

No. 811,929.

PATENTED FEB. 6, 1906.

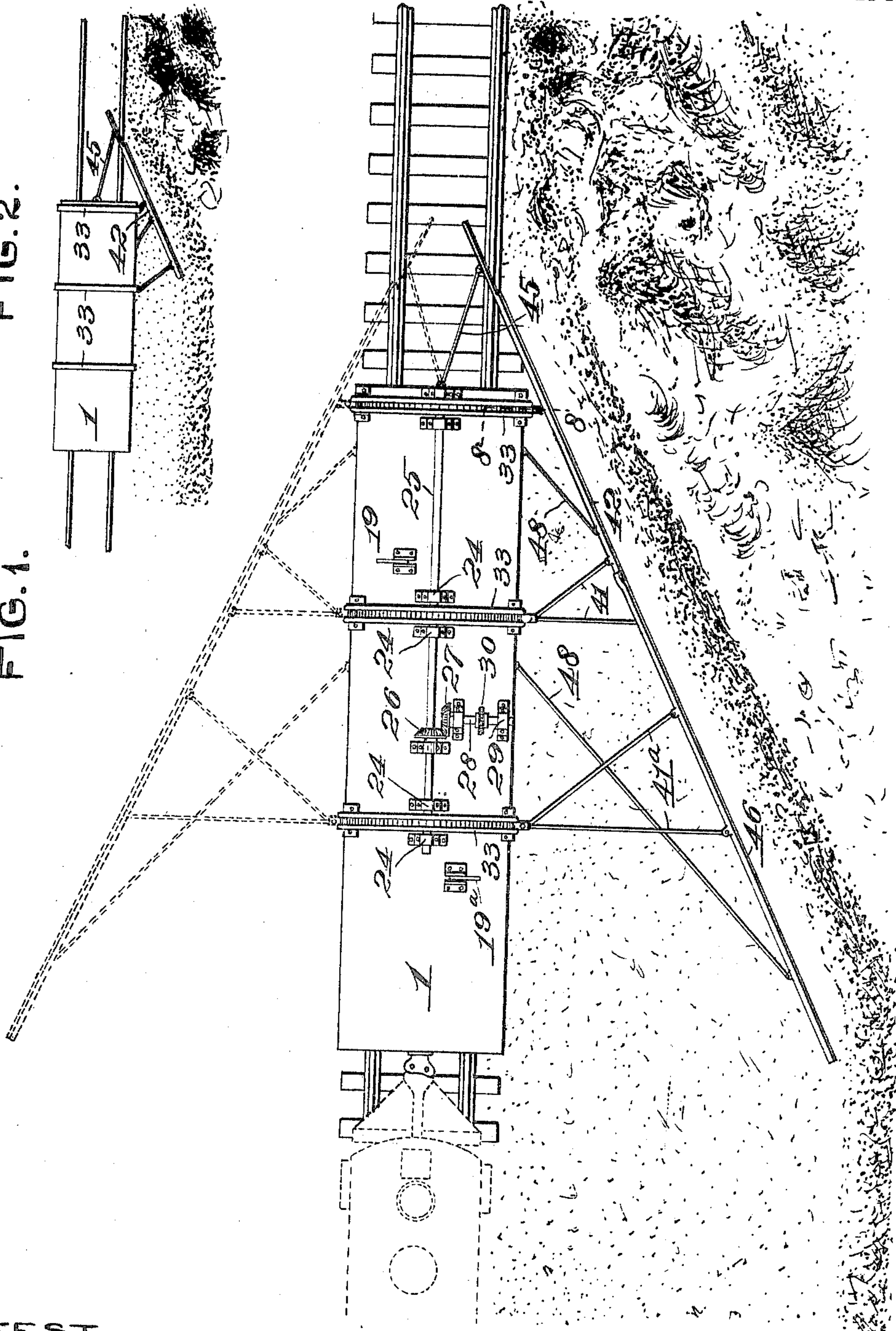
E. M. JONES.  
RAILWAY TRACK GRADING MACHINE.

APPLICATION FILED MAY 1, 1905.

4 SHEETS—SHEET 1.

FIG. 2.

FIG. 1.



ATTEST.

