

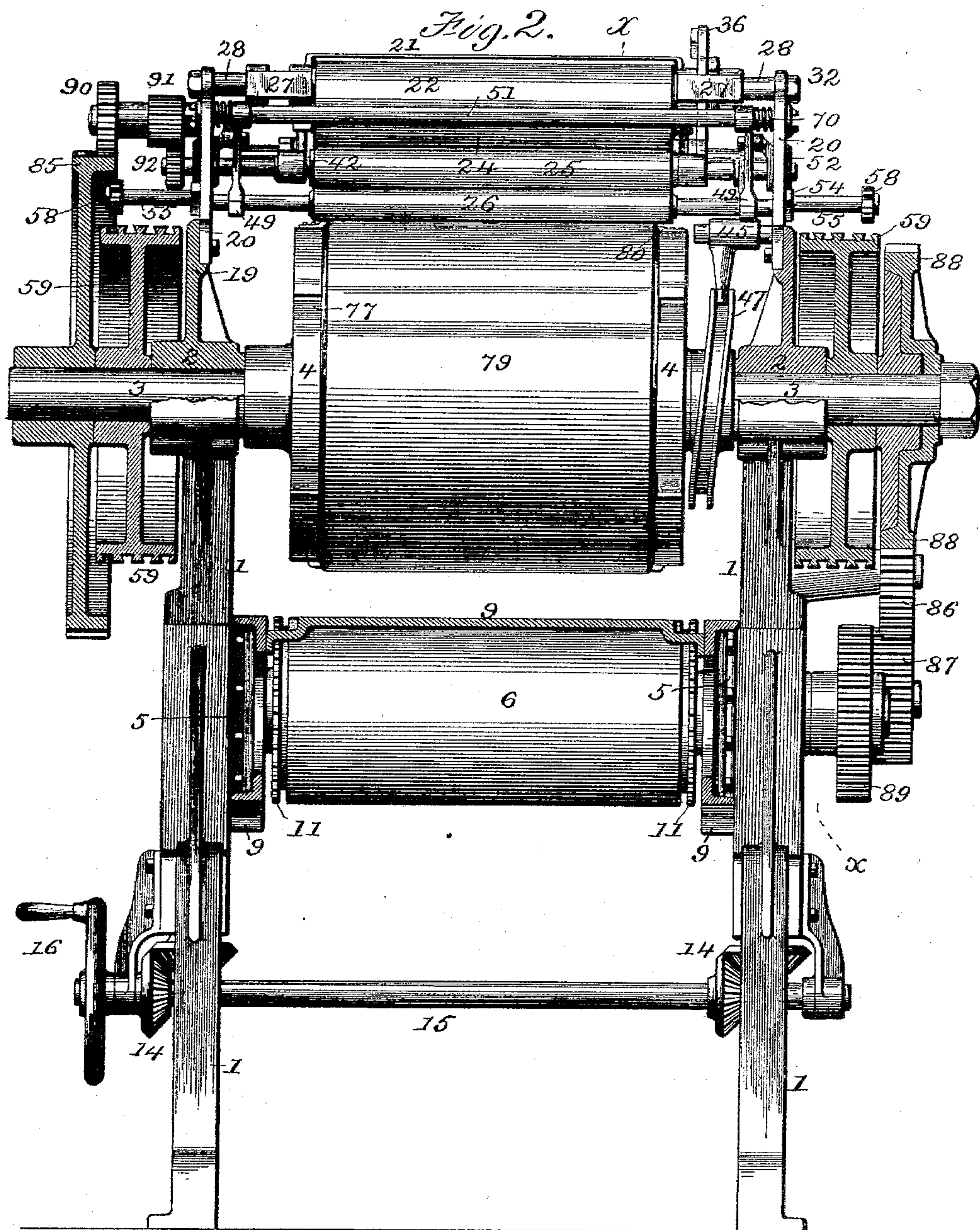
(No Model.)

6 Sheets—Sheet 2.

G. C. HALBLAUB.  
MACHINE FOR PRINTING ON WOOD.

No. 597,975.

Patented Jan. 25, 1898.



