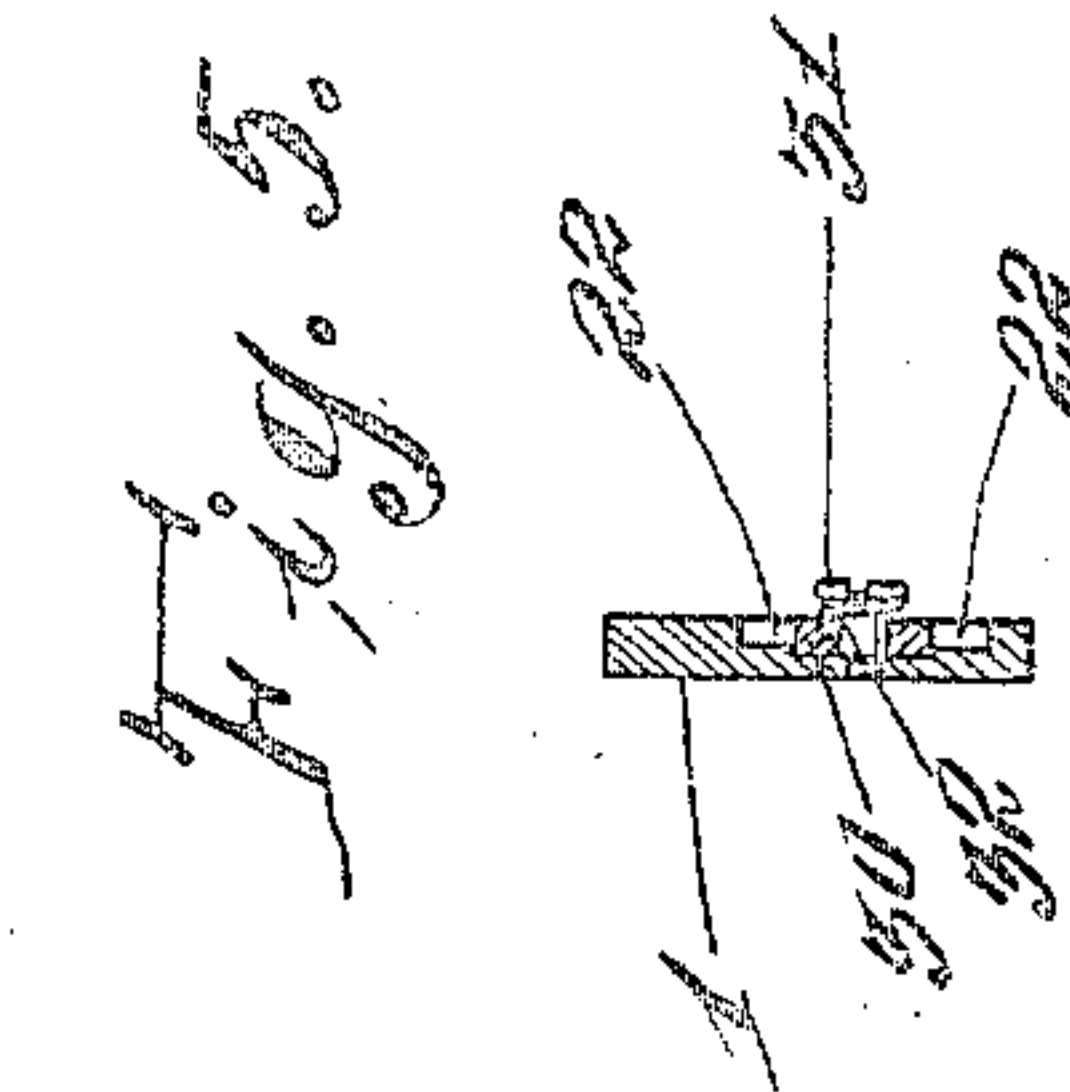
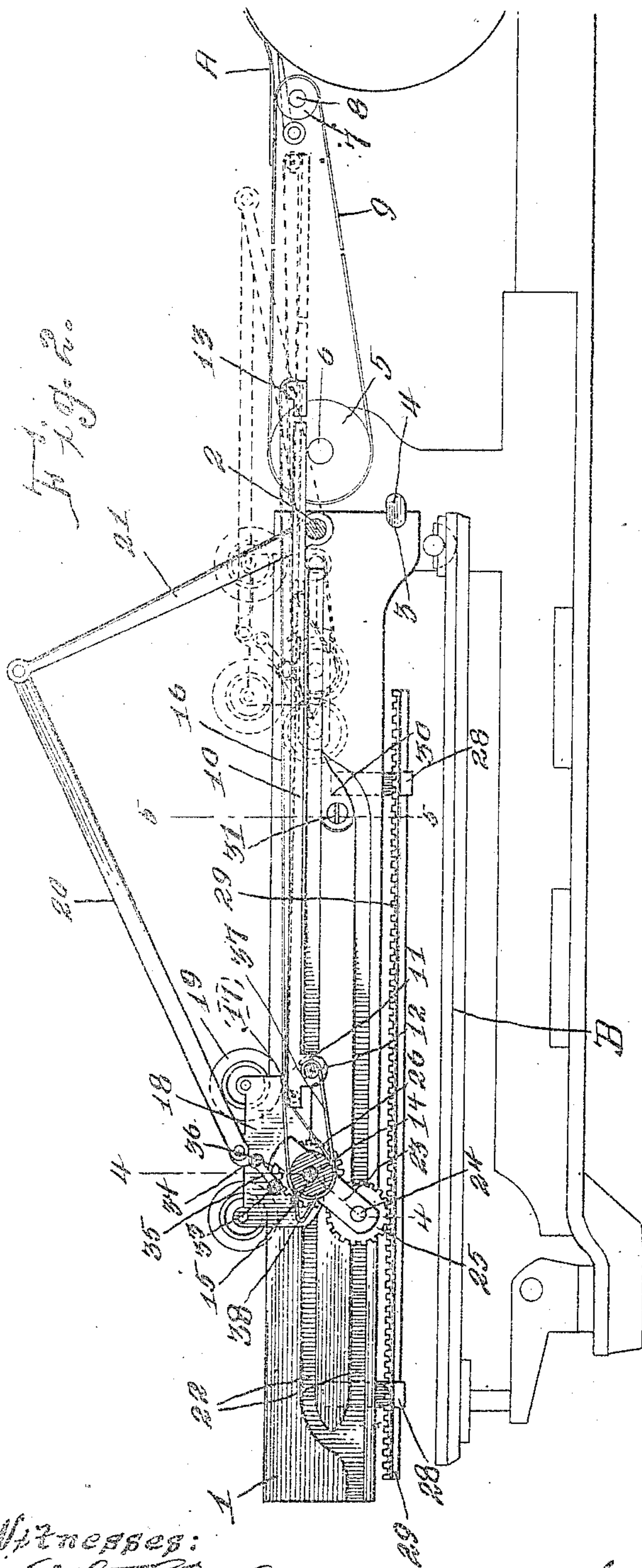
Inventor:  
William H. Stratton.  
by Milo R. Thompson, Esq.  
Attorneys

