

No. 713,939.

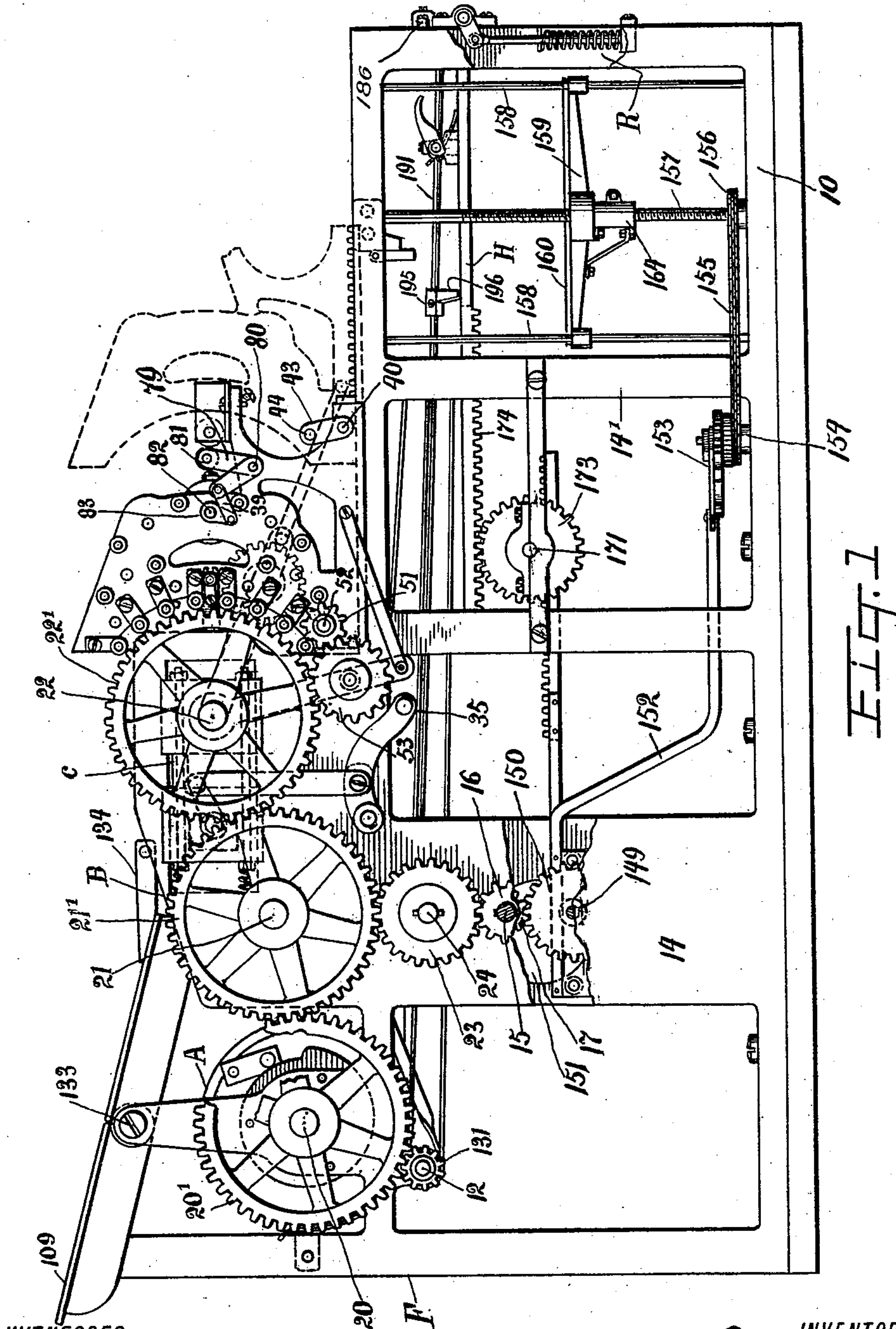
Patented Nov. 18, 1902.

W. C. BARCLAY.
PRINTING PRESS.

(Application filed Aug. 13, 1901.)

(No Model.)

7 Sheets—Sheet 1.



WITNESSES

F. A. Stewart
F. L. Leiler

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Walter C. Barclay

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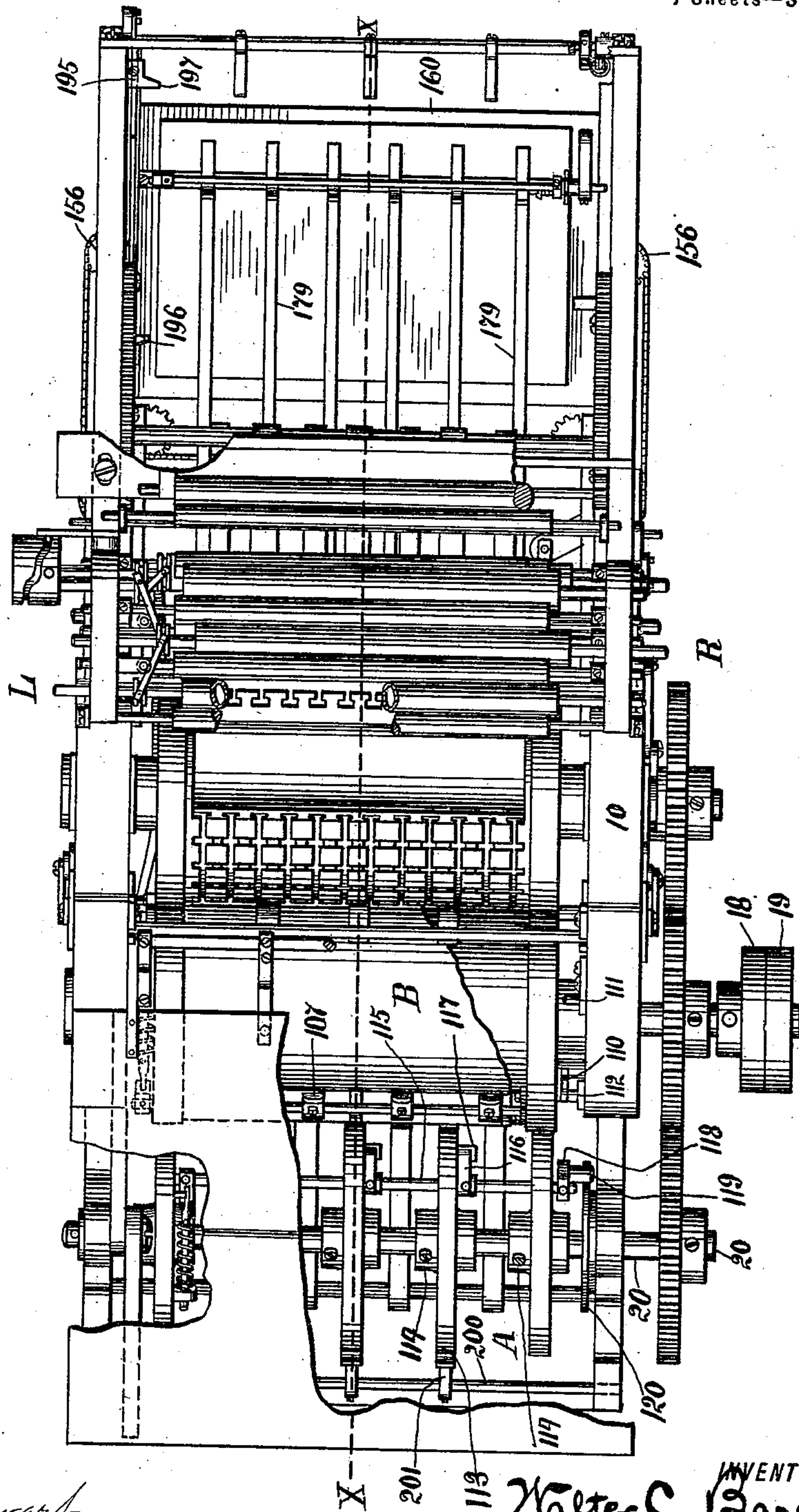
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7 Sheets—Sheet 2.