*Attest:*

*W. H. Holmes.*  
*W. W. A. Nott*

*Inventor:*

*Geo. C. Halblaub.*

*by Robert Burns Atty.*



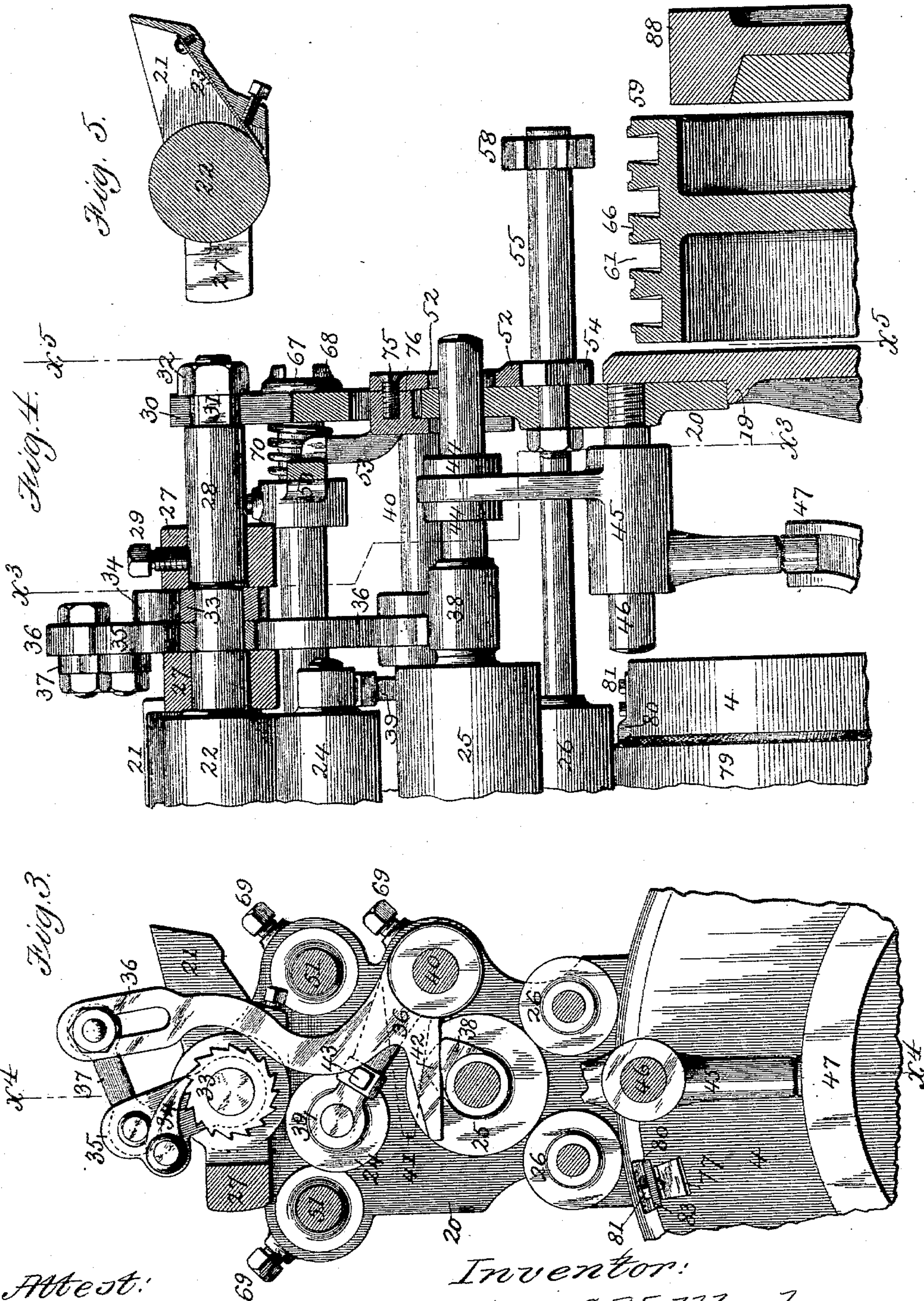
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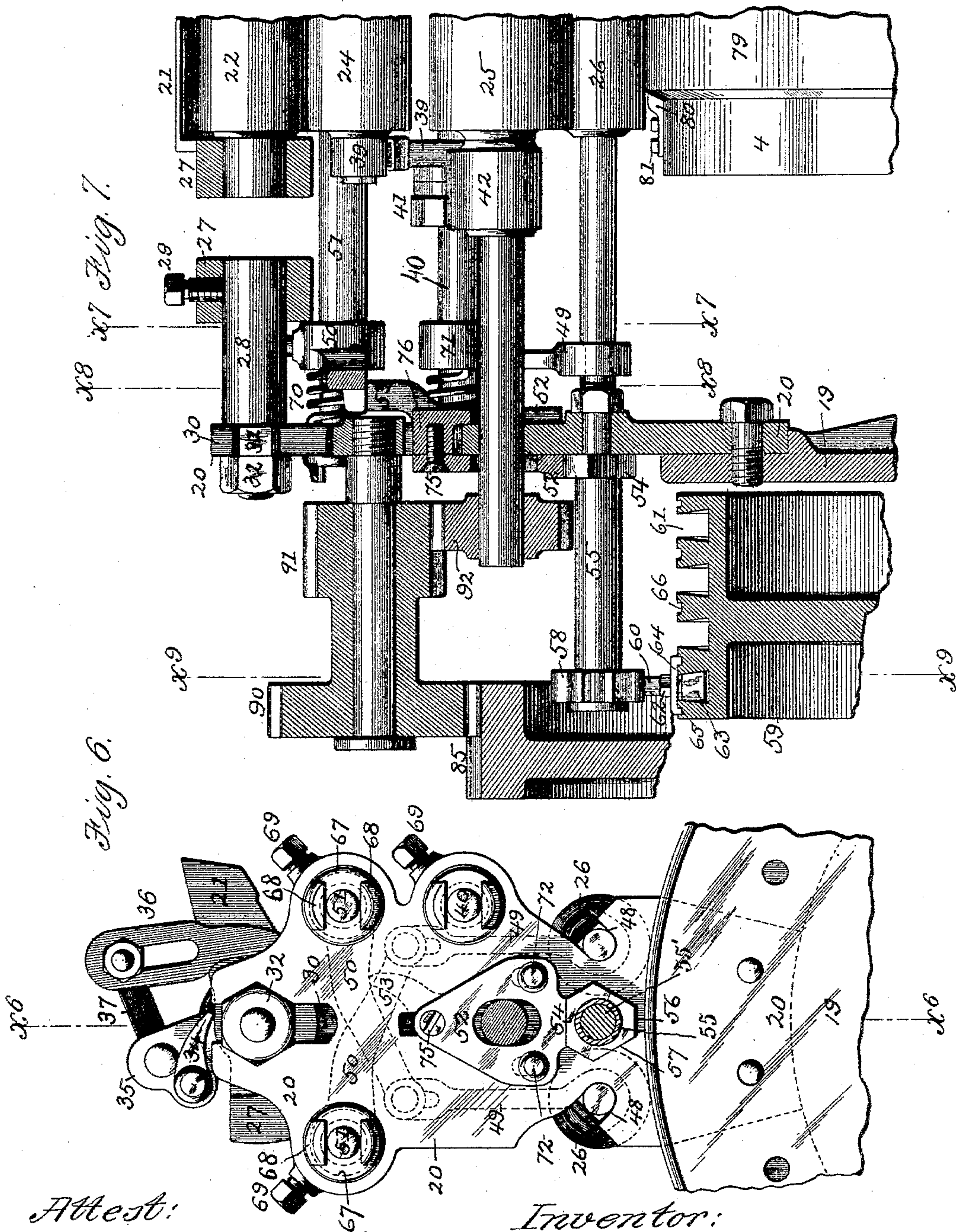
