

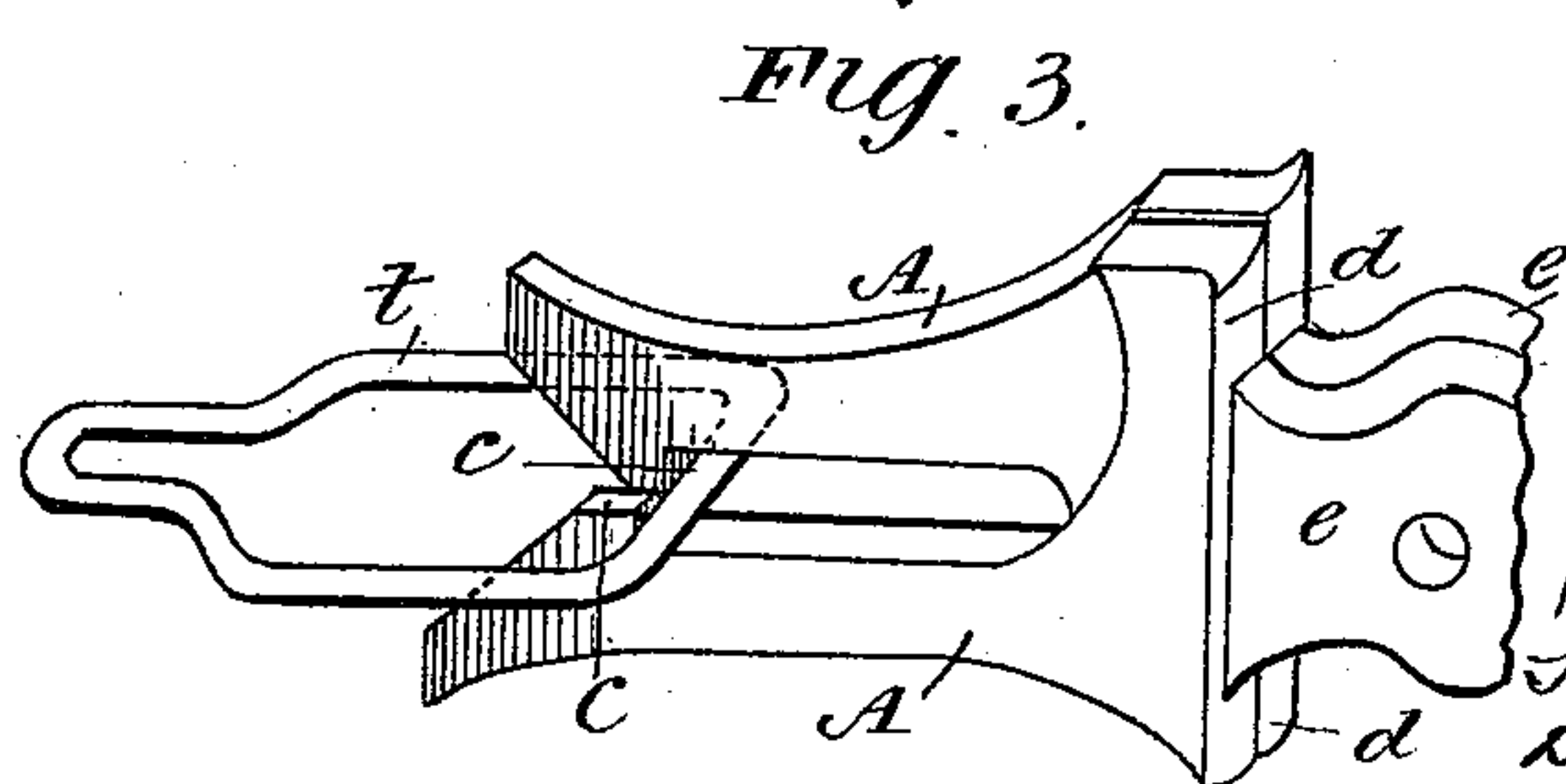
