

**No. 641,536.**

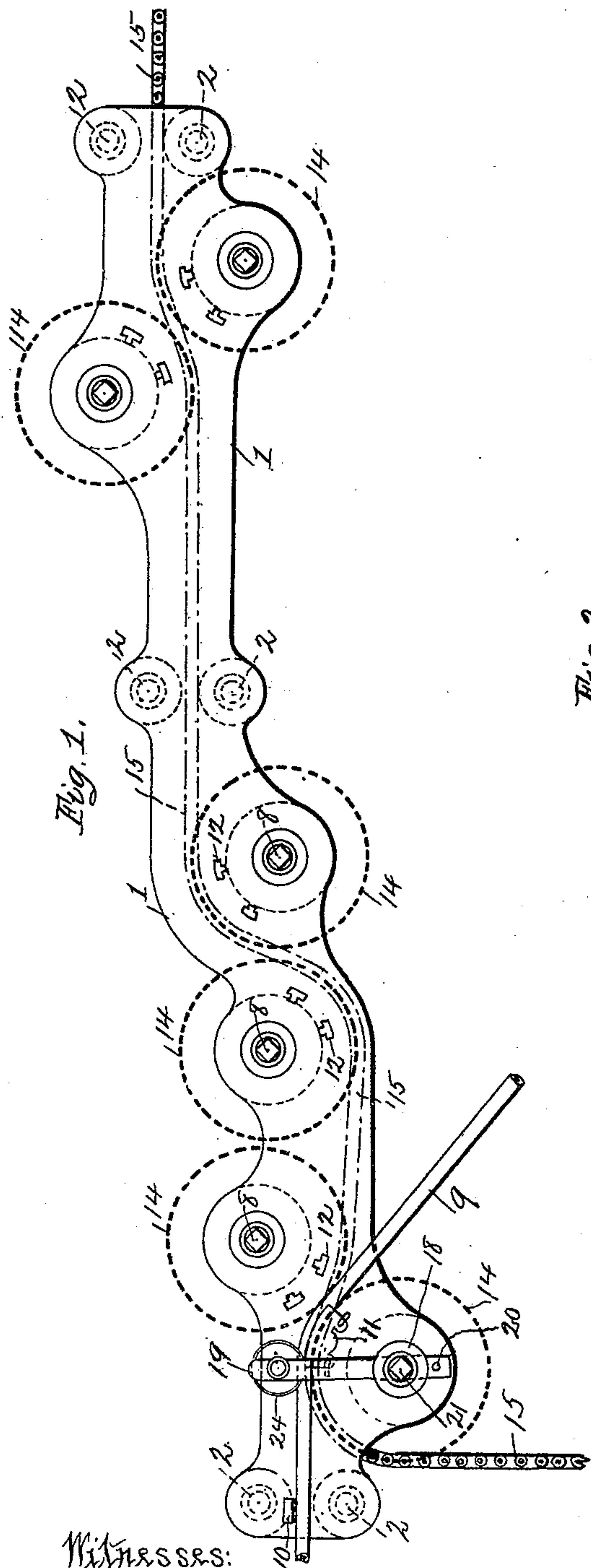
**Patented Jan. 16, 1900.**

**C. R. McKIBBEN.**  
**PIPE BENDING MACHINE.**

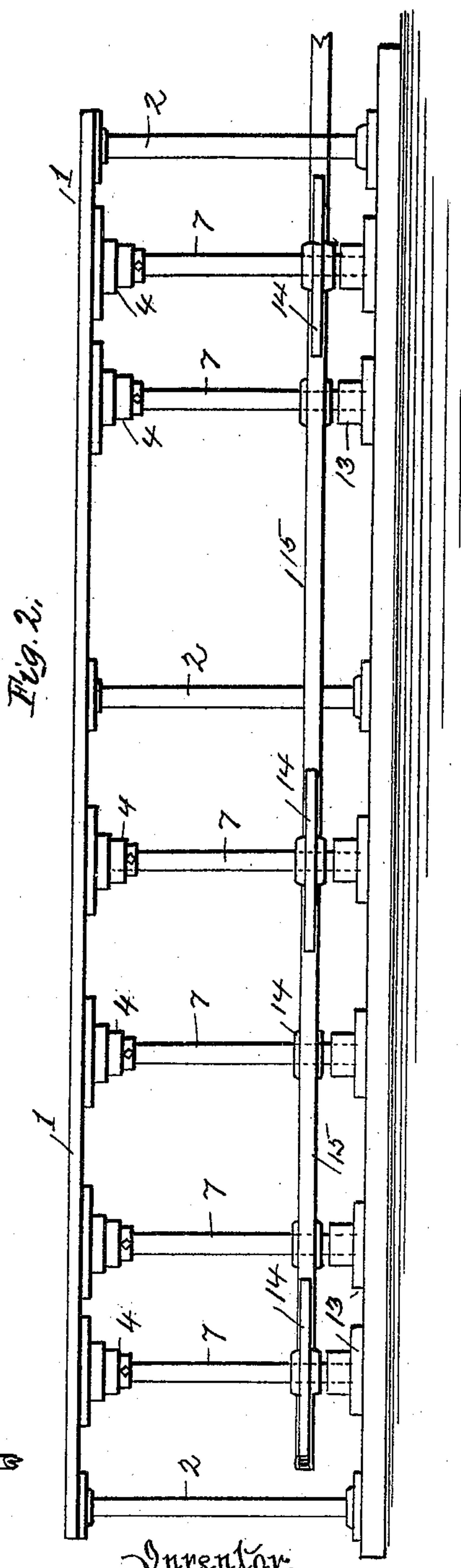
(Application filed Apr. 28, 1899.)

(No Model.)

**2 Sheets—Sheet 1.**



MISSRS:  
M Hunter  
H Lewis



Inventor:  
Charles R McKibben  
By: C D Lewis

Attorney.

