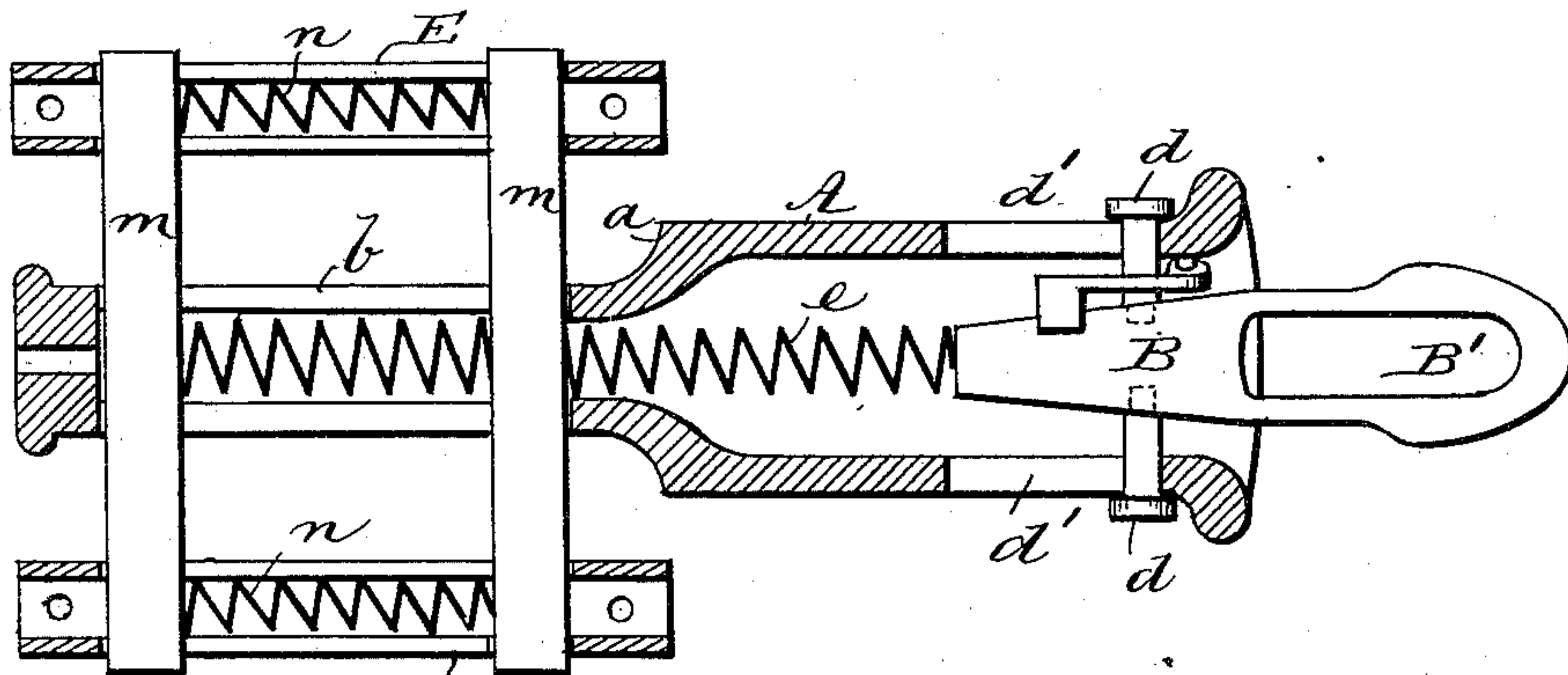
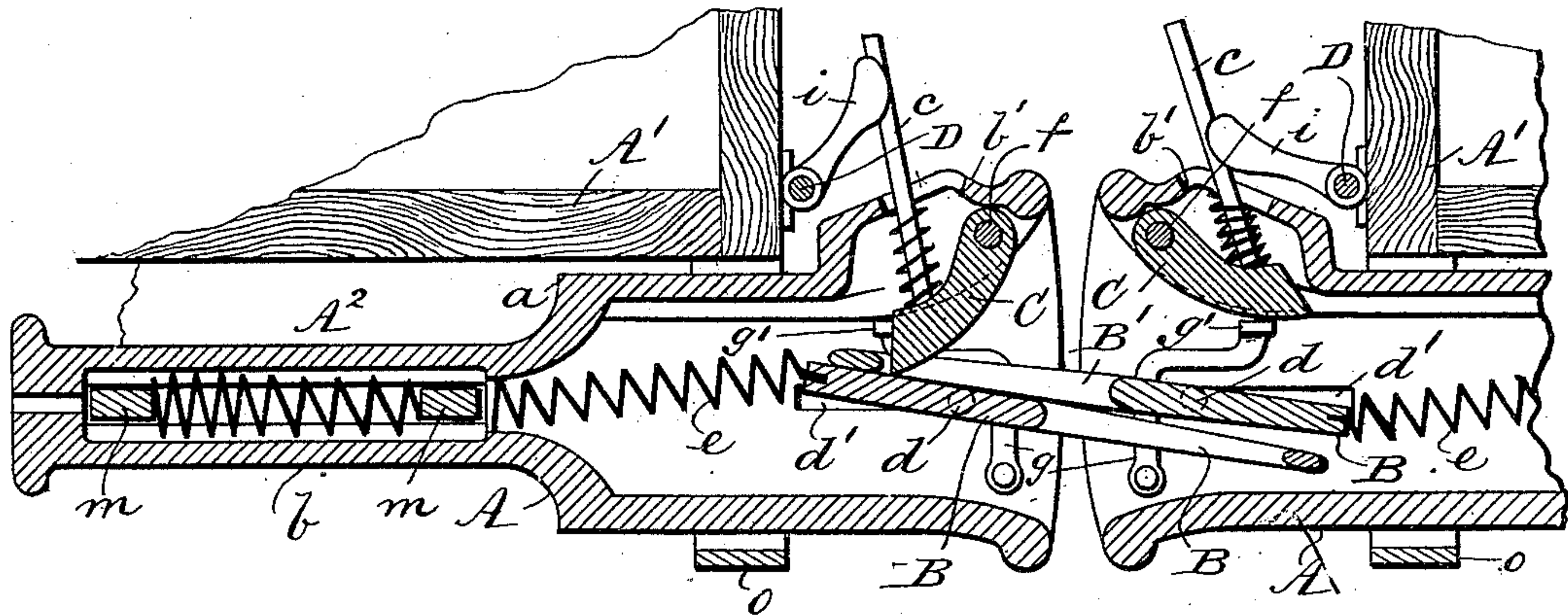