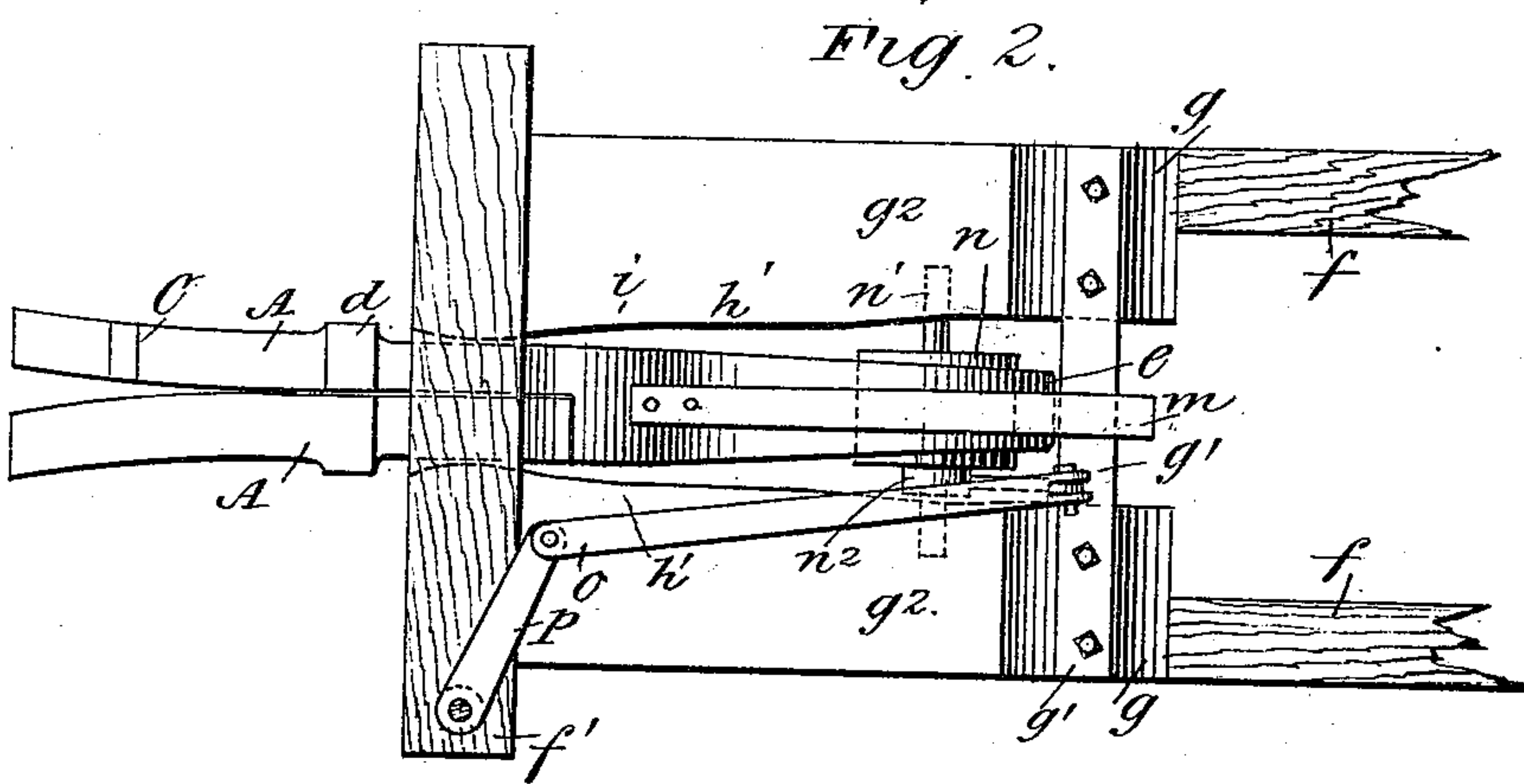
