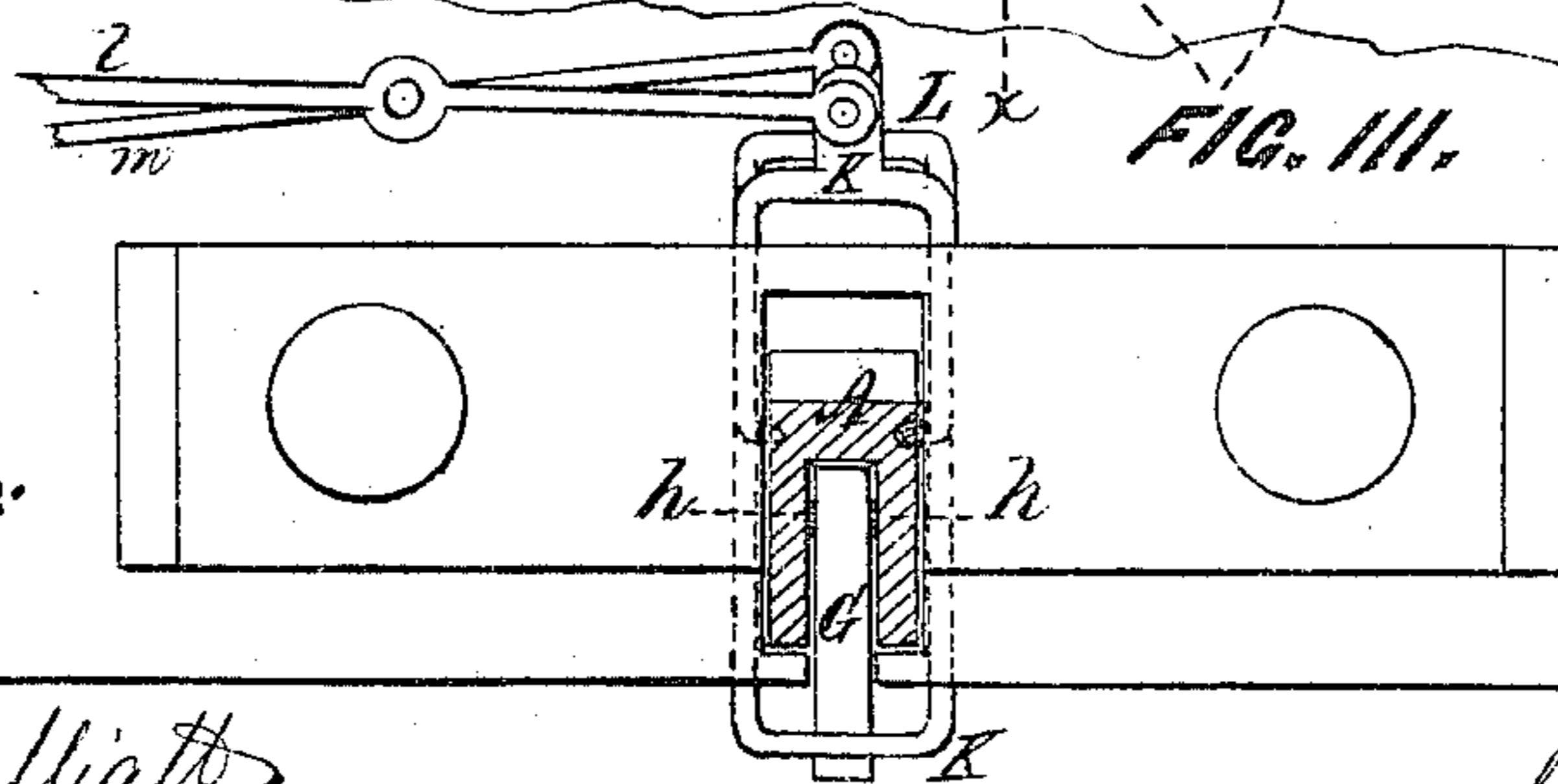
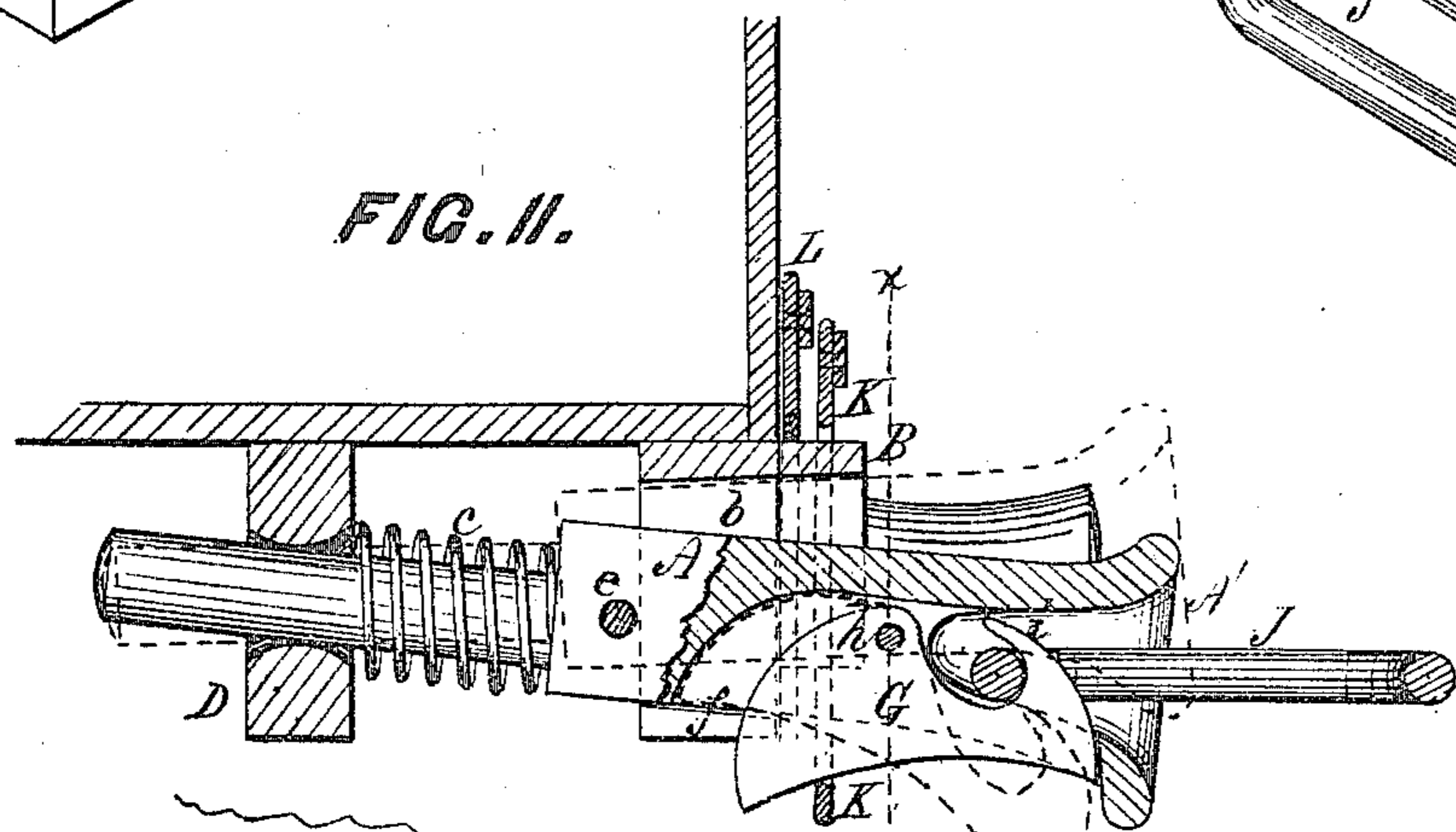
