

No. 701,761.

Patented June 3, 1902.

C. OLSON.  
CYCLE PROPELLING MECHANISM.

(Application filed Mar. 1, 1901.)

(No Model.)

2 Sheets—Sheet 1.

FIG-1-

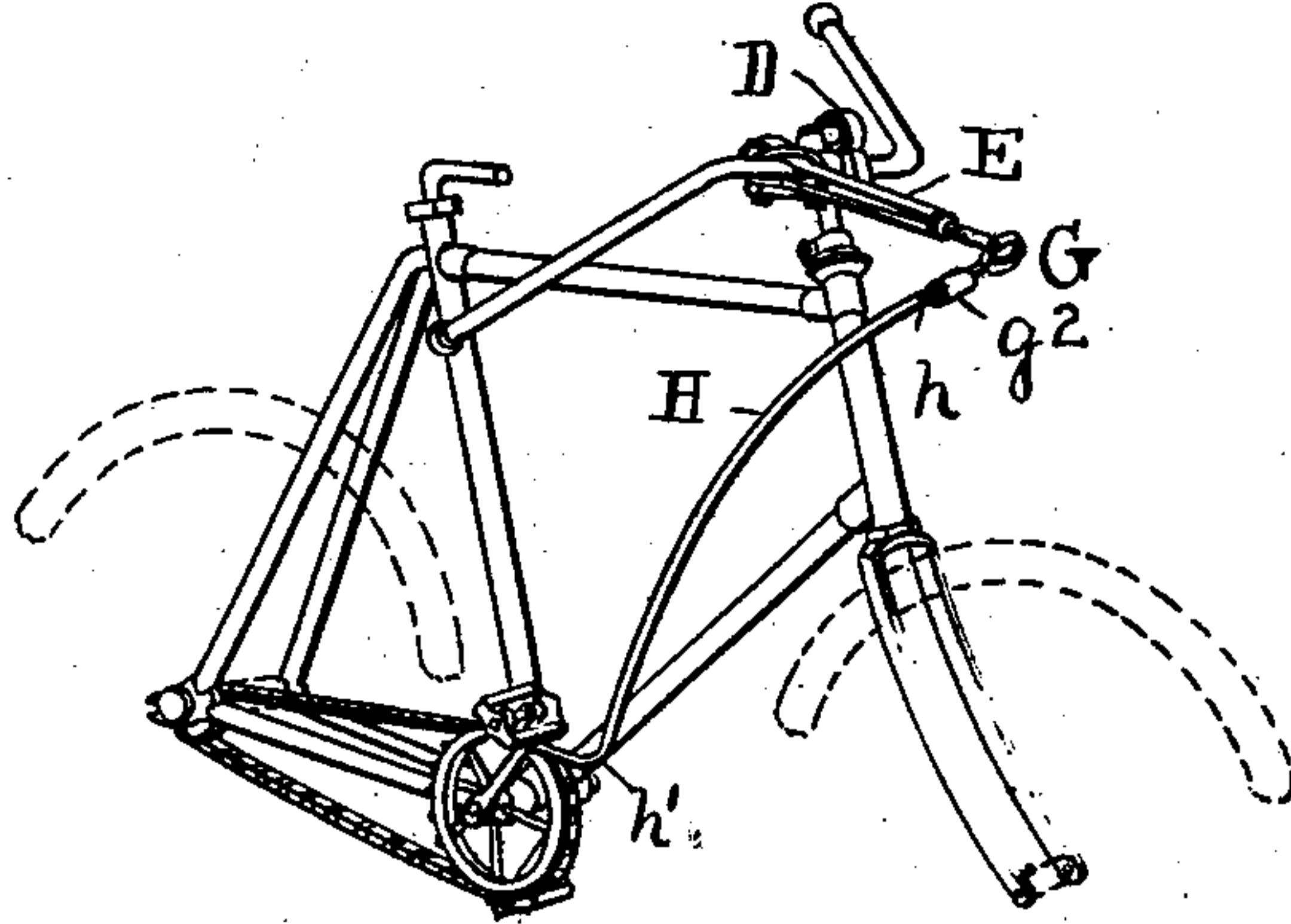


FIG-2-

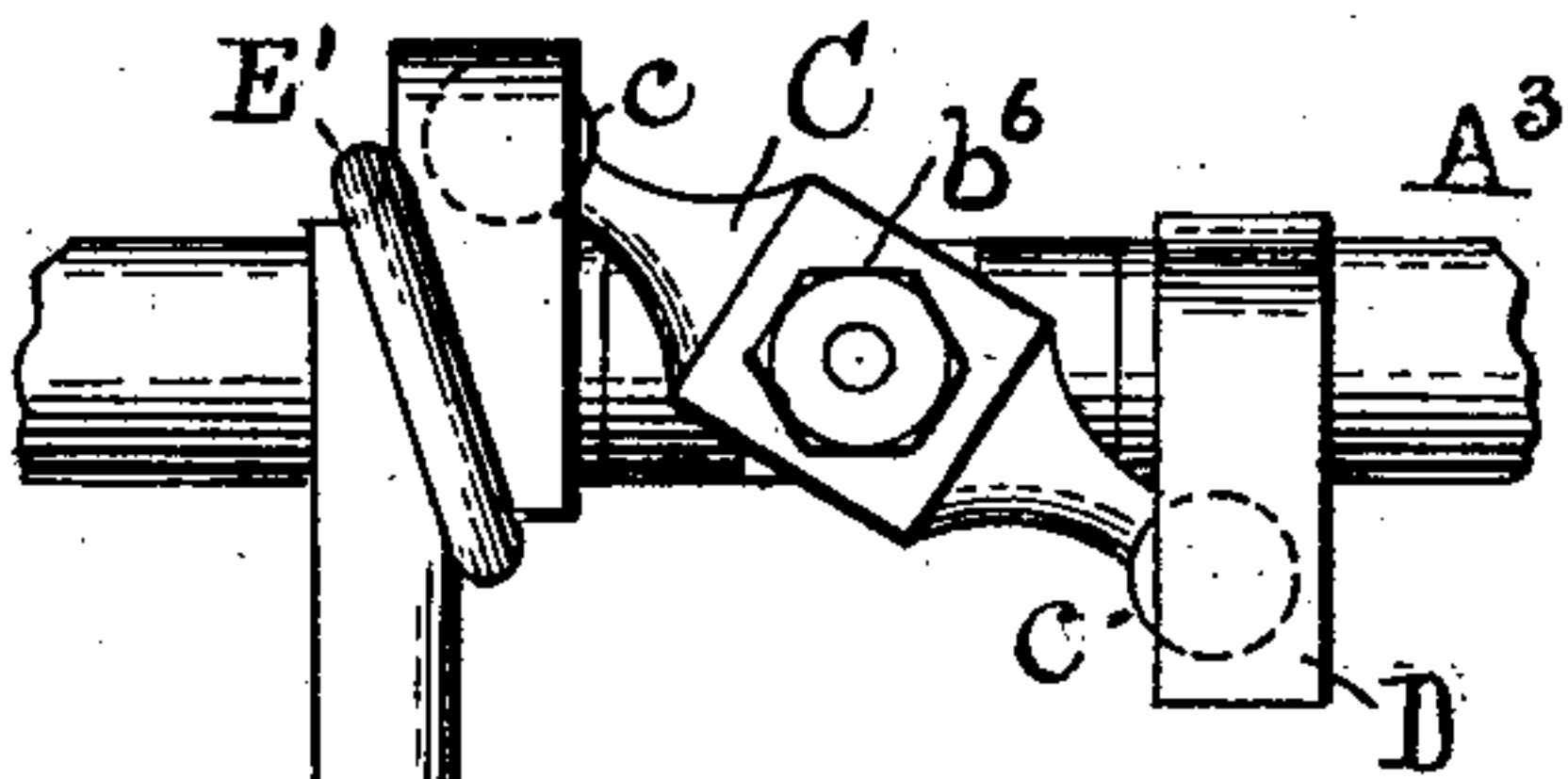


FIG-3-

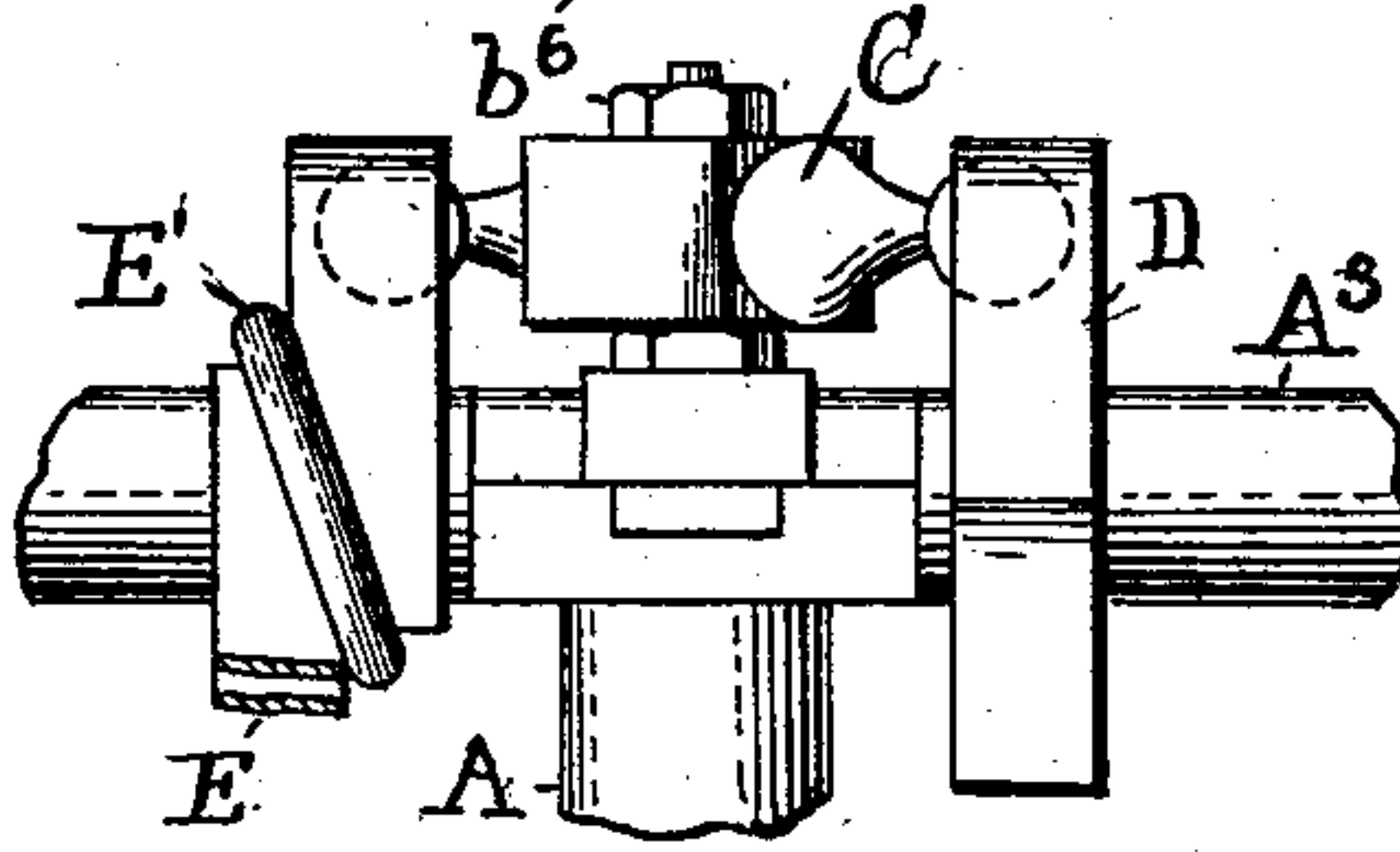


