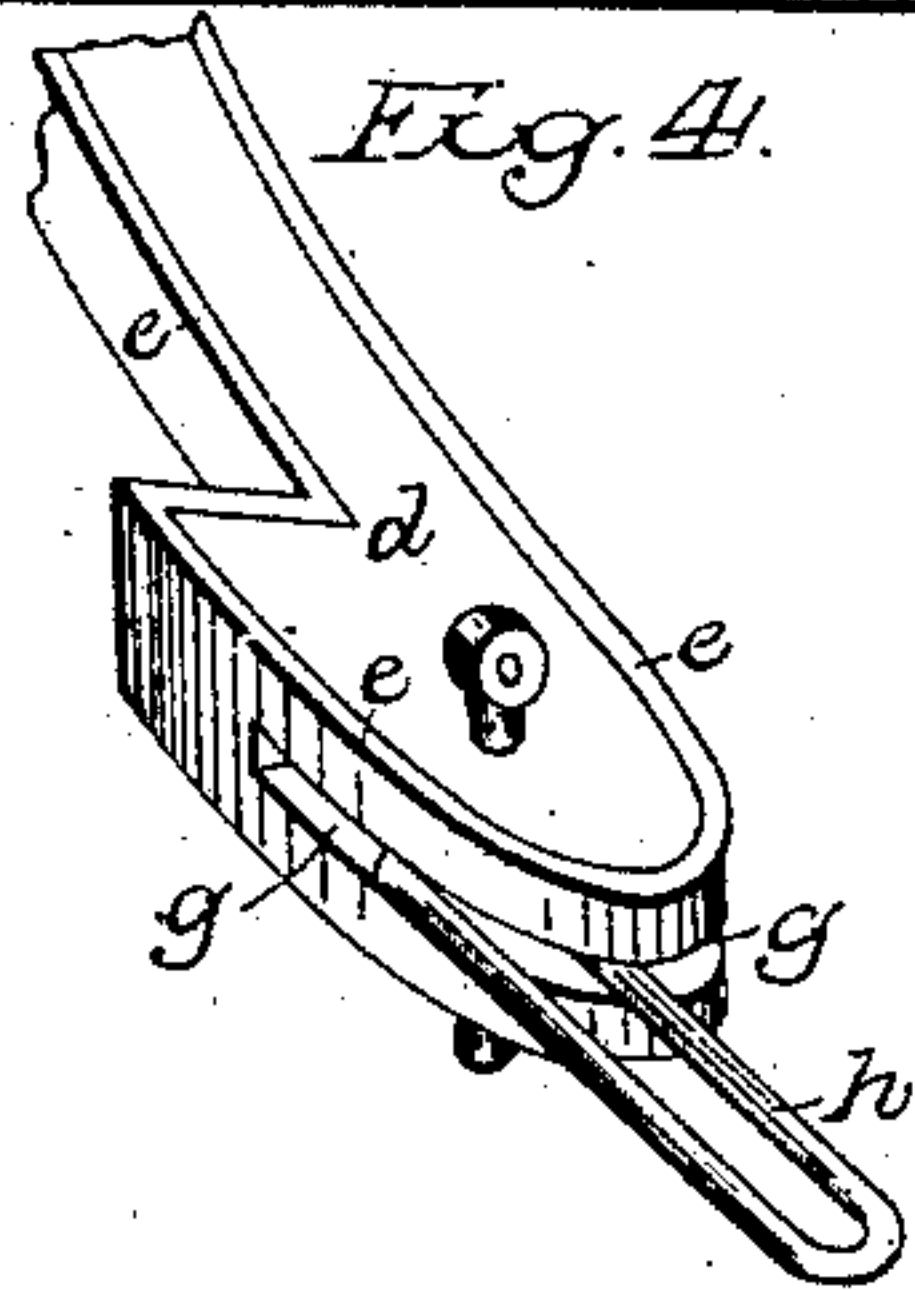
