

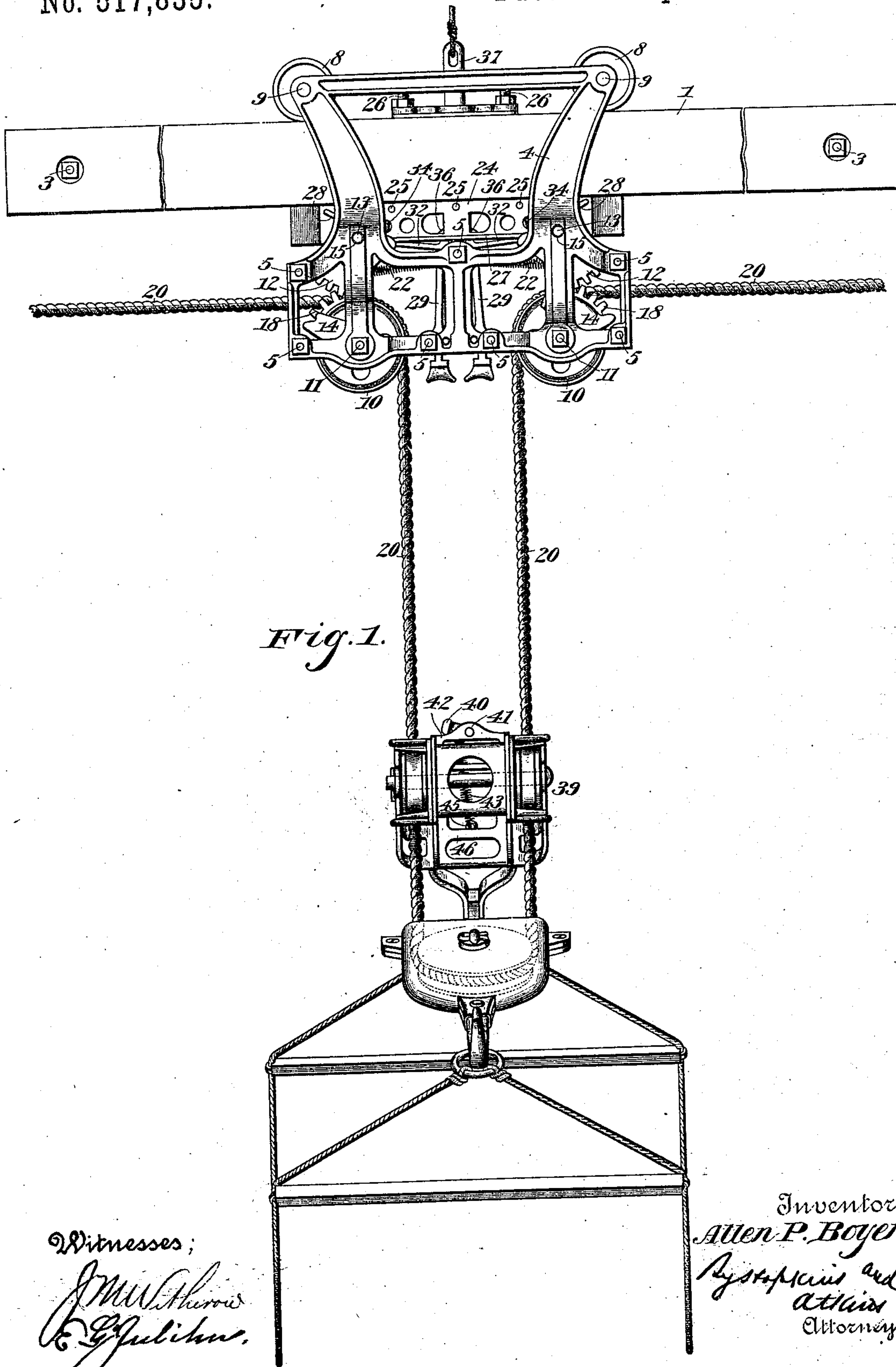
(No Model.)

3 Sheets—Sheet 1.

A. P. BOYER.
HAY CARRIER.

No. 517,835.

Patented Apr. 10, 1894.



Witnesses;
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(No Model.)

3 Sheets—Sheet 2.

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Fig. 2.

