

No. 740,982.

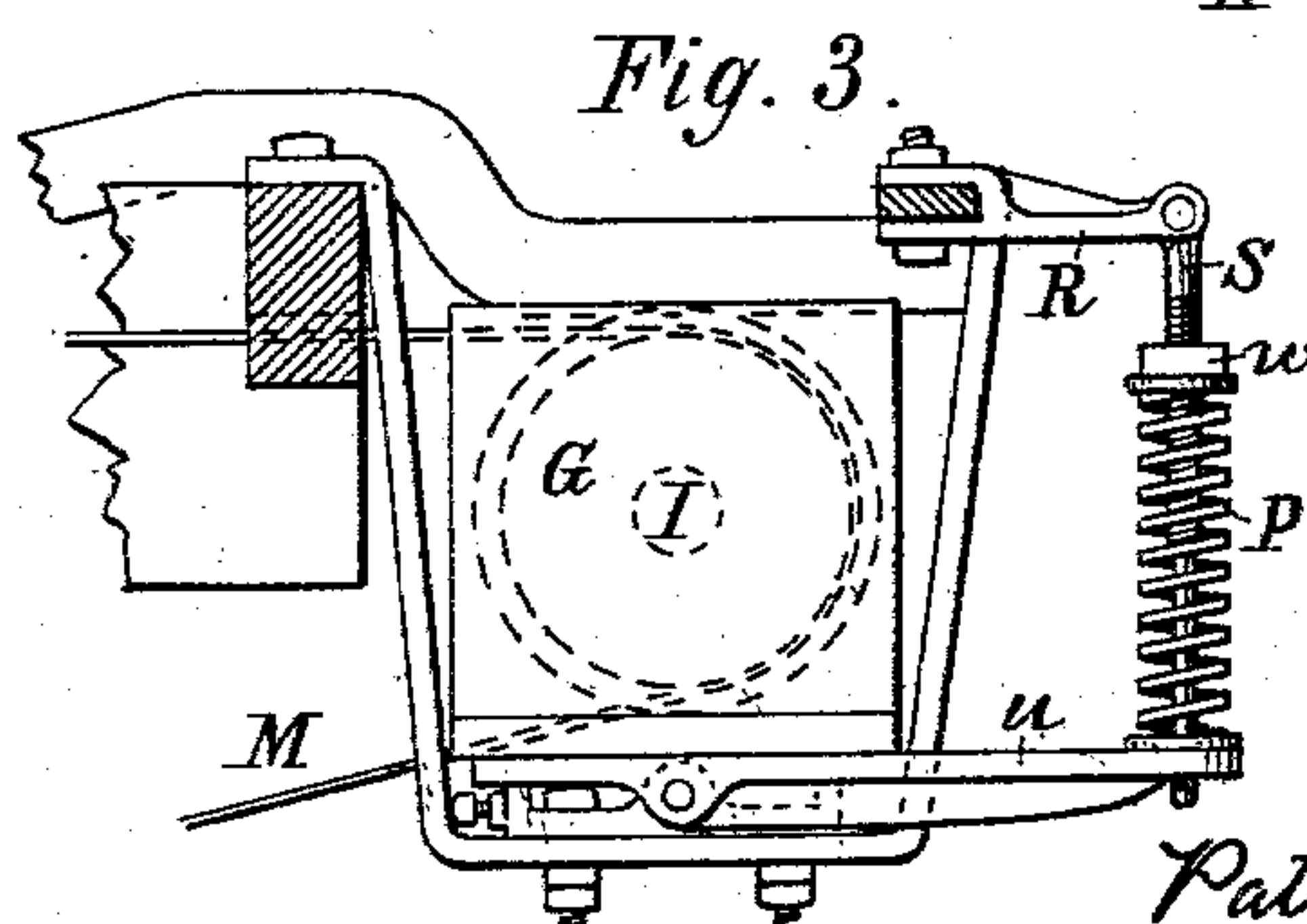
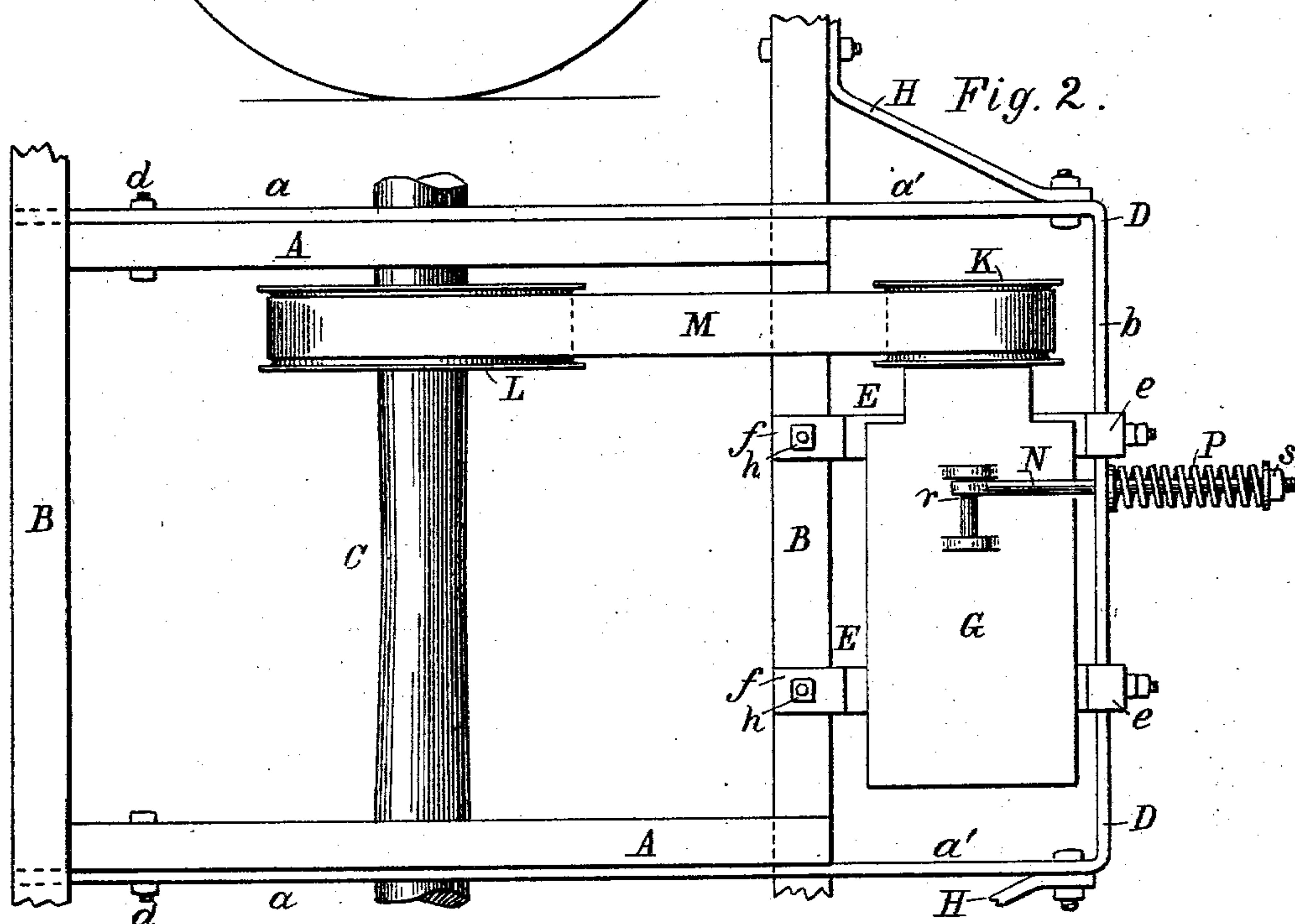
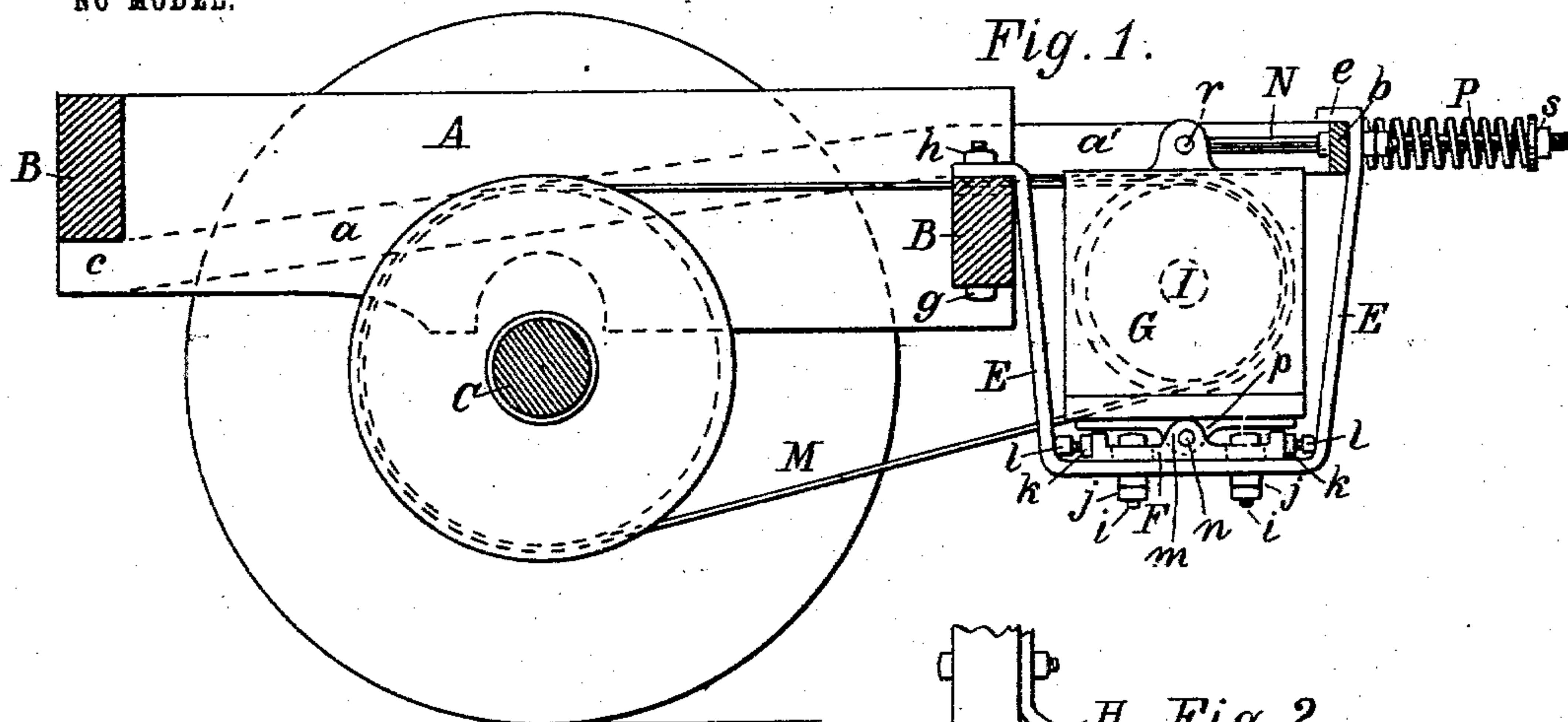
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# MECHANISM FOR DRIVING DYNAMOS ON RAILWAY TRUCKS.

