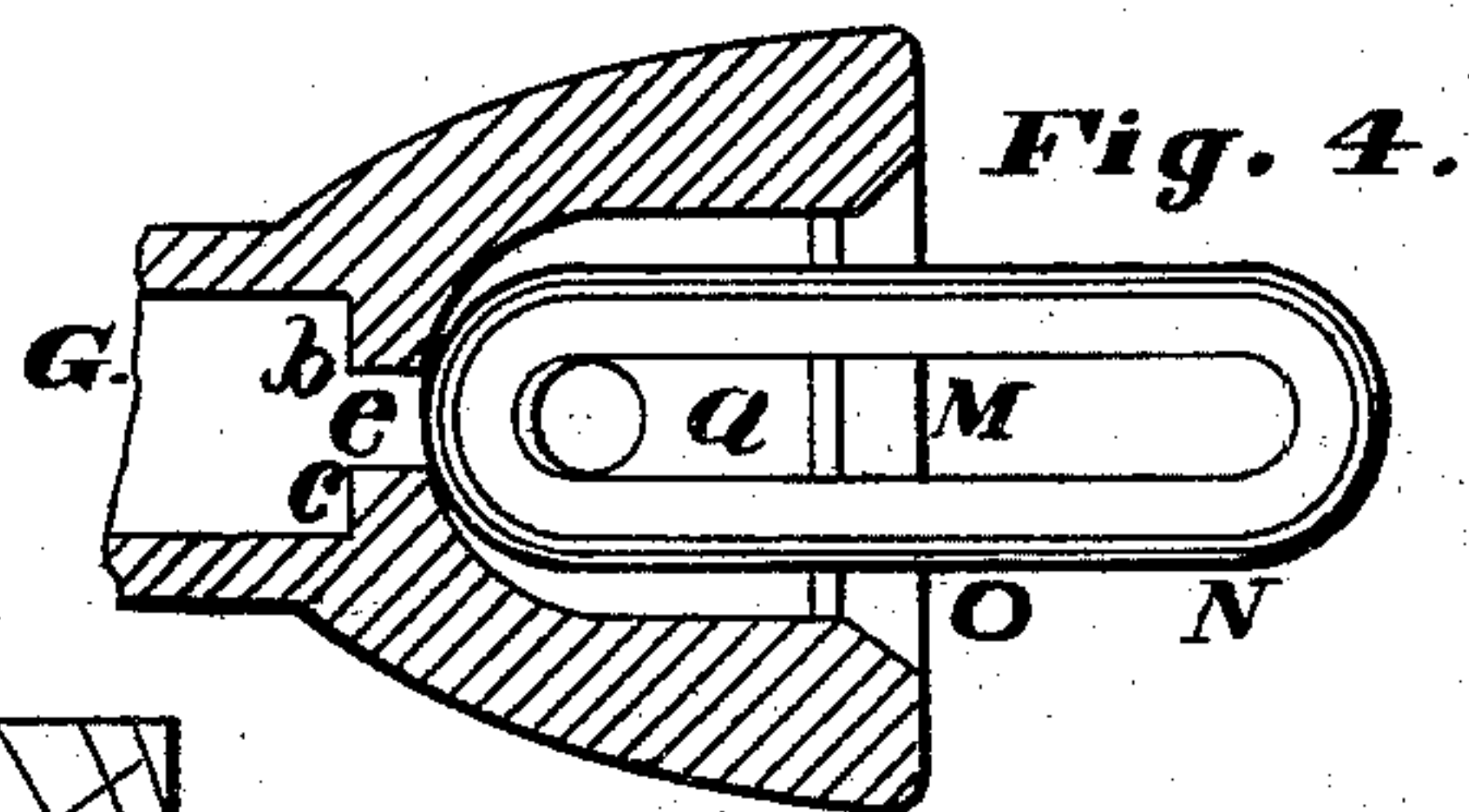