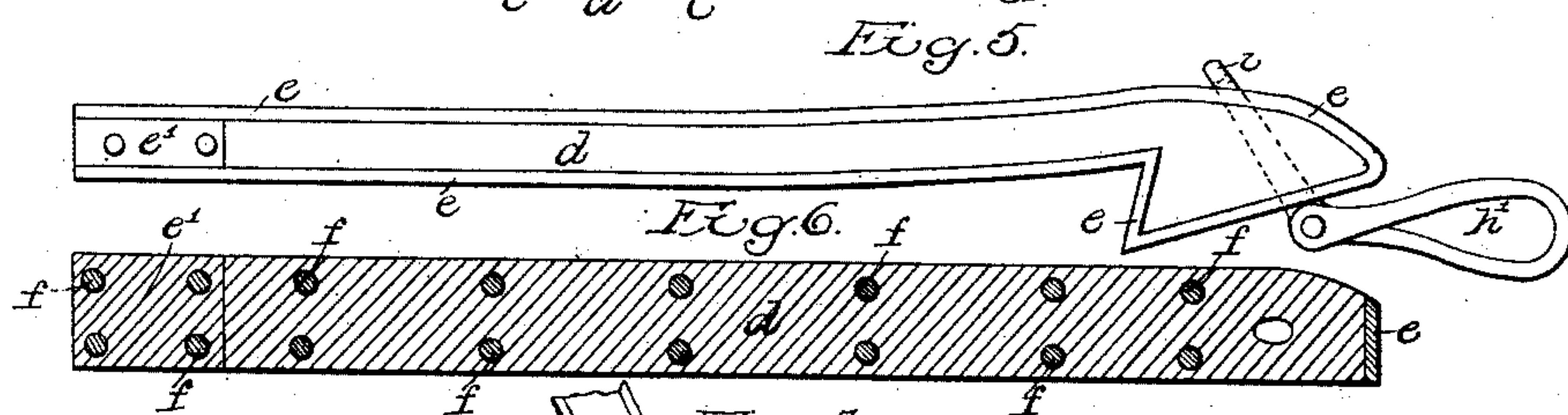
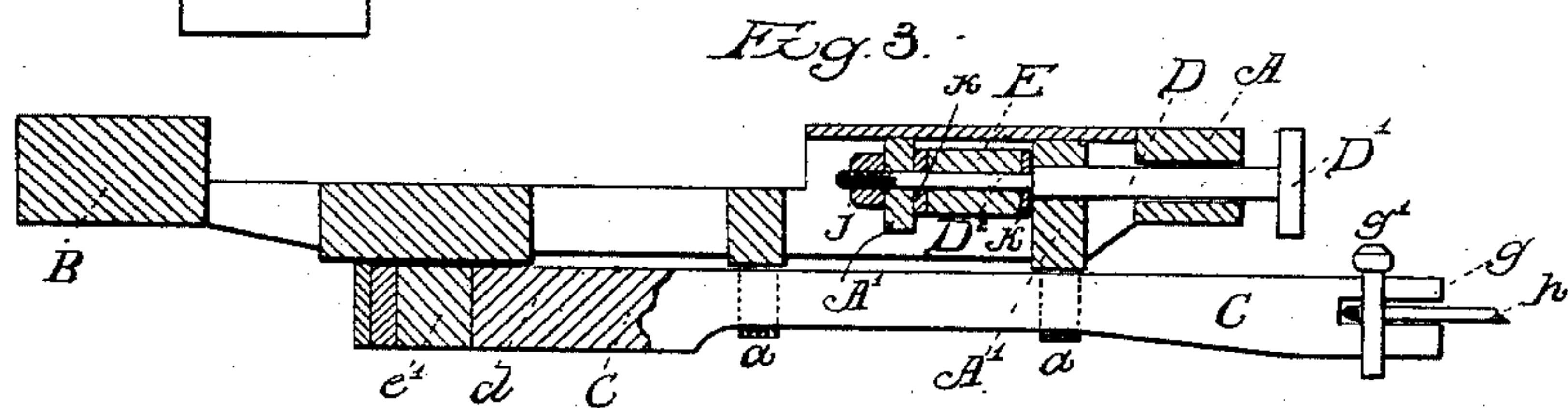
