

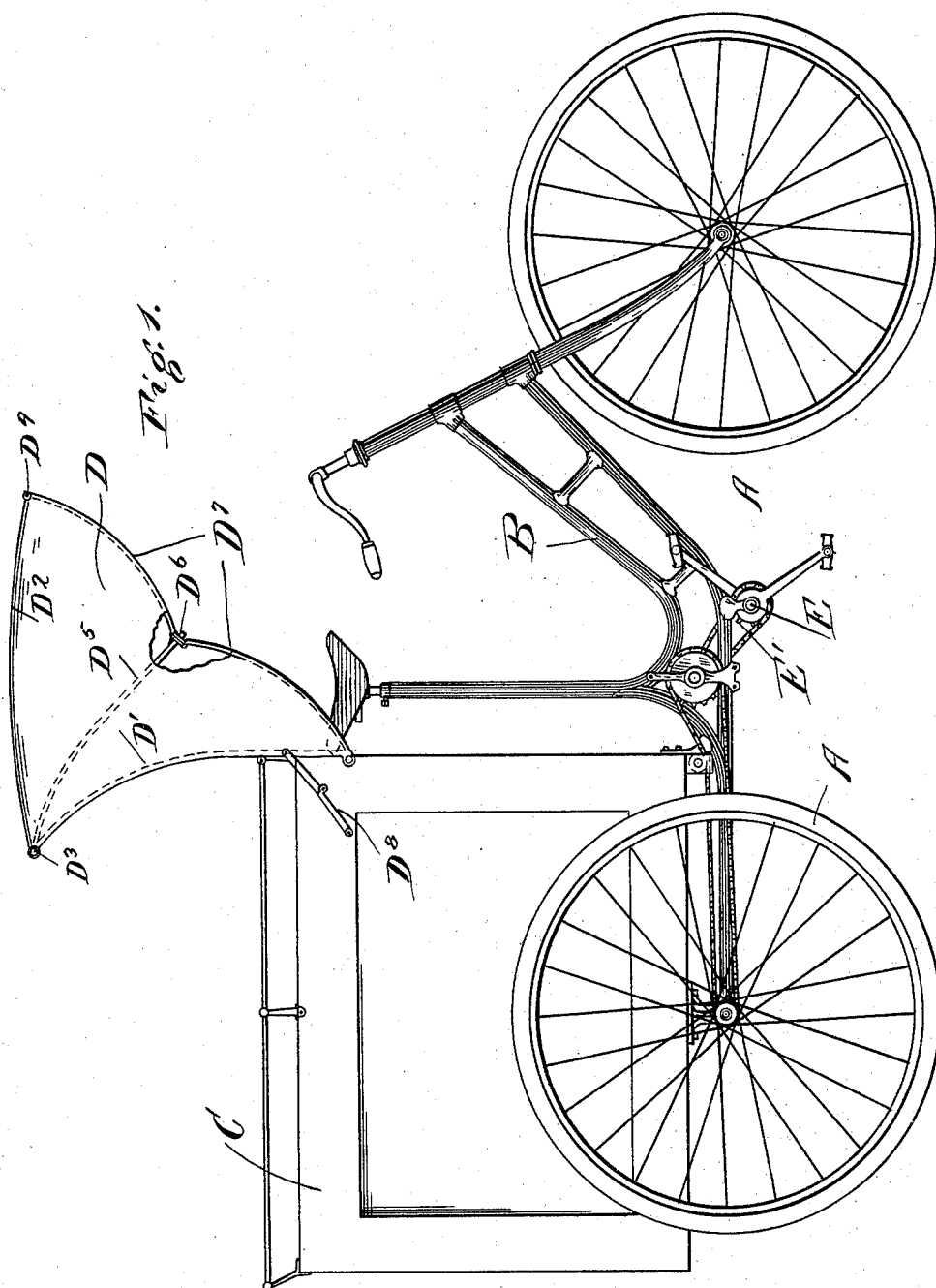
(No Model.)

2 Sheets—Sheet 1.

C. YOUNG.
BICYCLE.

No. 567,631.

Patented Sept. 15, 1896.



Witnesses!