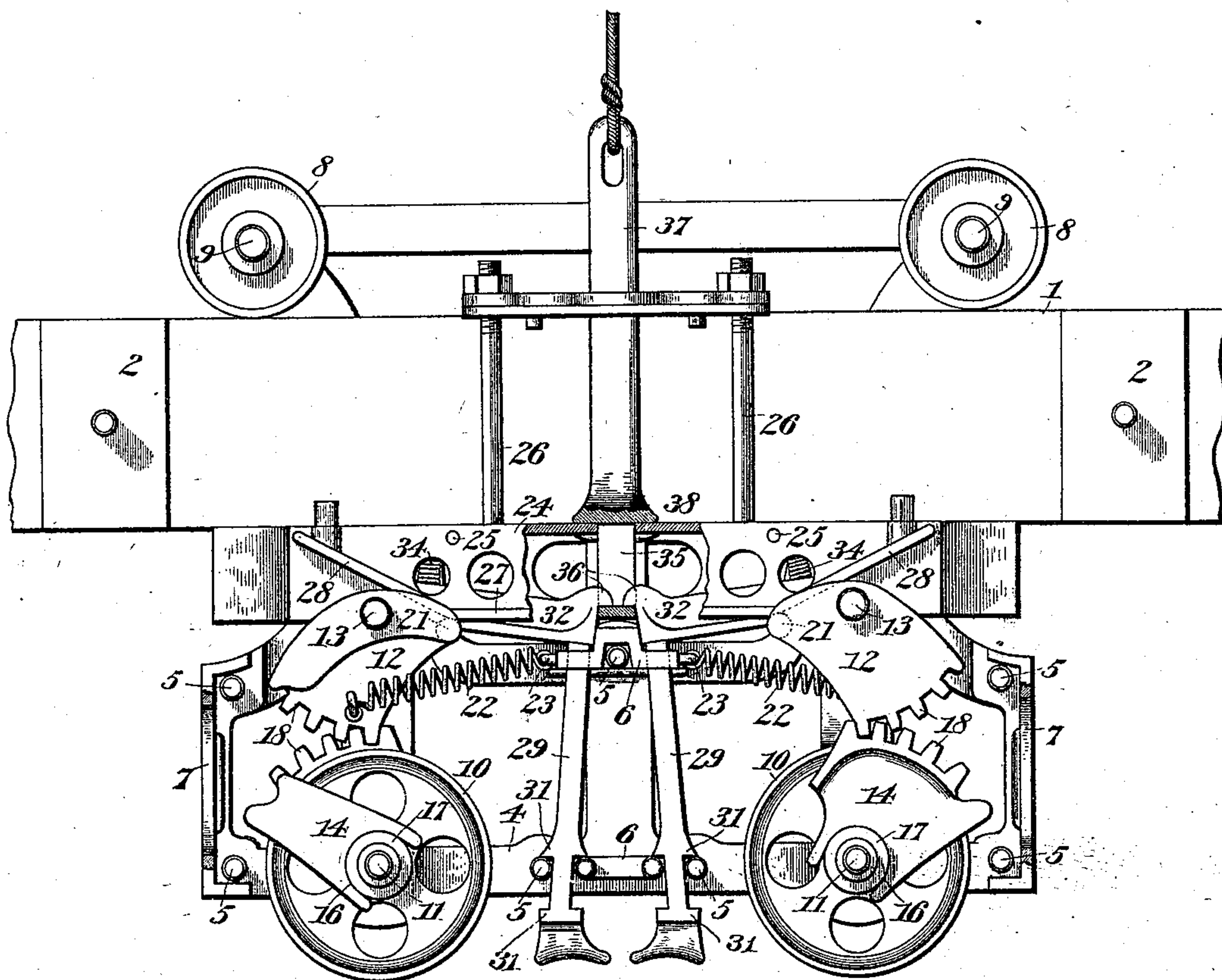
