

No. 699,527.

Patented May 6, 1902.

M. L. HUNKER.
SHEET METAL PIPE CRIMPER.

(Application filed Feb. 17, 1902.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

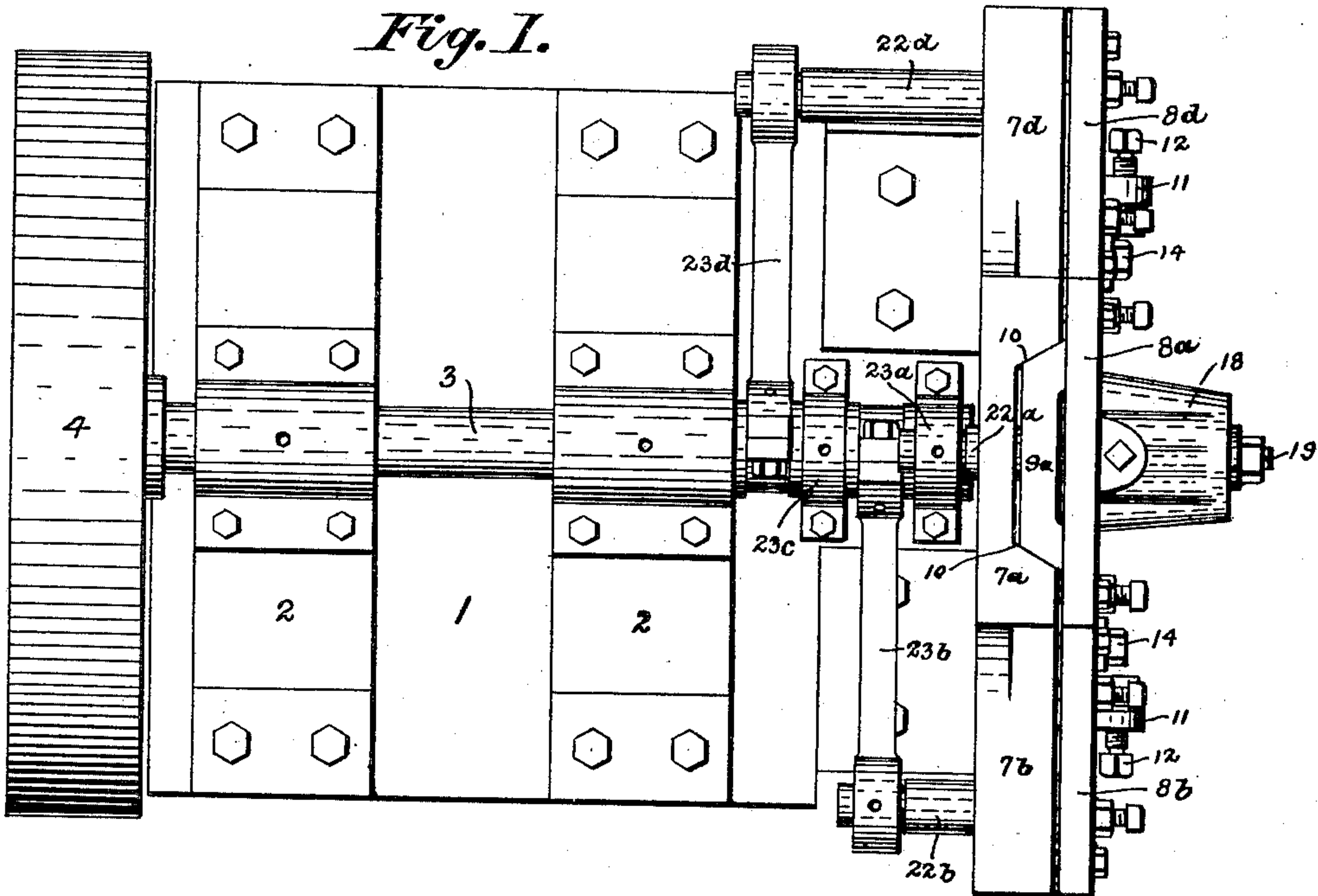
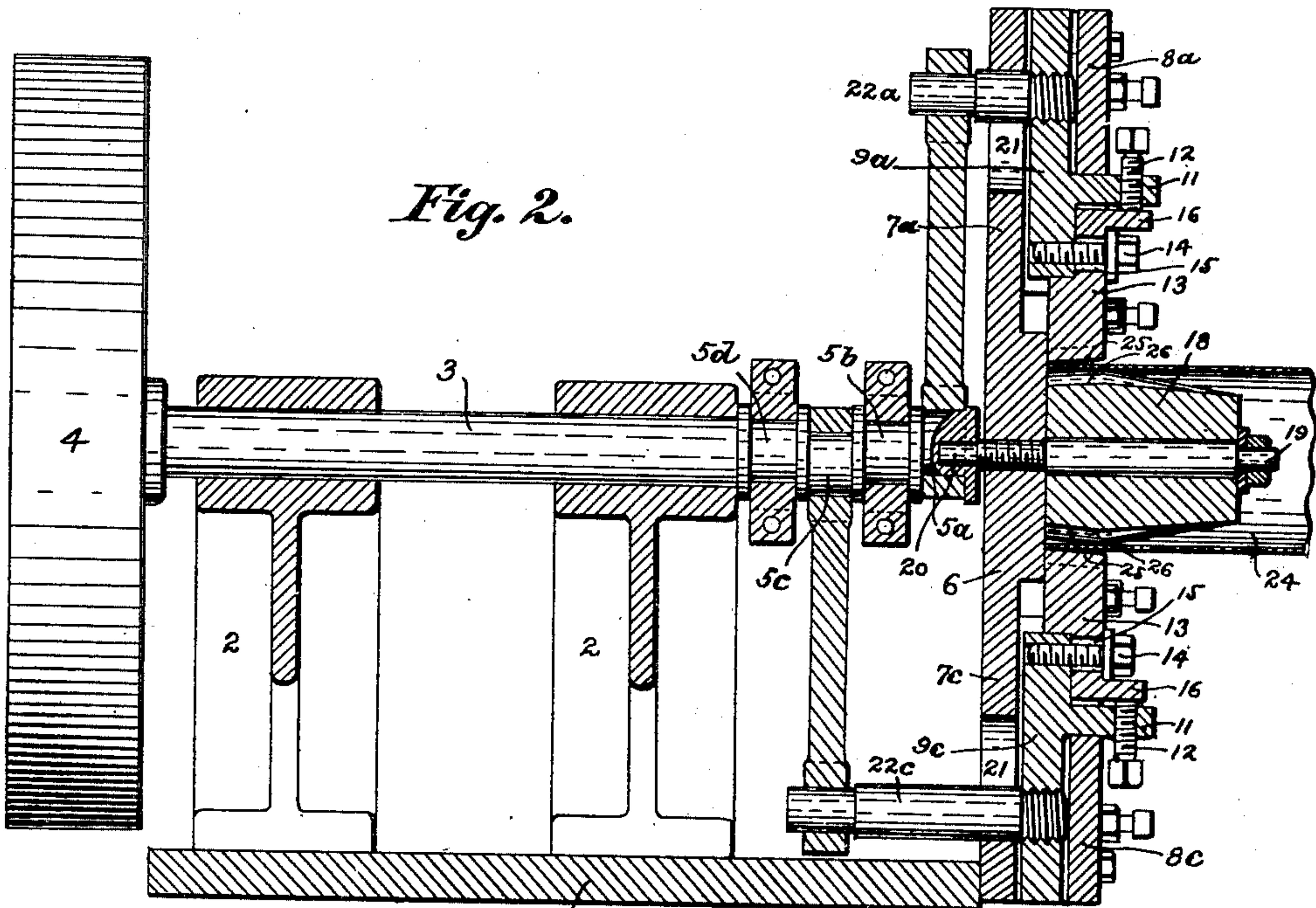


