

No. 713,682.

Patented Nov. 18, 1902.

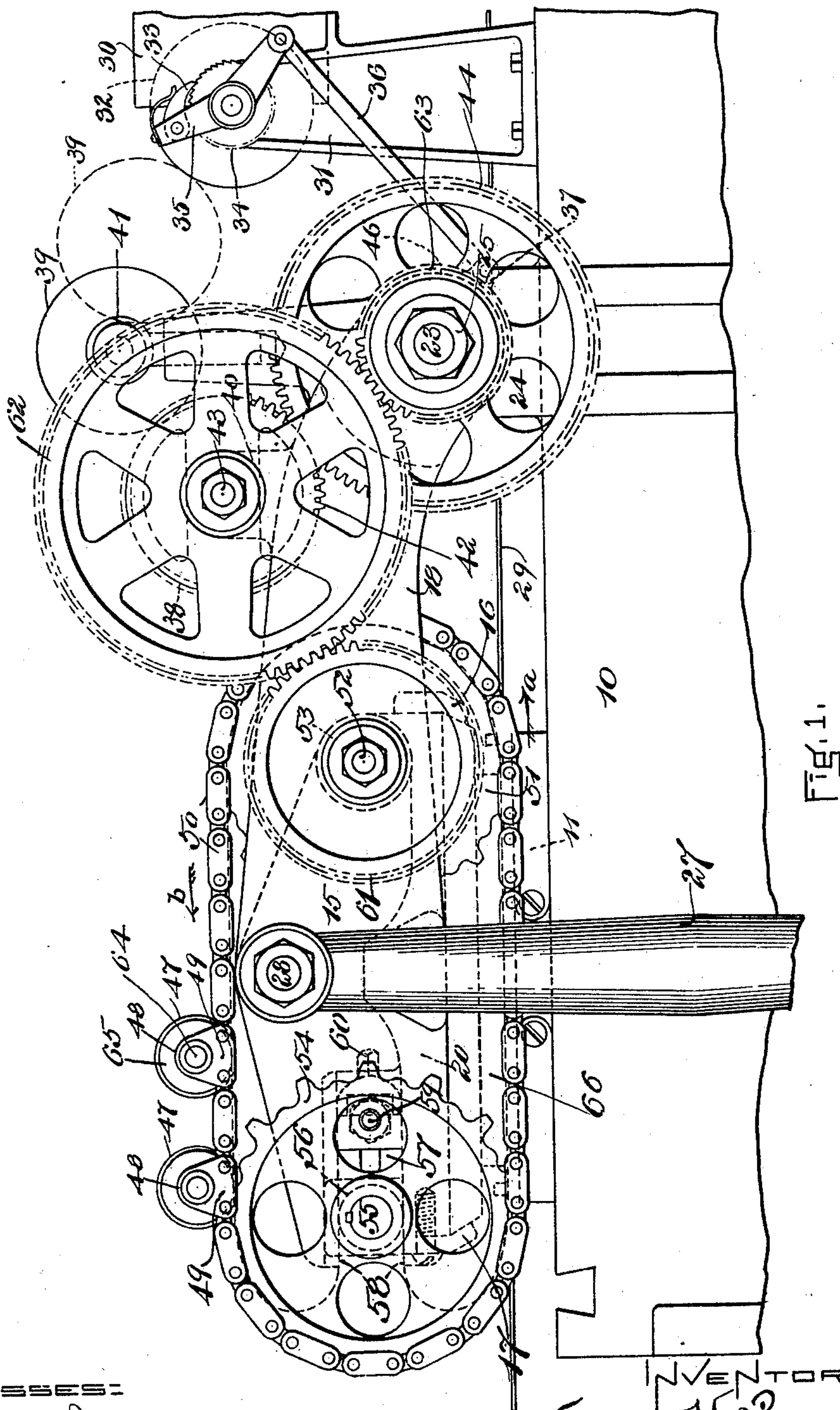
G. H. PIERCE.

INK DISTRIBUTING MECHANISM FOR PRINTING PRESSES.

(Application filed Jan. 6, 1902.).

6 Sheets—Sheet 1.

(No Model.)



WITNESSES:

Louis A. Jones.

Sydney C. Taft

INVENTORE

George H Pierce

by his Attorney, Charles N. Fordney.

No. 713,682.

Patented Nov. 18, 1902.