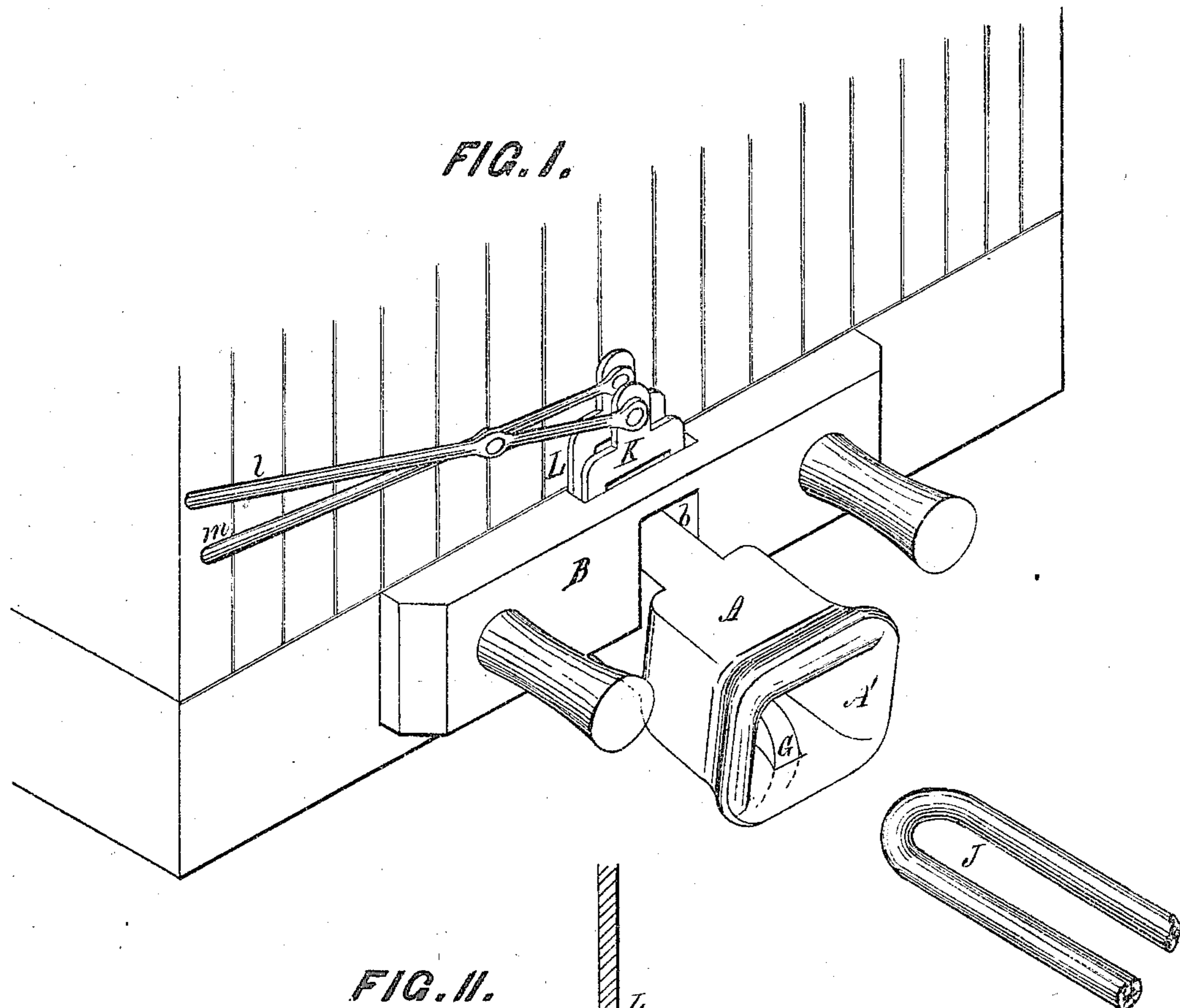


