

No. 662,455.

Patented Nov. 27, 1900.

S. MESSERER.
SPEED CONTROLLING MECHANISM.

(Application filed Mar. 27, 1900.)

(No Model.)

2 Sheets—Sheet 1.

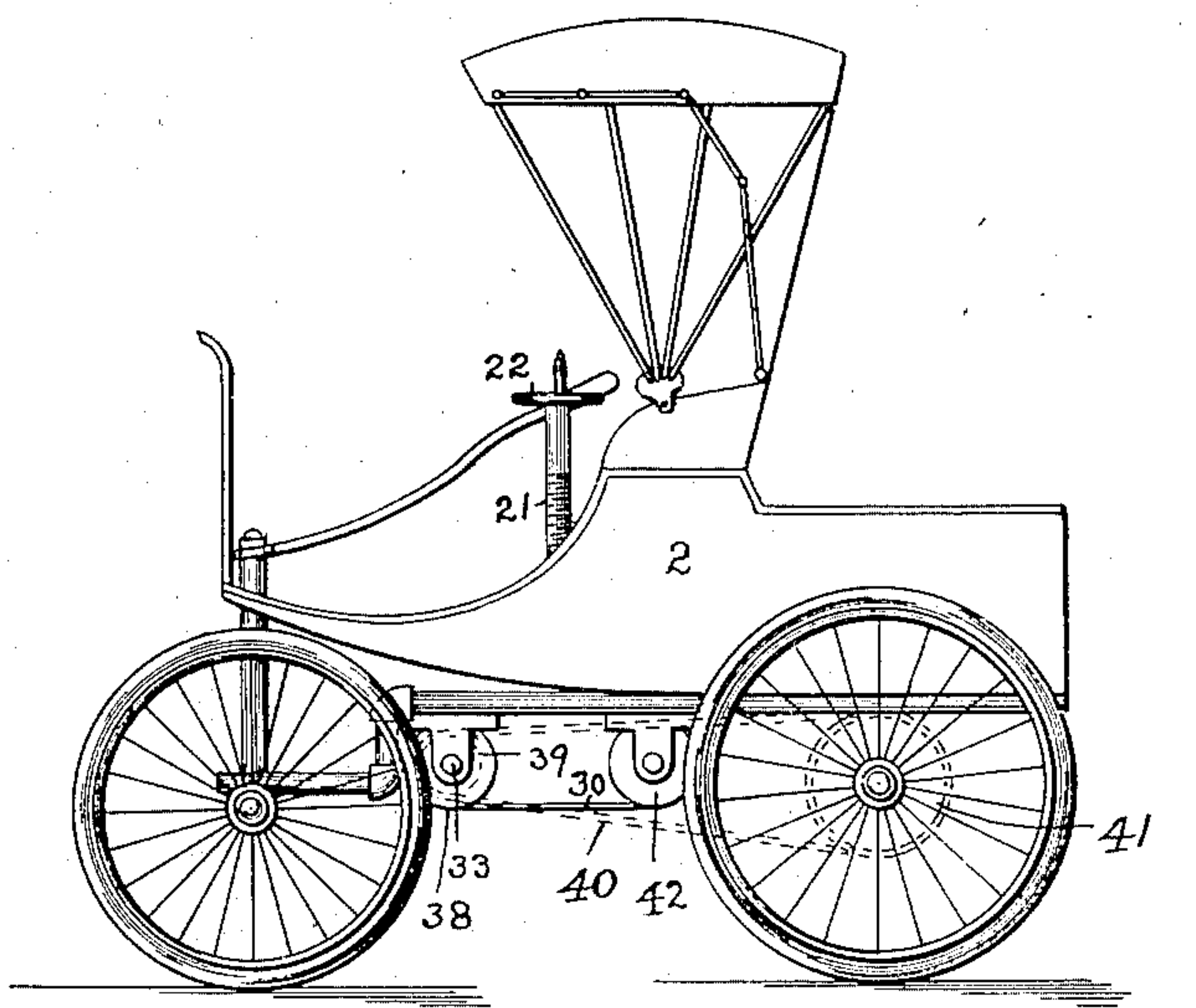


FIG. 1

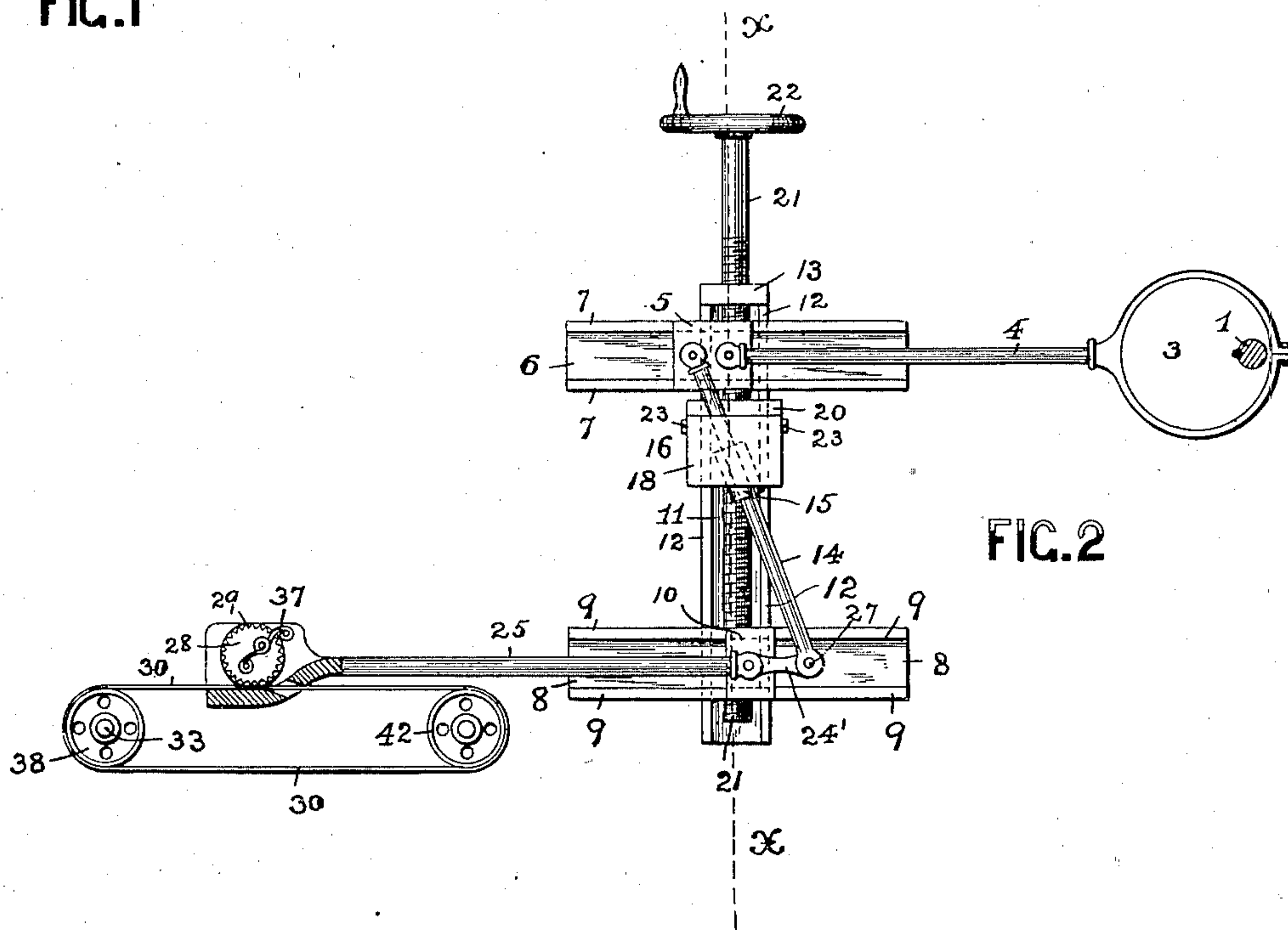