Fig. 2



WITNESSES

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F. F. Keller

X

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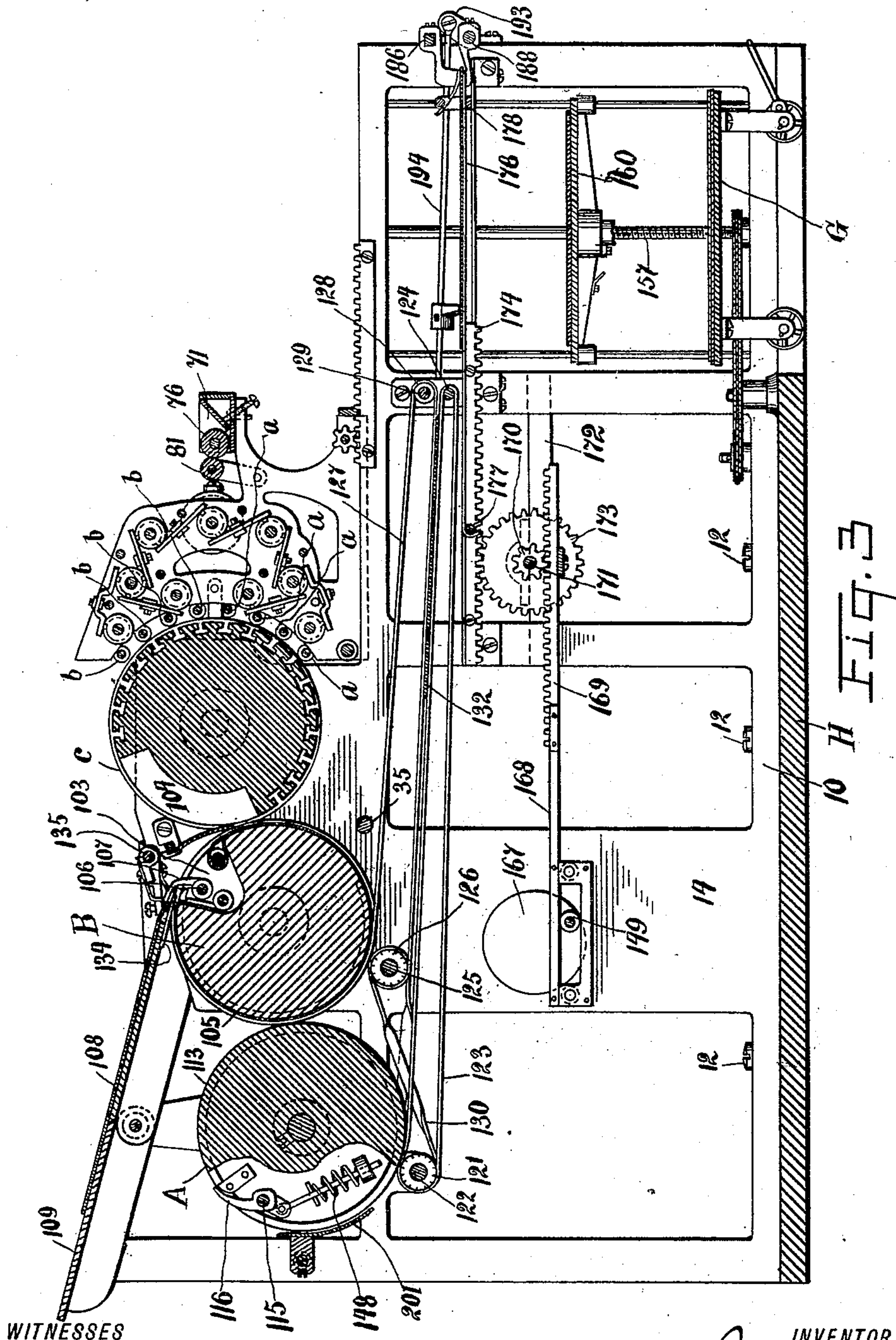
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(No Model.)

7 Sheets—Sheet 3.



WITNESSES

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F. F. Keller.

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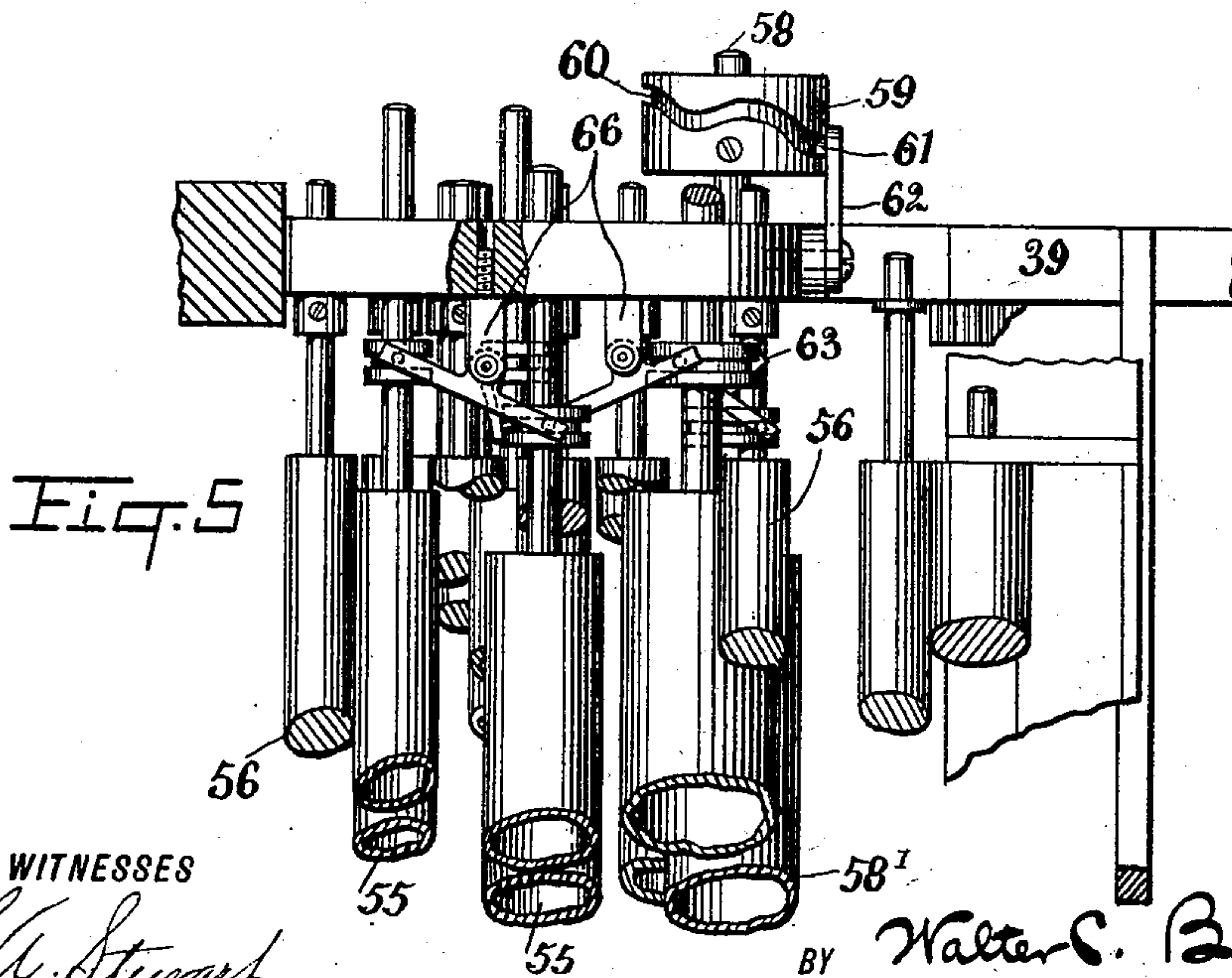
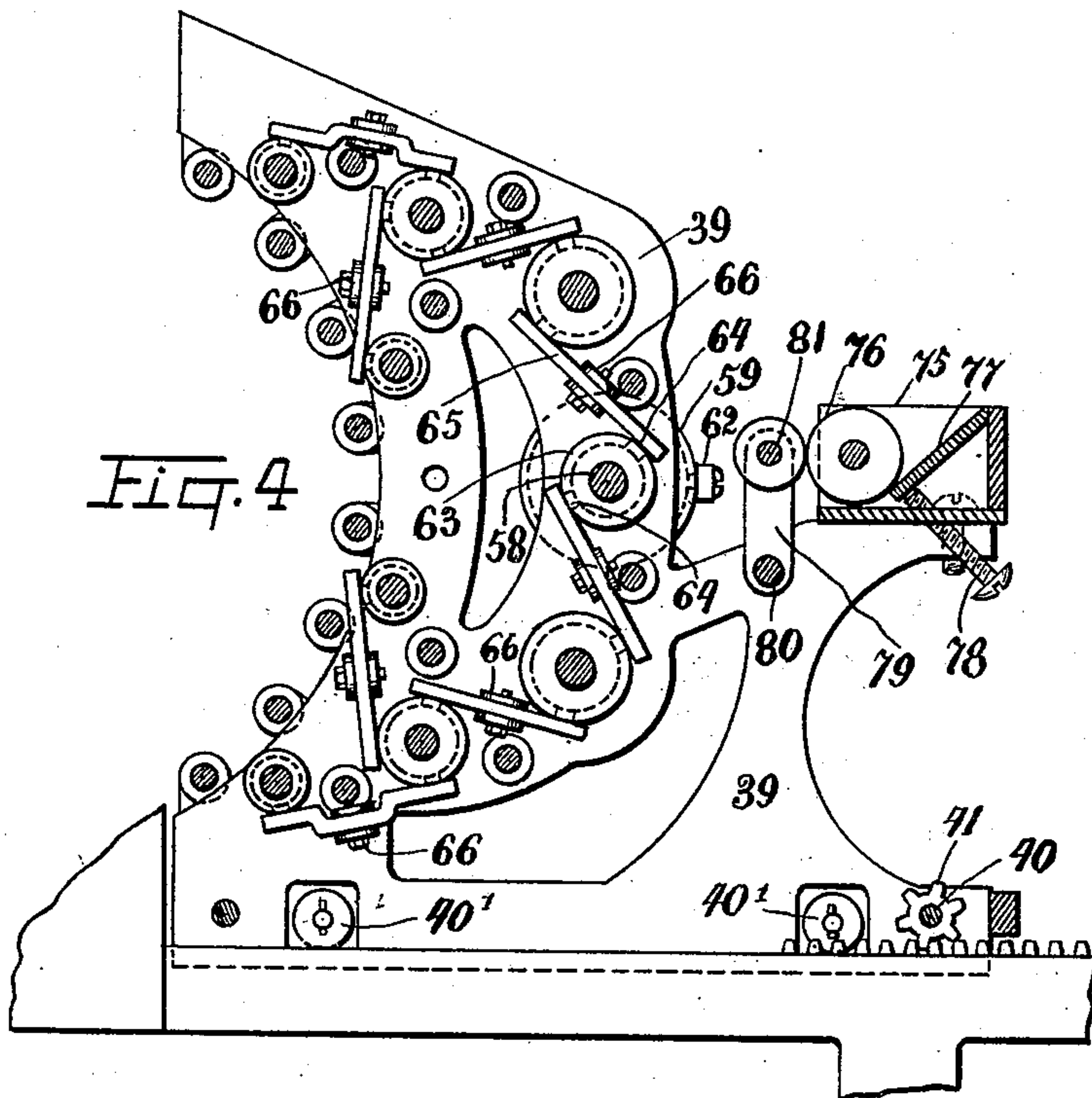
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(No Model.)