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NO MODEL.



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## MECHANISM FOR DRIVING DYNAMOS ON RAILWAY-TRUCKS.

SPECIFICATION forming part of Letters Patent No. 740,982, dated October 6, 1903.

Application filed June 5, 1903. Serial No. 160,168. (No model.)

*To all whom it may concern:*

Be it known that I, PATRICK KENNEDY, mechanical engineer, a citizen of the United States, and a resident of the borough of Brooklyn, in the city of New York, in the State of New York, have invented certain new and useful Improvements in Mechanisms for Driving Dynamos on Railway-Trucks; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical longitudinal view of an apparatus made according to my invention. Fig. 2 is a plan view of the same. Fig. 3 is a vertical longitudinal sectional view showing a modified construction of one of the parts of said apparatus.

This invention relates to the use of dynamos driven from car-axles. Heretofore it has been the practice to locate the dynamo inside of the cross-beams of the bogie-truck or, as an alternative, to suspend it from the car-body. Each of these has demerits which greatly impair its utility in practice. For example, when the dynamo is placed upon the truck inside of the cross-beams thereof the driving-pulley on the axle is necessarily brought closely adjacent to the pulley on the armature of the dynamo. This necessitates in its turn a very short belt from the one pulley to the other, with great liability to derangement of the belt and imperfect or uncertain transmission of power. Further, such an arrangement of the parts makes them difficult of access for inspection, repairs, removal, or replacement, and as the dynamo and its accessories are bolted direct to the timbers of the truck their weight is caused to fall upon bolts, which are frequently inadequate to their permanent support under the severe usage to which railway-trucks are necessarily subjected when in use. When the dynamo is suspended from the car-body, the shaft of the armature of the dynamo is in the turning of curves brought to more or less of an angle to the axle on which the driving-pulley is placed, in which case there is great danger of throwing the belt from the pulleys and, in any event for the time being,

a material reduction in the transmission of power.

