

No. 629,746.

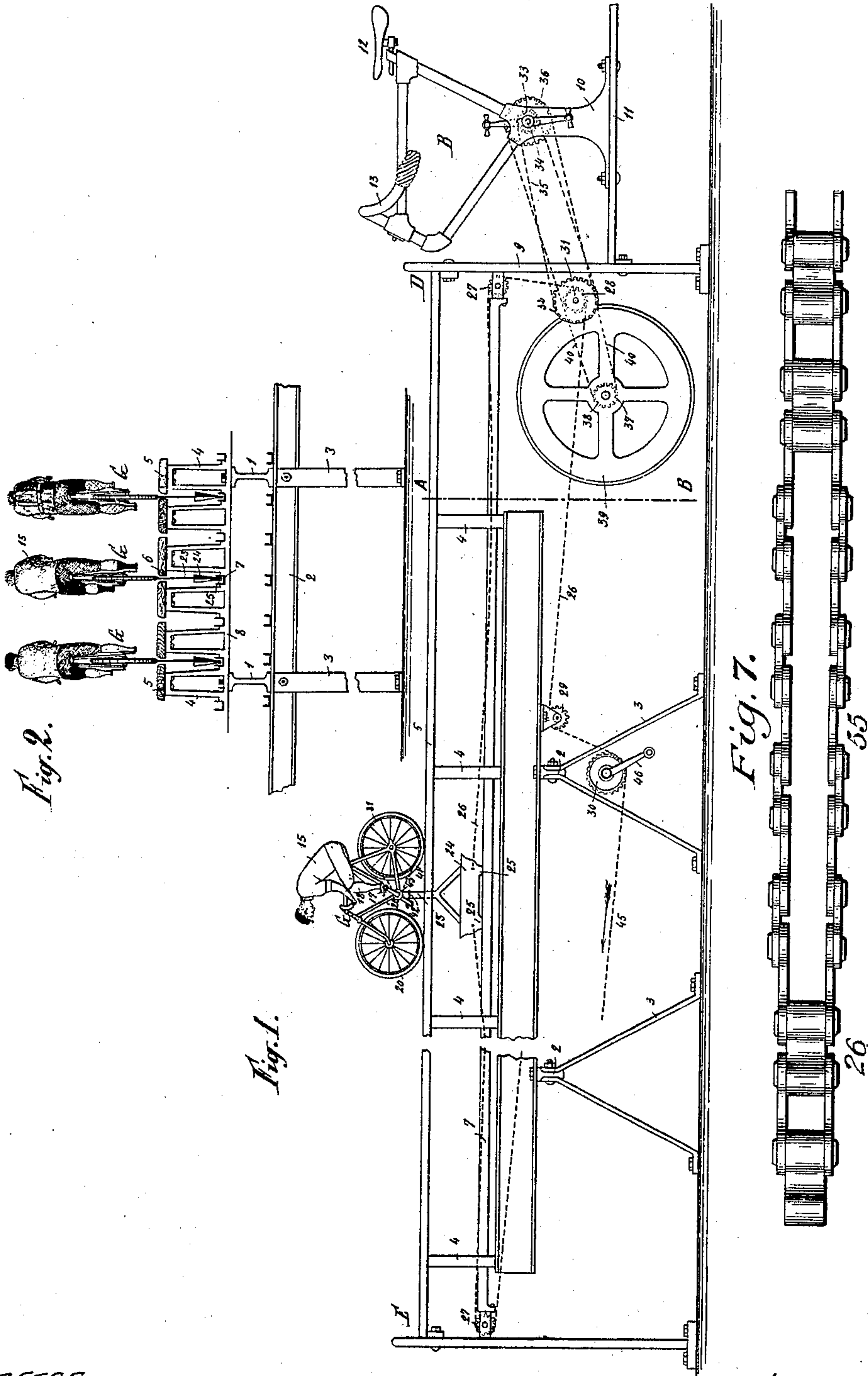
Patented July 25, 1899.

