

(No Model.)

2 Sheets—Sheet 1.

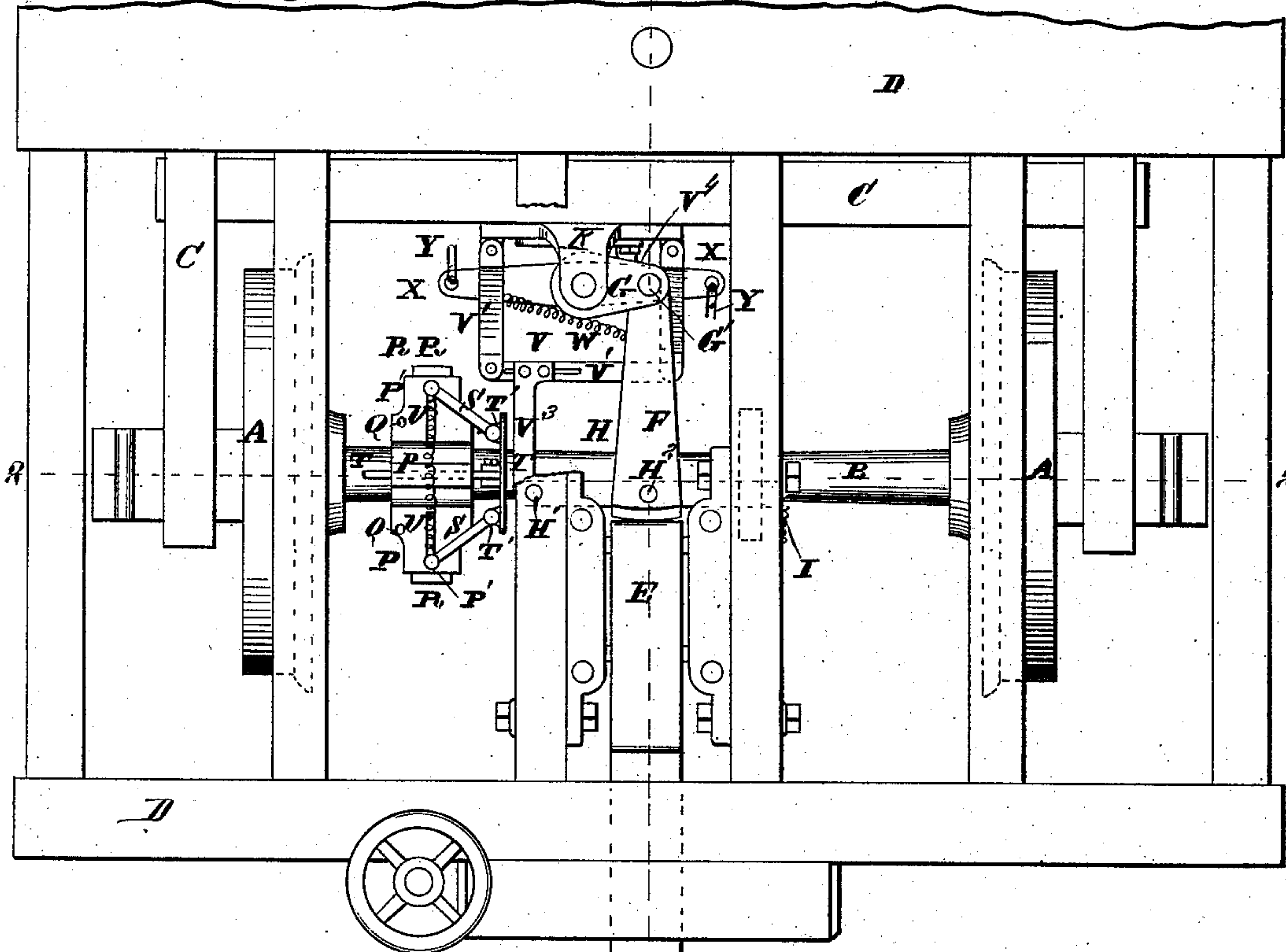
J. C. DANE.

AUTOMATIC CAR BRAKE.