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*M. P. Smith*

INVENTOR

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BY *Nigdon Longan.*  
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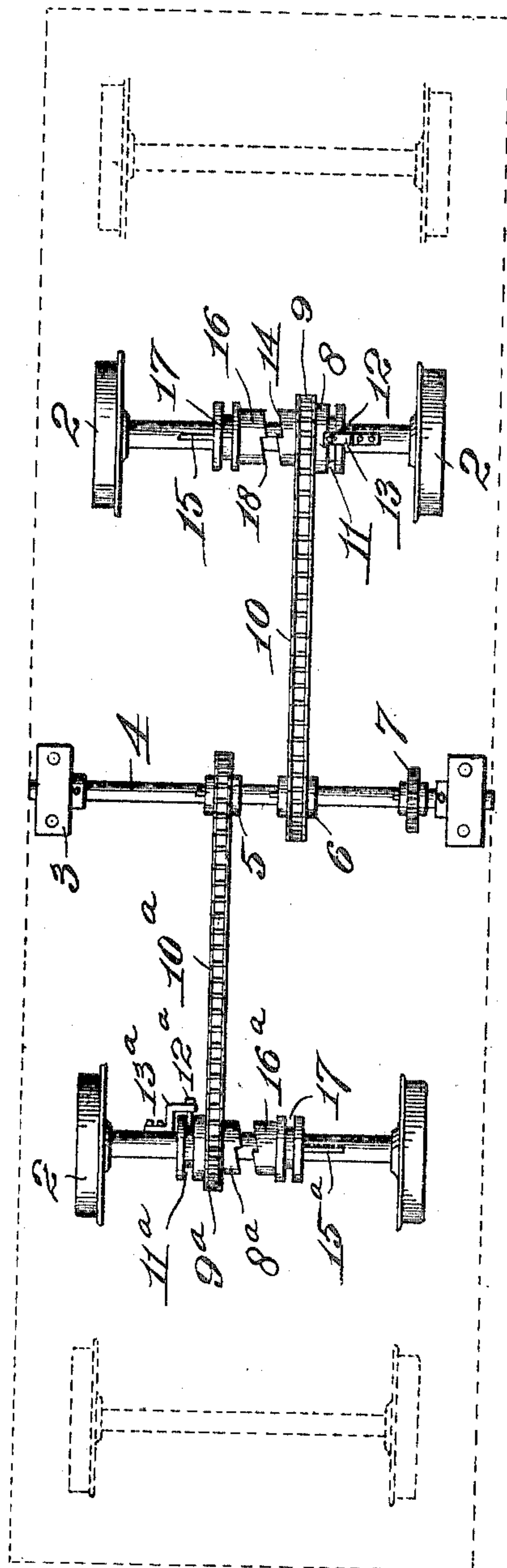
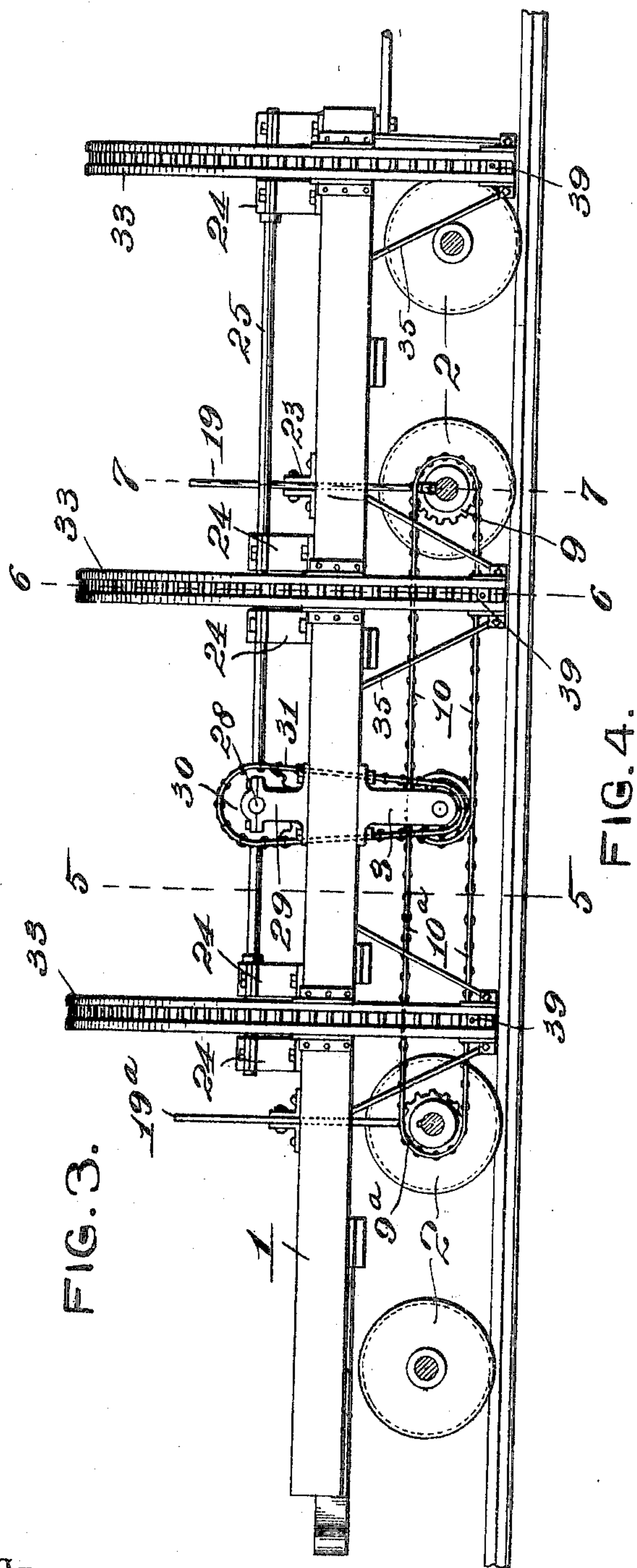
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4 SHEETS—SHEET 2.



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4 SHEETS—SHEET 3.

FIG. 5.