FIG. 2

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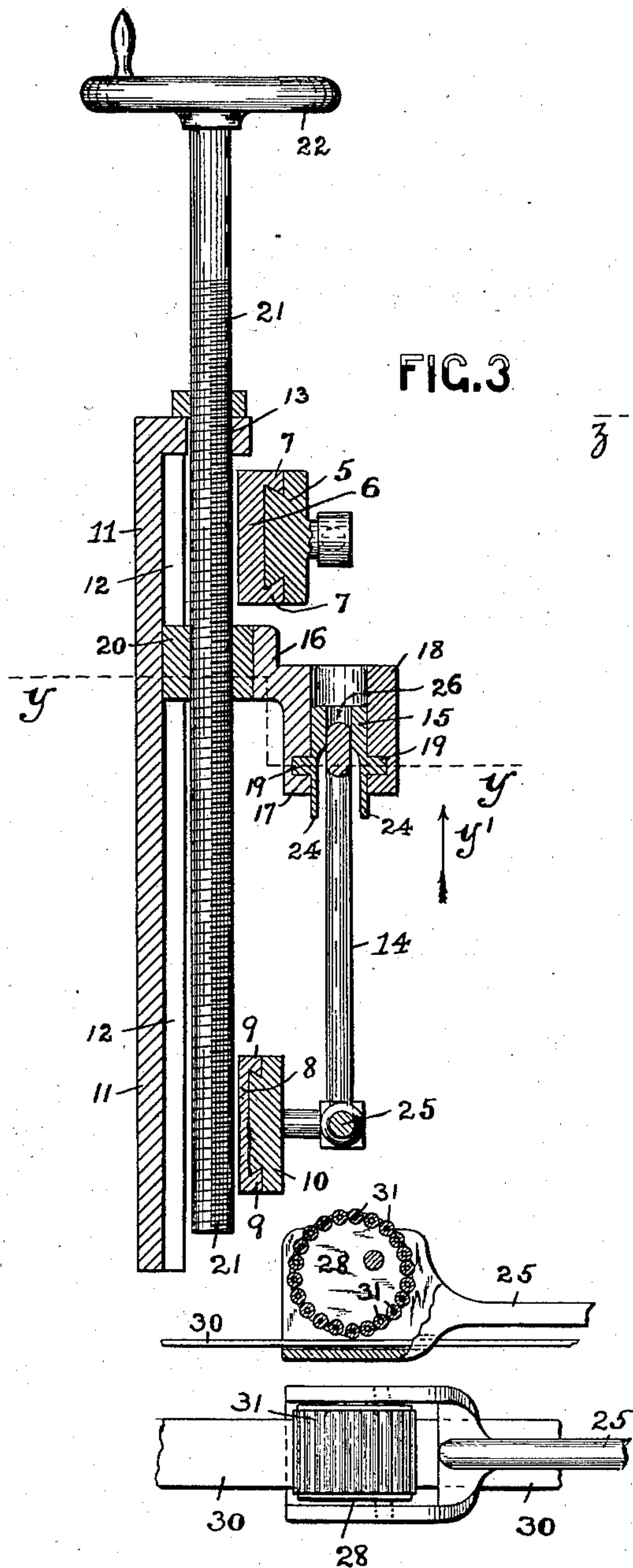


