

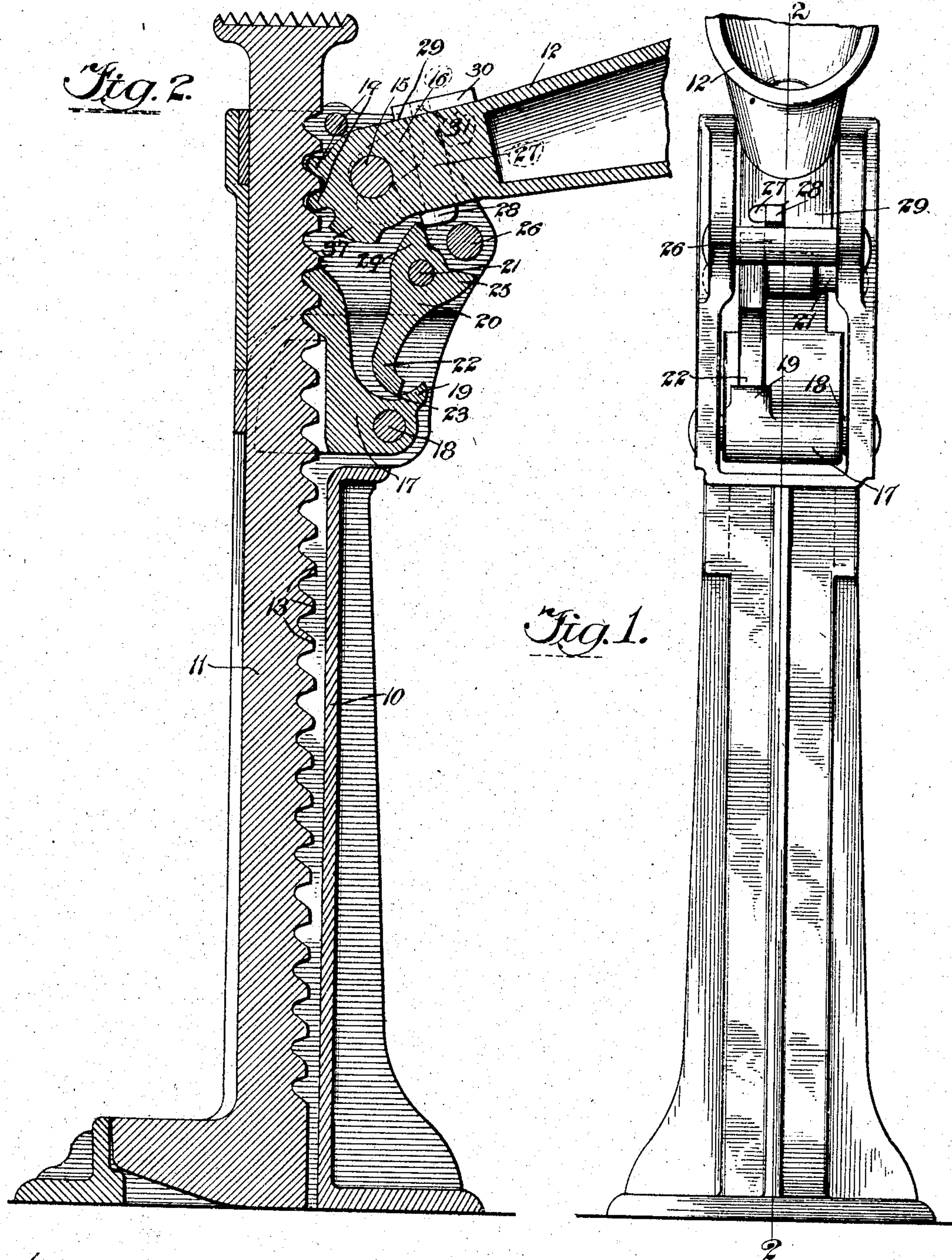
No. 781,147.

PATENTED JAN. 31, 1905.

F. I. JOYCE.  
LIFTING JACK.

APPLICATION FILED MAY 22, 1903.