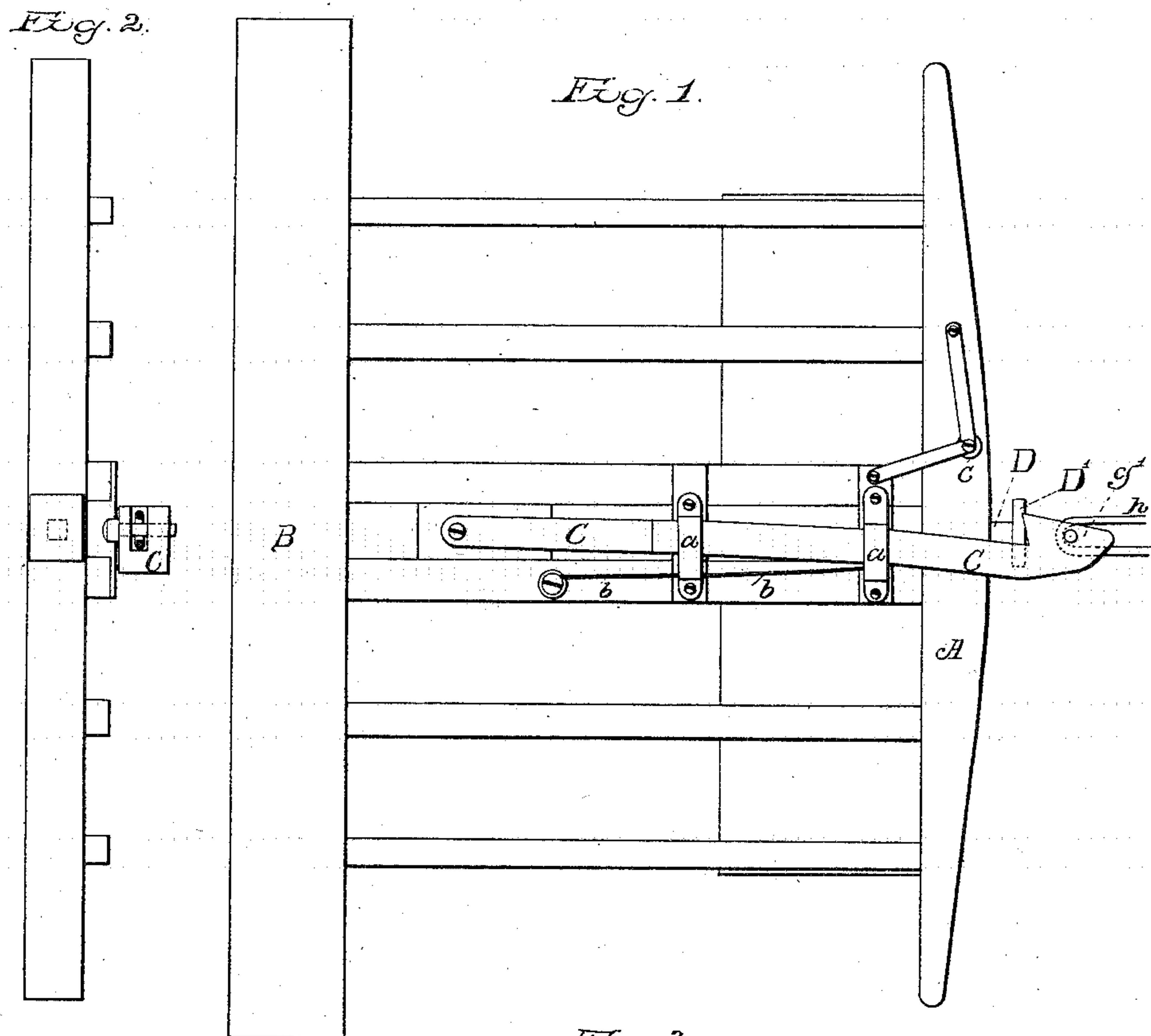