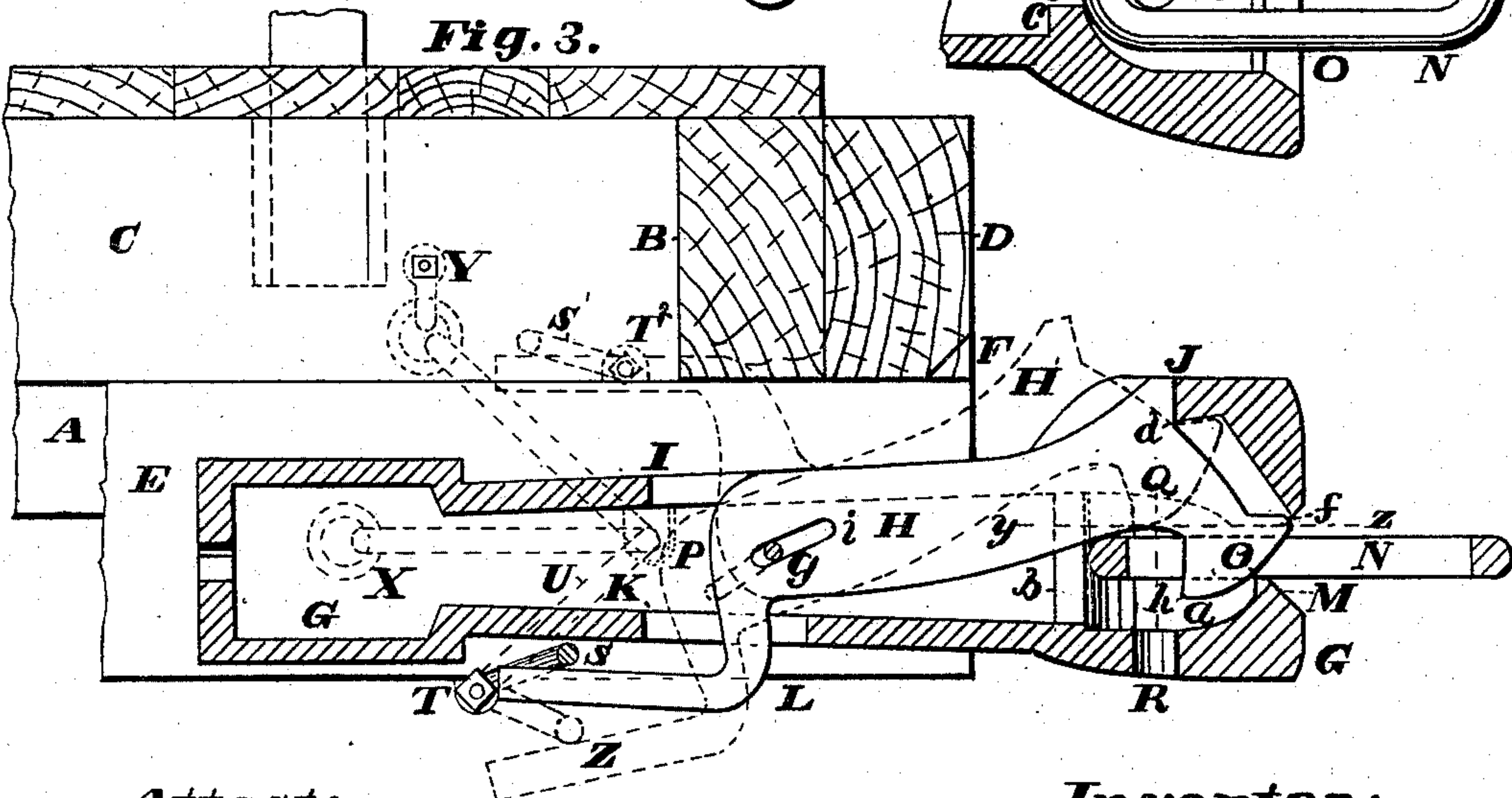
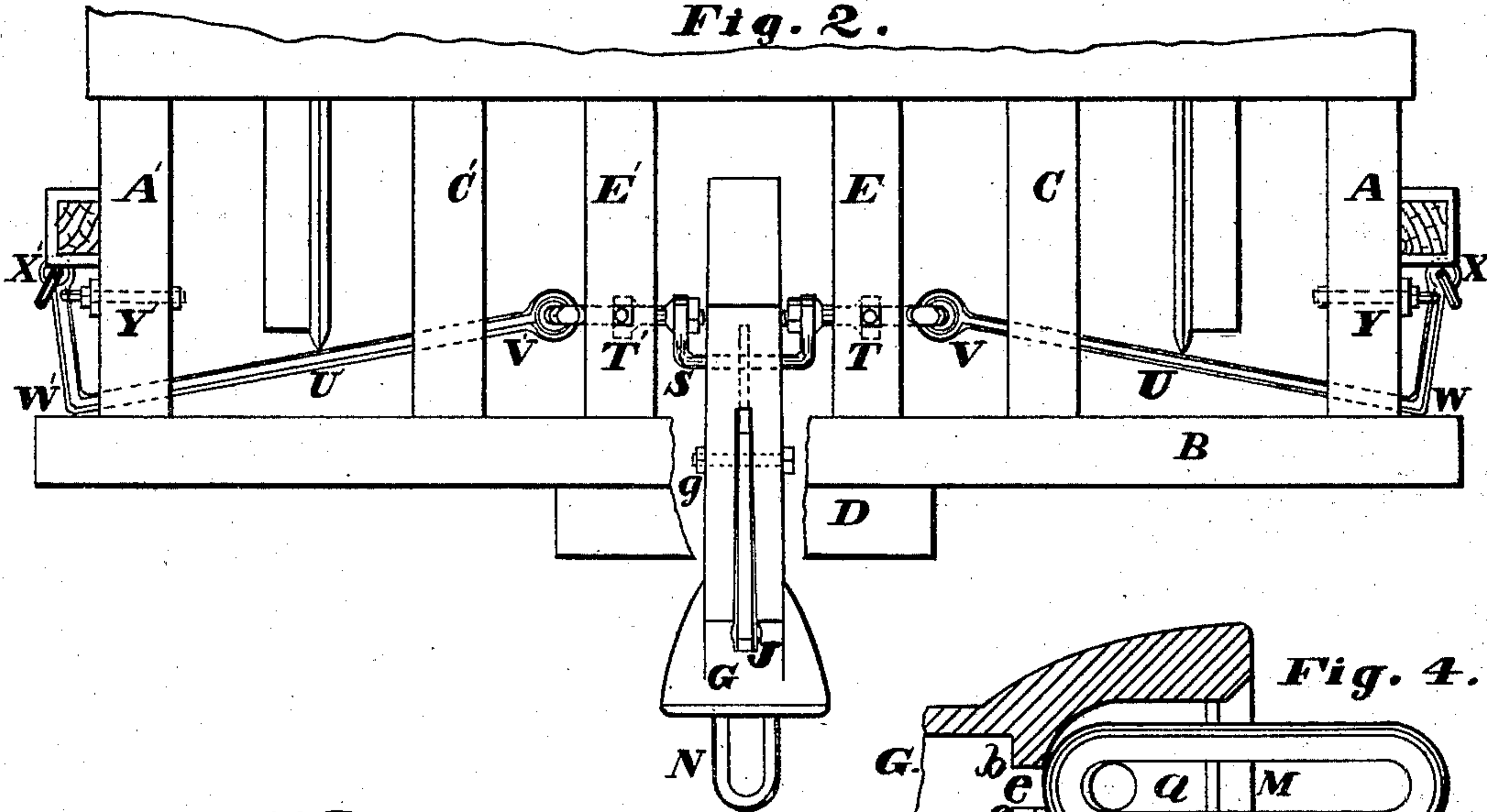