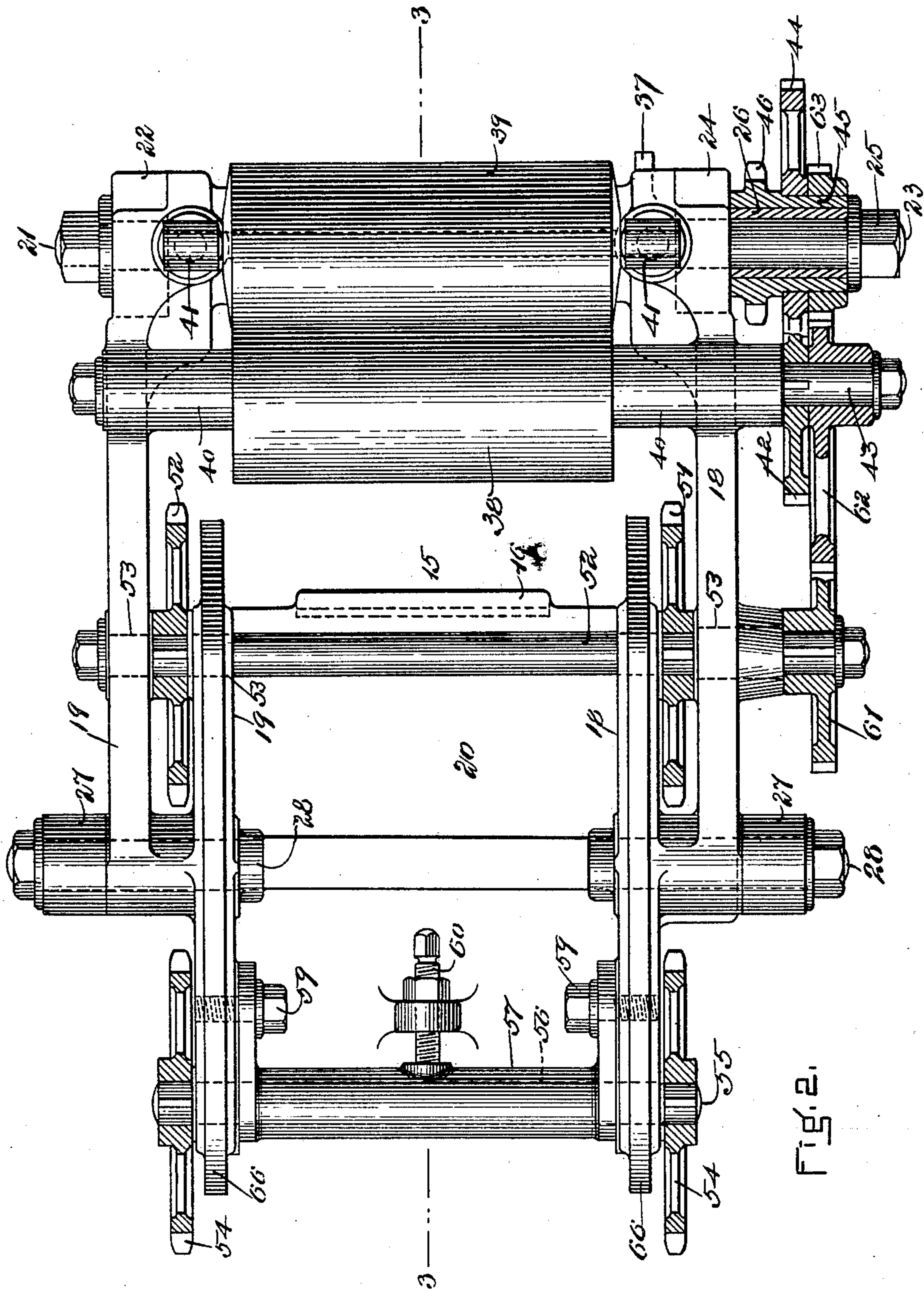
G. H. PIERCE.

INK DISTRIBUTING MECHANISM FOR PRINTING PRESSES.

(Application filed Jan. 8, 1902.)

(No Model.)

6 Sheets—Sheet 2.



WITNESSES:

Louis A. Jones.

Sydney C. Taft.

INVENTOR:

George H. Pierce.

By His Attorney, Charles S. Gooding.

No. 713,682.

Patented Nov. 18, 1902.

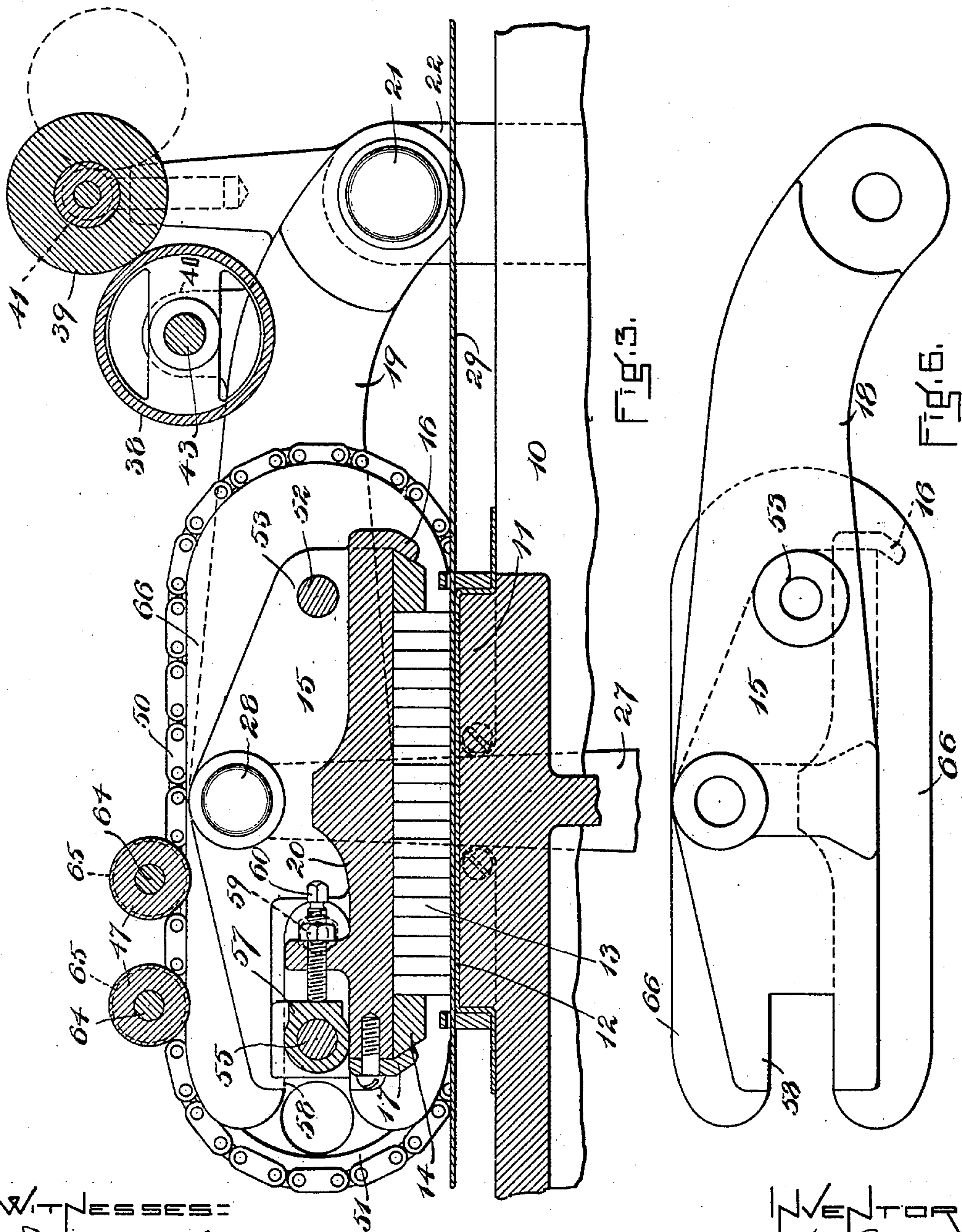
G. H. PIERCE.