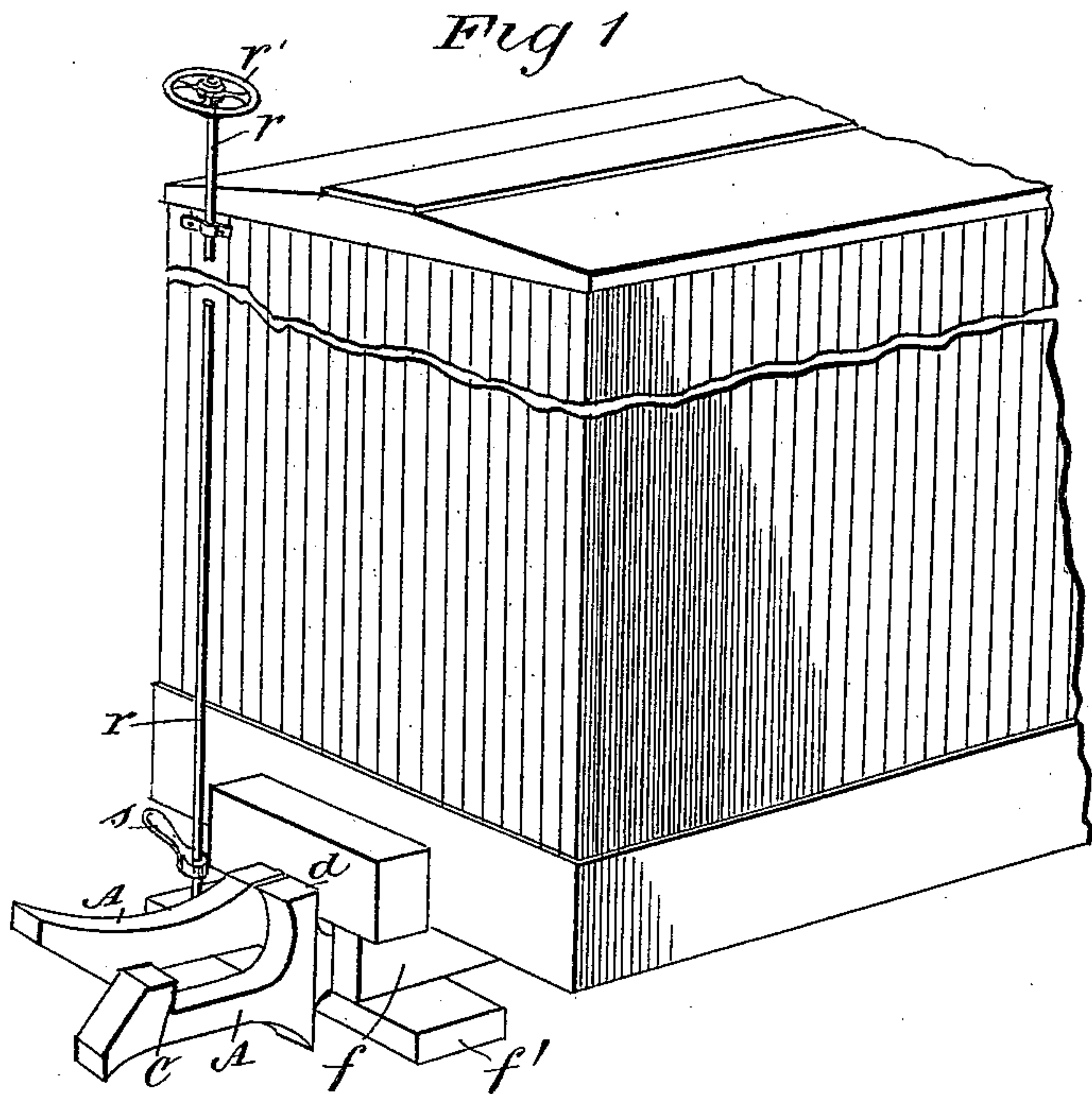
(No Model.)