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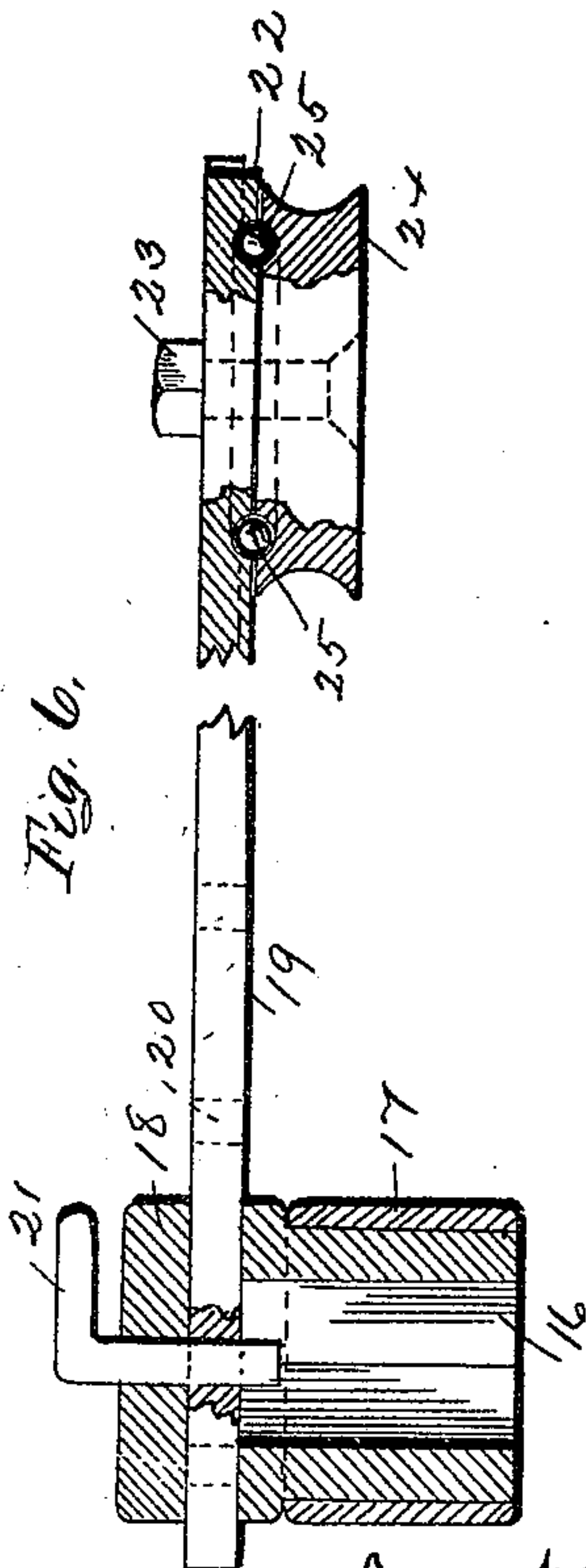