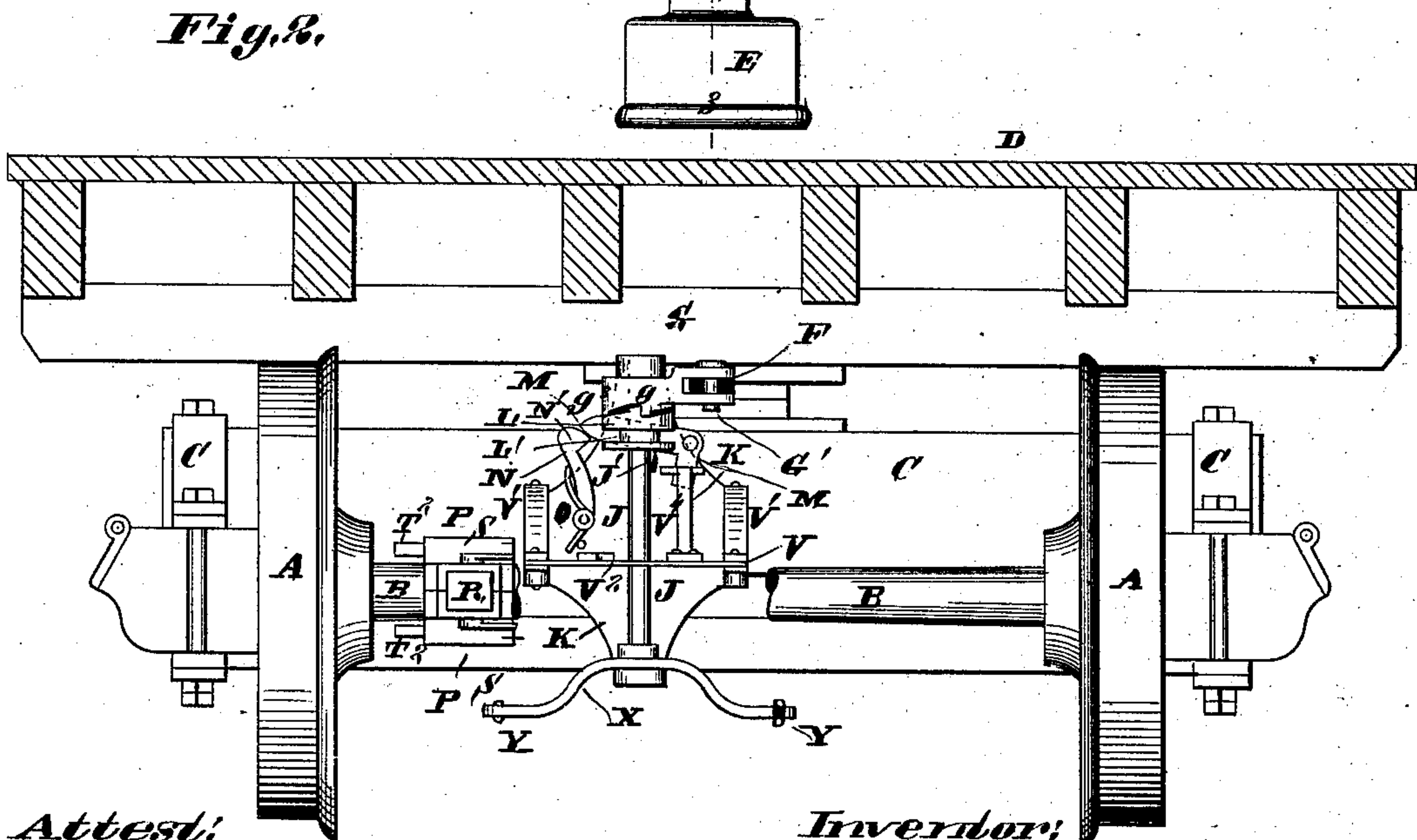
No. 292,736.

Patented Jan. 29, 1884.