7 Sheets—Sheet 4.



WITNESSES

F. A. Stewart
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No. 713,939.

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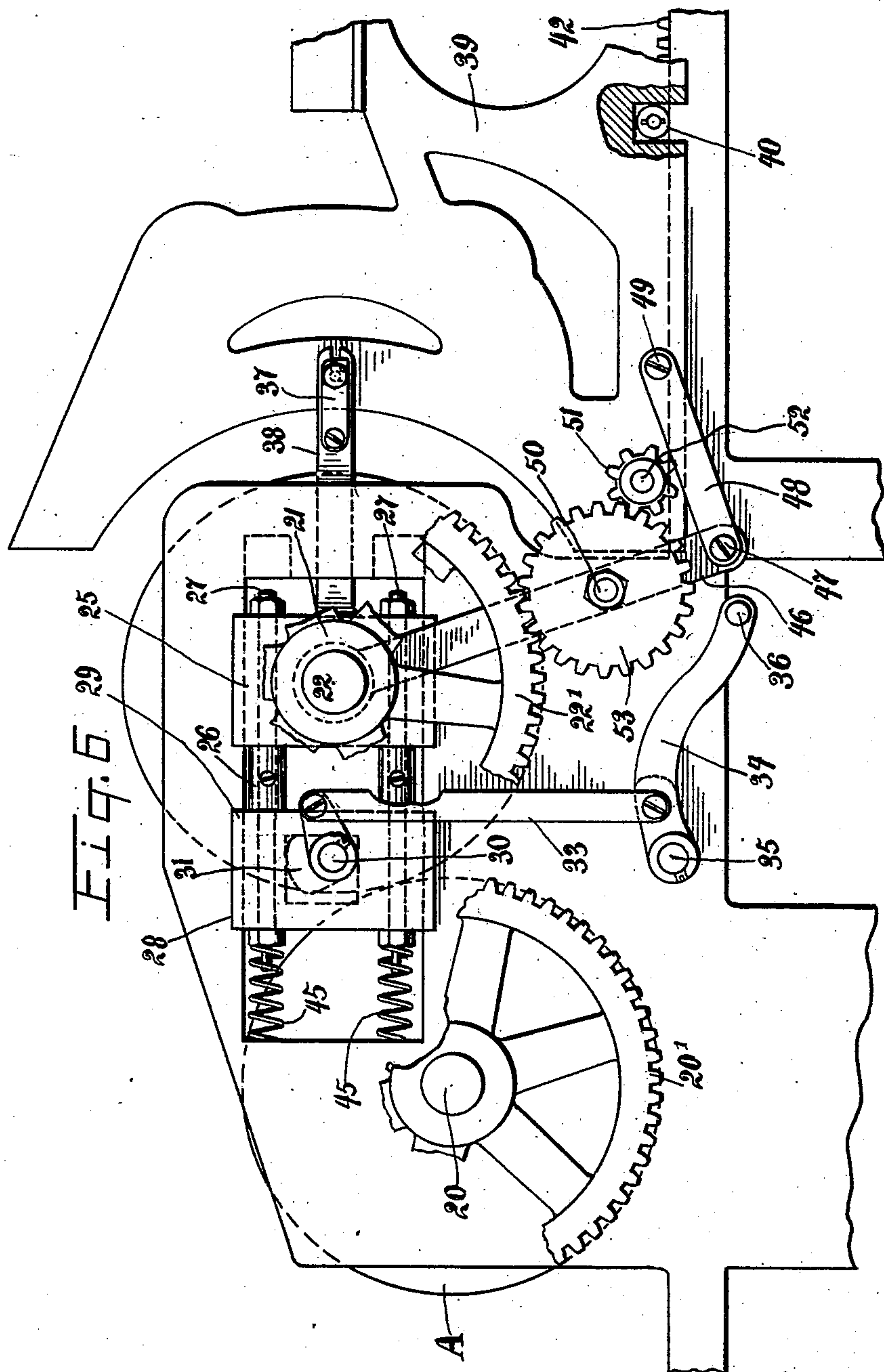
W. C. BARCLAY.

PRINTING PRESS.

(Application filed Aug. 13, 1901.)

(No Model.)

