

No. 775,142.

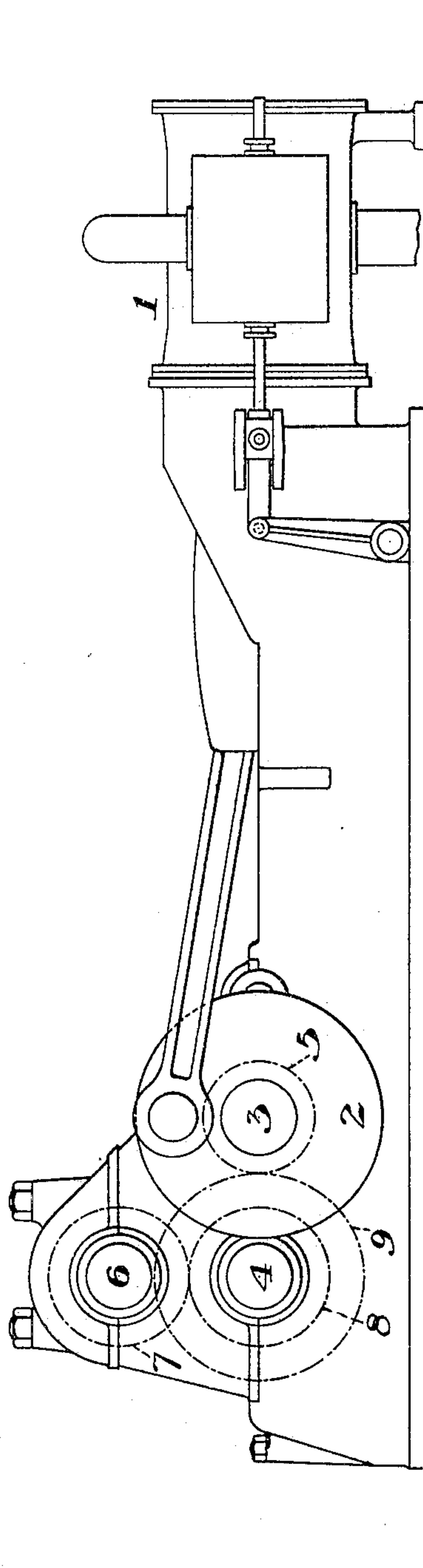
PATENTED NOV. 15, 1904.

J. KENNEDY.
ROLL PINION MECHANISM.
APPLICATION FILED NOV. 19, 1903.

NO MODEL.

3 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

Thomas W. Bascidell
Warren W. Swartz

INVENTOR

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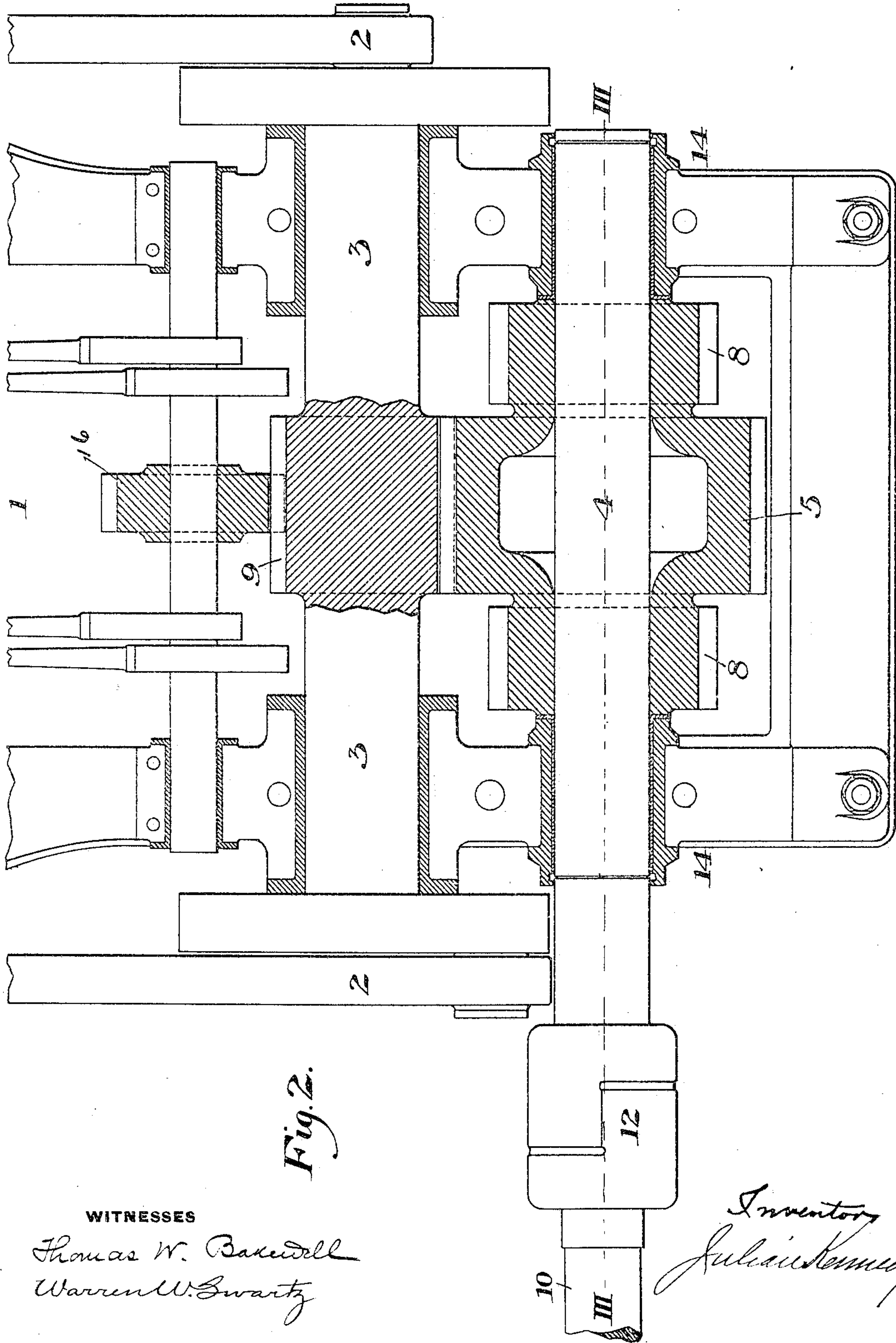
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3 SHEETS—SHEET 2.



