

No. 746,263.

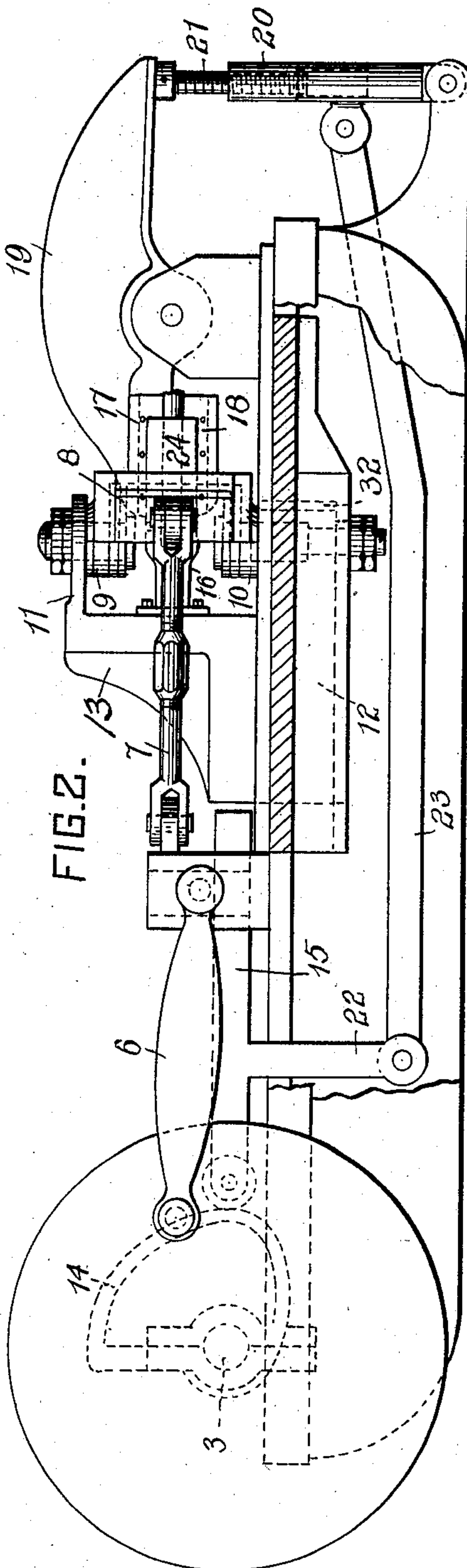
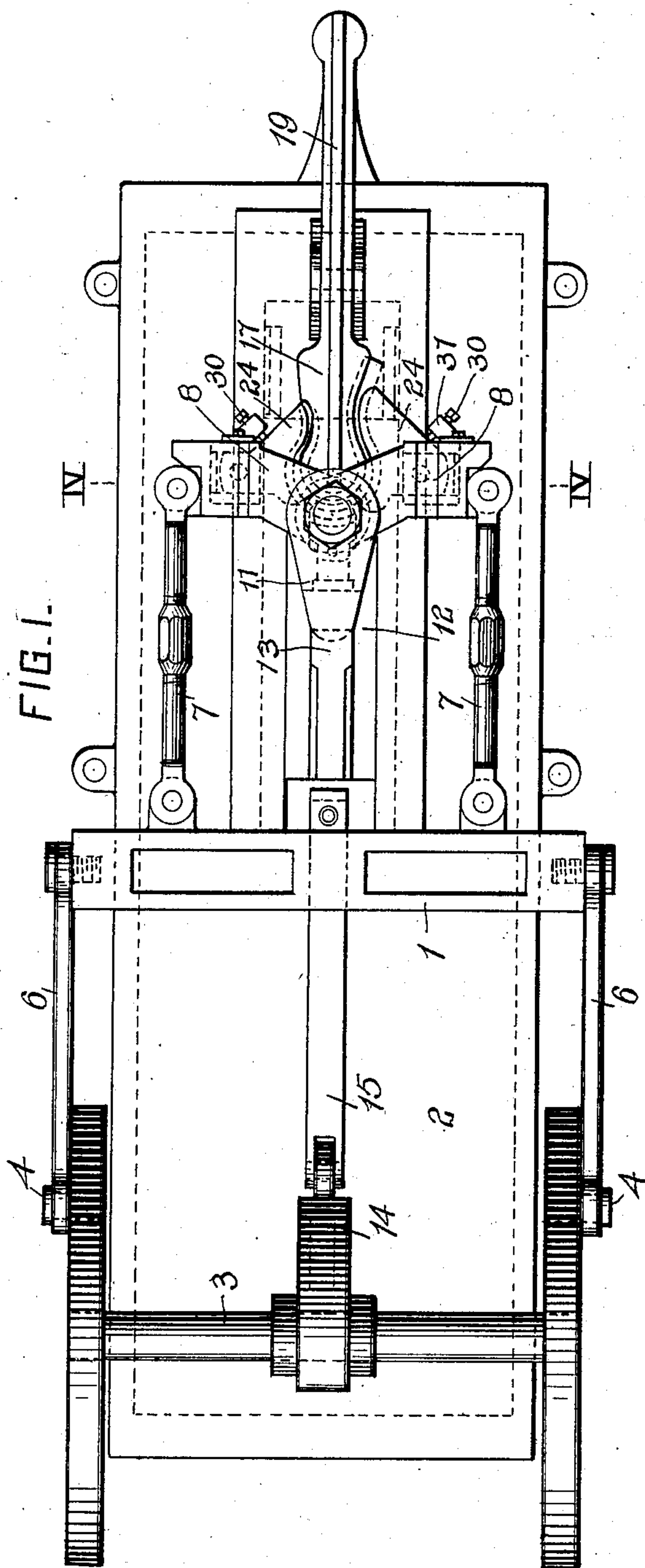
PATENTED DEC. 8, 1903.