FIG. 3

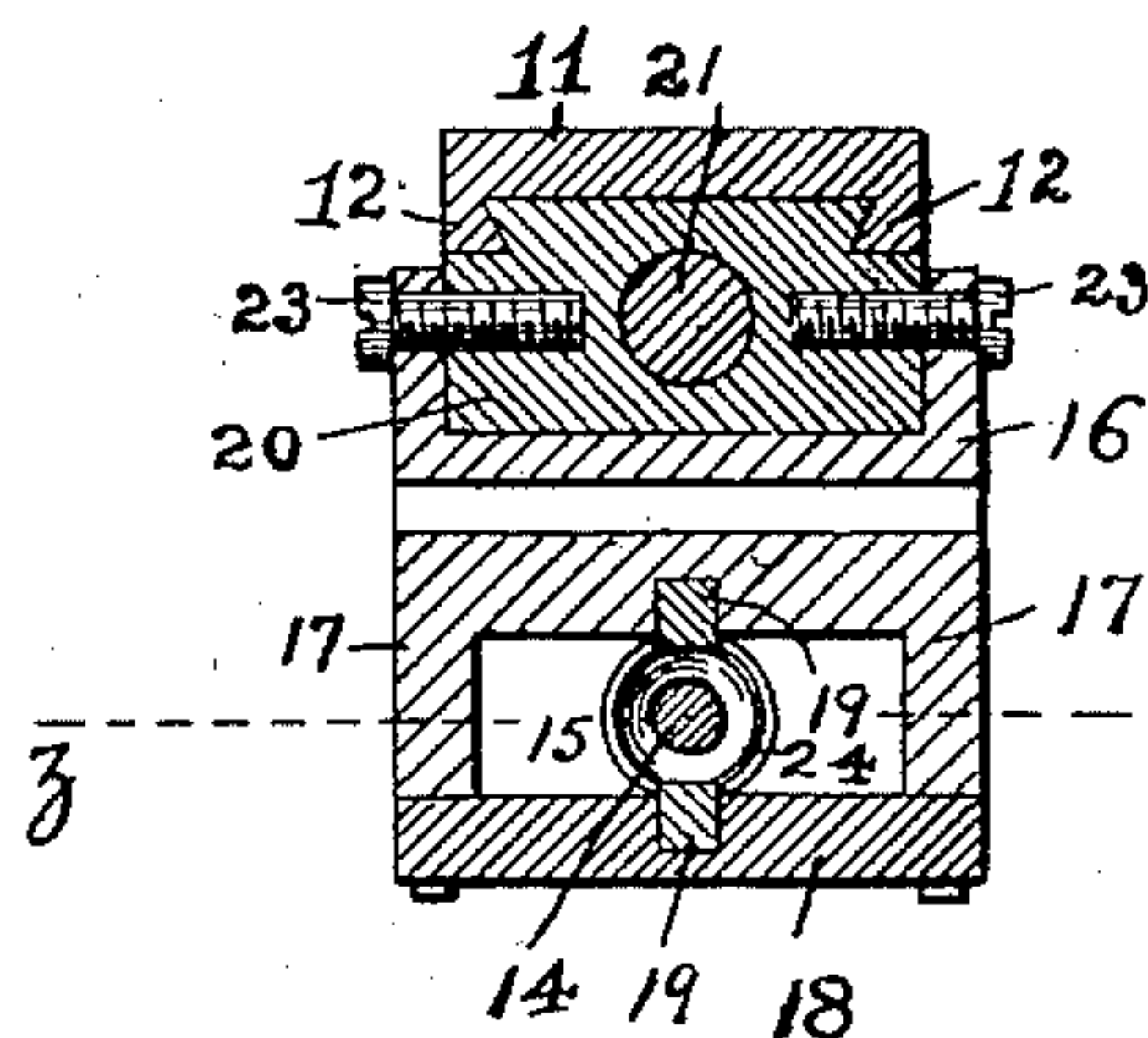


FIG. 4

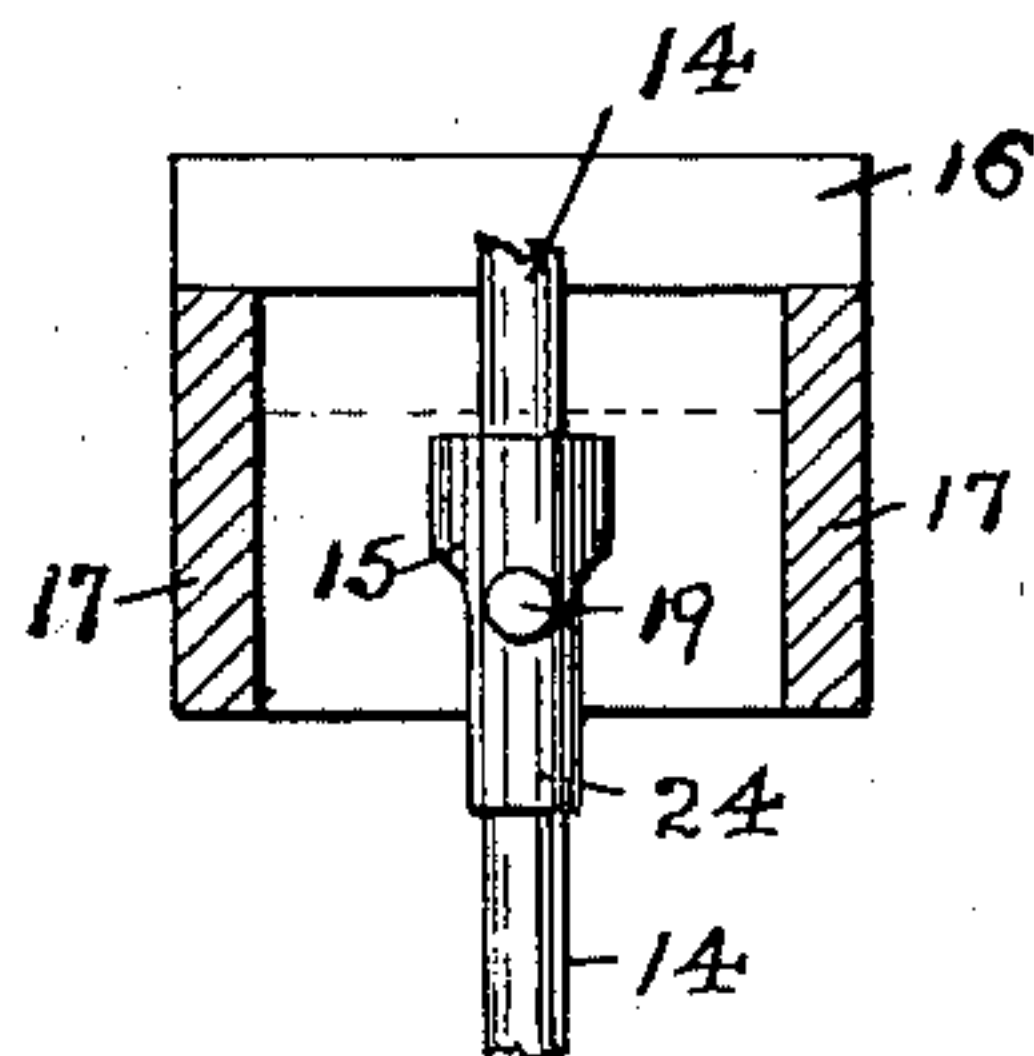


FIG. 5

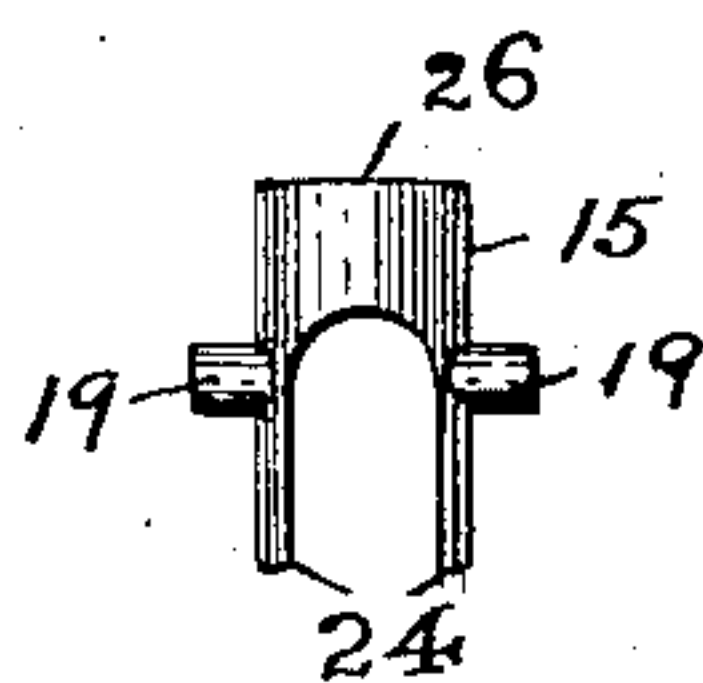


FIG. 6

FIG. 7

FIG. 8

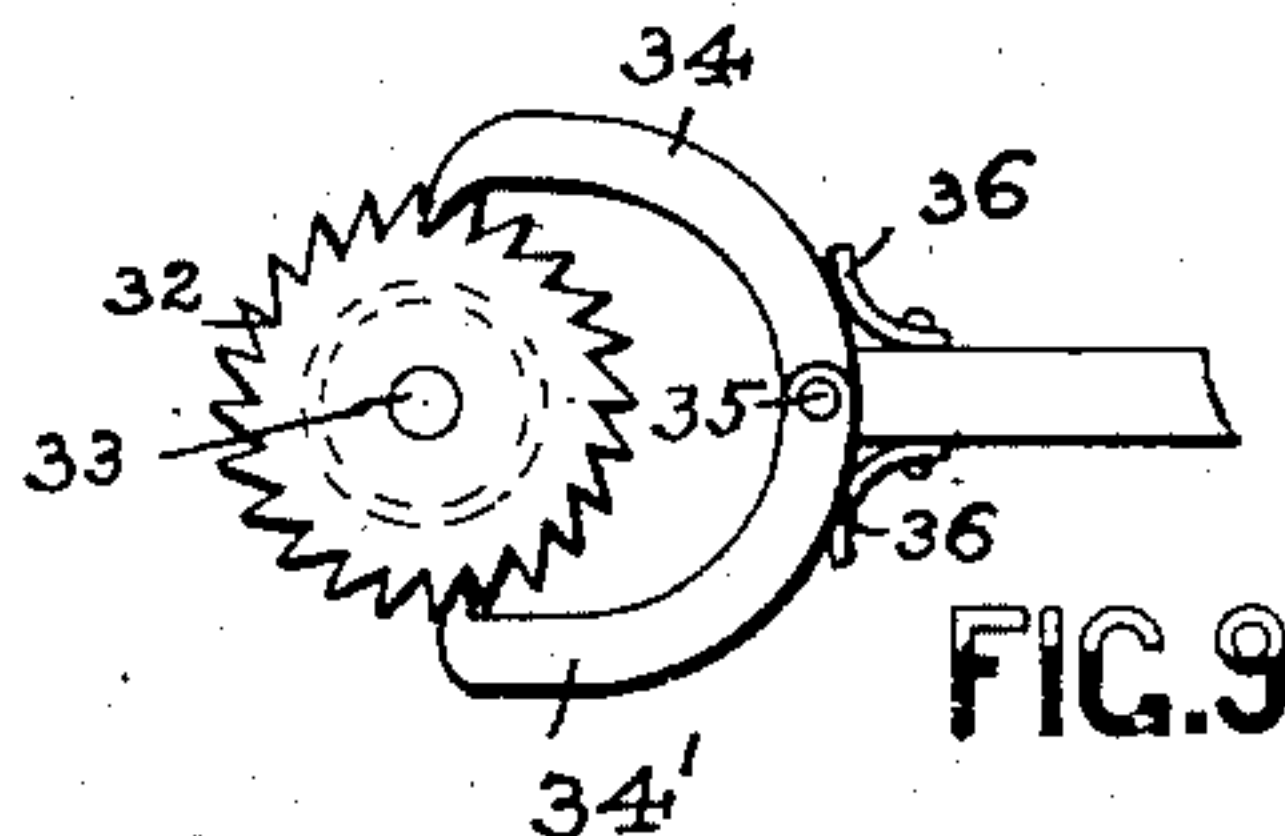


FIG. 9

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SPEED-CONTROLLING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 662,455, dated November 27, 1900.

Application filed March 27, 1900. Serial No. 10,340. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN MESSERER, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Speed-Controlling Mechanism; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to numerals of reference marked thereon, which form a part of this specification.

This invention relates to a speed-controlling mechanism which is applicable to an axle or shaft to be driven; and my invention is more especially applicable for use in connection with motor-vehicles of the various kinds.

This invention has for its principal object the production of a novel mechanism of this character which is under the control of an operator and by means of which the speed of an axle or shaft of a vehicle or other piece of mechanism to be driven can be increased or decreased at will.