FIG-5-

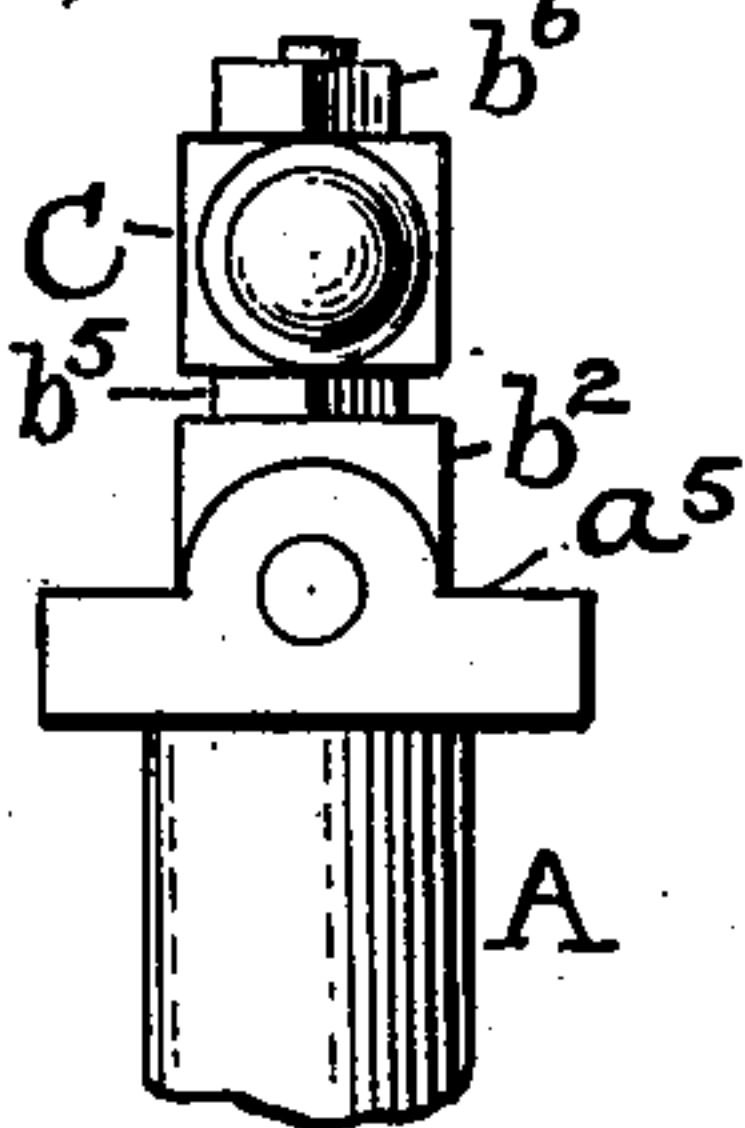


FIG-4-

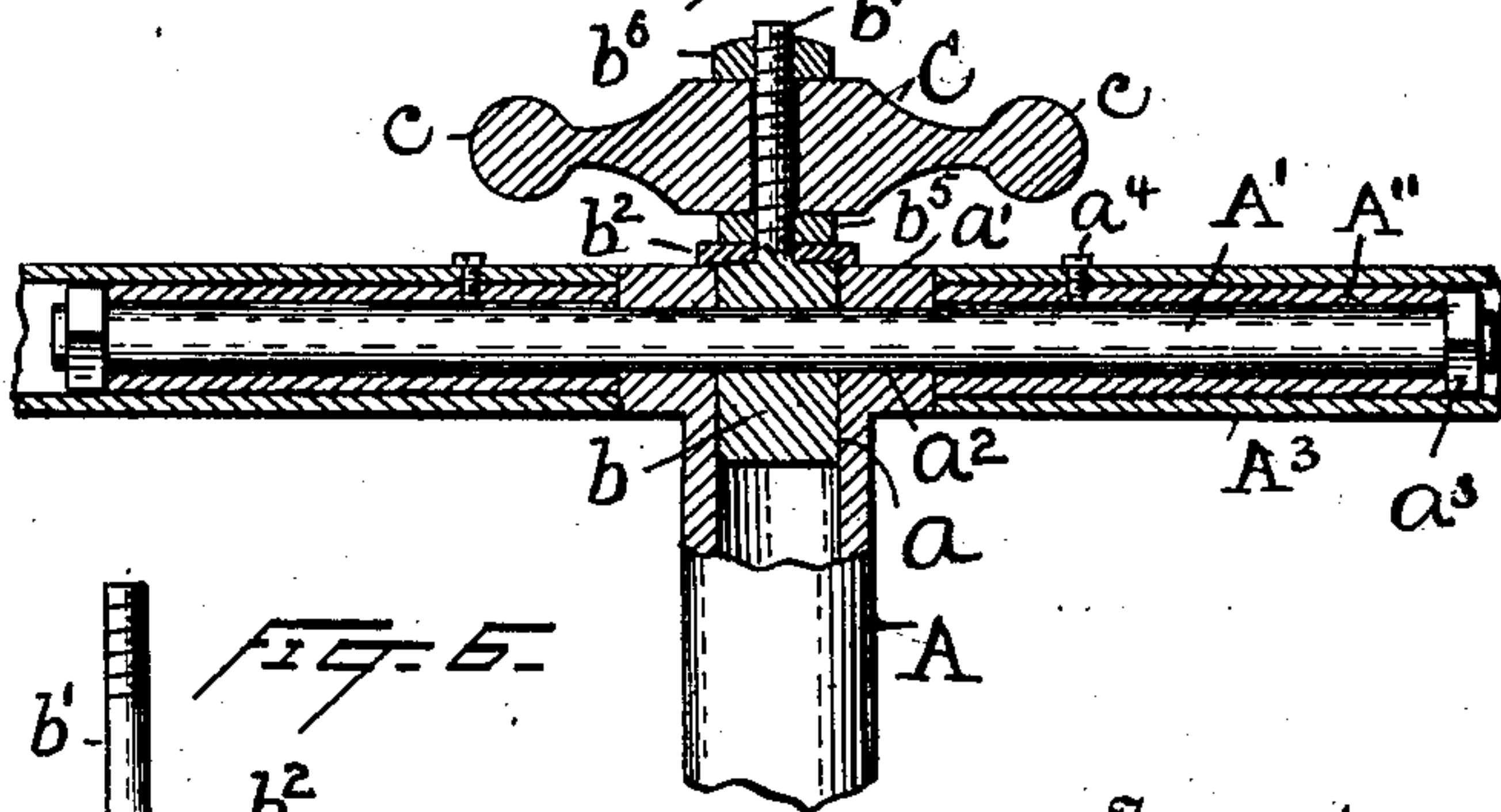
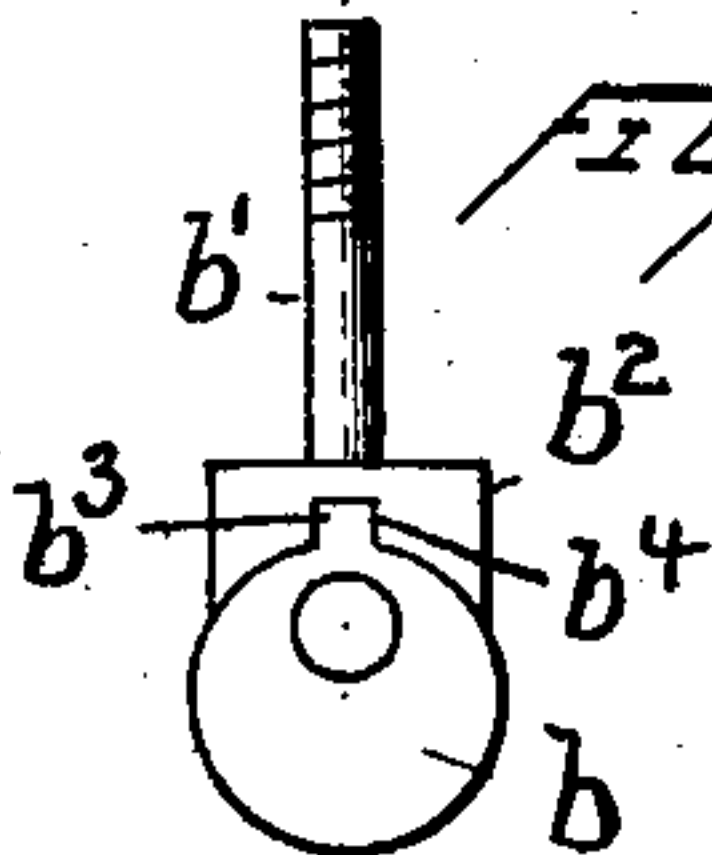