J. H. BAKER.
BENDING MACHINE.

APPLICATION FILED JAN. 5, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



WITNESSES:
Herbert Bradley
Fred Kirchner

INVENTOR
James H. Baker
by *Donnib. Wolcott* Att'y.

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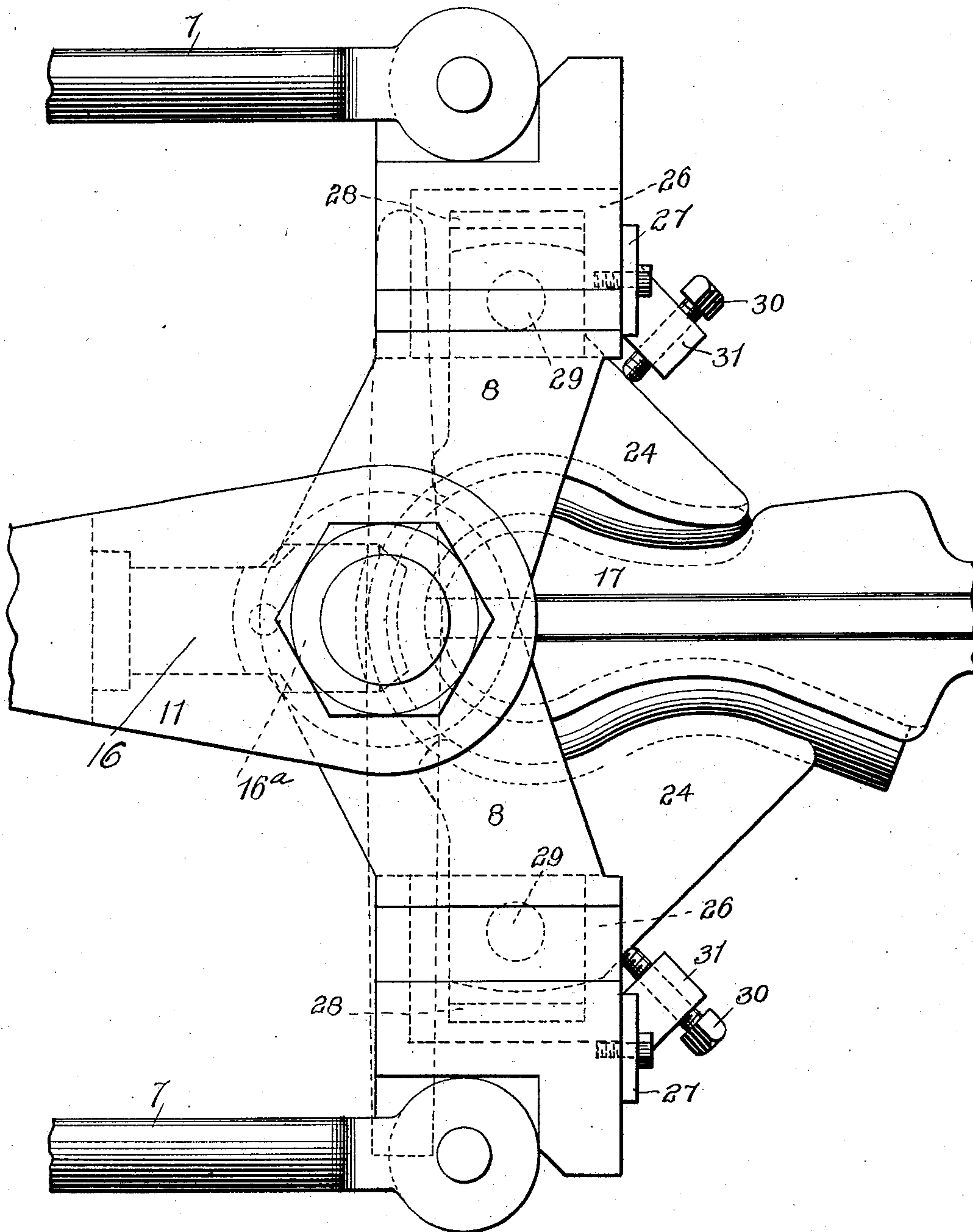
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NO-MODEL.