My invention therefore consists in the novel construction of speed-controlling mechanism hereinafter fully set forth, comprising an adjustable rod, means for operating it, a means connected with one end of said rod for imparting motion to the axle to be driven, and a means for regulating the movement of the rod, so as to increase or decrease the speed of the driven axle.

My invention consists, further, in certain other novel arrangements and combinations of parts and the details of the construction thereof embodied in the following: first, a pair of slidable plates placed upon suitable guides or ways and a short vertically movable or slidable plate which is operated by means of a shaft provided with a hand-wheel at its upper end, said shaft projecting up in front of the driver's seat when used in connection with a motor-vehicle, combined with a rod which extends from an eccentric on the driving-shaft of an engine and is connected at its outer end to the upper end of one of the slidable plates, a rod placed diagonally, so as to connect the upper slidable plate with a

push-rod which is pivoted upon the lower slidable plate, and an eccentric or other suitable grasping means upon the front end of the push-rod which grasps a driving-belt during the forward movement of the rod and releases the belt as the rod is drawn backward; secondly, in a vertically-slidable plate controlled by a rod which extends up in front of the driver's seat of the vehicle and which is provided with a guide-wheel, a slide placed upon said plate, a pivoted bearing placed therein, and a rod which extends through said bearing and upon which rod the bearing is adjusted back and forth in proportion as the slidable plate is adjusted vertically, combined with a slide attached to the upper end of the rod, means for operating said slide, and a push-rod carrying an eccentric or the equivalent thereof for engaging a belt, substantially in the manner to be hereinafter more fully described.

The invention is clearly illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a motor-vehicle to which my invention is applied. Fig. 2 is a side elevation of the speed-controlling mechanism embodying the principles of my invention. Fig. 3 is a vertical section on line xx in said Fig. 2, but on an enlarged scale. Fig. 4 is a cross-section taken on line yy looking in the direction of arrow y' in said Fig. 3, and Fig. 5 is a horizontal section taken on line zz in said Fig. 4. Fig. 6 is a side view of the bearing through which the adjustable rod passes. Figs. 7 and 8 are a vertical section and a top view, respectively, of the forward end of the push-rod, illustrating one form of grasping means connected therewith for grasping the belt during the forward stroke of said rod; and Fig. 9 is a side view of the forward end of the push-rod provided with a grasping means of a modified form of construction.