*Fig. 1.*



*Fig. 2.*



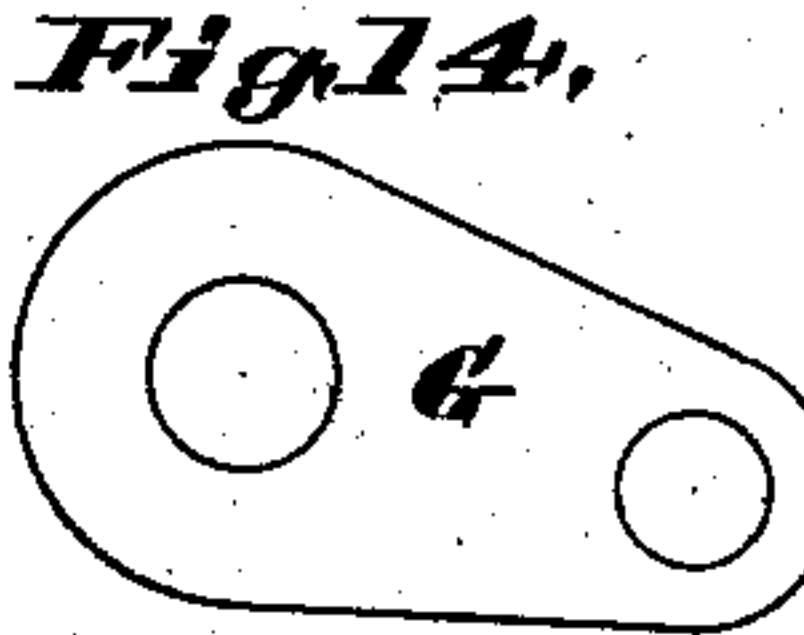
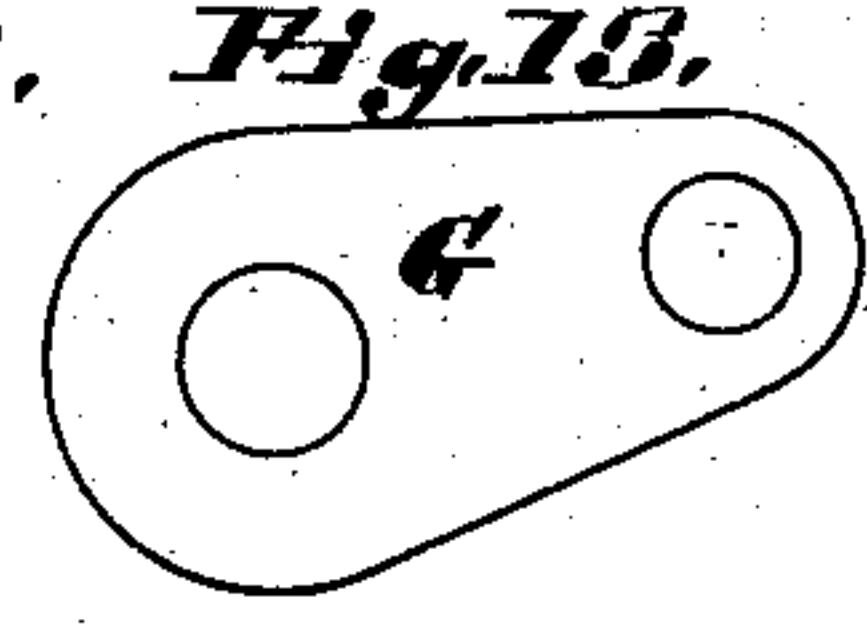
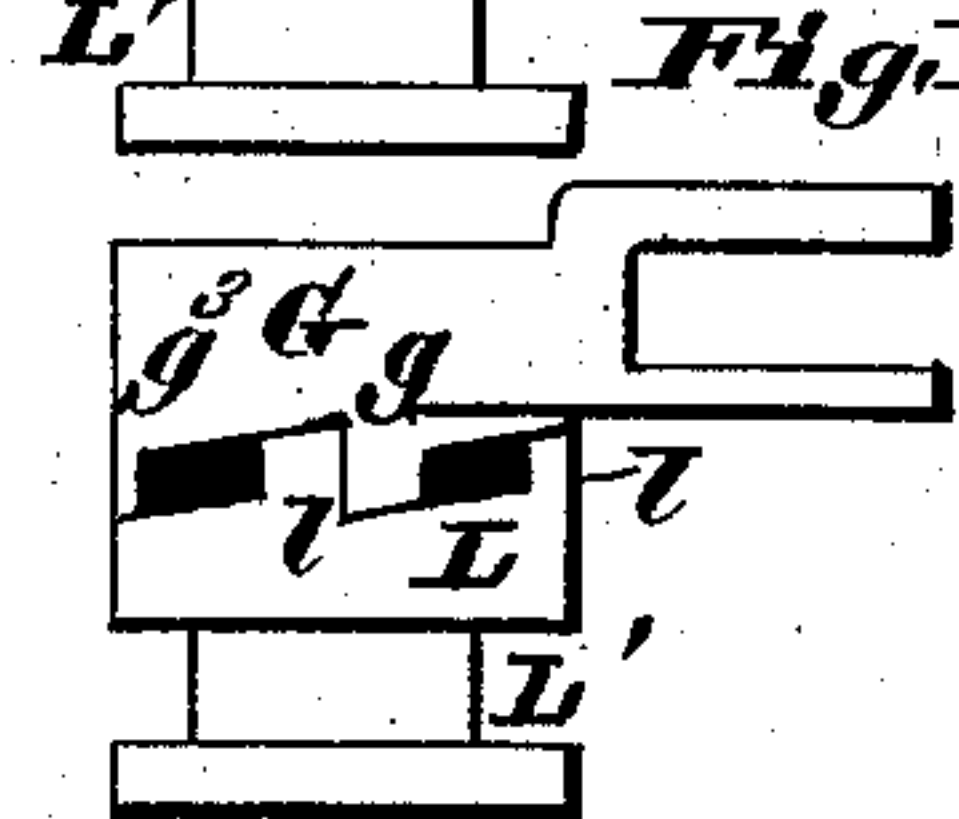