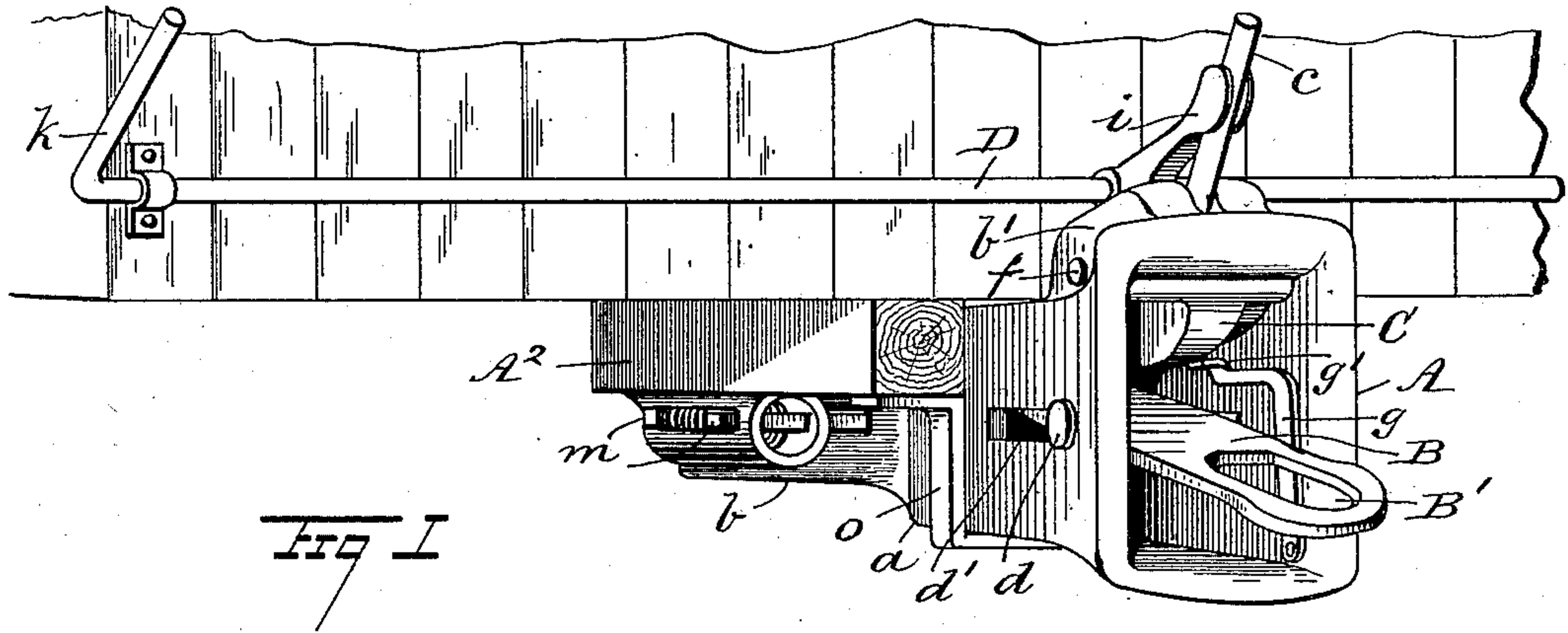