INK DISTRIBUTING MECHANISM FOR PRINTING PRESSES.

(Application filed Jan. 6, 1902.)

(No Model.)

6 Sheets—Sheet 3.



WITNESSES:

Louis A. Jones.

Sydney E. Taft.

By his Attorney,

INVENTOR:

George H. Pierce.

Charles S. Gooding.

No. 713,682.

Patented Nov. 18, 1902.

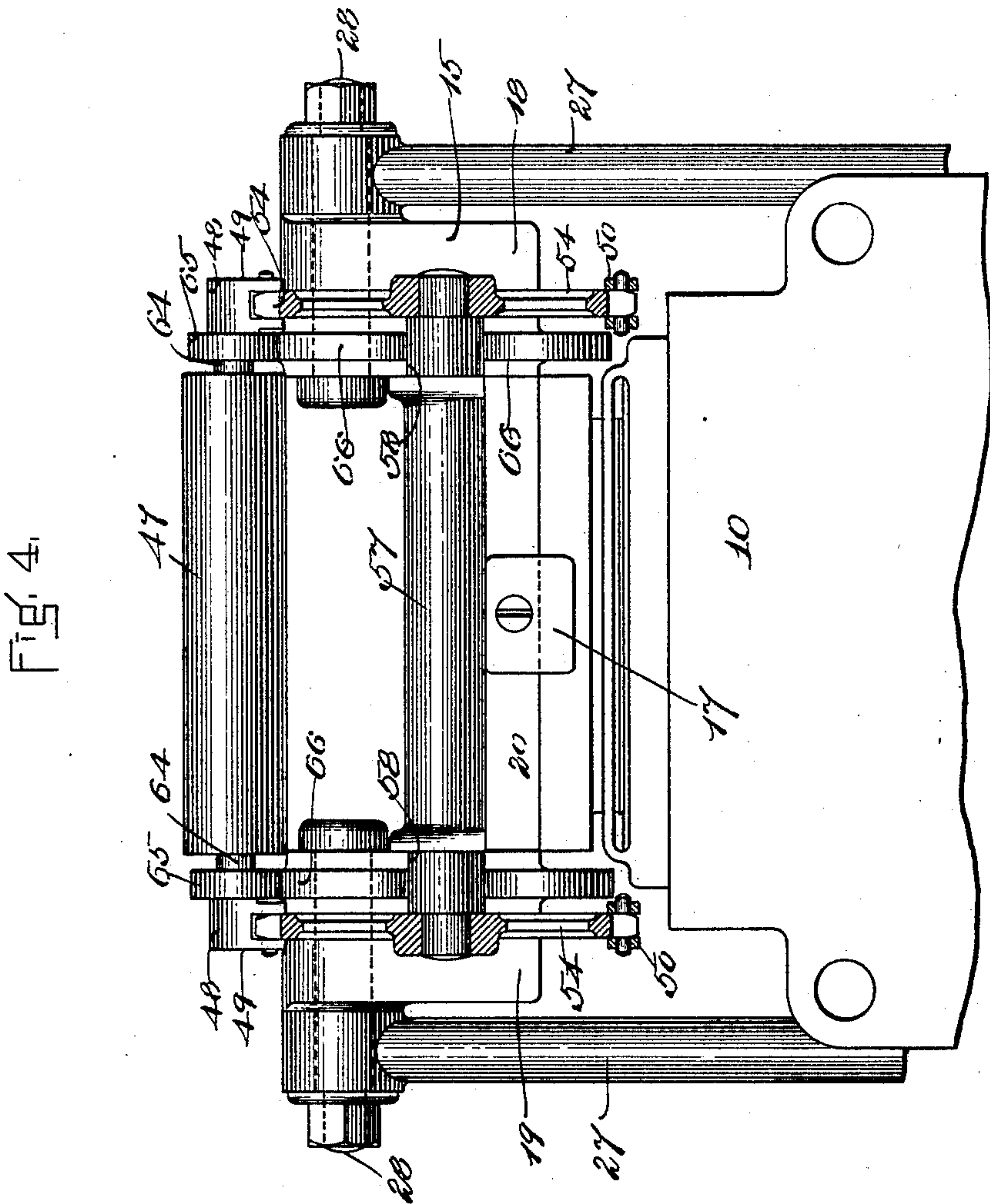
G. H. PIERCE.

