

No. 634,887.

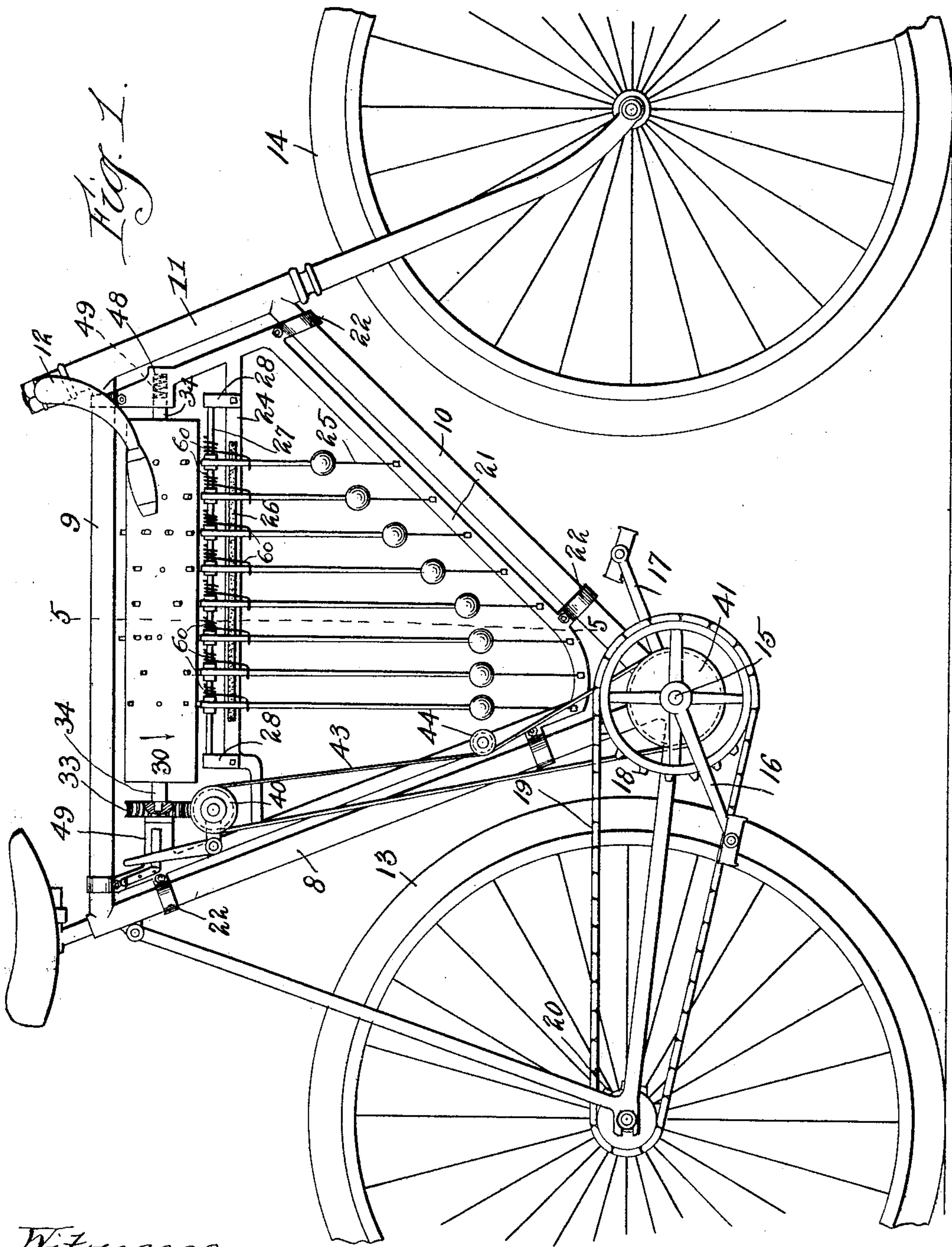
Patented Oct. 17, 1899.

S. G. GOSS.
BICYCLE.

(Application filed Aug. 19, 1897.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses
Wm. J. Huming
Jm. M. Rheem.