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Witnesses:  
Arthur E. M. S.  
M. R. Wilson

Inventor:  
William H. Stratton,  
by Milo S. Thomas, Esq.  
Attorneys.



# UNITED STATES PATENT OFFICE.

WILLIAM H. STRATTON, OF CHICAGO, ILLINOIS.

SHEET-DELIVERY MECHANISM FOR PRINTING-PRESSES.

976,410.

Specification of Letters Patent. Patented Nov. 22, 1910.

Application filed August 5, 1910. Serial No. 575,760.

*To all whom it may concern:*

Be it known that I, WILLIAM H. STRATTON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Sheet-Delivery Mechanism for Printing-Presses, of which the following is a specification.

My invention has relation to printing presses, but more particularly to a delivery mechanism for delivering the printed sheets from the press.

Still more particularly, however, my invention relates to a reciprocating sheet delivery mechanism of that type in which the sheet is first deposited on a main set of traveling tapes, with which printing presses now used are provided, and which propel the sheet off upon the tapes of my improved delivery mechanism which, in turn, carry the sheet forward over a receiving table and then roll out from under it, allowing it to drop upon the table.

The principal object of my invention comprehends the production of a sheet delivery mechanism of the above character which may be readily attached to presses already in use, and which will be extremely simple of construction and positive in operation.

With these and other objects in view, my invention consists of certain novel features of construction and arrangement of parts, which will be hereinafter fully described and more particularly pointed out in the claims.

In the accompanying drawings, which form a part of this specification, and in which like reference numerals indicate corresponding parts throughout the several views,—Figure 1 is a top plan view of a sheet delivery mechanism constructed in accordance with my invention, and showing the same at the limit of its outward movement. Fig. 2 is a sectional view taken on the line 3—3 of Fig. 1 showing the carriages on their return movement, and illustrating by dotted lines, the position the parts of my invention occupy when the carriages reach the limit of their return movement. Fig. 3 is a vertical sectional view taken on the line 4—4 of Fig. 2 with some of the parts in elevation. Fig. 4 is a transverse sectional view taken through one of the sheet supporting fingers, and Fig. 5 is a vertical sectional view taken on the line 5—5 of Fig. 2.

Reference being had to the drawings and

the reference numerals indicated thereon, 1 denotes the side rails of my improved delivery mechanism, which are loosely mounted at their inner ends on a rocker shaft 2, which, in turn, is mounted in the frame of the press. By loosely mounting the side rails 1 on the rocker shaft 2, they may be raised vertically for the purpose of making repairs, should any become necessary. To prevent the side rails 1 from falling below the horizontal, their inner ends are provided with notches 3, which engage lugs 4 formed on the frame of the press.

The main stationary set of tapes, which receive the sheets from the printing mechanism, may be substantially the same in construction and arrangement as similar parts of sheet delivery mechanism of this character heretofore used, and preferably comprise a number of tape pulleys 5 mounted on a shaft 6 and a corresponding number of tape pulleys 7 mounted on a shaft 8. The tapes are indicated at 9 and pass over the pulleys 5 and 7, and are continuously driven in such a manner as to cause their upper folds to travel away from the printing mechanism, so as to convey the sheet delivered therefrom in the proper delivery direction. The tape pulleys 5 are considerably larger in diameter than the diameter of the shaft 6, and are spaced a sufficient distance apart to permit the passage therebetween of a number of sheet supporting fingers, which are arranged in a series alternating with the tapes 9 and which constitute a part of my improved delivery mechanism. These sheet supporting fingers each comprise a stick or arm 10 of channel formation and have their outer ends provided with depending ears 11, which are securely fastened to a transverse shaft 12. The other ends of the sticks or arms 10 rest on the rocker shaft 2 and are free to slide thereon. Mounted in the inner ends of the sticks 10 there is a tape pulley 13, over which and a roller 14, carried by a transverse shaft 15, the sheet conveying tapes 16 pass. The outer ends of the sticks 10 are also provided with a tape pulley 17, and as most clearly shown in Fig. 2, the tapes 16 pass over the roller 14, then over the upper side of the pulleys 17, and then over the pulleys 13. By this arrangement both folds of the tapes 16 will travel above the sticks 10 and the sides of said sticks will act as guides to prevent the tapes from becoming twisted.