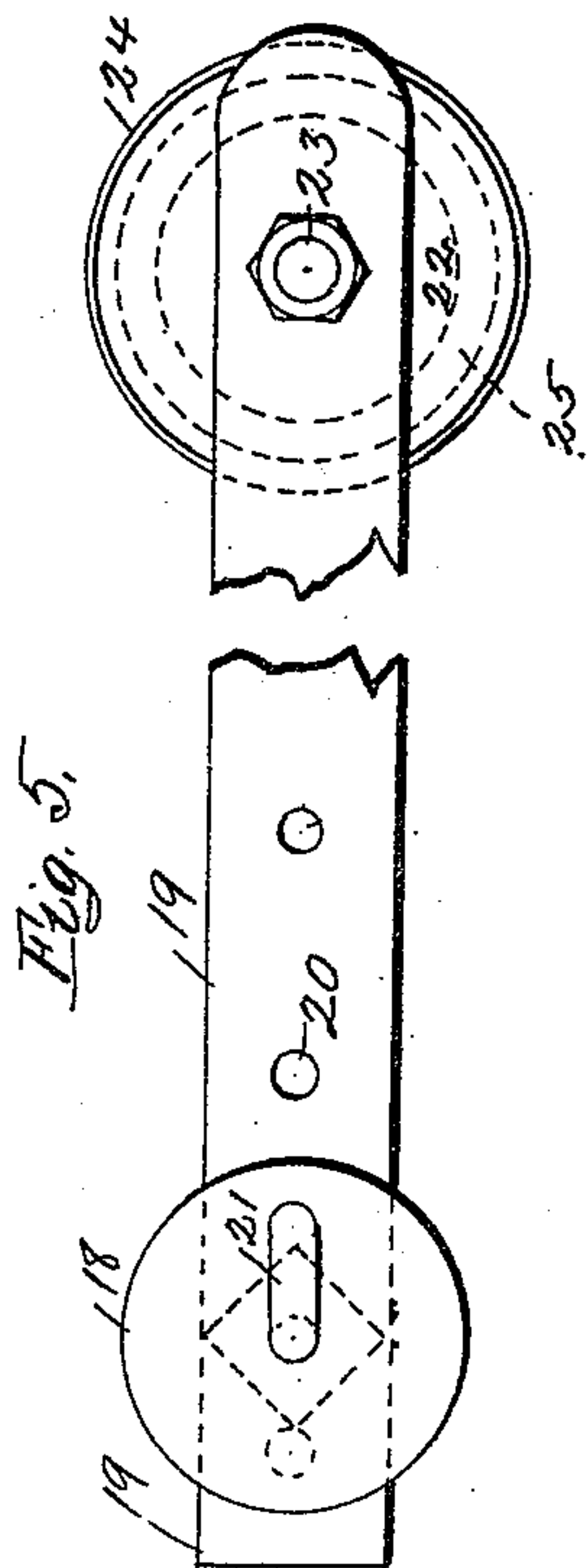
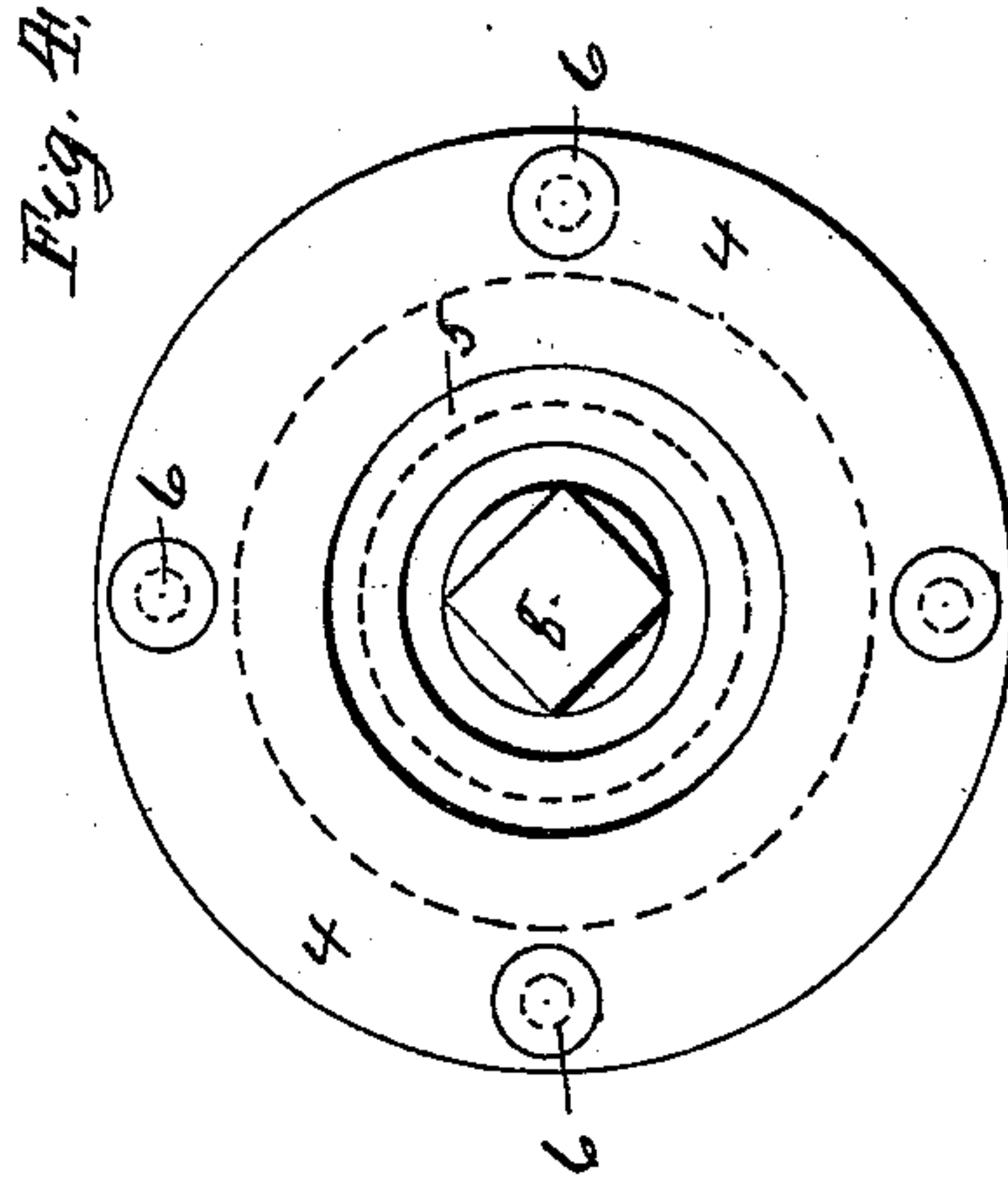
