

No. 793,912.

PATENTED JULY 4, 1905.

W. SCOTT.
PRINTING MACHINE.
APPLICATION FILED JAN. 27, 1904.

Fig. 1

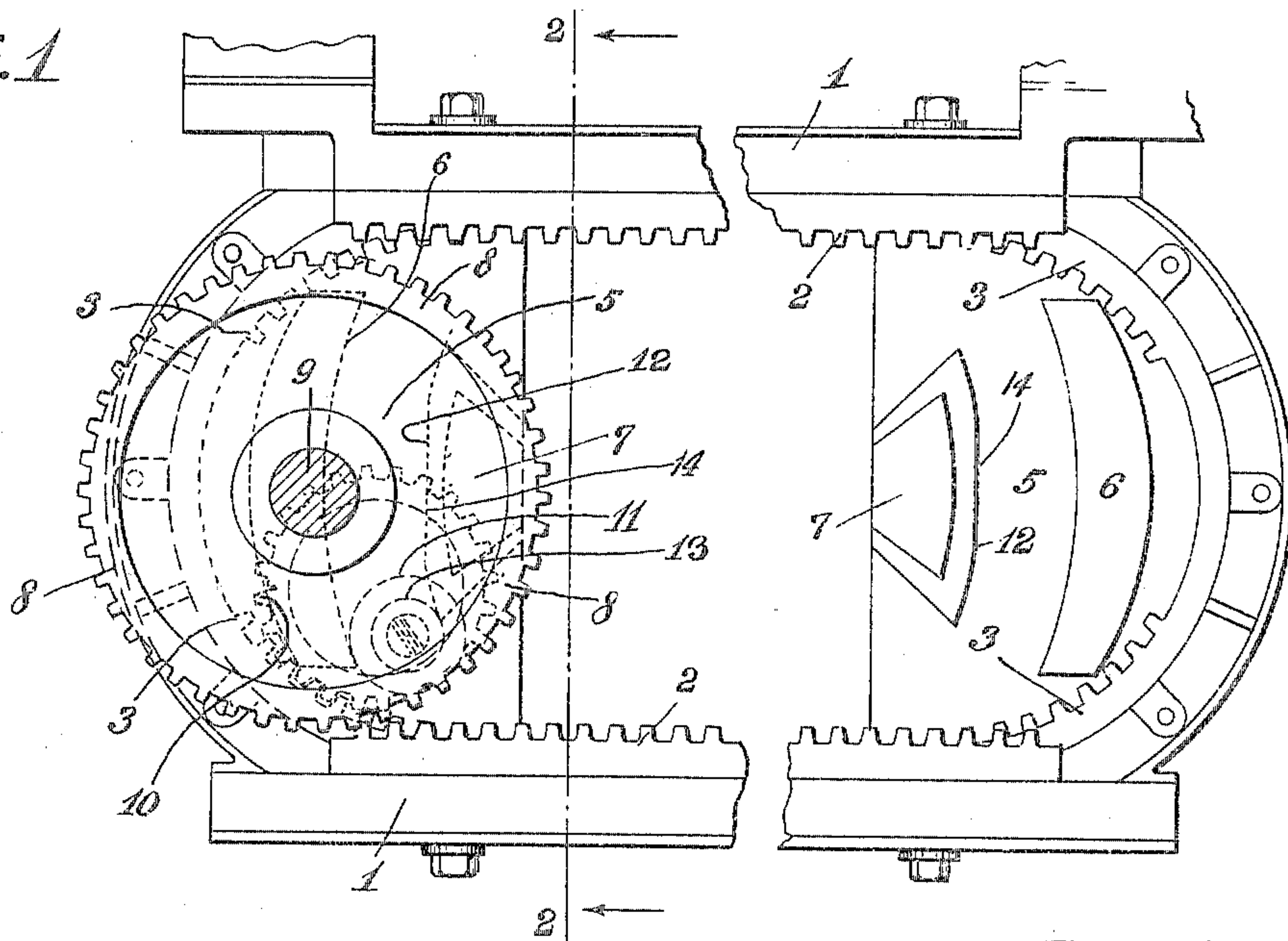


Fig. 3.