FIG-6-



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2 Sheets—Sheet 2.

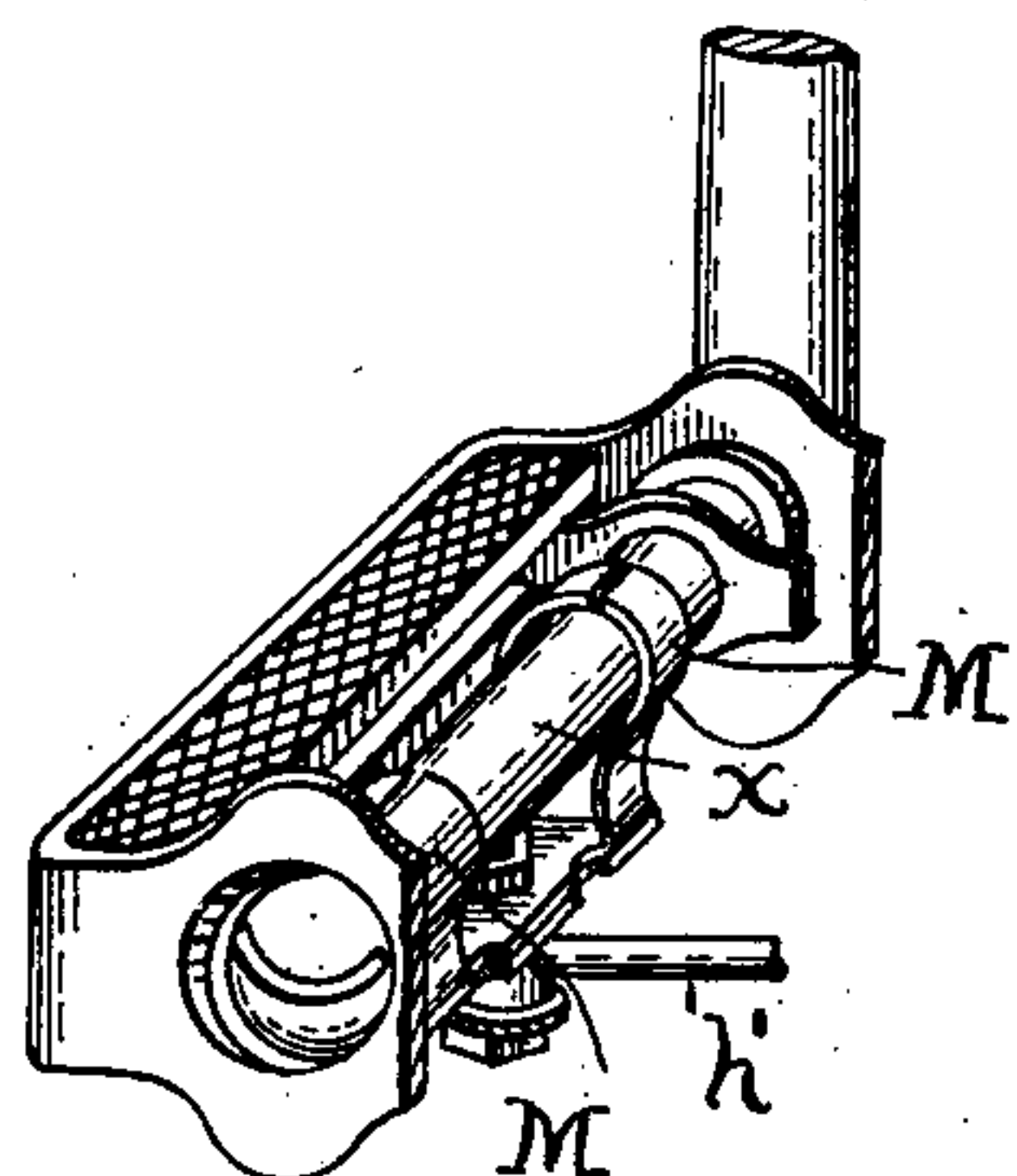