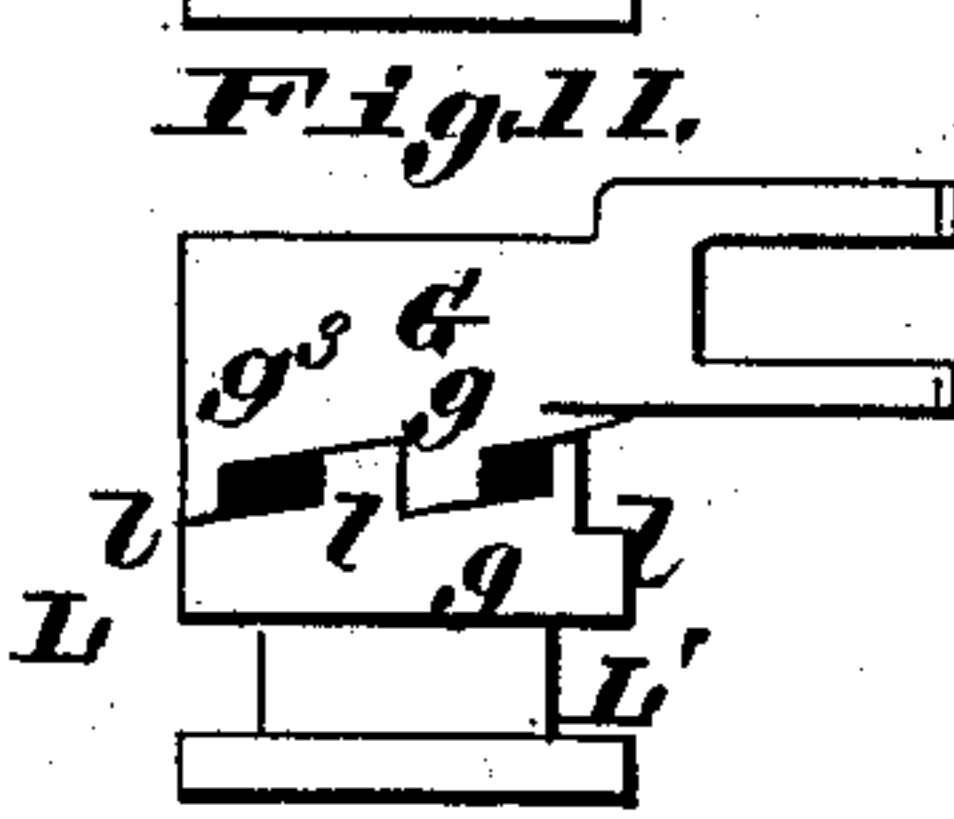
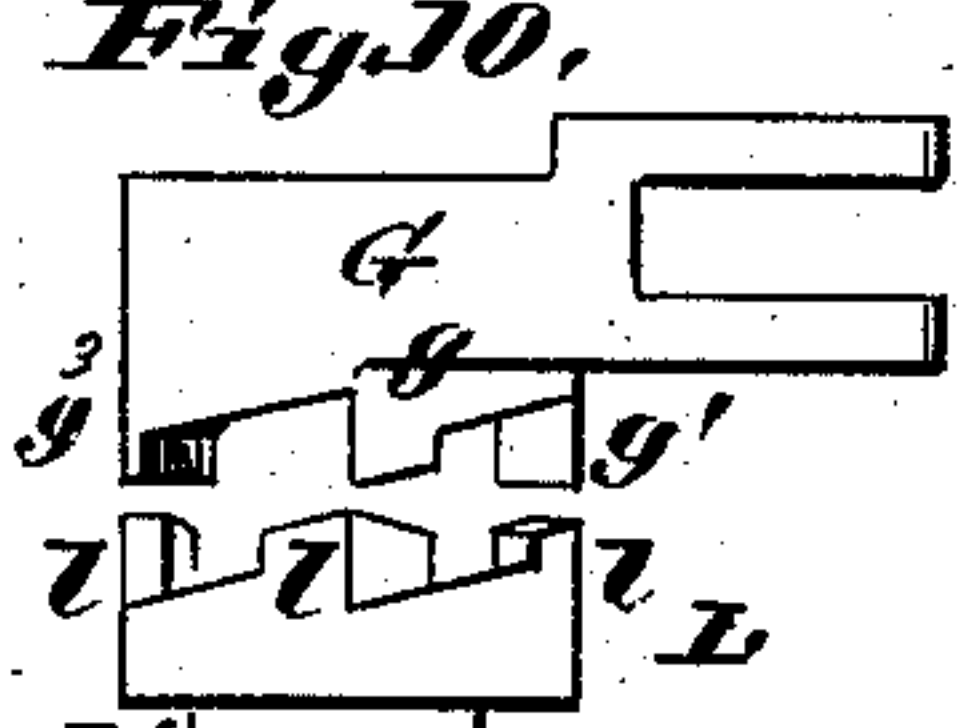
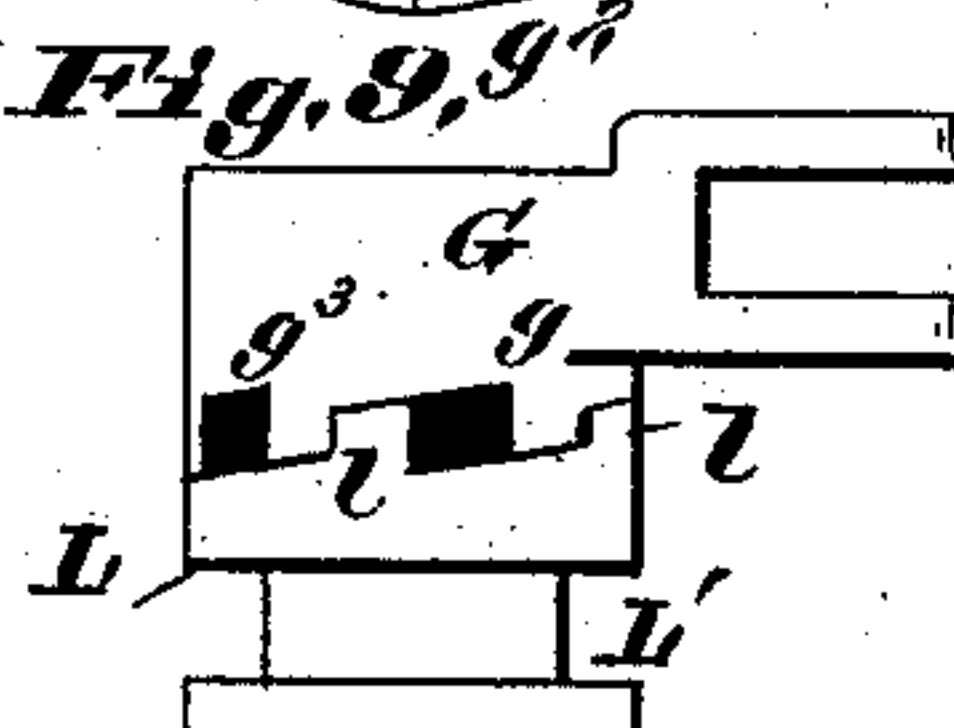