INK DISTRIBUTING MECHANISM FOR PRINTING PRESSES.

(Application filed Jan. 6, 1902.)

(No Model.)

6 Sheets—Sheet 4.



WITNESSES:

Louis A. Jones.

Sydney C. Taft.

INVENTOR:
George H. Pierce.

by his Attorney, Charles S. Gooding.

No. 713,682.

Patented Nov. 18, 1902.

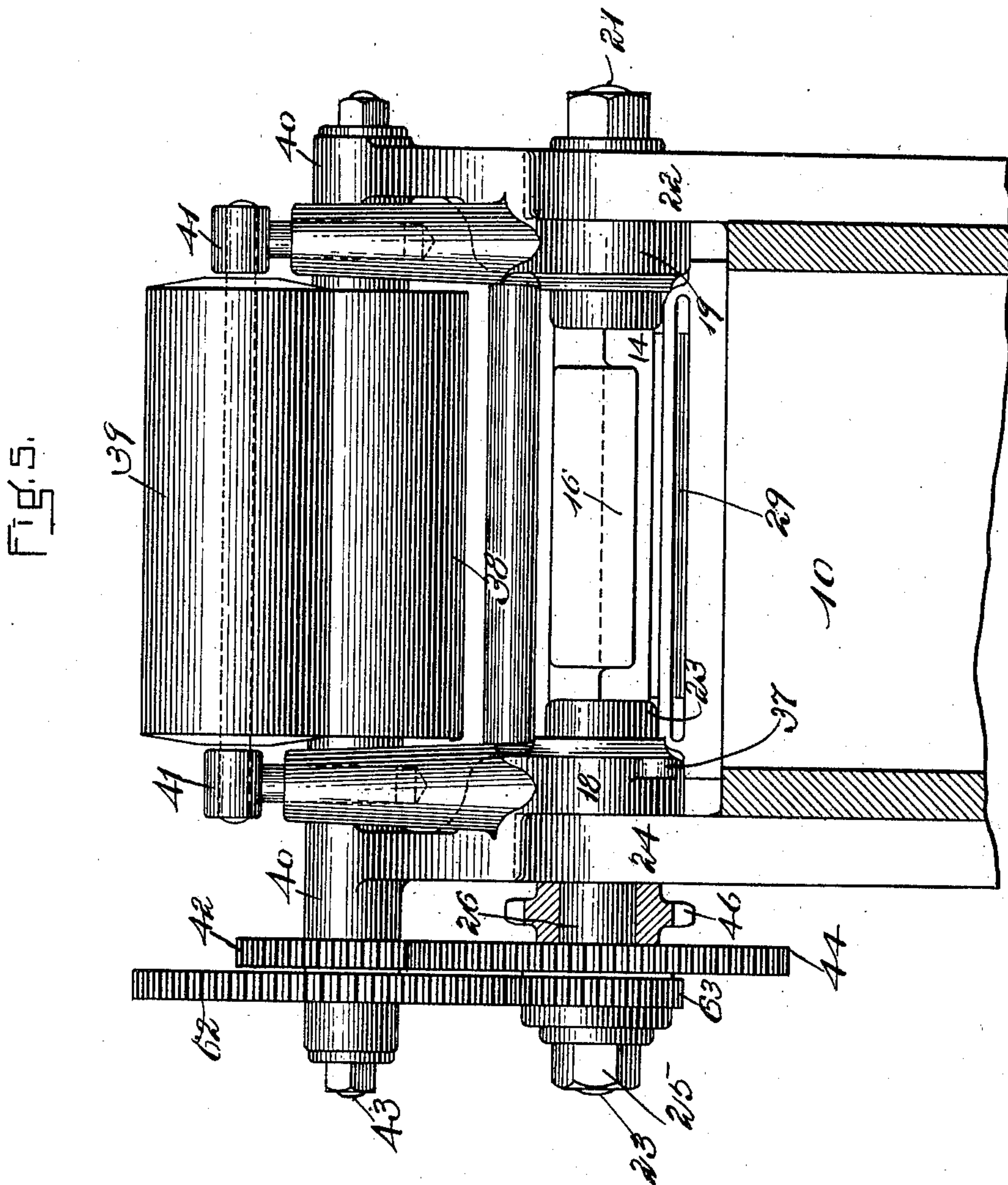
G. H. PIERCE.

INK DISTRIBUTING MECHANISM FOR PRINTING PRESSES.

(Application filed Jan. 6, 1902.)

(No Model.)