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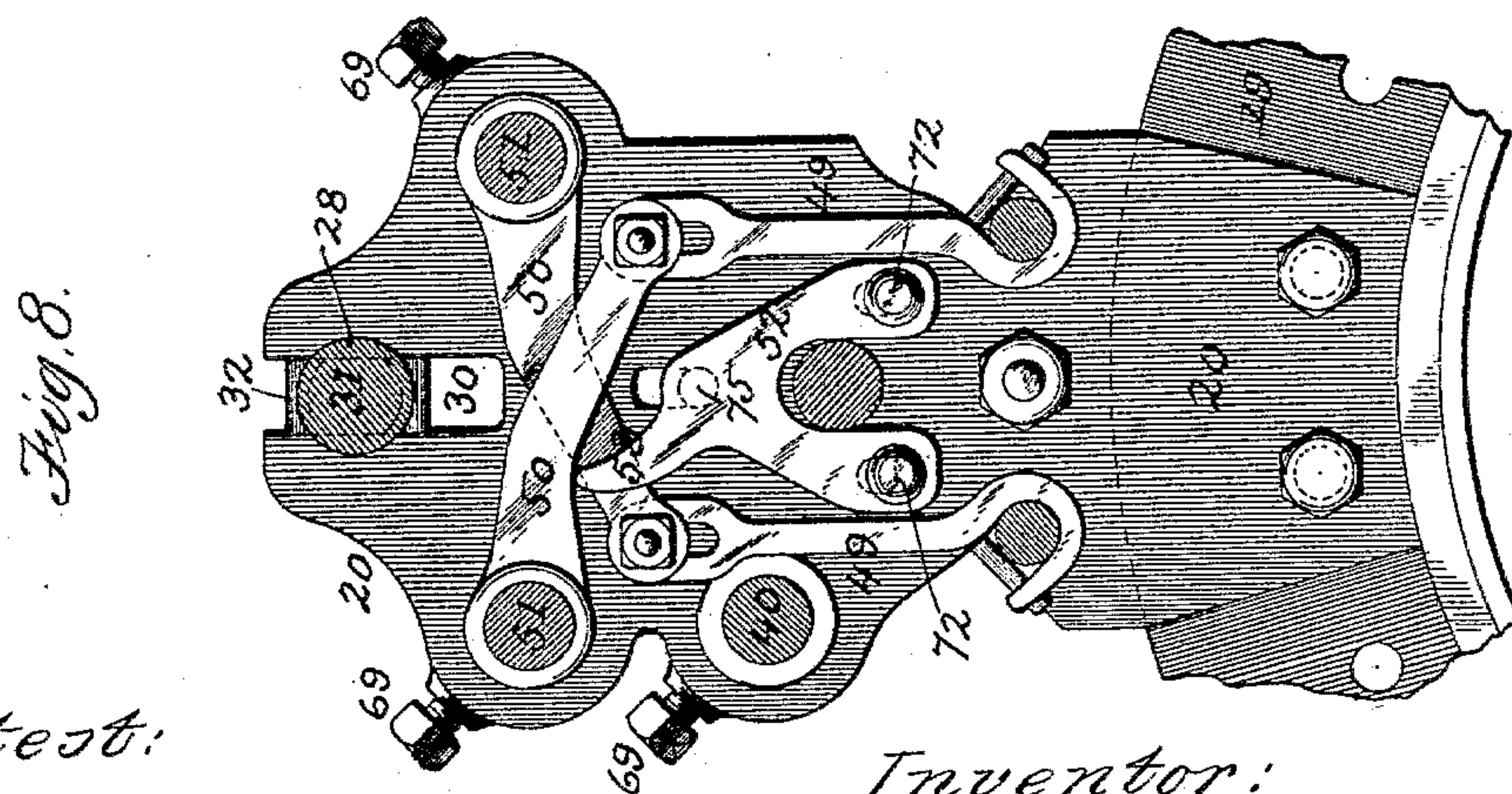
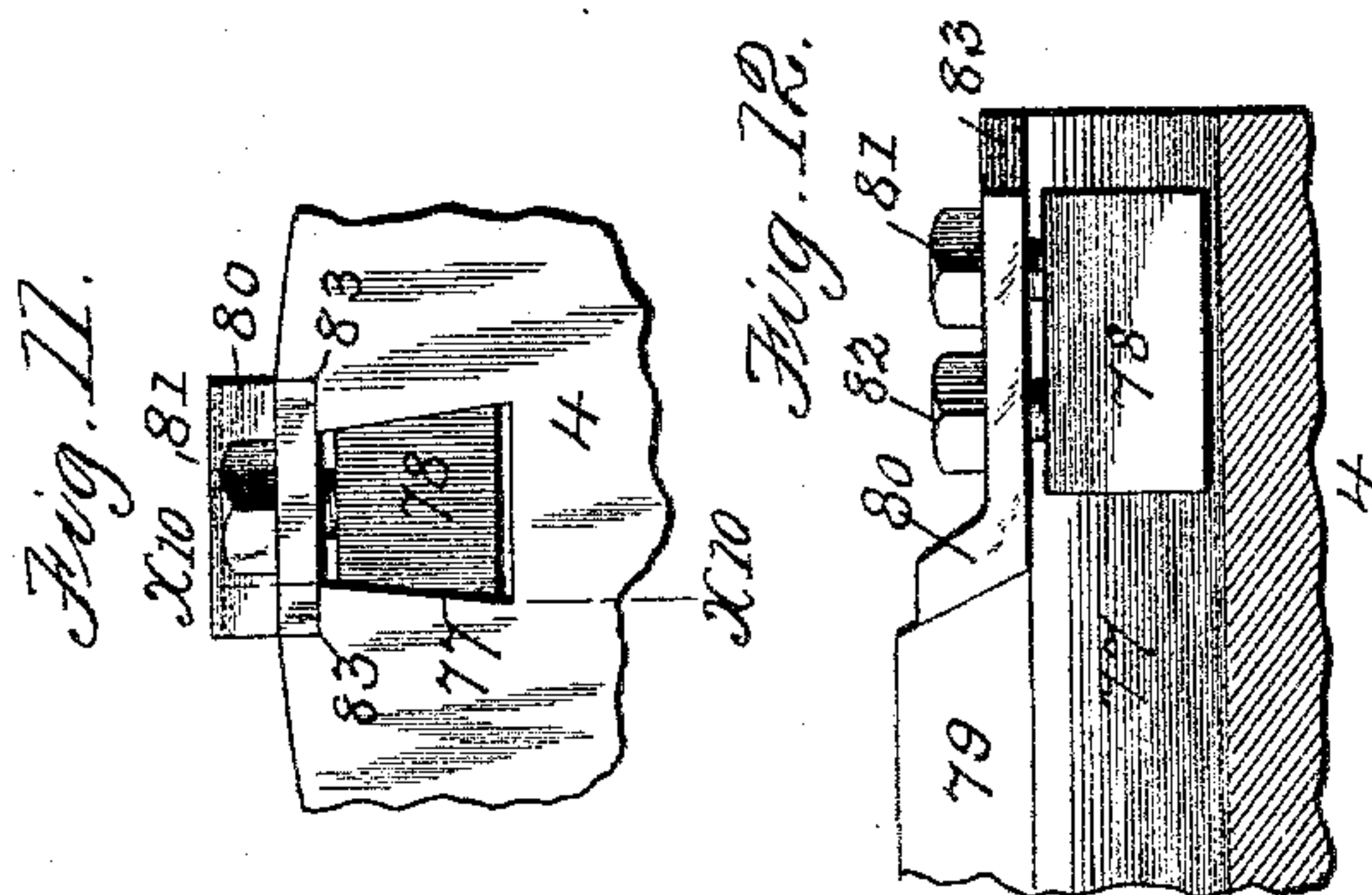
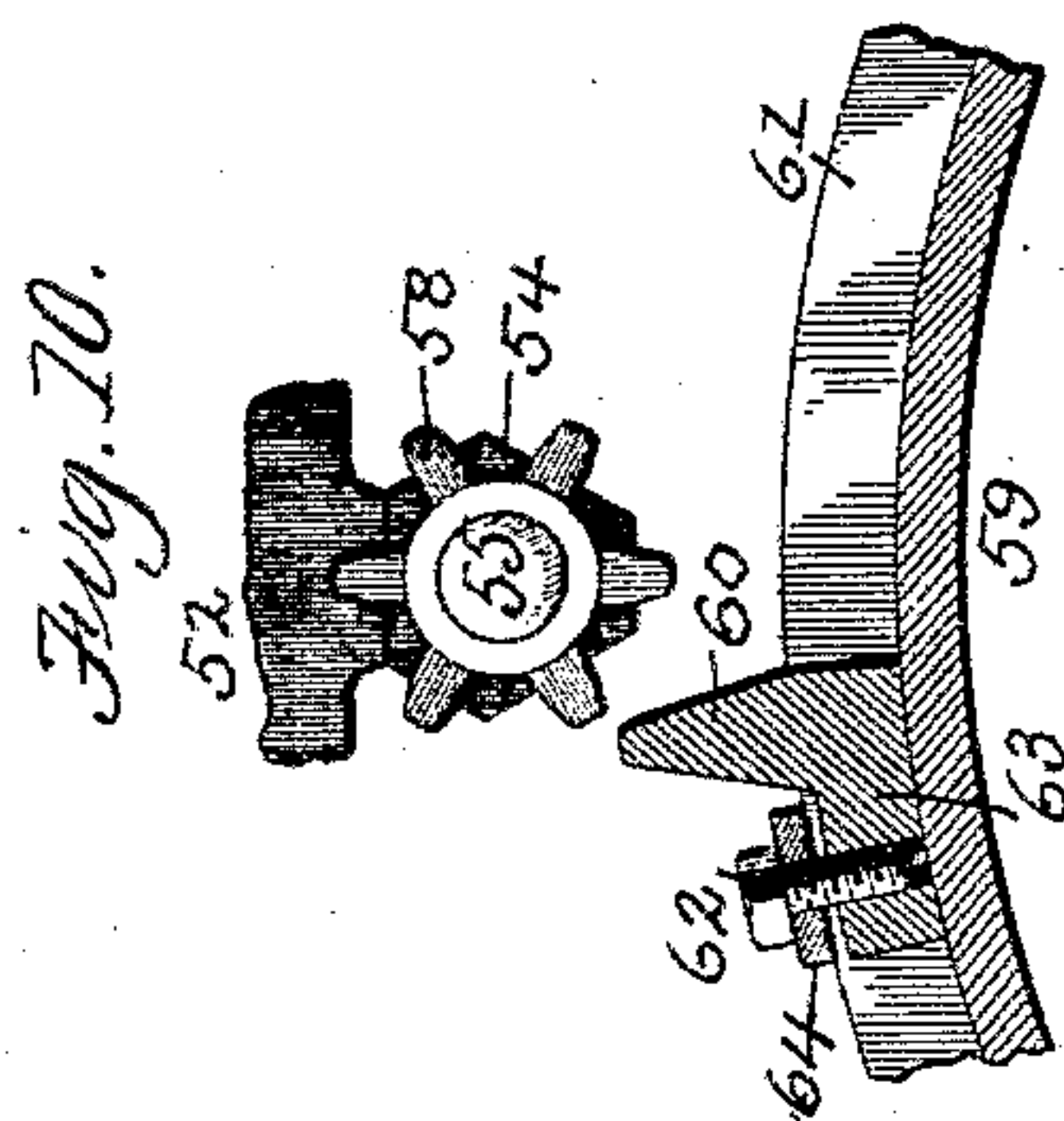