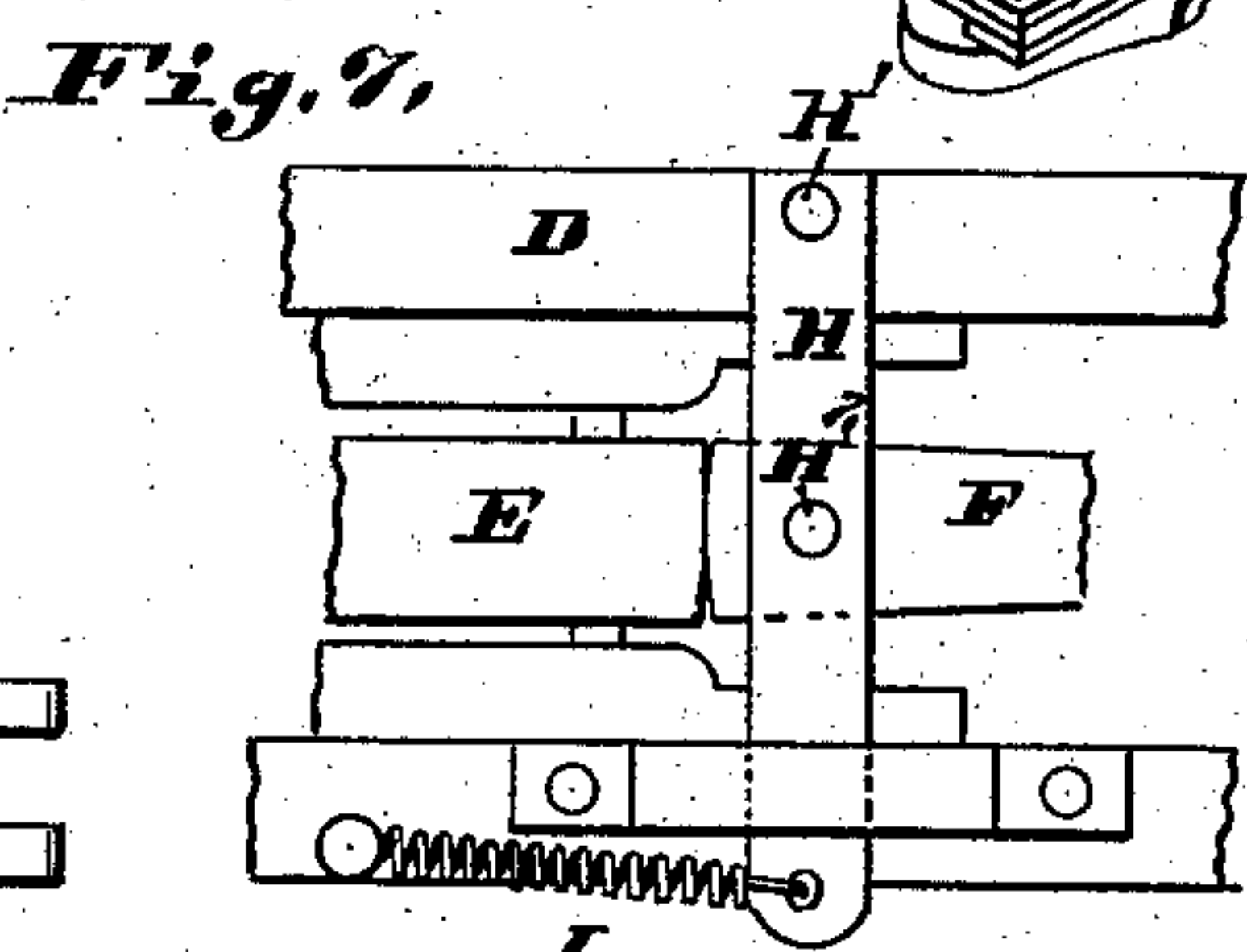
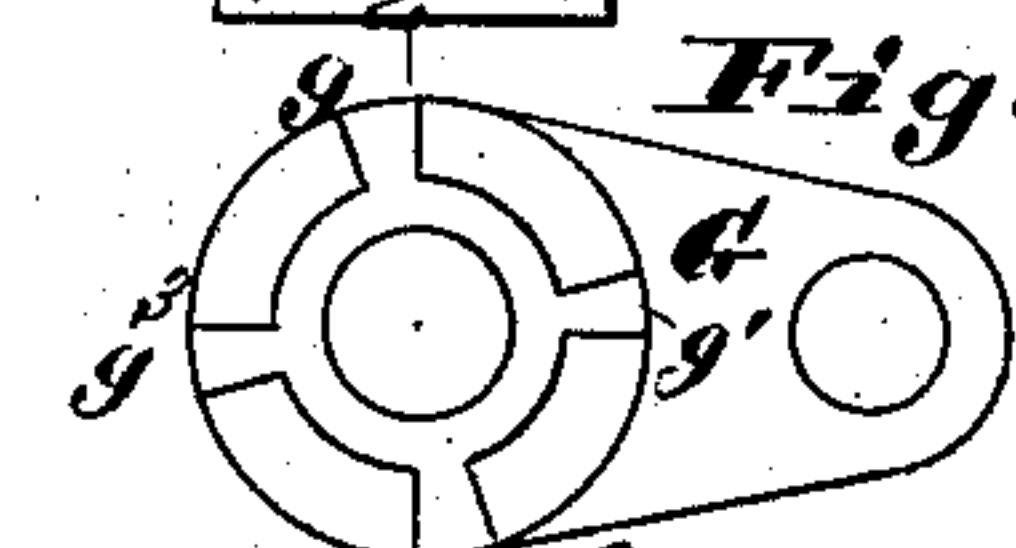
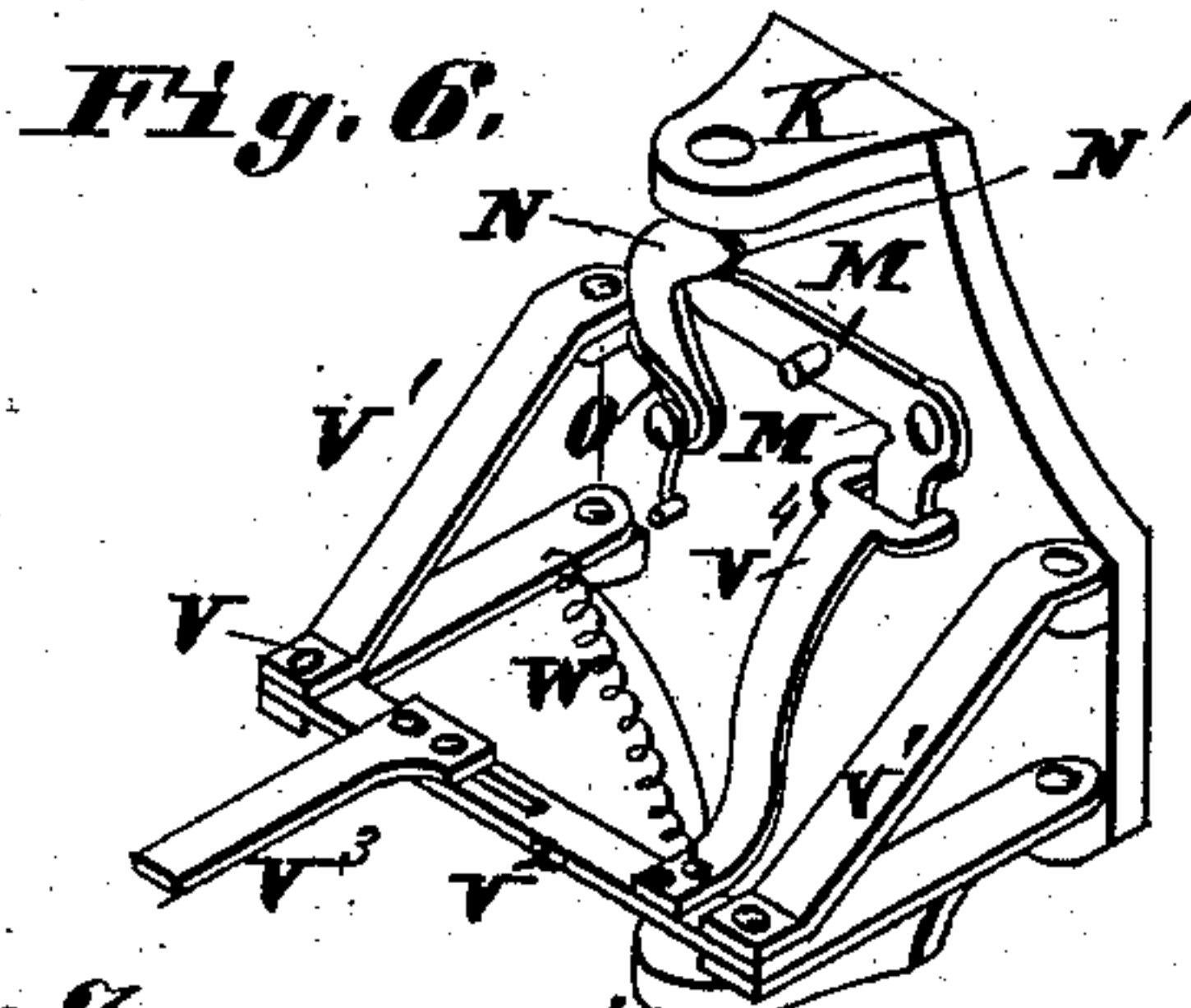