6 Sheets—Sheet 5.



WITNESSES:

Louis A. Jones.

Sydney C. Taft.

INVENTOR:

George H. Pierce,

by his Attorney, Charles S. Gooding

No. 713,682.

Patented Nov. 18, 1902.

G. H. PIERCE.

INK DISTRIBUTING MECHANISM FOR PRINTING PRESSES.

(Application filed Jan. 6, 1902.)

(No Model.)

6 Sheets—Sheet 6.

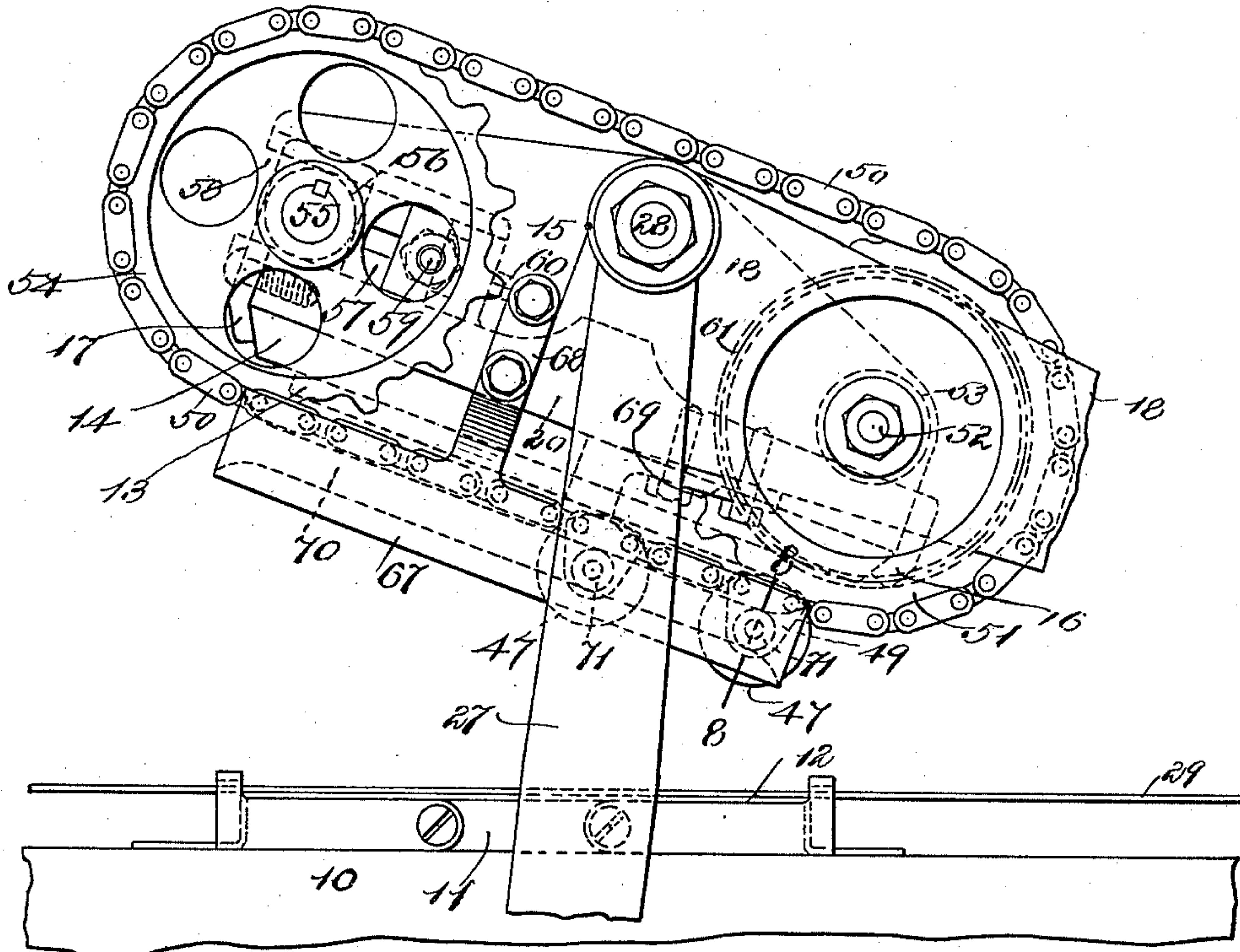


Fig. 7.