The ends of the transverse shafts 12 and 15 are supported by plates 18 which are suspended adjacent the inner faces of the side rails 1 by suitable wheels 19, and which form carriages for reciprocating the parts of my invention, the wheels 19 running on the upper edges of the side rails 1. These carriages are reciprocated by means of links 20 which are pivotally connected at one end to the plates 18 of the carriages and at their other ends to arms 21 mounted on the rocker shaft 2, and said rocker shaft 2 being provided with a crank arm 2<sup>a</sup> which, in turn, is connected by any suitable means (not shown) with the operating mechanism of the press.

As shown most clearly in Fig. 2, one end of the shaft 15 extends through one of the plates 18 of the carriages and enters the upper of a pair of guide ways or grooves 22, formed in the inner face of the adjacent side rail 1. Carried by the shaft 15, adjacent the inner face of the plate 18, which is next to the grooved side rail, there is a U-shaped frame or hanger 23 in which is fixed a transverse stub shaft 24, one end of which extends beyond the outer side of said hanger 23 and is adapted to travel in the grooves 22, in a manner to be hereinafter described. Loosely mounted on the stub shaft 24, between the sides of the hanger 23, there is a gear 25 which meshes with a similar gear 26, fixed on the shaft 15, within the said hanger 23. Supported by the side rail 1, by means of brackets 28, below the grooves 22 and in vertical alinement with the gear 25, there is a rack bar 29. As shown in Fig. 2, the grooves 22 are arranged one above another, and the upper one communicates with the lower one a short distance from its outer end, and the lower one, in turn, communicates with the upper one a short distance from its inner end. The entrance of the lower groove into the upper one is controlled by a switch point 30, which is pivotally mounted on a screw shaft 31, and which is adapted to open upwardly, and which is returned to its closed position by means of a spring 32, as shown in Fig. 5.

The sheet supporting fingers of my improved delivery mechanism are so arranged that when the carriages 18 are reciprocated back and forth along the side rails 1, they will pass back and forth between the pulleys 5 above the shaft 6, and the upper folds of the tapes 16 will occupy a plane slightly below the plane of the upper folds of the tapes 9. When the carriages are at the limit of their return movement, as shown by dotted lines in Fig. 2, the sheet A discharged from the printing mechanism upon the upper folds of the tapes 9, will be carried forwardly thereby until its front end is engaged between the roller 14 and a roller 33, suspended by means of links 35, from

a transverse shaft 34 mounted on the plates 18 of the carriages. The roller 33 is normally held in contact with the roller 14 by force of gravity and serves to prevent the sheet from floating as the carriages are moved forward. When the carriages are in the position shown by dotted lines in Fig. 2, the end of the stub shaft 24, together with the end of the shaft 15, will be in the upper of the grooves 22, and will remain in said upper groove during the forward movement of said carriages, and the tapes 16 will remain motionless, but when the end of the stub shaft 24 reaches the outer end of the upper groove it will be caused to travel down into the lower groove, when the gear 25 carried by the hanger 23 will come into engagement with the rack bar 29, as shown by full lines in Fig. 2. As soon as this occurs a projection 36 formed on the hanger 23 engages one of the links 35 and pushes the roller 33 upwardly out of contact with the roller 14. This will free the front end of the sheet and as the carriages begin their return movement the gear 25, owing to its engagement with the rack bar 29, will be caused to rotate rearwardly and as said gear 25 is in mesh with the gear 26, said gear 26, together with its shaft 15 and roller 14, will be caused to rotate forwardly. Obviously this will cause the tapes 16 to travel forwardly and consequently the sheet is propelled from said tapes 16 and allowed to drop upon the receiving table B, as the sheet supporting fingers recede from under it. The tapes 16 continue to travel forwardly until the end of the stub shaft 24 reaches the inner end of the lower of the grooves 22, when the end of said stub shaft 24 will travel up through the switch point 30 into the upper of the grooves 22. This will swing the hanger 23 upwardly and bring the gear 25 out of engagement with the rack bar 29 and the motion of the tapes 16 will be suspended until the carriages again start on their return movement. As soon as the hanger 23 swings upwardly, the projection 36 will move away from the link 34 and allow the roller 33 to drop into contact with the roller 14.

