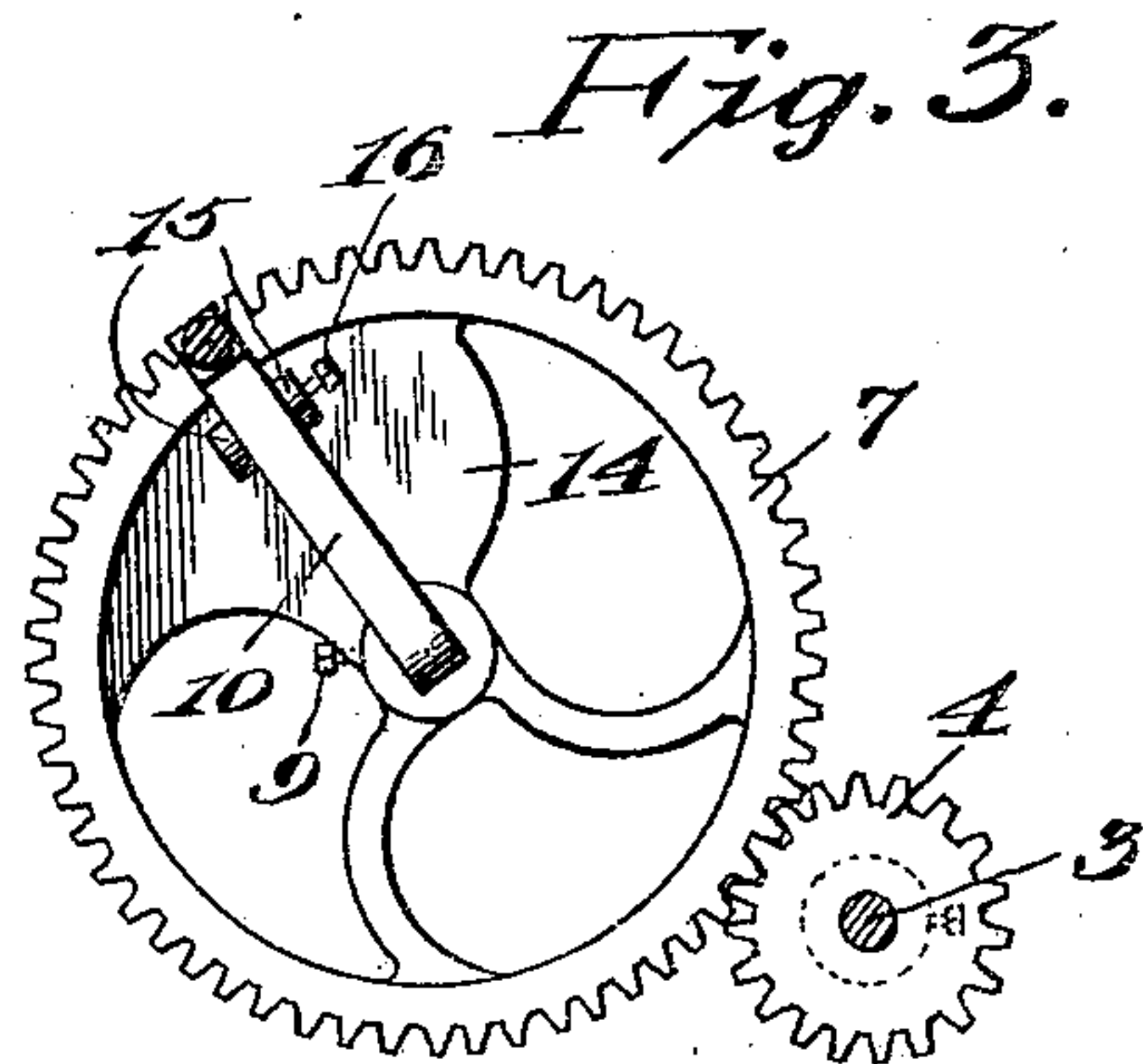
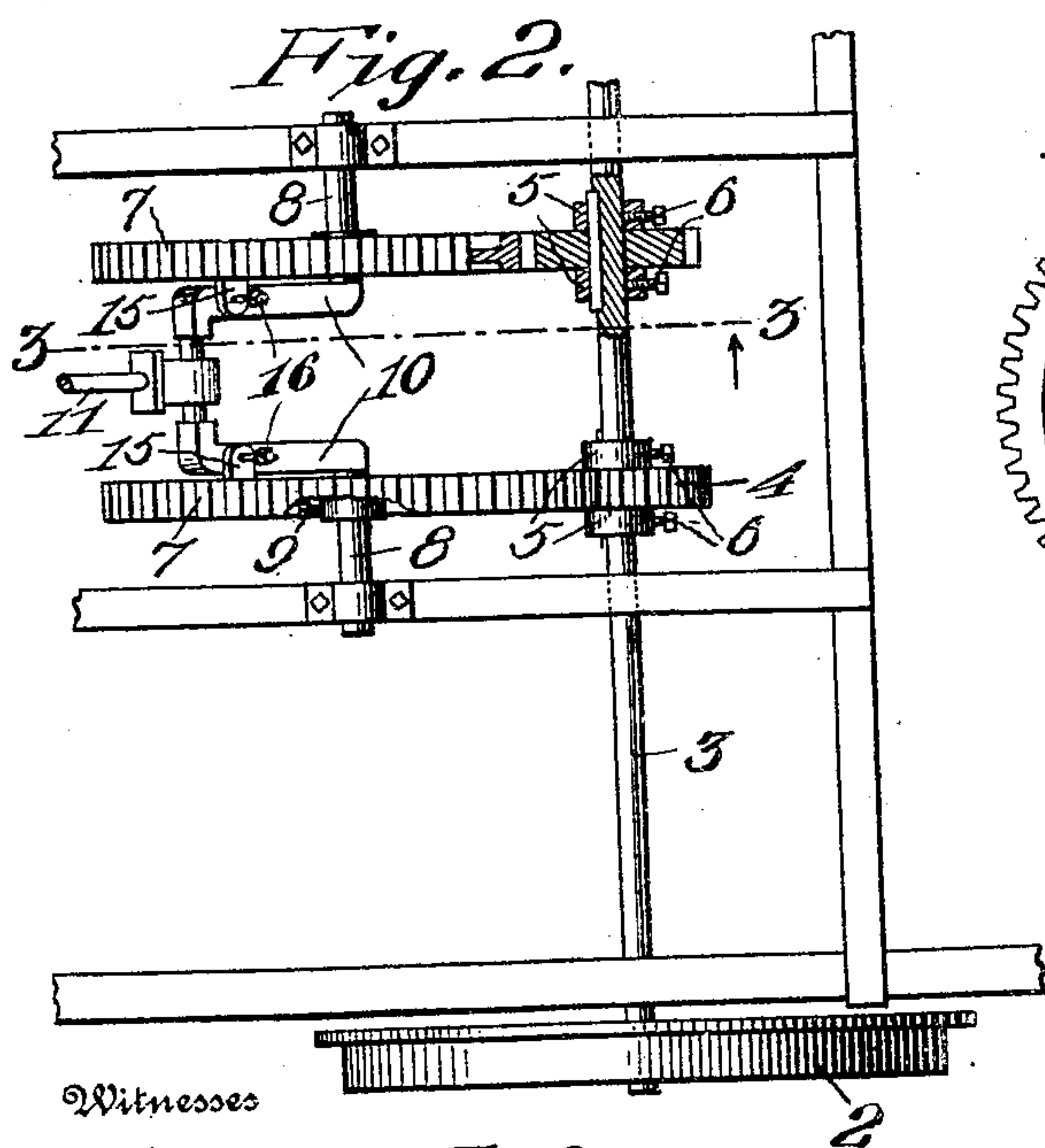