3 SHEETS—SHEET 1.



Witnesses  
Robert H. Wein  
Edward A. Einfeldt

Inventor  
Frank I. Joyce,  
by Donald Adams, Attorney



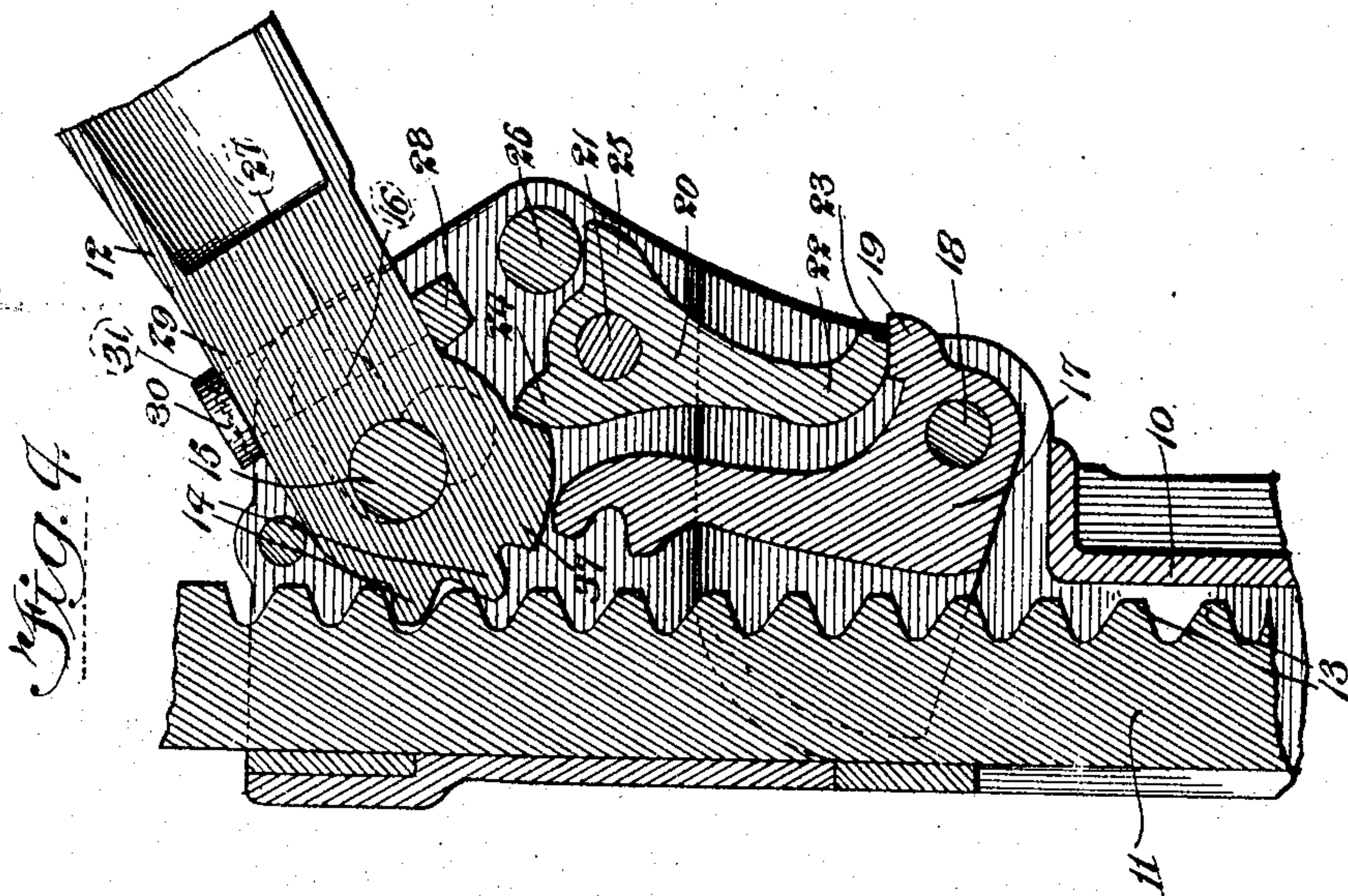
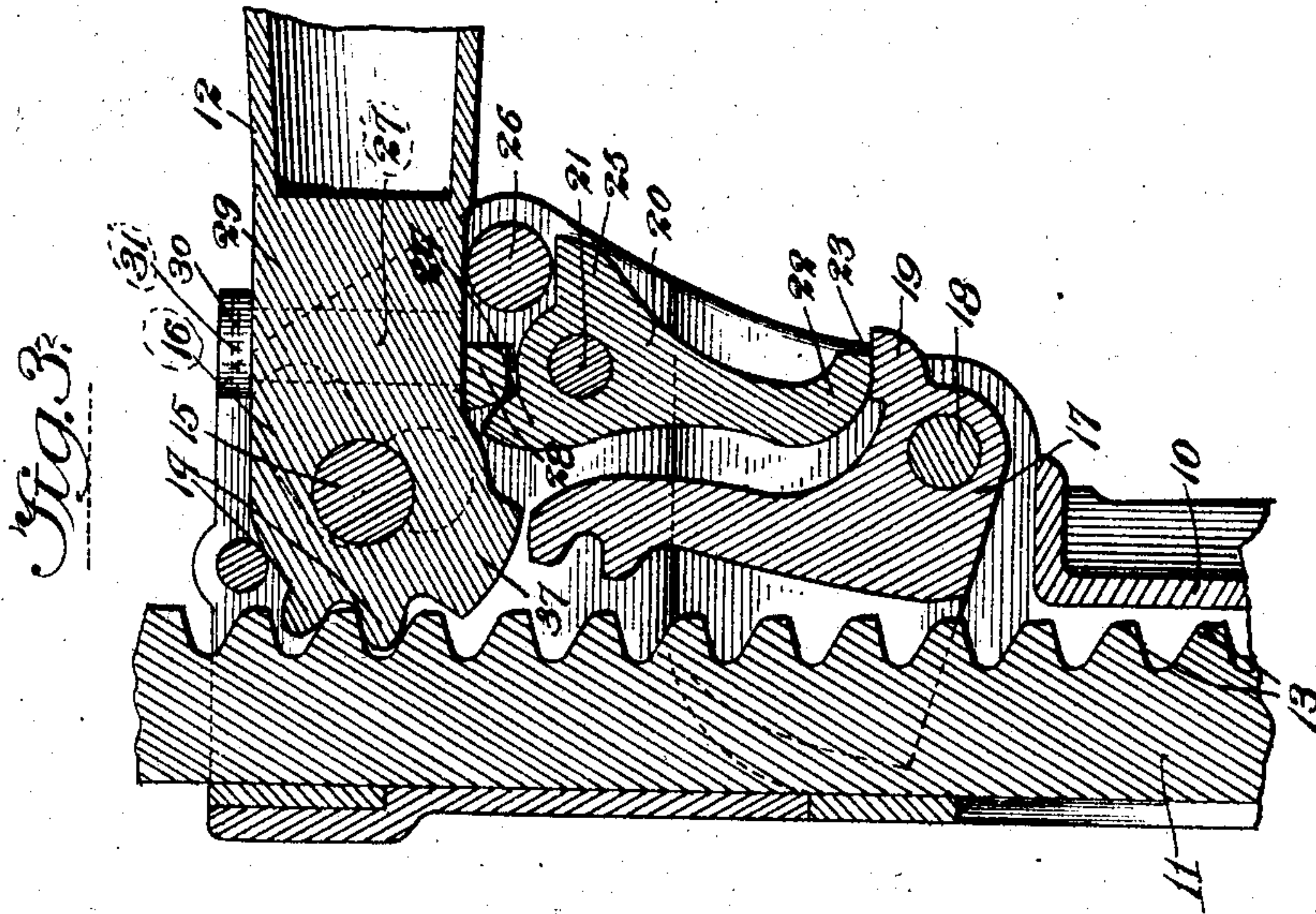
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Witnesses