Fig. 2.



Witnesses;
S. H. Shuster
Larin C. Wise

Inventor;
Martin L. Hunker,
By Harry Freese, Attorney

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2 Sheets—Sheet 2.

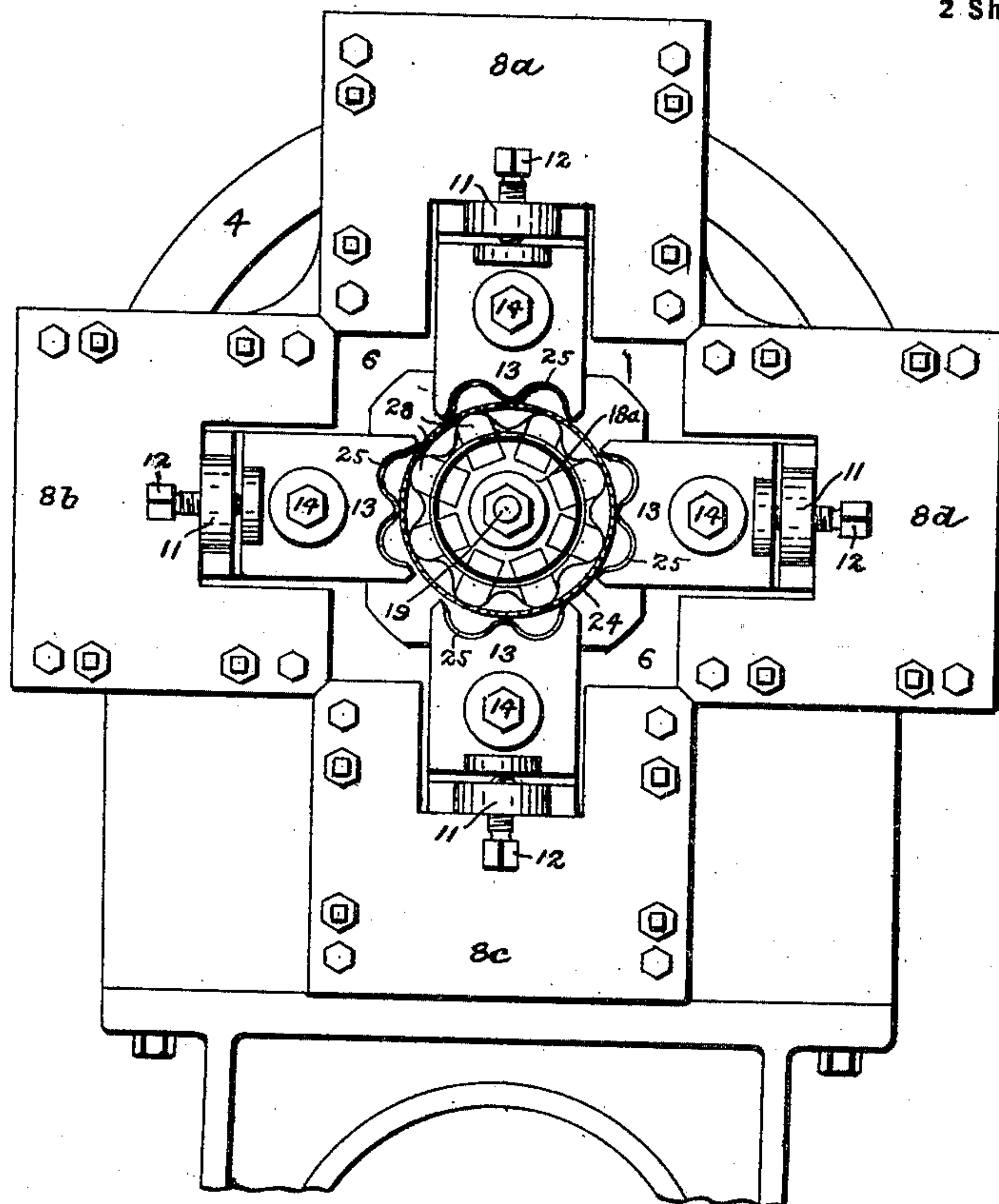


Fig. 3.