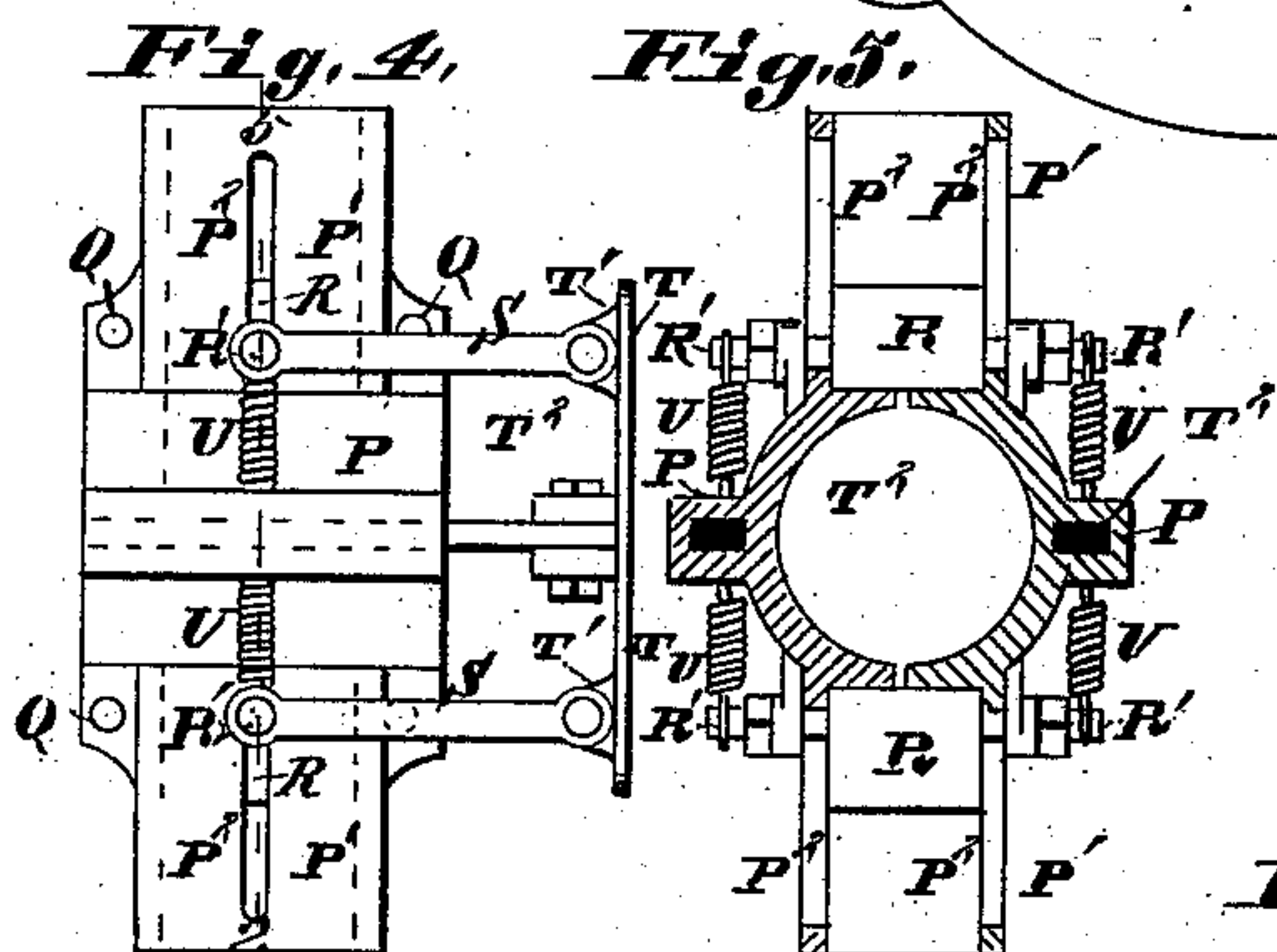
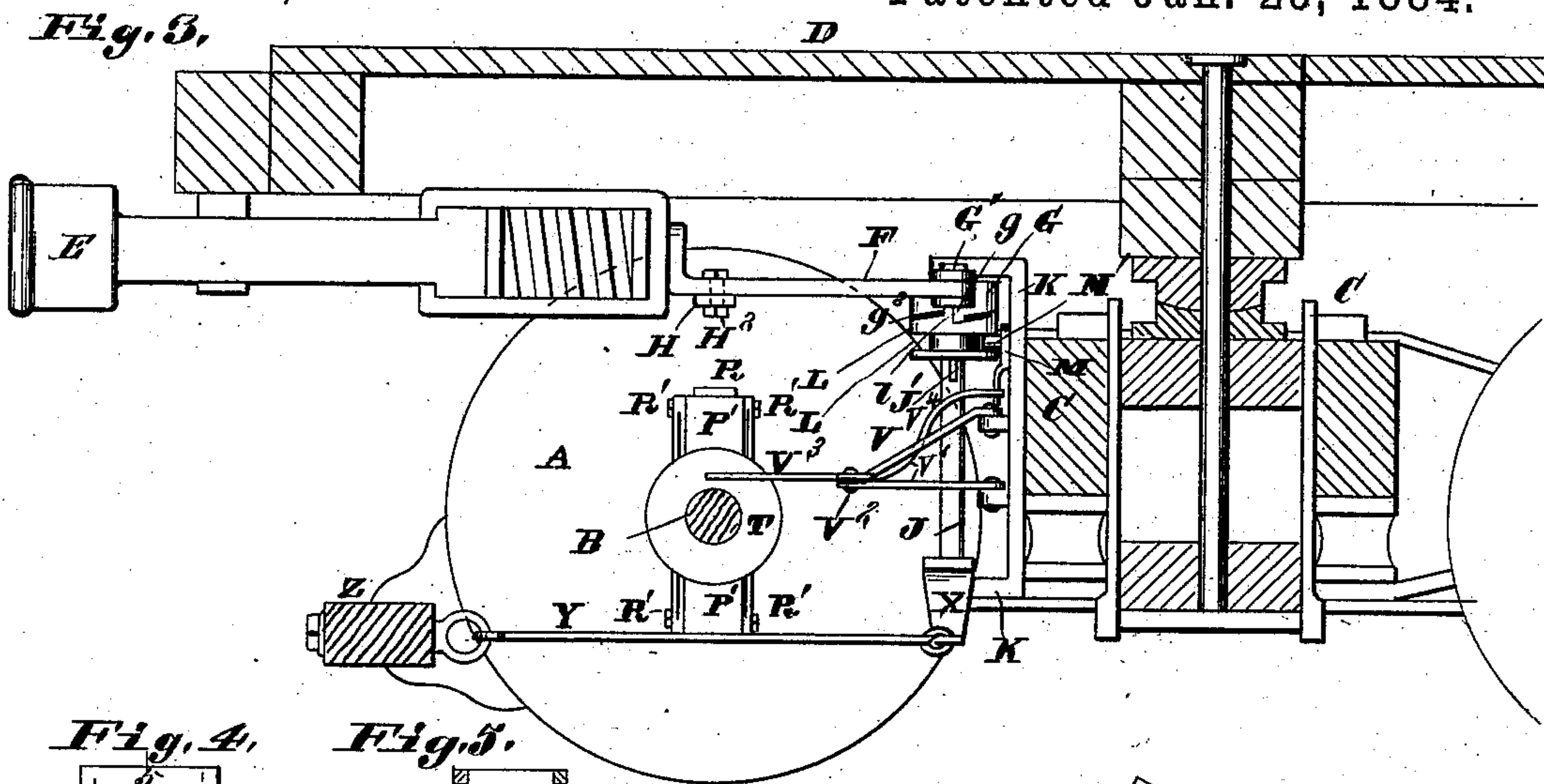
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AUTOMATIC CAR BRAKE.