Inventor
Samuel G. Goss,
By Bond, Adams, Pickett & Jackson.
Attys.

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2 Sheets—Sheet 2.

Fig. 2.

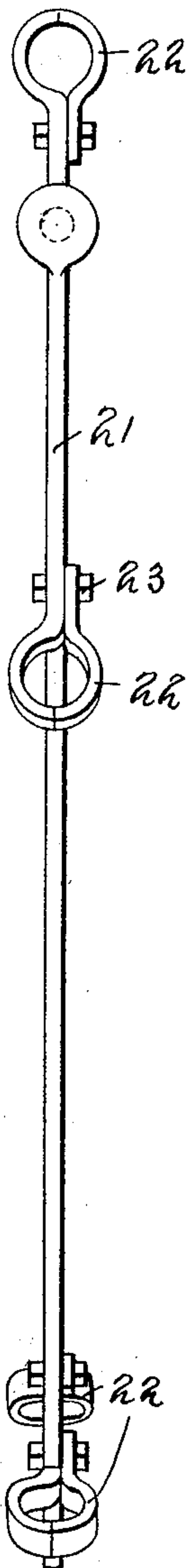


Fig. 3.

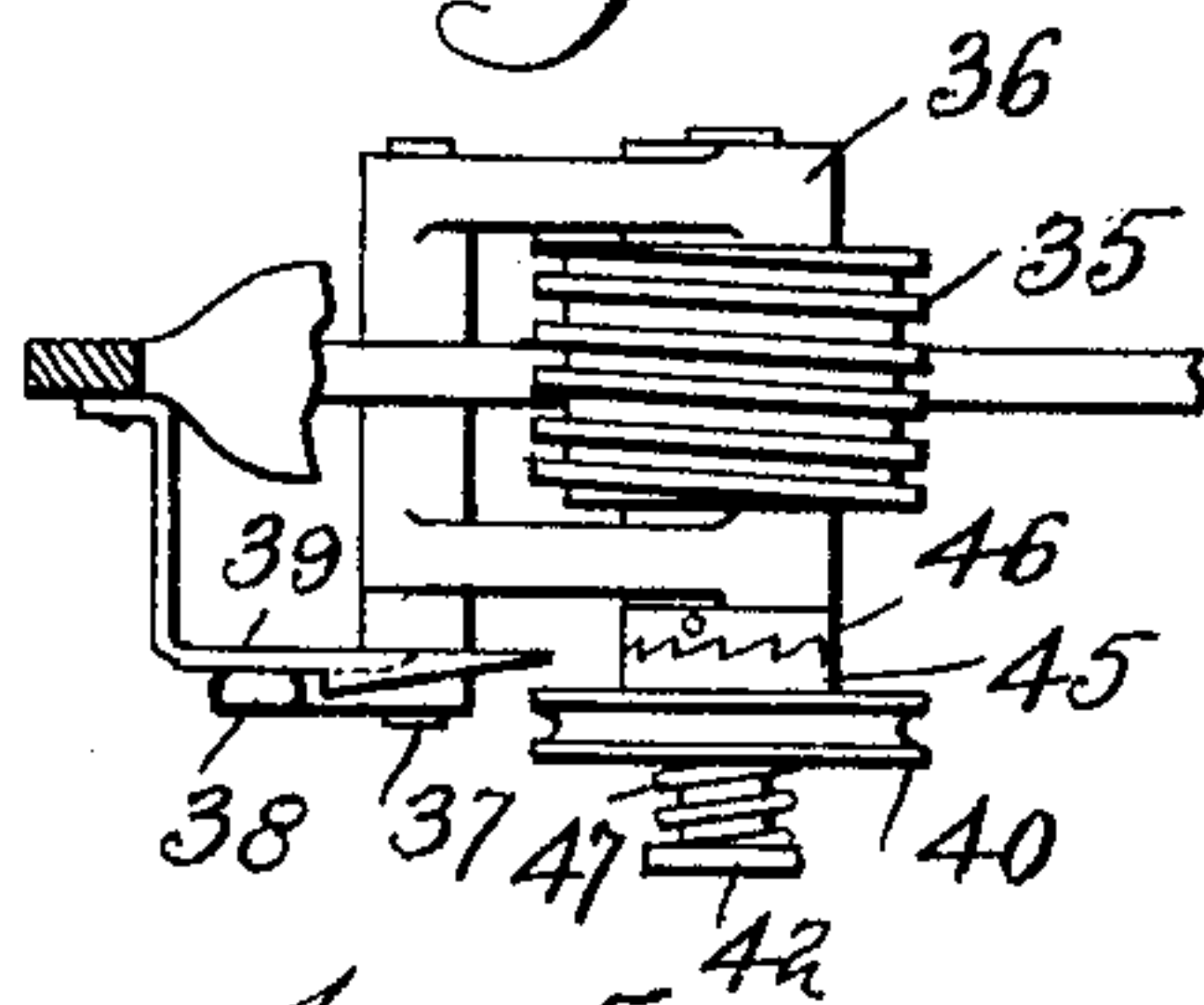


Fig. 4.

