

(No Model.)

2 Sheets—Sheet 1.

H. O. THOMAS.
REVERSING GEAR.

No. 433,499.

Patented Aug. 5, 1890.

Fig. 1.

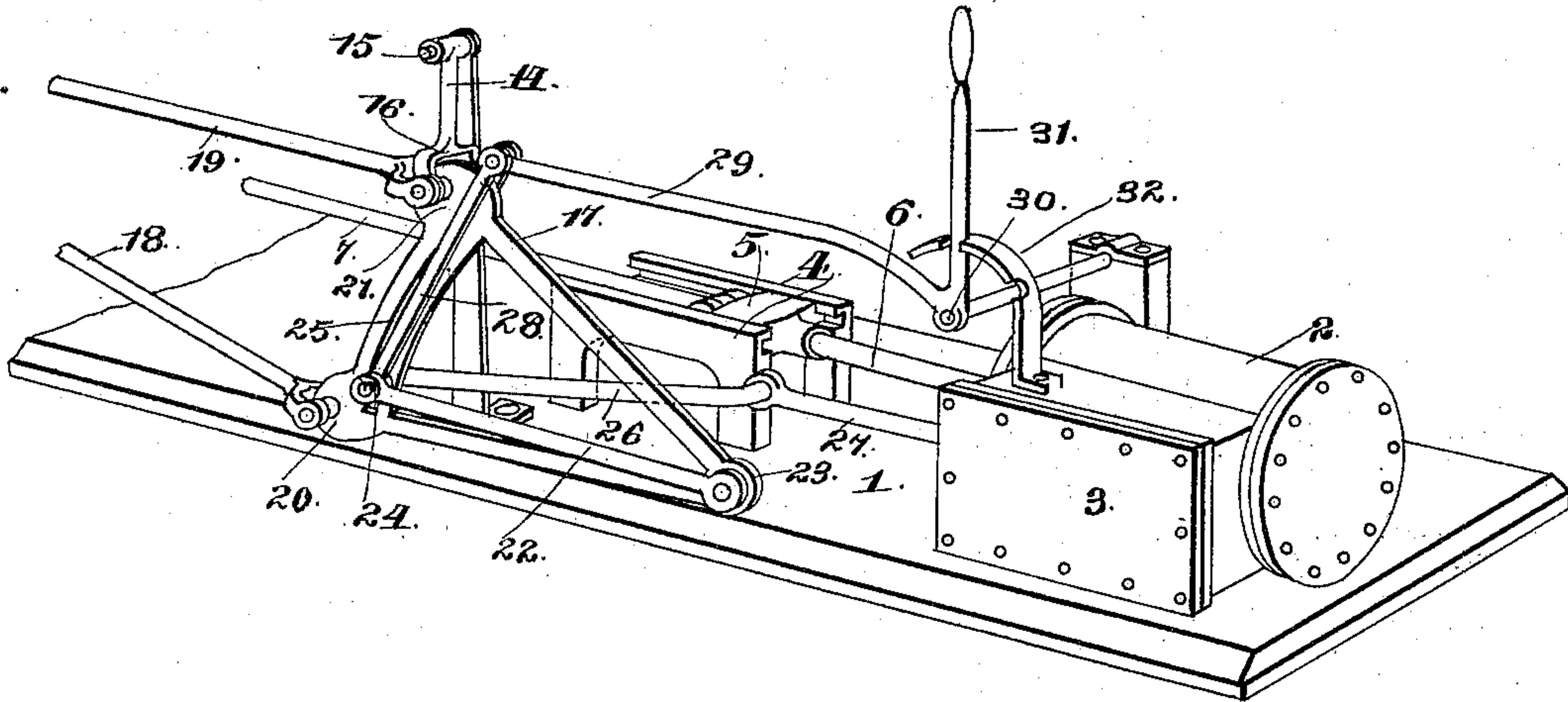
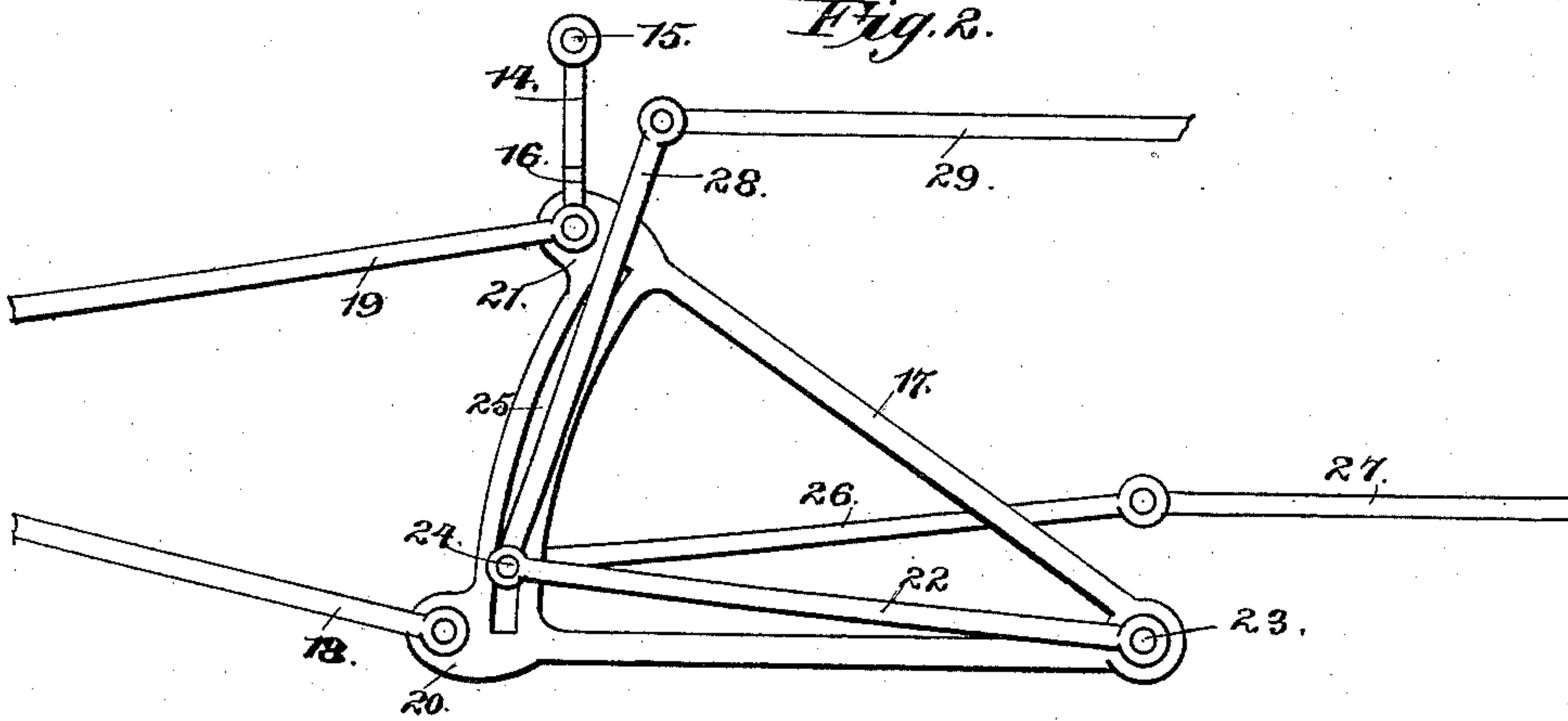