Similar numerals of reference are employed in all of the said above-described views to indicate corresponding parts.

In said drawings, and more especially in Fig. 2, 1 indicates the main driving-shaft of a suitable engine, which in motor-vehicles is preferably placed in the body of the vehicle. To the said shaft 1 is secured an eccentric 3,

with which is connected a rod 4, which is attached at its outer end to a slide 5, placed between a pair of guides or ways 7 of a plate 6, suitably secured in position upon the frame-
 5 work of the vehicle 2 or directly to the frame-work of the engine, if desired. The operating-engine is not shown, because it forms no necessary part of my invention. Any form of motor may be employed, as it is immaterial in what manner and by what kind of engine the shaft 1 is driven. A second plate 8,
 10 which is provided with a suitable arrangement of guides or ways 9, is provided, and slidably arranged between said guides or ways is a second slide or cross-head 10. These two guide-plates 6 and 8 are preferably placed at right angles to a vertically-
 15 arranged plate 11, which is provided with guides or ways 12 and a perforated guide portion 13. Pivoted to the slide or cross-head 5 is an adjustable rod 14, which passes through a pivoted bearing device 15, journaled between a pair of plates 17 and 18, which form a part of a slide 16. The bearing device 15
 20 is provided with pivots or journal-pins 19, substantially as illustrated in Figs. 3, 4, 5, and 6, and the inner sides of the plates are provided with suitable recesses to receive these two pivots in order that the bearing device 15 may oscillate in the slide 16 and accommodate itself to the positions of the adjusting-rod 14 under all conditions. The slide 16 is dovetailed upon a vertically-adjustable cross-head 20, which is slidably arranged between the guides or ways 12 of said
 35 plate 11. Said cross-head has a screw-threaded hole in which a screw 21 works and is adjustable vertically by means of said screw 21. The said screw extends up in front of the driver's seat and is provided with a hand-wheel 22 at its upper end or with other means for rotating the same. The two plates 17 and 18 above mentioned are connected with the main body of the slide 16 by pins or
 45 bolts 23, as shown in Fig. 4, and the bearing 15 has a forked or bifurcated end portion formed by the parts 24, which extend in an upward direction to a point above its center, so that when the plate 16 is lowered said bearing device 15 will slide upon the adjustable rod 14, and the forked end of the said device when at the lowest point of adjustment will allow of a short link 24', pivotally connecting the lower end of said rod 14 with a push-rod 25, to move therein with the greatest freedom.
 55 This bearing 15 thus forms a fulcrum in which the adjustable rod 14 moves, and by adjusting the slide 16 and with it the bearing 15 upon the ways or guides 12 of the plate 11 this fulcrum can be raised or lowered upon said rod 14, which passes freely through the upper and open portion 26 of the said bearing 15. The length of the stroke made by the rod 14, which is pivotally connected with the slide 5, can thus be lengthened or shortened at will, and in proportion as its move-

ment is lengthened or shortened at its lower end so the speed with which the lower end of the rod 14 shall move is increased or decreased. At the same time the power at which
 70 the lower end of the rod is made to move is correspondingly decreased or increased. To the lower end of the said adjusting-rod 14 is pivoted at 27 the short link 24, above mentioned, and the inner end of this link is pivoted to the
 75 push-rod 25, which is also connected to the slide or cross-head 10, which slides between the guides or ways 9 of the plate 8. This push-rod 25 is provided at its forward end with a suitable grasping means, preferably
 80 an eccentric 28, having a roughened surface formed by suitable serrations 29, as shown in Fig. 2, which press upon the driving-belt 30 in such a manner that at each forward movement or stroke of the push-rod the eccentric-wheel grips the belt and forces it forward, thereby producing a forward movement of the belt for driving purposes, as will be clearly evident. This eccentric 28 may be provided with rubber balls or rollers 31, as
 90 shown in Figs. 7 and 8, or any other means for grasping the belt during the forward motion of the push-rod may be employed.

In lieu of the eccentric a ratchet 32 may be secured to the shaft 33, in which case the
 95 push-rod 25 is provided with extending arms 34 and 34', pivoted as at 35, to engage the teeth of the ratchet. Springs 36 are so placed that the operative engagement of said arms with the ratchet is maintained. 100

When the eccentric 28 is used, a spring 37 is so placed that the moment the push-rod begins its backward movement the eccentric is caused to release its hold or grip upon the belt and it moves back with the push-rod
 105 without affecting the belt in any manner and without retarding the forward motion of the latter.

