

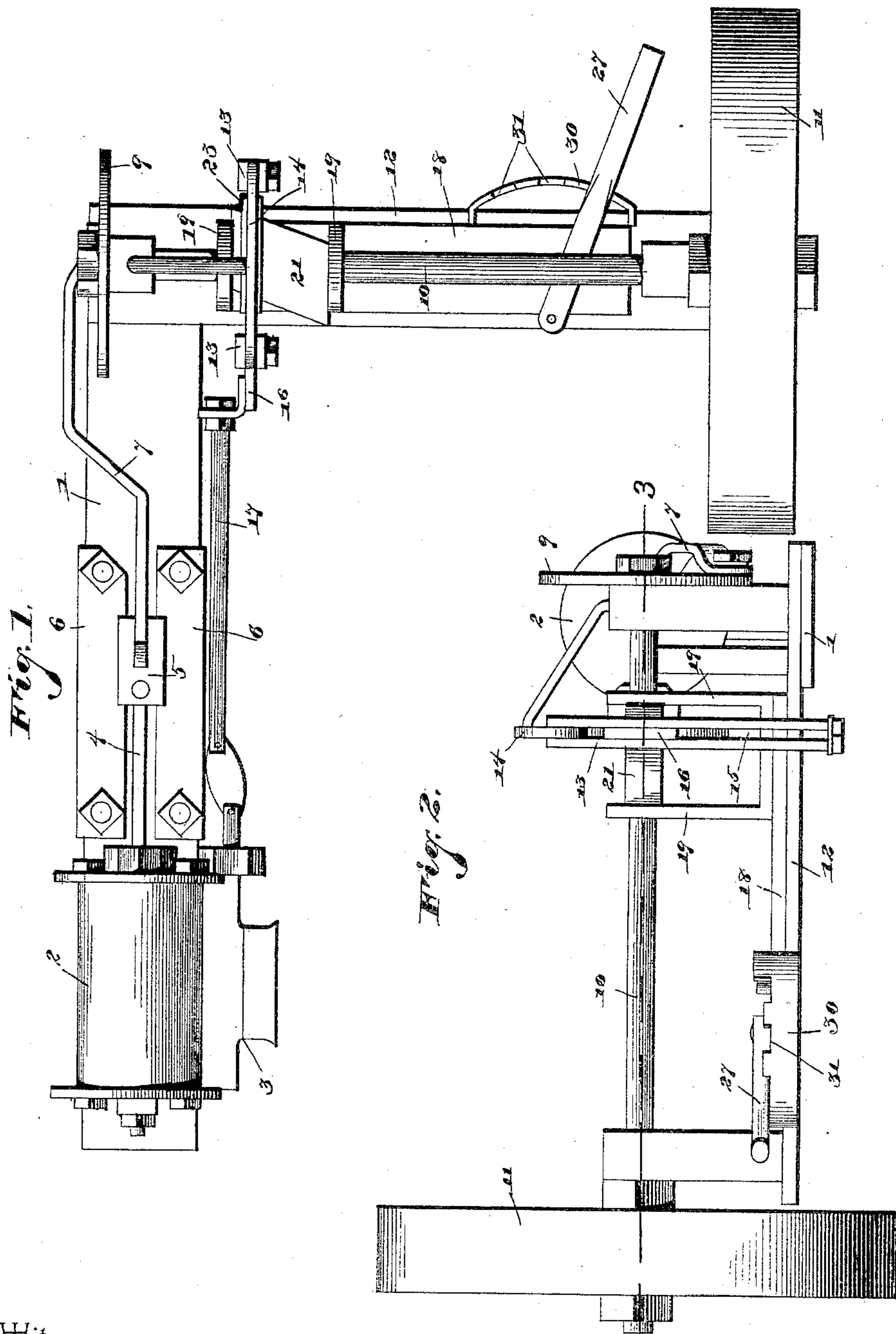
(No Model.)

2 Sheets—Sheet 1.

J. BARNES.
ENGINE REVERSING GEAR.

No. 444,971.

Patented Jan. 20, 1891.



Witnesses

Samuel Ker.
Wm. Bagger

By His Attorneys,

C. A. Snow & Co.

Inventor

John Barnes.