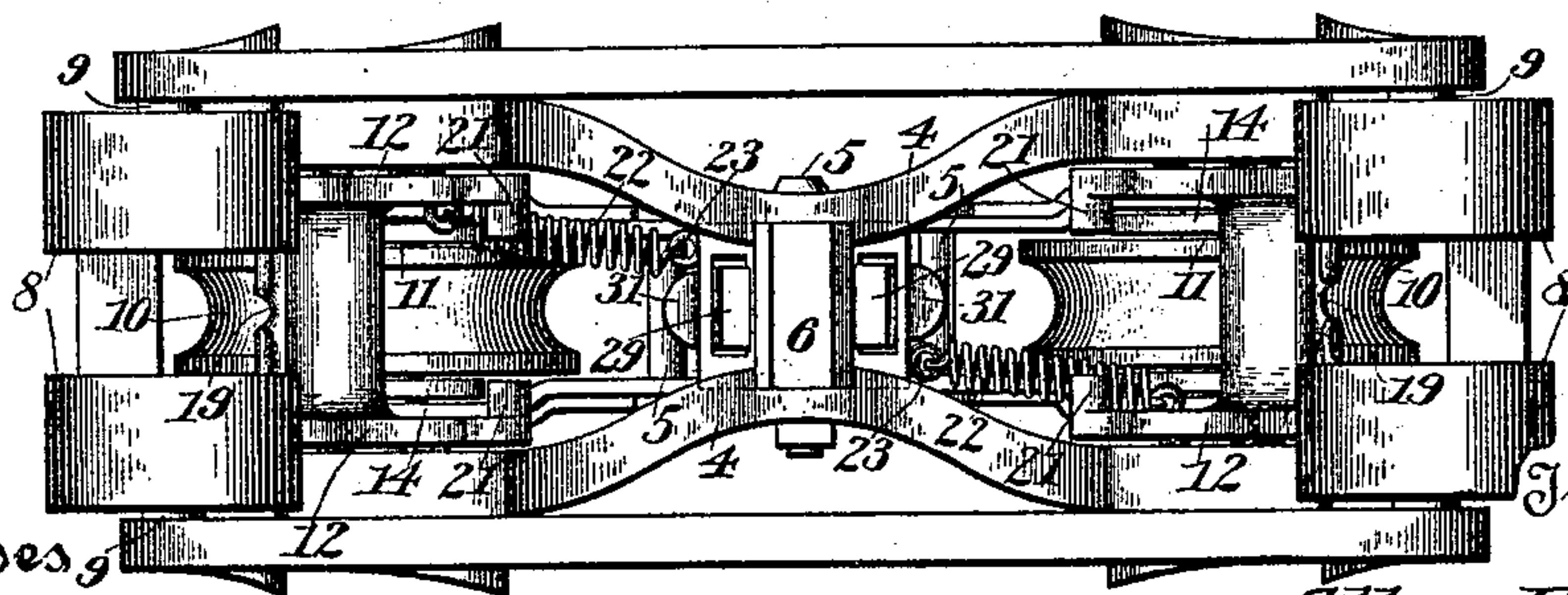