E. MILLER.

Car Coupling and Buffer.

No. 46,126.

Patented Jan. 31, 1865.



Witnesses:

R. T. Campbell.

C. Schaffer

Inventor.

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E. MILLER.

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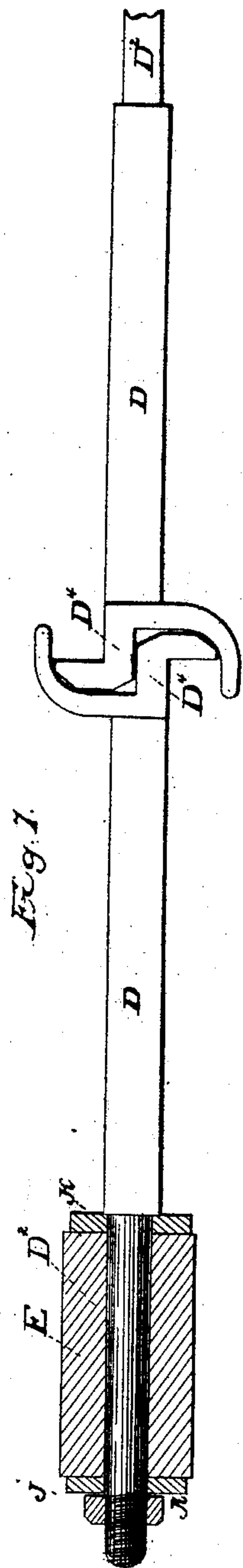


Fig. 1.

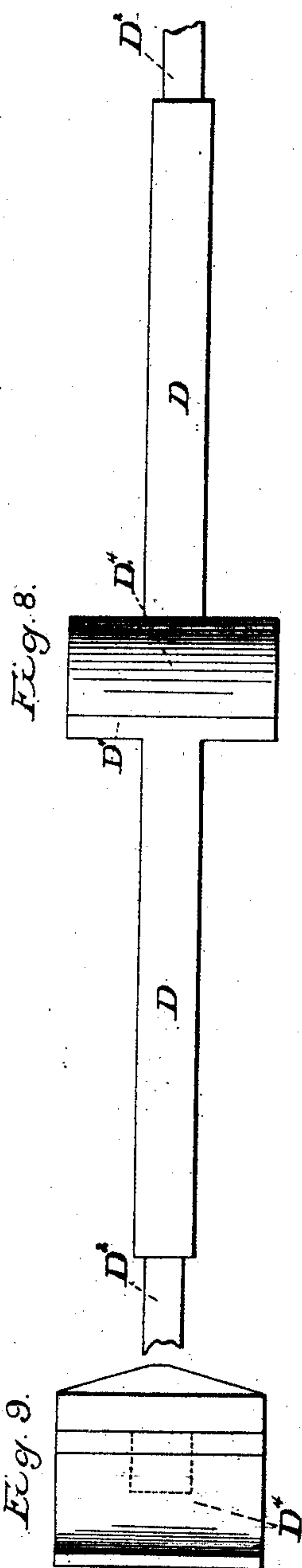


Fig. 8.

Fig. 9.