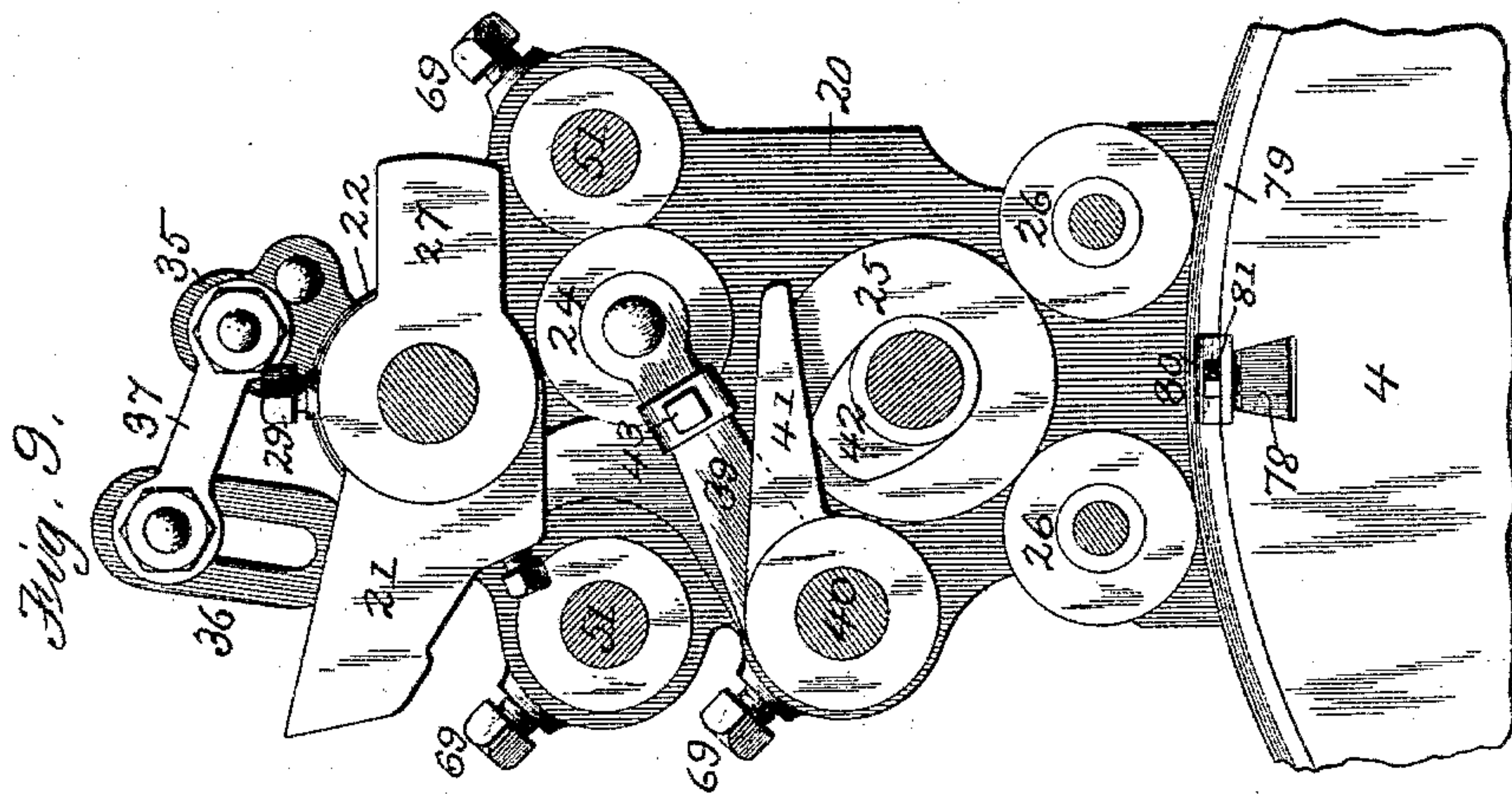
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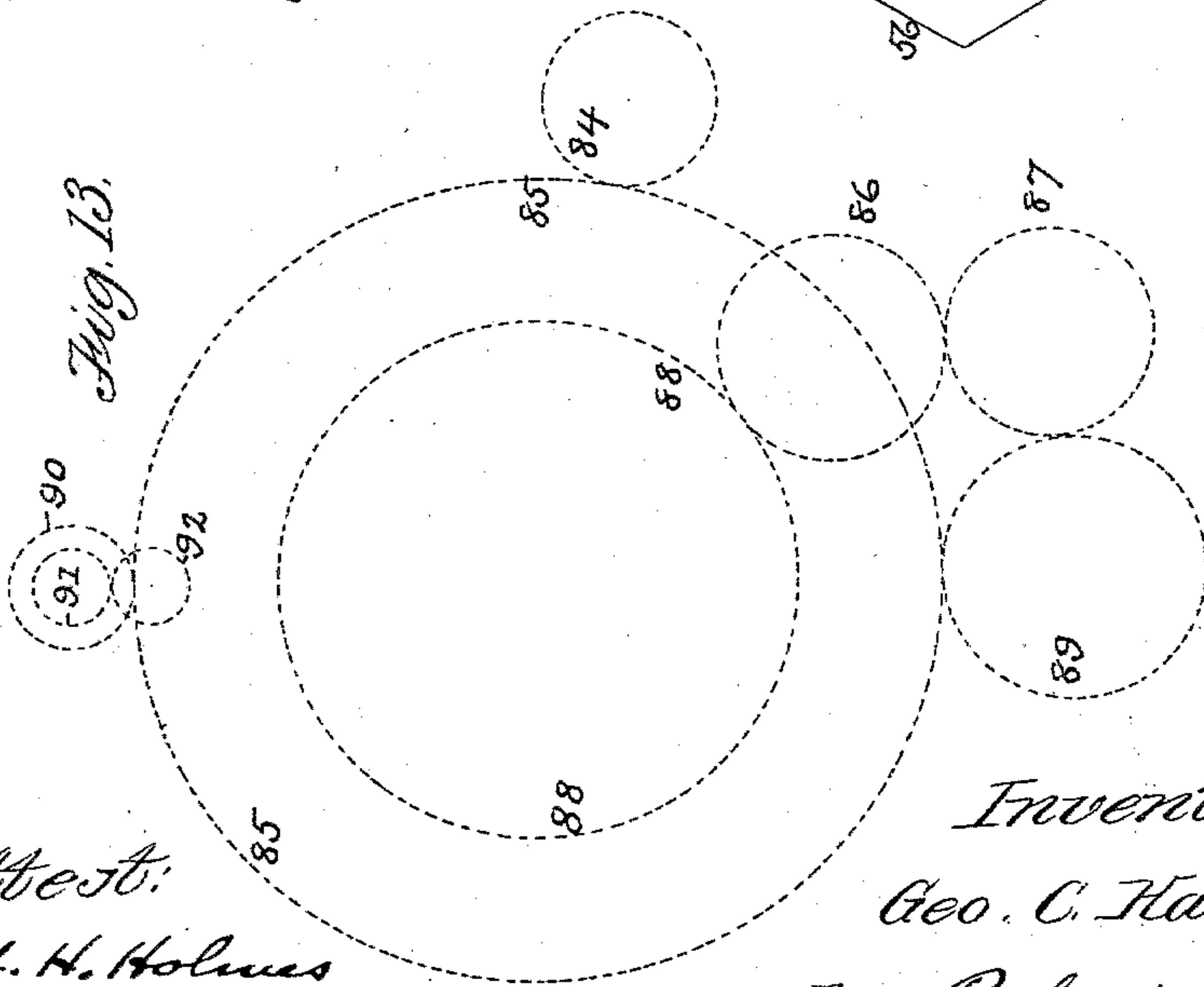
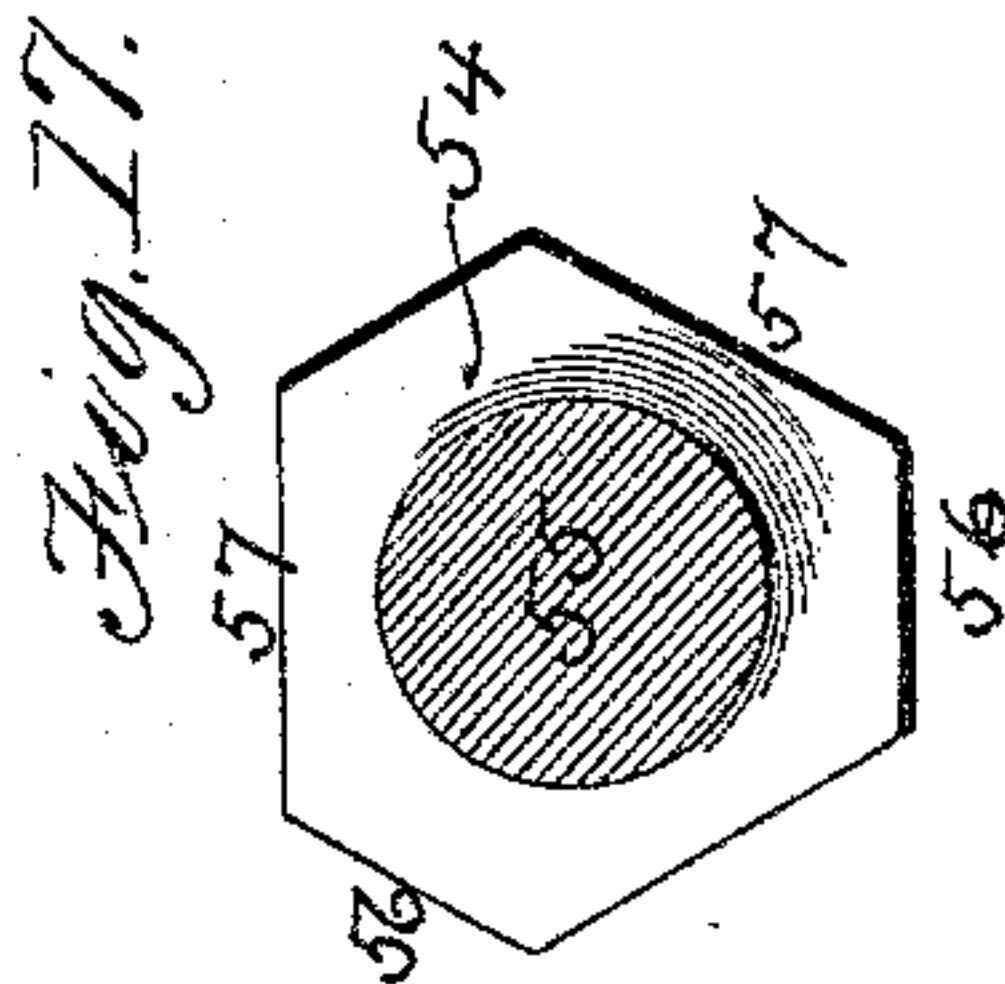
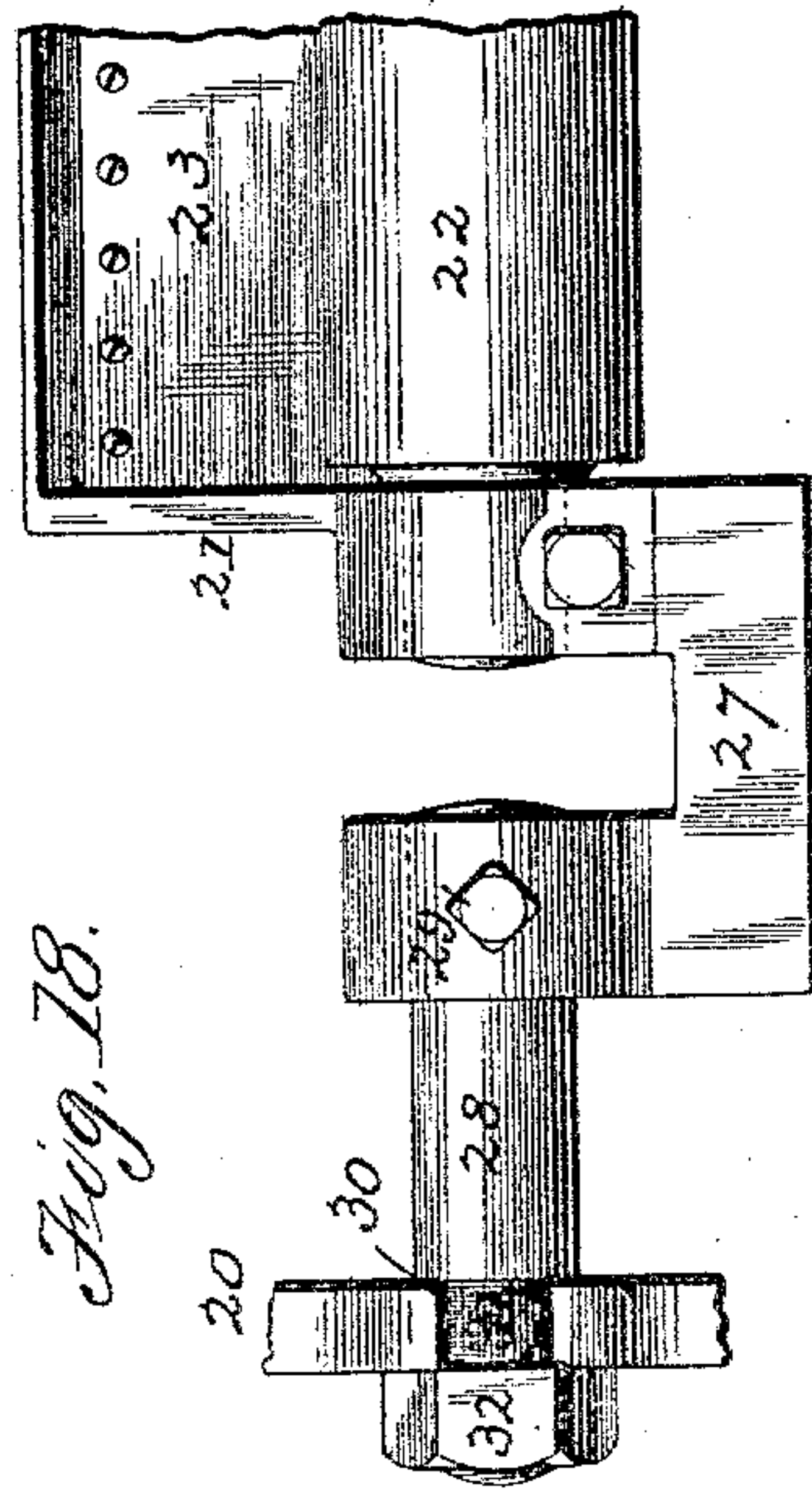