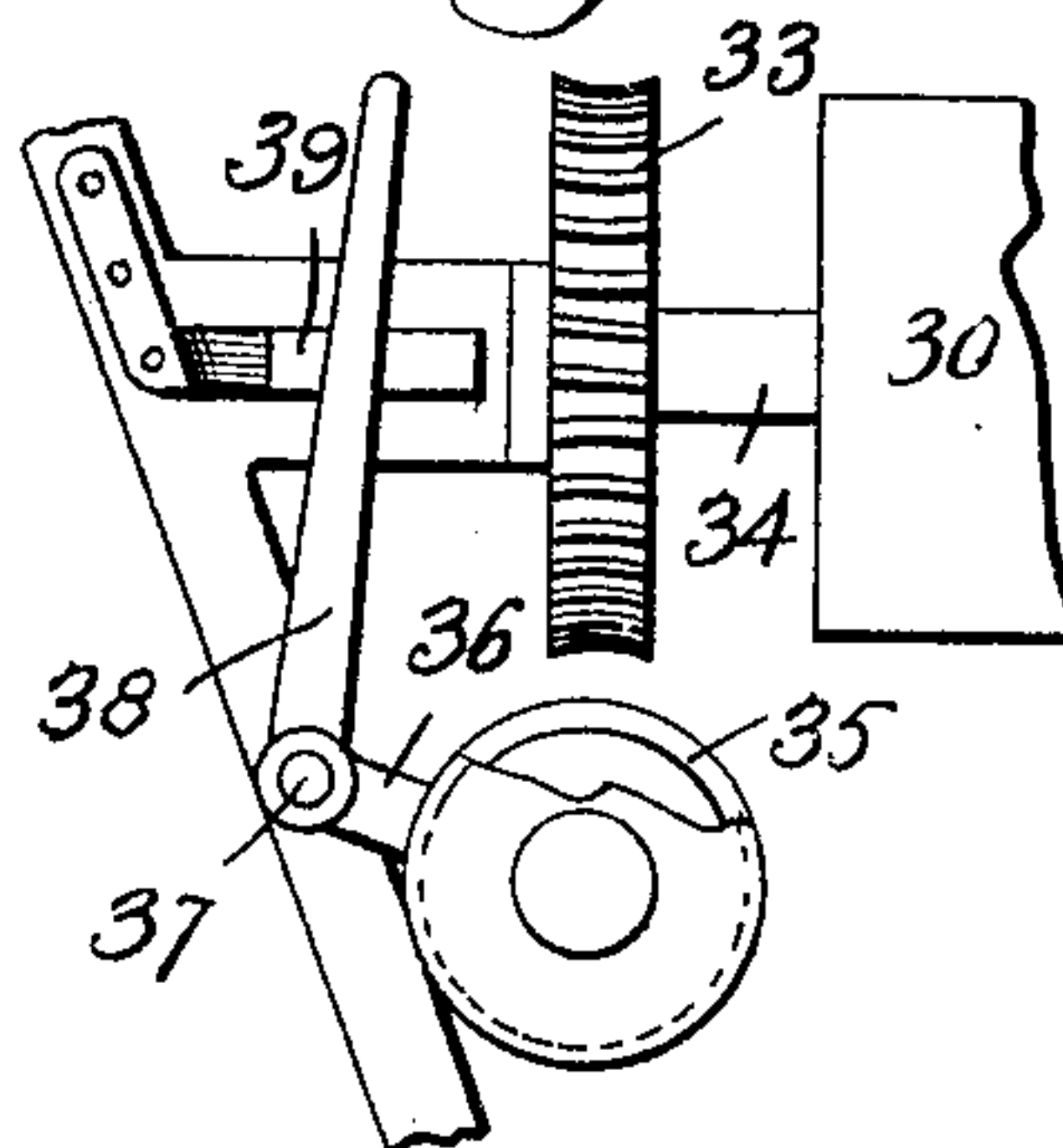


Fig. 5.

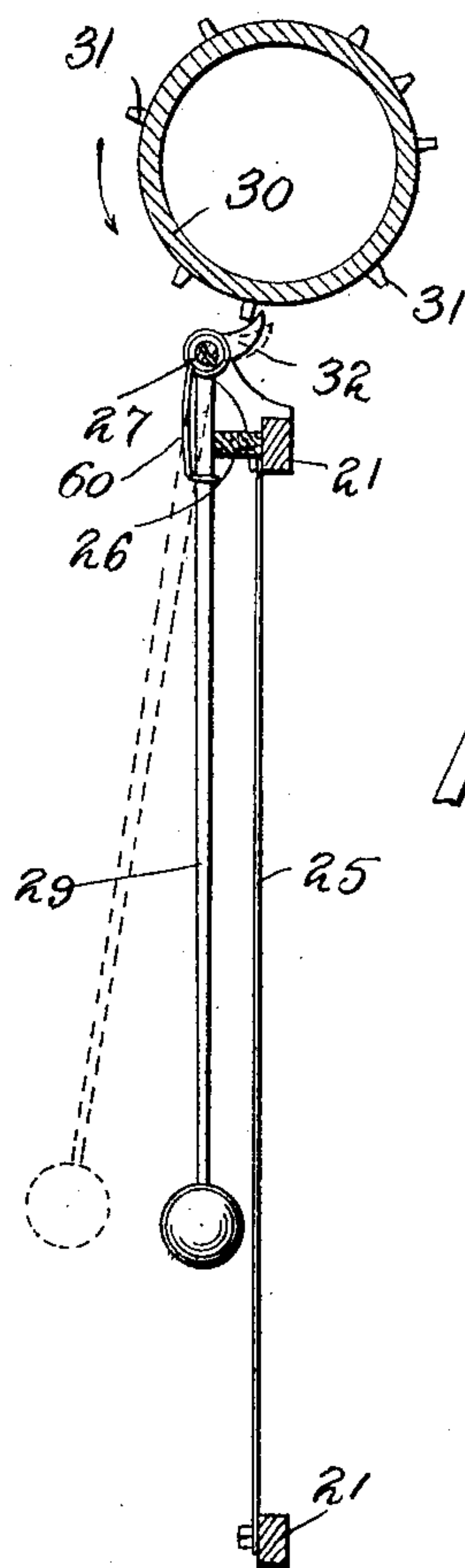


Fig. 7.