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Edward A. Eisfeldt

Inventor

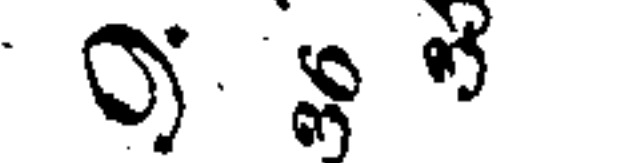
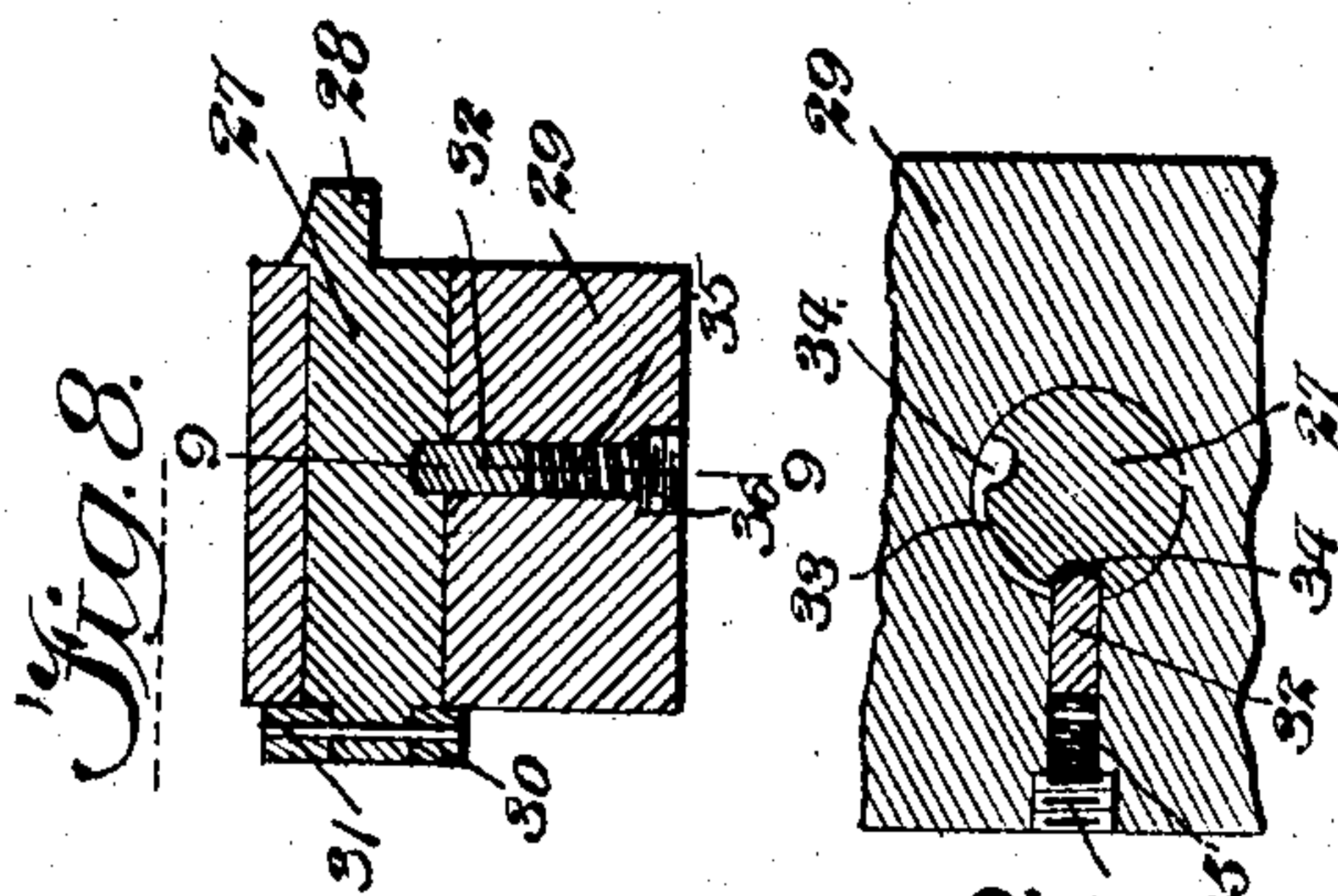
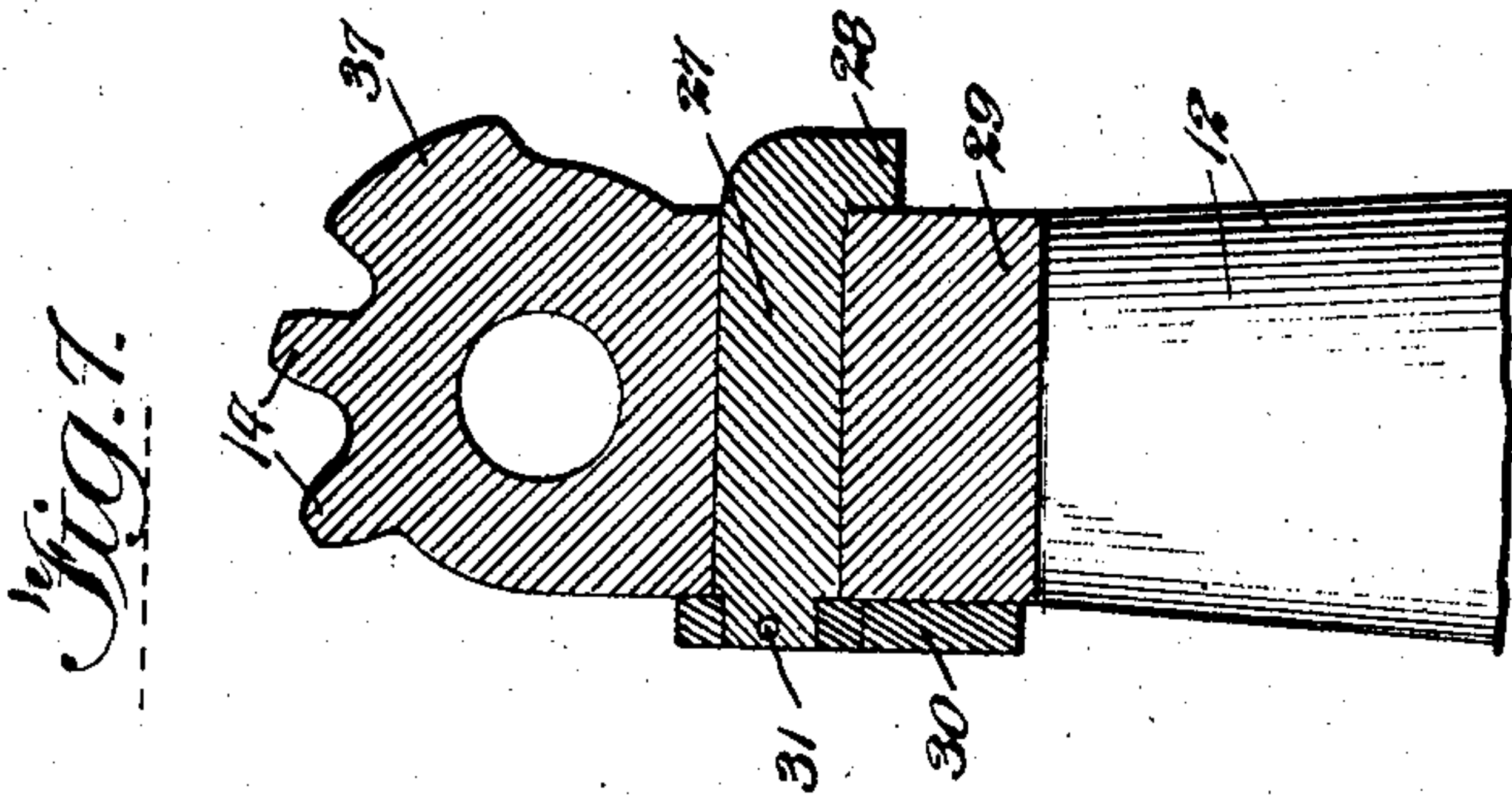
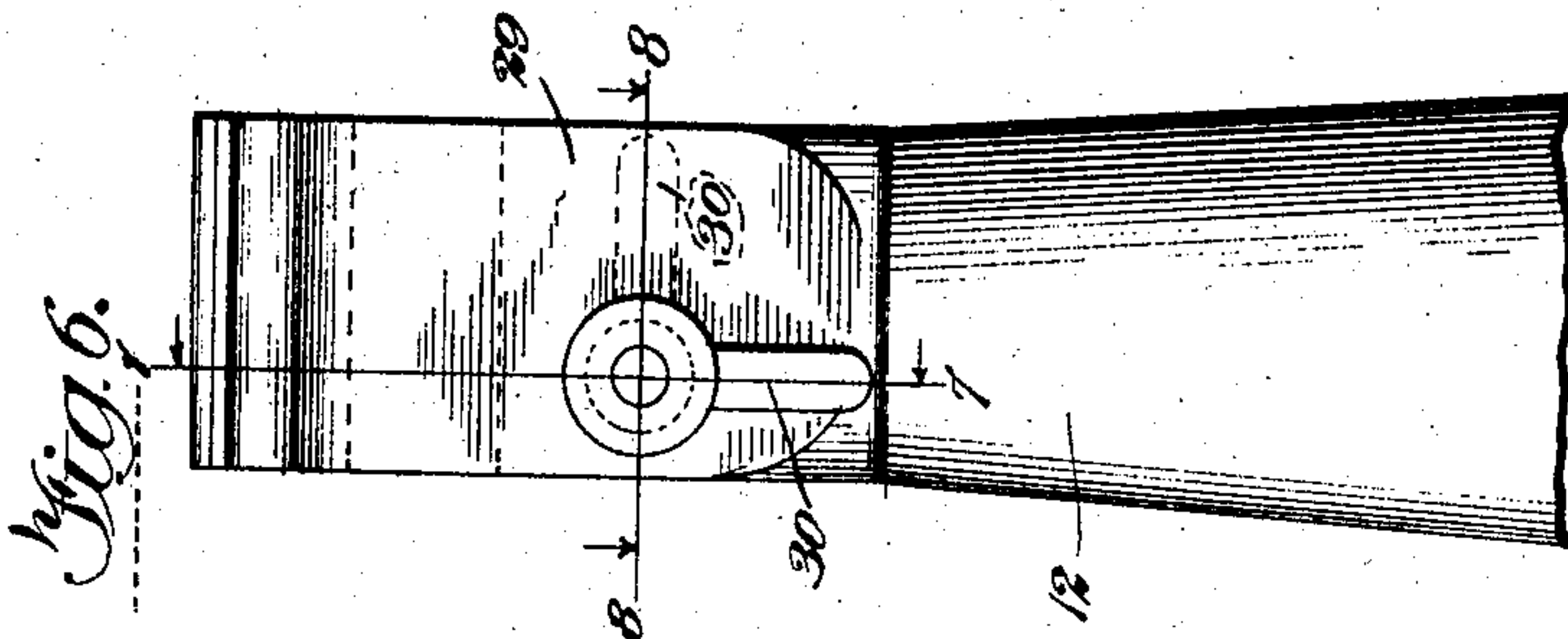