2 Sheets—Sheet 1.

H. C. ARMSTRONG, D. E. BIGELOW & G. L. OSBORN.
CAR COUPLING.

No. 428,546.

Patented May 20, 1890.



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Munn & Co
ATTORNEYS

(No Model.)

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Fig. 4.

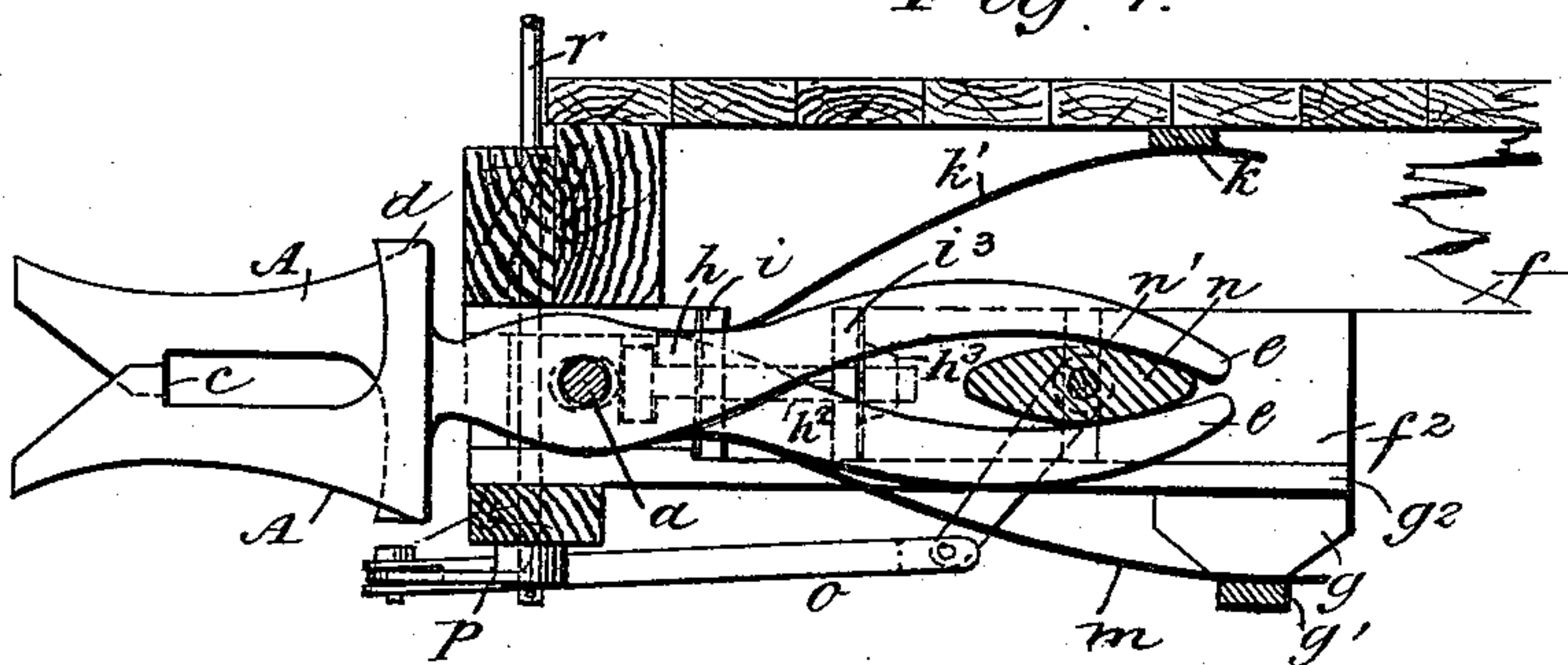


Fig. 5.