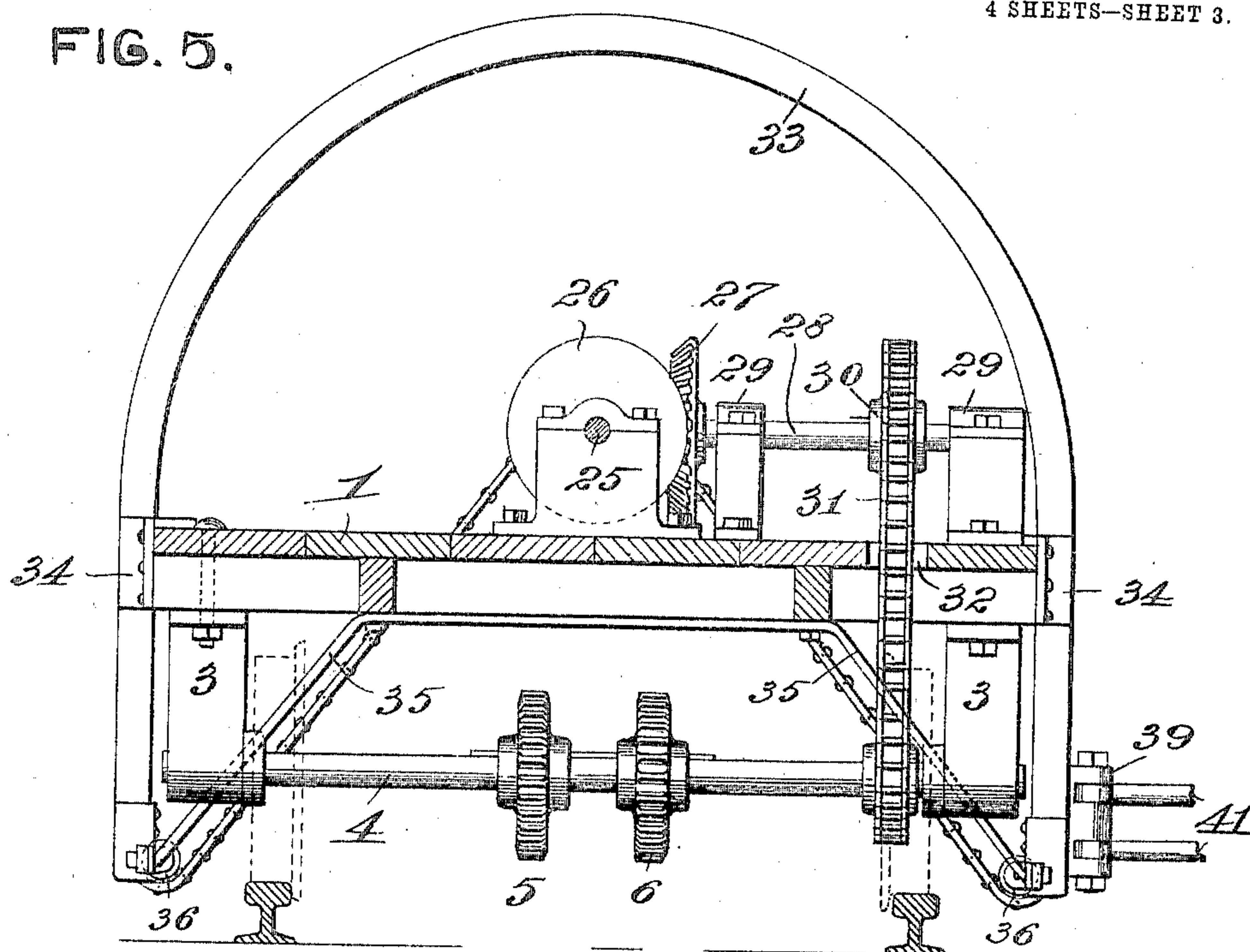
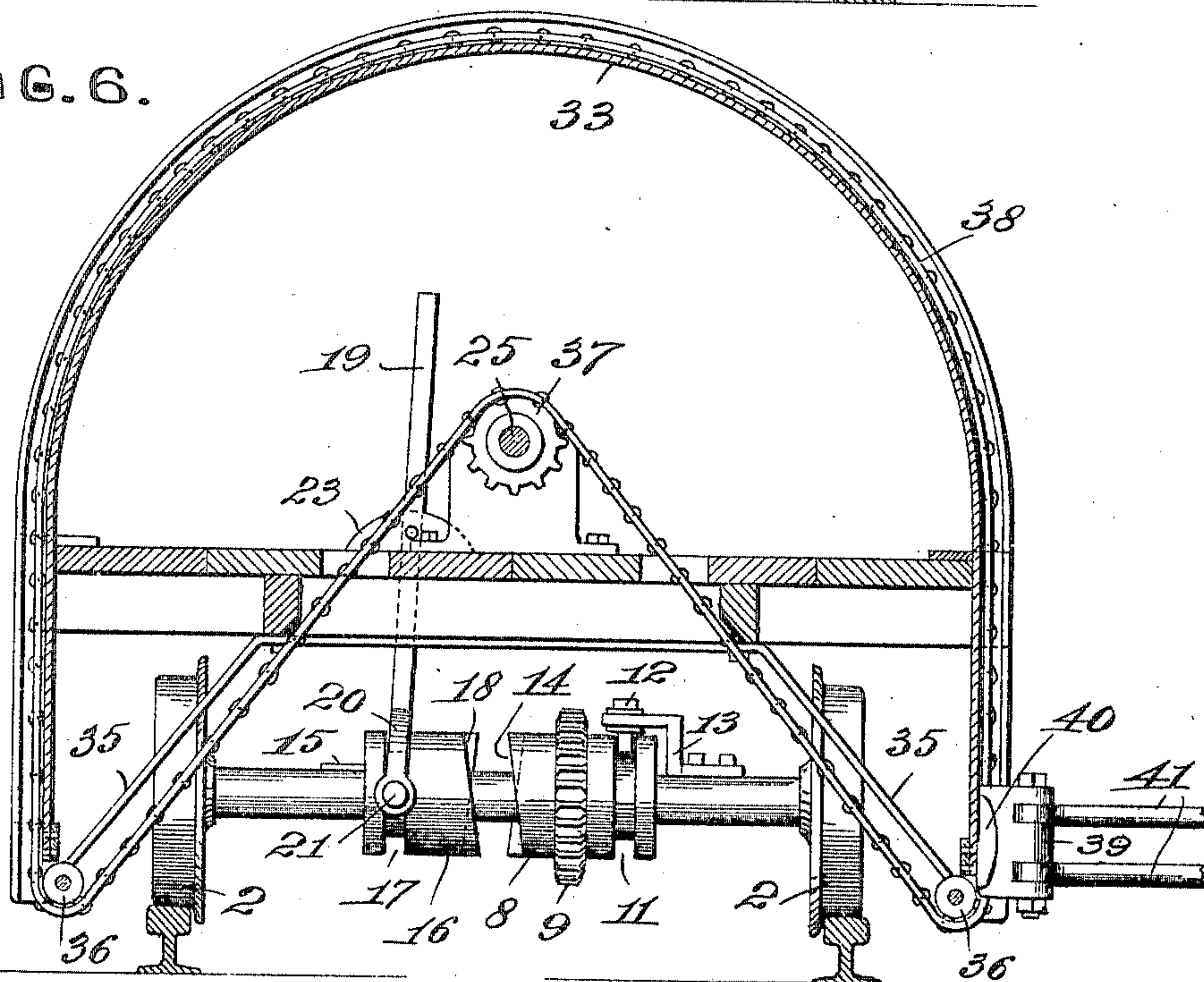


FIG. 6.