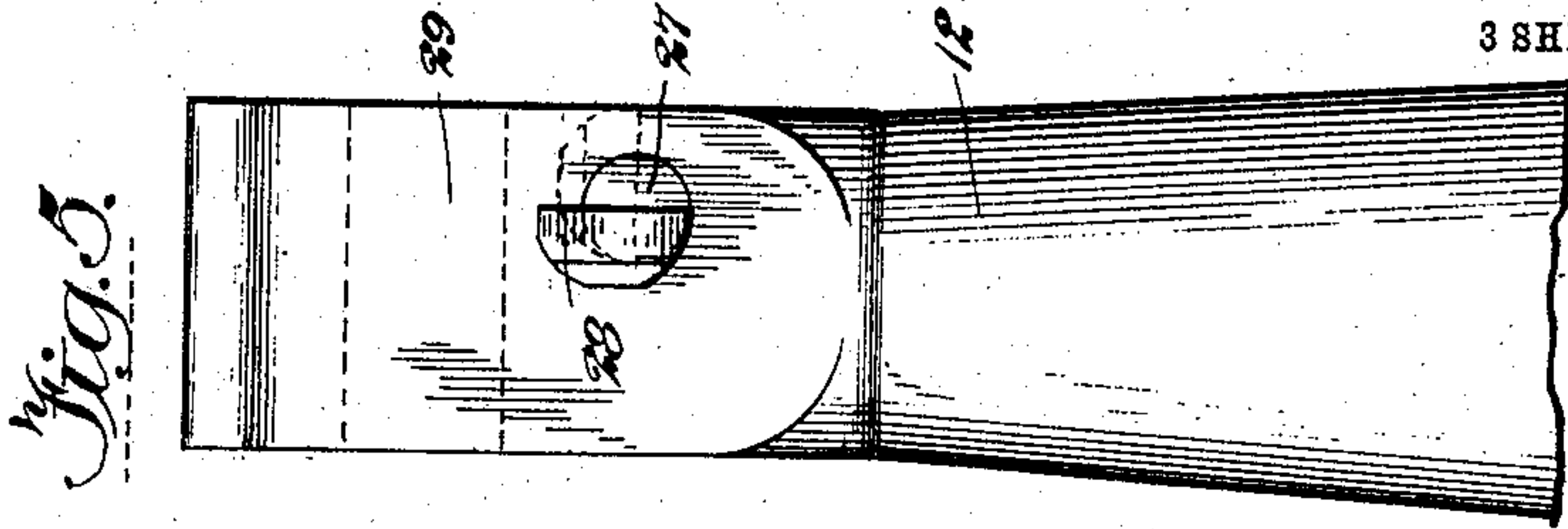
Frank J. Joyce,  
by Bon d'Arms Kirsch Jackson,  
his Atty.