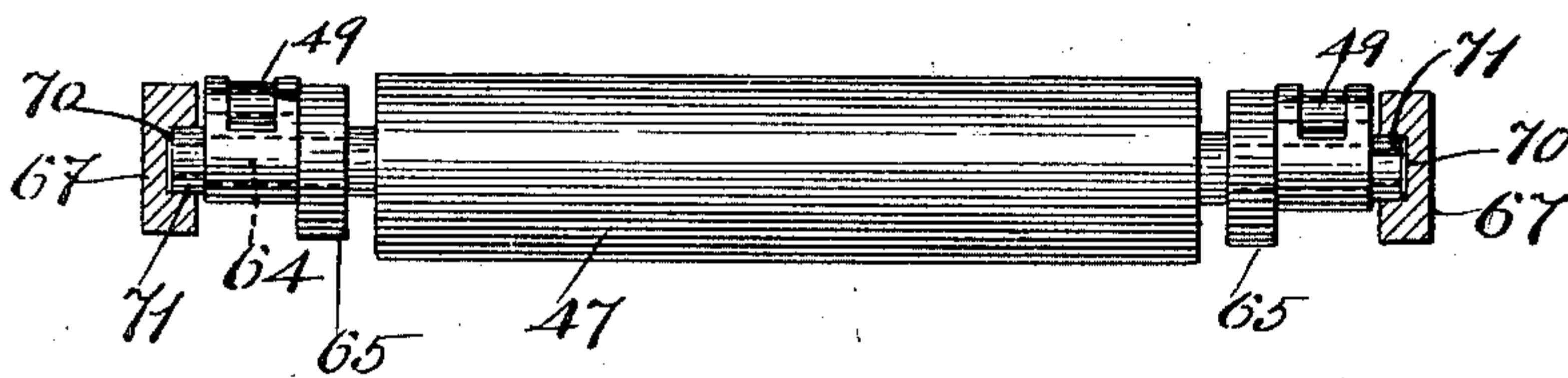


Fig. 8.

WITNESSES:

Ernest C. Taft.

William H. Forrest.

INVENTOR:

George H. Pierce.

by his Attorney, Charles S. Ford.

UNITED STATES PATENT OFFICE.

GEORGE H. PIERCE, OF MALDEN, MASSACHUSETTS, ASSIGNOR TO NEW ERA MACHINERY COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF NEW JERSEY.

INK-DISTRIBUTING MECHANISM FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 713,682, dated November 18, 1902.

Application filed January 6, 1902. Serial No. 88,500. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. PIERCE, a citizen of the United States, residing at Malden, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Ink-Distributing Mechanism for Printing-Presses, of which the following is a specification.

This invention relates to printing-presses, and particularly to that class of printing-presses in which the printing is done upon a continuous strip or web of paper, the same being afterward cut or punched to form tickets.

The invention is an improvement upon the machine for which United States Letters Patent were issued to E. C. Jones and F. L. Jones, No. 640,568, patented January 2, 1900; and the object of the invention is to render the said machine capable of running at a higherspeed, increasing the capacity, and simplifying the construction.

The invention consists, in a printing-press, of a bed, a form-carrier, a pivot for said form-carrier, mechanism to rock said form-carrier upon its pivot, type carried by said form-carrier, and improved mechanism for transferring ink from the ink-fountain and distribution-rolls to the face of the type, by which mechanism the ink-carrier rolls are carried from the ink-distribution rolls entirely around the type, passing across the face of the type once in their path of motion and then returning to the ink-distribution roll, the direction of motion of said rolls being continuously forward in the same general direction in a curvilinear path of motion, the advantage resulting in capacity for higher speed than in a machine where the ink-carrier rolls are provided with a reciprocatory motion, for the reason that in a reciprocatory motion the carrier-rolls necessarily stop at each end of their motion and the momentum and inertia of said carrier-rolls at each end of the throw have to be overcome.

Again, the invention consists in the particular mechanism by which said ink-carrying roll is carried from the ink-distribution roll around the type and back to said distribution-roll, consisting of an endless band or

chain having the ink-carrier roll journaled thereon and mechanism to rotate the gears or pulleys by which said chain or band is actuated, in combination with a form-carrier, a pivot for said form-carrier, mechanism to rock said form-carrier upon its pivot, type carried by said form-carrier, said endless band or chain and the gearing by which it is actuated being supported upon said form-carrier.

The invention further consists in the combination and arrangement of parts set forth in the following specification, and particularly pointed out in the claims thereof.

Referring to the drawings, Figure 1 is a side elevation of my improved ink-distributing mechanism. Fig. 2 is a plan view, partly in section, of the same, the ink-fountain and connecting mechanism being left off in said view. Fig. 3 is a central longitudinal section taken on line 3 3 of Fig. 2. Fig. 4 is an end elevation taken from the left of Fig. 1. Fig. 5 is an end elevation taken from the right of Fig. 1, the ink-fountain and connecting mechanism being left off in said figure. Fig. 6 is a side elevation in detail of the form-carrier viewed in the same direction as in Fig. 1. Fig. 7 is a side elevation of a portion of the form-carrier 15 and of the bed, showing a plate attached thereto; and Fig. 8 is a detail section taken on line 8 8, Fig. 7.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, 10 is the bed-frame of a printing-press of any desirable construction. 11 is a raised portion thereon covered by a pad 12. The type 13 are secured to a chase 14, having two sides dovetailed and being held against the under side of the form-carrier 15 by a dovetailed projection 16 on one side and by a dovetailed clamp 17 on the side opposite thereto, said clamp being removed in order to insert or remove the chase from the form-carrier when it is desired to change the type.

The form-carrier 15 consists of two side arms 18 19, joined together by a base-plate 20. The side arm 19 is pivoted upon a stud 21, fast to an ear 22 upon the bed-frame 10. The side arm 18 is pivoted upon a stud 23,

said stud being fast to an ear 24 upon the bed-frame 10 by means of a nut 25, which bears against a sleeve 26, encircling said stud 23. At each side of the form-carrier 15 is a connecting-rod 27, the lower end of which may be raised and lowered by a crank-pin or any other appropriate mechanism, thus raising and lowering the form-carrier 15, said connecting-rod being pivotally attached to each side of said form-carrier by a stud 28.