Fig. 2.



Witnesses

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2 Sheets—Sheet 2.

Patented Aug. 5, 1890.

Fig. 3.

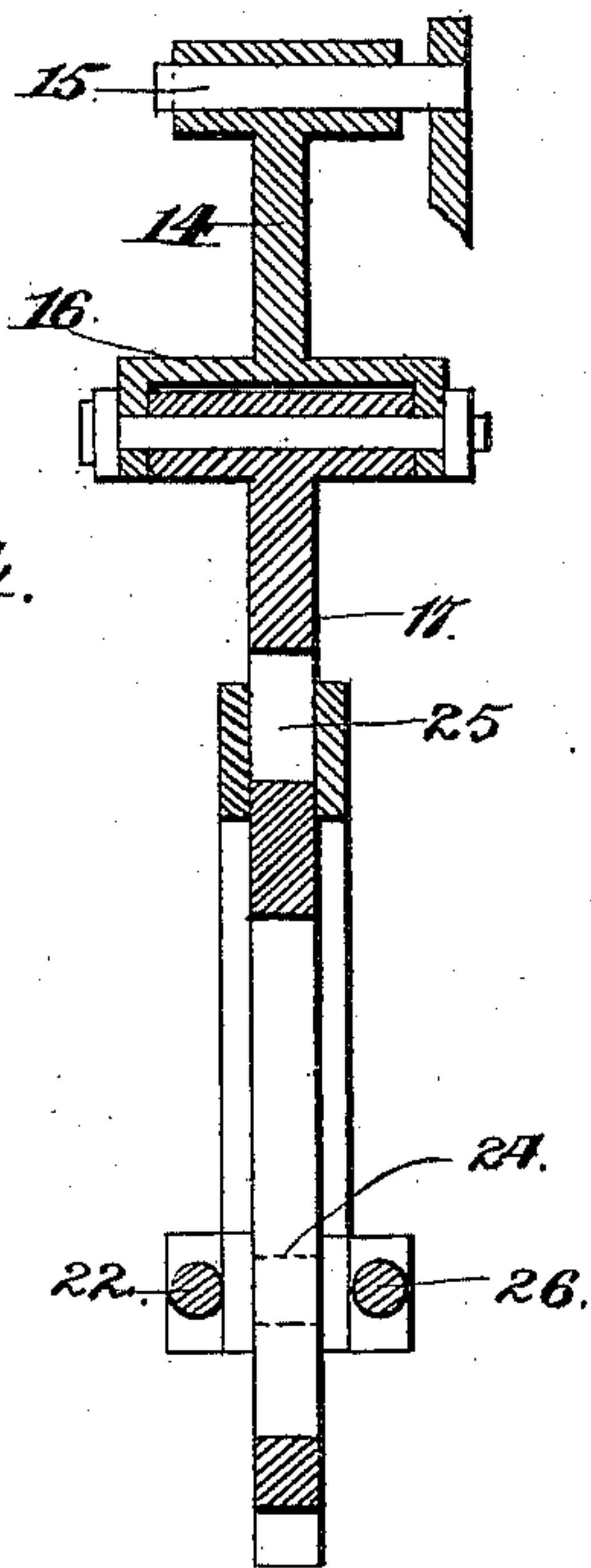
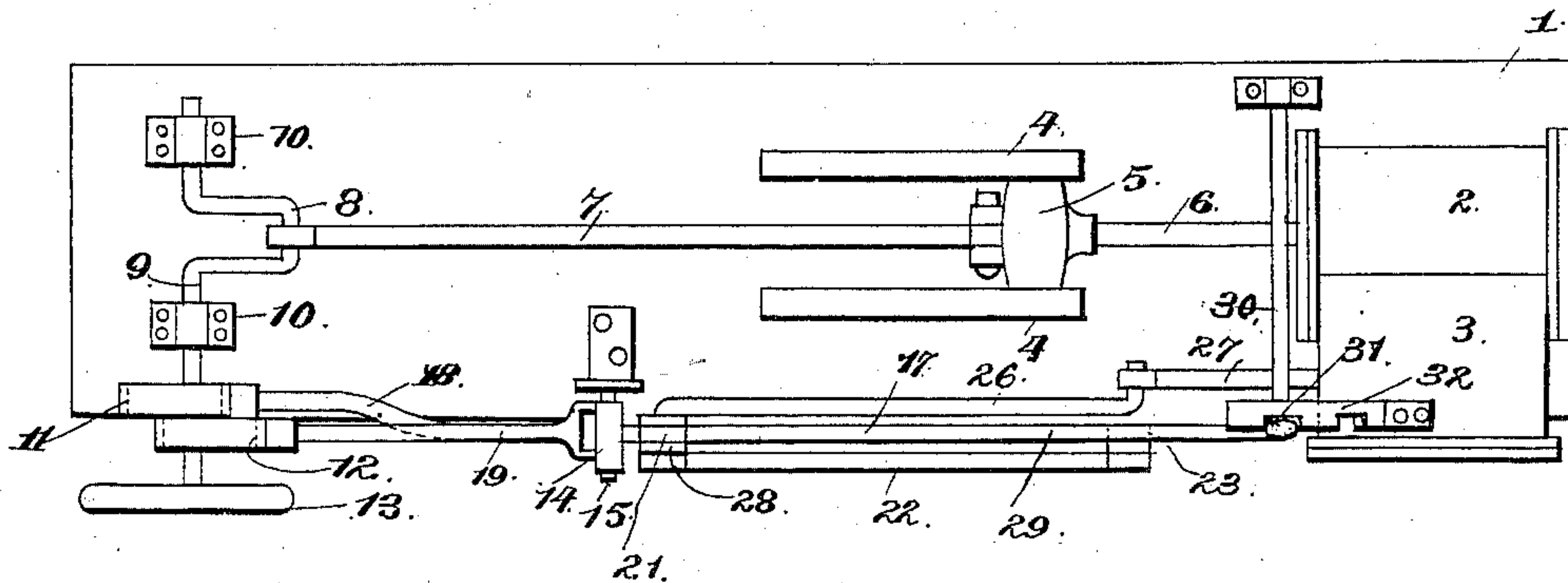


Fig. 4.

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UNITED STATES PATENT OFFICE.

HARRY O. THOMAS, OF CHERRY VALE, KANSAS.

REVERSING-GEAR.

SPECIFICATION forming part of Letters Patent No. 433,499, dated August 5, 1890.