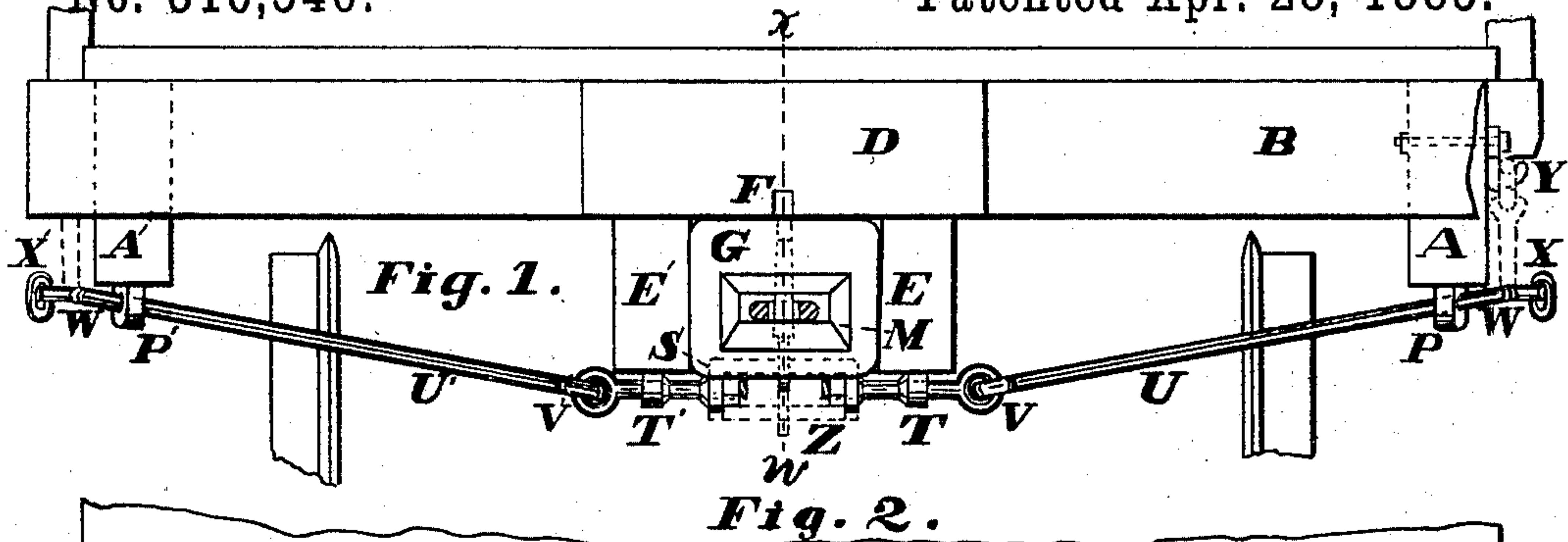


