

No. 864,498.

PATENTED AUG. 27, 1907.

E. T. WRIGHT & C. LONGENECKER.

ROAD ROLLER,

APPLICATION FILED DEC. 4, 1906.

3 SHEETS—SHEET 1.

FIG. 2.

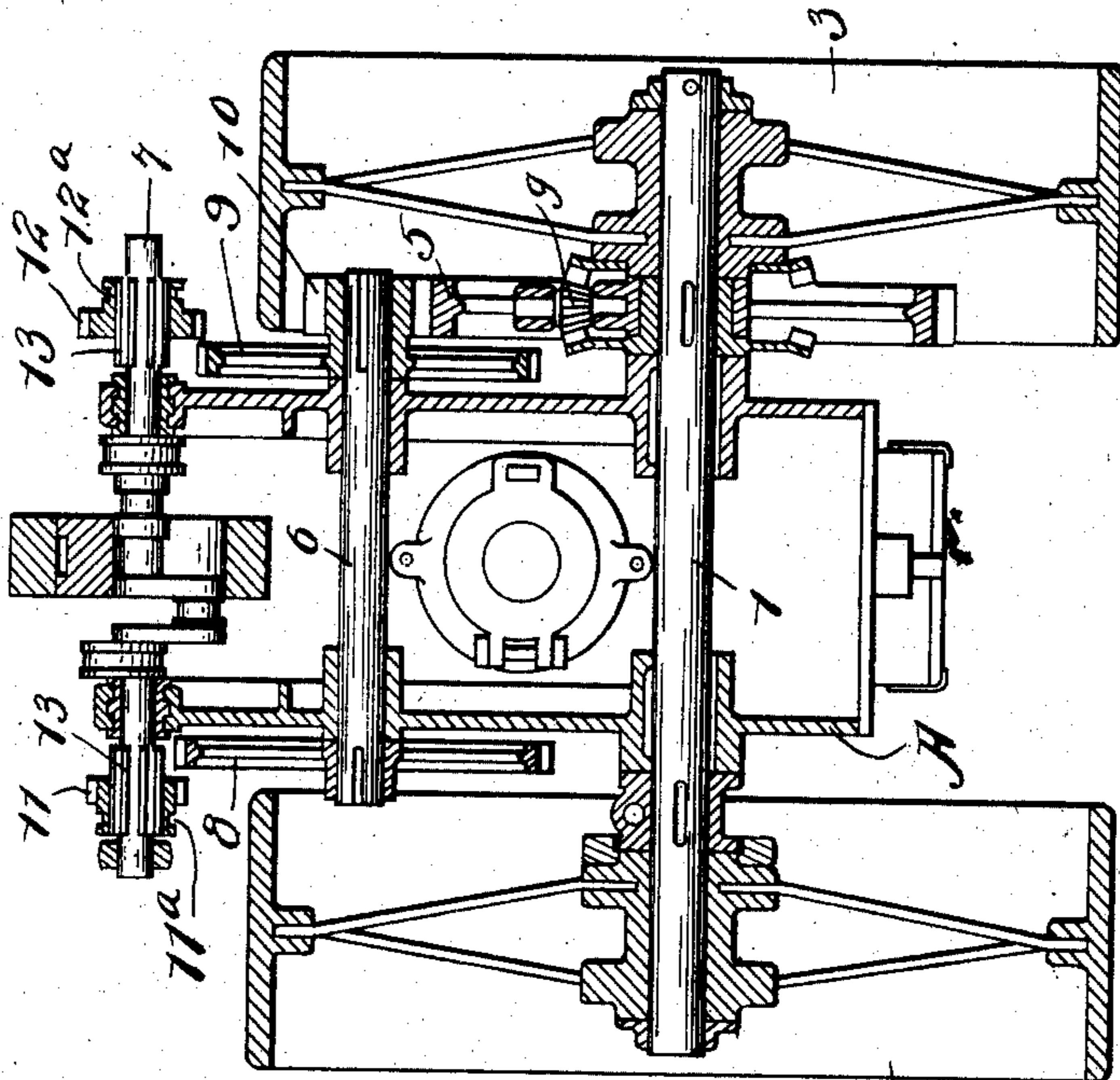
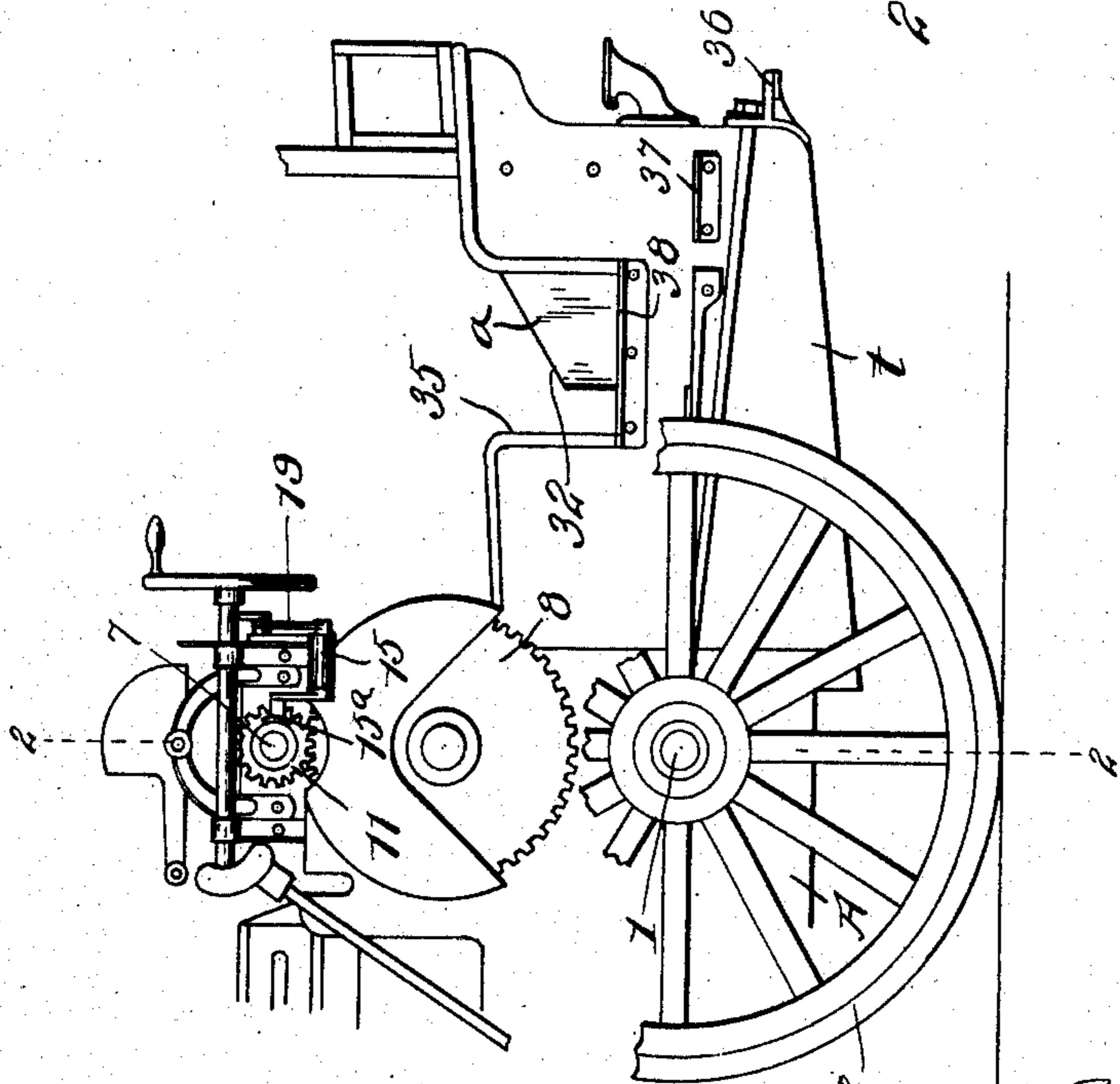