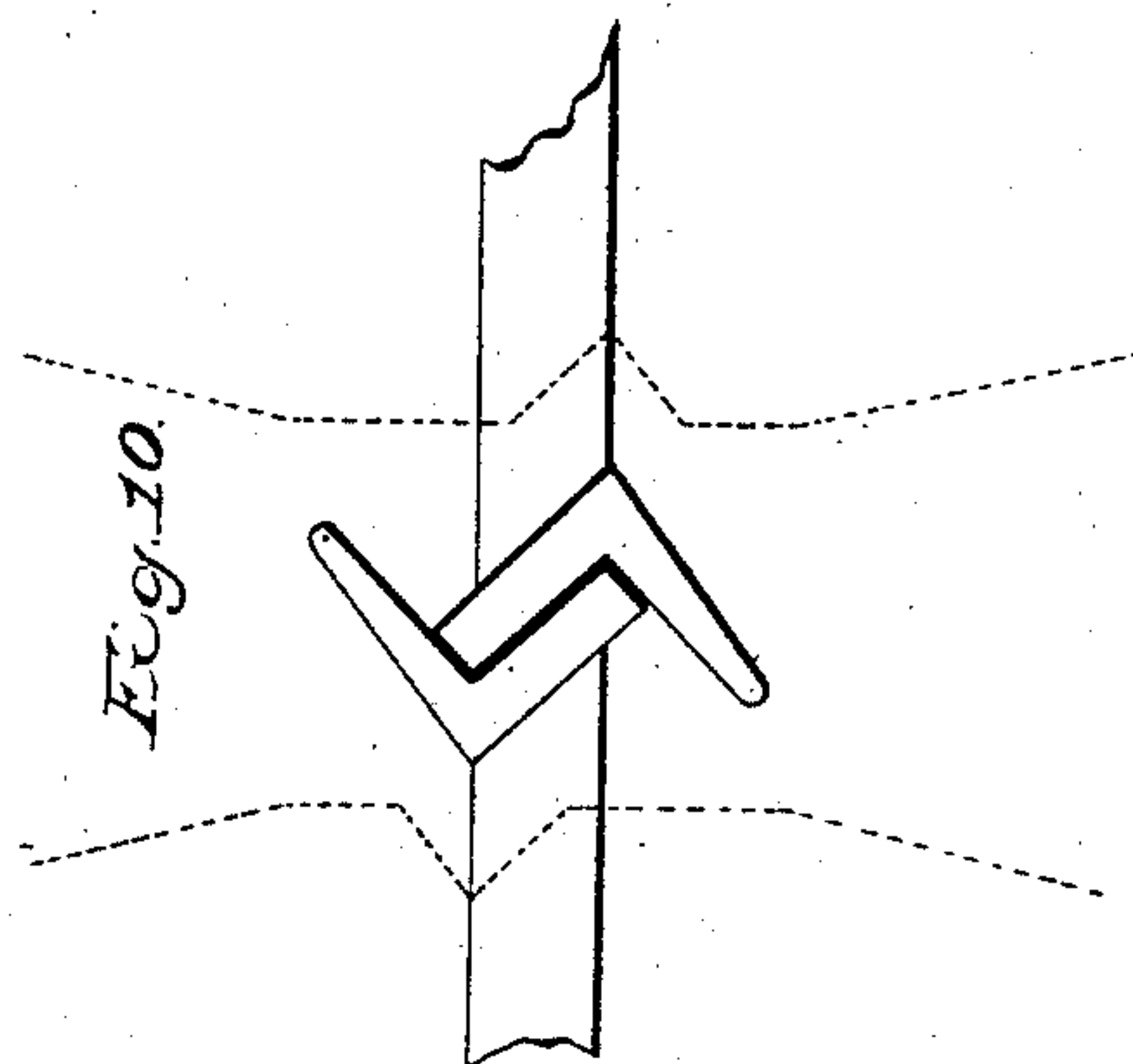


Fig. 10.

Fig. 11.