(No Model.)

A. A. HOPPER.
CAR COUPLING.

No. 316,546.

Patented Apr. 28, 1885.



Attest:
George Hargrave
Charles Doran

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UNITED STATES PATENT OFFICE.

ANDREW A. HOPPER, OF ST. LOUIS, MISSOURI.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 316,546, dated April 28, 1885.

Application filed December 6, 1884. (No model.)

To all whom it may concern:

Be it known that I, ANDREW A. HOPPER, a citizen of the United States, residing in the city of St. Louis, and State of Missouri, have invented a new and useful Automatic Car-Coupling, of which the following is a specification.

My invention consists, mainly, in providing the ordinary draw-head with an automatic hook in place of the coupling-pin; in providing said automatic hook with levers and rods, by means of which it can be raised and lowered by the operator while standing by the side of the car; in making and adjusting certain openings in the ordinary draw-head to receive said automatic hook, and in providing a kind of chamber and certain wall or walls in the end of the draw-head for the purpose of assisting in the control of the link while coupling and uncoupling.

The objects of my invention are to furnish an expeditious, safe, sure, and cheap automatic car-coupling, one that can be applied to all classes of railroad-cars which use a link-coupling, and one that will work equally well in conjunction with cars having the ordinary link-and-pin coupling. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is an end view of my draw-head, automatic coupling-hook, lever, and rods in position as applied to a common flat car; Fig. 2, a top view of the same, a part of the car-floor and a part of the end timber being removed; Fig. 3, a vertical section of the same on an enlarged scale, and taken on the line *w x* of Fig. 1; and Fig. 4, a horizontal section of the end of the draw-head, (with link in place,) taken on the line *y z* of Fig. 3.

Similar letters refer to similar parts throughout all the views.