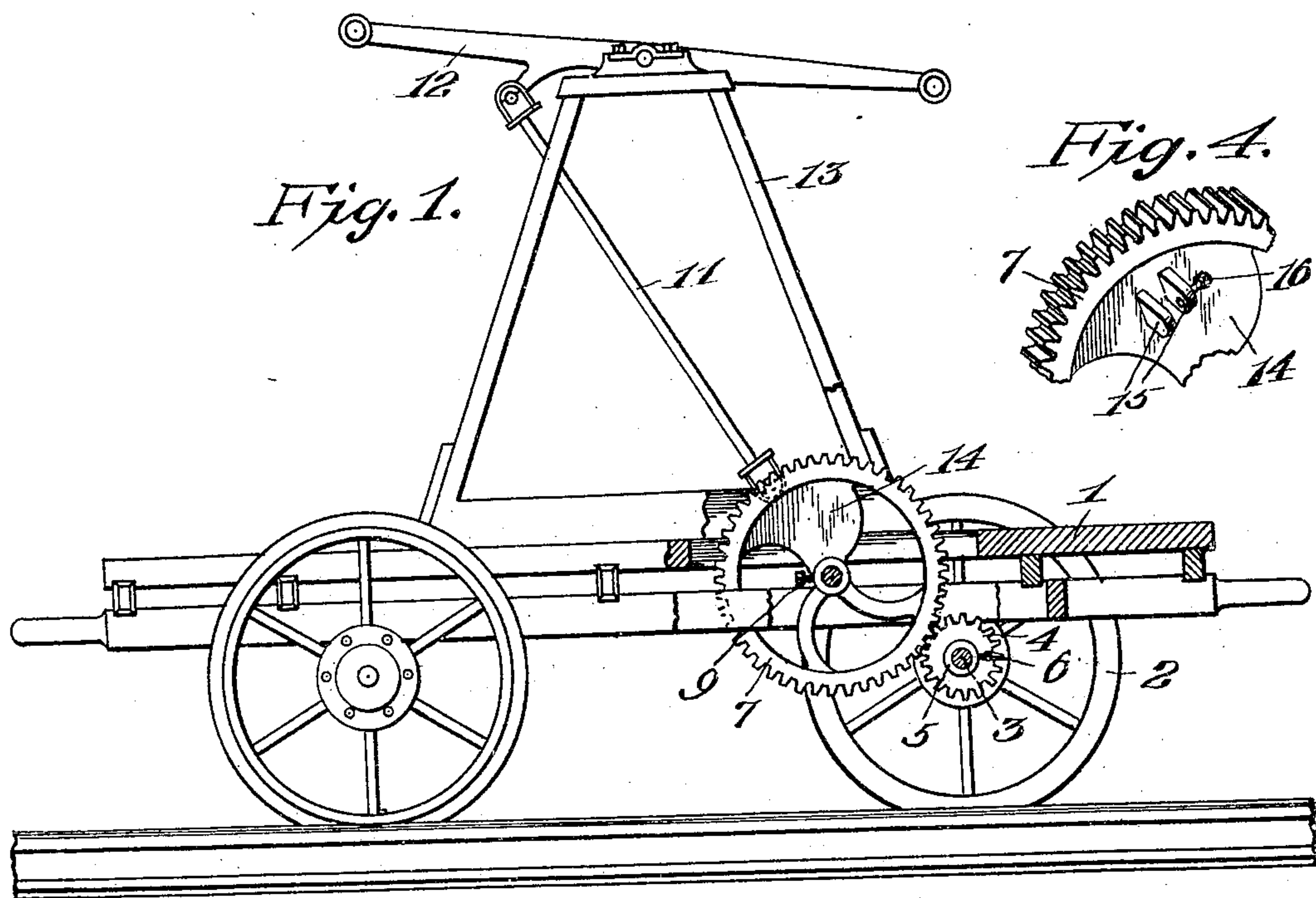