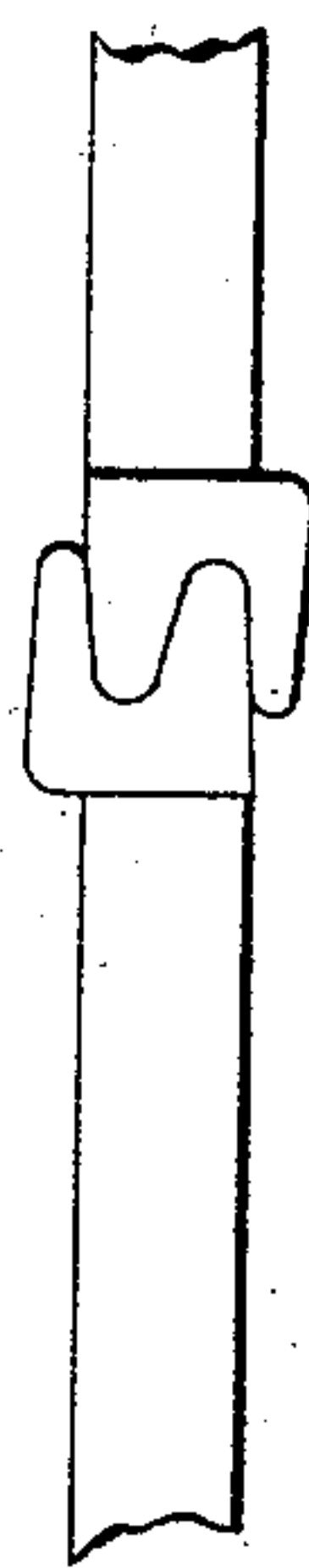
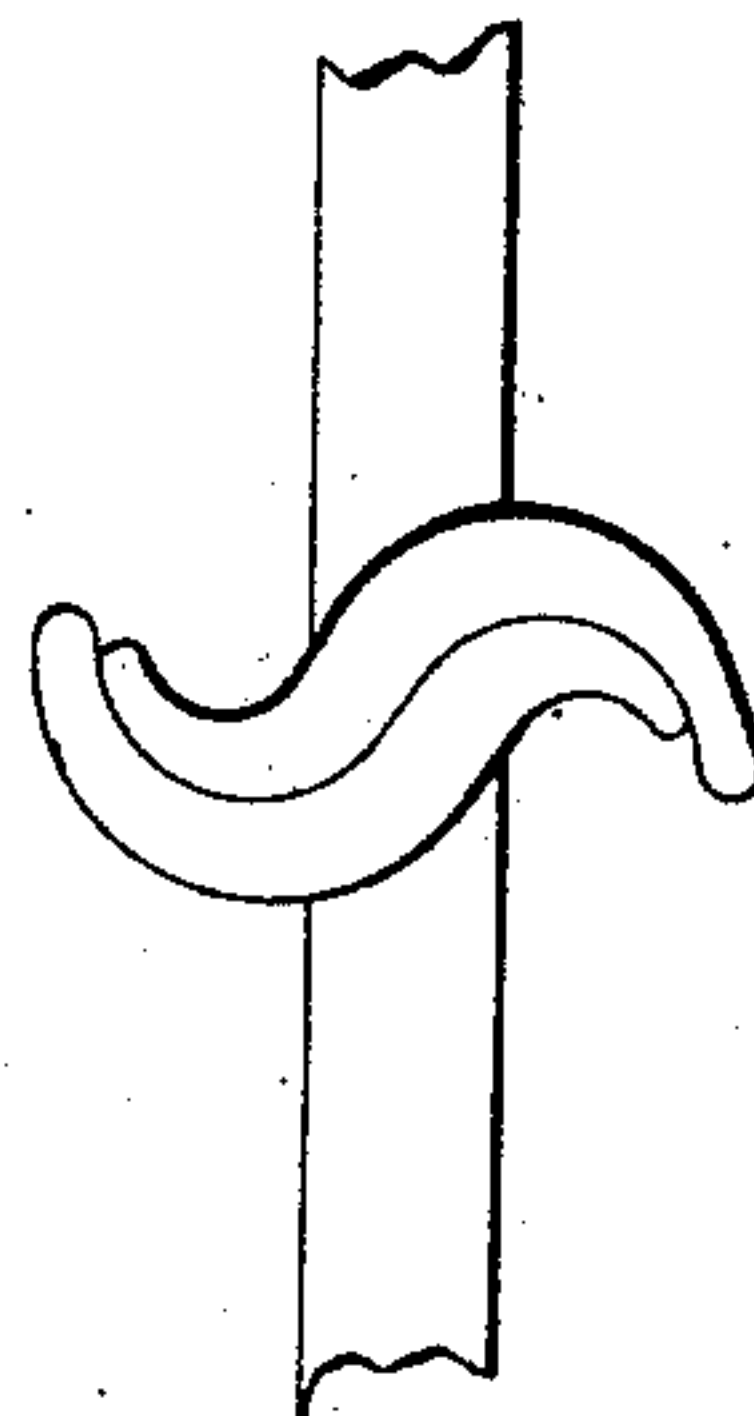


Fig. 12.



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Inventor.
E. Miller - by his Att'y:
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UNITED STATES PATENT OFFICE.

EZRA MILLER, OF JANESVILLE, WISCONSIN.