The paper 29 is fed intermittently by any suitable mechanism across the face of the pad 12 and below the base-plate 20 of the form-carrier and the type 13 secured to said form-carrier, as hereinbefore set forth. The ink is contained in a fountain 30, supported upon brackets 31, fast to the bed-frame of the machine. The ink-fountain roll 32 rotates in bearings in said ink-fountain and is rotated by a pawl 33, ratchet 34, and pawl-lever 35, said pawl-lever 35 being connected by a link 36 to an arm 37 upon the form-carrier 15.

Two ink-distribution rolls 38 and 39 are journaled to rotate in bearings 40 and 41, respectively, upon the form-carrier frame. The ink-distribution roll 39 rotates by frictional contact with the ink-distribution roll 38, said ink-distribution roll 38 being rotated by a gear 42, fast to the ink-distribution roll-shaft 43 and meshing into a gear 44, fast to the hub 45 upon the sprocket-gear 46. The sprocket-gear 46 may be rotated by a chain connected with a sprocket-gear upon a driving-shaft. The ink-carrier rolls 47 rotate in bearings 48, formed in the links 49 of the sprocket-chains 50. Each of the sprocket-chains 50 is driven by a sprocket-gear 51, fast to a shaft 52, which rotates in bearings 53 in the form-carrier arms 18 and 19. Each of the sprocket-chains 50 passes from the sprocket-gear 51 around a sprocket-gear 54, said gears 54 being idlers and fast to a shaft 55, which rotates in a bearing 56, formed in the adjustable frame 57. Said adjustable frame is formed to slide in slots 58, formed in the arms 18 and 19 of the form-carrier 15, and is clamped thereto by clamp-screws 59, being adjusted by means of an adjusting-screw 60, the object of this adjustment being to keep the sprocket-chains 50 tight, so that the rolls will not sag as they are being carried from the ink-distribution roll 38 around the type, across the face thereof, and back to the ink-distribution roll 38. The ink-carrier rolls are each fast to a shaft 64 and are rotated by friction-rolls 65, fast to said shafts 64 and bearing upon flanges 66, formed upon the carrier-arms 18 and 19 and acting as an open cam-path to rotate the friction-rolls 65 and the ink-carrier rolls 47 as they are being carried from the ink-distribution roll, around the type, and back to said ink-distribution roll.

The shaft 52 is rotated by a gear 61, which is keyed thereto and meshes into a gear 62, which turns loosely upon the shaft 43 and

meshes into the gear 63, fast to the hub 45 upon the sprocket-gear 46.

The operation of the mechanism hereinbefore described is as follows: The paper 29 having been fed into position across the upper face of the pad 12, the form-carrier is brought down to the position shown in Fig. 1 by the connecting-rods 27, thus forming an impression upon the paper. When the form-carrier is raised by the rods 27 to such a position that the ink-distribution roll 39 will assume the position shown in dotted lines, Fig. 1, thus contacting with the ink-fountain roll 32, the ink-carrier rolls pass across the face of the type in the direction of the arrow *a*, Fig. 1, being carried by the sprocket-chains 50. After leaving the face of the type the carrier-rolls are carried by the chains 50 upwardly around the center of the sprocket-gear shaft 52 into contact with the ink-distribution roll 38, thence in the direction of the arrow *b*, Fig. 1, and around the center of the sprocket-gear shaft 55 downwardly and across the face of the type again to the ink-distribution roll, being carried continuously in the same general direction in a curvilinear path by the sprocket-chains 50.

The gearing hereinbefore described is so proportioned that the speed of the ink-distribution roll 38 is greater than the speed at which the carrier-rolls are moved, the object being to make sure of applying a sufficient quantity of ink to said carrier-rolls when they come in contact with said distribution-roll and to give the same a full rotation during the time they are in contact with said roll.

It is evident that an endless band, with bearings attached thereto for the carrier-rolls, might be substituted in place of the chains 50 without departing from the spirit of my invention and also that a single distribution-roll could be used in place of the two rolls 38 and 39.

It will be seen that as the gears 44, 46, and 63 are all located upon the stud 23 and that stud being the pivotal center of the form-carrier when the form-carrier is raised and lowered as hereinbefore set forth the action of the gears will not be interfered with, the gears 62 and 42 revolving about the center of the stud 23 and also around the periphery of the gears 63 and 44, with which they are respectively in mesh.

In order to guide the ink-carrier rolls 47 with precision across the face of the type and to prevent the sprocket-chain 50 from sagging, I provide upon each side of the form-carrier a plate 67, Figs. 7 and 8. Said plates are attached by ears 68 to the form-carrier 15, each of said plates being provided with a groove 70 upon the inner face thereof, which receives a roll 71 upon the end of the ink-carrier shafts 64. It will thus be evident that as the ink-carrier rolls are carried by the chain 50 across the face of the type they will be held firmly in contact with said type by the rolls 71 and the plates 67, in the grooves 70 of

which said rolls 71 are journaled as the ink-carrier rolls are passing across the face of the type.

It is evident that while I prefer to hold the ink-carrier rolls against the face of the type by extending the shaft 64 and placing a roll thereon the same purpose may be attained by projections upon the chain 50.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a printing-press, a bed, a form-carrier, a pivot therefor, mechanism to rock said form-carrier upon its pivot, type carried by said form-carrier, two sprocket-gears, an endless chain connecting said gears, an ink-carrier roll journaled upon said endless chain, and mechanism to rotate said gears and carry said ink-carrying roll across the face of said type.