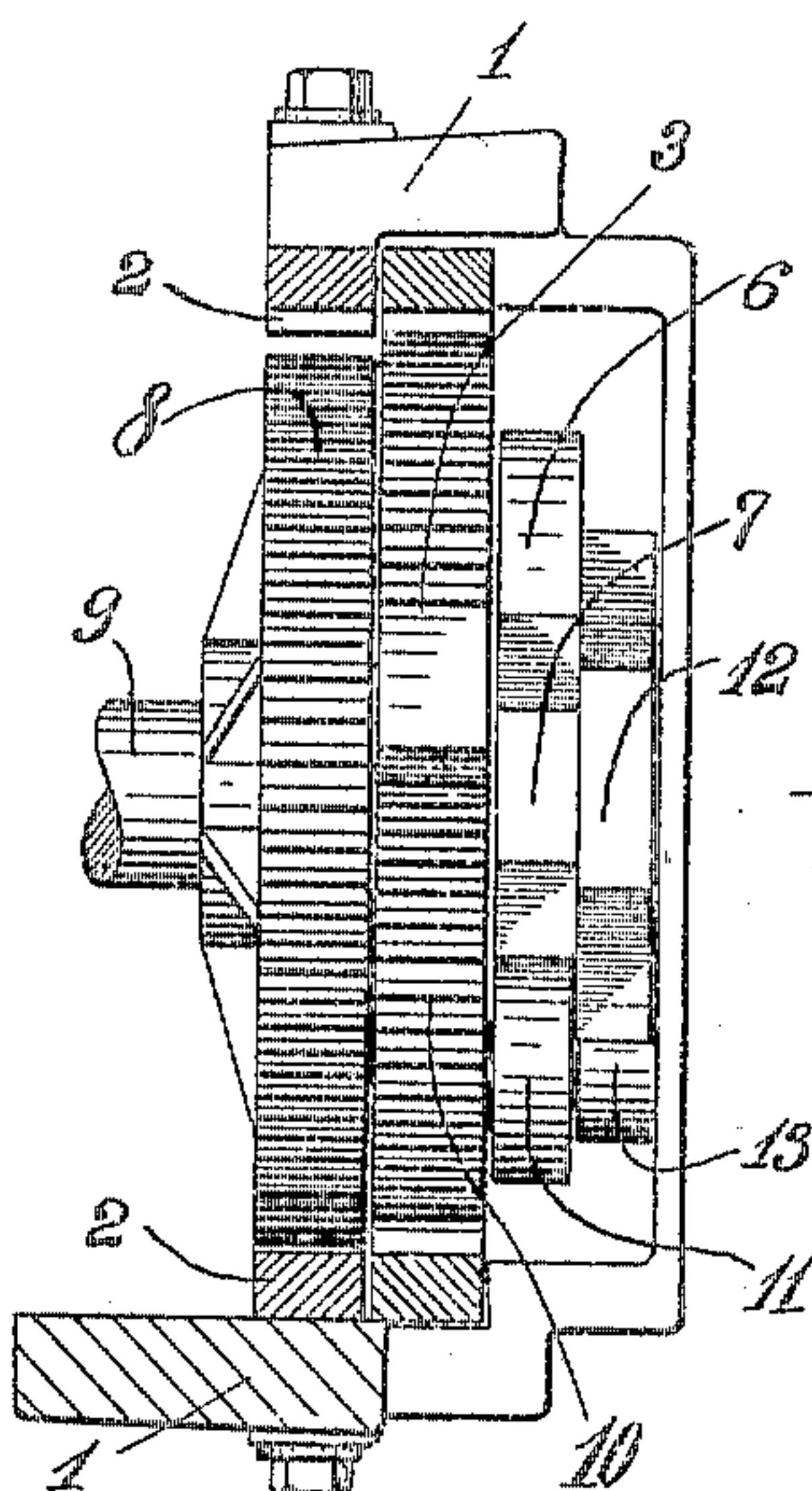