A. E. GROSSET.
CYCLE SPEEDING MACHINE.

(Application filed Nov. 29, 1897. Renewed June 28, 1899.)

(No Model.)

3 Sheets—Sheet 1.



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Fig. 3.

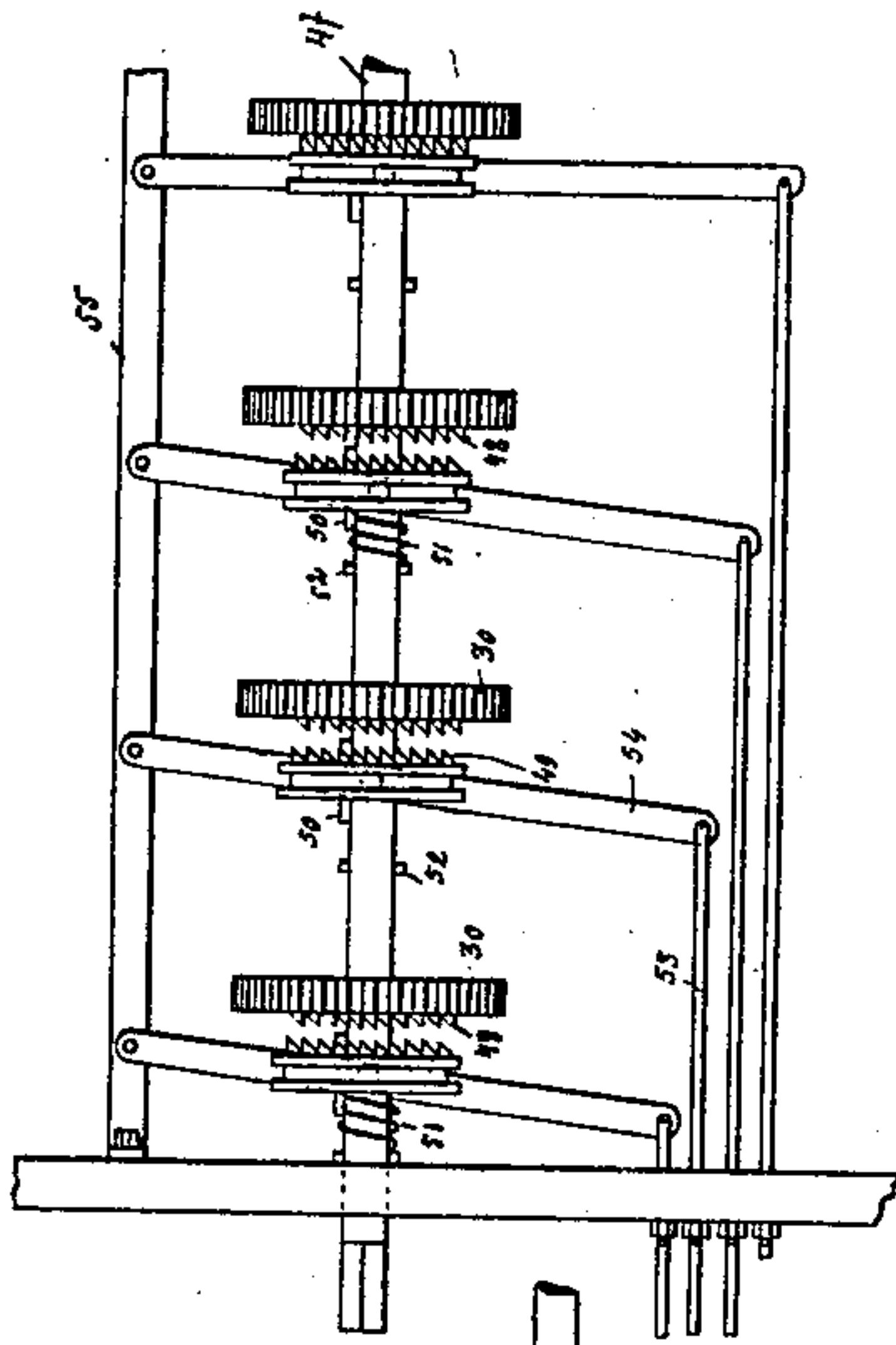
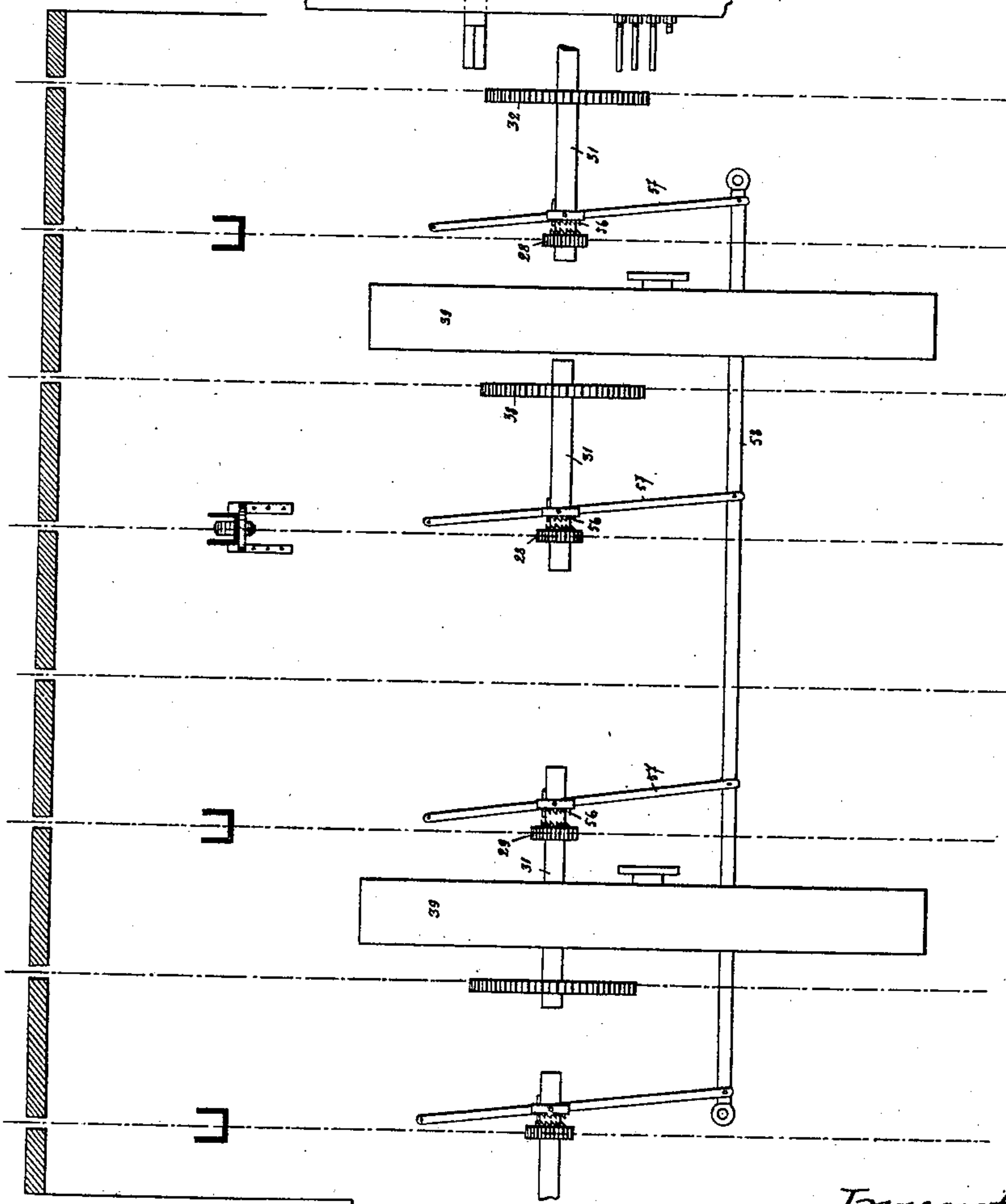


Fig. 4.