Fig. 5.



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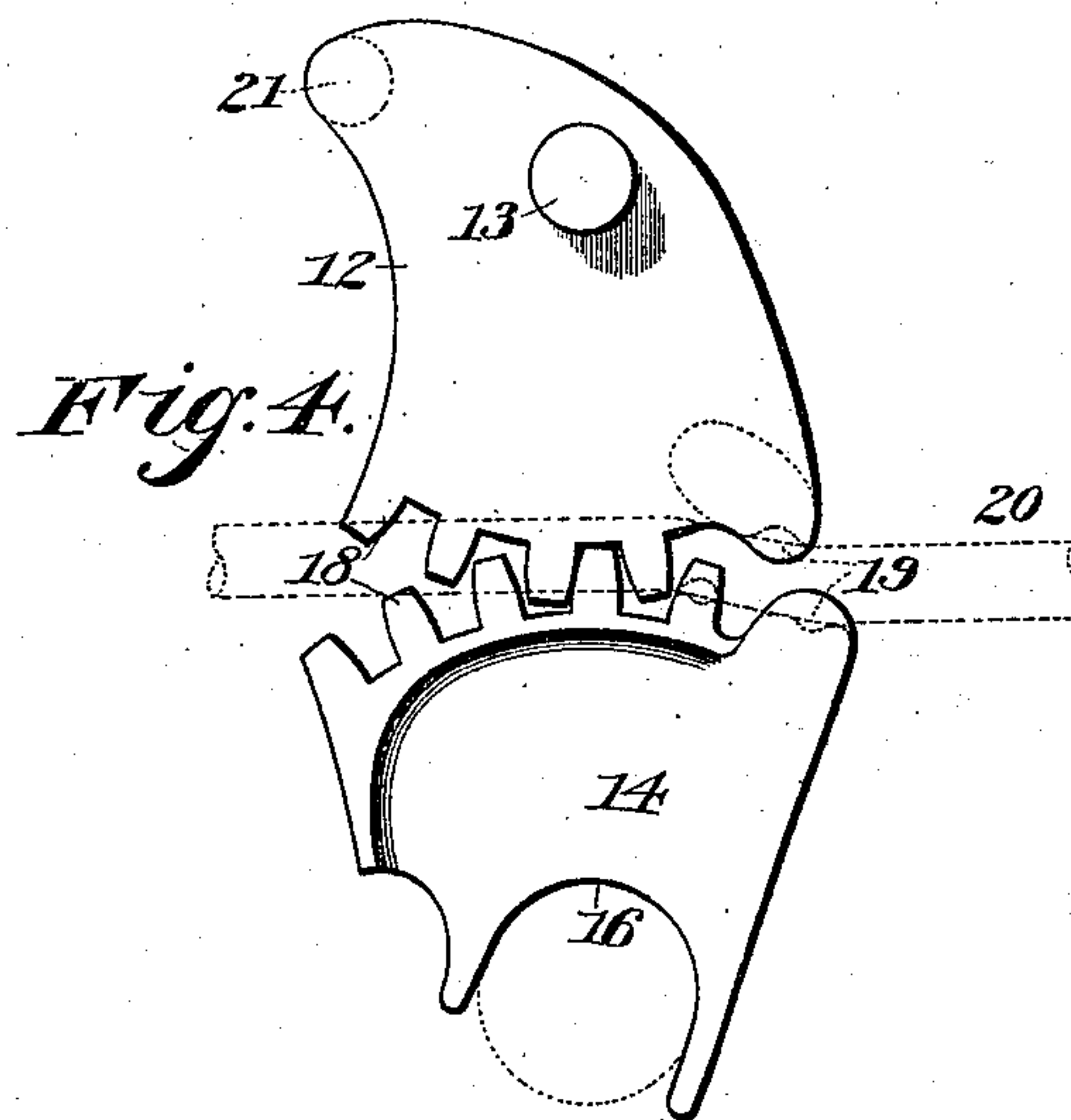
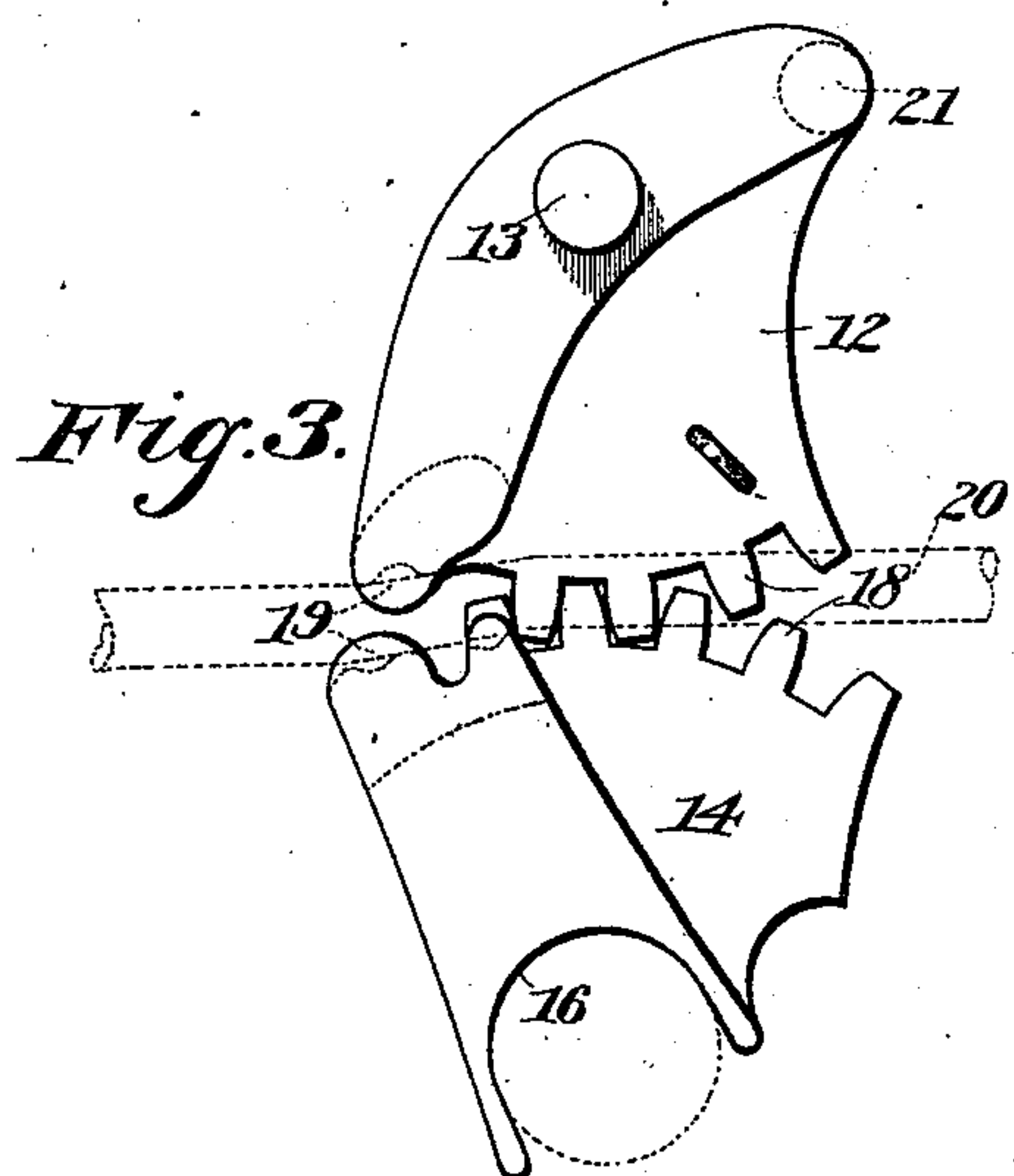