The object of my invention is to obviate these practical difficulties in the transmission of power from car-axles to dynamos. To this end I provide certain new and useful combinations of instrumentalities, hereinafter fully set forth, whereby I am enabled to place the dynamo outside of the cross-beams of the truck, and thereby secure the transmission of power thereto through a driving-belt of increased length, whereby the apparatus is made readily accessible for examination, lubrication, &c., whereby it may be readily removed from the truck when required, and whereby it is provided and held in place upon the truck with great stability and security, these advantages resulting in a much greater degree of safety, durability, and economy in working than has heretofore been attained in the class of mechanisms to which my invention relates.

A A are portions of the longitudinal beams which form part of the horizontal wooden framework of a railway-truck, whereof two of the cross-beams are shown at B B, while C is one of the axles of the truck. This latter may be of any suitable or approved construction. The invention is, however, more especially designed for use in connection with various types of standard railway-trucks, which being well known in the art require no description here.

D is a bracket-frame, which is made, preferably, of iron or steel and the office of which is to support the dynamo and its immediate adjuncts, its outermost end portion overhanging outside of the adjacent cross-beam and forming a firm and strong bracket device. This bracket-frame is preferably integral throughout. It comprises two longitudinal side parts *a a*, which are connected by a cross part *b*. The parts *a* are parallel with the longitudinal beams A A. They are placed over and rest upon the outermost cross-beam B, thence inward underneath another of the said cross-beams, as shown at *c c* in Fig. 1. It will be seen that by this disposition of the side parts *a a* they are enabled to support weight provided upon the overhang-



ing ends  $a'$   $a'$  of the said side parts or upon the cross part  $b$ . To secure the bracket-frame against displacement, the side parts are bolted to lateral surfaces of the longitudinal beams  $A$   $A$ , as shown at  $d$   $d$  in Fig. 2, while their opposite ends, adjacent to the cross part  $b$ , are connected by braces  $E$  to the outwardly-projecting end portions of the adjacent beam  $B$ .

10 Placed in a space between the cross part  $b$  of the bracket-frame  $D$  and the beam  $B$ , which is adjacent thereto—in other words, the adjacent end piece of the truck—is a pendent cradle  $E$ . At the top of its outer side this  
15 cradle has horizontal lugs  $e$ , which are outside of and rest upon the cross part  $b$  of the bracket-frame, and at the top of its inner side has similar lugs  $f$ , which are outside of and rest upon the adjacent beam  $B$ , as shown  
20 in Fig. 2, the cradle being thus suspended from said cross part  $b$  and adjacent beam  $B$ . To prevent the displacement of the cradle, the lugs  $f$  are bolted to the beam by threaded bolts  $g$  and nuts  $h$ . It will be noticed that  
25 by removing the nuts  $h$  the box may be readily manipulated to bring the lugs  $e$  and  $f$  away from their bearings, whereupon the cradle may be readily dropped from its place and removed when required. In the bottom  
30 of the cradle is an adjustable block  $F$ , which is held in place by bolts  $i$  and nuts  $j$ , the bolts  $i$  extending up through slots provided in the block, as shown in dotted outline in Fig. 2. At each end of the block  $F$  is a nut  
35  $k$ , in which works a set-screw  $l$ , as shown in Fig. 1, so that by turning and adjusting the set-screws to change their available length the block may be moved to or fro in the cradle and confined in the desired position by  
40 tightening the set-screws against its ends.