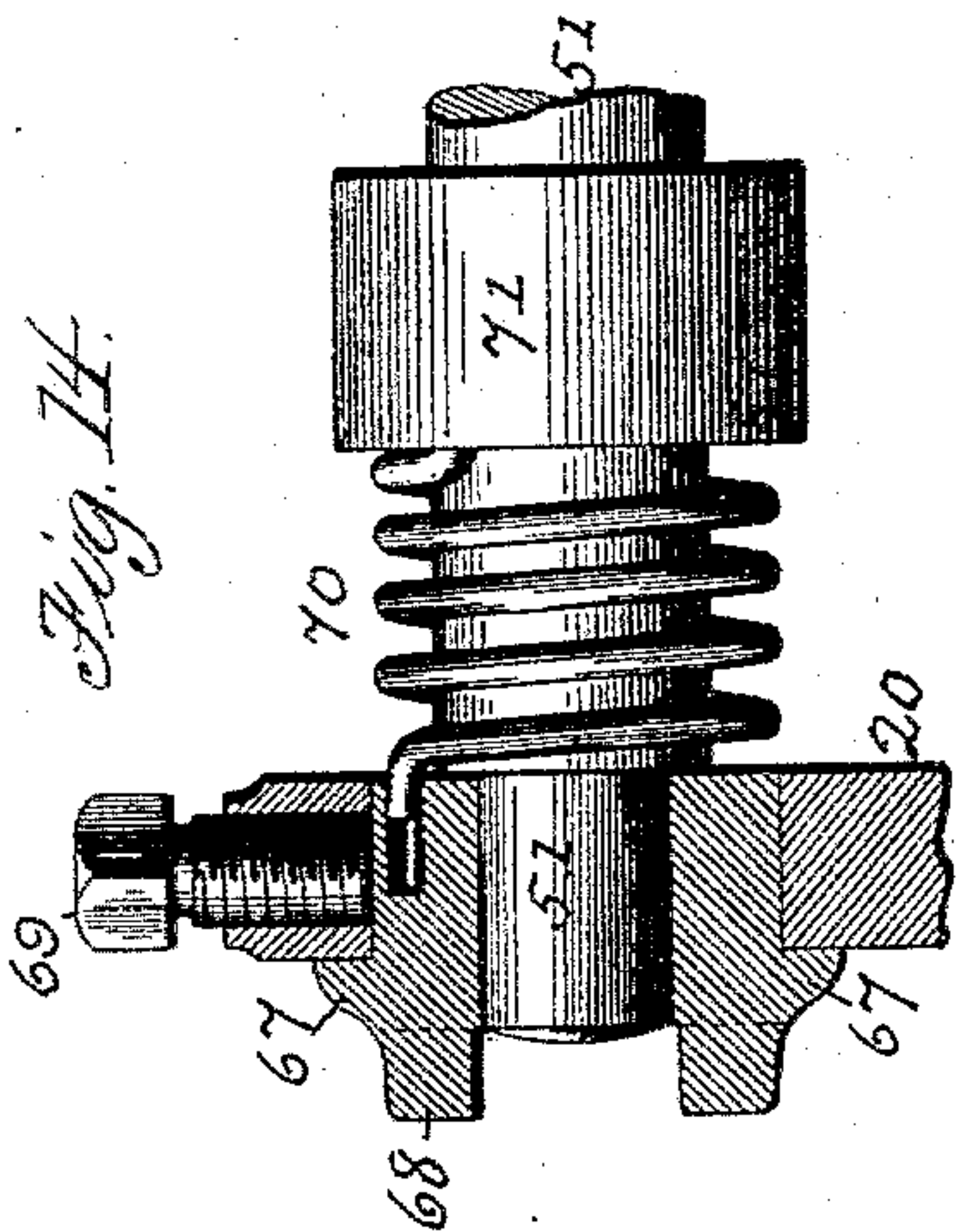
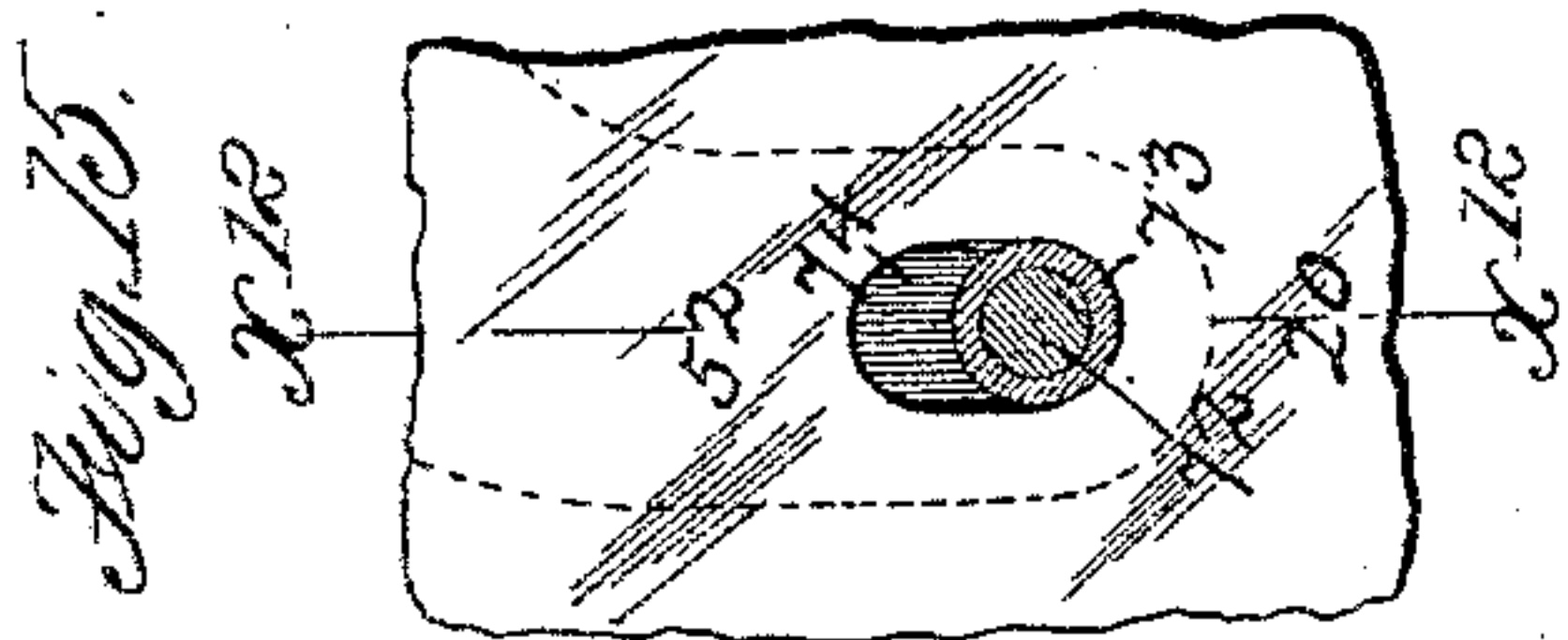
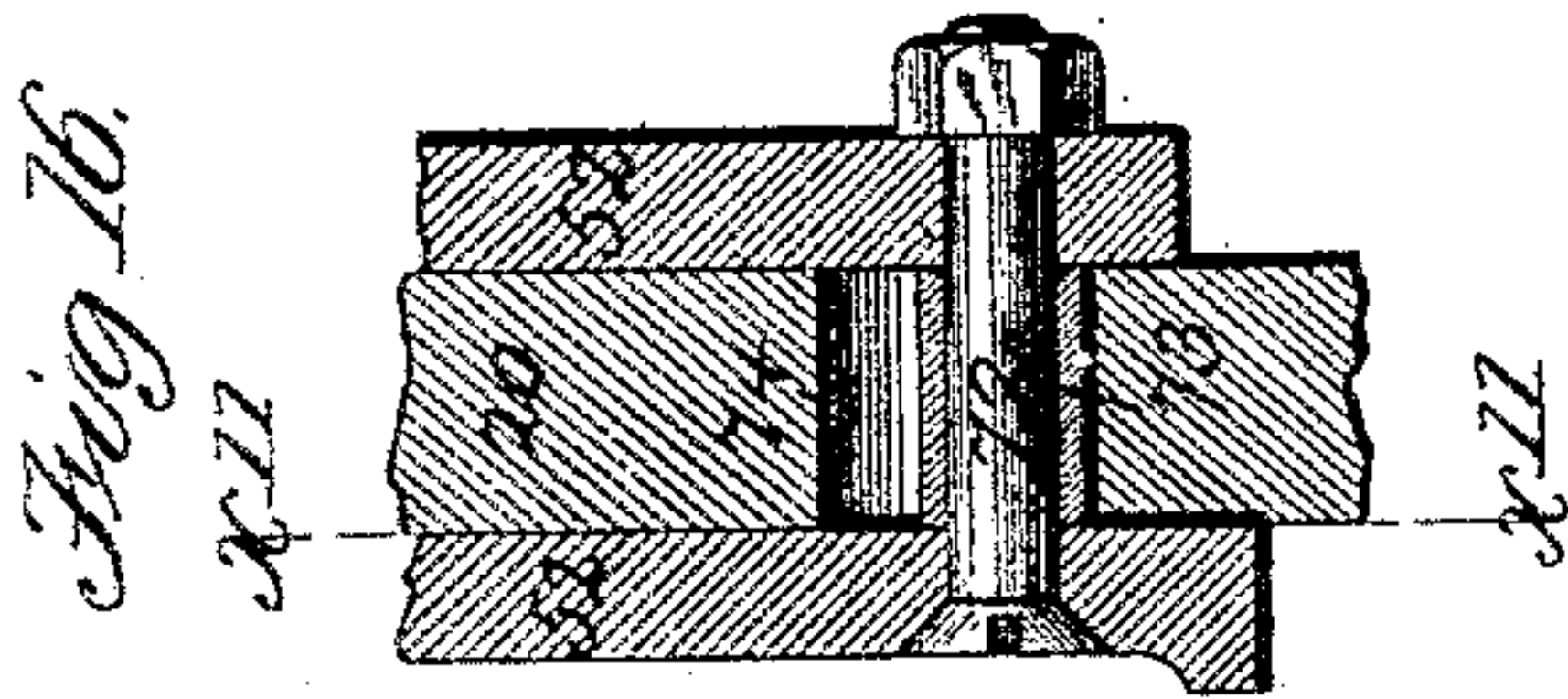
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Inventor:  
Geo. C. Halblaub  
by Robert Burns Atty.