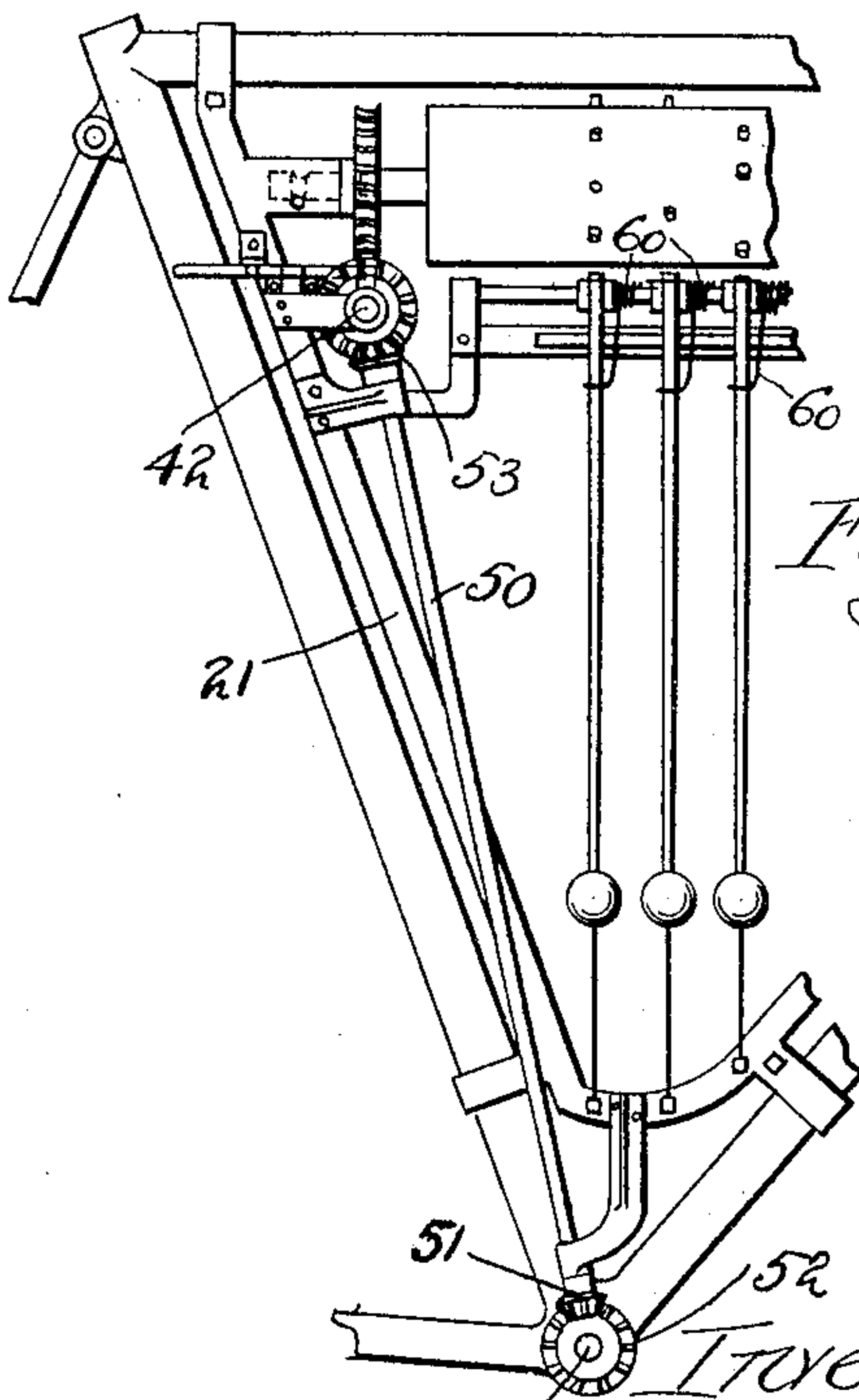