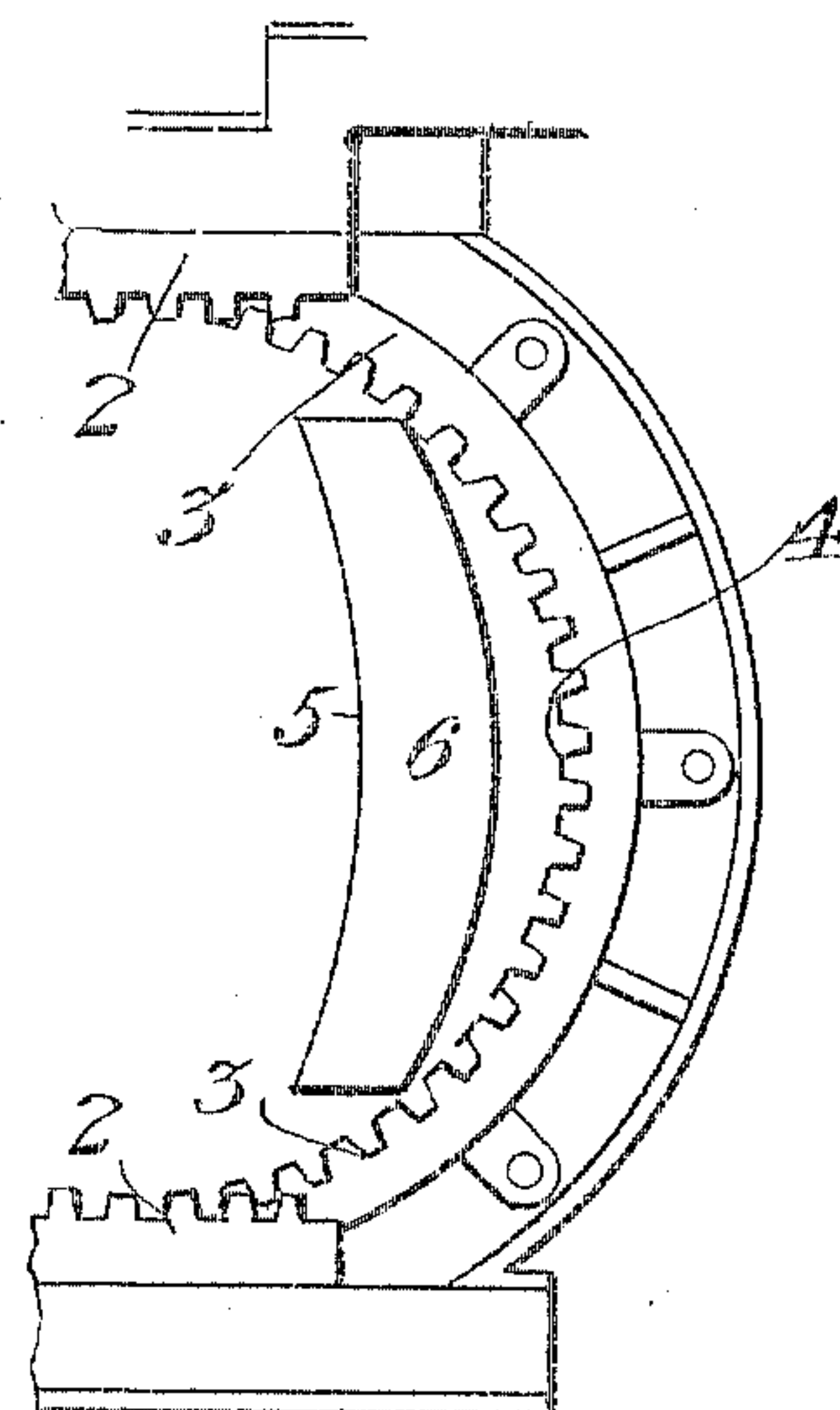