2. In a printing-press, a bed, a form-carrier, a pivot therefor, mechanism to rock said form-carrier upon its pivot, type carried by said form-carrier, an endless chain and gearing operatively connected thereto supported upon said form-carrier, an ink-carrier roll journaled upon said endless chain, and mechanism to rotate said gearing and carry said ink-carrier roll across the face of said type.

3. In a printing-press, a bed, a form-carrier, a pivot therefor, mechanism to rock said form-carrier upon its pivot, type carried by said form-carrier, an ink-distribution roll journaled upon said form-carrier, an endless chain and gearing operatively connected thereto supported upon said form-carrier, an ink-carrier roll journaled upon said endless chain and mechanism to rotate said gearing and carry said ink-carrier roll from said ink-distribution roll around said type, across the face, and back to said ink-distribution roll in a curvilinear path.

4. In a printing-press, a bed, a form-carrier, type carried by said form-carrier, mechanism to move said form-carrier toward and away from said bed, an ink-distribution roll journaled upon said form-carrier, an endless chain and gearing operatively connected thereto supported upon said form-carrier, an ink-carrier roll journaled upon said endless chain, and mechanism to rotate said gearing and carry said ink-carrier roll from said ink-distribution roll across the face of said type in one direction and thence to return said ink-carrier roll to said ink-distribution roll without contacting with said type.

5. In a printing-press, a bed, a form-carrier, type carried by said form-carrier, mechanism to move said form-carrier toward and away from said bed, an ink-distribution roll journaled upon said form-carrier, an endless chain and gearing operatively connected thereto supported upon said form-carrier, an ink-carrier roll journaled upon said endless chain and mechanism to rotate said gearing and carry said ink-carrier roll entirely around

said type and back to said ink-distribution roll in a continuous path.

6. In a printing-press, a bed, a form-carrier, type carried by said form-carrier, mechanism to move said form-carrier toward and away from said bed, an ink-distribution roll journaled upon said form-carrier, an endless chain and gearing operatively connected thereto supported upon said form-carrier, an ink-carrier roll journaled upon said endless chain, and mechanism to rotate said gearing and carry said ink-carrier roll in a continuous curvilinear path from said ink-distribution roll around said type and back to said ink-distribution roll.

7. In a printing-press, a bed, a form-carrier, type carried by said form-carrier, mechanism to move said form-carrier toward and away from said bed, an ink-distribution roll journaled upon said form-carrier, an endless chain and gearing operatively connected thereto supported upon said form-carrier, an ink-carrier roll journaled upon said endless chain, and mechanism to rotate said gearing and carry said ink-carrier roll in a curvilinear path around said type.

8. In a printing-press, a bed, a form-carrier, a pivot therefor, mechanism to rock said form-carrier upon its pivot, type carried by said form-carrier, an ink-distribution roll journaled upon said form-carrier, an endless chain and gearing operatively connected thereto supported upon said form-carrier, an ink-carrier roll journaled on said endless chain, and mechanism to rotate said gearing and carry said ink-carrier roll from said ink-distribution roll around said type, across the face thereof and back to said ink-distribution roll in a curvilinear path, and an ink-fountain roll supported upon stationary bearings and making contact with said ink-distribution roll when said form-carrier is raised.

9. In a printing-press, a bed, a form-carrier, a pivot therefor, mechanism to rock said form-carrier upon its pivot, type carried by said form-carrier, two sprocket-gears, an endless chain connecting said gears, an ink-carrier roll journaled upon said endless chain, an ink-distribution roll journaled upon said form-carrier, and a train of gearing operatively connected to rotate one of said sprocket-gears, the primary member of said train of gearing being arranged to rotate around the pivotal center of said form-carrier.

10. In a printing-press, a bed, a form-carrier, a pivot therefor, mechanism to rock said form-carrier upon its pivot, type carried by said form-carrier, an endless chain and gearing operatively connected thereto supported upon said form-carrier, an ink-carrier roll journaled upon said endless chain, mechanism to rotate said gearing and carry said ink-carrier roll across the face of said type, and means to guide said ink-carrying roll and hold the same in contact with said type as it is passing across the face thereof.

11. In a printing-press, a bed, a form-carrier, a pivot therefor, mechanism to rock said form-carrier upon its pivot, type carried by said form-carrier, an endless chain and gearing operatively connected thereto supported upon said form-carrier, an ink-carrier roll journaled upon said endless chain, mechanism to rotate said gearing and carry said ink-carrier roll across the face of said type, and
10 a plate provided with a groove engaging said ink-carrier-roll shaft and holding said ink-carrier roll in contact with the face of the type as it travels thereacross.

12. In a printing-press, a form-carrier, type
15 carried by said form-carrier, two sprocket-gears, an endless chain connecting said gears,

an ink-carrier roll, shaft fast thereto journaled upon said endless chain, mechanism to rotate said gears and carry said ink-carrier roll across the face of said type, and a plate 20 provided with a groove, engaging said ink-carrier-roll shaft and holding said ink-carrier roll in contact with the face of the type as it travels thereacross.

In testimony whereof I have hereunto set 25 my hand in presence of two subscribing witnesses.

GEORGE H. PIERCE.

Witnesses:

CHARLES S. GOODING,
ANNIE J. DAILEY.