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Fig. 5.

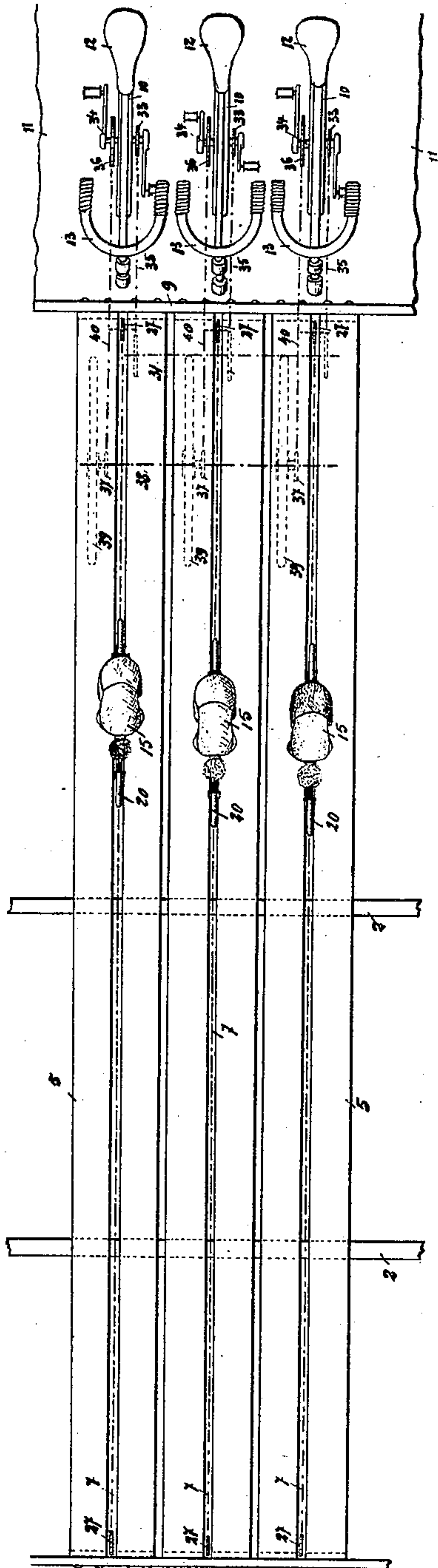
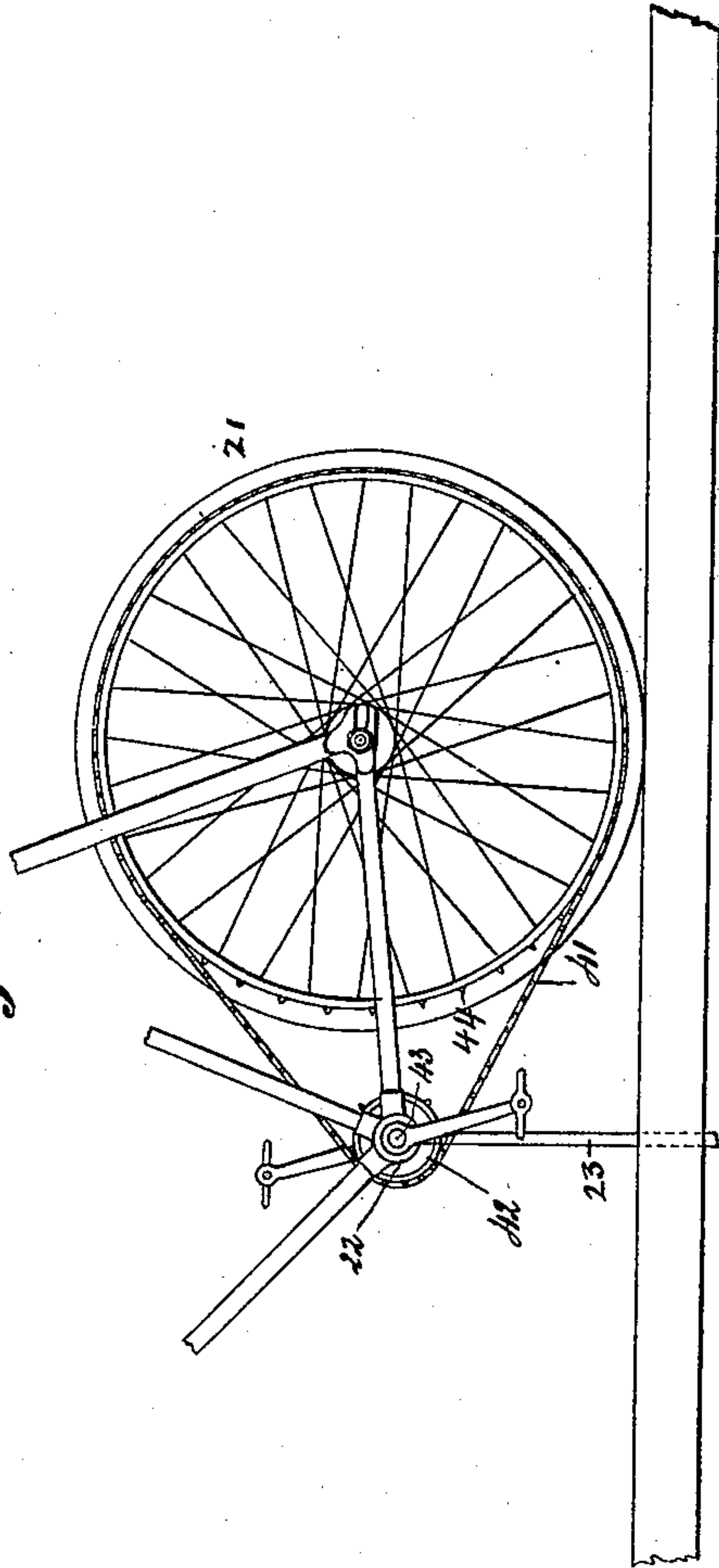