7 Sheets—Sheet 5.



WITNESSES

F. A. Stewart
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No. 713,939.

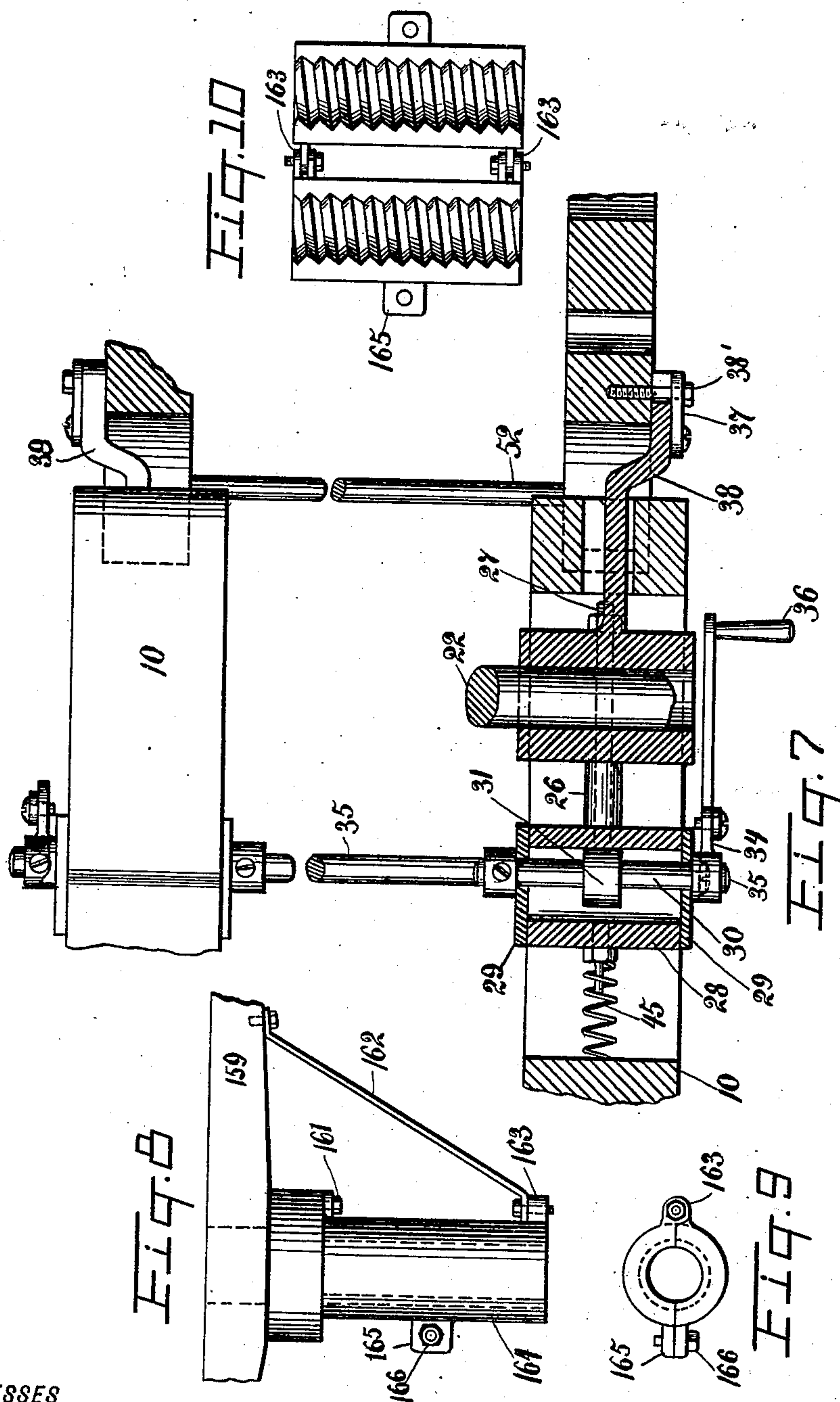
Patented Nov. 18, 1902.

W. C. BARCLAY.
PRINTING PRESS.

(Application filed Aug. 13, 1901.)

(No Model.)

7 Sheets—Sheet 6.



WITNESSES

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No. 713,939.

Patented Nov. 18, 1902.

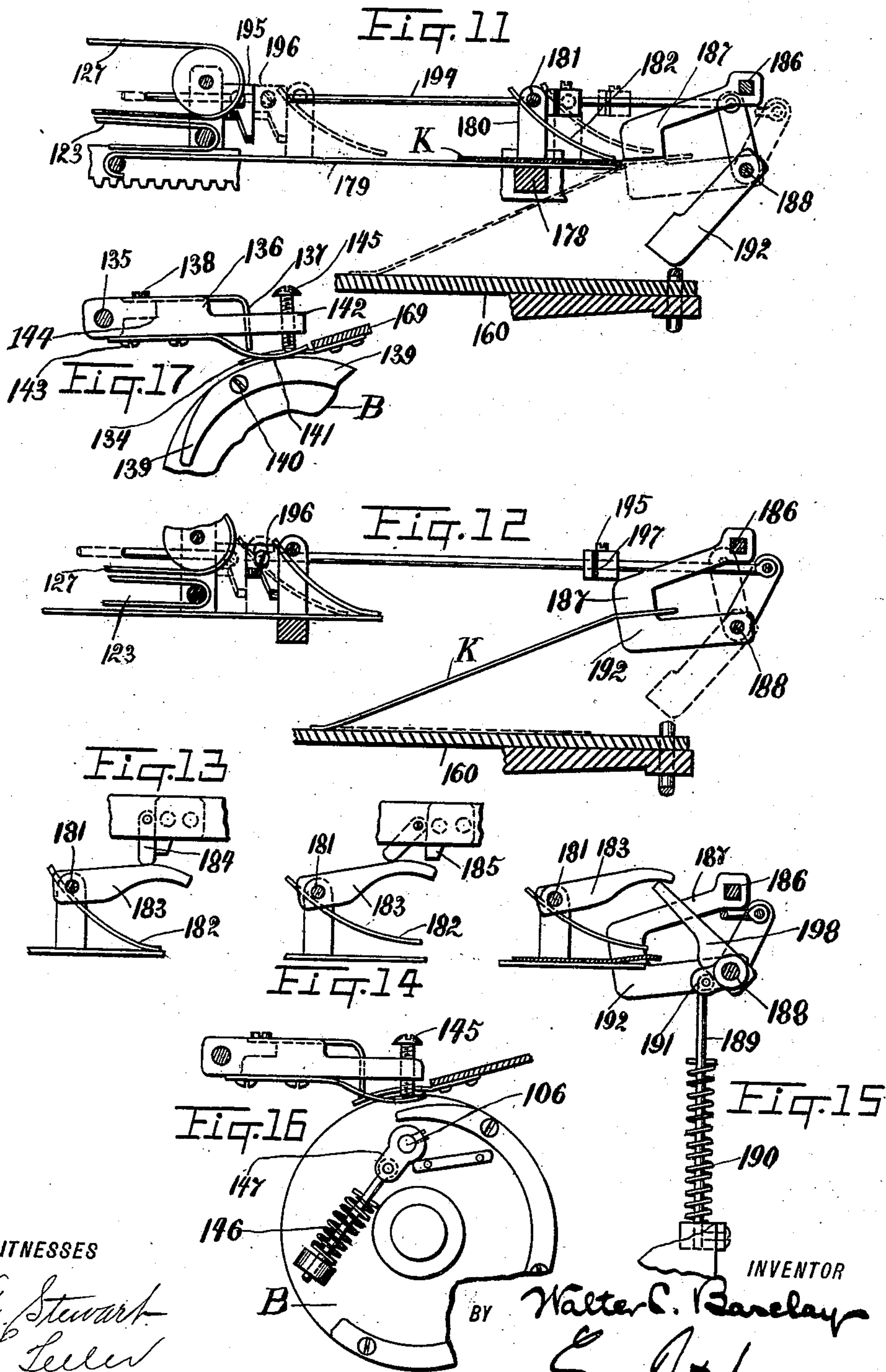
W. C. BARCLAY.

PRINTING PRESS.

(Application filed Aug. 13, 1901.)

(No Model.)

7 Sheets—Sheet 7.



WITNESSES

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UNITED STATES PATENT OFFICE.

WALTER C. BARCLAY, OF NEW YORK, N. Y.

PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 713,939, dated November 18, 1902.

Application filed August 13, 1901. Serial No. 71,894. (No model.)

To all whom it may concern:

Be it known that I, WALTER C. BARCLAY, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Printing-Presses, of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

The object of my invention is to provide a rotary printing-press of a new and improved form so constructed that the highest quality of printing, such as book and magazine work, may be done thereon from a curved instead of a flat printing plate or form, as is the case at present, and the prints or printed sheets impressed thereby delivered in such manner as to prevent smudging of the same and to easily be removed in large quantities from the receiving bed or table.

The invention consists of the improved formation, combination, and association of the parts and members as hereinafter set forth, and as illustrated in the accompanying drawings.