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4 SHEETS—SHEET 4.

FIG. 7.

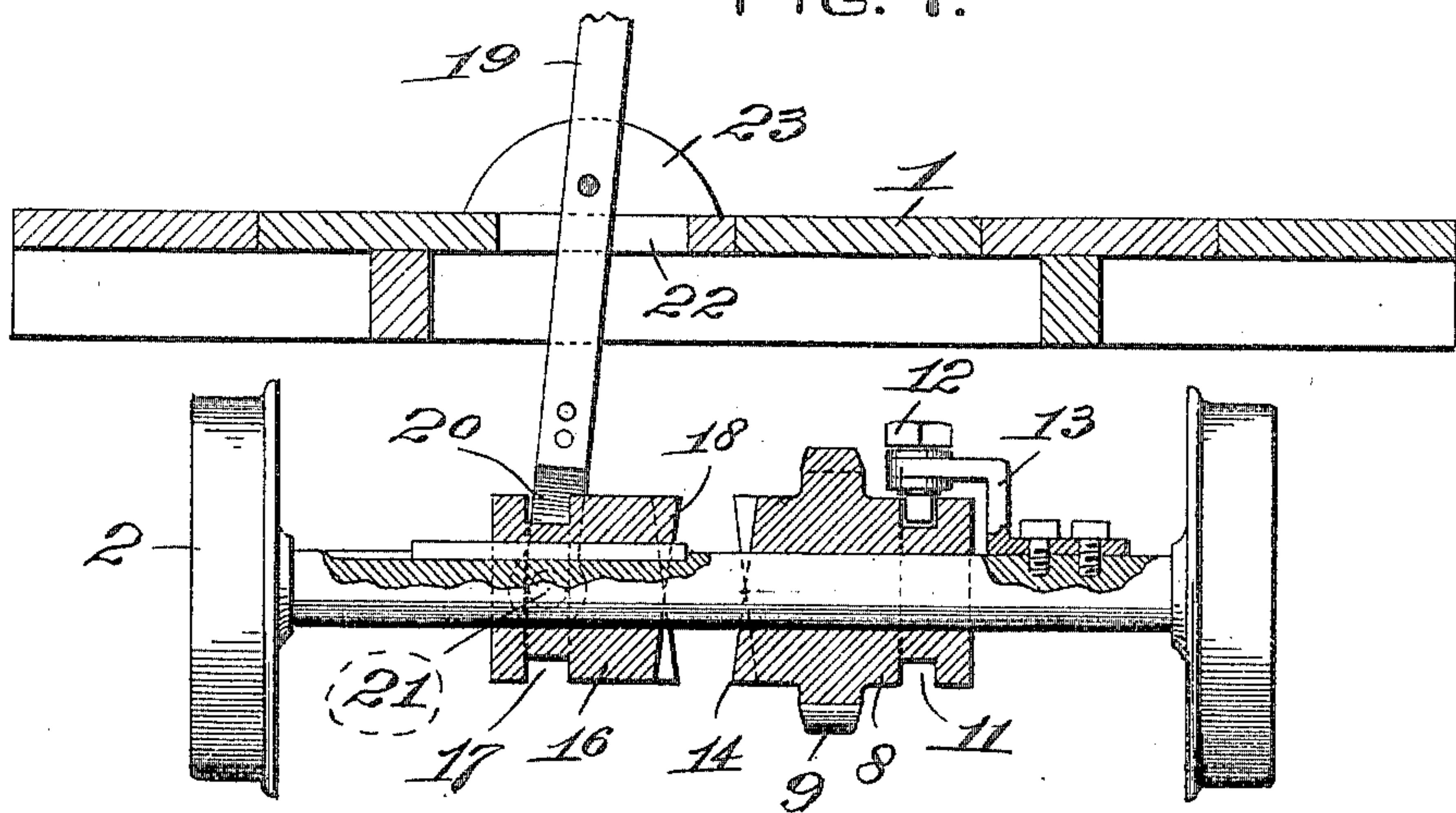


FIG. 8.