Fig. 6.



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UNITED STATES PATENT OFFICE.

AUGUSTE ELIE GROSSET, OF BRUSSELS, BELGIUM.

CYCLE SPEEDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 629,746, dated July 25, 1899.

Application filed November 29, 1897. Renewed June 28, 1899. Serial No. 722,186. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTE ELIE GROSSET, a citizen of the French Republic, residing at Brussels, in the Kingdom of Belgium, have
5 invented certain new and useful Improvements in Cycle Speeding-Machines, of which the following is a specification, said invention having been patented in France October 26, 1896, No. 260,721, and in Belgium September 13, 1897, No. 130,640.

This invention is an apparatus intended for pleasure and exercise, and may be used as a game to test the speed of bicyclers. The apparatus comprehends one or more cycle-automatons running in a straight line over a track
15 with a speed proportionate to that developed by a rider or cyclist driving pedals mounted in a fixed frame, means being provided for moving the legs of the automaton to correspond with the movement of the legs of the rider. The mechanism is also provided with means for bringing all of the automatons back to their starting-point regardless of the position in which they may have stopped, and also
25 means by which the apparatus may be used for training purposes, the connections with the automatons being broken.

In the accompanying drawings, Figure 1 is a side elevation of the apparatus; Fig. 2, a transverse section through line A B of Fig. 1; Fig. 3, an enlarged view of the clutches by the aid of which automatons are brought back to the starting-point. Fig. 4 shows the means by which automatons may be disconnected from the driving mechanism. Fig. 5
35 is a plan of the apparatus. Fig. 6 is an enlarged view of a portion of the automaton, and Fig. 7 is an enlarged view of a portion of the driving-chain.

40 The apparatus comprises a frame made of heavy beams 1, united by cross-pieces 2, resting upon feet 3. Upon the beams are fixed at suitable distances supports 4, upon which boards 5 rest. A slot 6 is left between the adjacent boards, and vertically underneath each of these is an iron trough 7, running parallel therewith. These troughs are fixed at the point 8 to the bottom of the supports 4, and the ends are fastened to the supports 9.