(No Model.)

C. McKERAHAN.
CAR COUPLING.

No. 428,855.

Patented May 27, 1890.



WITNESSES: E

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CHARLES MCKERAHAN, OF ALLEGHENY, PENNSYLVANIA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 428,855, dated May 27, 1890.

Application filed March 20, 1890. Serial No. 344,640. (No model.)

To all whom it may concern:

Be it known that I, CHARLES MCKERAHAN, of Allegheny, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Car-Coupling, of which the following is a full, clear, and exact description.

The primary objects of my invention are to provide a car-coupling which will be automatic in its operation as relates to connection of two couplings of its type and form of construction, and that will also permit the disconnection of the coupling from either side of a car, thus affording safety to the operator.

A further object is to produce an automatic car-coupling which will possess a longitudinally-yielding link-bar, whereby injurious impact thereon is avoided.

A further object is to provide the draw-head with novel yielding supports which permit limited longitudinal movement under impact, and, further, to afford means for coupling cars having different heights from the coupling to the track-rails.

To these ends my invention consists in certain features of construction and combination of parts, which are hereinafter described, and indicated in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all of the figures.

Figure 1 is a perspective view of the improved coupling on the front lower portion of a car, which latter is broken. Fig. 2 is a longitudinal axial section of two couplings which embody the improvements in coupled adjustment on car end portions broken, and Fig. 3 is a plan view in section of the coupling and its spring-connections that afford a cushion for it.

The draw-head A is cast into form. The forward portion, considered from about its longitudinal center, is made rectangular in cross-section and has a throat-cavity throughout its length of a form corresponding with that of the exterior surface, walls of proper thickness being produced. From the point *a*, where the throat-cavity of the draw-head is contracted, an integral cylindrical axially-aligning portion *b* is rearwardly extended, having a reduced diameter as compared to

the forward square portion of the draw-head. The front edge of the draw-head A is suitably flared and the top wall furnished with a hollow projection or pocket *b'*, that is longitudinally slotted to receive and permit the vibration of an upright lever *c*, which will be further described.