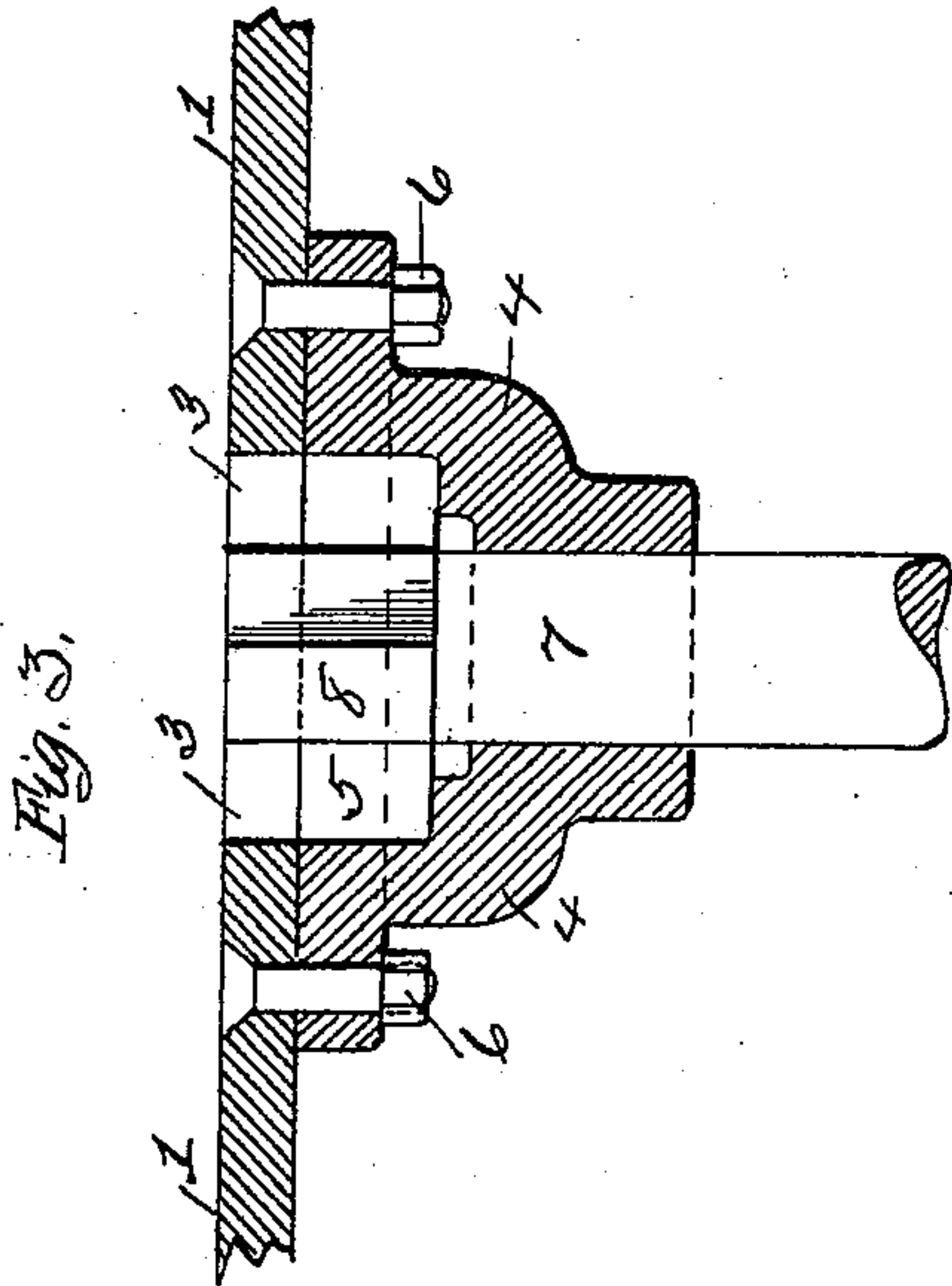
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(No Model.)