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# UNITED STATES PATENT OFFICE.

JOSEPH C. DANE, OF LA CROSSE, WISCONSIN, ASSIGNOR OF TWO-THIRDS TO  
LUCINDA S. CARD AND FORREST J. SMITH, BOTH OF SAME PLACE.

## AUTOMATIC CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 292,736, dated January 29, 1884.

Application filed April 13, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH C. DANE, of La Crosse, in the county of La Crosse and State of Wisconsin, have invented a certain new and  
5 useful Improvement in Automatic Car-Brakes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

10 This invention applies to the class of car-brakes in which the brakes are forced upon the wheels by the pressure of one draw-head against another; and my improvement relates to peculiar construction of parts of the mechanism, by which locking or braking is avoided  
15 when backing the cars from a state of rest and applied when required.

The scope of my improvement is indicated by the claims.

20 Figure 1 is a top view of part of a car, with floor removed, showing the trucks beneath. Fig. 2 is a vertical transverse section at 2 2, Fig. 1. Fig. 3 is a vertical longitudinal section at 3 3, Fig. 1. Fig. 4 is a side view of  
25 the governor with the weights in the inner position, and Fig. 5 is a section at 5 5, Fig. 4. Fig. 6 is a perspective view of the oscillating frame. Fig. 7 is a detail bottom view, showing the rear end of the draw-head. Fig. 8 is  
30 an enlarged bottom view of crank. Fig. 9 is a side elevation of crank and clutch engaged and brakes applied. Fig. 10 is a side elevation of crank and clutch disengaged. Fig. 11 is a side elevation of the crank and clutch  
35 when the cars are being pushed, and Fig. 13 is a top view of the crank in this position. Fig. 12 is a similar view to Fig. 11, except that the crank is in pulling position; and Fig. 14 is a top view of the crank in this position.

40 The car-wheels are shown at A, the axle at B, the truck at C, and the car-body at D.

E is the draw-head, connected to the car-body in the usual or any suitable manner that will allow it the usual longitudinal movement.

45 The inner end of the draw-head bears against the convex end of the push-bar F, whose other end is connected by a pin, G', to the free end of a crank, G.