F. I. JOYCE.  
LIFTING JACK.

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3 SHEETS—SHEET 3.



Witnesses:

Robert H. Wein  
Edward L. Esfeldt

Inventor:

Frank I. Joyce,  
by Bon de Adams & Adams  
his Attys.



# UNITED STATES PATENT OFFICE.

FRANK I. JOYCE, OF DAYTON, OHIO.

## LIFTING-JACK.

SPECIFICATION forming part of Letters Patent No. 781,147, dated January 31, 1905.

Application filed May 22, 1903. Serial No. 158,267.

*To all whom it may concern:*

Be it known that I, FRANK I. JOYCE, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Lifting-Jacks, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to lifting-jacks, and has particularly to do with lifting-jacks of the type described in my Patent No. 651,860, dated June 19, 1900, in which the lowering of the lifting-bar may be effected by actuation of the operating-lever. In the construction of my said patent a laterally-movable dog is provided, through which the operating-lever acts upon the retaining-pawl to move said pawl out of engagement with the lifting-bar for lowering purposes. By moving said dog laterally it may be moved out of position to be engaged by the lever when the lifting-bar is to be raised. In my present invention the dog is not made laterally movable; but instead of employing the construction shown in my former patent I provide controlling means, carried by the lever, which is out of position to engage and operate the dog when the lever is used to raise the lifting-bar, but which may be moved into position to engage said dog and operate it when it is desired to lower the lifting-bar. Suitable mechanism is provided for holding the controlling means in its different positions, so as to prevent accidental displacement thereof.

What I regard as new will be set forth in the claims.

In the drawings, Figure 1 is an elevation. Fig. 2 is a vertical section on line 2 2 of Fig. 1, showing the parts in position for raising the lifting-bar. Figs. 3 and 4 are partial vertical sections showing the parts arranged for lowering the lifting-bar. Fig. 5 is an under side view of the lever, showing the lug which forms a part of the controlling device. Fig. 6 is a plan view of the upper side of the lever. Fig. 7 is a section on line 7 7 of Fig. 6. Fig. 8 is a cross-section on line 8 8 of Fig. 6, and Fig. 9 is a section on line 9 of Fig. 8.