# UNITED STATES PATENT OFFICE.

GEORGE C. HALBLAUB, OF CHICAGO, ILLINOIS.

## MACHINE FOR PRINTING ON WOOD.

SPECIFICATION forming part of Letters Patent No. 597,975, dated January 25, 1898.

Application filed August 17, 1896. Serial No. 603,081. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE C. HALBLAUB, 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 Machines for Printing on Wood; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to the rotary class of printing-presses for printing on wooden sign-boards, box-covers, and like articles, and more especially to that particular order of printing-machines in which the printing is effected in two or more colors simultaneously; and the present improvement has for its object, first, to provide, in connection with the series of colored-ink fountains of a printing-machine, a simple and efficient arrangement of the different inking-rollers that apply the inks to the cylindrical printing-plates and in which such inking-rollers are independently moved into a non-inking position or back into an inking position in an automatic and regulatable manner, so as to ink only a predetermined part of the revolving printing-plate with the special colored ink carried by any particular set of said inking-rollers, as will hereinafter more fully appear, and be more particularly pointed out in the claims; second, to provide a simple, durable, and convenient construction and arrangement of the operating mechanism of the different rolls that evenly distribute and spread the ink as it comes from the ink-fountain before applying such ink to the revolving printing-plate with the requisite delicacy and fullness of color, and which embodies advantageous features as follows: means for holding in a readily-detachable manner the ink-transferring roll that vibrates between the fountain-roll and the transversely-reciprocating ink-spreading roll to transfer a quantity of ink from one to the other at each revolution of the ink-spreading-roll and which admits of the ready and convenient removal of such ink-transferring roll for the purpose of cleaning, replacement, &c., an automatically operating mechanism for holding such transferring-roll in contact with the ink-fountain roll during the interval that such fountain-

roll has an intermittent part revolution imparted to it, after which the transfer-roll is lowered into contact with the transversely-reciprocating spreading-roll to transfer there- to the supply of ink just received from the fountain-roll, and a simple and durable arrangement of a single cam common to all the ink-fountains and by means of which the different transversely-reciprocating ink-spreading rolls of a series of colored-ink fountains are operated in common, all as will hereinafter more fully appear, and be more particularly pointed out in the claims; third, to provide a simple and effective means for holding the ink-fountain in place in an adjustable manner, so that the same, with the fountain-roll, will be capable of vertical adjustment with relation to the other parts of the inking mechanism and with which the horizontal position of the ink-fountain may be maintained regardless of the adjustment of the other parts to or from a vertical position, as will hereinafter more fully appear; fourth, to provide a strong and convenient construction and connection of the printing-machine table and the journal-boxes of the impression-cylinder, so as to admit of the ready detachment and replacement of such table when required, and, fifth, to provide, in connection with the plate-carrying cylinder, a simple and effective clamping mechanism for clamping or holding the printing plate or plates in position upon such cylinder, as will hereinafter more fully appear, and be more particularly pointed out in the claims. I attain such objects by the construction and arrangement of parts illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation, partly in section, on line  $xx$ , Fig. 2, of a printing-machine constructed in accordance with the present invention; Fig. 1<sup>a</sup>, a detail horizontal section at line  $x'x'$ , Fig. 1, illustrating the attachment of the press-table to the adjustable carrying-boxes of the impression-roll of the machine; Fig. 2, a transverse sectional elevation of the machine at line  $x^2x^2$ , Fig. 1; Fig. 3, an enlarged detail longitudinal sectional elevation at line  $x^3x^3$ , Fig. 4, illustrating the operating mechanism of one of the ink-fountains; Fig. 4, an enlarged detail transverse sectional elevation of the same at line  $x^4x^4$ , Fig. 3; Fig. 5, an enlarged sectional elevation of the ink-



cured on one end of the shaft of the fountain-roller 22, as indicated in Figs. 3 and 4.

The operating mechanism for the ink-fountain roller 22 consists of a pawl 34, engaging the aforesaid ratchet-wheel 33, which pawl is carried by a carrier-arm 35, journaled on the shaft of the fountain-roller with its free end connected in an adjustable manner to the operating cam-lever 36 by means of a link connection 37, as illustrated in Figs. 3 and 4. The lever 36 is of the bell-crank order, journaled on the shaft 40, its short arm being in the path of an operating-cam 38 on the shaft of the endwise-reciprocating ink-spreading roller 25, so that in the rotation of the roller 25 the above-described mechanism will impart an intermittent rotary movement to the fountain-roller 22. As shown in Fig. 4 of the drawings, the cam 38 will be of sufficient width or face as not to leave its operative engagement with the cam-lever 36 during the endwise movement of such cam, along with the spreading-roller 25, in its endwise movement.

As represented in Figs. 3, 4, 7, and 9 of the drawings, the oscillating transfer-roller 24 is journaled in the free ends of rock-arms 39, that are fixedly secured to a rock-shaft 40, journaled in the side housing 20, and have spring attachments, as hereinafter described, the tendency of which is to force the oscillating roller 24 into contact with the distributing-roller 25.

41 is a cam-arm on the rock-shaft 40, that projects into the path of an operating-cam 42 on the shaft of the endwise-reciprocating spreading-roller 25, so that in the rotation of the roller 25 the transfer-roller 24 will be oscillated up into contact with the fountain-roller 22 and then back into contact with the spreading-roller 25.

The cam 42 has a concentric outer surface of some length, as shown in Figs. 3 and 9, so that it will hold the oscillating transfer-roller 24 in contact with the fountain-roller for a space of time and usually during the intermittent rotation of such fountain-roller, so as to receive a sufficient quantity of ink, and to this end the cams 38 and 42 are so positioned with relation to each other as to cause the above results to take place.

In the present improvement the rock-arms 39 are made in sections, secured together by a socket-joint and set-screw 43, so as to admit of a ready detachment and a removal from the machine of the oscillating roller 24, with the journal portions or sections of such rock-arms attached to the shaft of such roller.

The endwise-reciprocating spreading-roller 25 is provided with an elongated shaft that has at each end a combined rotary and sliding movement in orifices in the side housings 20, as usual.

In the present invention one end of the shaft is provided with fixed collars 44, between which engages the upper yoke portion of a sliding head 45, that is adapted to slide upon

a guide-stud 46, secured to main frame 1, and which at its lower end is provided with a roller or other suitable head to engage in the groove of an operating-cam 47, secured to the supporting-shaft of the main printing-cylinder 4, and which cam is common to and actuates the operating-heads 45 of the whole series of color-inking mechanisms regardless of the number of such mechanisms used in connection with the printing-machine.

The plate-inking rollers 26, two in number in each color-inking mechanism, are in the present invention adapted to move away from the printing-plate carried by the main cylinder, so as not to be in inking contact therewith except at the required time; and to this end said rollers are arranged to move in an arc of a circle the center of which is the same as the spreading-roller 25, the shafts of the rollers 26 being so guided by open-sided curved slots 48 that permit of the ready removal of the said rollers when required.

49 are suspension-hooks, the lower hooked ends of which engage the shafts of the plate-inking rollers 26, while the upper ends thereof are connected to rock-arms 50 on the pair of rock-shafts 51, journaled in the side housings 20 of the inking mechanism.

Automatic movement is imparted the above-described rock shafts and arms by means of a vertically-sliding head 52 at each side of the mechanism that is provided with toe projections 53, that engage under a rock-arm of each respective rock-shaft to impart motion thereto. The vertically-sliding heads 52 are adapted to assume two different and distinct positions, to wit: an up position, in which the inking-rollers are drawn up out of inking contact with the circular printing-plate, and a down position, in which said rollers are in inking contact with the circular printing-plate. These two positions of the vertically-sliding heads are attained by the cams 54, turning with their tubular shafts 55 upon fixed studs 55', attached to the respective side housing 20. The cams will have alternate high and low spots or surfaces 56 and 57 around their peripheries, usually six in number, as shown. With this construction when the lower end of the sliding head 52 is at rest upon the "low" portion 57 of the cam the inking-rollers 26 are in inking contact with the printing-plate of the main cylinder, and when such lower end of the sliding head is at rest upon the high portion 56 of the cam such inking-rollers are in a non-inking position with relation to said circular printing-plate. Intermittent and automatic movement is imparted to the cam to turn the same to attain the above results by mechanism as follows:

58 are spur-wheels secured to the tubular shafts 55 of the cams 54 and having the same number of spurs or teeth as there are faces on the said cams.

59 are a pair of drums arranged at each side of the machine upon the shaft of the main



printing-cylinder 4 and adapted to turn therewith. 60 are one or more spur projections secured to the periphery of said drums and adapted to engage the sprocket-wheels 58 to turn the cams 54 from a high to a low position, or vice versa, and these projections are adapted to be adjusted circumferentially, so as to operate the inking-rollers in the manner required. In order to readily effect such circumferential adjustment of the spur projections on the periphery of the drums 59, as well as actuate each cam independently by its individual spur projection, the following arrangement of parts are provided: 61 are a series of undercut circumferential grooves formed in the periphery of said drums, equal in number to the number of color-inking mechanisms upon the machine. In these grooves the individual spur projections 60 are adjustably clamped in place by means of a clamping-screw 62, screwing into the wedge-shaped body portion 63 of the spur projection and adapted to draw the same outward against the undercut portions of the grooves 61 to clamp or bind said body portion firmly in place. 64 is a bridge-piece spanning said groove 61 and forming a bearing for the head of the clamping-screw 62.

In the construction shown in Fig. 7 the bridge-piece 64 is formed with downturned lips 65, that are adapted to enter circumferential recesses 66 in the periphery of the drum to tie the metal ribs left between the grooves 61 together against a tendency to spread laterally under the pressure exerted by the body portion of the spur projection as it is clamped in place.

Each of the circumferential grooves 61 is individual to its own color-inking mechanism, and accordingly the spur gear or wheel 58 of each particular color-inking mechanism will be arranged in line with its particular groove 61, so as to be actuated by the spur projection 60, carried thereon, and not be effected by any of the spur projections in the other grooves.

With the above-described mechanism any desired number of the operating spur projections 60 may be used in any one containing-groove 61, so as to throw the inking mechanism from a dormant to an active position one or more times during a revolution of the printing-cylinder.

In my preferred construction as illustrated in the drawings each of the plate-inking rollers 26 has independent connection with its individual rock-shaft 51, so that they will operate independent of each other, which is a feature of advantage in some classes of color-printing in which the colored inks must alternate frequently in the printing operation. The scope of my invention, however, embraces the operation of such inking-rollers in unison, as well as the omission of one of the same and the inking of the printing-plate by the single remaining plate-inking roller.