Fig. 2



Witnesses
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UNITED STATES PATENT OFFICE.

WALTER SCOTT, OF PLAINFIELD, NEW JERSEY.

PRINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 793,912, dated July 4, 1905.

Application filed January 27, 1904. Serial No. 190,778.

To all whom it may concern:

Be it known that I, WALTER SCOTT, a citizen of the United States of America, and a resident of Plainfield, Union county, New Jersey, have invented certain new and useful Improvements in Printing-Machines, of which the following is a specification.

My invention relates to printing or other machines in which a reciprocating bed is used, and has more especially reference to the means for reversing the motion of the bed at the end of its stroke in either direction.

In an application filed April 15, 1901, Serial No. 55,820, by myself jointly with Eugene W. Swindells there was shown and claimed a reciprocating bed having two main racks, two slots, and two curved segments at each end, together with a driving-gear adapted to engage alternately with the main racks, a roll to engage with either side of the said slots to reverse the bed and to control the same during the reversing operation, and an auxiliary gear or pinion to engage with the curved racks at the end to bridge over or continue the motion while the driving-gear is disengaging with one of the main racks and while the roll is about to engage with one of the slots, or vice versa. This construction is fully set forth in the application above referred to and need not be further described here. Suffice it to say that the object of this construction is to enable the roll to engage with the sides of the slot, so as to hold the bed from undue movement in either direction on the turning-point as soon as possible after the driving-gear has disengaged with one of the main racks and until the said driving-gear is about to engage with the other of the main racks.

In large machines where the momentum of the bed is very heavy and the parts are comparatively large I find it advantageous to provide each slot with an auxiliary shoulder of a greater length than the inside walls of the slots and located on the same side as the said inside walls of the slots, but nearer the opposite sides of the slots than the inside walls of the said slots, and the driving-gear with an auxiliary roll of a smaller diameter than the first-mentioned roll and located concentrically of the said first-mentioned roll for engaging

with the auxiliary shoulder on each slot, so as to control the parts before the first-mentioned roll enters either slot sufficiently to engage with the inside walls of the said slots, thus having the main roll of sufficient size and strength to overcome the inertia of the bed and reverse the same.

In the accompanying drawings I have embodied my invention in a suitable form; but changes may of course be made without departing from the spirit of my invention.

In the said drawings, Figure 1 is a side elevation of a reciprocating bed of a printing-press and the means for driving the same. Fig. 2 is a sectional view on the line 2 2 of Fig. 1. Fig. 3 shows a modification.

Similar characters of reference indicate corresponding parts in the views.

1 indicates the bed, in this case of a printing-press, though the invention is not limited to the bed motion of a printing-press, carrying two main racks 2 2, two curved segments at each end 3 3, which may or may not be continuous; but, if desired, additional teeth, as 4, can be interposed between the two curved segments, making them continuous, as shown in Fig. 3. At each end there is further provided a slot, as 5, formed by the two shoes 6 and 7, 7 being the inside shoe.

8 is a driving-gear suitably mounted on the shaft 9 and adapted alternately to engage with the main racks 2 2 in a well-known manner. This driving-gear carries an auxiliary gear 10, which may be in the form of a complete gear or in the form of a mutilated gear, depending on whether or not the two curved segments at the end are continuous.

11 is a roll placed preferably at the point where its center will be substantially halfway between the center and pitch line of the auxiliary gear and of a diameter substantially equal to the width of the slot 5.

Owing to the large size of the parts, it will be seen that the inside wall or shoe 7 of the slot is comparatively short, so that the bed might not at all times be controlled properly after the driving-gear has disengaged with one of the main racks and before the roll 11 engages with the said inside wall or shoe 7, or vice versa. To overcome this difficulty, I

provide an auxiliary shoulder, as 12, of a greater length than the inside wall or shoe 7 of the slot and nearer the opposite wall or shoe 6 of the said slot. To cooperate with
 5 this I provide an auxiliary roll, as 13, mounted in the present instance concentrically of the roll 11, but of a smaller diameter than the latter. By this means the auxiliary roll 13 will engage with the auxiliary shoulder 12
 10 substantially at the moment the main driving-gear disengages with one of the main racks and substantially until the said driving-gear reengages with the other of the said main racks and before and after the roll 11 becomes
 15 effective with relation to the inside wall or shoe 7 of the slot. This construction will be readily understood by an inspection of Fig. 1 of the drawings, where the parts are shown in a position where the driving-gear is about
 20 to disengage one of the main racks and where the auxiliary roll is shown as engaging with the auxiliary shoulder. Owing to the fact that the wall or shoe 6 of the slot 5 is longer than the shoe or wall 7 the roll 11 will be-
 25 come effective with relation to the shoe or wall 6 at the same moment and as long as the auxiliary roll 13 is effective with relation to the auxiliary shoulder 12.