3-SHEETS-SHEET 2.

FIG. 3.



WITNESSES:

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Fred Kirchner.

INVENTOR

James H. Baker
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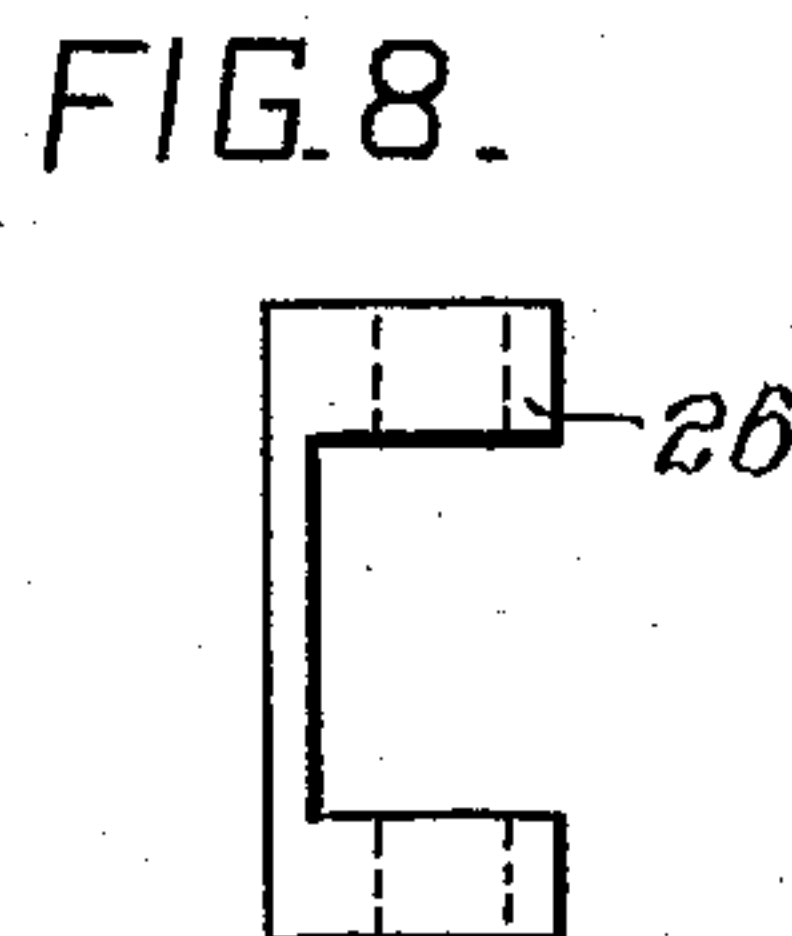