50 At one end of the main frame is arranged

a frame B, mounted on a standard 10, fixed upon the floor 11. The frame carries a saddle 12 and handle-bar 13 and is fitted with pedals and their cranks, the whole arrangement being similar to the corresponding parts
55 of a bicycle.

The automaton 15 is a puppet whose feet 17 and legs 18 are articulated. This puppet is fixed upon a bicycle G, the wheels 20 and 21 of which rest upon the rounded edges of
60 the slot 6. Underneath the crank-hanger 22 of the bicycle G is a rigid bar 23, passing freely through the slot 6 and carrying a balancing-weight 24, which causes the wheels to strongly adhere to the track. This weight is
65 provided with two ears 25, projecting into the trough immediately below the automaton and without touching the bottom of the trough. To each end of the weight is fixed a chain 26, passing over pinions 27, 28, 29, and 30, all lo-
70 cated in the same plane.

Upon the axle 31 of the pinion 28 is keyed a larger pinion 32, arranged in the same plane, with a smaller pinion 33 fastened upon the axle 34 of the crank-hanger of the frame B.
75 The two wheels last mentioned are connected together by a chain 35. Upon axle 34 is also fastened a pinion 36, arranged in the same plane with a pinion 37, mounted upon a shaft 38, carrying a fly-wheel 39. These two pin-
80 ions are connected by chain 40. The crank-shaft 43 of the bicycle carries a sprocket-wheel 42, connected, by means of the chain 41, with a toothed rim 44 on wheel 21.

The operation of the apparatus so far de-
85 scribed is as follows: The automaton being set at the starting-point, a bicyclist mounts a frame B and works the pedals. This sets in motion pinions 33 and 36, the former driving the shaft 31 and the latter 39. The chain 26
90 and the fly-wheel 39 are thus driven, and the chain carries along the weight 24 and bicycle G, the wheel 21 of which drives the sprocket-wheel 42 and so actuates the legs of the puppet. The weight of the fly-wheel is made
95 such that its inertia will substantially correspond with that of the rider on an ordinary bicycle, so that the effort which the rider must use to set the fly-wheel in motion corresponds to the effort which he would be com-
100

5 pelled to make in starting the machine on
 which he rides. Likewise in spurting the
 same corresponding effort would have to be
 used. When the automaton has traveled
 10 from the starting-point D to the finish E, it au-
 tomatically stops by means of the formation
 of the chain 26, which is deprived of a num-
 ber of links at a certain point. When this
 15 smooth portion of the chain comes into con-
 tact with the driving-pinion 28, the latter con-
 tinues to rotate and slip upon the chain, thus
 making it possible for the rider on frame B
 to continue without injury to the apparatus
 and he may thus finish out the last part of a
 20 race at the highest possible speed. To re-
 turn the automaton to its starting-point,
 chain 26 is moved in the direction of the ar-
 row 45, this being done by means of the crank
 46, fixed upon the shaft of pinion 30. To ef-
 25 fect this and also when using the bicycle-
 frame B for training purposes, the pinion 28
 may by the hereinafter-described clutch sys-
 tem be rendered independent of the shaft 31.

It will be observed that if the gearing is
 30 such that the speed of the automaton is one
 hundred times less than the speed which the
 rider moving the automaton would develop
 by riding an ordinary bicycle a travel by the
 automaton of thirty feet would represent an
 expenditure of energy on the part of the
 35 rider which would carry him three thousand
 feet on an ordinary wheel. Furthermore, by
 properly proportioning the wheel 21 and the
 sprocket-wheel 22 the movement of the legs
 of the puppet may be made to correspond

40 It will be evident that in accordance with
 the purpose of the apparatus a number of au-
 tomats may be arranged side by side, as
 shown in the drawings, each automaton in
 such case having its independent driving-
 frame B, so that a number of cyclists working
 at the same time may produce all of the fea-
 45 tures of a race.