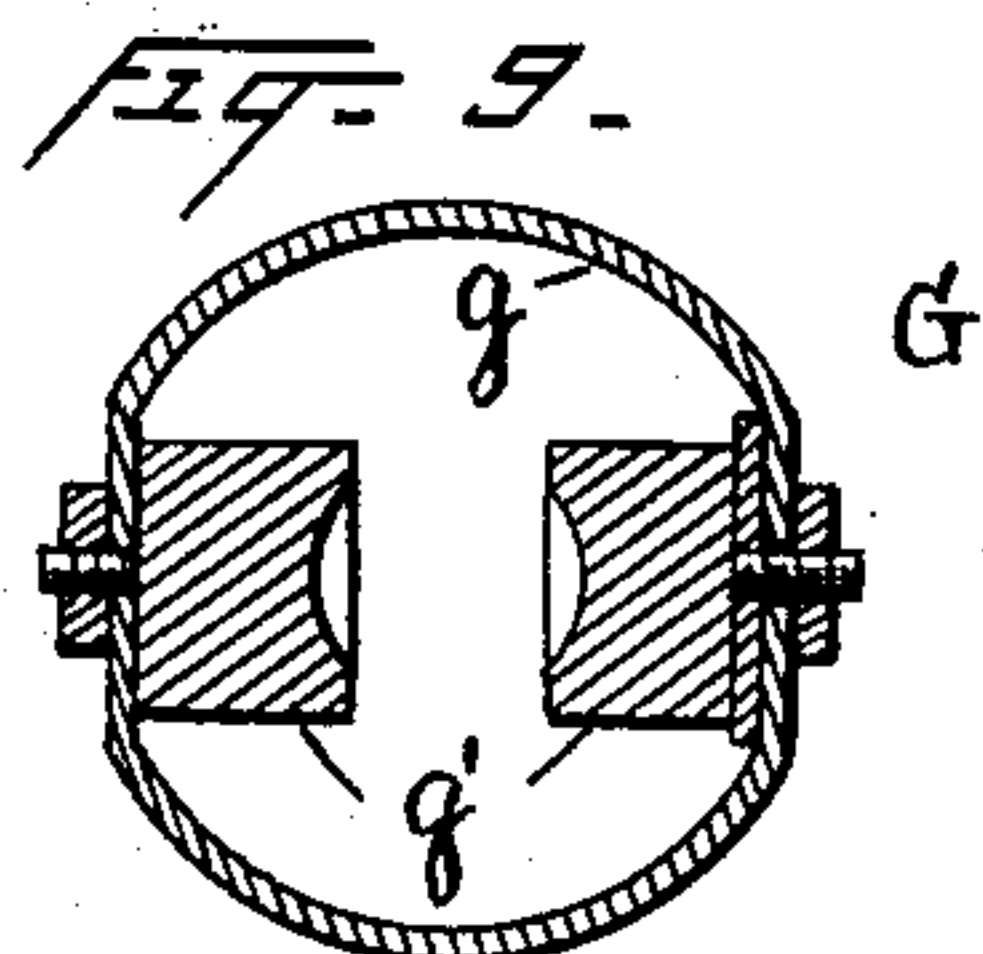
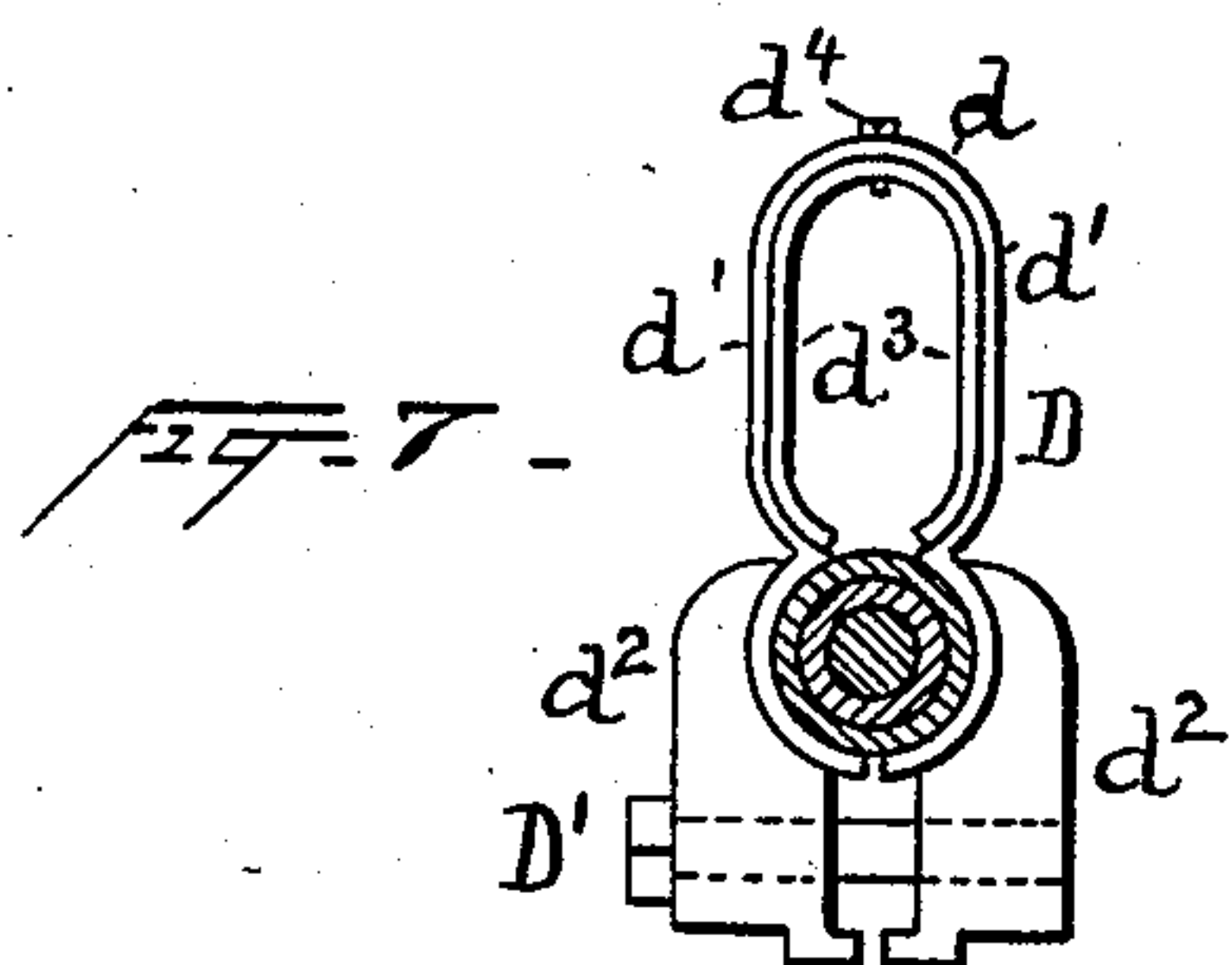


Fig. 10.