2 Sheets—Sheet 2.



Witnesses:  
M. Hunter  
H. J. Lewis

Inventor,  
Charles R. McKibben  
By, O. D. Lewis  
Attorney.



# UNITED STATES PATENT OFFICE.

CHARLES R. MCKIBBEN, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO  
SHOOK, ANDERSON MANUFACTURING CO., OF SAME PLACE.

## PIPE-BENDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 641,536, dated January 16, 1900.

Application filed April 28, 1899. Serial No. 714,911. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES R. MCKIBBEN, a citizen of the United States of America, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Pipe-Bending Machines; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to an improved apparatus for bending special shapes of pipe or tubes; and it consists in the certain details of construction and combination of parts, as will be fully described hereinafter.

In the accompanying drawings, Figure 1 is a plan view of my improved apparatus, which is constructed and arranged in accordance with my invention. Fig. 2 is a side elevation of the same. Fig. 3 is an enlarged detailed sectional elevation of one of the power-shafts, showing the means for engaging with the bending-lever. Fig. 4 is a plan of one of the bearings, having the bed-plate removed therefrom. Fig. 5 is an enlarged plan view of the bending-lever, showing the socket and wheel connected thereto. Fig. 6 is a side sectional elevation of the same.

To construct a pipe-bending machine in accordance with my invention, I form from cast metal a bed-plate 1 of a suitable size and form of construction and mount the same in a horizontal position upon legs 2, firmly attached to a ground-plate. This bed-plate 1 is formed with a number of circular openings 3, (see Fig. 3,) each of which is located at the radius of the bend of the pipe operated upon. Arranged beneath each of these openings 3 are bearings 4, which consist of annular castings attached to the bed-plate 1 by bolts 6 and having central bearings for the reception of the power-shafts 7. The lower extremities of these power-shafts are journaled in bearings 13, either formed integral with the foundation-plate or attached thereto in a suitable manner. Each of these shafts 7 is formed at the top with a square integral pin 8 for engaging with the socket 16 of a bending-lever, hereinafter described. These same shafts 7 are each fitted with a sprocket-wheel 14, (ar-

anged intermediate of the two bed-plates,) about which a suitable sprocket-chain 15 is placed to engage with and rotate the said wheels in the desired direction. The one extremity of this chain is connected to the piston-rod of a cylinder to furnish power and the other to a weight to recover or bring back the parts to their normal position. This last-described construction is not shown in the drawings, as any other suitable power may be used to transmit motion to the sprockets and its chain.

Formed to engage separately with the pins 8 of the power-shafts 7 is a single bending-lever 19, provided at the outer extremity with a grooved wheel 24, journaled to the lever by a bolt 23 and having an intermediate ball-bearing 25 to reduce the friction between the said wheel and lever. The other end of this lever 19 is provided with an adjustable socket, consisting of the socket proper, 16, provided with a shrunk wrought-metal band 17 to add strength and formed with a horizontally-arranged opening for the reception of the lever 19. This lever 19 may be adjusted and held in any desired position by means of a removable pin 21 passing through the solid head 18 of the socket-piece and engaging with openings 20, formed in the lever.

Suitable removable dies 11 (see Fig. 1) are attached to the bed-plate 1 by means of pins and constructed in a form that will exactly correspond to the contour of the finished pipe, the first bend of which is shown at Fig. 1 of the drawings, and for a detailed description of such dies see application filed by me the 24th day of February, 1899, Serial No. 706,732. These dies are removed from one part of the bed-plate 1 and held secure by means of openings 12 and small pins or in any other suitable manner found necessary.

In operation a piece of pipe 9 is arranged upon the bed-plate 1 and the proper die 11 placed in position, as shown at Fig. 1. The socket 16 is now engaged with the pin 8 on the shaft 7 and power applied to the chain 17, which will cause the bending-wheel 24 to move about the arc of the circle, bending the pipe 9, and the said movement stopped by the operator at the proper point. Another die is now placed upon the plate and secured in po-



sition and the lever 19 removed to the next shaft to the right and a reverse bend given the pipe.

It will be seen that any number of bends  
5 may be formed in pipe by forming the dies and bed-plate to correspond to such bends.

Having thus described my invention, I claim—

1. The herein-described power-machine for  
10 bending pipe consisting of a suitable bed-plate, a series of vertical shafts journaled therein, each of which is provided with a pin 8, a removable and bending lever provided with a socket for engaging with the said pins,  
15 a means of adjusting the said socket along the length of the lever, a bending-wheel journaled to the outer end of the said lever, and a suitable power applied to the pins to cause

the lever to move in the arc of a circle, as described. 20

2. In combination with a machine of the character described, the bending-lever 19, having an adjustable socket and a pivoted bending-wheel, substantially as described.

3. In a machine for the purpose described, 25 the bed-plate 1, the vertical shafts 7, each provided with a pin 8, the sprockets 14 and operating-chain 15, all arranged and combined for service substantially as described.

In testimony whereof I have hereunto af- 30 fixed my signature in the presence of two subscribing witnesses.

CHARLES R. McKIBBEN.

Witnesses:

JOHN GROETZINGER,

W. C. ARMSTRONG.