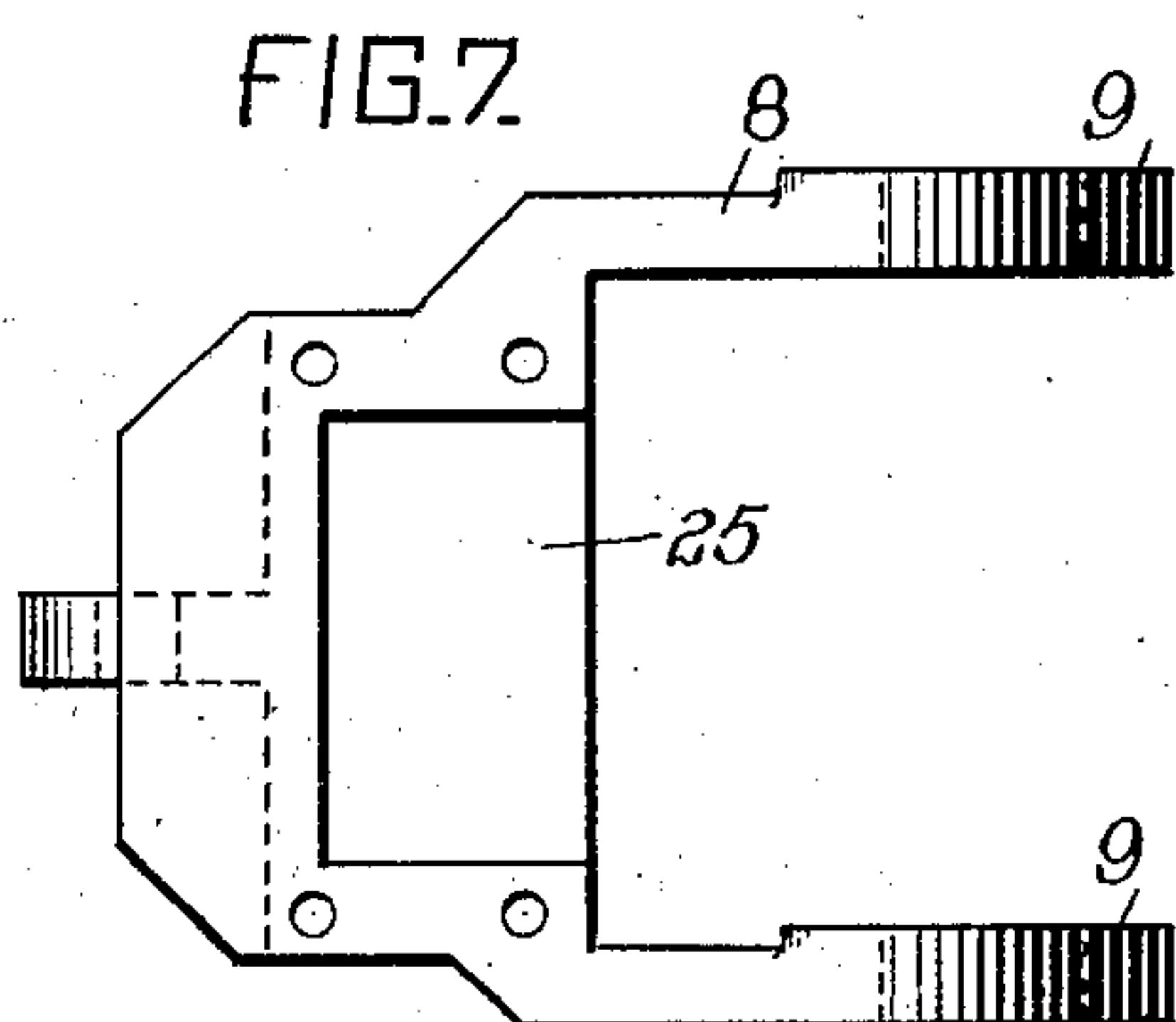
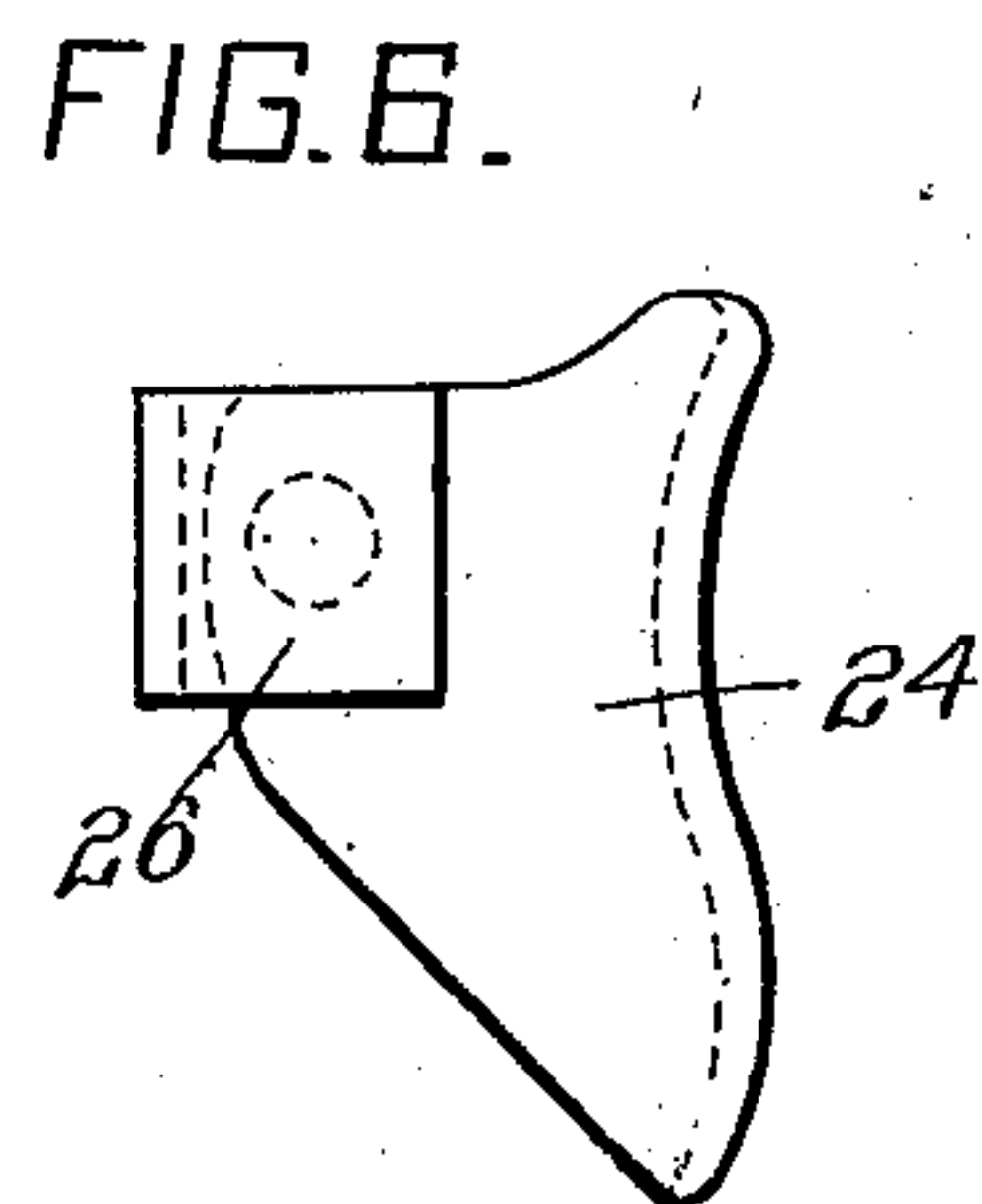
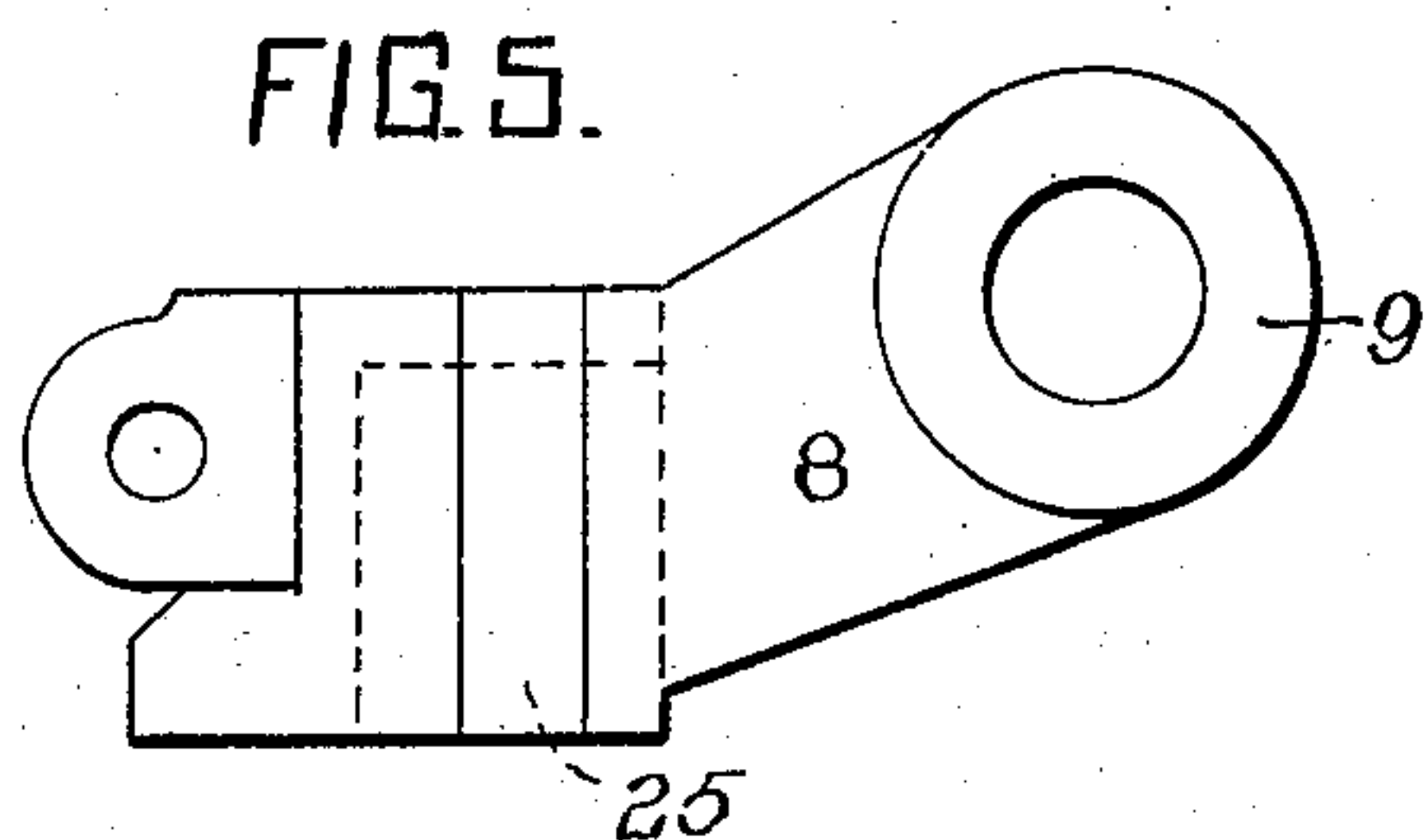