In the accompanying drawings, forming part of this specification, in which like characters of reference designate corresponding parts in the several views, Figure 1 is a side view in elevation of my improved rotary printing-press, a portion of the frame being broken away in order to better show the construction. Fig. 2 is a top plan view thereof, certain portions being broken away in order to better show the mechanism beneath such portion. Fig. 3 is a side view thereof in central vertical section on the line $x x$ of Fig. 2. Fig. 4 is a side view in detail, on an enlarged scale, looking from the right of the inking-roller mechanism on the left side of the press taken in such section as to show only the shafts of the inking and distributing rollers and the ink-fountain. Fig. 5 is a top plan view of the portion of the mechanism shown in Fig. 5, portions of the inking and distributing rollers being shown in position upon their shafts. Fig. 6 is a side view in detail, on an enlarged scale, of the central main upper portion of the press, including the ink-train-carrier frame, showing the mechanism for throwing the inking-rollers off from the form or plate roller for the pur-

poses of ink distribution and testing. Fig. 7 is a top plan view, partially in section, of a portion of the part shown in Fig. 6, certain portions being omitted in order to better show the construction of others. Fig. 8 is a side view in detail, on an enlarged scale, of one of the hinged split nuts secured to one of the cross-bars supporting the removable print-receiving table. Fig. 9 is a bottom view of one of such split nuts in the closed position. Fig. 10 is a view in detail, on an enlarged scale, of one of such split nuts in the open position. Fig. 11 is a side view in central vertical section looking from the right of a portion of the print-receiving table and adjacent mechanism. Fig. 12 is a view of that portion of the mechanism shown in Fig. 11, the parts being shown in different positions from that shown in Fig. 11. Figs. 13, 14, and 15 are side views in details of portions of the mechanisms shown in Figs. 11 and 12, showing the operation thereof. Fig. 16 is an end view of the blanket or impression cylinder, showing the mechanism for tripping the adjustable paper-stops; and Fig. 17 is a view of the upper portion of the mechanism shown in Fig. 16, the paper-stops being shown in the raised or delivering position.

For convenience of description that end of the parts at which the paper is fed into the same will be throughout the specification designated as the "front" and the end at which the printed sheets are delivered designated as the "rear," the same being indicated upon the drawings by the reference-letters F and R, respectively, and the right and left hand sides when looking from front to rear being in certain of the drawings indicated by the letters R' and L, indicating the right and left sides, respectively.

To construct my improved form of rotary printing-press, I provide a rectangular frame formed of side pieces which are usually firmly secured to the edges of a base-plate 11 by means of suitable screw-bolts 12, which frame so formed may be further strengthened by any required number of cross stay-pieces (not shown) placed at any suitable points when the machine is built of the larger sizes; but in the smaller sizes such stays are not necessary.

Revolubly mounted in a suitable journal

box formed in the wider central web 14 of the right side frame 10 is the main shaft 15, provided on the outside with a gear wheel or pinion 16 and on the inside of the frame with a smaller gear wheel or pinion 17, and such main shaft is also provided at its outer end with the usual fast and loose pulleys 18 and 19 and shown in Fig. 2, through which power from any suitable source is transmitted by means of a suitable belt. (Not shown.) Revolvably supported in the top portion of the frame are three shafts 20, 21, and 22, upon which are respectively rigidly secured the take-off or receiving cylinder A, the blanket or impression cylinder B, and the form or type-plate cylinder C, the shaft 20, having rigidly secured to its outer end a gear-wheel 20', the shaft 21, a gear-wheel 21', the shaft 22, a gear-wheel 22', all of the same diameter, the gear-wheel 20' meshing with the gear-wheel 21', which in turn meshes with the gear-wheel 22', and the gear wheel or pinion 23 revolvably mounted upon a stud or pivot shaft 24, meshing on one side with the gear-wheel 21 and on the other with the gear-wheel 16, forming an actuating connection between the cylinders A, B, and C and the driving-shaft 15. The shafts 20 and 21 rotate in suitable bearings or boxes immovably fixed to the side pieces of the main frame; but the shaft 22, carrying the form or type cylinder C, is supported, as shown in detail in Fig. 6, in journal-boxes 25, each adapted to reciprocate back and forth in a slot 26, formed in the side frame to receive it, and passing through each of such journal-boxes at the upper and lower sides are bolts 27, to the rearward ends of which are secured the slotted cam-piece 28. Also reciprocating in the slots 26 and formed integral with or rigidly secured to the side pieces of the main frame on either side of each of the cam-pieces 28 is a journal-plate 29, in which is journaled the cam-shaft 30, vibrating a cam 31, located in the cam-slot 26, which shaft 31 is vibrated by means of a lever 32, pivoted to a connecting-rod 33, pivoted at the lower end to a lever 34, rigidly secured to a vibrating shaft 35, extending across the frame and through both side pieces thereof, so that the like cams 31 upon either side will by the action of such shaft 35 be vibrated in unison, the lever 34 upon the right side of the machine being longer than that upon the left and provided, as shown in Figs. 1 and 6, with a crank-pin or handle 36, by which the shaft 35 may be vibrated. Extending rearward from each of the sliding journal-boxes 25 is a bar 37, provided at the outer end with a pivoted latch-piece 38, by which such journal-boxes are detachably secured to the side pieces 39 of the frame carrying the train D of ink-distributing and inking rollers, which frame is arranged to slide freely back and forth upon the side pieces 10 of the main frame, being supported thereon upon suitable antifriction-wheels 40' and being provided with a transverse shaft 40, carrying gear-

wheels 41, meshing with the teeth of the rack-bars 42, secured to the side pieces 10, which shaft 40 is rotated by means of a lever 43, having a crank-pin or handle 44, this being used to throw the inking-train into the extreme rearward position, as shown in dotted lines in Fig. 1, when it is desired to change the plates upon the cylinder C and to reciprocate the same forward into position to be attached to the connecting-rods 37 by means of the latch-pieces 38 and bolt 38'. To assist in throwing the cylinders forward, springs 45 are usually located in the rear end of the slot 26, so as to press upon the end wall thereof and upon the forward end of the bolts 27. Upon the right end of the shaft 22, between the adjacent journal-box 25 and the gear wheel or pinion 22', is vibratorily mounted a lever 46, to the lower end of which is pivotally connected by means of a pivot bolt or screw 47 a link 48, the other end of which is pivotally secured to the side piece 39 of the ink-train frame adjacent to the bottom by means of a screw or bolt 49 and revolvably mounted upon a pivot stud or shaft 50, carried by the lever 46, so as to at all times mesh on one side with the gear-wheel 22' and on the other with the main driving gear-wheel 51, rigidly mounted upon the shaft 52, which drives the train of inking and distributing rollers, and journaled at the ends in the side pieces 39 of the frame carrying such ink-train is a gear wheel or pinion 53, and by this arrangement it will be seen that for purposes of thoroughly distributing the ink by manipulation of the latch-pieces 38, lifting the same from the bolts 38' by the turning of the shaft 40, by means of the crank 43, the inking-train may be thrown a number of feet away from the type or form cylinder C and that upon rotation of the main shaft, and consequently of the cylinders A, B, and C, that the motion will be transmitted from the gear-wheel 22' to the shaft 52 through the intervention of the gear-wheels 51 and 53, so as to thoroughly distribute the ink upon all the rollers of the train, and that after the ink is so distributed upon forcing the inking-train forward into the position to be secured in place by the levers 37, latch-pieces 38 and bolts 38', that by manipulation of the cams 31 by means of the levers 34 the form or plate cylinder may be kept out of contact with the impression-cylinder B until the forms or plates thereon have been thoroughly inked by being brought into contact a number of times with the inking-rollers and that at the same time sheets may be run through the press for purposes of testing without any impression being taken thereon.