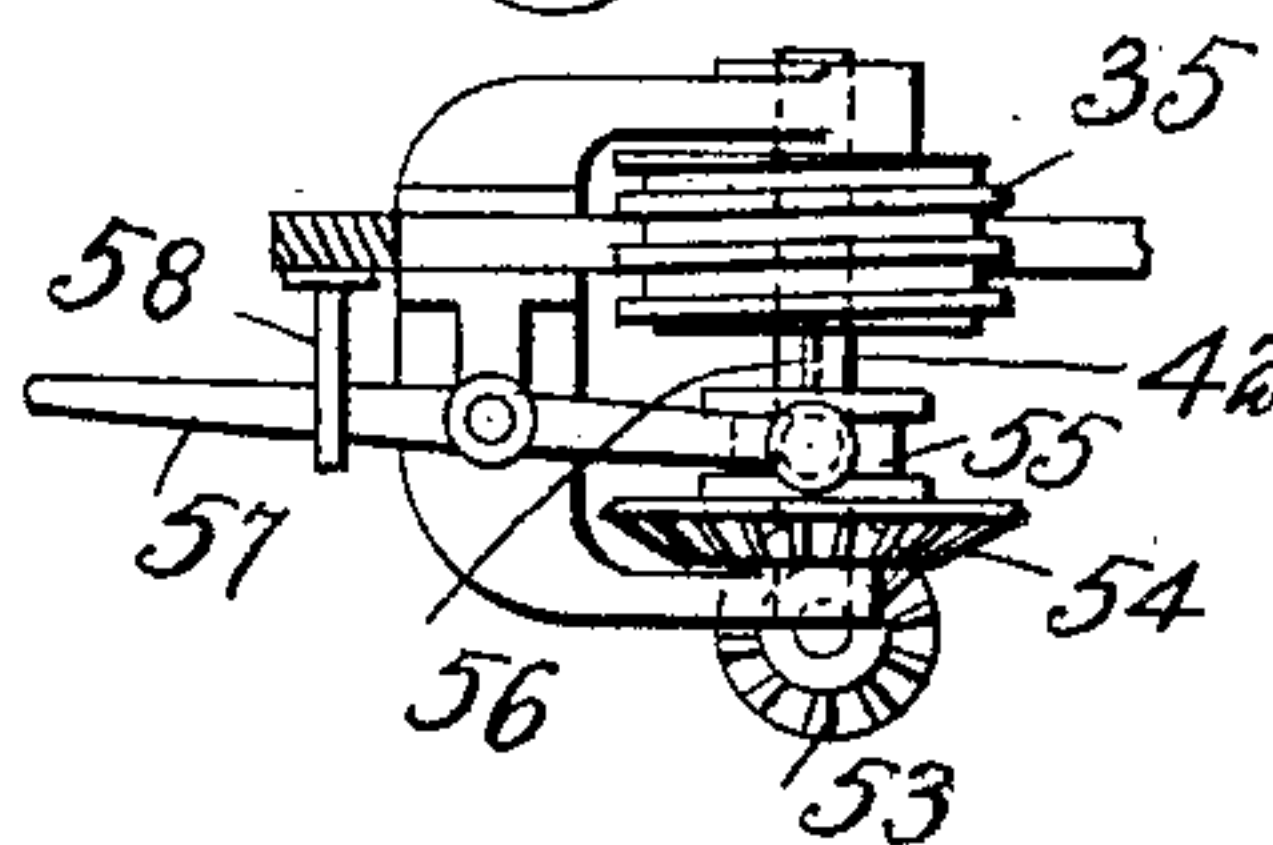