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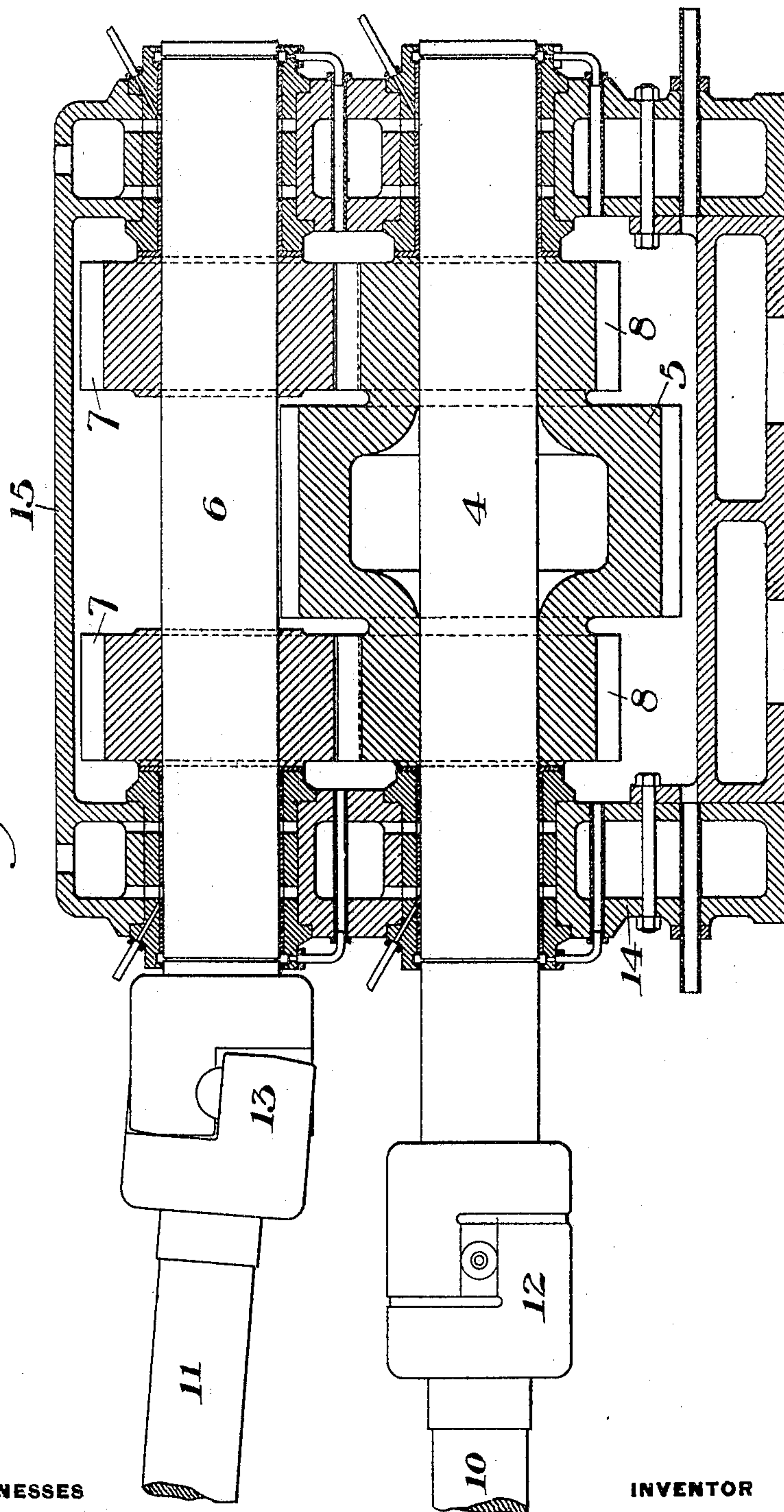
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3 SHEETS—SHEET 3.