FIG. 1.



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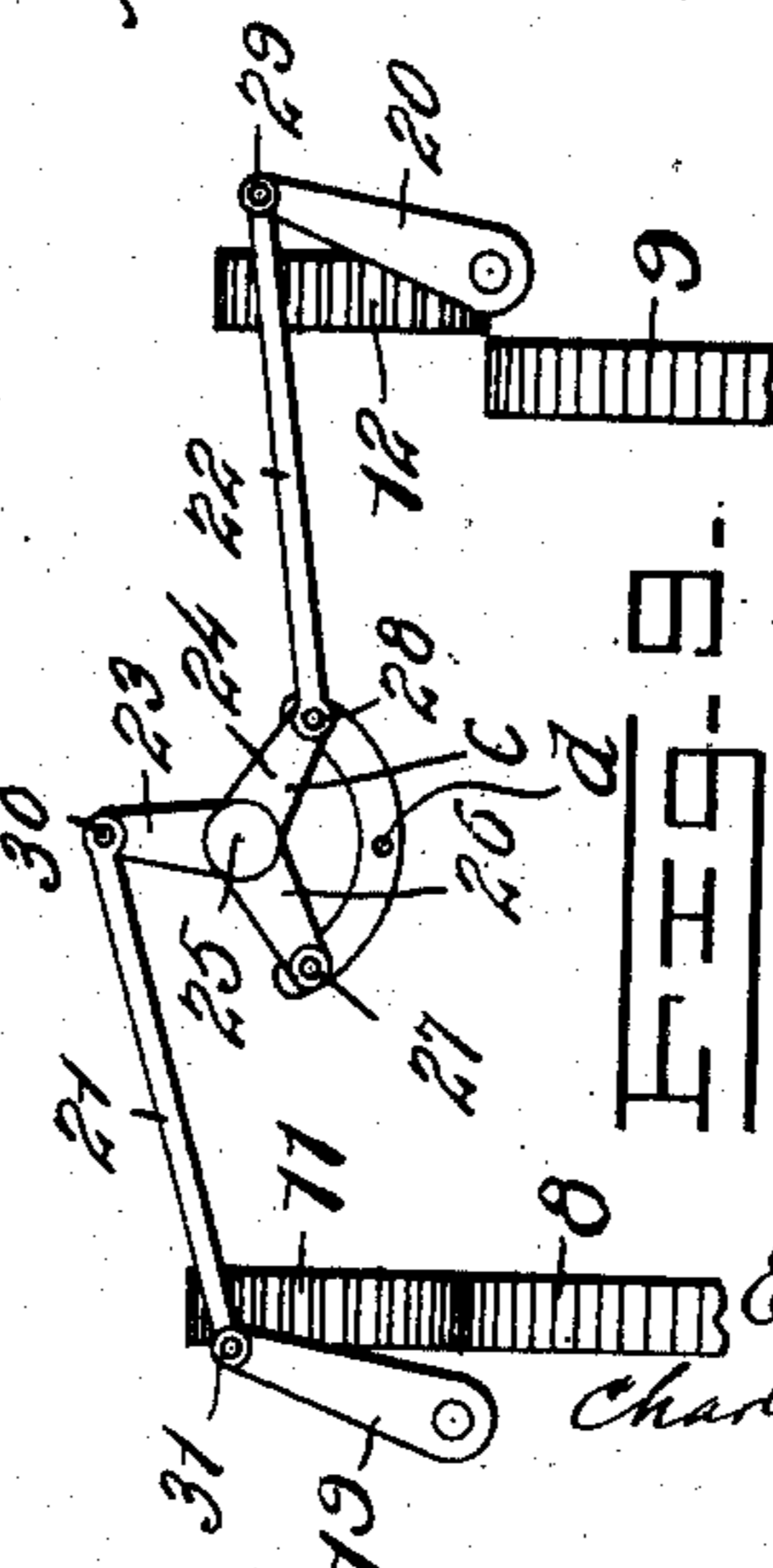