Fig. 6.

Witnesses

Wm. J. Fleming

Sam. M. Rheem

By

Inventor
Samuel G. Goss.
Bond, Adams, Pirkens & Jackson,
Attys

UNITED STATES PATENT OFFICE.

SAMUEL G. GOSS, OF CHICAGO, ILLINOIS.

BICYCLE.

SPECIFICATION forming part of Letters Patent No. 634,887, dated October 17, 1899.

Application filed August 19, 1897. Serial No. 648,852. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL G. GOSS, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bicycles, of which the following is a specification.

My invention relates to bicycles, and has for its object to provide a combined bicycle and musical instrument whereby the rider when so disposed may treat himself and others in his immediate neighborhood to a musical accompaniment as he rides along.

To this end my invention consists of a detachable frame secured within the bicycle-frame, a series of vibratory strings strung across said detachable frame, a plurality of spring-pressed hammers pivoted to said detachable frame and arranged to vibrate said strings, a rotatable shaft, a cylinder on said shaft provided with means for actuating said hammers, a worm-wheel keyed to said shaft, a rock-shaft mounted transversely in said detachable frame, a worm-frame on said rock-shaft carrying a worm adapted to mesh with said worm-gear, means for rotating said worm from the pedal-shaft of the bicycle, an operating-lever for said worm-frame on said rock-shaft, and a spring-catch for locking said lever and holding said worm in engagement with said worm-wheel.