In the improved form of inking-train I provide, as is usually the case in such trains, as shown in detail in Fig. 5, a plurality of metal rollers 55, coacting with a plurality of composition rollers 56, mounted, as shown in detail in Figs. 4 and 5, so that a considerable number of the composition rollers upon the curved face of the frame will be in contact

with the plates upon the face of the cylinder, as shown at 57 in Fig. 3, and such rollers are mounted in their bearings in the side pieces 39 of the frame of the inking-train in such manner as to be capable of longitudinal reciprocation therein, one of such shafts 58, being provided on the left side of the press, as shown in Figs. 2 and 5, with a cam-wheel 59, provided with a peripheral cam-groove 60, in which is located a cam-pin 61, secured to a supporting-bar 62, rigidly secured to the side piece 39, whereby upon rotation of the shaft 58 the coaction of the cam-groove 60 of the cam-wheel 59 of the cam-pin 61 will cause a reciprocation of the shaft 58, and this shaft 58, being provided within the side piece 39 with a cam-wheel 63, provided with a straight annular peripheral cam-groove, in which is located the pins 64, rigidly secured to the ends of levers 65, pivoted at their centers to suitable supporting-studs 66, which levers are provided at the opposite ends with like pins located in similar slots in similar cam-wheels rigidly secured upon the shafts of other of the rollers, which in turn transmit such oscillating motion to other rollers in like manner and by like mechanism, as shown in Figs. 4 and 5, the rollers so reciprocated being usually the metal rollers and the composition rollers being usually non-reciprocating. The arrangement of the ink-distributing rollers upon the rear portion of the ink-train frame is such that the ink carried to the rear central distributing-roller 58', carried by the shaft 59 by the vibrating-roller 81, as herein-after more particularly set forth, is by such roller 58 (shown in detail in Fig. 5) distributed and transferred to rollers above and below the same, so that through such upper and lower trains it is eventually transferred, part to the lower rollers *a* and part to the upper rollers *b*, which being in direct contact with the printing-plate or type-form thus transfer the ink thereto, and being thus fed with ink from different points such train will more easily and quickly transfer the ink thereto than has hitherto been the case.

Mounted upon the rear portion of the ink-train frame is the ink-trough 75, provided with the feed-roller 76 and the adjustable back-plate 77, adjusted to the roller 76 by means of screws 78, and revolvably supported at the ends in vibrating levers 79, rigidly secured upon a vibrating shaft 80 between the feed-roller 76 and the adjacent rollers of the ink-train, is a transferring ink-roller 81, which vibrates back and forth between the feed-roller 76 and the adjacent roller 58' of the distributing-train, the shaft 80 being vibrated by being connected by the links 81 and 82.

Any desired plate or form receiving cylinder may be used with the mechanisms herein described.

The impression-cylinder B used in my improved form of press does not differ in construction from that commonly used in presses of like character, and an extended descrip-

tion thereof is not considered necessary, it being provided, as is usual in such cases, upon one portion of its periphery with a longitudinal cavity 103, adapted to register with a like cavity 104, formed longitudinally of the form-cylinder C, as is usual in rotary presses, such cavity being provided with suitable mechanism for retaining upon the peripheral surface of the roll the impression-blanket 105, secured thereto in the well-known manner or in any other desired manner, and such cylinder B being provided in such cavity with a longitudinal shaft 106, upon which is rigidly secured the sheet-gripping fingers 107, adapted to grip the paper sheet 108 in the well-known manner, so as to draw the same from the feed-table 109 and to carry the same around such impression or blanket cylinder, so as to receive the imprint from the printing-form E, carried by the form-cylinder C during such rotation, such shaft 106 being tripped at the proper moment to seize such sheet by the contact of the cam 110, secured upon the right end of the shaft 106 with a pin 111, secured to the side frame 10 and vibrated in like manner into the releasing position, so as to deliver the printed sheet to the receiving or take-off cylinder A by a like pin 112, secured in like manner to such frame 10, such cam and pins being shown in Fig. 2; but inasmuch as such mechanism is old and forms no part of my invention save as part of the mechanism a further and more detailed description thereof is not deemed necessary herein.

While the receiving or take-off cylinder A may be of any preferred form in order to prevent smudging of the printed sheets received thereon from the impression or blanket cylinder B, the same instead of being of the semi-solid form shown in the cylinders B and C consists, usually, of a plurality of narrow wheels or cylindrical portions 113, secured upon the shaft 20, so as to rotate therewith, but adapted to be adjusted longitudinally upon such shaft by means of set-screws 114 in such manner as to be shifted longitudinally thereof in order that such wheels may be shifted longitudinally of such shaft in order that the peripheral surfaces of such wheels may be in contact with the unprinted portions of the particular sheets being printed.

Passing transversely through the take-off cylinder thus formed by the wheels or cylindrical portions 113 and vibratorily mounted therein is a shaft 115, provided with grip-fingers 116, adapted to coact with grip-pieces 117, rigidly secured to the wheels or cylindrical portions 113 adjacent thereto, and upon the right-hand end of the shaft 115 is a cam-lever 118, provided with a cam-pin 119, adapted, as the drum C carrying the same is rotated by contact with a cam-piece 120, rigidly secured to the inner side of the side piece 10 of the frame, as shown in Fig. 2, to actuate such fingers 116, so as to clutch the printed sheet and remove the same from the impres-

sion-cylinder B at or immediately after the instant at which the same is released from such impression-cylinder B by the throwing of the fingers 107 into the releasing position by the contact of the cam-piece 110 with the pin 112.

Revolubly mounted at the ends in the side piece 10 of the main frame slightly rearward of the center of the shaft 20 and beneath the same is a shaft 121, upon which is mounted a plurality of tape-receiving wheels 122, which wheels are arranged between the wheels 113, around which wheels are passed endless carrying-tapes 123, passing around a shaft 124, around wheels similar to the wheels 122, (not shown,) mounted thereon, which shaft 124 is revolubly mounted in the side frames 10 of the press rearward of the cylinder C and inking-train, as shown in Figs. 1, 2, and 3. Revolubly mounted at the ends in like manner in the side pieces 10 of the main frame underneath and slightly forward of the axis of the impression-cylinder B is a shaft 125, upon which are secured wheels 126 similar to the wheels 122, around which pass endless tapes 127 similar to the tapes 123, which pass in like manner around wheels 128, rigidly mounted upon a shaft 129 similar to the shaft 124, and the shaft 125 is in operative connection with the shaft 121 by means of a cross-belt or sprocket-chain 130, and the shaft 121 is rotated by a gear-wheel 131 upon the right side of the machine, meshing with the gear-wheel 20' of similar size to the wheels 122, whereby the speed of travel of the tapes 123 and 127 and the peripheral travel of the various cylinders is made identical, a sheet of paper 132 being shown in position between the tapes when about to be delivered from the rearward end thereof to the reciprocating print-receiving frame.

The feed-table 109 is usually provided at about the transverse center thereof with the hinges 133, whereby the rearward portion thereof may be turned back upon the forward portion, so as to give free access to the mechanism underneath, and the hinged rearward portion of such table 109 is provided with rearwardly-extending paper-feeding strips 134, usually of thin sheet brass or steel, and vibratorily supported in rearwardly-extending side pieces 134. Secured upon the right and left sides to such rear end of the feed-table 109 is a shaft 135, as shown in detail in Figs. 16 and 17, to which shaft 135 are rigidly secured the paper-stopping fingers 136, having the downwardly-projecting end portions 137, which end portions 37 when in the downward position just touch the feed-strip 134, secured to the feed-table 109, so as to stop the paper sheets and prevent the same from being fed from the feed-table until the stop-fingers 136 are lifted by the vibration of the shaft 135, and such feed-strips 134 and stop-fingers 136 may be of any desired number, but are usually at least two and sometimes more in number; but for purposes of

printing of different-sized sheets all are made adjustable longitudinally of the shaft 135 by means of screws 138. Secured upon the left-hand end of the blanket or impression cylinder B is a cam-piece 139, usually secured thereto by means of screws 140, which by co-action with the spring-piece 141, secured to the end piece 142, secured by means of screws 143 to the lever 144, secured upon the left-hand end of the vibrating lever 135, vibrates such lever, the pressure of the stop-pieces 37, exerted upon the feed-strips 134, and the height to which the same are raised off from such feed-strips being regulated by a regulating-screw 145, the cam 139 having the forward end 139' brought in contact with the piece 141 at the instant that the paper-gripping fingers 107, carried by the vibrating shaft 106, are thrown into the paper-gripping position by the contact of the cam-piece 110 with the cam-pin 111, such fingers being normally held in such gripping position or in the non-gripping position into which they are thrown by contact of their actuating-cam with the pin 112 by a spring 146, connected with a crank-piece 147, secured to the end of the shaft 106 and to the cylinder B, as shown in detail in Fig. 16, the spring-fingers 116 on the receiving or thrown-off drum A being also held in the gripping or non-gripping position by a like spring 148, connected in like manner with the shaft 115 for the same purpose.