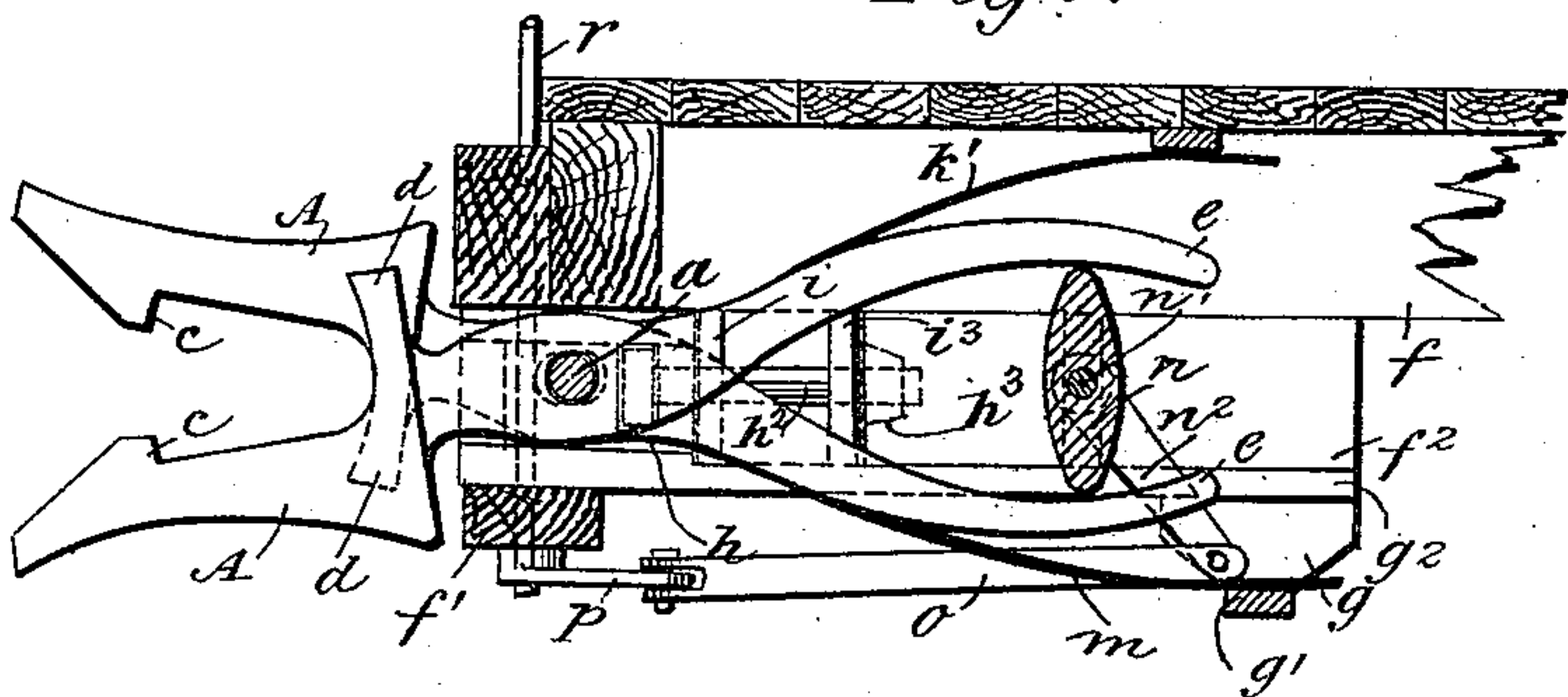


Fig. 6.