The timbers A B C D E A' C' E' represent the frame-work of the common flat car, no change whatever in position, size, shape, or bolting together being made to accommodate my automatic coupling, except a notch, F, in the block D; hence no bolts appear in the drawings save those directly connected with my invention. The draw-head G is of the same shape and size externally as the common draw-head, excepting a slight difference in the end

which receives the link and which projects beyond the block D. It is attached to the timbers E E' by means of the same bolts, plates, and springs that the common draw-head has; hence it is deemed necessary to show only its true position in the end of the car, and the connection with it of the automatic coupling-hook H and its accompanying devices. The draw-head has a slot in the top from I to J and a slot in the bottom from H to L for the accommodation of the coupling-hook H. It has a flaring entrance, M, for the link N, and a curved wall, *b c*, for the link to strike against, the curved wall having an opening, *e*, to accommodate the coupling-hook H. The bottom of the chamber *a* is made considerably lower than the line O at the entrance, and the top extends to the dotted line Q. The object of enlarging this chamber is for the purpose of allowing an up-and-down motion to the two ends of the link, which facilitates coupling, as will be seen further on. The slot I J extends vertically, or nearly so, from the point J to *d*, thence forward, thence downward to *f*, making space for the nose of the coupling-hook to pass through while being raised. A pin-hole, R, is made through the bottom, as in the ordinary draw-head, and directly over it the sides of the slot I J are made circular for the purpose of admitting a common coupling-pin to be used in case the automatic coupling-hook should break. The draw-head receives a bolt, *g*, which acts as a fulcrum for the coupling-hook.

The automatic coupling-hook H is made to abut against the draw-head at J, and may also abut against it at *f*. It extends forward and upward from *h* to *f*, for the purpose of causing it to rise when a link in the car to be coupled is backed against it, letting the link pass to the wall *b c*, when the coupling-hook drops and the coupling is completed.

The coupling-hook is made strong at the link end and gradually thinner toward the lever end. It is bent down to pass through the slot K L, and thence backward to receive the lever S. A slot, *i*, for the fulcrum-bolt *g* allows a backward motion to be given to the coupling-hook as it rises in uncoupling the car.

Figs. 2 and 3 represent the draw-head and

coupling-hook pulled forward as far as they would be in actual service, while the link is represented as slack. The lever S is attached to the timbers E E' by means of eyebolts Y Y', and to the rods U U' by means of the universal joints V V'. The universal joints are used here for the purpose of enabling rods U U' to be carried in any direction from the lever toward the sides of the cars. The rods U U' are attached to the side timbers, A A', by means of eyebolts P P', and are bent at W W', the part W X forming a handle for the hold of the operator. A ring or link in the ends X X' may be put in the hooks Y Y' when necessary.

In Fig. 1 the end of the frame-piece B on the right-hand side is removed to show the hook Y.

To uncouple a car, the link will of course be slack. The operator stands by the side of the car, out of danger, and merely lifts the handle W X. The lever S goes down to Z, and the coupling-hook assumes the position indicated by the dotted lines from Z to H'. The link may now be pulled out, and the operator may let the handle W X go, when the coupling-hook will fall to its place.

To couple a car we have only to steer the link into the draw-head. As it is pushed back the coupling-hook rises, and falls when the link has passed the point h.

To steer the link into the draw-head, when the coupling-hook is slack, the point h will go to the bottom of the chamber a, and the end of the link which is under the coupling-hook will be depressed, while the outer end will be raised correspondingly. This is one of the purposes for which the chamber a is carried considerably below the line O. The distance from the line O to the walls b c is less than half the length of the link. This is made so

for the purpose of causing more than half the length of the link to be on the outside of the line O, so that when the coupling-hook is raised the outer end of the link will lower by means of its own weight. For reasons just cited, the operator standing by the side of the car and grasping the handle W X can raise or lower the end of the link to suit the difference of level of the draw-heads of loaded and unloaded cars.

Instead of passing the end of the coupling-hook through the slot K L, I sometimes bend it upward through the upper slot to T², as indicated by the dotted lines, and place the lever S' on top of the timbers E E'. This I regard as an equivalent to the formerly-described way.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. An automatic coupling-hook working in a draw-head and having a sloping end or nose from f to h, having a surface to abut against the draw-head from d to J, having a slot or aperture at i, through which a fulcrum bolt or pin passes, having a small back end extending through the bottom of the draw-head and backward to the lever S, all substantially as and for the purposes set forth.

2. In a draw-head for the automatic coupling of cars, the slots I J and K L, the walls b c, the chamber a, extending below the line O and upward to Q, and the pin or bolt g, all in combination with the automatic coupling-hook H, substantially in the manner and for the purposes set forth.

ANDREW A. HOPPER.

Witnesses:

GEORGE HAREHAN,
CHARLES DORAN.