Fig. 3.



WITNESSES

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INVENTOR

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UNITED STATES PATENT OFFICE.

JULIAN KENNEDY, OF PITTSBURG, PENNSYLVANIA.

ROLL-PINION MECHANISM.

SPECIFICATION forming part of Letters Patent No. 775,142, dated November 15, 1904.

Application filed November 19, 1903. Serial No. 181,787. (No model.)

To all whom it may concern:

Be it known that I, JULIAN KENNEDY, of Pittsburgh, Allegheny county, Pennsylvania, have invented a new and useful Roll-Pinion Mechanism, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an end elevation of my improved pinions shown in connection with the steam-engine. Fig. 2 is a plan view of the pinions, partly in horizontal section and on a larger scale than Fig. 1. Fig. 3 is a vertical section on the line III III of Fig. 2.

In the drawings, 1 represents the driving-engine of a rolling-mill, which transmits power to the pinions of the rolls by suitable pitmen 2 and main shaft 3. The main shaft 3 is mounted in the pinion-housing, and the pitmen or other driving connections are preferably connected to it at both ends and apply driving power to it simultaneously at both ends.

4 is the pinion-shaft of the lower roll and has a middle pinion 5.

6 is the pinion-shaft of the upper roll and has pinions 7 7, which gear with pinions 8 8 on the shaft 4, set at the sides of and preferably integral with the middle pinion 5, but of less diameter than the pinion 5. The pinions 7 and 8 are of equal diameter, and the shafts 4 and 6 are in the same vertical plane. The engine-shaft 3 has a pinion 9, which is in gear with the pinion 5 on the shaft 4 and drives the same. This shaft 4 transmits rotary motion through the side pinions 8 8 to the pinions 7 7 on the upper shaft 6. The shafts 4 and 6 are connected with the rolls by the usual spindles 10 11 and couplings 12 13.

16 is a pinion which is in gear with the pinion 9 and is employed to drive the shaft on which are the valve-eccentrics.

The pinions are mounted in a housing 14 and are preferably inclosed by a suitable case 15, forming part of the housing.

By using the double pinion on the upper

shaft 6 a clearance is given for the accommodation of a middle pinion 5 of large diameter on the lower shaft 4, which works between 7 7, and at the same time the double pinions 7 7 and 8 8 and middle pinion 5 distribute the strains symmetrically to the three shafts 3, 4, and 6, producing a much more desirable, durable, and compact structure than if the pinions were unsymmetrically placed upon the shafts, as heretofore.

It will be apparent to those skilled in the art that the parts of the structure may be inverted, the shaft carrying the pinion 5, which is in gear with the engine-shaft, being placed above and the shaft 6 being placed below, and that the shaft of the pinion 9 may be set in the same vertical plane with the shafts 4 and 6 above or below the same, instead of being placed at the side of one of the shafts, as shown.

I claim—

1. In a roll-pinion mechanism, the combination of a driving-shaft, a pinion thereon, a second shaft adjacent thereto, a middle pinion and side pinions of less diameter thereon, a third shaft and pinions thereon in gear with the side pinions of the second shaft, the side pinions of the second shaft and the pinions of the third shaft in gear therewith being of the same diameter; substantially as described.

2. In a roll-pinion mechanism, the combination of a driving-shaft, a pinion thereon, a second shaft adjacent thereto, a middle pinion and side pinions of less diameter thereon, a third shaft and pinions thereon in gear with the side pinions of the second shaft, and an engine connected to both ends of the driving-shaft and applying power thereto simultaneously at both ends; substantially as described.

3. In a roll-pinion mechanism, the combination of a driving-shaft, a pinion thereon, and a second shaft adjacent thereto, a middle pinion and side pinions of less diameter thereon, a third shaft, pinions thereon in gear with the side pinions of the second shaft, an eccentric-shaft, and a pinion thereon in gear with the

pinion of the driving-shaft; substantially as described.

4. In a roll-pinion mechanism the combination of a driving-shaft, a pinion thereon, a
5 second shaft adjacent thereto, a middle pinion and side pinions of less diameter thereon, a third shaft and pinions thereon in gear with the side pinions of the second shaft, said sec-

ond and third shafts being in the same vertical plane; substantially as described. 10

In testimony whereof I have hereunto set my hand.

JULIAN KENNEDY.

Witnesses:

GEO. B. BLEMING,
H. M. CORWIN.