IMPROVEMENT IN CAR COUPLERS AND BUFFERS.

Specification forming part of Letters Patent No. 46,126, dated January 31, 1865.

To all whom it may concern:

Be it known that I, EZRA MILLER, of Janesville, Rock county, State of Wisconsin, have invented certain new and useful Improvements in Railroad-Cars; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a plan view of the bottom side of the platform of a railroad-car having my improvements applied to it. Fig. 2 is an end view of Fig. 1. Fig. 3 is a vertical longitudinal section through the center of Fig. 1. Fig. 4 is a perspective view of the hooked end of a slotted coupling-hook. Figs. 5 and 6 show a coupling-hook which is made of wood and metal. Figs. 7, 8, and 9 are views of my improved interlocking buffers. Figs. 10, 11, and 12 are modifications of the buffers of Fig. 7.

Similar letters of reference indicate corresponding parts in the several figures of both sheets of drawings.

The improvements which form the subject of this application relate to my patent of 1863, No. 38,057, in so far as the employment of hooked coupling-bars which couple or interlock with each other when the cars are brought together, and have to be moved apart laterally to effect the uncoupling of the cars. In said patent there is no provision made for connecting a car having my coupling-hooks on its ends with a car or locomotive having the ordinary coupling contrivances applied to it, and hence much confusion and delay would arise unless the coupling-hooks were universally employed.

To remedy such difficulties, one of the objects of my invention is to provide for connecting cars having my coupling-hooks applied to them to cars or locomotives having other forms of couplers, as will be hereinafter described.

Another object of my invention is to construct coupling-hooks partly of wood and partly of metal in such manner as to obtain all the strength required and at the same time make them much lighter and cheaper than when made entirely of metal; also, to so form these hooks that they will bear evenly on their stirrups and be less liable to wear away and tilt over on one side, as will be hereinafter described.

Another object of my invention is to provide for connecting together each one of a train of cars in such manner that the lateral jerking motion of a train and all the unsteadiness and injurious effects occasioned thereby will be effectually prevented, providing at the same time for resisting the longitudinal shocks occasioned by suddenly starting and stopping a train of cars, employing for said purposes a contrivance which is located in a line with the strongest part of a car-body—viz., the flooring-timbers—as will be hereinafter described.

To enable others skilled in the art to make and use my invention, I will describe its construction and operation.

As my invention is applicable to cars which are constructed in the usual manner, I have only represented in Sheet 1, Figs. 1, 2, and 3, the platform and longitudinal supporting-beams thereof of one end of a car. I will, however, state that in order to carry out one part of my invention effectually it is desirable to have the transverse buffer-beam A of the platform-frame elevated, so as to bring it in or nearly in a plane with the car-bed or frame-timbers of the car-body. This will bring the platform or floor thereof in a horizontal plane, or nearly so, with the floor of the car without necessarily elevating the transom B.

To the bottoms of the platforms of each car I apply coupling-hooks C, which are pivoted at their rear ends, and supported by stirrups *a a* in such manner that their hooked ends are allowed to have a lateral play controlled only by the width of the two supporting-stirrups *a a* and a spring, *b*, which latter yields and allows the hooks to interlock with each other when two cars are brought together, as fully described in my patent of 1863.

In Fig. 1, Sheet 1, I have represented a vertical post or roller, *c*, which may be used, instead of the pivoted gates described in said patent, when the lateral play of the hooks C is allowed to be equal to or greater than two inches, or half the lateral width of the hooking-face of the hooks. The hooks C are constructed in such manner that the weight of the enlarged heads will not cause a preponderance of one side of the hooks over the other side. This I accomplish by bending the forward portion of the shank of each hook so as to throw the weight of the projecting hooked por-