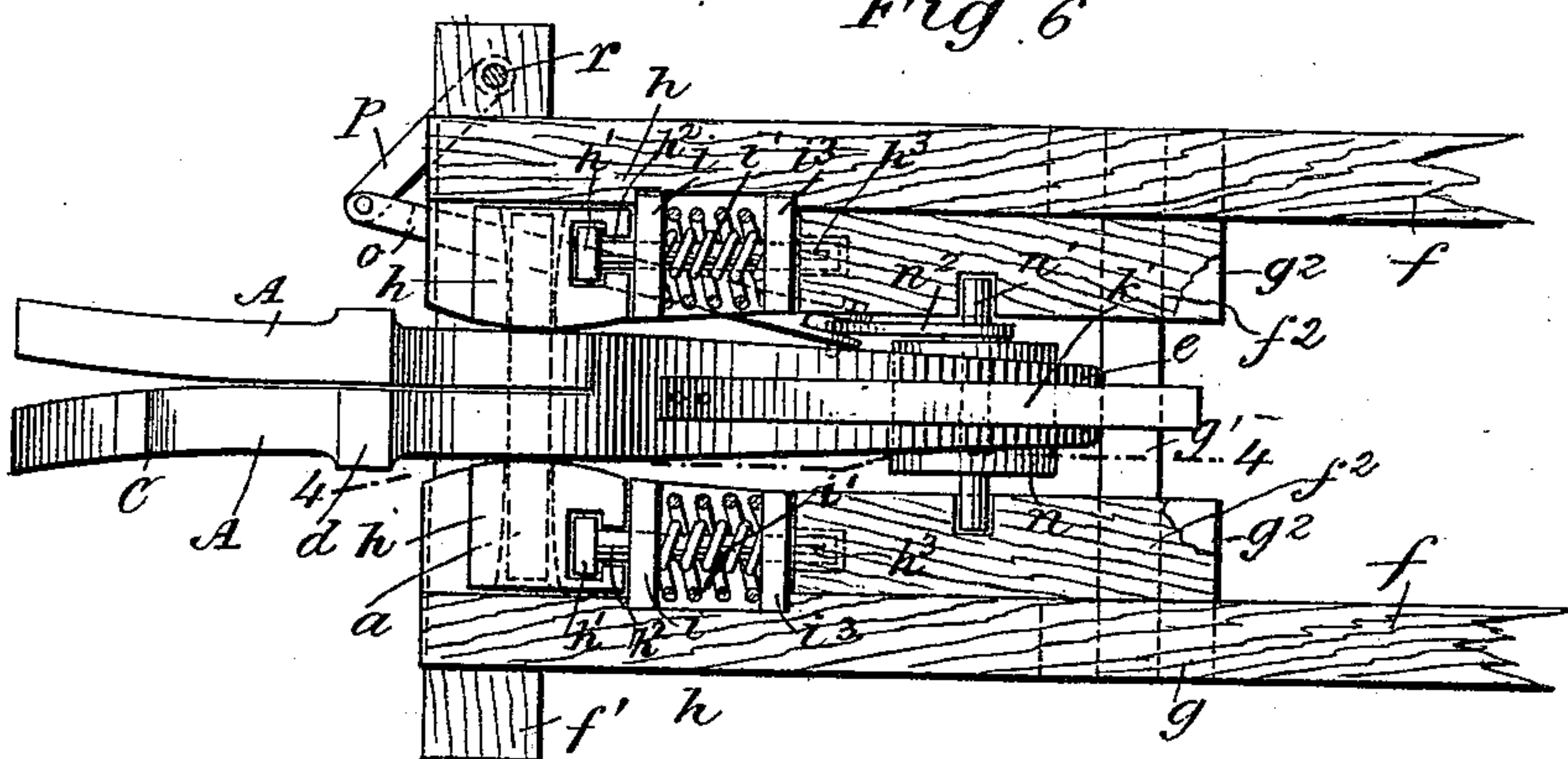
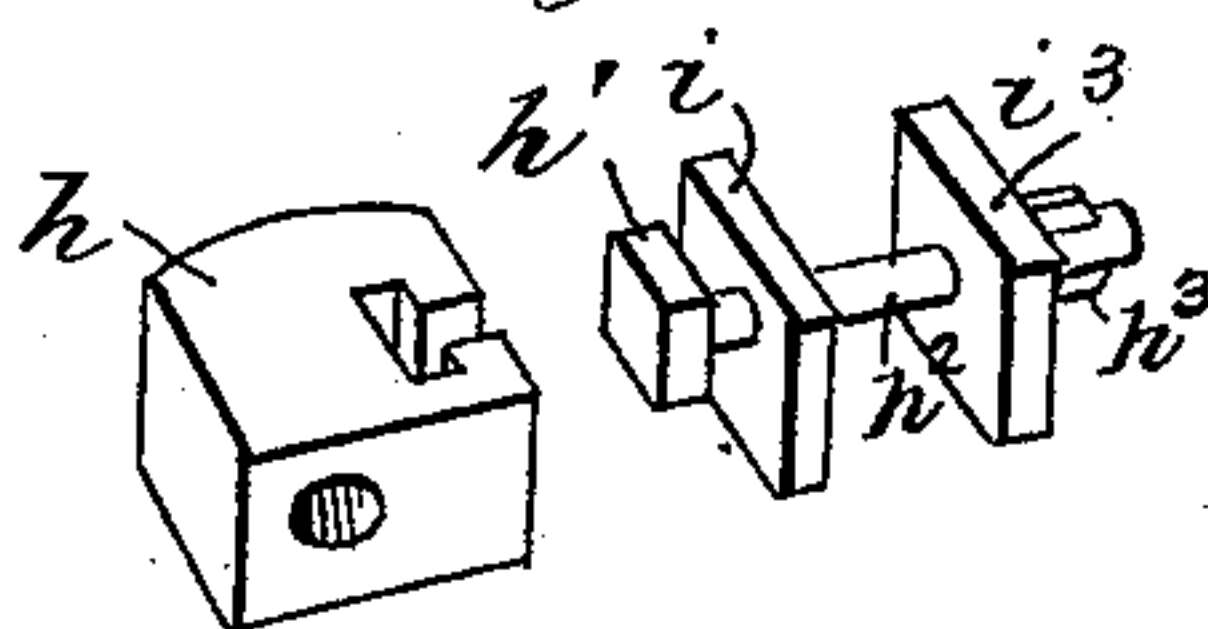


Fig. 7.



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UNITED STATES PATENT OFFICE.

HENRY C. ARMSTRONG, DAVID E. BIGELOW, AND GEORGE L. OSBORN, OF
ASHLAND, WISCONSIN.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 428,546, dated May 20, 1890.

Application filed February 21, 1890. Serial No. 341,294. (No model.)