J. J. ZABRISKIE, Jr. & C. M. POWERS.  
Car-Couplings.

No. 134,414.

Patented Dec. 31, 1872.



Witnesses:

Geo. W. Maitt  
Wheeler W. Phillips.

Inventors

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# UNITED STATES PATENT OFFICE.

JOHN J. ZABRISKIE, JR., AND CHARLES M. POWERS, OF RIDGEWOOD, N. J.

## IMPROVEMENT IN CAR-COUPPLINGS.

Specification forming part of Letters Patent No. 134,414, dated December 31, 1872; antedated December 24, 1872.

*To all whom it may concern:*

Be it known that we, JOHN J. ZABRISKIE, JR., and CHARLES M. POWERS, both of Ridgewood, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in Car-Couplings, of which the following is a description:

Our invention belongs to the class of car-couplings which are self-connecting; and it consists in so constructing and arranging the draw-bar that is adjustable vertically to the perpendicular vibrations of the cars when moving, and to variations of the height of the other cars to which it may be coupled, whereby the use of a bent link is obviated; and in the employment, in combination therewith, of a weighted lever-hook for automatically engaging the link, said lever-hook having its axis so arranged relatively to that of the draw-head that both freely adapt themselves in unison to vertical oscillations, and the two axes are maintained in right line with the direction of strain or draft; and in the arrangement of slide-frames and levers, or their equivalents, for changing the elevation of the draw-head when required, and overcoming the weight of the lever-hook for uncoupling.