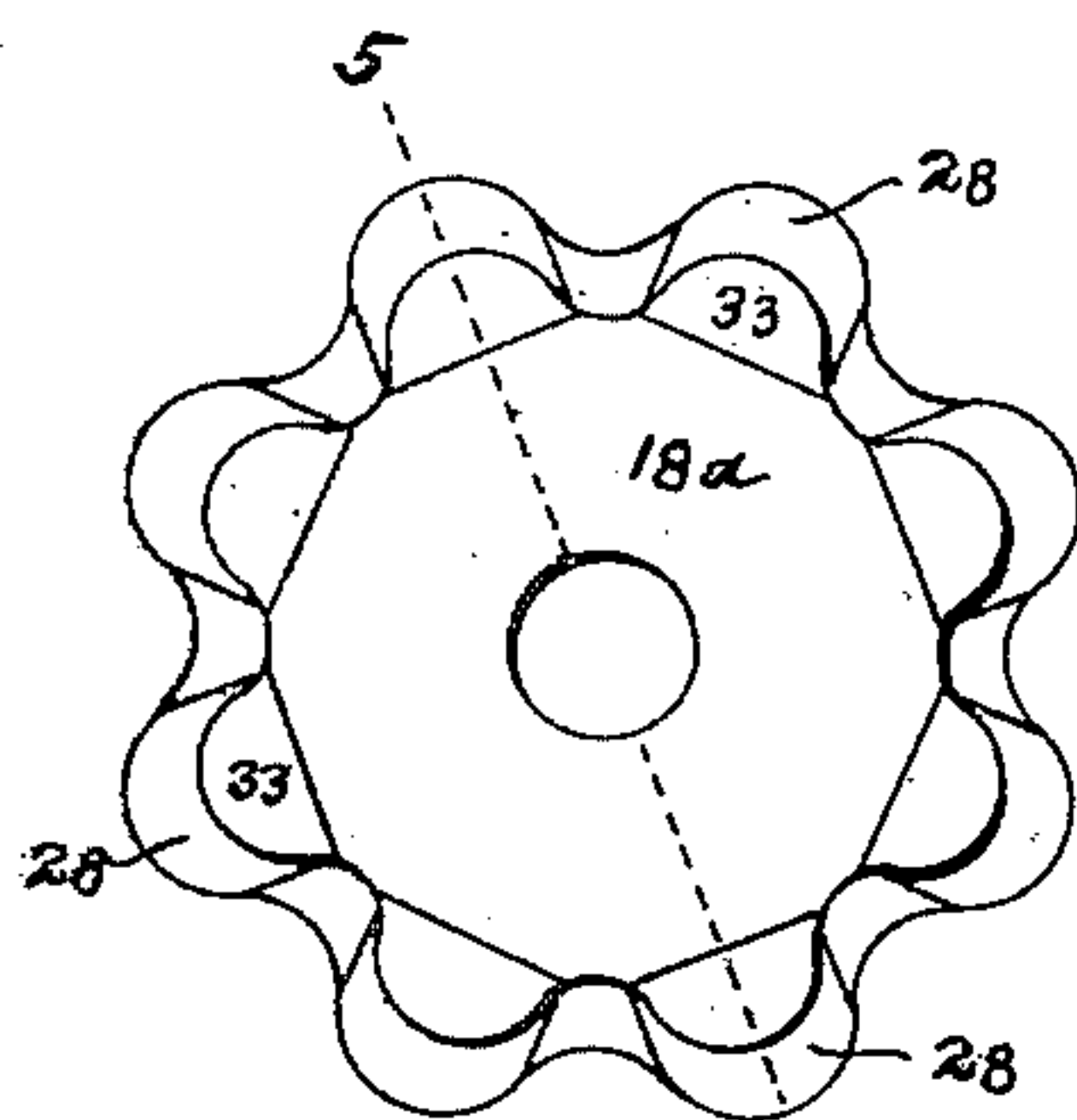


Fig. 4.