In case several automats are used it is
 necessary to provide means for bringing back
 to the starting-point each of the automats,
 regardless of the positions in which they may
 be left. For this purpose I have devised the
 50 following arrangement in combination with
 the mechanism which drives the automaton
 by means of the crank 46.

Each of the pinions 30, with which the
 chain 26 engages, is loosely mounted upon
 55 axle 47, as shown in Fig. 3, and carries upon
 one of its sides the clutch-teeth 48. Oppo-
 site to this toothed face I arrange upon the
 shaft a corresponding toothed plate 49, capa-
 ble of sliding upon a key 50. Behind this
 60 plate 49 is a spring bearing at one end against
 the plate and at the other end against a stop
 52. The result of this arrangement is that
 normally each toothed plate 49 is driven
 against the neighboring pinion 30, which thus
 65 becomes engaged, and that when all of the

automats have stopped at the same dis-
 tance from the starting-point it is only neces-
 sary to turn the crank 46 and bring them all
 back simultaneously to the starting-point.
 70 When the automats have stopped at differ-
 ent distances from the starting-point, they
 are first brought back simultaneously in the
 way already described until one of them
 reaches the starting-point. Then its corre-
 75 sponding toothed plate 49 is put out of gear
 by causing the plate to slide upon the key 50
 by means of levers 53 and 54, the latter of
 which is pivoted upon a supporting-bar 55
 and connected to the toothed plate by means
 80 of a ring which does not interfere with the
 rotation of the plate. Then as each succes-
 sive automaton reaches the starting-point it
 may be cut out in the same way. As already
 stated, it is necessary to disengage the pinion
 85 28 from its shaft, so as to detach the corre-
 sponding driving-frame B when the automa-
 tons have to be brought back to the starting-
 point. In using the apparatus for training,
 also, pinion 28 should be disengaged from the
 shaft. For this purpose each pinion 28 is
 90 loosely mounted upon a shaft 31, as shown in
 Fig. 4, and is fitted with a clutch device simi-
 lar to the above described. The pinion 28 is
 provided with teeth on one side and a toothed
 95 disk movable upon a key along the shaft 31
 and is manipulated by the lever 57. All of
 the levers 57 may be united and moved by a
 single bar 58.

Having described my invention, I claim—

1. In a bicycle speeding-machine, the com- 100
 bination of a driving device consisting of a
 pair of pedals mounted in a frame, an automa-
 ton mounted to run on a track, and provided
 with rotating pedals, and connections between
 the driving-pedals and the automaton, and 105
 means whereby the pedals of the automaton
 will correspond stroke for stroke with those of
 the driving device, substantially as described.

2. In a cycle speeding-machine, the combi- 110
 nation of a frame carrying rotatable driving-
 pedals, an automaton adapted to traverse a
 track, gearing between the pedals and the au-
 tomaton and means whereby the automaton
 will automatically stop at the end of its track
 while the driving-pedals continue in motion. 115

3. In a cycle speeding-machine, the combi-
 nation of a frame carrying rotatable driving-
 pedals, a straight track, an automaton mov-
 ing along said track, an endless chain connect-
 ed with said automaton and gearing whereby 120
 the pedals will drive the chain, and means for
 disconnecting the gearing from the chain, for
 the purpose set forth.

4. In a cycle speeding-machine, the combi- 125
 nation of an automaton consisting of a bicy-
 cle carrying a rider having articulated legs, a
 track upon which the automaton travels, a
 pair of stationary driving-pedals, and connec-
 tions between the pedals and automaton,
 whereby the movements of the legs of the lat- 130

ter will correspond with the strokes of the driving-pedals.

5 In a cycle speeding-machine, an automaton traveling over a straight track, an endless chain moving the same, driving mechanism for said chain, means for disconnecting the driving mechanism and means for reversing the movement of the chain.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

AUGUSTE ELIE GROSSET.

Witnesses:

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GREGORY PHELAN.