Fig. 6.

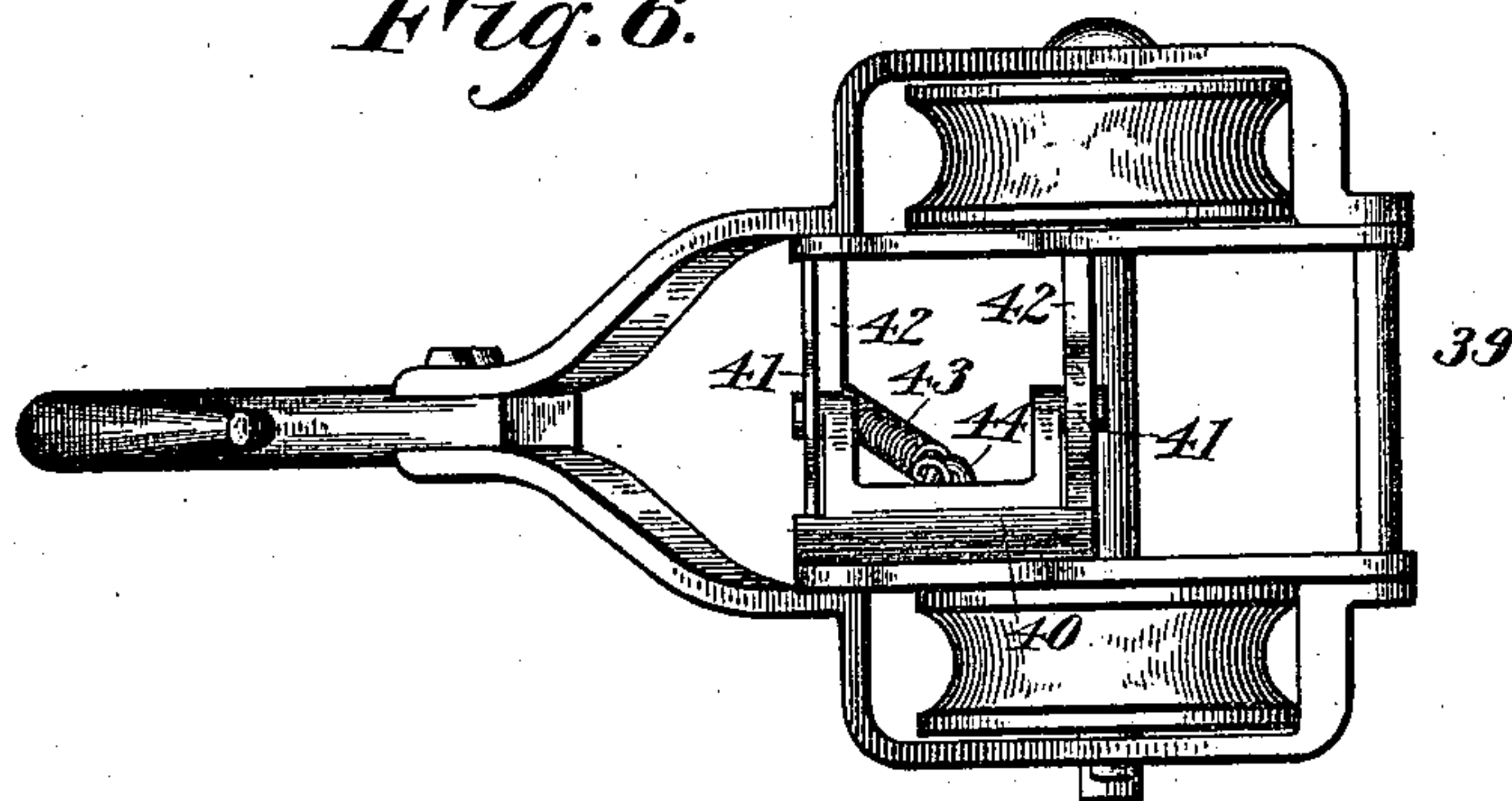
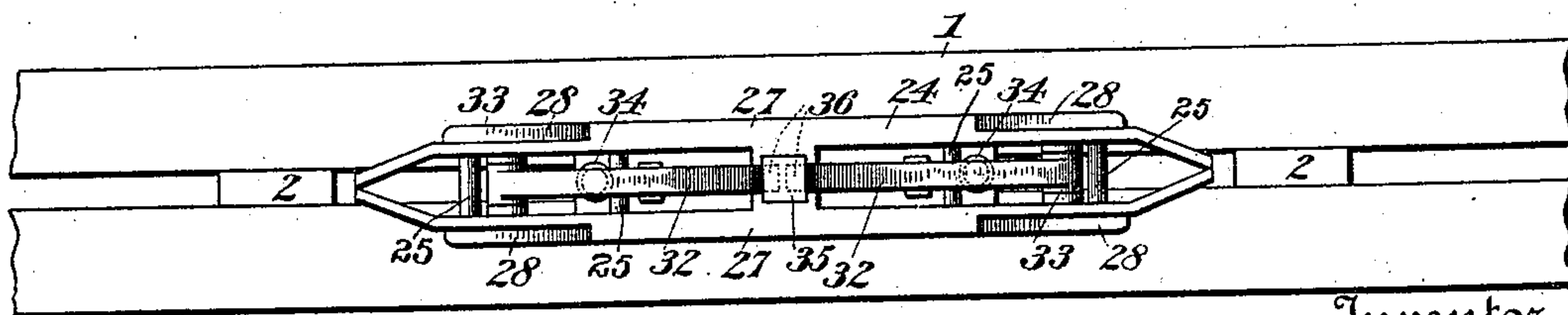


Fig. 7.



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UNITED STATES PATENT OFFICE.

ALLEN P. BOYER, OF GOSHEN, INDIANA.

HAY-CARRIER.

SPECIFICATION forming part of Letters Patent No. 517,835, dated April 10, 1894.

Application filed March 23, 1893. Serial No. 467,352. (No model.)

To all whom it may concern:

Be it known that I, ALLEN P. BOYER, of Goshen, county of Elkhart, and State of Indiana, have invented certain new and useful
5 Improvements in Hay-Carriers, of which the following is a specification, reference being had to the accompanying drawings.

The object of my invention is to produce an improved hay-carrier of the general type
10 shown in my Patent No. 409,164, issued August 20, 1889.