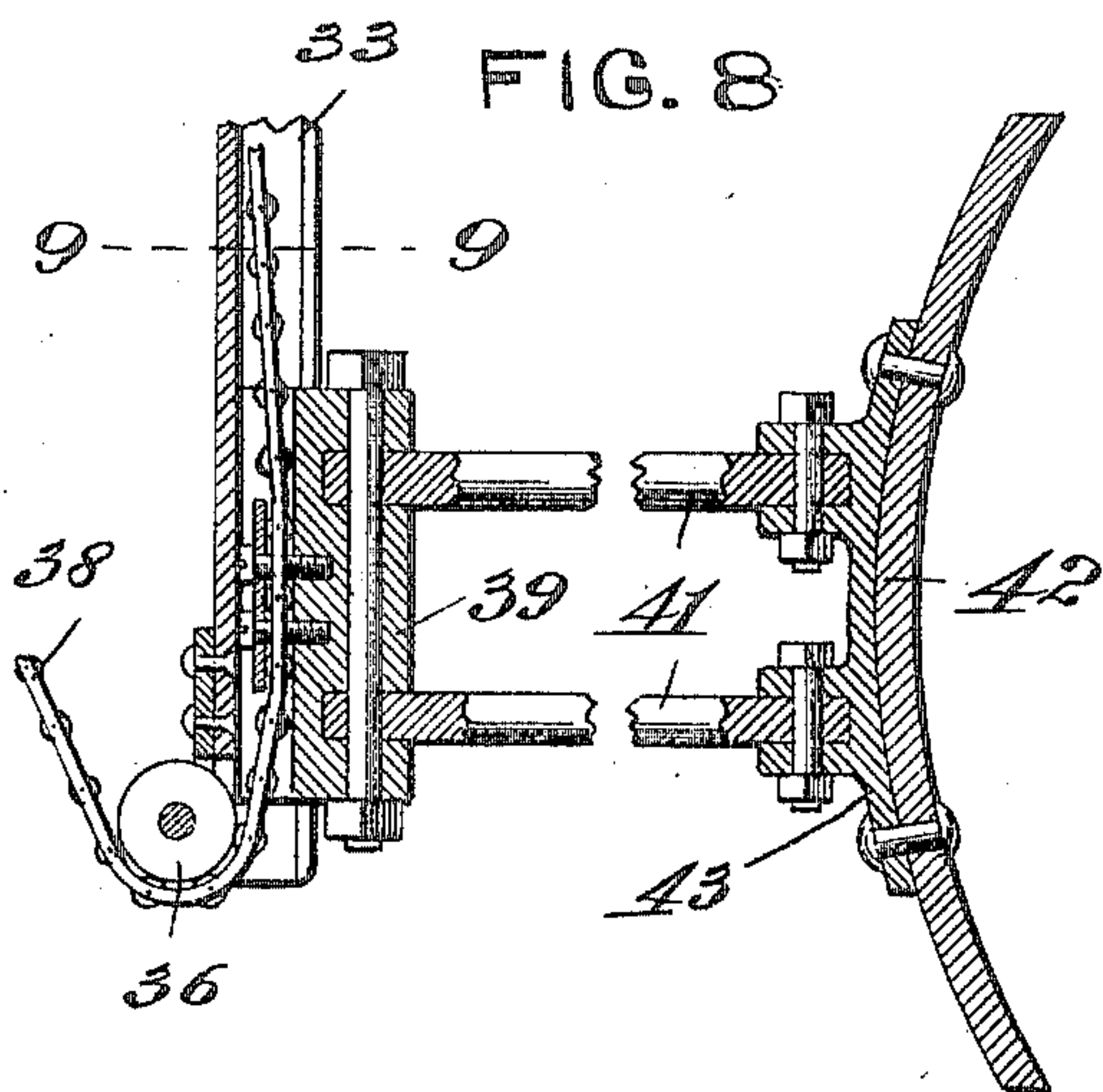


FIG. 9.