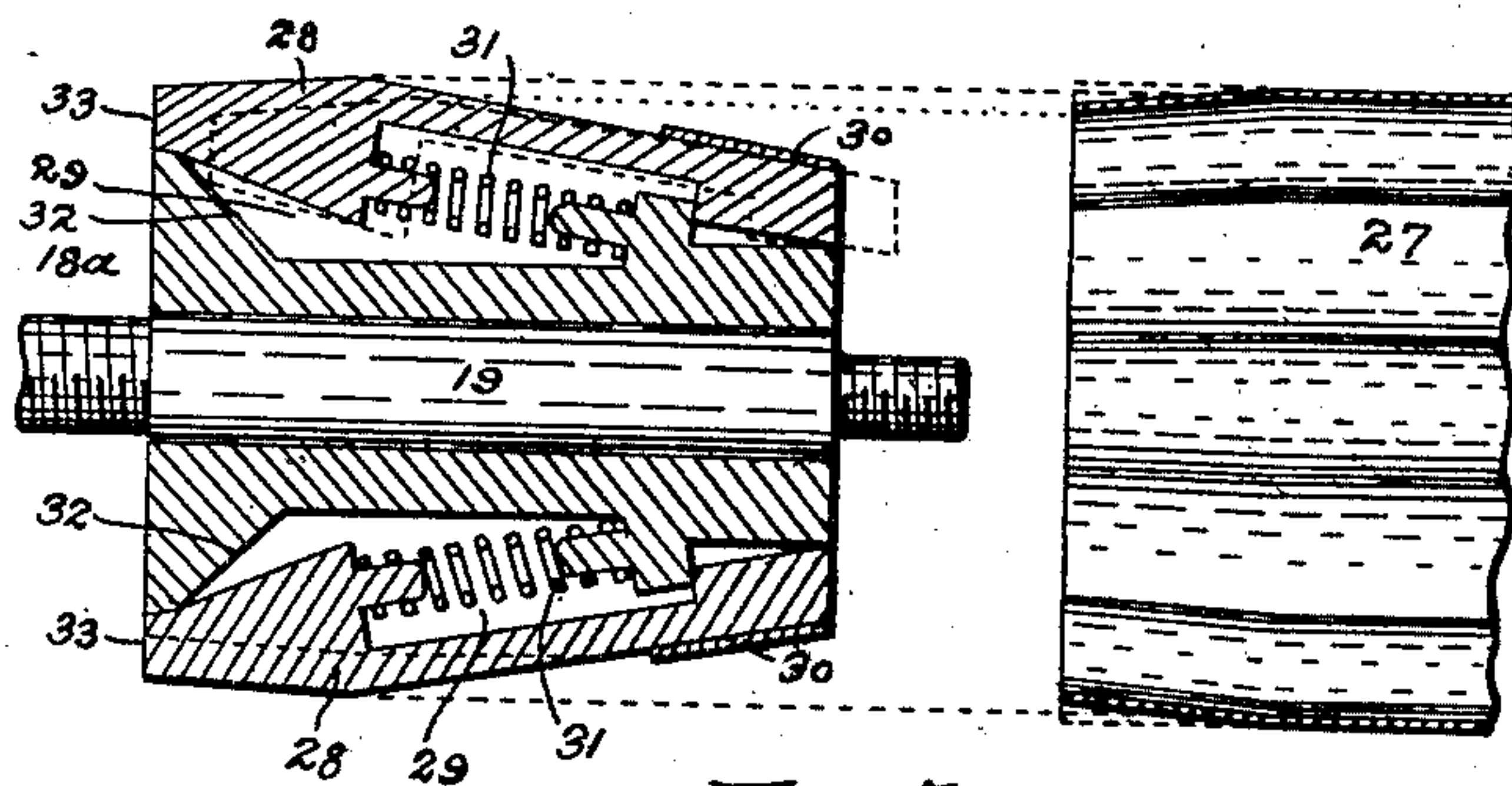


Fig. 5.

Witnesses;
A. R. Shuster
Loring C. Wise

Inventor;
Martin L. Hunker,
By Harry Trease, Attorney

UNITED STATES PATENT OFFICE.

MARTIN L. HUNKER, OF CANTON, OHIO, ASSIGNOR TO THE CANTON MACHINE AND MANUFACTURING COMPANY, OF CANTON, OHIO.

SHEET-METAL-PIPE CRIMPER.

SPECIFICATION forming part of Letters Patent No. 699,527, dated May 6, 1902.

Application filed February 17, 1902. Serial No. 94,388. (No model.)

To all whom it may concern:

Be it known that I, MARTIN L. HUNKER, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented a new and useful Sheet-Metal-Pipe Crimper, of which the following is a specification.

My invention relates to a machine for crimping and drawing in the end of a sheet-metal pipe or for drawing in the end of a pipe which has already been corrugated, so the same can be entered into the end of another section for joining therewith; and the objects of my invention are to accomplish this quickly by a single operation, thereby gaining speed in the work, and to provide a crimping-head which will permit the pipe to be removed therefrom without springing the drawn-in end out again for that purpose. I accomplish these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of the entire machine; Fig. 2, a vertical longitudinal section of the same; Fig. 3, a front elevation of the same; Fig. 4, an inner end view of the contractible crimper-head, and Fig. 5 a longitudinal section on line 5 5 of Fig. 4.

Similar numerals refer to similar parts throughout the drawings.

On the bed-plate 1 are mounted the journal-bearing brackets 2, carrying the shaft 3, on the rear end of which is located the driving-pulley 4. In the forward end of the shaft are formed the several double cranks 5^a, 5^b, 5^c, and 5^d, located in the adaptation, as illustrated, respectively, in the four-quarter directions from the center line of the shaft and being equally distant therefrom. On the forward side of the bed-plate is attached the crimper-plate 6, which in the adaptation illustrated has the four-quarter radial extensions 7^a, 7^b, 7^c, and 7^d. On the faces of the crimper-plate extension are attached the respective adjusting-plates 8^a, 8^b, 8^c, and 8^d by screws which regulate their contiguity.