Referring to the drawings, 10 indicates the standard of a jack, 11 the lifting-bar, and 12

the operating-lever. As shown in Fig. 2, the lifting-bar 11 has a series of teeth 13 on one side which are adapted to be engaged by teeth 14, carried by the operating-lever, as described in my former patent above referred to.

15 indicates the pivot of the operating-lever, the ends of which are fitted in inclined slots 16 in the upper portion of the standard, as indicated by dotted lines in Figs. 2, 3, and 4 and as described in my former patent. The arrangement is such that by moving the pivot 15 up in the slot 16 the teeth 14 may be moved out of engagement with the teeth 13 of the lifting-bar.

17 indicates the retaining-pawl, which is mounted on a pivot 18 and is adapted to engage the teeth 13, as shown in Fig. 2. The pawl 17 is provided with an upwardly and rearwardly projecting arm 19, as shown in Fig. 2.

20 indicates the dog through which the lever 12 acts upon the retaining-pawl 17. Said dog is mounted on a pivot 21, supported by the standard 10 between the lever 12 and the pivot of the pawl 17. As shown in Fig. 2, the dog 20 is provided with a downwardly-projecting arm 22, which is adapted to engage a shoulder 23 at the inner edge of the arm 19 when the pawl 17 is in engagement with the lifting-bar 11, as shown in Fig. 2. By rocking the dog 20 the pawl 17 may be rocked back on its pivot out of engagement with the lifting-bar 11, the arm 22 of the dog then riding up on the arm 19, as shown in Figs. 3 and 4, and serving to hold the pawl 17 out of operative position, as illustrated in Fig. 3. In order that the parts may retain this position, the upper surface of the arm 19 is made slightly concave, and the surface of the arm 22, which rests thereupon, is made slightly convex to fit it. This is fully illustrated in Figs. 2 and 3. The dog 20 is also provided with arms 24 25 above its pivot 21 and at opposite sides thereof. The arm 25 is adapted to engage a pin 26, which acts to limit outward movement of the arm 22 of the dog 20. The arm 24 is adapted to be engaged by the controlling device when it is in operative position, the controlling device acting through said arm 24 to rock the dog 20 in such man-



ner as to move its downwardly-projecting arm 22 outward, thereby moving the pawl 17 out of engagement with the lifting-bar, as illustrated in Figs. 3 and 4. The controlling device is best shown in Figs. 5 to 9. It consists of a shaft 27, which is fitted in a socket extending vertically through the head of the lever 12, said shaft carrying at its lower end a block 28, eccentrically disposed, so that it projects over the under face of the head 29 of the lever 12 at one side of the shaft 27, as best shown in Fig. 5. Obviously by partially rotating the shaft 27 the position of the block 28 may be adjusted. When the block 28 is in the position shown in Fig. 5, considerable space is provided between the flat side of said block and the adjacent edge of the head 29 of the lever 12. The dog 20 is so placed that its arm 24 lies opposite the space thus provided, so that when the block 28 is in the position shown in Fig. 5 the lever 12 may be rocked without affecting the dog 20. By rotating the shaft 27, however, about ninety degrees the block 28 is moved into the position shown in dotted lines in Fig. 5, so that when the lever 12 is rocked the arm 24 lies in the path of the block 28. Consequently when the lever 12 is then operated the block 28 engages the arm 24 of the dog 20 and rocks it upon its pivot, throwing the downwardly-projecting arm 22 thereof outward and moving the pawl 17 out of engagement with the lifting-bar, as already described. For operating the shaft 27 a lever 30 is provided on the upper side of the head 29, as shown in Fig. 6.

31 indicates a pin by which the lever 30 is secured to the shaft 27.

In order to limit the rotation of the shaft 27, a pin 32 is provided in the head 29, which pin projects into a groove 33 in the shaft 27, as best shown in Fig. 9. The groove 33 extends through an arc of about one hundred degrees and is provided at its ends with depressions 34, in which the pin 32 rests when the shaft 27 is moved to either extreme position. By this means accidental displacement of the shaft 27 is prevented. A spring 35 serves to press the pin 32 inward, said pin being held in place by a screw-cap 36, as shown in Fig. 9.

37 indicates a lug on the under side of the head 29 of the lever 12, which is adapted to engage the inner edge of the arm 24 and rock the dog 20 to move its arm 22 out of engagement with the arm 19, as best shown in Fig. 4.

The operation is as follows: For lifting purposes the parts are in the position shown in Fig. 2, the block 28 then lying out of position to engage the arm 24 of the dog 20. The lifting-bar may then be raised by operating the lever 12 in the usual way. If it be desired to lower the lifting-bar, the lever 30 is swung through an arc of about ninety degrees, moving the block 28 into the position shown

in Figs. 3 and 4. When the lever 12 is then operated, the block 28 engages the arm 24 and moves it into the position shown in Fig. 3, causing the arm 22 to rock the pawl 17 into the position shown in Fig. 3 and to ride up on the arm 19, locking the pawl 17 out of operative position. The lifting-bar may then be lowered by lifting the outer end of the lever 12. When the lever 12 reaches the position shown in Fig. 4, the lug 37 engages the inner edge of the arm 24, and further upward movement of the lever 12 then presses the arm 24 outward, releasing the pawl 17 and permitting it to again engage the lifting-bar. In this way the lifting-bar may be lowered, descending by a step-by-step movement.