In the drawings, Figure 1 is a side elevation of a bicycle embodying my invention, parts of the wheels being broken away. Fig. 2 is an edge view of the frame by which the various parts of the music-producing devices are attached to the bicycle-frame. Fig. 3 is a plan view of a part of the driving mechanism. Fig. 4 is an enlarged detail, being a side elevation of the parts of the driving mechanism. Fig. 5 is a vertical section on line 5 5 of Fig. 1. Fig. 6 is a partial side elevation showing a modification. Fig. 7 is a plan view of parts of the driving mechanism shown in Fig. 6.

In the drawings, 8 9 10 11 indicate the members of the frame of the bicycle, which, as here shown, is of the ordinary diamond-frame type. 12 indicates the handle-bars, 13 14 the wheels, 15 the pedal-shaft, 16 17 the pedal-cranks, 18 the sprocket-wheel on the pedal-shaft, 19 the chain, and 20 the sprocket-wheel carried by the rear wheel, all of which are of the usual construction.

21 indicates a frame which is arranged to fit inside of the frame formed by the members 8 9 10 11, the frame 21 being slightly smaller than said bicycle-frame and being secured to the members 8 9 10 by clamps 22, as shown in Fig. 1. The frame 21 may be readily removed by loosening the bolts 23, by which the clamps 22 are secured to the tubing of the bicycle-frame.

24 indicates a cross-bar extending across the frame 21, preferably in a horizontal position, forming a triangular frame, to which are secured wires 25 of different lengths, the whole being arranged somewhat after the manner of a harp or the wires of a piano. A greater or less number of wires may be used, as desired, depending upon the elaborateness of the instrument. The wires may be provided with tuning-pegs, so that they may be turned when necessary.

26 indicates a pad carried by the bar 24, which serves to cushion the hammers, as will be hereinafter described.

27 indicates a pivot-rod mounted in suitable brackets 28 at opposite ends of the frame 21, preferably on the bar 24, which pivot-rod extends parallel with the bar 24 and carries a series of independent hammers 29 and springs 60, said hammers being equal in number to the wires 25 and being in alinement with them, so that as the hammers are rocked upon the pivot-rod they may be caused to strike their respective strings. The pad 26 is so arranged as to hold the hammers out of contact with the wires, but to permit their lying in close proximity thereto, so that the stroke of the hammers will be elastic and they will be caused to rebound out of contact with the wires immediately after striking them. The hammers are normally held in contact with the pad 26 by the springs 60, which are connected to the hammers as well as to the pivot-rod 27.

The different hammers are operated to produce musical sounds or to play tunes by an operating device consisting in the form of the apparatus herein shown of a cylinder 30, arranged substantially parallel with the pivot-rod 27 and provided with a series of pins 31, projecting from its surface and adapted to strike levers 32, carried by and projecting from the hammers 29, as shown in Fig. 5. The arrangement is such that as the cylinder

30 rotates in the direction indicated by the arrow in Fig. 5 when a pin 31 arrives opposite one of the levers 32 by the movement of the cylinder said pin will cause said lever to
 5 rock upon the pivot-rod 27, throwing the hammer 29, to which said lever is connected, outward away from the corresponding wire, such outward movement of the hammer continuing until the pin passes beyond the lever 32,
 10 when the hammer 29 will be thrown back quickly by the action of the spring 60 and will strike the wire, producing a musical sound, afterward returning to its normal position. Obviously by arranging the pins 31
 15 in such manner on the cylinder 30 as to trip the different hammers at proper times the instrument will be caused to play any desired tune. In fact, by increasing the number of wires to provide the requisite number of oc-
 20 taves and properly arranging the pins on the cylinder 30 the instrument may be caused to play even the most complicated pieces.

The cylinder 30 is caused to rotate by the forward movement of the bicycle through the
 25 instrumentality of the following mechanism:

33 indicates a worm wheel or gear, which is mounted upon one of the journals 34 of the cylinder 30 and is keyed thereto. The worm-gear 33 is adapted to mesh with a worm
 30 35, mounted in a frame 36, the frame 36 being pivotally supported upon a shaft 37, suitably mounted on the frame 21 near the worm-gear 33. The shaft 36 is rocked to move the worm into and out of mesh with the worm-
 35 gear 33 by means of a lever 38, which is connected to the shaft 37 and, as shown in Fig. 4, is arranged in position to be operated by the rider from his seat.