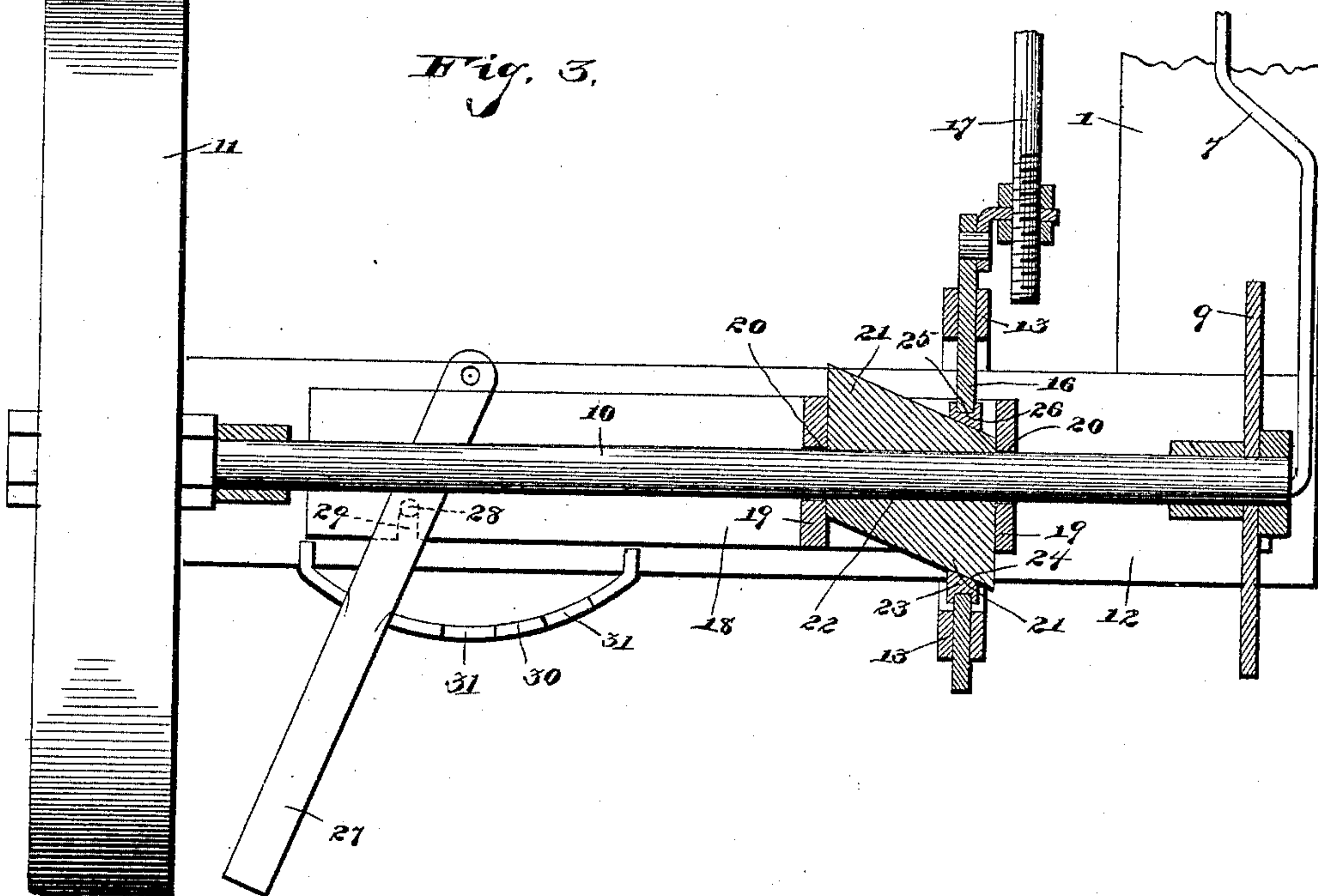
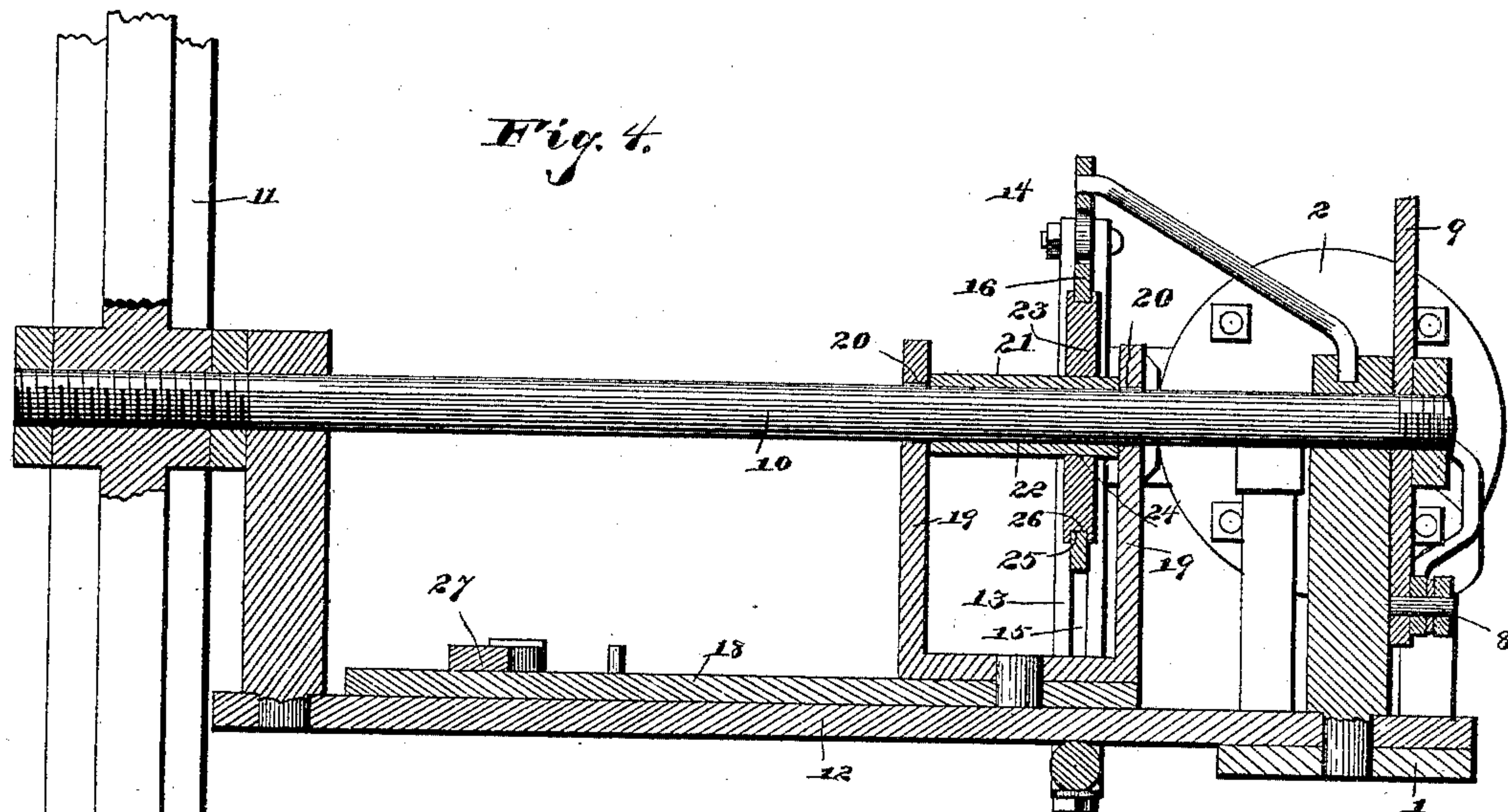
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UNITED STATES PATENT OFFICE.