My invention consists in the employment of certain mechanical elements, and in their combination and arrangement in such a way
15 as to simplify the mechanism and increase the efficiency of the machine.

In the accompanying drawings, Figure 1 is a side elevation of my machine, showing the sling attached and spread as in use. Fig. 2
20 shows the carrier upon the track with one of the frame sides removed, and one of the parts of the track removed. Fig. 3 is a view of one side of one set of jaws, detached. Fig. 4 is a similar view of the opposite side. Fig. 5 is a
25 top plan view of the carrier separated from the track. Fig. 6 is a top plan view of the trip pulley. Fig. 7 is a bottom plan view of the trip-bridge.

Referring to the figures on the drawings, 1
30 indicates a track, which may be made in any suitable manner, as for example of two squared sticks of wood separated by spacing blocks 2, and united by terminal bolts 3.

4 indicates each side of the carrier-frame, which is made preferably of cast metal, and
35 is united by bolts 5. Middle spacing blocks 6, and end-separating eyelets 7, through which the ends of the lifting rope pass, are employed to separate and rigidly combine the two sides
40 of the frame. Upon the upper four corners of the frame I provide track rollers 8, carried upon suitable studs 9. Upon the lower end of the frame I provide sheaves 10, journaled on transverse bolts 11. Each sleeve is pro-
45 vided with clutching mechanism consisting of a jaw 12, provided with bearing lugs 13, and a co-operating jaw 14. The jaw 12 is carried in suitable bearings 15 in the sides of the frame, while the jaw 14 is provided

with bearing recesses 16, adapted to straddle
50 bosses 17 in the frame. The two jaws are preferably provided on one side, respectively, with gear-teeth 18 which intermesh, and by the engagement of which the jaw 14 is re-
55 tained in position upon its bosses.

19 indicates teeth located oppositely upon each of the jaws, and adapted to bite upon a rope 20. The opposite sides of the jaw 12
60 are provided with trip-lugs 21. When these lugs are elevated the teeth bite into the rope. The jaws are normally held in this clutching
65 position by a tension spring 22, secured at one end to the frame, as indicated at 23, and at the other to one side of the jaw 12. Tension upon the inner ends of the rope when the jaws are
70 partially closed tends to close them tighter, and makes it impossible for a load suspended by the rope to slip so long as the jaws are free to move and bite the rope. This is the
75 desired condition when the carrier is traveling upon the track and when the load is being shifted from one place to another. But when the load has been carried to its destination, and the carrier is returned for the purpose of elevating another load, it is necessary
80 that the clutch mechanism be released so that the rope will be free to lower the pulley 39 for the purpose of attaching another load. For this purpose I employ a trip-bridge 24
85 consisting of two castings or plates secured together and to the under sides, respectively, of the pieces composing the track, as by bolts
25 and 26. The bridge is provided on its opposite sides with tracks 27 having inclined
90 ends 28. When the carrier reaches the trip bridge the trip lugs 21 of one of the jaws 12 engage the inclined ends of the track at one end of the trip bridge and actuate the jaws 12 and
14 to release the rope passing over the sheave, and as the carrier passes to the center of the
95 trip bridge the clutching mechanism of the other sheave is actuated in like manner, and the rope 20 is thereby permitted to move freely over both sheaves. The same results will obviously be obtained if the carrier ap-
proaches the bridge from the opposite direction.

While the load is being elevated it is nec-

essary that the carrier be held against movement upon the track, and also that it may be released when the load reaches the desired height. Yielding latches 32 are therefore
 5 pivoted as at 33 between the plates of the trip bridge, lugs 36 upon their adjacent ends resting in a definitely movable stirrup 35, provided with a limiting flange 38. The
 10 movable ends of these catches normally project downwardly leaving a sufficient space therebetween to accommodate the middle partition 6 of the carrier. As the carrier comes into operative contact with the trip bridges from either direction, the nearest of these
 15 catches is raised by the middle partition 6 of the carrier, which, however, then strikes against the square end of the other latch, and the first catch having dropped behind the partition, the carrier is securely held against
 20 movement in either direction.