Within the cradle is the dynamo  $G$ , the bottom of which has a projecting bearing  $K$ , which is fitted to a corresponding bearing  $m$ , provided to the block  $F$ . A pivot  $n$  connects  
45 the said two bearings, so that the dynamo is pivotally supported upon the block and capable of more or less oscillating movement thereon. By thus making the pivot of the dynamo adjustable the latter may be placed  
50 in whatever position it may best coöperate with the pulley on the armature-shaft to keep the driving-belt at the proper tension without too much inclining the box from the vertical. The dynamo  $G$  is so arranged that its  
55 armature-shaft, as shown in dotted outline at  $i$ , is extended from one end of the dynamo far enough to receive the armature-pulley  $K$ , which is made fast thereon. Fast upon the axle  $C$  is the driving-pulley  $M$ . From the latter  
60 to the armature-pulley  $K$  extends the driving-belt  $M'$ , as shown in Fig. 2 and in dotted outline in Fig. 1. Suitably pivoted to the cradle—as, for example, at  $r$ —is a rod  $N$ , which, as shown in Fig. 1, is horizontal and is extended  
65 outward, with a head  $s$  at its outer end. This head is preferably a loaded nut screwed upon the rod  $N$ . Between this head  $s$  and the

cross part  $b$  of the bracket-frame is a spring  $P$ , which is preferably a spiral compression-spring. This spring acting through the rod  
70  $N$  tends to elastically pull the dynamo outward—in other words, to elastically swing or press the dynamo in opposition to the tension of the driving-belt to control the degree of the said tension.

75 In Fig. 3 is shown a modification of the construction just hereinbefore described. In Fig. 3 the dynamo  $G$  has at its lower part a horizontal lever-bar  $u$ , which extends outward. Fast upon the upper part of the cradle  
80 is a fixed arm  $R$ , to which is pivoted the vertical rod  $S$ . This rod is threaded to receive a nut  $w$ , which constitutes an adjustable stop. Around this rod, between the stop  $w$  and the lever-bar  $u$ , is the compression-spring  
85  $P$ , which by its action upon the lever-bar tends to swing the dynamo outward in the same manner as hereinbefore described. This elastic outward movement of the dynamo to the extent permitted by the driving-belt  $M$  serves  
90 to keep the latter taut during the vicissitudes of use. The degree of tension thus brought to bear upon the belt may be adjusted to any desired degree by compressing the spiral spring. This is done by adjusting  
95 the head on the rod  $N$  or by adjusting the nut or stop  $w$  when the draft is applied by the means shown in Fig. 4.

It will be seen that by the novel combinations of parts herein described the dynamo  
100 may be located at any desired distance from the driving-axle of the truck, thereby insuring the advantages of a longer driving-belt, this permitting the use of larger pulleys, whether on the axle or on the armature-shaft,  
105 also that the dynamo and its adjuncts may be readily reached and inspected, also that the dynamo and its adjuncts may be easily removed and replaced, as occasion demands, also that aside from the driving-pulley on the  
110 axle the apparatus may be readily detached from the truck by removing the bolts which attach the bracket-frame to the beams, and that when in use the tension of the driving-belt in its hold upon the armature-pulley is  
115 made constant and held at any desired strain by adjusting the compression of the spring which actuates the dynamo.

What I claim as my invention is—

1. The combination with a car-truck and a  
120 bracket device extended outside of the beams of said truck, of a removable cradle placed between said bracket and an outside cross-beam of the truck, a dynamo within the cradle and adjustably pivoted thereto, a pulley on  
125 the armature-shaft of the dynamo, a driving-pulley on an axle of the truck, a driving-belt extended from the driving-pulley to the pulley on the armature-shaft, and means for elastically swinging the dynamo to maintain the  
130 tension of the belt, as described.

2. The combination with a car-truck and a bracket extended outside of the beams of said truck, of a removable cradle placed between



said bracket and an outside cross-beam of the truck, a dynamo within the cradle adjustably pivoted at the bottom thereof, a pulley fast on the armature of the dynamo, a driving-pulley on the axle of the truck, a driving-belt extended from the driving-pulley to the pulley on the armature-shaft, and a compression-spring provided to swing the dynamo to maintain the tension of the driving-belt, as described.

3. The combination with a car-truck, of a bracket-support outside of an outer cross-beam of the truck, a cradle having lugs at opposite sides of its top to rest upon the bracket and the adjacent cross-beam to suspend the cradle in the space between them, and a dynamo pivotally supported at its bottom within the cradle, of a pulley on the armature-shaft of the dynamo, a driving-pulley on an axle of the truck, a driving-belt extended from the driving-pulley to the pulley on the armature-shaft, a compression-spring for swinging the dynamo against the tension of the belt to control said tension, and means for adjusting the compression of the spring, as described.