JOHN BARNES, OF PAXTON, ILLINOIS.

ENGINE REVERSING-GEAR.

SPECIFICATION forming part of Letters Patent No. 444,971, dated January 20, 1891.

Application filed August 26, 1890. Serial No. 363,112. (No model.)

To all whom it may concern:

Be it known that I, JOHN BARNES, a citizen of the United States, residing at Paxton, in the county of Ford and State of Illinois, have invented a new and useful Engine Reversing-Gear, of which the following is a specification.

This invention relates to reversing-gear for steam-engines; and it has for its object to construct an apparatus of this class which shall possess superior advantages in point of simplicity, durability, and general efficiency, and which may be very easily and quickly manipulated to reverse the position of the valve and to change the direction of rotation.

With these ends in view 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 plan view of a machine embodying my improvements. Fig. 2 is an end elevation of the same. Fig. 3 is a horizontal sectional view taken on the line 3 3 in Fig. 2. Fig. 4 is a vertical transverse sectional view taken through the main shaft of the engine.

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

1 designates the base of the engine, and 2 is a cylinder, which is provided with the valve-chest 3. The piston-rod 4 is connected at its front end with a cross-head 5, which slides upon the guideways 6 and which is connected by the pitman 7 with a wrist-pin 8 upon a wheel or disk 9, mounted upon the main shaft 10. The latter carries the balance-wheel 11, and it is obvious that the pitman may, if desired, be connected direct with the balance-wheel without departing from the spirit of my invention.

The base of the machine is provided with a lateral extension 12, which forms the foundation for the bearings of the main shaft.

13 designates a frame composed of two uprights rising from the base in front and in rear of the main shaft and connected at their upper ends by means of a cross-piece 14. The uprights of the frame 13 are provided with vertical slots 15, in which is mounted a vertically-sliding frame 16, which constitutes the eccentric ring, and which is connected with the valve-stem 17, the opposite end of which

connects with the valve, which is an ordinary slide-valve mounted to reciprocate in the steam-chest 3.

18 designates a slide, which is mounted upon the lateral extension 12 of the base, directly below the main shaft. Said slide is provided with uprights 19, having perforations 20, that fit over the main shaft.

21 designates a rhomboidal block, which is provided with a transverse perforation 22, formed at right angles to opposite sides of said block, and by means of which it is mounted slidingly upon the main shaft between the uprights 19. It will thus be seen that by moving the slide 18 laterally upon the base the rhomboidal block 21 will be moved longitudinally upon the main shaft.

23 designates the eccentric disk, which is provided with a transverse slot 24, fitting over the opposite sides of the block 21, which are inclined or oblique with relation to the main shaft. Said eccentric disk 23 is provided with an annular groove 25, engaging the circular perforation or opening 26 in the frame 16, which constitutes the eccentric band. Lateral movement of the said frame is prevented by the frame 13, in the vertical slots of which it is confined, and lateral movement of the eccentric disk is prevented by the groove 25, engaging the said frame.

Suitably pivoted to the lateral extension 12 of the base is a hand-lever 27, having a lug or stud 28, which engages a slot 29 in the slide 18, which latter by means of the said lever may be moved transversely upon the base. A segment 30 is provided having notches 31, in any one of which the hand-lever may be adjusted for the purpose of retaining the parts actuated by said hand-lever in any position in which it may be placed.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of my invention will be readily understood by those skilled in the art to which it pertains. By manipulating the hand-lever 27 to slide the frame 18 so as to move the rhomboidal block 21 its full length, the valve, if at the end of its stroke, will be instantly reversed, or if at the center of its stroke the direction of its movement will be reversed, thus instantly reversing the direction of rotation. By ma-

nipulating the hand-lever to adjust the block 21 centrally with relation to the eccentric disk the operation of the valve will be suspended, the eccentric-disk having been centered with relation to the main shaft.

The construction of my improved reversing-gear is exceedingly simple, and it may be readily applied to engines of ordinary construction.

10 The parts of the device are very few and simple, and it is therefore not liable to get out of order.

By my invention rattling of the hand-lever in its notches, in case the latter should become worn by long use, is also prevented, inasmuch as the tendency will be to throw the lever in contact with one side of the notch in which it may be adjusted and to hold it there without vibration.

20 Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a reversing-gear for steam-engines, the combination, with the main shaft, of a 25 rhomboidal block mounted on said main shaft by a transverse perforation at right angles to its opposite sides, a slide mounted upon the base and having uprights provided with per-

forations fitting over the main shaft on opposite sides of said rhomboidal block, the eccentric disk having a transverse slot mounted upon the said block and an annular groove engaging the eccentric ring, the vertically-sliding uprights forming bearings for the said eccentric ring to prevent lateral movement of the latter, and the hand-lever for adjusting the transversely-movable slide, substantially as and for the purpose set forth.

2. In a reversing-gear for steam-engines, having the rhomboidal block mounted slid- 40 ingly upon the main shaft and engaging a transverse slot in the eccentric disk, the slide mounted to move transversely upon the base and having uprights provided with perforations admitting the main shaft and fitted 45 against the opposite ends of the rhomboidal block, which latter may thus be moved longitudinally upon the main shaft, substantially as set forth.

In testimony that I claim the foregoing as 50 my own I have hereto affixed my signature in presence of two witnesses.

JOHN BARNES.

Witnesses:

J. H. LOTT,
JOHN MORRIS.