Charles E Burnap
Donald M Carter

Inventor:

Carl Young
W. Parker
Att'y

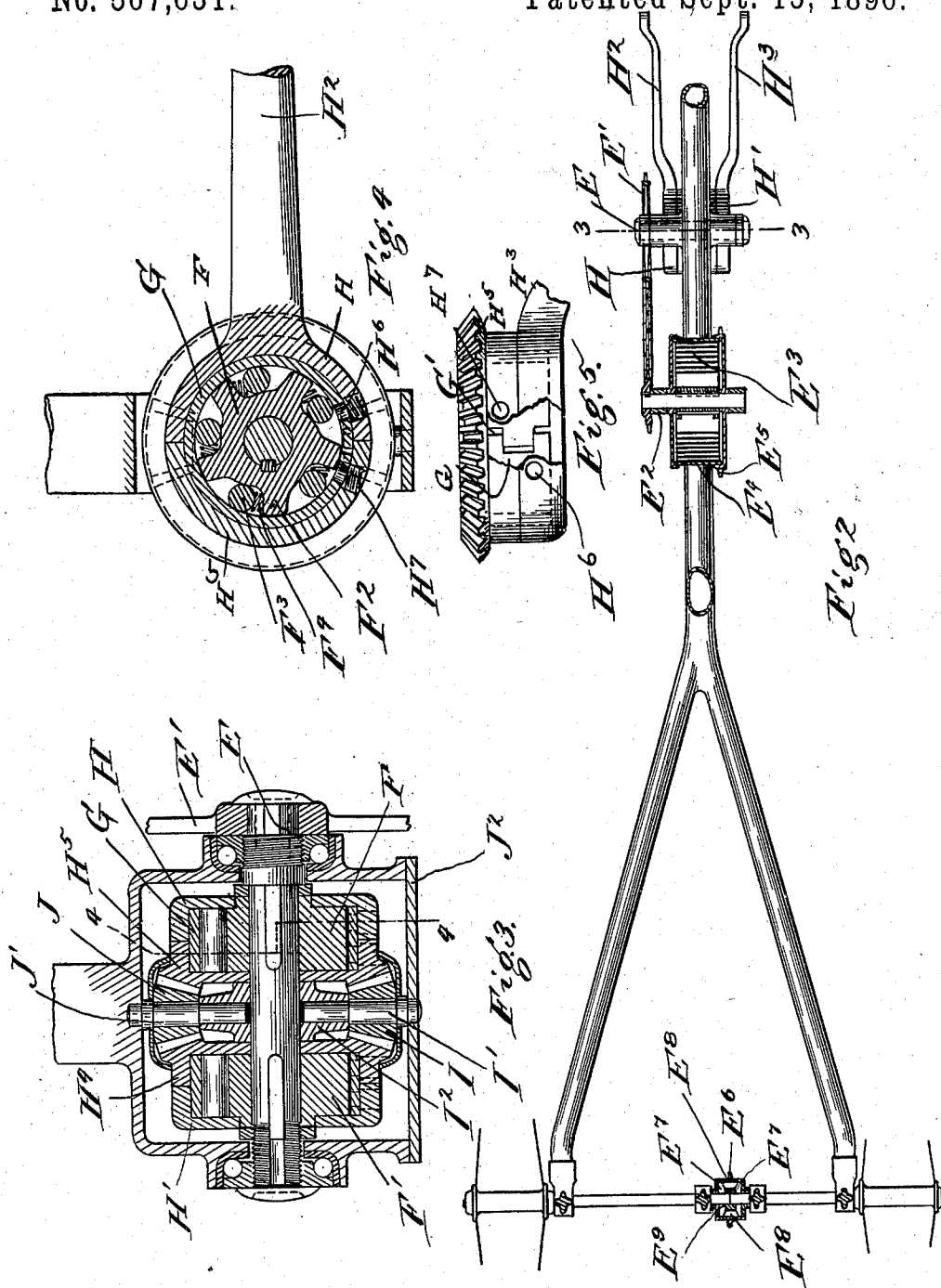
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By Isaac W. Carter, Att'y

UNITED STATES PATENT OFFICE.

CARL YOUNG, OF CHICAGO, ILLINOIS.

BICYCLE.

SPECIFICATION forming part of Letters Patent No. 567,631, dated September 15, 1896.

Application filed February 10, 1896. Serial No. 578,727. (No model.)