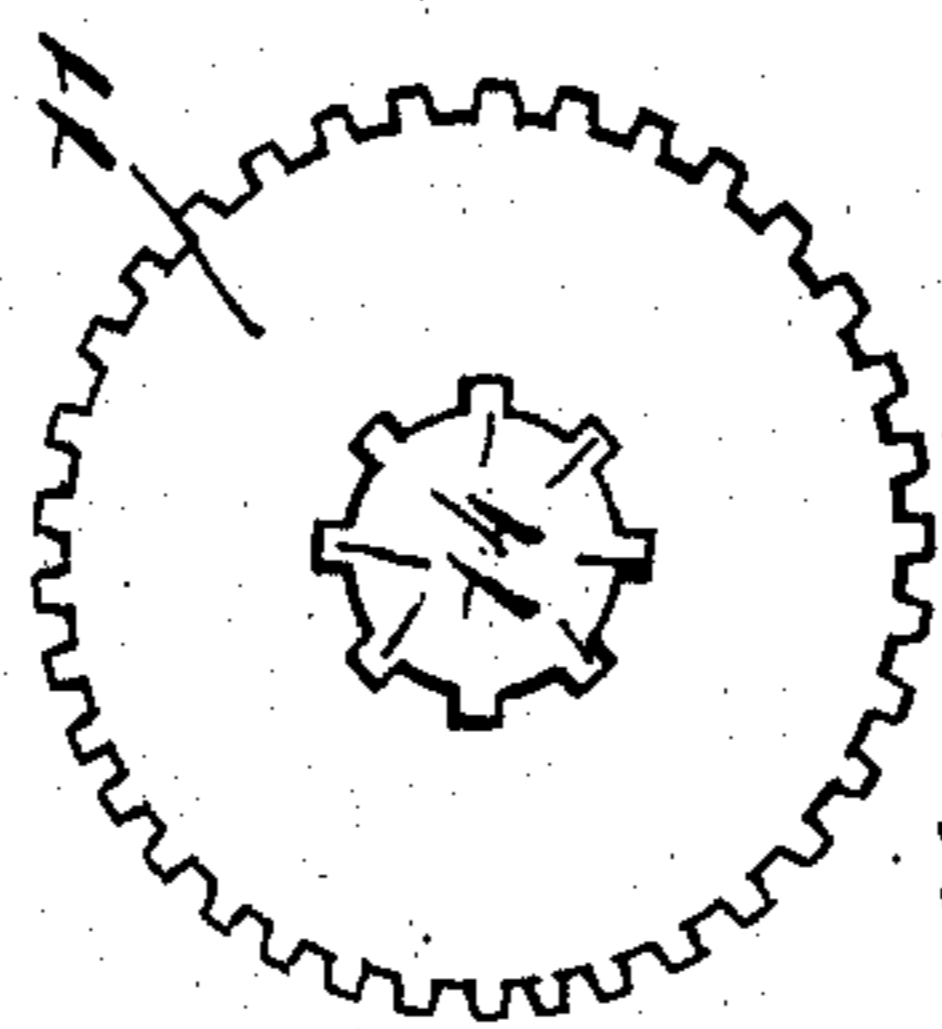
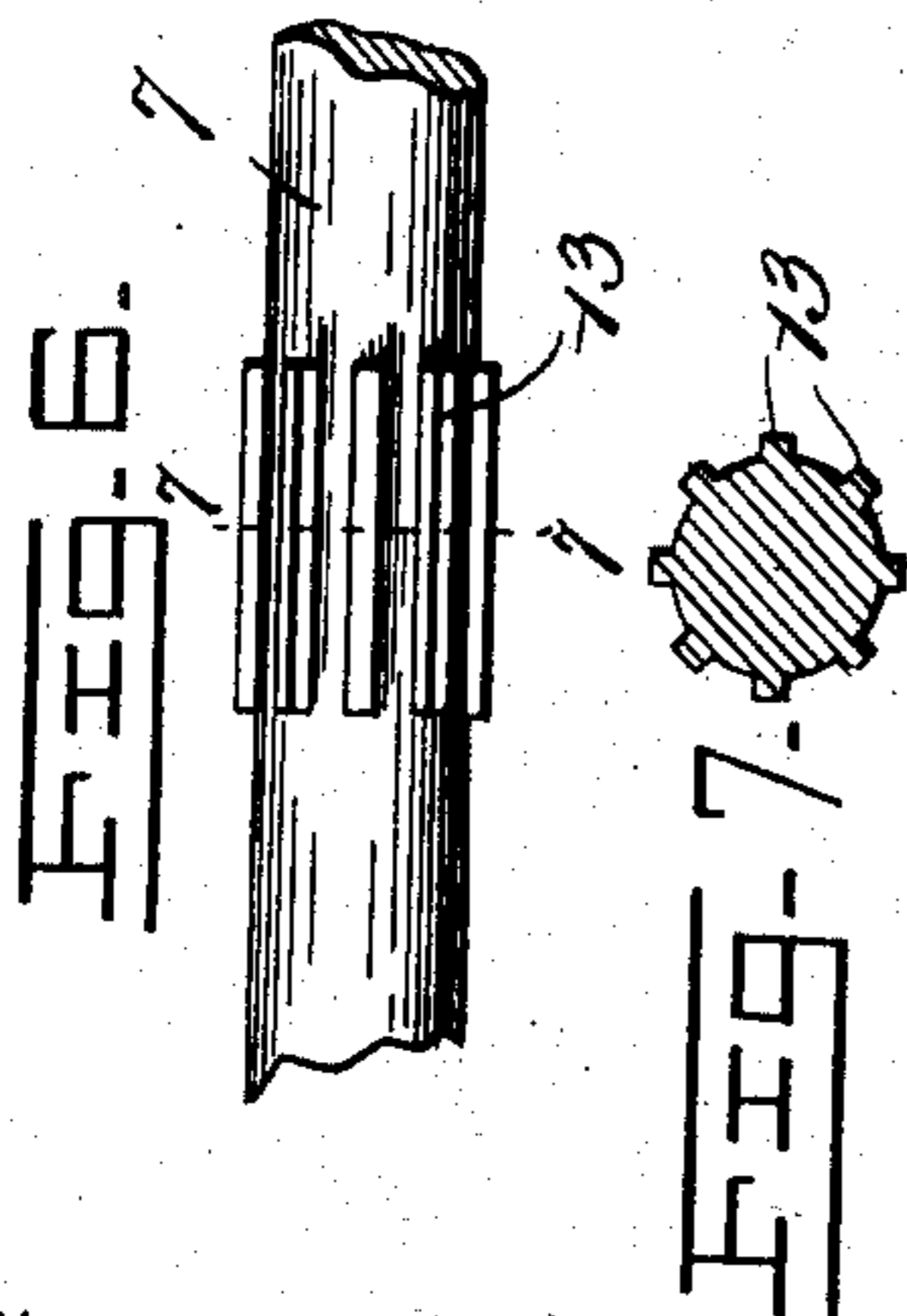