J. MARSHALL.  
HAND CAR.  
APPLICATION FILED FEB. 25, 1909.

Patented Nov. 16, 1909.

940,175.



Witnesses

James F. Crown  
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# UNITED STATES PATENT OFFICE.

JOSEPH MARSHALL, OF COVINGTON, TENNESSEE, ASSIGNOR OF ONE-HALF TO WILLIAM  
ROOCH MILLER, OF RIPLEY, TENNESSEE.

HAND-CAR.

940,175.

Specification of Letters Patent.

Patented Nov. 16, 1909.

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*To all whom it may concern:*

Be it known that I, JOSEPH MARSHALL, a citizen of the United States, residing at Covington, in the county of Tipton and State of Tennessee, have invented certain new and useful Improvements in Hand-Cars, of which the following is a specification, reference being had to the accompanying drawings.

10 This invention relates to improvements in hand cars, and consists of the novel features of construction hereinafter fully described and claimed.

15 The object of the invention is to improve the gearing for hand cars, whereby it will be rendered stronger and more durable and strain will be placed on the center and equally on both sides of the crank shaft, whereby all danger of the crank breaking or 20 the bending of the shaft at the top or in the elbow is reduced to a minimum, the invention further consisting in the improved double gearing having driving gears with improved means for securely connecting the 25 crank thereto and preventing all noise from rattling of the connected parts.

30 The above and other objects of the invention are attained in its preferred embodiment illustrated in the accompanying drawings, in which—

35 Figure 1 is a side elevation, partly in section, of a hand car showing my improved gearing applied thereto; Fig. 2 is a detail plan view of the gearing and a portion of one side of the car; Fig. 3 is a detail section taken on the plane indicated by the line 3—3 in Fig. 2; and Fig. 4 is a detail perspective of a portion of one of the driving gears.

40 In the drawings 1 denotes the body of a hand car, and 2 its supporting and driving wheels fixed to an axle 3 suitably journaled in bearings beneath the body.