The belt 30 passes over a pulley 38 upon the shaft 33, and said shaft is provided at its
 110 outer end with a sprocket-wheel 39, over which passes a sprocket-chain 40. To the inner side of the driving-wheel of the vehicle, or upon the axle or shaft to be driven, is secured a sprocket-wheel 41, over which the said
 115 sprocket-chain passes, and thus communicates motion thereto. When the belt 30 is being used, it also passes over an idler-pulley 42, and any suitable belt-tightening means may be employed for tightening the belt when
 120 necessary.

By means of the simple construction herein above described, and illustrated in the drawings, the speed of the vehicle or that of an axle or shaft to be driven can be increased
 125 or decreased at will by the operator merely turning the hand-wheel upon the screw 21, which is of great advantage and benefit in motor-vehicles. The parts by which motion is communicated and by means of which the
 130 speed is regulated at will are few, simple, not liable to get out of repair, and will stand

any jolting or shaking which the vehicle is subjected to in passing over rough roads without sustaining any injury.

Of course it will be understood that my novel construction of speed-controlling mechanism may be employed with motors and engines of the various kinds, whether used on vehicles for propelling the same or whether employed in connection with stationary plants. I am aware that changes may be made in the several arrangements and combinations of parts herein described and illustrated in the drawings without departing from the scope of my present invention. Hence I do not limit my invention to the exact arrangements and combinations of the parts as herein described and as illustrated in the accompanying drawings, nor do I confine myself to the precise details of the construction of any of the said parts.

Having thus described my invention, what I claim is—

1. In a speed-controlling mechanism, two parallel guides or ways, a movable slide in each guide or way, and a rod pivotally connected with each slide, combined with a vertically-movable pivot connected to said rod, means connected to one of the slides for reciprocating it, and means applied to the other slide for communicating motion to a shaft or axle to be driven, substantially as and for the purposes set forth.

2. The combination, with an axle or shaft to be driven, of a guide or way, a laterally-movable slide therein, means for driving the same, and an adjustable rod connected with said slide for regulating the speed of said axle or shaft, a pivoted bearing device through which said rod passes, a vertically-movable slide in which said bearing is pivoted, a guide or way upon which said slide is movably and adjustably arranged, means for adjusting said slide, and means attached to the lower end of said adjustable rod for communicating motion to the said axle or shaft to be driven, substantially as and for the purposes set forth.

3. The combination, with an axle or shaft to be driven, of an adjustable rod for regulating the speed of said axle or shaft, and means for actuating said rod, of a pivoted bearing through which said rod passes, a vertically-movable slide in which said bearing is pivoted, a guide or way upon which said slide is movably and adjustably arranged, said bearing having an opening through which said

rod passes, and having a lower forked or bifurcated end portion, a belt operatively connected with the axle or shaft to be driven, and means attached to the lower end of said adjustable rod for communicating motion to said belt, substantially as and for the purposes set forth.

4. The combination, with a driving-shaft of an engine, of an eccentric, a rod connected therewith, two parallel movable slides, ways or guides upon which said slides are movably arranged, an adjustable rod connecting said slides, a vertically-arranged guide or way, a vertically-movable slide therein carrying a bearing through which said adjustable rod passes, a push-rod connected with the lower end of said adjustable rod and with one of the parallel movable slides, and means upon the outer end of said push-rod for communicating motion to an axle or shaft to be driven, substantially as and for the purposes set forth.

5. The combination, with the driving-shaft of an engine, of an eccentric, a rod connected therewith, two parallel movable slides, guides or ways upon which said slides are movably arranged, an adjustable rod connecting said slides, a guide or way, and a vertically-movable slide therein carrying a bearing through which said adjustable rod passes, a push-rod connected with the lower end of said adjustable rod and to one of the parallel movable slides, an eccentric upon the outer end of the push-rod for communicating motion to the axle or shaft to be driven, and a belt with which said eccentric engages, substantially as and for the purposes set forth.

6. In a speed-controlling mechanism, a rod for regulating the speed of a shaft or axle to be driven, in combination, with a bearing device having an opening through which said rod passes, and having a lower forked or bifurcated end portion, means for oscillating said rod, a guide or way, and a vertically-movable slide in which said bearing device is journaled, substantially as and for the purposes set forth.

In testimony that I claim the invention set forth above I have hereunto set my hand this 24th day of March, 1900.

STEPHEN MESSERER.

Witnesses:

FREDK. C. FRAENTZEL,
GEO. D. RICHARDS.