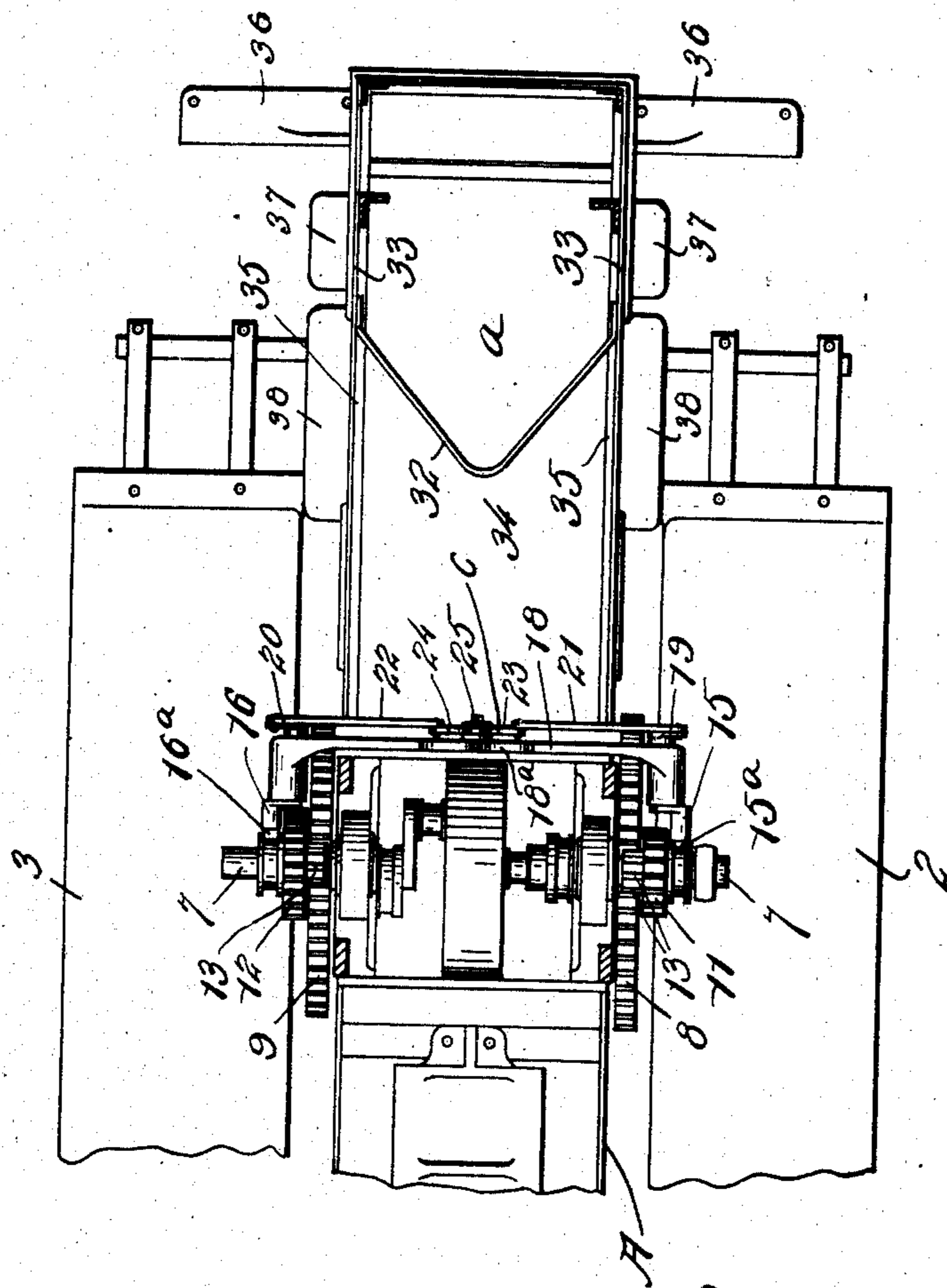
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ROAD ROLLER.