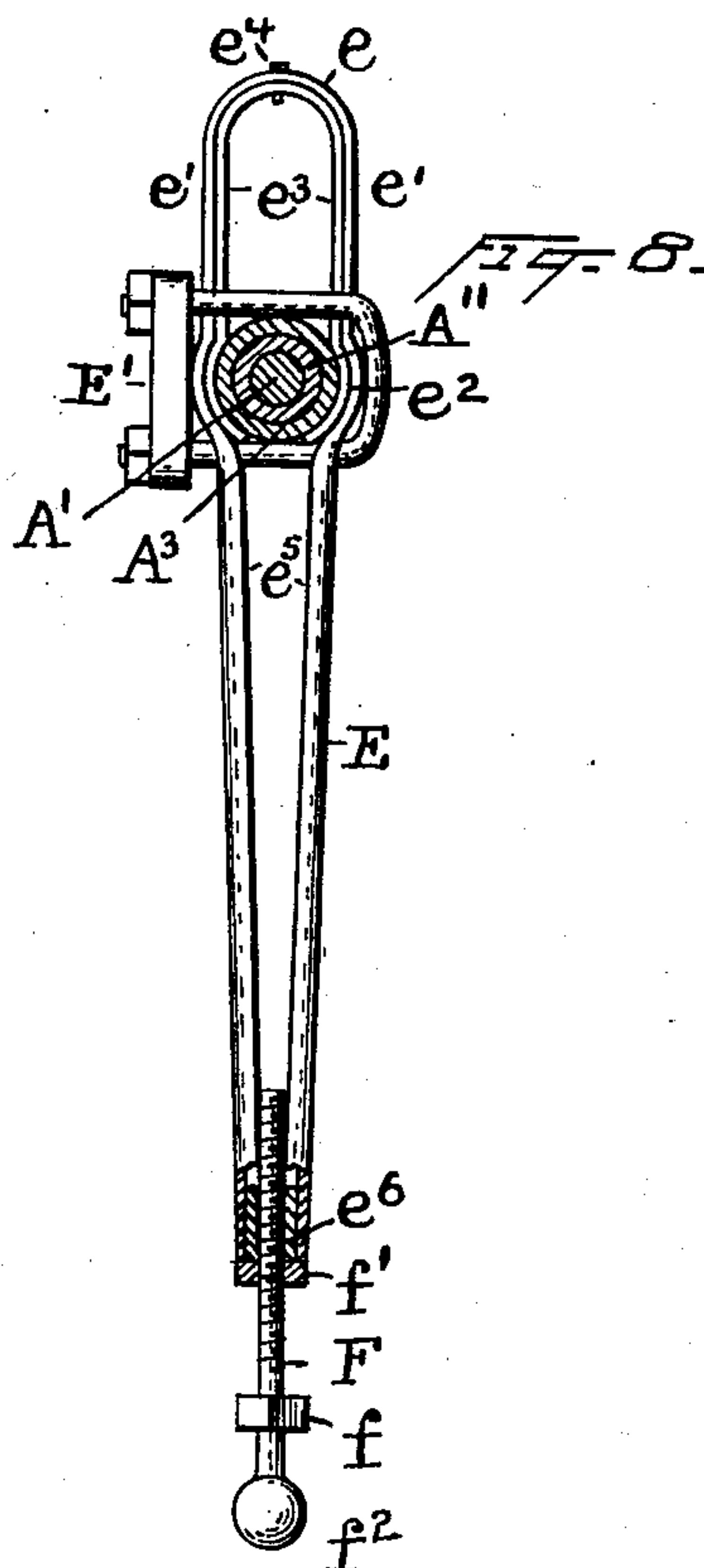


Fig. 8.

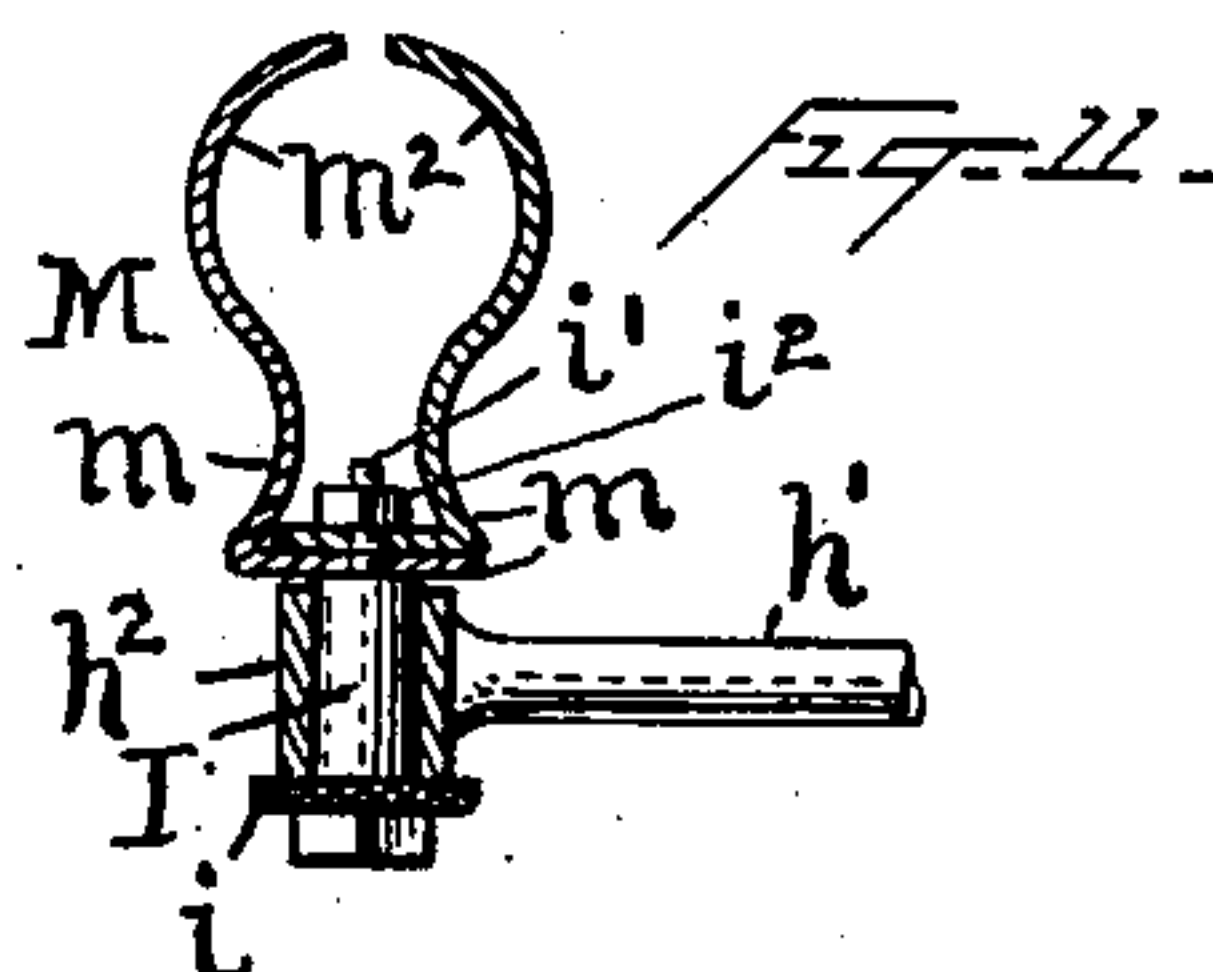


Fig. 11.