To all whom it may concern:

Be it known that we, HENRY C. ARMSTRONG, DAVID E. BIGELOW, and GEORGE L. OSBORN, of Ashland, in the county of Ashland and State of Wisconsin, have invented a new and Improved Car-Coupling, of which the following is a full, clear, and exact description.

This invention relates to improvements in car-couplings, and has for its objects to provide a device of the genus named that will be automatic in regard to coupling cars, and which will afford means to detach coupled cars from the sides or tops of the cars, thereby avoiding danger incidental to the ordinary method of connecting and disconnecting railroad-cars.

To these ends our invention consists in certain features of construction and combinations of parts, which will be 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 the figures.

Figure 1 is a perspective view of a car with the improved coupling in position on the same. Fig. 2 is an inverted plan view of a portion of the car-frame and the coupling thereon. Fig. 3 is an enlarged perspective view of the coupling-jaws with a coupling-link engaged by them. Fig. 4 is a side elevation of the lower portion of one end of a car and the coupling thereon, partly in section, taken on the line 4 4 in Fig. 6, showing the working parts of the coupling in closed adjustment. Fig. 5 represents a side elevation of the coupling in position, partly in section, taken on the line 4 4 in Fig. 6, with the parts opened to disconnect them from a mating coupling or any ordinary link. Fig. 6 is a plan view of the device and a car-frame portion whereon the coupling is secured, and Fig. 7 is a detail view of certain parts.

The draw-head proper consists of two similar sections A, which are secured together pivotally near their center by a transverse bolt *a*. The sections A are crossed where they are jointed together, and each has projecting jaws, which are provided with latch-hooks *c* on their ends, said hooks having their latching-shoulders and sloping surfaces

formed on corresponding sides, so that when the jaws approach each other the hook portions will be adapted to seize and hold a coupling-link, if fairly presented, said hook ends being laterally curved to cause their terminals to diverge slightly, each jaw having a guide-arm *d* formed on it, that extends over and bears loosely upon the inner surface of the adjacent section or jaw, the latch-hooks *c* being adapted to interlock with similar formations on a mating coupling. The extensions or limbs *e* of the sections A rearwardly of the pivot-bolt *a* are similarly curved in opposite directions to afford room between them for a device which will spread the limbs, as will be hereinafter explained.

The pivot-bolt *a* of the sections A is held in suitable perforations made in the sliding blocks *h*. Said blocks have T-shaped slots formed at their inner ends, which slots are adapted to receive and retain the heads *h'* of the bolts *h*², whereon the spiral springs *i'* are located.

Preferably interior coils are employed with the outer spring-coils *i'*, these springs being designed to cushion the percussive action sustained by the coupling, and to this end there are buffer-plates *i* *i*³ provided, which plates have contact with the springs *i'*, that are placed between them, the bolts *h*² passing through holes formed therein at proper points. The plates *i* engage the inner ends of the sliding blocks *h*, while the plates *i*³ bear upon the abutment-blocks *f*², which latter engage the plates *g*² with their lower surfaces and are attached to the same by bolts or other means. The plates *i*³ are perforated to align with the bolt-holes in the plates *i* and receive the ends of the bolts *h*², said bolts having cross-keys *h*³ inserted in transverse slots formed therein, the keys and bolt ends being embedded in recesses formed for their reception in the ends of the abutment-blocks *f*², that are firmly attached upon the under sides of the longitudinal stringers *f*, below which they extend.

The springs *i'* are designed to hold the coupling-sections A normally projected a sufficient distance beyond the car-timbers at the front to permit free action of the latching portion of the draw-head, as shown in Fig. 6, the springs being removed from the other

views and the bolts h^2 alone shown to avoid confusion of parts.

Beneath the rear ends of the plates g^2 are bracket-blocks g , and a metal bar g' extends across beneath these blocks, being held by suitable bolts, the forward ends of said plates resting upon a transverse block f' , which is attached below the center stringers f .

A transverse plate k is secured above the limbs e upon the floor of the car or other stable portion of the same, and a curved plate-spring k' is made to bear thereon with one of its ends, the other end curving downward to bear upon the adjacent surface of the upper limb e of the draw-head, and is thereto secured by any proper means, and upon the cross-bar g' near its center a similar spring m is adapted to bear with one end, its other end curving upward to bear upon the lower limb e of the draw-head and is attached to the same. The springs k' and m coact to hold the coupling-sections A in closed condition, as shown in Fig. 4.