For the purpose of automatically releasing the carrier when the load has been lifted, and it is desired to move the same, the carrier is provided with two vertically movable trip
 25 latches 29 carried in suitable bearings between the sheaves a proper distance apart to be respectively under the catches 32 when the carrier frame is held thereby. The movement of these latches is made definite by
 30 means of limiting flanges 31 which impinge against the frame. It will be observed that if either one of these trip latches 29 is raised when the carrier is thus secured the catch 32 above it will be lifted and allow the carrier
 35 to be moved in that direction. To operate these trip latches automatically by the raising of the load, I employ a pulley block 39 provided with a pivoted trip block 40 carried in suitable bearings 41 in cross pieces 42 upon
 40 the pulley frame. The cross pieces afford a firm support for the trip block 40 as it is turned to one side or the other so as to raise the one or the other of the catches 32 as desired when the pulley is hoisted and the trip
 45 block raises one or the other of the latches 29. Thus it will be observed that by the adjustment of the trip block either catch may be automatically actuated by the raising of the load, and the carrier may be allowed to
 50 move along the track in the desired direction. This trip block 40 is preferably held in either position by a tension spring 43 fastened at one end to an eyelet 44 in the trip block and in an eyelet 45 in a cross piece 46 on the frame
 55 of pulley block. The stirrup 35 vertically movable between the plates of the bridge, serves, as before stated, as a rest for the latches 32 and may be continued upward between the strips of the track 37, and secured
 60 at its end to a rope, whereby a pull upon the rope will lift the stirrup and latches and allow the carrier freedom of movement in either direction upon the track.

I do not confine myself to the details of
 65 construction herein shown and described, but

reserve the right to modify and vary them at will within the scope of my invention.

What I claim is—

1. The combination with a track, and independent spring catches thereon, of a hay-carrier frame movable on the track, sheaves therein, and independent trip latches in the frame adapted to automatically unlatch the spring catches, and mechanism adapted to unlatch said spring catches independent of
 70 said trip latches, substantially as and for the purpose specified. 75

2. The combination with a track, and independent catches thereon, a hay-carrier frame movable on the track and sheaves therein, of
 80 a sling pulley, intermediate mechanism in the carrier frame, and adjustable mechanism on said pulley adapted to actuate either catch through said intermediate mechanism, substantially as specified. 85

3. The combination with a track, and independent spring catches thereon, of a hay-carrier frame movable on said track, independent trip latches adapted to independently actuate either of the spring catches, a sling pulley and mechanism thereon adapted to actuate either of the said trip latches, substantially as and for the purpose specified. 90

4. The combination with a track, and independent spring catches thereon, of a hay-carrier frame, sheaves therein independent trip latches carried by the carrier adapted to independently actuate the spring catches, a sling pulley, adjustable mechanism thereon, adapted to actuate either trip latch, and mechanism adapted to actuate the spring catches simultaneously independent of the trip latches, substantially as and for the purpose specified. 95 100

5. The combination with a track, and movable carrier, trip latches thereon, catches upon the track, a sling pulley and trip-block thereon adapted to actuate one or the other of the latches at will, substantially as set forth. 105

6. In a sling pulley designed to be used with a hay-carrier, the combination with a frame of a movable trip-block thereon, substantially as set forth. 110

7. The combination with a pulley designed to be used with a hay-carrier, of a spring-actuated pivoted trip-block carried thereon, substantially as and for the purpose specified. 115

8. The combination with a carrier track provided with a trip bridge composed of two substantially parallel plates having inclined ended tracks, separate independent catches
 120 between the plates adapted normally to project below the tracks, of a carrier provided with sheaves, clutch mechanism and catch actuating mechanism, said clutch being adapted to be actuated by the tracks and said catch actuating mechanism, being adapted to raise the catches to or above the level of the tracks, substantially as specified. 125

9. The combination with a track provided with a trip bridge having inclined ended par- 130

allel tracks and interposed yielding catches,
of a carrier having a medial partition adapt-
ed to be held between the catches, and verti-
cally movable separate independent trip
5 latches on either side of said partition adapt-
ed to be actuated to raise either catch out of
the path of the partition, and a stirrup pro-
jecting through the carrier track and sup-

porting said catches and adapted to actuate
the same, substantially as specified. 10

In testimony of all which I have hereunto
subscribed my name.

ALLEN P. BOYER.

Witnesses:

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