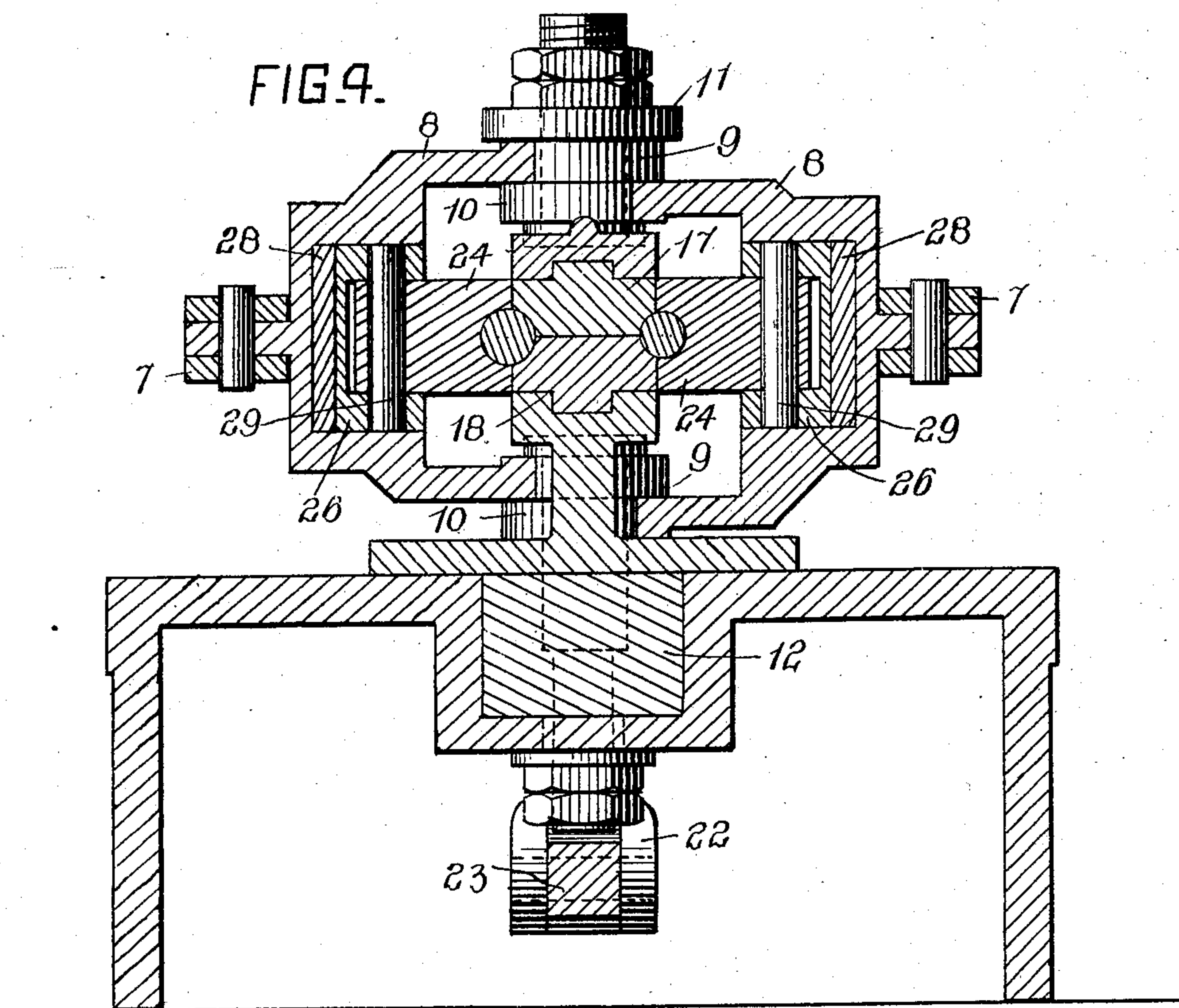
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NO MODEL.