Between the crimper-plate extensions and the adjusting-plates are the respective radially-movable die-plates 9^a, 9^b, 9^c, and 9^d, which preferably travel in beveled channels in the crimper-plate extensions, as 10, so that all wear and lost motion can be taken up by

the adjusting-plates. Projecting forward from the inner parts of the respective die-plates are the lugs 11, which carry the respective adjusting-screws 12, and on the inner ends of said die-plates are attached the respective dies 13 by the bolts 14, passing through the slotted holes 15, an exact radial adjustment of the dies being made by the screws 12, acting against the lugs 16, projected outward from the faces of the respective dies. The adjusting-plates are provided with the notches 17 for receiving the dies and the respective lugs.

On the face of the crimper-plate and in concentric line with the shaft 3 is attached the crimper-head 18 by means of the bolt 19, which extends through the crimper-plate and furnishes a central pin-bearing 20 for the shaft.

In each crimper-plate extension is provided an elongated slot, as 21, through which pass the respective posts 22^a, 22^b, 22^c, and 22^d, attached to or projected rearward from the respective die-plates. The several posts are pivotally connected with the respective links 23^a, 23^b, 23^c, and 23^d, which in turn are pivotally connected with the respective cranks 5^a, 5^b, 5^c, and 5^d. These connections are so made and the respective cranks are so directed from the center line of the shaft that by rotating the shaft the crimper-plates and attached dies will be simultaneously moved in radial lines—that is, toward and from the center line of the crimper-head.

To crimp the end of the round pipe 24, the same is inserted between the dies and around the crimper-head when the dies are at the end of their outward movement, as shown in Figs. 2 and 3, and the dies are then simultaneously brought inward by the rotation of the shaft, which crimps the end of the pipe according to the form of the dies and head. To draw in the end of the pipe, the crimping-faces of the dies and head 25 and 26, respectively, are inclined so as to converge inwardly to the rear, and when the crimper-head is formed solid, as shown in Figs. 1 and 2, when the pipe is removed from the head the drawn-in end springs out to enable it to pass over the enlarged part of the head. When the end of a corrugated pipe 27 is to be drawn in, the dies and head are shaped to

conform with the corrugations, and the work is done as before described.

- While only four several dies and four corresponding cranks are shown and described, any number of dies and cranks can be used, according to the size and shape of the pipe to be treated and the formation of the desired crimping, without affecting the nature of my invention.
- 10 When it is not desirable to reexpand the drawn-in end of the pipe when removing it over the enlarged part of the crimper-head, the longitudinal ridges 28 of the crimper-head 18^a are made so they will automatically contract when the pipe is removed, as shown in Figs. 3, 4, and 5. This is done by forming the ridges separate from the head and locating them in longitudinal channels 29, the inner sides of which are inclined and converge inward from the rear forward. The collar or band 30 surrounds the forward end of the crimper-head, under which the ridge-pieces are held in position, but are free to move endwise. The spring 31 is inserted between the head and the ridge-pieces, which normally hold the ridge-pieces in their expanded relation. To more quickly contract the ridge-pieces, the channels 29 are cut out to form the steep inclined surfaces 32, which enables the rear ends 33 of the ridge-pieces to contract more rapidly, as shown by broken lines in Fig. 5. When the pipe is removed from the head, the drawn-in end carries the ridges forward, compressing the springs, which movement brings all the ridges simultaneously inward and permits the drawn-in end of the pipe to pass without springing it outward. The action of the spring then carries the ridges back to their normal position.
- 40 What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a sheet-metal-pipe crimper, a shaft,

a series of double cranks on said shaft, a head located in concentric line with said shaft, a series of radially-movable dies located around said head, and a series of links severally pivotally connected at one end with the respective cranks and at the other end with the respective dies, the double cranks and links being arranged to move the dies simultaneously toward and then simultaneously from the head.

2. In a sheet-metal-pipe crimper, a shaft, a series of double cranks on said shaft, a series of radially-movable dies located around the line of the center of said shaft, and a series of links severally pivotally connected at one end with the respective cranks and at the other end with the respective dies, the double cranks being arranged to move the dies simultaneously toward and then simultaneously from said center line.

3. In a sheet-metal-pipe crimper, a head, longitudinal converging inclined channels in said head, ridge-pieces movable endwise in said channels, and springs acting to keep said ridge-pieces in their normal expanded position.

4. In a sheet-metal-pipe crimper, a head, longitudinal converging channels in said head, there being steep inclined parts in the bottoms of said channels near the larger end of said head, ridge-pieces movable endwise in said channels, and springs acting to keep said ridge-pieces in their normal expanded position.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MARTIN L. HUNKER.

Witnesses:

ROBERT A. SADDLER,
HARRY FREASE.