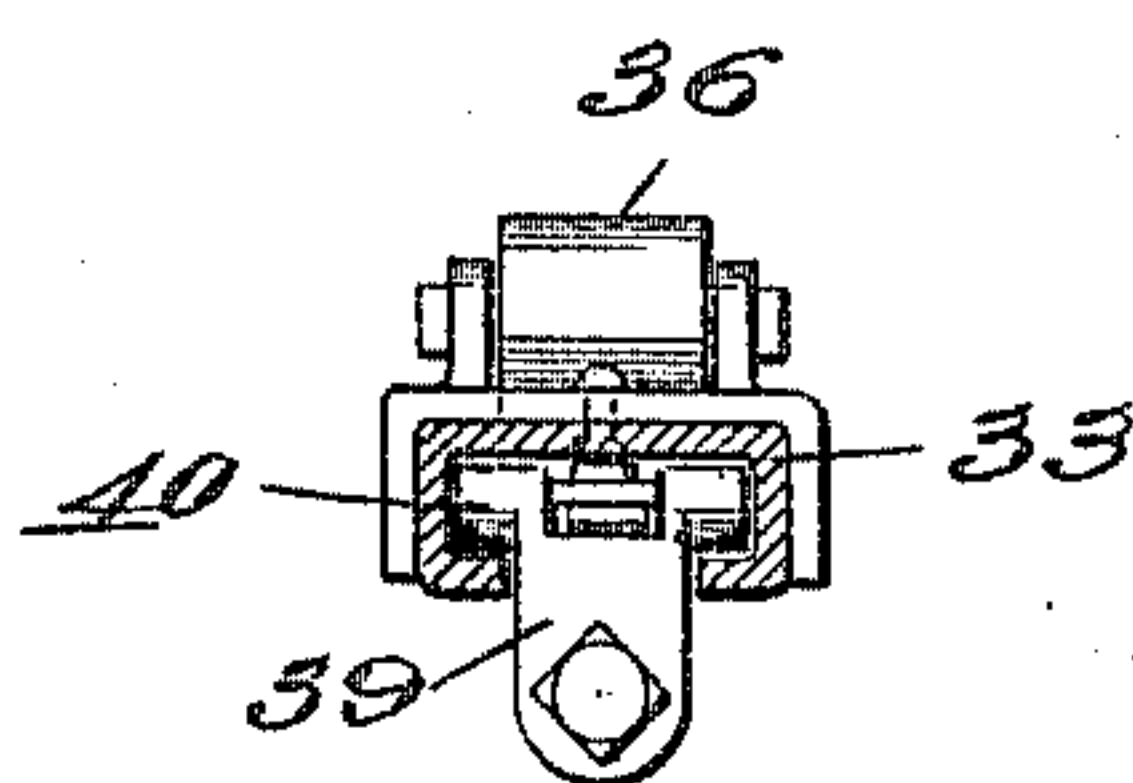
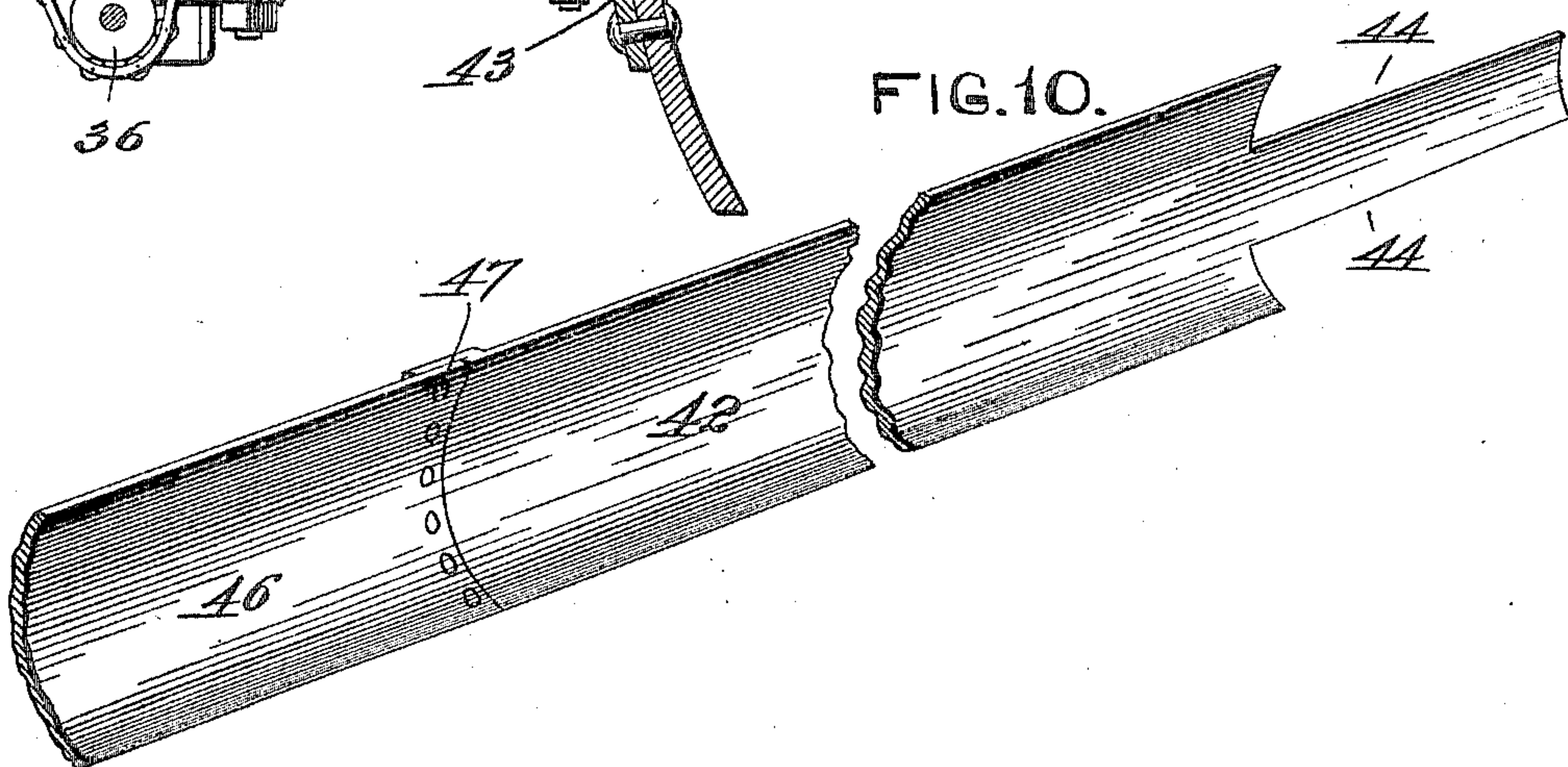


FIG. 10.



ATTEST.

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# UNITED STATES PATENT OFFICE.

EDWARD M. JONES, OF ST. LOUIS, MISSOURI.

## RAILWAY-TRACK-GRADING MACHINE.

No. 811,929.

Specification of Letters Patent.

Patented Feb. 6, 1906.

Application filed May 1, 1905. Serial No. 258,417.

*To all whom it may concern:*

Be it known that I, EDWARD M. JONES, a citizen of the United States, and a resident of St. Louis, Missouri, have invented certain new and useful Improvements in Railway-Track-Grading Machines, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to a railway-track-grading machine, the object of my invention being to construct a machine or apparatus which will readily and uniformly grade or level the dirt or cinders on either side of a railroad-track.

A further object of my invention is to equip a freight-car with a moldboard or scraper which levels off the dirt or cinders on the sides of the track on which the flat-car is traveling, which moldboard is so secured to the flat-car as that it is adapted to swing over said car from one side thereof to the other in order that both sides of the track may be leveled or graded.

A further object of my invention is to equip a flat-car with a moldboard or scraper adapted to shift from one side of the track to the other and to provide the flat-car with mechanism which when thrown into gear will automatically swing the moldboard from one side of the car to the other, which mechanism is actuated by the travel of the car backward or forward.

A further object of my invention is to equip a flat-car with a sectional moldboard or scraper which is adapted to be lengthened or shortened in order to grade or level the dirt for a single or double track.

To the above purposes my invention consists in certain new and novel features of construction and arrangement of parts that will be hereinafter shown, described, and claimed.