3 SHEETS—SHEET 3.



WITNESSES:
Herbert Bradley.
Fred Kuchner.

INVENTOR
James H. Baker
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UNITED STATES PATENT OFFICE.

JAMES H. BAKER, OF ALLEGHENY, PENNSYLVANIA, ASSIGNOR TO JAS. H. BAKER MANUFACTURING COMPANY, OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

BENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 746,263, dated December 8, 1903.

Application filed January 5, 1903. Serial No. 137,869. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. BAKER, a citizen of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Bending-Machines, of which improvements the following is a specification.

The invention described herein relates to certain improvements in mechanism for bending iron or steel bars, &c., and has for its object a construction and combination of mechanical elements whereby blanks regular and irregular in cross-section may be bent to the desired shape.

The invention is hereinafter more fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a top plan view of my improved bending mechanism. Fig. 2 is a side elevation of the same. Fig. 3 is a plan view, on an enlarged scale, of the parts directly operative on the blank to be bent. Fig. 4 is a sectional elevation on a plane indicated by the line IV IV, Fig. 1. Figs. 5, 6, 7, and 8 are detail views of the bending-jaws and the die-holding cups.

In the practice of my invention a cross-head 1 is mounted on suitable guideways on the frame or bed 2 and is reciprocated by the power-shaft 3 through the medium of pins 4, secured eccentrically on disks 5 on the shaft and connected by pitmen 6 to the cross-head. This cross-head is connected by links 7 to swinging heads 8, which are provided at their inner ends with ears 9 and 10, pivotally connected to the upper and lower arms 11 and 12 of the sliding block 13. This block, which is mounted in suitable guideways in the frame or bed 2, is drawn back from operative position by the cross-head operating through the links 7 and heads 8, while the forward movement of the block into contact with the article to be bent is effected by an eccentric 14 on the power-shaft 3, operating through a push-rod 15. This rod is movably mounted in the cross-head 1 and bears at its outer end against the block 13. The block is provided with a gripping or holding head 16, adapted to press the blank against the former around