Within the draw-head throat a link-bar B is pivoted upon pins *d*, that are inserted through opposite longitudinal slots *d'*, produced at points corresponding with the axis of the draw-head, thus adapting the link-bar to vibrate from a horizontal plane and slide longitudinally within the throat of the draw-head A at equal distances from its top and lower walls. Upon the rear or inner end of the link-bar B a stout spiral spring *e* is secured by its forward end, the rear end of which is secured within the contracted neck of the draw-head body. The relative length of the link-bar and spring as compared to the depth of the draw-head throat is such that a flexure of the spring from a horizontal plane is afforded and its return thereto secured, the strength of the spring being proportioned to its duty to secure this result.

Within the pocket *b'* a heavy depending latch-block C is loosely secured to swing on a transverse bolt *f*, which penetrates aligning holes made for its reception in the side walls of the pocket and through the block near its upper end, the body of said block being curved downwardly and rearwardly to produce a rounded inclining front face on the same. The length of the latch-block C is so proportioned to the distance of the link-bar B, below the pivotal center of the block, that the free lower end of the latter will rest on the link-bar and be inclined rearwardly when the link-bar is in a horizontal position. An elongated aperture *B'* is made in the link-bar B in its forward portion, said orifice being designed to receive the latch-block C of a similar coupling.

Upon the inner surface of the draw-head side wall a spring-dog *g* is secured by its lower end. The plate-spring body of said dog extending upright a proper distance, as shown in Fig. 1, is bent at a right angle rearwardly and then outwardly from the draw-head side wall, so as to locate its flattened free end por-

tion g' below the curved face of the latch-block C, as shown in Fig. 2, on the right-hand coupling.

The upright lever c is secured by its lower end firmly to the latch-block C and fits the slot in the pocket b' loosely to permit vibratory movement therein, the length of the lever being sufficient to project it above the draw-head body and have loose engagement with a rock-arm i , which is affixed upon the transverse rock-shaft D near its center, said shaft being journaled in boxes which are attached to the front wall of the car-body and adapted to be revolvably moved therein by crank-arms k , formed on or secured to the ends of said shaft near the sides of the car, so as to be manipulated without danger. The rock-arm i is grooved on its face which is nearest the lever c , so that the parallel jaws thus provided may embrace the sides of the lever and have assured contact therewith.

An improved means for supporting the draw-head A upon the car-frame A' is employed. This consists in the provision of two spring-cases E, which are longitudinally slotted a portion of their length through their cylindrical walls for the introduction of the flat transverse guide-bars m , which also extend through the intermediate slotted cylindrical rear-end portion of the draw-head body. The tubular spring-cases E are secured upon or are embedded in opposite longitudinal stringers A² of the car-frame. Preferably these are bolted fast at each end thereto, so as to permit the bars m to reciprocate in the slots before mentioned, and within the tubular portion of the draw-head body and the cases E spiral springs n of proper strength are located between the bars m and exert strong pressure in both directions upon the two bars.

At a proper point below the car-frame a bent loop o is made fast to the frame by its bent end portions, the square loop of its body engaging flatwise the sides and bottom of the draw-head to hold it from displacement and allow it to slide longitudinally.

As will be seen in Figs. 1 and 3, the front end of the link-bar B is rounded, and the edges of this portion of the bar are made to project as cam-swells. The width of the link-bar across the cam-swells is such proportionately to that of the throat-cavity in a similar coupling draw-head that when introduced therein the enforced contact of the cam-shaped edge which is adjacent to the spring-dog g is such therewith that said dog will be forced from its outwardly-projected normal position, and thus remove the end g' of the same from below the curved latch-block C and permit it to fall.