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# UNITED STATES PATENT OFFICE.

CHRISTIAN OLSON, OF STOUGHTON, WISCONSIN.

## CYCLE PROPELLING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 701,761, dated June 3, 1902.

Application filed March 1, 1901. Serial No. 49,454. (No model.)

*To all whom it may concern:*

Be it known that I, CHRISTIAN OLSON, a citizen of the United States, residing at Stoughton, in the county of Dane and State of Wisconsin, have invented certain new and useful Improvements in Cycle Propelling Mechanism; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to

5 which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

15 My invention relates to propelling mechanism for bicycles and the like.

My object is to provide an efficient mechanism which can be readily attached to bicycles of usual construction, by means of which

20 mechanism the arms of the rider can be utilized in propelling the machine, to connect the mechanism directly to the usual pedal, to render the parts readily detachable from each other for shipment, repair, &c., and to so arrange the parts that their action is direct and

25 positive.

To these ends, and also to improve generally upon devices of the nature indicated, my invention consists in the various matters hereinafter described and claimed.

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In the accompanying drawings, Figure 1 is a perspective view of a portion of a bicycle with the present mechanism applied thereto. Fig. 2 is a top plan view of the head-post and

35 certain of its attached parts. Fig. 3 is a front elevation thereof. Fig. 4 is a vertical longitudinal sectional elevation of the parts illustrated in Fig. 3, the housings being removed. Fig. 5 is a side elevation of the head-post with

40 the connecting-lever thereon. Fig. 6 is a side elevation of the connecting-lever, eyebolt, and its washer. Fig. 7 is a side elevation of one of the housings, the parts about which it engages being shown in section. Fig. 8 is a

45 similar view of the main operating-lever and its connecting-rod, a portion of said lever being in section to illustrate the connection with its rod. Fig. 9 is a sectional plan view of the cup-frame and its cups. Fig. 10 is a perspective

50 view of a pedal, showing the clamp and a second connecting-rod attached thereto, a portion of the pedal being broken away to more

fully illustrate the parts; and Fig. 11 is a side elevation, chiefly in section, of the pedal-clamp and the end of the attached connecting-rod.

55

Referring now more particularly to the drawings, A represents the steering or handle-bar post of a bicycle or the like, said post fitting into the machine-frame tube in the usual

60 manner and being slotted or bifurcated at its upper end, as shown at *a*. Through the head *a'* of this post extends a central aperture *a''*, and through said aperture extends a bearing-rod A', whose ends project upon each side of

65 the head. Mounted upon this rod or axle and free to oscillate thereon are sleeves A'', confined between the head *a'* and nuts *a'''* upon the ends of the bearing-rod, said sleeves fitting in the inner tubular ends of the handle-

70 bars A<sup>3</sup> and being connected to said handle-bars to turn therewith in any suitable manner, as by screws *a''''*, extending through the handle-bars and entering the sleeves. The

75 handle-bars are cranked, as shown in Fig. 1, and the sleeves produce, in effect, shoulders upon said bars for engaging the nuts *a'''*.

Fitting in the slotted head of the handle-post is the head *b* of an eyebolt, the bearing-rod A' extending through the eye of said head,

80 and thus supporting the same vertically, said head being held against lateral movement by the side walls of the slot. Rising from the head *b* is a bolt *b'*, threaded at its outer end, and upon this bolt and having its concave

85 under surface bearing upon the head is a washer *b''*, said washer being slightly longer than the width of the head *b*, whereby the washer ends extend upon the upper surface of the head of the handle-post and its lower

90 edges rest upon shoulders *a''''* upon said head, the concave under face of the washer fitting about the head of the handle-post. A rib *b'''* upon the upper surface of the bolt-head is received in a corresponding slot *b''''* in the

95 under face of the washer. Thus the bolt *b'* is held fixedly in proper position upon the handle-post. A locking-nut *b''''* is upon the bolt above the washer and bears against the flat upper surface thereof, and above this nut

100 and working upon the upper face thereof is a connecting-lever C, free to oscillate upon the bolt and held thereon by a second nut *b''''''* upon the bolt end above the lever. The lever-arms



extend substantially parallel with the inner ends of the handle-bars and are made spherical at their outer ends  $c$ .

Upon one of the handle-bars (preferably the left) is secured a housing D, in which works the corresponding end of the lever C, the spherical lever end fitting the housing sufficiently snugly to permit one of said parts to impart movement to the other thereof. This housing is illustrated in Fig. 7 and comprises a metal plate bent, as illustrated, to have the arched top  $d$  and the depending side walls  $d'$ , each side wall curving slightly inwardly at its lower end and being then continued into a segmental clamp member  $d^2$ , these clamp members being the free ends of the casing and fitting upon the handle-bar, being forced tightly thereagainst by any suitable clamp D'. Preferably a facing-strip  $d^3$  is suitably detachably secured upon the inner face of the arch and side walls, as by means of a screw  $d^4$ , the spherical lever end wearing against said strip, whereby the face against which the lever end wears can be of any desired material, notwithstanding the material from which the housing proper is constructed, and new wearing-strips can be supplied whenever necessary. Upon the other handle-bar is fastened the main operating-lever E. (Shown more particularly in Fig. 8.) The upper or inner end of this lever (*i. e.*, the end toward the rider) is substantially similar in construction to the housing D, said ends having the arched top  $e$ , the side plate  $e'$ , the segmental clamp members  $e^2$ , engaging the handle-bar, and the inner lining-strip  $e^3$ , removably secured by the screw  $e^4$ ; but from the lower ends of the clamp members  $e^2$  the side plates  $e^5$  extend outwardly and gradually approach each other toward their outer ends, between which is supported a threaded block  $e^6$ . A suitable clamp, as the yoke E', firmly secures the operating-lever to the handle-bar.

A connecting-rod F, having its inner end threaded, screws into the threaded block  $e^6$ , carried by the said lever E, said rod having an angular collar  $f$  thereon to permit easy screwing of the rod into the block and being held in its adjusted position by means of a jam-nut  $f'$ , which engages the lower end face of the lever E. Upon the outer end of the said connecting-rod is a spherical head  $f^2$ , which is received between the hereinafter-mentioned cups.