I prefer to construct my machine with two
 30 curved segments at each end, which may or may not be connected by intermediate teeth, as previously pointed out. Of course if it is desired one continuous segment could be substituted with the same effect. I wish, how-
 35 ever, to lay stress on the fact that a continuous segment is not necessary for the operation of my machine. The only purpose of having curved segments at the end is simply to bridge over or continue the motion before
 40 the roll engages with the slot and after the driving-gear has disengaged one of the racks, or vice versa.

The auxiliary shoulder 12 need not be continuous, as it is only designed to cooperate
 45 with the auxiliary roll 13 before and after the roll 11 controls the bed. In the drawings I have shown this auxiliary shoulder as being cut away at its central portion 14, so that the strain will be thrown on the roll 11 only. This,
 50 in fact, is the preferred construction. From this it follows that the said auxiliary shoulder 12 could be in the form of two shoes, one at each end of the slot, and the claims should be construed accordingly.

55 What I claim is—

1. A reciprocating bed having two main racks, two segments at each end, and two slots, in combination with a driving-gear caused to engage alternately with the main racks to re-
 60 ciprocate the said bed, an auxiliary gear carried by the driving-gear to engage with the curved racks, and a roll to engage with either side of the said slots to reverse the motion of the bed and to control it while turning, an
 65 auxiliary shoulder of a greater length than

the inside wall of the slot and located on the same side as the said inside wall of the said slot and nearer to the opposite side of the said slot at each end, and an auxiliary roll of a smaller diameter than the first-mentioned roll
 70 on the gear for engaging with the auxiliary shoulder to control the parts before the first-mentioned roll enters the slots sufficiently to engage with the inside wall of the said slot.

2. A reciprocating bed having two main
 75 racks, two segments at each end, and two slots, in combination with a driving-gear caused to engage alternately with the main racks to reciprocate the said bed, an auxiliary gear carried by the driving-gear to engage with the
 80 curved racks, and a roll located at a point substantially half-way between the center and pitch line of the auxiliary gear to engage with either side of the said slots to reverse the motion of the bed and to control it while turn-
 85 ing, an auxiliary shoulder of a greater length than the inside wall of the slot and located on the same side as the said inside wall of the said slot and nearer to the opposite side of the said slot at each end, and an auxiliary roll
 90 concentric of the first-mentioned roll of a smaller diameter than the first-mentioned roll on the gear for engaging with the auxiliary shoulder to control the parts before the first-mentioned roll enters the slots sufficiently to
 95 engage with the inside wall of the said slot.

3. The combination of a reciprocating bed, having two main racks, a slot at each end of the racks, and two curved segments intermediate the two main racks at each end, a driv-
 100 ing-gear adapted to engage alternately with the said racks to reciprocate the bed, a friction-roll carried by the gear adapted to engage with either side of the slot to reverse the motion of the bed and to control it while
 105 turning, an auxiliary gear carried by the driving-gear adapted to coact with the curved segments to continue the movement of the bed while the racks disengage with the driving-gear, and while the roll is entering into
 110 engagement with the slot or vice versa, and an auxiliary shoulder of a greater length than the inside wall of the slot and located on the same side as the said inside wall at each end and nearer to the opposite wall of the slot
 115 than the said inside wall, and an auxiliary roll of a smaller diameter than the first-mentioned roll on the gear for engaging with the auxiliary shoulder to control the parts before the first-mentioned roll enters the slot sufficiently
 120 to engage with the inside wall of the said slot.

4. The combination of a reciprocating bed, having two main racks, a slot at each end of the racks, and two curved segments intermediate the two main racks at each end, a
 125 driving-gear adapted to engage alternately with the said racks to reciprocate the bed, a friction-roll located at a point substantially half-way between the center and pitch line of the auxiliary gear carried by the gear adapted
 130

to engage with either side of the slot to reverse the motion of the bed and to control it while turning, an auxiliary gear carried by the driving-gear adapted to coact the curved segments to continue the movement of the bed while the racks disengage with the driving-gear, and while the roll is entering into engagement with the slot or vice versa, and an auxiliary shoulder of a greater length than the inside wall of the slot and located on the same side as the said inside wall at each end and nearer to the opposite wall of the slot than the said inside wall, and an auxiliary roll concentric of the first-mentioned roll of a smaller diameter than the first-mentioned roll on the gear for engaging with the auxiliary shoulder to control the parts before the first-mentioned roll enters the slot sufficiently to engage with the inside wall of the said slot.