To all whom it may concern:

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

My invention relates to bicycles, tricycles, or the like, and has for its object to provide
10 a new and improved vehicle of the class described, of which the following is a description, reference being had to the accompanying drawings, wherein—

Figure 1 shows a side elevation of a tricycle
15 embodying my invention. Fig. 2 is a plan view in part section, some of the parts being omitted. Fig. 3 is a section on line 3 3, Fig. 2. Fig. 4 is a section on the line 4 4, Fig. 3. Fig.
5 is a detail view of the clamping-ring.

20 Like letters refer to like parts throughout the several figures.

In Fig. 1 I have illustrated a tricycle to be used in carrying mail or other material, and which consists of the wheels A and frame B,
25 carrying the ordinary accompanying parts. A box or receptacle C is placed between the two rear wheels, back of the seat. A cover or canopy D is fastened to the box C, and is adapted when raised to protect the rider from
30 the rain or sun. This canopy is adapted to be folded at the sides and laid back over the box C, so as to cover the same and protect whatever material may be carried therein. This canopy is provided with the rods D' D²
35 at each side, the rod D' being pivoted to the box. Said rods are connected to the cross-rods D³ D⁴. A central rod D⁵ is provided with a sleeve D⁶, adapted to slide therealong, said sleeve having pivotally connected therewith
40 the rods D⁷. By this construction the canopy may be folded like an umbrella, by sliding the sleeve D⁶ along the rod D⁵. A hinged piece D⁸ is connected with the rod D' and with the box C, and is adapted to hold said canopy
45 over the rider or allow it to be moved back so as to cover the box. The pedal-shaft E is provided with a sprocket-wheel E', which is connected by a chain with a sprocket-wheel on a shaft E², said shaft having one end of a

coil-spring E³ connected therewith, the other 50 end of said coil-spring being connected to the barrel E⁴. A sprocket-wheel E⁵ is connected with said barrel, so as to rotate therewith, and is connected by a chain with a sprocket-wheel E⁶ on the rear axle. Said rear axle is 55 divided into two parts, each provided with a beveled gear E⁷. The sprocket-wheel E⁶ has connected therewith the two beveled pinions E⁸, adapted to engage the beveled gears E⁷, said pinions being connected with a sleeve E⁹ 60 on the axle. This forms a balance-gear, which insures the rotation of the shaft when the machine is being moved forward, and which allows the wheels to revolve in opposite directions in turning short corners. 65

The crank-shaft E has keyed thereto the disks F F'. Said disks are provided with projecting arms, the material between the arms being cut away so as to form grooves, which vary in depth from one arm toward the other, 70 as shown in Fig. 4. A roller F³ is placed in each of said grooves, and is provided with a spring F⁴, tending to force it toward the shallow part of the groove. A spring-ring G surrounds each of said disks, as shown. This 75 ring is not continuous, but is separated by the space G', (see Fig. 5,) and is normally in such a position that its diameter may be decreased by moving the two ends nearer together, so as to decrease the size of said space. 80 These spring-rings normally press against the shells H H', which are journaled to the shaft and which have connected therewith the pedal-cranks H² H³. Also mounted upon the shaft are the beveled gears H⁴ H⁵, provided with projecting edges, which project 85 over the disks F F', as shown in Fig. 3.

The spring-rings G are rigidly connected at one end to the shells H H' by means of the pins H⁶, and are connected to the beveled 90 gears H⁴ and H⁵ at the other ends by means of the pins H⁷. Two beveled pinions I and J are mounted upon the shafts I' J', which are held in position by means of the sleeve I² on the shaft E and the frame J². 95

I have described these several parts in detail and have set forth a specific construction in the drawings, but it is evident that I

may vary this construction without departing from the spirit of my invention, and I therefore do not wish to be limited by the drawings and description herewith presented.