A cup-frame G has a band  $g$ , to which are secured suitable cup-bearings  $g'$ , between which the head  $f^2$  of the connecting-rod F is held to oscillate, and a socket-arm  $g^2$  upon said band receives the threaded upper end  $h$  of a second connecting-rod H. The body portion of this rod is suitably curved, as shown in Fig. 1, to produce the desired relation between the connecting-rod F and the cup-frame G, and the lower end of the rod is bent backwardly to produce an angle-arm  $h'$  for connection with the pedal of the bicycle. The outer end of this arm is formed into a verti-

cal sleeve  $h^2$ , which forms a socket for the stud I, attached to the pedal-clamp M, said stud having a head  $i$ , upon which the said sleeve  $h^2$  rests, and having at its upper end a bolt  $i'$  of less diameter than the body portion of the stud. The base-plates of the pedal-clamp members are secured upon this bolt by means of a nut  $i^2$ , and the lower of said base-plates rests upon the top of the stud, said base-plates extending beyond the periphery of the stud, whereby the sleeve  $h^2$  is held between said base-plates and the stud-head, said sleeves, however, being permitted to turn upon the stud.

The universal connection between the connecting-rod and the cup-frame and the pivoted connection between the pedal and the connecting-rod H permit the necessary movement of the handle-bar post for steering purposes.

The clamp M comprises oppositely-located clamp-sections  $m$ , each of which has an inwardly-extending base-plate  $m'$ , provided with a suitable aperture to receive the bolt  $i'$ , one of said base-plates being adapted to fit upon the other, as shown in Fig. 11. Each base-plate has at each end an upwardly-extending clamping-arm  $m^2$ , whereby when said clamp-sections are placed upon opposite sides of the pedal-bar  $x$  and secured to the stud I the pedal-bar is firmly clamped near each of its ends, and thus connected to the before-described operating mechanism. The clamp-sections being secured together between the outer bearing edges of its clamping-arms, no movement of said clamping-sections relative to each other is possible.

The operation of the mechanism will be readily understood. The pivotally-mounted cranked handle-bar carrying the main operating-lever is connected to the pedal by means of said lever, the two connecting-rods, and the pedal clamp, whereby as said handle-bar is oscillated on the bar A' by the rider motion is transmitted to the pedal. The threaded connection between the main operating-lever and its connecting-rod and between the cup-frame and the second connecting-rod affords adjustment of the parts to adapt them to various sizes of machines, and the universal bearing between the two connecting-rods (afforded by the spherical head of the first connecting-rod and the cup-sockets attached to the second connecting-rod) and the described connection between said second connecting-rod and the pedal permit free and easy movement of the parts and permit the steering movement of the handle-bars. The housing upon the handle-bar not carrying said main operating-lever and the connecting-lever engaged by both said housing and the housing upon the said main operating-lever produce an operative connection between said handle-bar and the main operating-lever, whereby the force of both of the rider's arms is exerted upon the said main operating-lever. Of course as one handle-



bar is rocked upwardly the other is rocked downwardly, and vice versa.

The present mechanism is simple in its construction and efficient in operation and by its use the propulsion of the bicycle is greatly facilitated, the speed increased, and greater power is available for hill-climbing and the like.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a bicycle propelling mechanism or the like, handle-bars having independent oscillating movement, a connecting-lever having connection with each of said handle-bars whereby movement of one is transmitted to the other, and operative connection between said handle-bars and the driving-wheel.

2. In a bicycle propelling mechanism or the like, handle-bars having independent oscillating movement, a housing upon each of said handle-bars, a connecting-lever pivoted between said housings and having its ends received in and engaged by said housings, and operative connection between said handle-bars and the driving-wheel.

3. In a bicycle propelling mechanism or the like, a handle-bar post, handle-bars mounted thereon and having independent oscillating movement, a connecting-lever pivotally supported upon said handle-bar post, connections between said handle-bars and the respective lever-arms for transmitting movement from one of said handle-bars to the other, and operative connection between said handle-bars and the driving-wheel.

4. In a bicycle propelling mechanism or the like, a slotted handle-bar head, a bolt-head having an eye and fitting between the parts of said handle-bar head, a bolt upon said bolt-head, a connecting-lever pivoted upon said bolt, a supporting-rod extending through said handle-bar head and through the eye of said bolt-head, and handle-bars mounted upon said supporting-rod.

5. In a bicycle propelling mechanism or the like, a handle-bar head having shoulders on opposite sides thereof, a bolt-head mounted on the handle-bar head and having laterally-extending ribs, a washer engaging said bolt-head and ribs, and the shoulders on the handle-bar head, whereby oscillation of said bolt-head is prevented, a bolt upon said bolt-head, and a lever upon said bolt.

6. In a bicycle propelling mechanism or the like, a handle-bar head having a recess therein, and shoulders on either side thereof, a

bolt-head in said recess, a bar extending through said handle-bar head and said bolt-head, a washer engaging said bolt-head and extending over the same and upon the sides of the handle-bar head, said washer also engaging the shoulders upon the handle-bar head upon opposite sides of the said bar, a bolt upon said bolt-head and a lever upon said bolt; and handle-bars pivotally supported on the bar and engaging with the ends of said lever.

7. In a bicycle propelling mechanism or the like, the combination with a steering-head and driving-wheel, of a handle-bar made in two parts each capable of independent oscillating movement, an operating-lever clamped upon one part of said handle-bar and extending upon opposite sides thereof, an oscillatory lever connecting the two parts of the handle and interoperating with one arm of the lever, and operative connections between the other arm of the lever and the driving-wheel.

8. In a bicycle propelling mechanism or the like, a handle-bar, an operating-lever having side plates connected together at one end, a block between the opposite ends of said side plates, a connecting-rod secured in said block, said lever being secured to the said handle-bar intermediate its ends, and a lever-operating member received between and engaged by the side plates between the handle-bar and the said connected ends of said plates.

9. In a bicycle propelling mechanism or the like, a headed stud, a pedal-clamp upon the side of said stud opposite the head and extending beyond the body portion of the stud, and a connecting-rod upon said stud and received between the stud-head and the said clamp.

10. In a bicycle propelling mechanism or the like, the combination with a pedal-spindle, of a clamp comprising base-plates adapted to overlap, a plurality of complementary clamping members upon each of said base-plates, curved to fit said spindle, means located between the outer bearing edges of said clamping members for securing said base-plates together and an actuating-rod secured to said clamp.

In testimony whereof I affix my signature in presence of two witnesses.

CHRISTIAN OLSON.

Witnesses:

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M. A. JOHNSON.