tions in a line with the center of gravity of the entire hook. By giving this form (represented in Figs. 1 and 5) to the hooks they will bear evenly upon the stirrups *a a*, and not wear off on one side more rapidly than on the other side; hence it will be seen that the hooks will never tilt, and their vertical sides will always remain perpendicular to the bottom surfaces of the stirrups. These coupling-hooks C, I construct partly of wood and partly of metal in the following manner: *d* represents a wooden hook, which is made of the required form by cutting and bending in any suitable manner. Surrounding this wooden hook is a metal frame, *e*, which is made of one strip of metal of the required thickness, bent in the form given to the wooden portion *d* by machinery adapted to the purpose. The two ends of the frame *e* project beyond the rear end of the shank of the wooden portion *d*, and the space is filled up with a solid metal block, *e'*, as clearly shown in Figs. 5 and 6. The metal frame *e e'*, which surrounds every portion of the vertical sides of the wooden hook, is now bolted firmly to the latter by means of transverse pins *f f*, as shown in Fig. 6, thus rendering the whole solid and strong. Such a hook is easily and cheaply made, and possesses great strength, combined with lightness and durability.

Another improvement which I have made in the coupling-hooks C consists in providing for connecting their hooked ends to the ordinary coupling contrivances which are in common use at the present time on cars.

In Figs. 1, 2, 3, and 4 a hook, C, is represented with a horizontal slot, *g*, formed in its hooked end, and at right angles or perpendicularly to this slot *g* a coupling-pin, *g'*, passes through the hook. The slot *g* will receive one end of a link, *h*, and the pin *g'* will connect this link to the hook, as I have represented in Fig. 4.

In Figs. 5 and 6 I have shown another mode of connecting a ring or link to a hook, which consists in making an oblong hole horizontally through the head of the hook to receive a pin, *i*, which has a hook on one end to keep it in place, and which is pivoted at its opposite end to a twisted link, *h'*. By thus providing for connecting links to the coupling-hooks *c* a car which is provided with a common link-connection can be coupled to the hooks, as in the ordinary manner of effecting a connection.

Above the coupling-hook C, and extending longitudinally through the buffer-beam A, and into the frame-work of the platform, is a buffer-shank, D, which is constructed with an enlarged head, D', on one end and a rounded or cylindrical extension, D², on the other end.

E represents a spring, which may be made of india-rubber or other substance, and which is confined between the two portions A' A' of the frame of the platform, as shown in Fig. 3.

Through this spring E the rounded portion D² of the buffer passes and receives on its end a nut, *j*, which keeps the buffer from being drawn out of its place. If the spring E is made of rubber, the collars *k k* should be employed, as shown in Fig. 3, for compressing it equally when the buffer is forced backward.

The shank D is made square and fitted into corresponding holes made in the frame of the platform, in order to prevent the buffer-head from being turned or twisted out of its place.

The buffer-head D' (shown in Figs. 1, 2, and 3, Sheet 1) is made flat; but I prefer to so construct the abutting ends of buffer-heads that they shall effectually prevent lateral motion of the cars while the train is in motion.

In Fig. 7 of Sheet 2 I have represented one form of buffer-head which I prefer to employ for the purpose above mentioned. It will be seen that each head D' has three laterally-abutting surfaces, and that when two of such heads are brought together, as represented, they will admit of vertical motion, which the cars receive in passing over uneven rails, and also admit the train to move freely around curves, but prevent all lateral jerking and unsteadiness.

Figs. 10, 11, and 12 show modifications of the buffer of Fig. 7, all of which prevent lateral play of the cars, and admit of vertical motion and flexibility of train in turning curves.

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

1. So constructing hooked-head car-couplings that they are adapted to receive links and other forms of couplers and form connections therewith, substantially as described.

2. A hooked-head car-coupling which is composed of wood and metal constructed substantially as described.

3. Bending the heads or forward portions of the shanks of coupling-hooks in such manner as to give them an even bearing on their stirrups, and thus prevent them from tilting laterally in consequence of wear, substantially as described.

4. Locating an elastic buffer in the end of the buffer-beam A of a platform which is elevated so as to be brought in a horizontal plane with the bed of the car-body, substantially as described.

5. Constructing the buffer-head D' with a square shank, D, having a rounded extension, D², on its end, substantially as described.

6. Preventing lateral thrust of cars in motion by means of interlocking buffer-heads constructed and operating substantially as described.

EZRA MILLER.

Witnesses:

BENJAMIN WRIGHT,
JNO. G. BROWN.