The rock-shafts 40 and 51, heretofore de-

scribed, are journaled in the side housings 20 and are provided with adjustable spring connections as follows: 67 are flanged bearing-bushings turning in said housings and having a central bore that forms a bearing for the aforesaid rock-shafts as well as lateral projections 68, by which they are adjusted in a rotary manner. (See Fig. 14.) 69 is a radial set-screw passing in through the housing to bear upon the said bushing and lock it at the required adjustment. 70 is a coiled spring encircling the shaft 51, one end being secured to the adjustable bushing 67 and the other end to a collar 71 on the shaft 51. With the above construction the tension of the springs 70 can be readily adjusted, so as to regulate the force or tendency of the shaft in the required direction.

The vertically-moving heads 52 will usually consist of duplicate pieces arranged at opposite sides of the housing 20 and secured together at bottom by connecting-screws 72, carrying thimbles 73, that bear in the elongated guide-slots 74 in the housing 20, while the top part is connected together by a connecting-screw 75, passing into the guide-lug 76, moving in an elongated guide-slot in the housing 20, as illustrated in Figs. 4, 7, 8, 16, and 15.

As usual in the present class of printing-machines the printing-cylinder 4 will be formed with a series of transversely-extending undercut grooves 77 in its periphery to receive the clamps 78, by which the curved printing-plates 79 are secured in place upon the periphery of the printing-cylinder. In the present invention these clamps will consist of a body portion fitting the undercut grooves 77 and a top plate-clamping portion 80, adapted to engage the beveled edge of the printing-plate, as shown in Fig. 12, and having attachment to the body portion by means of duplicate attaching-bolts 81 82, the outermost one of which is adapted to be screwed up first to secure the clamp in position and the inner one to be then screwed up, so as to firmly clamp the printing-plate in proper position upon the printing-cylinder. Usually the main portion of the clamping-plate 80 will fit within a surface groove or undercut 83 in the periphery of the printing-cylinder, as shown in Figs. 11 and 12.

Motion is communicated from the driving-shaft 8 of the machine by means of a pinion 84 thereon, that gears with and drives the gear-wheel 85 on the shaft of the main printing-cylinder 4.

The impression-cylinder 6 is driven by the intermediate wheels 86 and 87 gearing with the secondary gear-wheel 88 of the printing-cylinder 4 and with the gear-wheel 89 on the shaft of the impression-cylinder 6, the arrangement being the usual one for admitting of a vertical adjustment of the impression-cylinder in the practical use of the printing-machine.

The endwise-reciprocating ink-spreading roller 25 receives its rotary motion from the



gear-wheel 85 on the shaft 3 of the main printing-cylinder through the intermediate or idler gears 90 and 91 turning on a journal-stud fixed on the housing 20 and a pinion 92 on the shaft of said spreading-roller. The gear-wheels 90 and 91 are integrally or rigidly connected together, and the gear 90 meshes with and is driven by the gear-wheel 85, while the gear-wheel 91 gears with and drives the pinion 92 of the spreading-roller shaft, as illustrated in Figs. 2, 7, and 13.

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

1. In a color-printing machine, the combination with the rotary printing-cylinder, and the supporting-housing therefor, of a series of independent plate-inking rollers, adapted to have movement to and from the printing-plate, independent operating mechanisms on the press-housing adapted to move said rollers into and out of inking position, and an actuating mechanism common to such operating mechanisms, arranged to revolve with the printing-cylinder, and provided with circularly-adjustable means for intermittently actuating the said series of operating mechanisms, substantially as set forth.

2. In a color-printing machine, the combination with the rotary printing-cylinder, of a series of independent plate-inking rollers, adapted to have movement to and from the printing-plate, independent cam mechanisms for moving said rollers, each comprising a rock-shaft carrying a pair of rock-arms, suspension-hooks connecting the inking-roller to the rock-arms, a vertically-moving head having operative connection with the rock-shaft, and a cam actuating said head, and an operating mechanism revolving with the printing-cylinder, and adapted to intermittently move the operating-cams of the series of inking-rollers, substantially as set forth.

3. In a color-printing machine the combination with the rotary printing-cylinder, of a series of independent plate-inking rollers adapted to have movement to and from the printing-plate, independent mechanism for moving said rollers, each comprising a pair of rock-shafts carrying pairs of rock-arms, suspension-hooks connecting the inking-rollers to the rock-arms, vertically-moving heads having operative connection with the rock-shafts, and cams actuating said heads, operating mechanisms revolving with the printing-cylinder and adapted to intermittently and independently move the operating-cams, of the series of inking-rollers, substantially as set forth.

4. In a color-printing machine, the combination with the rotary printing-cylinder, of a series of independent plate-inking rollers adapted to have movement to and from the printing-plate, independent cam mechanisms for moving said rollers, and an operating mechanism revolving with the printing-cylinder, and common to the series of such cam

mechanisms, such operating mechanism comprising a drum revolving with the printing-cylinder, and carrying a series of operating projections, that intermittently actuate the cam mechanisms, substantially as set forth.

5. In a color-printing machine the combination with the rotary printing-cylinder, of a series of independent plate-inking rollers adapted to have movement to and from the printing-plate, independent cam mechanisms for moving said rollers, each comprising a rock-shaft carrying a pair of rock-arms, suspension-hooks connecting the inking-rollers to the rock-arms, a vertically-moving head having operative connection with the rock-shaft, and a cam actuating said head, and an operating mechanism revolving with the printing-cylinder and adapted to intermittently move the operating-cams of the series of inking-rollers, such operating mechanism comprising a drum revolving with the printing-cylinder, and carrying a series of operating projections that intermittently actuate the cam mechanisms, substantially as set forth.

6. In a color-printing machine, the combination with the rotary printing-cylinder of a series of independent plate-inking rollers adapted to have movement to and from the printing-plate, independent mechanisms for moving said rollers, each comprising a pair of rock-shafts carrying pairs of rock-arms, suspension-hooks connecting the inking-rollers to the rock-arms, vertically-moving heads having operative connection with the rock-shafts, and cams actuating said heads, and an operating mechanism revolving with the printing-cylinder and adapted to intermittently move the operating-cams of the series of inking-rollers, such operating mechanism comprising a pair of drums revolving with the printing-cylinder, and carrying a series of operating spur projections, each of which is adapted to independently and intermittently actuate its individual cam mechanism, substantially as set forth.

7. In a color-printing machine, the combination with the rotary printing-cylinder, of a series of independent plate-inking rollers adapted to have movement to and from the printing-plate, independent cam mechanisms for moving said rollers, and an operating mechanism revolving with the printing-cylinder and common to the series of such cam mechanisms, such operating mechanism comprising a drum revolving with the printing-cylinder, and provided with a series of peripheral grooves, and projections arranged therein, that are adapted to intermittently actuate the cam mechanisms, substantially as set forth.

8. In a color-printing machine, the combination with the rotary printing-cylinder, of a series of independent plate-inking rollers, adapted to have movement to and from the printing-plate, independent cam mechanisms for moving said rollers, each comprising a rock-shaft carrying a pair of rock-arms, sus-



pension-hooks connecting the inking-rollers to the rock-arms, a vertically-moving head having operative connection with the rock-shaft, and a cam actuating said head, and an operating mechanism revolving with the printing-cylinder, and comprising a drum provided with a series of peripheral grooves and projections arranged therein, that are adapted to intermittently actuate the cam mechanism, substantially as set forth.

9. In a color-printing machine the combination with the rotary printing-cylinder, of a series of independent plate-inking rollers adapted to have movement to and from the printing-plate, independent mechanisms for moving said rollers, each comprising a pair of rock-shafts carrying pairs of rock-arms, suspension-hooks connecting the inking-rollers to the rock-arms, vertically-moving heads having operative connection with the rock-shafts, and cams actuating said heads, and an operating mechanism revolving with the printing-cylinder and adapted to intermittently move the operating-cams of the series of inking-rollers, such operating mechanism comprising drums provided with a series of peripheral grooves and projections, each of which is adapted to independently and intermittently actuate its individual cam mechanism, substantially as set forth.

10. In a color-printing machine, the combination with the rotary printing-cylinder, of a series of independent plate-inking rollers adapted to have movement to and from the printing-plate, independent cam mechanisms for moving said rollers, each comprising a rock-shaft carrying a pair of rock-arms, suspension-hooks connecting the inking-rollers to the rock-arms, a vertically-moving head having operative connection with the rock-shaft, a cam engaging said head, and a sprocket-wheel on the cam-shaft, and an operating mechanism revolving with the printing-cylinder, and carrying means by which the sprocket-wheels are intermittently turned, substantially as set forth.

11. In a color-printing machine, the combination with the rotary printing-cylinder, of a series of independent plate-inking rollers adapted to have movement to and from the printing-plate, independent mechanisms for moving said rollers, each comprising a pair of rock-shafts carrying pairs of rock-arms, suspension-hooks connecting the inking-rollers to the rock-arms, vertically-moving heads having operative connection with the rock-shafts, cams engaging said heads and sprocket-wheels on the cam-shafts, and an operating mechanism revolving with the printing-cylinder, and carrying individual means by which the sprocket-wheels are independently and intermittently turned, substantially as set forth.

12. In a color-printing machine, the combination with the rotary printing-cylinder, of a series of independent plate-inking rollers adapted to have movement to and from the

printing-plate, independent cam mechanisms for moving said rollers the cam-shafts of which carry sprocket-wheels, and a main operating mechanism revolving with the printing-cylinder, such operating mechanism comprising a revolving drum carrying a series of spur projections, that intermittently actuate the sprocket-wheels of the cam mechanisms, substantially as set forth.