Revolubly mounted at the ends in the central webbed portion 14 of each of the side pieces 10, immediately below the shaft 15, is a shaft 149, upon which adjacent to the right-hand end and within the webbed piece 14 of the side piece 10 of the frame is mounted a wheel 150, meshing with the gear-wheel 17, rigidly mounted upon the main shaft 16, and rigidly mounted upon the shaft 149 adjacent to the gear-wheel 150 is an eccentric cam 151, reciprocating a rod 152, actuating a pawl-and-ratchet gear 153, by which a sprocket-wheel 154 is constantly rotated in one direction, around which sprocket-wheel 154 passes a sprocket-chain 155, in actuating connection with sprocket-wheels 156, each of which is rigidly secured to a vertical screw-shaft 157, mounted at the upper and lower ends in each of the side pieces 10 of the frame. On either side of each of the screw-shafts 157 and rigidly supported at the ends in the top and bottom portions of the side pieces 10 of the main frame are slide-bars 158, upon which and the screws 157 reciprocate easily up and down the supporting end pieces 159, upon the top of which rest the ends of the print-receiving table 160, upon which the printed sheets are received, and each of these supporting side bars has firmly secured to the under side thereof, as shown in detail in Fig. 8, (usually by means of a screw-bolt 161 and by means of a stay 162, firmly bolted at one end to the supporting side bar 159 and at the other, as shown at 163, to the bottom portion thereof,) a hinge split nut 164, the points 161 and 163

being the hinge portions thereof, which split nut is provided at the forward side with lip-pieces 165, by which the two sides thereof may be secured together, as shown in Figs. 8 and 9, by means of a suitable bolt 166 or in any other desired manner. Such split nuts are secured upon the supporting-bars 159, so as to surround the vertical screw-shaft 159 when in the closed position shown in Figs. 8 and 9, so that the screw-threads of such nuts will coact with the threads of such shafts, so that the rotation of such shafts 157, which are constantly rotated in one direction by means of the ratchet-and-pawl gearing 153, will cause a constant downward motion of the bars 159 during the operation of the press, and it will be seen that by thus providing supporting bars or pieces 159 with such split nuts when they have reached the extreme downward position the same may be quickly and easily lifted into the upward position by taking out the bolt 166, opening the nut into the position shown in Fig. 10, lifting the bar 159 to the required height, and closing the split nut upon the screw and firmly securing the same in such closed position by means of the bolt 166.

The print-receiving table 160 usually consists simply of a flat board or plate which rests only at the ends upon the supporting reciprocating bars 159, and the end portion of the main frame of the press is at the bottom flush with the floor at the rear end, there being no cross-piece between the side pieces 10 nearer to the rear than the web portion 14', adjacent to which the base-plate 11 ends, whereby a truck G, provided with suitable traction-wheels, as shown in Fig. 3, may be wheeled in and out underneath the table 160, and by this arrangement it will be seen that the table 160 having been lifted to the extreme upward position as the printed sheets H are successively delivered thereon the same will by the synchronous rotation of the screw-shafts 157 be gradually screwed down until the same comes into contact with the truck G, when the continued rotation of the screws 157 will continue to carry the same downward until the side supporting-pieces 159 will pass below the same, leaving such table resting upon the truck, and as soon as this occurs the press is stopped, the truck, with the table and sheets resting thereon, is drawn out from beneath the rear portion of the frame, the supporting side pieces 159 by the opening of the split nuts 164 reciprocated upward upon their respective screw-shafts, and a new table 160 inserted in place of that upon the truck, after which the press is again started and this operation repeated as often as the table is filled with the printed sheets. By this construction and arrangement it will be seen that no handling of the sheets whatever is necessary and that they are easily and quickly transported to the folding and binding department without any disturbance thereof, whereby danger of wrinkling and smudging is reduced to a minimum, which in the high-class work for which this

form of press is designed would otherwise be an item of considerable expense.

Rigidly mounted upon the shaft 149, adjacent to the left end thereof and within the web 14 of the side piece 10, is an eccentric cam 167 similar to the eccentric cam 151, which by its rotation reciprocates a bar 168, provided at the end with a rack-bar 169, meshing with the gear wheel or pinion 170, rigidly mounted upon a shaft 171, revolvably mounted at the ends in a cross-piece 172, extending from the web 14' to the web forward and adjacent thereto on each of the side frames 10, upon which shaft are rigidly secured, adjacent to the ends thereof, within the side pieces 10, two gear wheels or pinions 173, meshing with the rack-bars 174, secured to the side pieces of the reciprocating print receiving and delivering frame H. This frame H consists of the longitudinal side pieces 175, forming part of or secured to the rack-bars 174, which bars 175 and the upper part of the rack-bars 174, which are provided with side extensions, reciprocate back and forth in slideways 176, formed in suitable bars supported by the side pieces 10 of the frame, such rack-bars and side pieces being secured together adjacent to the forward and rear ends by cross-bars 177 and 178 and such bars being connected together, as shown in Fig. 2, by a plurality of supporting-bars 179. Extending upward from the bar 178, at either end thereof, are standards 180, in which is vibratorily supported the stop-finger shaft 181, to which are secured a plurality of downwardly and rearwardly extending stop-fingers 182, of suitable spring metal, similar in number to the longitudinal bars 179, which stop-fingers when in the downward position (shown in full lines in Fig. 11) serve to stop the paper upon the frame H and prevent the same from passing outward beyond the ends of the bars 179 and such fingers 182. Rigidly secured upon the vibrating shaft 181, at one end thereof, is a trip-lever 183, normally pressed into the downward position by the dog or dogs 184 upon the first rearward reciprocation of the frame H, the dog 184 being pivoted to the side pieces of the frame 10, as shown, so as to permit the passage by the same of the lever 183, as shown in Fig. 14, abutting against a rigid stop-piece 185 upon the rearward reciprocation thereof, so as to force such lever 183, and consequently the stop-fingers 182, secured to the lever 181, downward into the stopping position. (Shown in Fig. 13.) Rigidly secured at the ends upon the extreme rear of the side pieces 10 of the frame is a shaft 186, usually of the square form shown, upon which are rigidly secured a plurality of upper print-receiving fingers 187, usually of the form shown, so spaced that when the frame H is reciprocated into the extreme rearward position (shown in Fig. 11) the same will be located between certain of the bars 179, as shown in Fig. 2, so as to overlap the ends thereof, and revolvably mounted at the ends

in the side pieces 10 of the frame immediately below the stationary shaft 186, so as to be capable of vibration in its supports, is a shaft 188, the vibration of which is limited, as shown in detail in Fig. 15, by a rod 189, secured to a spring 190, in connection with such shaft 188, by means of a crank-lever 191, and rigidly secured upon the shaft 188 are a plurality of lower gripping-fingers 192, similar in form and number to the fingers 187, secured to the stationary shaft 186, the construction being such that the spring 190 will serve to lock such fingers 192 either in the closed position (shown in full lines in Figs. 12 and 15 and in dotted lines in Fig. 11) or in the opening and releasing position, (shown in full lines in Fig. 11 and in dotted lines in Fig. 12,) according as the shaft is tripped from one position to the other, as hereinafter described.

Rigidly secured to the vibrating shaft 188, adjacent to one end thereof, is a lever 193, to the upper end of which is connected a connecting-rod 194, which extends forward to a supporting slip-journal carried by the web 14' of the side piece 10, and upon this rod 191, at either end thereof, are adjustably secured, by means of screws 195, a forward trip-lug 196 and a rear trip-lug 197, which rod and lugs are usually located upon the left side of the frame, just within the side piece upon that side, and the lug-pieces 196 and 197 are of such shape that the lug 196 will contact with the front or forward side of the lug 180 upon the forward reciprocation of the frame H, as shown in dotted lines in Fig. 11, so as to throw such lug 196, and consequently the rod 194, into the forward position, so as to throw the lower gripping-fingers 192 in the releasing position (shown in full lines in said Fig. 11) and so that the rear side of such lug 180 will contact with the forward side of the lug 197 upon the extreme rearward reciprocation of the frame H, so as to throw such fingers 192 into the position shown in dotted lines in Fig. 11 and in full lines in Fig. 12, so as to grip the printed sheet, (designated by the reference-letter K,) the shaft 188 being provided upon the right side with a finger 198, which at the extreme rearward position of the frame H and upon the tripping of the shaft 188 by contact of the extreme forward upper end thereof with the lower extreme rearward end of the lever or trip-dog 183 throws the same into the upward position, so as to force the stop-fingers 182 up into the releasing position, (shown in Figs. 14 and 15,) and this taking place at the same instant that the fingers 192 are thrown into the closed and gripping position (shown in full lines in Figs. 12 and 15) it will be seen that the print or sheet K, lying upon the slats 179 of the frame H, will be firmly gripped between the fingers 187 and 192 and that upon the forward reciprocation of the frame H such sheet will be held thereby and the frame drawn away from underneath such sheet, upon which the forward end thereof falling down into the position shown in dotted lines

in Fig. 11 and in full lines in Fig. 12 it will be seen that upon the throwing of the fingers 192 into the position shown in full lines in Fig. 11 and in dotted lines in Fig. 12 the coming in contact of the stud 180 with the lug 196, so as to reciprocate the rod 194 to the front, thereupon such sheet will be released and dropped upon the table into the position shown in dotted lines in Fig. 12.