In operation, when two cars having this improved coupling are to be connected, the rock-shafts D are adjusted to raise the blocks C and let the dogs g engage their curved faces, this being the normal position of the latch-blocks when not coupled, and they will

so remain, owing to the forward inclination of the rock-arms i and crank-arms k . Upon engagement of the link-bars B one will slide above the other, and the top bar by its lateral contact with the spring-dog of the draw-head will trip the same and let the latch-block C fall into a locked engagement with the link-bar that is on top, the end of the latch-block being shaped to mate the curvature of the aperture in the link-bar front end, whereby a secure coupling is produced and free lateral motion permitted where the parts connect, whereby the curving of cars is facilitated and cramping in the connection of parts avoided.

As there is freedom for the rocking vibration of the link-bars B allowed by the construction and combination of parts, it is immaterial which link-bar of two mating couplings of this improved form makes the connection, as either will hold the draw-heads securely until the rock-arm i is vibrated downwardly by design to release the couplings.

From the link-bars B a coupling may be effected with an ordinary bull-nose coupling of the link-and-pin type, and in case the car is too high or low to permit a horizontal position of the link-bar it can be raised at its outer end or be depressed considerably to enter an opposing draw-head.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with a draw-head having opposite slots in its side walls, which are aligned with each other and parallel to the top and bottom walls of the draw-head, and a link-bar supported to rock and slide on a transverse bolt which engages the slots of the draw-head, of a spiral spring seated in the rear end of the draw-head cavity and secured by its forward end to the link-bar and a pendent latch-block which may engage an entering link-bar, substantially as set forth.

2. The combination, with a draw-head having a throat-cavity, a pocket in its top wall, and longitudinal slots in its side walls, of a latch-block which is pivoted to hang pendent in a throat-cavity above a link-bar, and a link-bar pivoted in the slots of the draw-head and having an apertured outer end that is of ovate contour, and a spiral spring seated in the draw-head, which is secured by its front end to the inner end of the link-bar, substantially as set forth.

3. A draw-head having a throat-cavity, side walls that are longitudinally slotted to receive a transverse bolt whereon a flat link-bar is mounted to rock and slide endwise, and a rearwardly-extended spring-case which is cylindrical and laterally and longitudinally slotted, substantially as set forth.

4. The combination, with a draw-head having a cylindrical integral rearward extension for reception of a spring, said extension being laterally and longitudinally slotted, of

two transverse guide-bars located in the slots of this cylindrical spring-receptacle and springs between the bars, substantially as set forth.

5 5. The combination, with a draw-head which is provided with a rearwardly-extended slotted cylindrical spring-receptacle, a spring within the receptacle, and two guide-bars that extend through the slots of the spring-receptacle with the spring between, of a laterally and longitudinally slotted spring-case on each side of the draw-head and springs within which engage the end portions of the guide-bars, substantially as set forth.

15 6. The combination, with a laterally and longitudinally slotted draw-head, a pivoted pendent latch-block within, which may rest upon a spring-dog, and a spring-dog that normally supports the latch-block, of a forwardly and vertically apertured link-bar having a rounded front end and cam-swells on the side edges near the front end, which bar is pivoted in the draw-head slots to permit it to rock and slide, and a spiral spring seated in the draw-

head and secured by its front end to the rear 25 end of the link-bar, substantially as set forth.

7. The combination, with a draw-head that is adapted to support a link-bar and permit it to rock and slide within, a flattened link-bar having an ovate apertured front end, and a 30 spiral spring seated in the draw-head and secured to the inner end of the link-bar to cushion its end-thrust, of a pendent latch-block pivoted in a pocket on the top wall of the draw-head, a spring-dog attached to the 35 inner side wall of the draw-head, which normally supports the latch-block upwardly rocked, a lever projected upwardly through a slot of the draw-head and secured by its lower end to the latch-block, a transverse shaft supported to rock on the front of the car, cranks on the shaft ends, and a rock-arm on the shaft which engages the lever of the latch-block, 40 substantially as set forth.

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Witnesses:

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