13. In a color-printing machine, the combination with the rotary printing-cylinder, of a series of independent plate-inking rollers adapted to have movement to and from the printing-plate, independent cam mechanisms for moving said rollers each comprising a rock-shaft carrying a pair of rock-arms, suspension-hooks connecting the inking-rollers to the rock-arms, a vertically-moving head having operative connection with the rock-shaft, a cam actuating said head, and a sprocket-wheel on the cam-shaft, and a main operating mechanism revolving with the printing-cylinder such operating mechanism comprising a revolving drum carrying a series of spur projections that intermittently actuate the sprocket-wheels of the cam mechanisms, substantially as set forth.

14. In a color-printing machine, the combination with the rotary printing-cylinder of a series of independent plate-inking rollers adapted to have movement to and from the printing-plate, independent mechanisms for moving said rollers, each comprising a pair of rock-shafts, carrying pairs of rock-arms, suspension-hooks connecting the inking-rollers to the rock-arms, vertically-moving heads having operative connection with the rock-shafts, cams actuating said heads, and sprocket-wheels on the cam-shafts, and a main operating mechanism revolving with the printing-cylinder, such operating mechanism comprising revolving drums carrying a series of individual spur projections, that independently and intermittently actuate the sprocket-wheels of the cam mechanisms, substantially as set forth.

15. In a color-printing machine, the combination with the rotary printing-cylinder, of a series of independent plate-inking rollers adapted to have movement to and from the printing-plate, independent cam mechanisms for moving said rollers, the cam-shafts of which carry sprocket-wheels, and a main operating mechanism revolving with the printing-cylinder, comprising a revolving drum provided with a series of peripheral grooves and spur projections arranged therein, and which are adapted to intermittently actuate the sprocket-wheels of the cam mechanisms, substantially as set forth.

16. In a color-printing machine, the combination with the rotary printing-cylinder of a series of independent plate-inking rollers, adapted to have movement to and from the printing-plate, independent cam mechanisms for moving said rollers, each comprising a rock-shaft carrying a pair of rock-arms, sus-



pension-hooks connecting the inking-rollers to the rock-arms, a vertically-moving head having operative connection with the rock-shaft, a cam actuating said head, and a sprocket-wheel on the cam-shaft, and a main operating mechanism revolving with the printing-cylinder, and comprising a revolving drum provided with a series of peripheral grooves and spur projections arranged therein, and which are adapted to intermittently actuate the sprocket-wheels of the cam mechanisms, substantially as set forth.

17. In a color-printing machine, the combination with the rotary printing-cylinder, of a series of independent plate-inking rollers adapted to have movement to and from the printing-plate, independent mechanisms for moving said rollers, and comprising a pair of rock-shafts carrying pairs of rock-arms, suspension-hooks connecting the inking-rollers to the rock-arms, vertically-moving heads having operative connection with the rock-shafts, cams actuating said heads, and sprocket-wheels upon the cam-shafts, and a main operating mechanism revolving with the printing-cylinder, and comprising revolving drums provided with peripheral grooves and spur projections arranged therein, and which are adapted to intermittently actuate the sprocket-wheels of the cam mechanisms, substantially as set forth.

18. In a color-printing machine, the combination of the plate-inking roller, and its supporting mechanism, arranged between the side housings 20, the operating-cam mechanism therefor arranged on the outside of said housings, the side housings 20 having elongated guide-slots, and the vertically-moving heads 52 formed in sections, arranged at opposite sides of the housing and connected together, so as to be guided by the guide-slots in the housings, substantially as set forth.

19. In an inking mechanism for printing-machines the combination with the fountain-roller, oscillating transfer-roller and endwise-reciprocating spreading-roller, of the cams 38 and 42, on the shaft of the spreading-roller, the bell-crank lever 36, pivoted to a transverse shaft of the housing 20, adjustable link connection 37, pawl 34, carrier 35, and ratchet-wheel 33 on the shaft of the fountain-roller, cam-arm 41, rock-shaft 40, and arms 39 carrying the oscillating transfer-roller, substantially as set forth.

20. In a color-printing machine, the combination with the series of independent color-inking mechanisms, and their different end-

wise-reciprocating spreading-rollers, of an operating-cam 47 on the shaft of the main printing-cylinder, and sliding cross-heads 45, connecting the different rollers to the cam, said cam being common to the series of inking mechanisms.

21. In a printing-machine, the combination of the side housings of the inking mechanism, provided with guide-slots 30, the cylindrical studs 28, having non-circular portions fitting the slots 30, attaching-nut 32, the ink-pan 21, having yoke extensions 27, engaging the studs 28, and set-screws 29 for attaching the same together in circularly-adjustable manner, substantially as set forth.

22. In a printing-machine, the combination with the vertically-adjustable impression-cylinder 6, of the journal-boxes 5, provided with bracket extensions 17, and the longitudinal side members of the table 9, attached to said bracket extensions in a rigid and substantial manner by a vertical series of bolts, substantially as set forth.

23. In a printing-machine the combination with the vertically-adjustable impression-cylinder 6 of the journal-boxes 5 formed with bracket extensions 17, abutment-ribs 18, and the longitudinal side members of the table 9, attached to said extensions, substantially as set forth.

24. In a printing-machine the combination with a rock-shaft of the inking mechanism, of the collar 71 on said shaft, the bushing 67 fitting a bore in the side housing, set-screw 69, and spring 70, surrounding the shaft with its ends attached respectively to the collar and to the bushing, substantially as set forth.

25. In a printing-machine the combination with a rock-shaft of the inking mechanism of the collar 71 on said shaft, the bushing 67 fitting a bore in the side housing and provided with lugs 68, set-screw 29, and spring 70, surrounding the shaft with its ends attached respectively to the collar and to the bushing, substantially as set forth.

26. In a printing-machine, the combination of the drum 59 having circular grooves 66, and undercut grooves 61, the sprocket projection having a wedge-shaped body portion 63, attaching-bolt 62, and bridge-piece 64 having downturned lips 65, substantially as set forth.

In testimony whereof witness my hand this 12th day of August, 1896.

GEO. C. HALBLAUB.

In presence of—

L. RUST,

ROBERT BURNS.

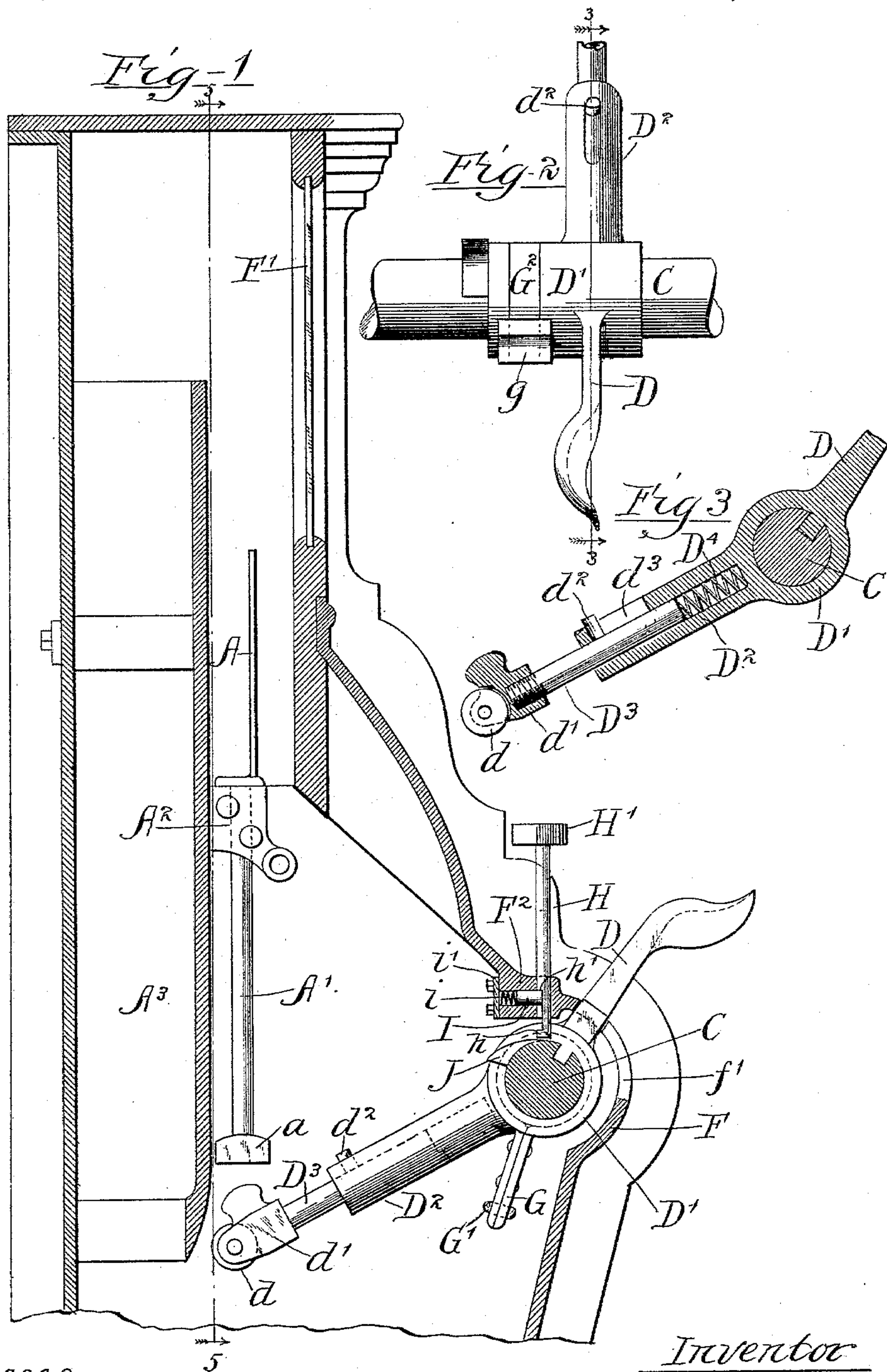






2 Sheets—Sheet 1.

Patented Jan. 25, 1898.



Charles S. Mason.

Inventor  
Adolph C Hansen

By Poole & Brown  
his Att'ys.