To furnish means for the release of the latch-jaws of two mating couplings or a coupling-link, a device to spread the jaws of said sections has been provided. This consists of a cam-block n , which is supported on a transverse shaft n' , which may be integral with said cam-block and is journaled in the longitudinal timbers f^2 , so that a rocking motion may be imparted to the block. As shown, the cam-block n is preferably made convex on its sides, with rounded edges, its longest diameter being proportioned to the desired spread of the hook ends c of the coupling-jaws, so that the same may be opened when the block n is adjusted, as shown in Fig. 5. On one side of the cam-block n , between it and the adjacent timber f^2 , a crank-arm n^2 is secured upon the rock-shaft n' , which arm extends rearwardly and downwardly when the cam-block is in position to spread the limbs e , and to its lower end a connecting-bar o is loosely secured. The forward end of the connection-bar o has pivotal engagement with a horizontal crank-arm p , which is affixed upon the lower end of an upright shaft r , that is properly supported and extends above the top of the car, where a hand-wheel r' is mounted upon its upper end to give a revolvable movement to the shaft and coincident adjustment of the cam-block n , whereby the coupling will be detached from a mating coupling. To enable a detachment of cars to be produced from the sides of the same, there is a lever s placed on the shaft r at a convenient point accessible from the ground at the side of the car.

If this improved coupling is to be attached to an ordinary draw-head by means of a link and pin, said connection can be effected by employing a link t , shaped as shown in Fig. 3, which is gripped by the latch-jaws c , the other end of the link being adapted for attachment to the common draw-head in an obvious manner.

It is evident that cars having this form of

coupling may be automatically coupled and safely detached in a speedy manner, vertical motion necessary for the connection of cars having different heights from the track to the couplings being provided for within reasonable limits and lateral rocking at the points of connection afforded to allow cars of a train to travel on curves without cramping where they are coupled.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the parallel guideway and two sliding spring-cushioned blocks thereon, of a draw-head formed of two crossed sections and a pin or bolt mounted at its ends in said blocks and extending through said sections where they cross, the hooked jaws of said sections projecting beyond the front ends of the said guideways and beyond the end of the car on which they are placed, substantially as set forth.

2. The combination, with the parallel guideways and the sliding blocks thereon, of the pivoted cross-sections $A A$, having their front ends hooked and provided with guide-arms $d d$, extending over and bearing upon the inner surface of the adjacent section or jaw, the pivot-bolt of said sections being mounted on said sliding blocks, and means for opening and closing said jaws, substantially as set forth.

3. The combination, with the guideways, the vertically-recessed sliding blocks h thereon, the bolts h^2 , having heads h' , entering said recesses, the plates $i i^3$, through which said bolts pass, and the springs on the bolts between said plates, of the crossed pivoted sections $A A$, carried by said blocks, and means for opening and closing said sections, substantially as set forth.

4. In a car-coupler, a draw-head consisting in two crossed pivoted sections $A A$, each having a latch-hook c , a guide-arm d , extending alongside of the other section, and a rearward extension or limb e , substantially as set forth.

5. In a car-coupling, the combination, with two crossed sections pivotally supported where they cross, having latch-hooks on forwardly-extending jaws and limbs projecting rearward of the pivot-support therefor, and sliding spring-actuated blocks whereon the coupling-sections are pivoted, of springs that engage the limbs of the coupling-sections to close the jaws, a cam-block supported between the section-limbs on a rock-shaft, and a device which when actuated from the side or top of a car will rock the cam-block and open the jaws of the coupling, substantially as set forth.

6. In a car-coupling, the combination, with two coupling-sections which are lapped across each other, having latch-jaws forwardly and curved limbs rearwardly, and pivoted on a transverse bolt where they cross, a pivot-bolt, sliding blocks that sup-

port the coupling-sections by engagement with the pivot-bolt, and spiral springs which are adapted to normally project the blocks forwardly, of two leaf-springs which engage
5 the limbs of the coupling-sections, a transverse rock-shaft pivoted between the coupling-section limbs, a cam-block on the rock-shaft, and a device which may be actuated from the side or top of a car to rock the cam-

block and open the jaws of the coupling, substantially as set forth.

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