5 The use and operation of my invention are as follows: When it is desired to operate the tricycle, the rider alternately presses down upon the pedals. If, for example, the rider presses downwardly upon the pedal-crank H^2 ,
 10 (see Fig. 4,) the said crank will be rotated and will carry with it the elastic ring G. Since said ring is in contact with the rollers F^3 , said rollers will be moved toward the shallow part of the slots in which they are located,
 15 and said ring will be connected with the disk F so as to rotate the same, thus rotating the sprocket-wheel E' and winding the spring E'. When this crank has reached the lower limit of its motion, the operator bears upon the
 20 opposite crank H^3 , when the same effect upon the disk F' is produced. As the crank H^3 moves downwardly it also rotates the beveled pinion H^4 , (see Fig. 3,) and hence, through the aid of the pinions I J and beveled gear
 25 H^5 , moves the crank H^2 back to its former position. During this backward movement the rollers F^3 are moved to the deepest part of their slot, and hence the ring G is free from the disk F. This operation is repeated and
 30 the spring E' is wound. Said spring being connected with the rear axle drives the machine forward. When it is desired to stop the machine, the rider simultaneously bears down upon both of the cranks H^2 and H^3 .
 35 Since the elastic rings G are connected at one end to the beveled pinions and at the other end to the pedal cranks, this operation will cause the ends of the rings at the point where they are divided by the space G' to move
 40 toward each other and the rings will be clamped upon the outer end of the arms F^2 , and will thus act as a brake to stop the rotation of the pedal-shaft. It will therefore be seen that I have here a simple and efficient
 45 construction which acts when the pedals are moved alternately to drive the machine forward, and when the two pedals are pressed upon by the feet of the rider simultaneously acts as a brake to stop this motion.
 50 It will be noticed that I have here two means of connecting the spring-rings G with the pedal-shaft. When connected therewith through the agency of the rollers F^3 , the shaft will be rotated by a movement of the pedal-crank, and when connected therewith through
 55 the agency of the arms F^2 the rings tend to retard the motion of the pedal-shaft. It will also be seen that these two connections are independent of each other.

60 I claim—

1. The combination in a bicycle, of a pedal-shaft, pedal-crank associated therewith each adapted to make a partial rotation, an open ring connected at one end with each of said
 65 pedal-crank, intermediate gear mechanism connecting the other ends of the two open

rings, braking-surfaces connected with the shaft and opposed to said rings, a clutch associated with each of said pedal-crank and adapted to connect them with the crank-shaft when they are alternately operated, the whole being so constructed that when the pedal-crank are simultaneously pressed, the spring-rings are forced against their opposed braking-surfaces.

2. The combination in a bicycle, of a pedal-shaft, pedal-crank each adapted to make a partial rotation, connecting devices between the pedal-crank and shaft to operatively connect them, a series of beveled gears connecting said pedals, so that the operative movement of one brings the other to the beginning of its stroke, and two split spring braking-rings between the pedals and the beveled gears, bearing-surfaces opposed to the rings and associated with the shaft and connected with the pedals and beveled gears, so that when both pedals are simultaneously pressed, the rings will engage their opposed surfaces and retard the shaft.

3. The combination in a bicycle of a pedal-shaft, pedal-crank each adapted to make a partial rotation, two spring-rings, one connected with each of said pedal-crank, disks opposed to them and connected with the shaft, a series of openings or spaces in said disks, a series of rollers in said spaces provided with springs adapted to normally press them into contact with said spring-rings, intermediate gear mechanisms connecting said spring-rings together and also connecting the pedals so that a movement of one causes an opposite movement of the other, whereby, when the cranks are alternately pressed, the spring-rings and rollers will engage so as to rotate the shaft, and when they are simultaneously pressed, the spring-rings will be forced into engagement with the disks so as to retard the movement of the shaft.

4. The combination in a bicycle of a pedal-shaft, pedal-crank each adapted to make a partial rotation, spring-rings having separated ends each connected at one end with one of said pedal-crank, and each opposed to a disk connected with the pedal-shaft, a series of projecting arms on said disks, a series of rollers interposed between said arms and elastically pressed against said spring-rings, two beveled gears loosely mounted on said pedal-shaft, each connected with one end of one of said spring-rings, intermediate beveled pinions to operatively connect the beveled gears, the whole so arranged that when the pedal-crank are alternately actuated they will be connected with the shaft so as to operate the same, and when actuated simultaneously will be connected with the shaft so as to retard its motion.

5. A bicycle comprising a driving-shaft, pedal-crank adapted each to make only a partial rotation, a spring-ring connected with one of said pedal-crank, an opposed braking-

surface on the driving-shaft, clutching devices for connecting said pedal-cranks with said shaft, an intermediate gear mechanism to connect the pedal-cranks together through
5 the spring-ring, so that when both pedals are simultaneously pressed, the spring-ring is forced against its opposed surface, and the

shaft is retarded, and when either pedal is operated, the shaft is rotated.

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Witnesses:

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