4. The combination with a car-truck, a bracket extended outside of the beams of said truck, a cradle supported by said bracket between the same and an outer cross-beam of the truck, a dynamo in the cradle, a pivotal bearing at the bottom of the box, a block placed at the bottom of the cradle and provided with a pivotal bearing which coöperates with that of the dynamo, means for adjusting the block upon the bottom of the cradle, a driving-pulley on an axle of the truck, a pulley on the armature-shaft of the dynamo, a driving-belt extended from the driving-pulley to the pulley on the armature-shaft, and means for elastically swinging the dynamo to maintain the tension of the belt, as described.

5. The combination with a car-truck, a bracket extended outside of the beams of the truck, a cradle supported in said bracket outside of an outer cross-beam, a dynamo in said cradle provided at its bottom with a pivotal bearing, a slotted block placed in the bottom of the cradle and having a pivotal bearing which coöperates with that of the dynamo, and bolts passed through the bottom of the cradle and through the slots of the block, of a pulley on the armature-shaft of the dynamo, a driving-pulley on an axle of the truck, a driving-belt extended from the driving-pulley to the pulley on the armature-shaft, and means for elastically swinging the dynamo to maintain the tension of the driving-belt, as described.

6. The combination with a railway-truck, a bracket-frame which comprises two side parts that extend along longitudinal beams of the truck and over one transverse beam and under another, and which are united at their ends by a suitable cross part, of a cradle suspended from the said bracket-frame between its cross part and an adjacent cross-beam, a dynamo carried by the cradle, a pulley fast

on the armature-shaft of the dynamo, a driving-pulley fast on an axle of the truck, and a driving-belt extended from the driving-pulley to the pulley on the armature-shaft, as described.

7. The combination with a car-truck and a bracket-frame the cross part of which is outside of an outside cross-beam of the truck, and the side parts of which are passed over said cross-beam and under another and made fast to longitudinal beams of the truck, of a removable cradle having lugs at its top whereby it is suspended from the cross part of the bracket-frame and the adjacent cross-beam of the truck, a dynamo pivoted at the bottom within the cradle, a pulley on the armature-shaft of the dynamo, a driving-pulley on an axle of the truck, a driving-belt extended from the driving-pulley to the pulley on the armature-shaft, a spring for operating the dynamo to maintain the tension of the driving-belt, and means for adjusting the spring to adjust said tension, as described.

8. The combination with a car-truck, a bracket device extended outside of the beams of the truck, a cradle supported in said bracket outside of an outer cross-beam, a dynamo in said cradle provided at its bottom with a pivotal bearing, a slotted block placed in the bottom of the cradle and having a pivotal bearing which coöperates with that of the dynamo, bolts passed through the bottom of the cradle and through the slots of the block, and adjusting set-screws provided at the ends of the block to brace the same in positions to which it may be adjusted along the bottom of the cradle, a pulley on the armature-shaft of the dynamo, a driving-pulley on an axle of the truck, a driving-belt extended from the driving-pulley to the pulley on the armature-shaft, and means for elastically swinging the dynamo to maintain the tension of the belt, as described.

9. The combination with a car-truck, of a bracket device extended outside the beams of the truck, a cradle supported in said bracket device outside of an outer cross-beam, a dynamo in said cradle provided at its bottom with a pivotal bearing, a slotted block placed in the bottom of the cradle and having a pivotal bearing which coöperates with that of the dynamo, bolts passed through the bottom of the box, and through the slots of the block to hold the latter to the bottom of the cradle, and adjusting set-screws provided at the ends of the block to brace the same in positions to which it may be adjusted along the bottom of the cradle, a driving-pulley on an axle of the truck, a pulley on the armature-shaft of the dynamo, a driving-belt extended from the driving-pulley to the pulley of the armature-shaft, a compression-spring arranged to operate the dynamo to maintain the tension of the driving-belt, and means for adjusting the compression of said spring to correspondingly adjust the tension of the belt, as described.

10. The combination with a car-truck and



a bracket-frame which comprises side parts that are passed over an outside cross-beam of the truck and under another of such cross-beams and a cross part which is outside of  
5 said outer cross-beam, of braces which connect the outermost portions of the side parts with the adjacent outermost cross-beam, and means for securing the said side parts to longitudinal beams of the truck, as described.

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