I wish it to be understood that while I have described specifically the improvements illustrated my invention is not restricted to the specific details of the construction described, except in so far as they are particularly claimed.

That which I claim as my invention, and desire to secure by Letters Patent, is—

1. In a lifting-jack, the combination of a lifting-bar, a lever, means for communicating motion from the lever to the lifting-bar, a retaining device for the lifting-bar, intermediate mechanism mounted independently of and operated by said lever for moving said retaining device out of operative position, and adjustable means for controlling the operation of said intermediate mechanism, substantially as described.

2. In a lifting-jack, the combination of a lifting-bar, a lever, means for communicating motion from the lever to the lifting-bar, a retaining device for the lifting-bar, mechanism mounted independently of the lever for moving the retaining device out of operative position and adjustable means carried by the lever for controlling the operation of said mechanism, substantially as described.

3. In a lifting-jack, the combination of a lifting-bar, an operating-lever, means for communicating motion from the lever to the lifting-bar, a retaining device for the lifting-bar, mounted independently of said lever, mechanism between said lever and said retaining device and mounted independently of said retaining device for moving the retaining device out of operative position, and an adjustable device carried by the lever for controlling the operation of said mechanism, substantially as described.

4. In a lifting-jack, the combination of a lifting-bar, a lever adapted to be operated to raise and lower said lifting-bar, means for communicating motion from the lever to the lifting-bar, a retaining device for said lifting-bar, intermediate mechanism between said lever and said retaining device and mounted independently of said lever for holding said retaining device out of operative position, means operated by said lever for releasing



said retaining device, and a controlling device for controlling the operation of said intermediate mechanism by said lever, substantially as described.

5 5. In a lifting-jack, the combination of a lifting-bar, a lever, means for communicating motion from the lever to the lifting-bar, a retaining device for the lifting-bar, intermediate mechanism between the lever and said retaining device and mounted independently of  
10 said lever, and an adjustable block carried by the lever adapted to be moved into and out of position to engage said intermediate mechanism, substantially as described.

15 6. In a lifting-jack, the combination of a lifting-bar, a lever, means for communicating motion from the lever to the lifting-bar, a retaining device for the lifting-bar, intermediate mechanism between the lever and the retaining device and mounted independently of  
20 said lever for moving said retaining device out of operative position, a shaft carried by said lever, and a block carried by said shaft and adapted to move into and out of position  
25 to engage said intermediate mechanism, substantially as described.

7. In a lifting-jack, the combination of a lifting-bar, a lever, means for communicating motion from the lever to the lifting-bar, a retaining device for the lifting-bar, intermediate  
30 mechanism between the lever and the retaining device for moving said retaining device out of operative position, a shaft carried by said lever, a block carried by said shaft  
35 and adapted to move into and out of position to engage said intermediate mechanism, and means for locking said block in its different positions, substantially as described.

40 8. In a lifting-jack, the combination of a lifting-bar, a lever, means for communicating

motion from the lever to the lifting-bar, a retaining device for the lifting-bar, a pivoted dog between said lever and said retaining device, said dog having a downwardly-projecting arm adapted to engage said retaining device to move it out of operative position, and  
45 an upwardly-projecting arm, and a controlling device carried by the lever and movable into and out of position to engage said upwardly-projecting arm, substantially as described. 50

9. In a lifting-jack, the combination of a lifting-bar, a lever, means for communicating motion from the lever to the lifting-bar, a retaining device for the lifting-bar, a pivoted  
55 dog between said lever and said retaining device, said dog having a downwardly-projecting arm adapted to engage said retaining device to move it out of operative position, an upwardly-projecting arm, a controlling device  
60 carried by the lever and movable into and out of position to engage said upwardly-projecting arm, and a lug carried by the lever adapted to engage and operate said dog to release said retaining device, substantially as described.

10. In a lifting-jack, the combination of a lifting-bar, a lever, means for communicating motion from the lever to the lifting-bar, a retaining device for the lifting-bar mounted independently of said lever, a pivoted dog between  
65 the lever and said retaining device, said dog being adapted to be operated by said lever to move said retaining device out of operative position, and a controlling device carried by said lever for controlling the operation  
70 of said dog, substantially as described. 75

FRANK I. JOYCE.

In presence of—

JOHN L. H. FRANK,  
B. F. ADAMS.