In the drawings, Figure 1 is a plan view of my improved grading or dirt-leveling machine, the same being shown as grading or leveling for a double track. Fig. 2 is a plan view of my improved machine in operation upon a single track. Fig. 3 is a side elevation of my improved grading-machine, the moldboard and the wheels on one side of the car being removed. Fig. 4 is a plan view of the operating mechanism that is located beneath the flat-car of my improved machine. Fig. 5 is an enlarged cross-section taken approximately on the line 5 5 of Fig. 3. Fig. 6 is an

enlarged cross-section taken approximately on the line 6 6 of Fig. 3. Fig. 7 is an enlarged cross-section taken approximately on the line 7 7 of Fig. 3. Fig. 8 is an enlarged detail section taken on the line 8 8 of Fig. 1. Fig. 9 is an enlarged horizontal section taken on the line 9 9 of Fig. 8. Fig. 10 is a view in perspective of the moldboard or scraper I make use of, parts thereof being broken away.

Referring by numerals to the accompanying drawings, 1 indicates a flat-car of any suitable construction, which is mounted upon the usual trucks (not shown) and provided with the usual traction-wheels 2. Fixed to the under side of the car-body 1 and at the center thereof are the transversely-aligned journal-boxes 3, in which are mounted for rotation the ends of a transverse shaft 4. Fixed upon this shaft 4 at points adjacent the center thereof are two sprocket-wheels 5 and 6, which are of the same diameter. Fixed upon the right-hand end of the shaft 4 is a small sprocket-wheel 7.

Loosely mounted upon the nearest one of the axles of the car-truck in front of the shaft 4 is a sleeve 8, with which is formed integral a sprocket-wheel 9, that is in alinement with the sprocket-wheel 6, and traveling around said sprocket-wheels is a chain 10. A groove 11 is formed in the outer end of the sleeve 8, in which groove projects the end of a bolt or pin 12, that is secured to a bracket 13, rigidly fixed to the axle on which said sleeve 8 is mounted. The opposite end of the sleeve 8 is provided with a suitable clutch-face 14. Arranged to slide upon a feather 15, carried by this axle, is a second sleeve 16, that is provided in one end with a groove 17, and its opposite end is formed into a clutch-face 18, that opposes the clutch-face 14 previously mentioned.

A hand-lever 19 has its lower end bifurcated, as indicated by 20, which bifurcated lower end passes over the sleeve 16, and pins 21 pass through the bifurcated ends and into the groove 17. This hand-lever 19 extends upwardly through an aperture 22, formed in the floor of the car-body 1, and said handle is pivotally held between a pair of ears 23, that are fixed to the floor of the car on opposite sides of the aperture 22. By manipulating this hand-lever 19 the sleeve 16 is shifted laterally upon the axle and the clutch-face 18 thereof is moved into engagement with or away from the clutch-face 14.

Located upon the nearest car-axle of the



truck to the rear of the shaft 4 is a sleeve 8<sup>a</sup>, that is a counterpart of the sleeve 8 just described, it being provided with a sprocket-wheel 9<sup>a</sup>, which is in alinement with the sprocket-wheel 5, and a sprocket-chain 10<sup>a</sup>, similar to the sprocket-chain 10, passes round the sprocket-wheels 5 and 9<sup>a</sup>. This second axle is equipped with identically the same devices and parts as is the axle previously described, said parts being clearly shown in Fig. 4 and indicated by the same numbers, with the addition of the letter "a" to said numbers, and the handle for operating this second clutch is indicated by the numeral 19<sup>a</sup>.

Located on top of the car-body and in longitudinal alinement are the journal-boxes 24, in which is arranged for rotation a shaft 25. Fixed upon this shaft 25 and at a point approximately half-way between the ends of the car is a beveled gear-wheel 26, that meshes with a similar gear-wheel 27, mounted upon a short transversely-arranged shaft 28, that is mounted for rotation in the bearings 29. Fixed upon this shaft 28 is a sprocket-wheel 30, that is directly above the sprocket-wheel 7, and passing around said sprocket-wheels 30 and 7 is a sprocket-chain 31, which passes through a suitably-formed aperture 32 in the platform or floor of the car-body.

In carrying out my invention I make use of three endless chains which are utilized for shifting the moldboard or scraper from one side of the car to the other, and as these chains must be provided with suitable supports or tracks I make use of three inverted-U-shaped guides or tracks 33. These guides or tracks are channel-shaped in cross-section and are bent into proper form, and one of said guides or tracks is arranged at the front end of the car and is so positioned as that its straight downwardly-projecting ends extend below said edges of the platform of the car-body to points in a plane just above that occupied by the top surfaces of the track-rails.

The remaining two of the guides or tracks 33 are located a suitable distance apart on each side of the transverse center of the car-body, and this arrangement provides for the arrangement of the three guides or tracks at equal distances apart. All of the tracks or guides are held to the sides of the car-body by means of suitably-located brackets 34, and the downwardly-pending ends of said tracks are rigidly held by means of the braces 35.

Suitably positioned and journaled in the lower ends of the inverted-U-shaped tracks 33 are the antifriction-rollers 36. Rigidly fixed on the shaft 25 at points in alinement with the tracks 33 are small sprocket-wheels 37, and arranged to travel in each track is an endless sprocket-chain 38, that passes around each corresponding pair of antifriction-rollers 36 and over the corresponding sprocket-wheel 37.