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3 SHEETS—SHEET 2.

FIG-2-



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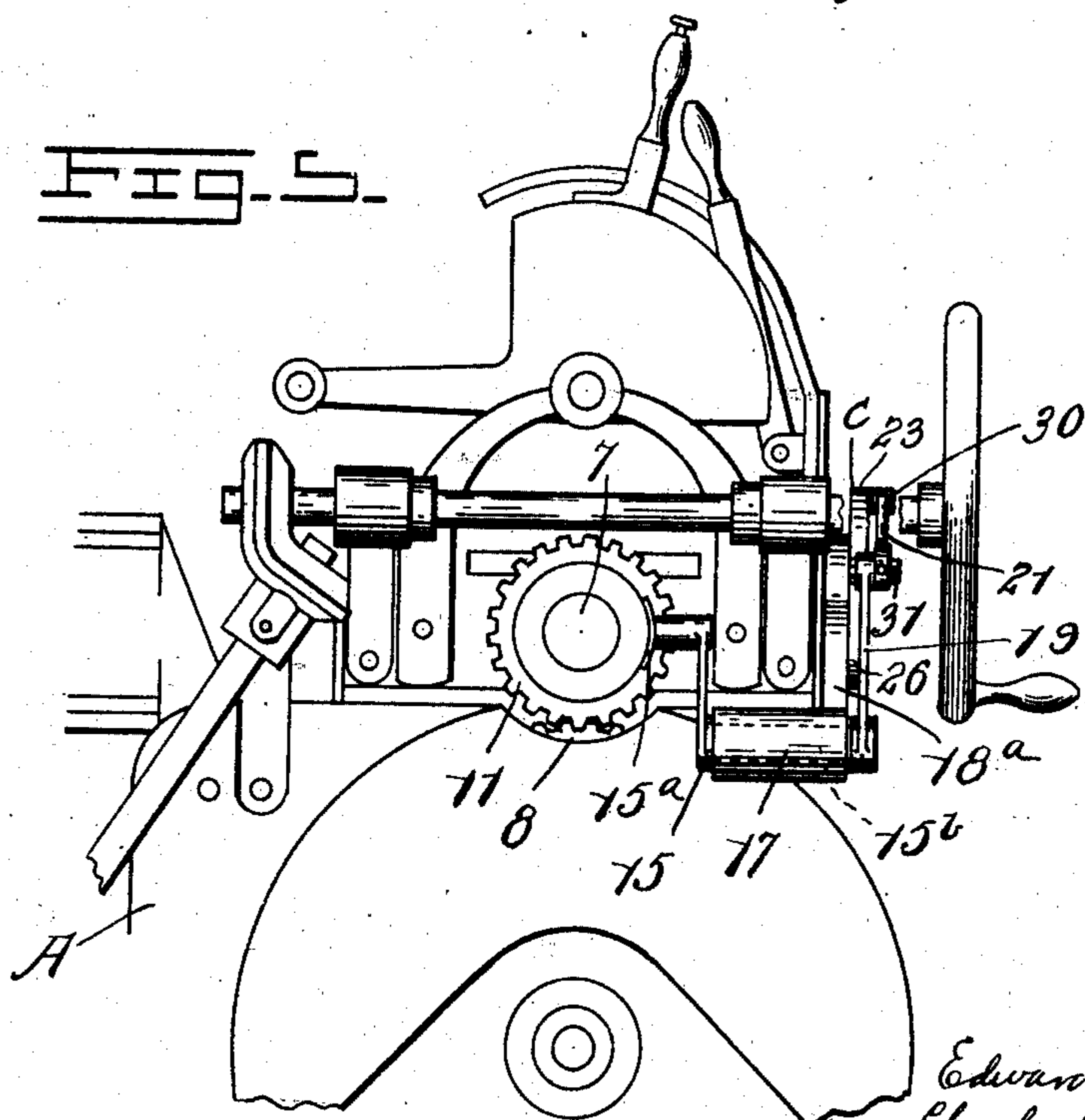
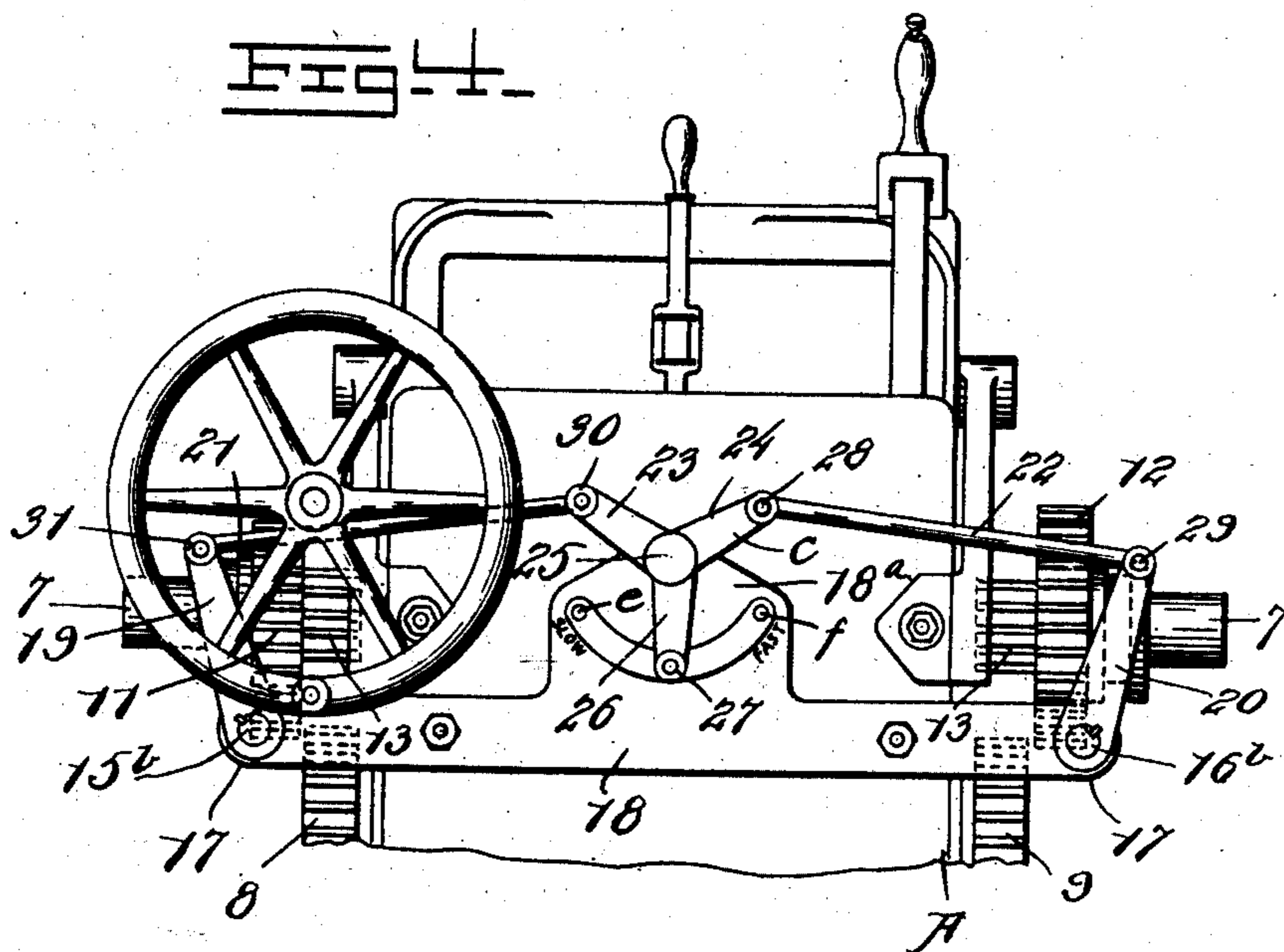
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# ROAD ROLLER.