which said blank is to be bent. This holding or gripping head is provided with a bearing portion 16^a, pivotally connected to the head, so that it will accommodate itself to the blank in case the latter is not properly placed or there is some lateral movement of the block 13. The former is made in two parts or sections 17 and 18, one part or section being secured to the frame or bed 2, while the other section is secured to a lever 19, pivotally mounted on the bed or frame. While any suitable means may be employed to shift the lever for the separation of the parts or sections of the former, it is preferred to weight the outer end of the lever to effect the opening movement, while the closing movement is effected by a movable prop 20. This prop is made adjustable as regards length by a threaded extension 21, fitting in a threaded socket in the prop. The movement of the prop to close the sections and to permit of their separation, as described, is effected by the push-rod 15, which is connected with the prop by an arm 22 and a pitman 23, as shown in Fig. 2.

As shown in Fig. 2, the parts or sections 17 and 18 of the former are detachably connected to the bed 2 and lever 19, so that different formers, corresponding to the shapes of the articles to be produced, can be used. Similarly the dies 24 are removably secured in the swinging heads 8.

A desirable construction consists in forming recesses 25 in the heads for the reception of the boxes 26, which are held in place by the caps 27, secured to the heads by suitable bolts. It is preferred to make the recesses 25 in the heads larger than the boxes and to arrange fillers 28 between the sides of the boxes and the walls of the recesses. By the employment of fillers of varying thicknesses the position of the die-holding boxes in the recesses can be changed as required by the work to be done. The dies 24 are connected to the boxes by pivot-pins 29, permitting some swinging movement of the dies to accommodate themselves to the surfaces of the blanks being bent. This swiveling of the dies in the boxes is limited by means of screws 30, passing through lugs 31 on the caps 27.

In bending a blank it is placed in position in front of the former, as shown in Fig. 3. As the shaft is revolved the cross-head 1 and push-rod 15 are caused to move forward, thereby simultaneously shifting both the block 13 and swinging heads 8. By reason of the relative arrangement of the holding or gripping head and the swinging heads the holding-head 16 will firmly clamp the blank against the former before the swinging heads come into operation. The eccentric is so shaped that after the blank has been gripped there will not be any further onward movement of the push-rod 15. As the cross-head 1 continues its forward movement the heads 8 are swung around toward the former, and the block 13 is also moved forward, so that the gripping-head 16 may hold the blank firmly against the former during the bending operation. In order to prevent the gripping-head from being forced too hard against the blank, a stop-plate 32 of a thickness dependent on the width of the blank, is inserted at the end of the guideway for the block 13 to limit the forward movement of the block, as shown in Fig. 2.

The sections 17 and 18 of the former are closed firmly together by the push-rod 15 as it shifts the block 13, operating through the medium of the pitman 23 and prop 20.

I claim herein as my invention—

1. A bending-machine having in combination a former, a movable block provided with a gripping or holding head, swinging heads pivotally connected to the block, and means for moving the block toward the former and means independent of the former for causing the heads to move with the block.

2. A bending-machine having in combination a former, a movable block provided with a gripping or holding head, swinging heads pivotally connected to the block, means for moving the block and heads toward the former

and means operative when the block is stationary to close the heads around the former, substantially as set forth.

3. A bending-machine having in combination a former, a movable block provided with a gripping or holding head, swinging heads pivotally connected to the block, a reciprocating cross-head and connections from the cross-head to the swinging heads, substantially as set forth.

4. A bending-machine having in combination, a former, a movable block provided with a gripping or holding head, a push-rod for moving the block toward the former, swinging heads pivotally connected to the block, a reciprocating cross-head and connections from the cross-head to the swinging heads, substantially as set forth.

5. A bending-machine having in combination, a sectional former, a lever carrying one of said sections, a movable block provided with a gripping or holding head, swinging heads pivotally connected to the block and means for moving the block and heads toward the former and for closing the sections of the former, substantially as set forth.

6. A bending-machine having in combination therewith, swinging heads having recesses therein, boxes arranged in said recesses and dies pivotally mounted in the boxes, substantially as set forth.

7. A bending-machine having in combination therewith, swinging heads having recesses therein, boxes arranged in said recesses, means for adjusting the boxes and dies pivotally mounted in the boxes, substantially as set forth.

In testimony whereof I have hereunto set my hand.

JAMES H. BAKER.

Witnesses:

DARWIN S. WOLCOTT,
F. E. GAITHER.