In order to facilitate the passage of the sheets around the take-off cylinder A, a shaft 200, mounted at the ends in the side pieces 10 of the main frame, is provided with a plurality of curved guide-pieces 201, made so as to be adjustable longitudinally of such shaft 200, which guide-pieces are similar in number to the wheels or segments 113, forming the take-off cylinder-drum A, and the gripping-fingers 116 are thrown into the releasing position just after the same have passed toward the wheels 122, carrying the endless tapes 123, so that the sheet will by the continued rotation of the cylinder A have its forward end caught between the tapes 123 and 127 and be by them delivered to the reciprocating print-receiving frame H, by which it is transferred from such tapes to the gripping mechanism, formed by the fingers 187 and 192, by which upon a forward return movement of such reciprocating frame it is transferred by gravity to the receiving-table 160.

The operation of my improved form of press is self-evident from the foregoing description thereof, the sheets to be printed being fed one by one, either by hand or by any of the various forms of sheet-feeding devices used with printing-presses, down upon the feeding-table 109 into contact with the stop-fingers 137, which are lifted by the action of the cam 139 upon the spring-piece 141 at the instant that such sheet is gripped by the gripping-fingers 107, by which such sheet is in the well-known manner carried around the impression or blanket cylinder B, so as to receive the impression of the type-form E, carried by the form-cylinder C, and such sheet when so printed is taken off from the impression or blanket cylinder B and transferred to the take-off cylinder A by being seized by the grip-fingers 116 at the instant that the fingers 107 are tripped into the releasing position, and it is then by the continued rotation of the take-off cylinder A transferred to the carrying-tapes 123 and 127, by which it is transferred to the reciprocating paper-receiving frame 179, reciprocating back and forth underneath the rearward end of such carrying-tapes by the coacting of the rack-bars 174 with the gear-wheel 173, mounted upon the shaft 171, carrying the gear wheel or pinion 170, reciprocated by the rack-rod 169, reciprocated by the eccentric 167, mounted on the shaft 149 in actuating connection, as hereinbefore described, with the main shaft by a suitable gear, and from such reciprocating paper-receiving frame such printed

sheets are by the reciprocation thereof and the gripping-fingers 187 and 192 transferred to the continuous dropping paper-receiving table 160, as hereinbefore described.

5 Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a printing-press, the combination with
10 a form-cylinder and an impression-cylinder
and means for passing the printed sheets
back beneath the form-cylinder, of a paper-
receiving table for receiving the printed
sheets, means for carrying the printed sheets
to and over the table, devices for gripping
15 one edge of said sheets when over the table
so as to prevent the reverse movement there-
of upon the reversing movement of the paper-
carrying mechanism, and means for tripping
the paper-gripping devices into the releasing
20 position so as to release the printed sheets
and trip the same upon the receiving-table
upon the forward movement of the paper-
carrying mechanism, substantially as shown
and described.

25 2. In a printing-press the combination with
a form-cylinder and an impression-cylinder
mounted in front thereof and means for pass-
ing the printed sheets back underneath the
form-cylinder, of a reciprocating print-receiv-
30 ing carriage for receiving the printed sheets,
said carriage being mounted beneath and rear-
wardly of said cylinders, a print-receiving
table over which the reciprocating carriage
operates devices for gripping the front edge
35 of the sheet or sheets of paper upon the re-
ciprocating carriage when the same is in its
rearmost position so that said sheet or sheets
will be retained in said position upon the for-
ward movement of said carriage and means for
40 tripping said gripping device upon the for-
ward movement of the carriage so as to trip
the printed sheet or sheets upon the print-re-
ceiving table, substantially as shown and de-
scribed.

45 3. In a printing-machine the combination
with a form-cylinder and an impression-cyl-
inder mounted in front thereof, of a recipro-
cating print-receiving carriage for receiving
the printed sheets mounted rearwardly and
50 beneath said cylinders, a print-receiving table
over which the reciprocating print-receiving
carriage reciprocates, devices for gripping the
front edge of the sheet or sheets upon the re-
ciprocating print-receiving carriage when the
55 same is in its rearmost position so that the
said sheet or sheets will be retained in said
position upon the forward movement of said
carriage, means for tripping the gripping de-
vices upon the forward movement of the car-
riage and means for causing the constant
60 synchronous downward movement of the re-
ceiving-table, substantially as shown and de-
scribed.

4. In a printing-press the combination with
65 a form-cylinder and an impression-cylinder
mounted in front thereof, of two coacting sets

of paper-transfer tapes for receiving and
transferring the sheets after printing, said
tapes being mounted below and rearwardly
of said cylinders, a reciprocating paper re- 70
ceiving and delivering carriage movable un-
derneath the delivery end of the tapes, paper
stopping and gripping devices for stopping
and gripping the sheets at the end of said
tapes as they pass from said tapes and when 75
said reciprocating table is in its extreme for-
ward position, devices for gripping the end
of the sheets when the reciprocating carriage
is in its rearmost position and for holding
said sheets against movement as said car- 80
riage makes its forward movement, a print-
receiving table located below the reciprocating
carriage and means for tripping the grip-
ping devices as the reciprocating carriage
reaches its extreme forward position so as to 85
release the sheets from the gripping devices
and allow the same to be deposited upon the
receiving-table, substantially as shown and
described.

5. In a printing-press the combination with 90
a form-cylinder and an impression-cylinder
mounted in front thereof, of a reciprocating
print-receiving table mounted rearwardly of
and beneath said cylinder, a vibrating bar ex-
tending longitudinally of the rear end of the 95
table, stopping and gripping fingers carried
by said bar for gripping the sheets transferred
thereto, a receiving-table, a vibrating bar lo-
cated transversely of the rearward portion of
said table, a stationary bar also located ad- 100
jacent to the first bar, stationary gripping de-
vices carried by the stationary bar coacting
gripping devices carried by the vibrating bar,
means for reciprocating the print-receiving
table, a tripping-lever secured to the vibrat- 105
ing bar located at the rear end of the receiv-
ing-table, a reciprocating rod for moving said
lever extending longitudinally of the path of
the reciprocating print-receiving table, a stud
carried by the reciprocating print-receiving 110
table, stop devices upon either end of said
rod coacting in such manner as to trip the
vibrating rod adjacent to the rear of the re-
ceiving-table into the gripping position upon
the extreme rearward movement of the print- 115
receiving table and into the open position
upon the extreme forward movement thereof,
an actuating-lever carried by the vibrating
rod at the rear of the print-receiving table, a
stop for throwing the same into the down- 120
ward and gripping position upon the first
rearward movement, of the print-receiving
table and a trip-lever connected with the vi-
brating bar adjacent to the rear of the receiv-
ing-table for tripping the said lever into the 125
rearmost position upon the throwing of said
vibrating bar into the gripping position upon
the extreme rearward movement of said print-
receiving table, substantially as shown and
described. 130

6. In a printing-press the combination with
a form-cylinder and an impression-cylinder

and means for passing the printed sheets beneath the form-cylinder, of a table, means for carrying the printed sheets to and over the table, devices for gripping one edge of said
5 sheets when over said table so as to prevent the reverse movement thereof upon the reversing movement of the paper-carrying mechanism and means for tripping the paper-gripping device into the releasing position so
10 as to release the printed sheets and trip the same upon the receiving-table upon the forward

movement of the paper-carrying mechanism, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 7th
15 day of August, 1901.

WALTER C. BARCLAY.

Witnesses:

F. A. STEWART,
F. F. TELLER.