45 4 denotes pinions arranged on the axle and secured by collars 5 arranged on the opposite sides of each pinion and adjustably secured by means of set screws 6. The pinions are further secured and effectively held in proper position by forming the axle 3 with longitudinal keyways which register 50 with keyways in the pinions and collars and receive locking keys, as clearly shown in Fig. 2. This construction holds the pinions 4 in perfect alinement and mesh with large driving gears 7 fixed to a transverse crank shaft 55 8 by means of set screws 9 arranged in the

hubs of said gears. The gears 7 are disposed on opposite sides of an integral crank 10 formed in the central portion of the shaft 8, which latter has its ends suitably journaled in bearings upon the body or frame 1 60 of the car. The crank 10 is connected by a pitman 11 to the usual walking beam 12, which latter is pivoted at its center in the usual bearing frame 13 on the top of the body 1 of the car.

65 For the purpose of strengthening the connection between the driving gears 7 and the crank 10 to render the gearing more durable and to prevent the crank from bending and twisting, the gears 7 are formed with solid 70 web portions 14 on the inner faces of which are formed integral lugs 15 spaced apart to receive one arm or side of the crank 10 between them. One or both of the spaced 75 lugs 15 may be formed with a threaded opening to receive a set screw 16 which impinges against the crank 10 to rigidly hold it between the lugs and thereby prevent any looseness between the engaged parts and hence the rattling or noise. These set screws 80 may be adjusted from time to time to take up wear and they will effectively insure a rigid connection between the crank and the driving gears. It will be noted that the provision of the two gears 7, one on each side 85 of the crank 10, causes the strain to be thrown centrally on the crank or evenly upon each side of the same, thereby effectively reducing the danger of the crank breaking or bending. It will be further noted 90 that the disposition of the arms or side portions of the crank 10 between the spaced lugs 15 on the solid portions 14 of the gears 7, greatly strengthens said gears and the connection between the latter and the crank 95 and further takes all strain from the set screws 9.

A practical test of my invention as above described and shown in the drawings, has proven that my improved gearing for hand 100 cars is far superior in strength and durability to any similar gearing heretofore used for this purpose and, owing to the use of the two gears 7 with the lugs 15 and set screws 16, the strain is equally distributed 105 and frequent breakage and bending of the crank shafts in the old forms of hand car gearing is reduced to a minimum. The use of the set screw 16 insures an effective rigid connection between the driving gears 7 and 110



the crank 10 so that there will be no noise or rattling of the parts of the gearing.

Having thus described the invention what is claimed is:

- 5 1. A hand car comprising a body, an axle, supporting and drive wheels upon the latter, a transverse shaft provided with an integral crank, driving gears fixed on the crank shaft on opposite sides of the crank and formed  
10 with integral solid web portions and with spaced lugs, the latter receiving the side portions or arms of the crank between them, set screws in said lugs for holding the crank rigidly between the latter, pinions fixed to  
15 the axle and in mesh with said gears, a walking beam and a pitman connecting the latter to said crank.
2. The herein described hand car comprising a body, an axle, supporting and drive  
20 wheels upon the latter, a transverse crank shaft having an integral crank portion journaled at its ends in bearings upon the bottom of the body, driving gears fixed to the crank shaft on opposite sides of its crank and  
25 formed with integral solid web portions and with spaced lugs upon said web portions, said lugs being adapted to receive the side portions or arms of the crank between them, set screws in said lugs to rigidly retain  
30 the crank between them, pinions fixed to the axle and in mesh with said gears, adjustable

collars upon the axle on opposite sides of said pinions, a walking beam and a pitman connecting the latter to said crank.

3. The herein described hand car comprising a body, an axle having longitudinal keyways, supporting and drive wheels upon the axle, pinions upon the axle, stop collars upon the axle on opposite sides of each pinion, longitudinal keys passed through the  
40 keyways in the axle and through the pinions and collars, set screws in said collars, a transverse crank shaft having an integral crank portion at its center and also having  
45 its ends journaled in bearings upon the bottom of the body, driving gears fixed to the crank shaft on opposite sides of its crank and adapted to mesh with said pinions, said gears being formed with integral solid web  
50 portions and with spaced lugs upon said web portions, said lugs being adapted to receive the side portions of the arms of the crank between them, set screws in said lugs to rigidly retain the crank between them, a walking beam, and a pitman connecting the  
55 latter to said crank.

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

JOSEPH MARSHALL.

Witnesses:

J. B. MARSHALL,

J. A. HOWARD.