By far the greater number of vibrations of running cars are vertical, owing to the unequal yielding of the rails, particularly at their joints, and this subjects the draw-heads and links to severe wear and strains, which frequently result in breakage, while the fewer lateral vibrations are provided for in the freedom of side motion between the link and its connecting parts.

It is one of the objects of our invention to obviate this objection by making both draw-bars and their hook-levers which connect with the coupling-link capable of yielding to the vertical vibrations, and, by rendering the coupling parts together comparatively elastic, reducing the wear and strain from this cause, and render the motion of the cars more equal and comfortable to the passengers.

In the drawing, Figure 1 is a perspective view of the end of a car with our improvements applied; Fig. 2 is a vertical longitudinal section centrally of the draw-head; Fig. 3 is an end view of a portion of the car, the draw-head being shown in section in the line *x x*, Fig. 2.

The draw-bar A rests in a vertical slot, *b*, of the frame B, its shank being provided with the ordinary buffer-spring *c*, and supported in the bearing D, its mouth portion A' being free to rise and fall, the draft being received by the bolt *e* or equivalent shoulder or projection acting against the inner side of frame B. The under side of the hollow or mouth portion is provided with a longitudinal slot, *f*, which receives the lever-hook G, which is connected by the horizontal bolt or axis *h* with the draw-head. This is of segmental shape, its forward end presenting a face inclined backward and upward, terminating in the hook *i*. The rear end, being weighted, maintains the hooked end in a position in contact with the upper portion of the draw-head, except when depressed by a force sufficient to overcome the weighted end. The link J is of the ordinary form, and, being held in position by its connection with the draw-head of the opposite car, on entering the mouth of the opposite draw-head, it slides freely up the inclined arc of the hook until, by contact with the top of the draw-head mouth, it depresses the point *i* sufficiently to pass by it and fall by its weight into the recess of the hook, where it is securely retained by the counter-weight, causing the hook to return to its former position. The point of the hook is so inclined backward that the link can only be released by depressing the point *i* until it is buried in the slot *f* in the lower jaw of the draw-head; hence it cannot become accidentally disengaged. To render the disconnection easy, when it is required to uncouple the cars I surround the draw-bar in the rear of the axial bolt *h* of the lever by a slide-frame, K, which may be raised by means of the lever *l*, or other suitable appliance, thereby raising the weighted end of the hook-lever G, as shown by the dotted lines, Fig. 2. A similar slide-frame, L, is connected with the draw-bar, and provided in like manner with a lever, *m*, or other appliance, by means of which the mouth is raised or lowered to adjust it to the height of the car with which it is to be coupled should the two be of different elevations. By fixing the slide-frame when adjusted to the proper position, the line of draft is direct and the necessity of using a bent link is obviated.

It will be seen that the construction is such

that the draw-heads are free to adjust themselves vertically to the line of draft, and that the lever-hooks being equally free to vibrate vertically on their horizontal axes, the bearing-points *e* and *h* of necessity are brought in direct line with the link under strain, and when that strain is relaxed their flexion is so facile as to render the connection elastic and the least subject to injurious strains, while the lateral motion of the link in the hooks is such as to give the coupling the functions of a universal joint.

What we claim as our invention, and desire to secure, is—

1. The draw-bar A, constructed to vibrate vertically in its bearings and provided with the weighted lever-hook G with its axis *h* in line with the bearing *e*, constructed and oper-

ating, in combination with the link J, substantially as and for the purpose set forth.

2. The weighted segmental lever-hook G formed with the hook *i* and journaled within the slot *f* of the portion A' of the rising-and-falling draw-bar A, in combination with the slide-frames L and K for elevating or depressing the draw-bar and the weighted segmental lever-hook G, as described, the whole constructed, arranged, and operating as herein set forth.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

JNO. J. ZABRISKIE, JR.  
Witnesses: CHAS. M. POWERS.  
MARGARET REA,  
MARTHA M. PIERCE.