The shaft 15 is far enough removed from the stub shaft 24 to allow the end of said stub shaft to pass into the lower groove 22 and the carriages to reach the limit of their outward movement before the end of the shaft 15 reaches the outer end of the upper groove, whereby the end of the shaft 15 will always travel in the upper groove.

To prevent the sheets from sticking to the tapes 16 and passing around the roller 14, I provide the shaft 12 with a number of guards 37, which are arranged between certain of the sheet supporting fingers, and which extend under the roller 14 and are provided with outwardly extending V-



shaped heads 38 which terminate near the top of the roller 14, as shown most clearly in Fig. 2.

From the foregoing it will be seen that I provide a sheet delivery mechanism which, while being extremely simple of construction, will be strong and durable, and will admirably serve the purpose for which it is intended.

I claim:

1. In a sheet delivery mechanism, a pair of side rails, carriages mounted on said side rails, and means for reciprocating said carriages along said side rails, transverse shafts carried by said carriages, a plurality of sheet supporting fingers mounted on one of said shafts, and a roller mounted on the other of said shafts, sheet conveying tapes carried by said sheet supporting fingers, and passing over said roller, a U-shaped frame carried by the last mentioned shaft, a gear fixed to said shaft within the frame, a stub shaft mounted in said frame, and a gear loosely mounted on said stub shaft, and adapted to mesh with the first mentioned gear, a rack bar supported by one of said side rails, and means for bringing the last mentioned gear into and out of engagement with said rack bar when the carriages are moved back and forth respectively, in combination with means for depositing the sheets upon said sheet supporting fingers.

2. In a sheet delivery mechanism, a pair of side rails, carriages mounted on said side rails, and means for moving said carriages back and forth therealong, a pair of transverse shafts carried by said carriages, sheet supporting fingers mounted on one of said shafts, and a roller mounted on the other of said shafts, a frame carried by the last mentioned shaft, a gear fixed to said shaft within said frame, a stub shaft mounted in said frame, and having one of its ends projecting beyond the outer side of said frame, a gear loosely mounted on said stub shaft and adapted to mesh with the first mentioned gear, a rack bar supported by the said side rail below said gears, and means formed in

the inner face of said side rail for operating on the aforesaid projecting end of the stub shaft, for causing the gear carried thereby to be moved into and out of engagement with the rack bar, as the carriages are moved back and forth respectively, along the side rails.

3. In a sheet delivery mechanism, a pair of side rails, carriages mounted on said side rails, and means for reciprocating said carriages, a transverse shaft mounted in said carriages, and having one end projecting beyond one of said carriages, and working in the upper of a pair of communicating grooves formed in the inner face of the adjacent side rail, a roller mounted on said shaft between the carriages, a hanger carried by said shaft, and a gear fixed to said shaft within the hanger, a stub shaft mounted in said hanger, a gear loosely mounted on said stub shaft, and adapted to mesh with the first mentioned gear, one end of said stub shaft projecting beyond the outer side of said hanger, and adapted to work in both of said grooves, said grooves being so arranged that when the carriages are moving forwardly the projecting end of the stub shaft will travel in the upper groove, but when moving backwardly it will travel in the lower groove, a rack bar carried by said side rail, and adapted to be engaged by the gear mounted on said stub shaft when the end thereof is traveling in the lower groove, and a plurality of sheet supporting fingers carried by said carriages and adapted to move therewith, said fingers comprising a channel shaped arm having a tape pulley mounted in each end thereof, a sheet conveying tape passing over said pulleys and over the aforesaid roller, and means for depositing the sheets upon said sheet conveying tapes.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM H. STRATTON.

Witnesses:

ARTHUR WESLEY,  
H. M. TAYLOR.