Application filed December 21, 1889. Serial No. 334,506. (No model.)

To all whom it may concern:

Be it known that I, HARRY O. THOMAS, a citizen of the United States, residing at Cherry Vale, in the county of Montgomery and State of Kansas, have invented a new and useful Reversing-Gear, of which the following is a specification.

This invention relates to valve-reversing gear for steam-engines; and it has for its object to provide a reversing mechanism which shall be simple in construction and easily applied to steam-engines of ordinary construction, and by means of which the valve mechanism may be perfectly controlled, regulated, and reversed, as may be required.

The invention consists in the improved construction, arrangement, and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings hereto annexed, Figure 1 is a perspective view showing my invention applied to a steam-engine of ordinary construction. Fig. 2 is a side elevation, on a larger scale, of the parts comprising my invention. Fig. 3 is a top view. Fig. 4 is a transverse sectional detail view.

Like numerals of reference indicate like parts in all the figures.

1 designates the bed or base which supports the cylinder 2 and valve-chest 3.

4 4 designate the gibs on which slides the cross-head 5, which is connected with the piston-rod 6 and with the pitman 7, the opposite end of which is connected with the wrist-pin or crank 8 upon the main shaft 9, which latter is journaled in boxes or bearings 10 10 of the machine in the usual manner. All the foregoing parts form no part of my invention, and they may be varied or modified in a variety of ways. The main shaft 9 is provided with two eccentric disks 11 12, and at one end of the said main shaft a fly-wheel 13 may be mounted in the usual manner.

14 designates the link or hanger which is mounted pivotally on a bearing 15, and which is provided at its lower end with a yoke 16, which is connected pivotally with one corner of a triangular frame 17, the shape of which is approximately that of an isosceles triangle, and which is supported by means of the said yoke or hammer.

18 19 designate two eccentric rods, connect-

ing the eccentric disks 11 and 12, respectively, with the rear corners 20 and 21 of the triangular frame 17, to the latter of which corners the yoke or hanger 14 is likewise connected.

22 designates a rod or connecting-arm, which is mounted pivotally at the front corner 23 of the frame 17, and is provided at its rear end with a head 24, sliding in a segmental slot 25 in the base of the triangular frame 17. The head 24 is connected by a pivoted rod 26 with the valve-stem 27. The said head 24 is also connected by a link 28 with one arm 29 of a bell-crank lever mounted pivotally at 30, and which constitutes the reversing-lever, and the vertical arm 31, which forms a handle by means of which it may be operated, said handle being adapted to engage a segmental rack 32 for the purpose of retaining it in any position to which it may be adjusted.

The operation of this invention will be readily understood from the foregoing description taken in connection with the drawings hereto annexed. The triangular frame is suspended, as will be seen, from the link or hanger 14, and it oscillates upon a fulcrum which is determined by the position of the adjustable head 24, which is manipulated by means of the reversing-lever. It will be seen that when the valve is at either end of its stroke and the head 24 is moved from one end of the slot 25 to the other the position of the valve is instantly reversed in an exceedingly convenient and certain manner.

None of the strain transmitted between the eccentric 11 or 12 and the valve-stem 27 comes upon the segmental slot, but upon the bearing 23 in frame 17.

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

1. In a reversing-gear for steam-engines, the combination of the valve-rod, the connecting-rod 6, the triangular frame having segmental slots 25, and the connecting-arm 22, pivoted at the point of said triangular frame and connected pivotally with the connecting-rod 26 by means of a head 24, mounted to slide in a segmental slot in said triangular frame, and a link connecting said sliding head with the reversing-lever, substantially as and for the purpose set forth.

2. In a reversing-gear for steam-engines,

the combination of the triangular frame, suspended from a link or hanger and having a segmental slot, with the eccentric-rods connected pivotally to the rear corners of said
5 frame, a head mounted to slide in the segmental slot thereof and connected pivotally with a pitman connected to the valve-stem and with a connecting-rod pivoted at the front corner of the frame, and the link connecting
10 the said sliding head with the reversing-gear, substantially as and for the purpose set forth.

3. In a valve-reversing gear, the combination, with the triangular frame connected pivotally with the eccentric-rods and having
15 a sliding head mounted in a segmental slot in said frame and connected pivotally with links

or rods, the opposite ends of which are connected, respectively, with the front corner of the frame, with the valve-stem, and with the reversing-lever, of a link or hanger mounted
20 pivotally in suitable bearings and terminating at its lower end in a yoke connected pivotally with and supporting the said triangular frame, substantially as and for the purpose herein
25 set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

HARRY O. THOMAS.

Witnesses:

JOSEPH ROWAND,
R. A. ROGERS.