APPLICATION FILED DEC. 4, 1908.

3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

EDWARD T. WRIGHT AND CHARLES LONGENECKER, OF NEW YORK, N. Y., ASSIGNORS TO  
CHARLES LONGENECKER & COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW  
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## ROAD-ROLLER

No. 864,498.

Specification of Letters Patent.

Patented Aug. 27, 1907.

Application filed December 4, 1906. Serial No. 346,285.

*To all whom it may concern:*

Be it known that we, EDWARD T. WRIGHT, a subject of the King of Great Britain, and CHARLES LONGENECKER, a citizen of the United States, residing at the borough of Brooklyn, city of New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Road-Rollers, of which the following is a specification.

Our invention comprises improvements in steam road rollers the details of which will be pointed out in the following specification, taken in connection with the accompanying drawing, in which,

Figure 1 is a side elevation of the rear portion of a road roller embodying our improvements; Fig. 2 is a section through the gearing on the line 2—2 of Fig. 1; Fig. 3 is a top plan view of the rear portion of the machine; Fig. 4 is a rear elevation of the gear changing mechanism, and adjacent parts; Fig. 5 is a side view of the same; Fig. 6 is a side view of one end of the engine shaft; Fig. 7 is a section on the line 7—7 of Fig. 6; Fig. 8 is a side view of one of the driving pinions, and Fig. 9 is a detail view illustrating the operation of the speed changing mechanism.

Referring to the drawing, A indicates the frame of the road roller, in which is arranged a main shaft or axle 1, upon which are mounted the traction wheels 2 and 3, the former being secured to the shaft and the latter being rotatably mounted thereon. A main driving gear 5 is connected to the shaft and to the traction wheel 3 by differential gearing *g*. A countershaft 6 is journaled in the frame above the axle 1, and the engine shaft 7 is arranged upon the top of the frame above the countershaft. The countershaft has two gears 8 and 9, of different diameters, keyed to its ends outside of the frame, and a pinion 10, integral with the hub of the gear 9 meshes with the main driving gear 5.

The engine shaft has at its ends two pinions 11 and 12, of different diameters, arranged to slide lengthwise of the shaft and mesh with the gears 8 and 9 respectively. Instead of having a single key or feather upon the shaft for each driving pinion, the shaft has a series of keys 13, integral therewith, as will be clear from an inspection of Figs. 6 and 7, and the pinions 11 and 12 have each a corresponding series of keyways 14, as shown in Fig. 8, so that, in operation, the torque is distributed around the shaft instead of being exerted upon a single key or feather, as in the usual construction. With this construction there is no danger of the keys being stripped from the shaft, or injured, and the surfaces which are in sliding engagement will work smoothly for an indefinite period.

The pinions 11 and 12 are provided with hubs having grooves 11<sup>a</sup> and 12<sup>a</sup> respectively, which are engaged by shoes 15<sup>a</sup> and 16<sup>a</sup> upon cranks 15 and 16 respectively. The shafts 15<sup>b</sup> and 16<sup>b</sup> of these cranks are mounted in

bearings 17 at the ends of a cross piece 18 which is suitably mounted upon the machine. The crank shafts 15<sup>b</sup> and 16<sup>b</sup> are rotatable by means of levers 19 and 20, the free ends of which are connected by links 21 and 22 to the arms 23 and 24 respectively, of a bell-crank lever *c*, pivoted at 25 upon an index plate 18<sup>a</sup> which extends upwardly from the center of the cross bar 18. A hand lever 26 connected to the bell-crank lever, is provided with a spring pin 27 adapted to engage a central opening *d* or either of two side openings *e* and *f* in the index plate and to thereby hold the bell-crank lever and connected parts in any one of three positions.