5. A reciprocating bed having two main racks, two segments at each end, and two slots, in combination with a driving-gear caused to engage alternately with the main racks to reciprocate the said bed, an auxiliary gear carried by the driving-gear to engage with the curved racks, and a roll to engage with either side of the said slots to reverse the motion of the bed and to control it while turning, an auxiliary shoulder of a greater length than the inside wall of the slot and located on the same side as the said inside wall of the said slot and nearer to the opposite side of the said slot at each end, and an auxiliary roll of a smaller diameter than the first-mentioned roll on the gear for engaging with the auxiliary shoulder to control the parts before the first-mentioned roll enters the slots sufficiently to engage with the inside wall of the said slot, and intermediate teeth connecting said curved segments at each end.

6. A reciprocating bed having two main racks, two segments at each end, and two slots, in combination with a driving-gear caused to engage alternately with the main racks to reciprocate the said bed, an auxiliary gear carried by the driving-gear to engage with the curved racks, and a roll located at a point substantially half-way between the center and pitch line of the auxiliary gear to engage with either side of the said slots to reverse the motion of the bed and to control it while turning, an auxiliary shoulder of a greater length than the inside wall of the slot and located on the same side as the said inside wall of the said slot at each end, an auxiliary roll concentric of the first-mentioned roll of a smaller diameter than the first-mentioned roll on the gear for engaging with the auxiliary shoulder to control the parts before the first-mentioned roll enters the slots sufficiently to engage with the inside wall of the said slot, and intermediate teeth connecting said curved segments at each end.

7. The combination of a reciprocating bed, having two main racks, a slot at each end of the racks, and two curved segments intermediate the two main racks at each end, a driving-gear adapted to engage alternately with the said racks to reciprocate the bed, a friction-roll carried by the gear adapted to engage with either side of the slot to reverse the motion of the bed and to control it while turning, an auxiliary gear carried by the driving-gear adapted to coact the curved segments to continue the movement of the bed while the racks disengage with the driving-gear, and while the roll is entering into engagement with the slot or vice versa, an auxiliary shoulder of a greater length than the inside wall of the slot and located on the same side as the said inside wall at each end and nearer to the opposite wall of the slot than the said inside wall, an auxiliary roll of a smaller diameter than the first-mentioned roll on the gear for engaging with the auxiliary shoulder to control the parts before the first-mentioned roll enters the slot sufficiently to engage with the inside wall of the said slot, and intermediate teeth connecting said curved segments at each end.

8. The combination of a reciprocating bed, having two main racks, a slot at each end of the racks, and two curved segments intermediate the two main racks at each end, a driving-gear adapted to engage alternately with the said racks to reciprocate the bed, a friction-roll located at a point substantially half-way between the center and pitch line of the auxiliary gear carried by the gear adapted to engage with either side of the slot to reverse the motion of the bed and to control it while turning, an auxiliary gear carried by the driving-gear adapted to coact with the curved segments to continue the movement of the bed while the racks disengage with the driving-gear, and while the roll is entering into engagement with the slot or vice versa, an auxiliary shoulder of a greater length than the inside wall of the slot and located on the same side as the said inside wall at each end and nearer to the opposite wall of the slot than the said inside wall, an auxiliary roll concentric of the first-mentioned roll of a smaller diameter than the first-mentioned roll on the gear for engaging with the auxiliary shoulder to control the parts before the first-mentioned roll enters the slot sufficiently to engage with the inside of the said slot, and intermediate teeth connecting said curved segments at each end.

Signed at New York this 26th day of January, 1904.

WALTER SCOTT.

Witnesses:

AXEL V. BEEKEN,
HELEN M. SEAMANS.