50 H is a spring-lever fulcrumed at one end, H', and connected to the push-bar by a pivot-pin, H<sup>2</sup>. The free end of the lever is drawn

outward by a spring, I, so as to hold the front end of the push-bar against the rear end of the draw-head. The crank G turns free upon the vertical shaft J, that has bearings in a bracket, K, attached to the cross-timber of the truck. 55 The under side of the crank has a number (four) of clutch-teeth,  $g g' g^2 g^3$ , for the engagement of similar teeth,  $l l l l$ , upon the upper side of the clutch-collar L. The clutch-collar 60 has free vertical movement on the shaft J. They are connected by a feather, J', so as to oblige them to turn together. The clutch-collar has a circumferential groove, L', that receives a pin, M', upon an angle-lever, M, so 65 that by the movement of the lever the clutch-collar is raised on shaft J, to put the teeth  $l$  into position for engagement with the teeth of the crank, or on the descent of the lever M, the teeth  $l$  are carried down too low for the 70 engagement of the crank-teeth. As the lever M rises and falls, its end comes in contact with an inclined tooth, N', of a spring-finger, N, pressed toward the lever by a spring, O. The tendency of the finger N is to hold the lever 75 M in either of its extreme positions, either up or down, after rapidly impelling to such position. The governor consists of two similar parts, P, clamped to the axle B by bolts Q. The governor has radial wings P', that are 80 slotted at P<sup>2</sup> for the passage of pins R', extending from the weights R. Thus the weights have free radial movement to and from the axle, and are guided by the pins R', working in the slots P<sup>2</sup>. The pins extend beyond the 85 wings and form the pintles of one end of the links S, of which there are four having their other ends pivoted to lugs T' upon the back of shield T.

It will be observed that the rotation of the axle will throw out the weights by centrifugal force, (until the pins R' reach the ends of the slots,) and that this will draw back the shield, as seen in Fig. 1. On the other hand, when the axle comes to rest, the springs U, extending from the pins R' to the sleeve, will draw 95 the weights to the axle or near thereto, as seen in Figs. 4 and 5.

T<sup>2</sup> are guide-bars of the shield, working in the sleeve.

V is a swinging frame hinged to lugs upon the bracket K by means of the cranes V'. 100



The ends of the crane are hinged to a bar,  $V^2$ , which will thus be kept parallel with the face of the bracket during the side movements of the frame.

5  $V^3$  is an arm extending outwardly from the bar  $V^2$  at right angles to said bar. This arm is in the course of the shield as it moves outward from the sleeve along the axle. When the shield is in its outward position, it forces  
10 the frame  $V$  into the position shown in Fig. 6, the forked arm  $V^4$  holding the angle-lever  $M$  in its lower position and the clutch-collar  $L$  out of connection with the crank  $G$ .

$W$  is a tension-spring connected to one crane  
15 near the point of support at the bracket  $K$ , and connected near the free end of the other crane, so as to draw the arm  $V^3$  toward the shield, so that when the shield is drawn backward (to the sleeve) by the rotation of the  
20 axle the frame  $V$  shall be moved to the left, or toward the governor, and the horizontal arm of the angle-lever  $M$  is thrown upward and will lift the clutch-collar into the position shown in Figs. 2, 3, and 12, so that on the in-  
25 ward movement of the draw-head and consequent turning of the crank the shaft  $J$  shall be turned by means of the clutch  $L$ .

$X$  is a cross-bar at the lower end of the shaft  
30  $J$ .  $Y$  are rods extending from the ends of the cross-bar to the brake-bars  $Z$  at both ends of the truck, the construction being such that when the crank is moved into the position shown in Figs. 9, 13 from the position shown in Fig. 14 the brakes shall be applied to the  
35 wheels.

The operation is briefly as follows: When the cars are at rest, the governor and shield are as shown in Figs. 4 and 5, and the crank and clutch-collar as seen in Fig. 10, and the  
40 frame  $V$  as seen in Fig. 6. When the cars are pulled forward, the weights of the governor move outward and draw the shield  $T$ ; then the spring  $W$  moves the frame  $V$  toward the governor, and the arm  $V^4$  throws up the lever  
45  $M$  and with it the clutch-collar, raising the clutch-teeth  $l$  in line with the teeth  $g\ g' g'' g'''$ . (See Figs. 12 and 14.) If, now, the speed of the engine is checked, the draw-heads are  
50 turned, also, the clutch-collar and shaft  $J$ , and

by means of the cross-bar  $X$  and rods  $Y$  the brakes are set to the wheels. The position of the crank in this case is shown in Figs. 9 and 13. If the cars are pushed forward instead of being pulled, the crank assumes the position  
55 shown in Figs. 11 and 13.

I claim—

1. The combination, with the draw-head of a car, of a push-bar held in contact with the rear end or an abutment of the draw-head by  
60 a spring, and connected to a crank upon a shaft carrying a cross-bar, whose ends are connected by any suitable means to the brake-bars at the opposite ends of the truck.

2. The combination of draw-head  $E$ , push-  
65 bar  $F$ , crank  $G$ , with clutch tooth or teeth thereon, clutch-collar  $L$ , feather-keyed to shaft  $J$  and sliding thereon, any suitable means for raising the clutch-collar, cross-bar  $X$ , rods or chains  $Y$ , and brake-bars  $Z$ , all constructed  
70 and connected substantially as set forth.

3. The combination, with the clutch-collar  
75  $L$ , of the lever  $M$ , having a pin,  $M'$ , entering a groove,  $L'$ , in the collar  $L$ , the swing-frame  $V$ , with arm  $V^4$ , actuating lever  $M$ , and itself  
75 actuated by a spring,  $W$ , and by a governor and shield upon the axle, substantially as set forth.

4. The combination, with the governor upon the car-axle, swinging frame  $V$ , lever  $M$ , and  
80 clutch-collar, of the spring-latch  $N$ , substantially as and for the purpose set forth.

5. The combination of a car-brake mechanism, a governor having slotted wings  $P'$ , constructed to form guides for the weights  $R$ , the  
85 links  $S$ , hinged to said weights and to the shield  $T$ , and the springs  $U$ , constructed to draw the weights toward the axle.

6. The combination of draw-head  $E$ , push-  
90 bar  $F$ , spring-lever  $H$ , crank  $G$ , with clutch-tooth thereon, clutch-collar  $L$ , with tooth thereon, shaft  $J$ , cross-bar  $X$  upon shaft  $J$ , connected to the brake-bars, frame  $V$ , and a governor upon the axle actuating the frame, all constructed and operating substantially as  
95 set forth.

JOSEPH C. DANE.

Witnesses:

BENEDICT OTT,  
W. W. USTICK.