In the normal position of the bell-crank lever or wrist-plate *c*, shown in Fig. 4, the pinions 11 and 12 are held out of engagement with the intermediate gears 8 and 9, the latter being between the pinions. In this position the engine shaft may run without driving the road roller, so that other machinery, such as a rock crusher, may be driven from the engine shaft. When it is desired to drive the road roller, the handle 26, connected to the bell-crank *c* is moved either to the right or the left from the center, according to the speed desired, and one of the pinions on the engine shaft will engage the adjacent intermediate gear on the countershaft. As shown in Fig. 9, when the handle 26 is moved to the left the pivotal connection 28 between the link 22 and arm 24 of the bell crank swings across the line between the pivotal point 25 of the bell crank and the pivotal connection 29 between the link 22 and the lever 20, so that the pinion 12 at first moves a short distance away from the gear 9 and then returns, but does not engage the gear. At the same time, the pivotal connection 30 between the link 21 and the arm 23 moves from the position shown in Fig. 4 away from the line passing through the pivotal point 25 of the bell crank lever and the pivotal connection 31 of the link 21 with the lever 19, so that the latter lever will move to draw the pinion 11 into engagement with the gear 8. When the handle is moved in the opposite direction from the center, the pinion 12 will engage the gear 9 and the pinion 11 will be held out of engagement with the gear 8, as will be obvious. Thus, two changes in the speed of the road roller can be made by moving the handle 26 to the left or the right from the center, and in the central position of the handle the gears at both sides of the machine are disconnected from the engine shaft.

In road rollers, usually, very little space is allowed for the engineer to stand owing to the necessity of having a fuel box of ample capacity arranged at a convenient point, and for the same reason provision is made for entrance to the roller, usually, only at one side of the machine.

In our improved road roller the fuel box *a* is located above the rear end of the tank *t*, and the forward side

- or partition 32 of the fuel box is V-shaped—that is, it slopes rearwardly from the center line of the foot board 34 towards both sides 33 of the box. This permits the engineer to stand with one foot at each side of the center of the V-shaped partition and it also allows room upon the foot-board for the engineer to pass into and out of the machine at both sides through entrance ways 35 immediately in front of the sides 33 of the fuel box. The partition 32 is lower at the center than at the sides, the top of the partition rising gradually from the center to the sides of the box, as shown. This enables the engineer to shovel fuel from the box more readily than if the partition were of uniform height. This V-shaped arrangement of the forward end of the box is of great advantage, since it permits of greater storage space for fuel than the ordinary arrangement and it permits ready entrance to the machine from either side, without encroaching upon the space upon the foot-board required for standing room for the engineer.
- 20 In order to enter upon the foot-board of the machine, the engineer steps upon the draw-bar 36, then upon a step 37 arranged upon the side of the tank, and then upon a step 38 which is on a level with the foot-board at the entrance-way to the machine.
- 25 What we claim is
1. In a road roller, a pair of traction wheels, a counter shaft geared to said traction wheels, a pair of intermediate gears upon said shaft, an engine shaft, a pair of pinions movable upon said engine shaft into and out of engagement with said intermediate gears, shifting devices operatively connected to said pinions, a wrist plate pivoted between said shifting devices, and links connected to said wrist plate at points less than 180° apart and also connected to said shifting devices.
  - 35 2. In a road roller, a pair of traction wheels, a counter shaft geared to said traction wheels, a pair of intermediate gears upon said shaft, an engine shaft, a pair of pinions movable upon said engine shaft into and out of engagement with said intermediate gears, shifting devices operatively connected to said pinions, a wrist plate pivoted between said shifting devices, links connected to
  - 40

said wrist plate at points less than 180° apart and also connected to said shifting devices, and means for locking said wrist plate in three positions.

3. In a road roller, a pair of traction wheels, a counter shaft geared to said traction wheels, a pair of intermediate gears upon said shaft, an engine shaft, a pair of pinions movable upon said engine shaft into and out of engagement with said intermediate gears, shifting levers operatively connected to said pinions, a bell crank lever pivoted between said shifting levers, and links connecting the arms of said bell crank lever with the shifting levers.

4. In a road roller, a pair of traction wheels, a counter shaft geared to said wheels intermediate gears upon said shaft at the sides of the engine frame, an engine shaft, pinions movable upon the engine shaft into and out of engagement with said intermediate gears, rock-shafts having arms for shifting said gears, shifting levers connected to said rock-shafts, a wrist plate pivoted between said levers, and links connected to said levers and also connected, at points less than 180° apart, to said wrist plate.

5. In a road roller, a pair of traction wheels, a counter shaft geared to said wheels intermediate gears upon said shaft at the sides of the engine frame, an engine shaft, pinions movable upon the engine shaft into and out of engagement with said intermediate gears, rock-shafts having arms for shifting said gears, shifting levers connected to said rock-shafts, a wrist plate pivoted between said levers, links connected to said levers and also connected at points less than 180 degrees apart, to said wrist plate and means for locking said wrist plate in three positions.

6. In a road roller, a pair of traction wheels, a counter shaft geared to said wheels, intermediate gears upon said countershaft, an engine having at each end a plurality of keys or feathers integral therewith, a pinion at each end of the shaft having a plurality of key-ways fitting the keys on the shaft, and means for shifting the pinions into and out of engagement with said intermediate gears.

In testimony whereof I affix my signature, in presence of two witnesses.

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CHARLES LONGENECKER.

Witnesses:

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HERBERT GIVIN.