39 indicates a spring-catch for locking the
 40 lever 38 in position to hold the worm in mesh with the worm-gear 33. The worm 35 is caused to rotate by the forward movement of the bicycle by means of pulleys 40 41, the former being mounted upon a worm-shaft 42
 45 and the latter upon the pedal-shaft 15. A belt 43 serves to drive the pulley 40 from the pulley 41.

44 indicates an idler around which the belt 43 passes, as shown in Fig. 1.

50 The pulley 40 is loosely mounted upon the shaft 42 and carries a clutch-section 45, adapted to engage a clutch-section 46, mounted upon the shaft 42 and keyed thereto. A spring 47 normally holds the two clutch-sections in
 55 engagement with each other. The teeth of the clutch-sections 45 46 are ratchet-teeth and are so arranged that when the pulley 40 is rotated by the forward movement of the bicycle such movement will be communicated to the
 60 shaft 42; but reverse motion of the pulley 40 will not be communicated to said shaft. By this construction forward movement of the bicycle will cause the worm 35 to rotate; but in the case of back-pedaling the clutch-section 45 will simply move over the clutch-section 46 without rotating the worm 35, thus

avoiding danger of damaging the cylinder 30 or the hammers.

As shown in Fig. 1, the journals 34 of the cylinder 30 are mounted in bearings 48 49 at
 70 opposite sides of the frame 21, and in order that the cylinder may be removed when desired the socket at the bearing 48 is made quite deep, so that the cylinder 30 may be moved to the right sufficiently to release the
 75 opposite journal 34 from its bearing, thus releasing the cylinder. A spring 49 exerts an endwise pressure upon the cylinder 30 and serves to hold the journal at the opposite end thereof in its bearing, preventing accidental
 80 displacement of the cylinder.

In Figs. 6 and 7 I have shown a modified arrangement of the driving apparatus, involving the use of bevel-gears and a shaft in lieu of the pulleys and belt shown in Fig. 1, 50 in-
 85 dicated the shaft, which at its lower end is provided with a bevel-gear 51, meshing with a bevel-gear 52, mounted upon the pedal-shaft 15, and at its upper end carries a bevel-gear 53, which meshes with a gear 54, mounted
 90 upon the shaft 42, which carries the worm 35. By this arrangement the rotation of the pedal-shaft will cause the gear 54 to rotate, and the rotary movement of the gear 54 is communi-
 95 cated to the shaft 42 by means of a ratchet-clutch 55, which is mounted upon the shaft 42 and is keyed thereto by a feather 56, permitting longitudinal movement of the clutch 55 upon said shaft. The clutch 55 engages the ratchet-clutch section at the rear of the
 100 bevel-gear 54, so that forward movement only of the bicycle will cause the shaft 42 to rotate. A lever 57 is provided for shifting the clutch 55 to throw it into and out of mesh with the gear 54 in order that the musical in-
 105 strument may be stopped or started at pleasure. 58 indicates a latch for the lever 57.

That which I claim as my invention, and desire to secure by Letters Patent, is—

The combination with a bicycle, of a de-
 110 tachable frame secured within the bicycle-frame, a series of vibratory strings strung across said detachable frame, a plurality of spring-pressed hammers pivoted on said detachable frame and arranged to vibrate said
 115 strings, a rotatable shaft, a cylinder on said shaft provided with means for actuating said hammers, a worm-wheel keyed to said shaft, a rock-shaft mounted transversely in said detachable frame, a worm-frame on said rock-
 120 shaft carrying a worm adapted to mesh with said worm-gear, means for rotating said worm from the pedal-shaft of the bicycle, an operating-lever for said worm-frame on said rock-shaft, and a spring-catch for locking said lever
 125 and holding said worm in engagement with said worm-wheel, substantially as described.

SAMUEL G. GOSS.

Witnesses:

JOHN L. JACKSON,
 HOLMES A. TILDEN.