Secured in any suitable manner to each

sprocket-chain 38 and at corresponding points therein are blocks 39, that are provided on their side faces with lugs 40, that travel in the channel-grooves in the tracks 33, and each block has detachably secured to it the rear ends of a pair of connecting-bars 41, that extend outwardly in horizontal lines away from the car-body. The pair of bars 41 of the forward block are very short, and each succeeding pair of bars are made somewhat longer, and the outer ends of all of the bars are detachably secured to the moldboard or scraper that I make use of. This moldboard when used for grading or leveling the dirt alongside of a single track comprises a single elongated plate 42, slightly curved in cross-section and provided on its lower rear side with suitable brackets 43, to which are detachably secured the outer ends of the connecting-bars 41. The extreme forward end of this plate 42 has its top and bottom corners cut away, as indicated by 44, the body portion of the plate between these cut-away portions extending over the railway-track rails. The moldboard or scraper thus formed occupies a position at an angle on the side of the front end of the car-body 1, it being supported by the bars 41 and by a brace 45, that is secured to the rear side of its front end and extends from thence up to the front end and center of the car-body 1.

When a moldboard for double-track purposes is utilized, an elongated plate 46 of the same width and shape as is the plate 42 is detachably secured to the rear end of the plate 43 by means of the bolts 47, and thus an elongated moldboard or scraper is provided which extends at an angle on the side of the car. This extension of the moldboard is connected to the last one of the sprocket-chains 38 by means of the connecting-bars 41<sup>a</sup>, and, if desired, additional braces 48 may extend to the side of the car-body in rearward directions to the rear sides of the moldboards.

The operation of my improved grading and leveling machine is as follows: After the dump-cars have discharged the dirt or cinders alongside the single track and it is desired to grade or level the uneven piles of dirt or cinders a locomotive is coupled onto the rear end of my improved grading or leveling machine, and the same is moved forwardly over the single track, and as the moldboard or scraper has previously been brought to the proper side of the car or to the side of the track which it is desired to level or grade the uneven piles of dirt or cinders will be leveled off and a smooth surface readily formed as the moldboard is carried forwardly by the car. The gradual inclination of the moldboard tends to lessen the resistance offered by the dirt or cinders that are being graded or leveled, and the work of grading or leveling off on the side of the track is rapidly accomplished. When grading or leveling off



for a double track, the double or extended moldboard is of course made use of; but where a single track is being graded the extension 46 of the moldboard is removed, together with the braces and bars connected thereto. When it is desired to shift the moldboard or scraper from one side of the car to the other, an operator manually engages either one of the handles 19 or 19<sup>a</sup> corresponding to the side to which it is desired to swing the moldboard and operates said handle, so that the corresponding clutch-face 18 or 8<sup>a</sup> is engaged with the opposing clutch-face 14 or 14<sup>a</sup>. The locomotive to which is coupled the car carrying the moldboard or scraper is now moved either forwardly or rearwardly, corresponding to the direction in which it is desired to swing the moldboard, and as the axles rotate motion is imparted to one of the sleeves 8 or 8<sup>a</sup> and in turn the shaft 4 is rotated. The rotary motion thus obtained is imparted to the shaft 25 by means of the sprocket-chain 31, shaft 28, and bevel-pinions 27 and 26. The sprocket-wheels 37, fixed on the shaft 25, will thus be rotated, and in turn all of the sprocket-chains 38 will be moved and the blocks 39, carried by said chains, in turn carrying the connecting-bars 41 and moldboard will move upwardly and over the inverted-U-shaped tracks or guides 33 until said moldboard reaches its proper position on the opposite side of the car from which it has just been shifted. The operator now disengages the clutch which has just been engaged, and the apparatus is free to move forwardly in the performance of its work. In shifting the moldboard from one side of the car to the other it is necessary, of course, to detach some of the braces—for instance, the brace 45 and braces 48; but the connecting-bars 41 are not detached when this shifting movement is imparted.

When my improved car is being transported from one point to another and no work is being done, the moldboard can be swung into a position directly above the center of the car, this being an out-of-the-way position and not interfering with the free passage of the car through tunnels or bridges.

A grading or leveling machine of my improved construction is very simple, requires but few attendants, and will readily perform the work required of it at a great saving of time, labor, and consequent expense.

If at certain periods of the work extra high piles of dirt or cinders are encountered which would impede the progress of the moldboard, the same can be lifted a short distance by the

manipulation of the proper clutch in order to bring the moldboard into a plane where the upper portions of the high piles can be leveled off, after which the same ground can be gone over with the moldboard down to its normal level, thus making two cuts to bring the grade down to the desired point.

I claim—

1. In a railway-track-grading machine, a car, a moldboard carried thereby, and means carried by the car whereby the moldboard is shifted from one side of the car to the other; substantially as specified.

2. In a railway-track-grading machine, a car, a moldboard carried thereby, and mechanism connected to and actuated by one of the car-axles whereby the elevation of the moldboard is changed so as to regulate its horizontal travel; substantially as specified.

3. In a railway-track-grading machine, a car, a sectional moldboard carried thereby, and connections between the car and moldboard whereby the latter is shifted from one side of the car to the other, substantially as specified.

4. In a railway-track-grading machine, a car, a moldboard carried thereby, and adapted to scrape the ground on each side of the car; connections between the car and the moldboard whereby the latter is shifted from one side of the car to the other and suitable gearing from certain of the car-axles to the shifting connections for operating the latter, substantially as specified.

5. In a railway-track-grading machine, a car, a sectional moldboard connected to the said car; means whereby said sectional moldboard is shifted from one side of the car to the other, and suitable braces extending from the moldboard to the side of the car, substantially as specified.

6. In a railway-track-grading machine, a car, a moldboard connected to said car, means whereby said moldboard and its connections are shifted from one side of the car to the other; braces between the moldboard and car; suitable gearing from certain of the car-axles to the shifting connections, and means whereby this gearing is thrown into or out of operation, substantially as specified.

In testimony whereof I have signed my name to this specification in presence of two subscribing witnesses.

EDWARD M. JONES.

Witnesses:

JOHN C. HIGDON,  
MARTIN P. SMITH.