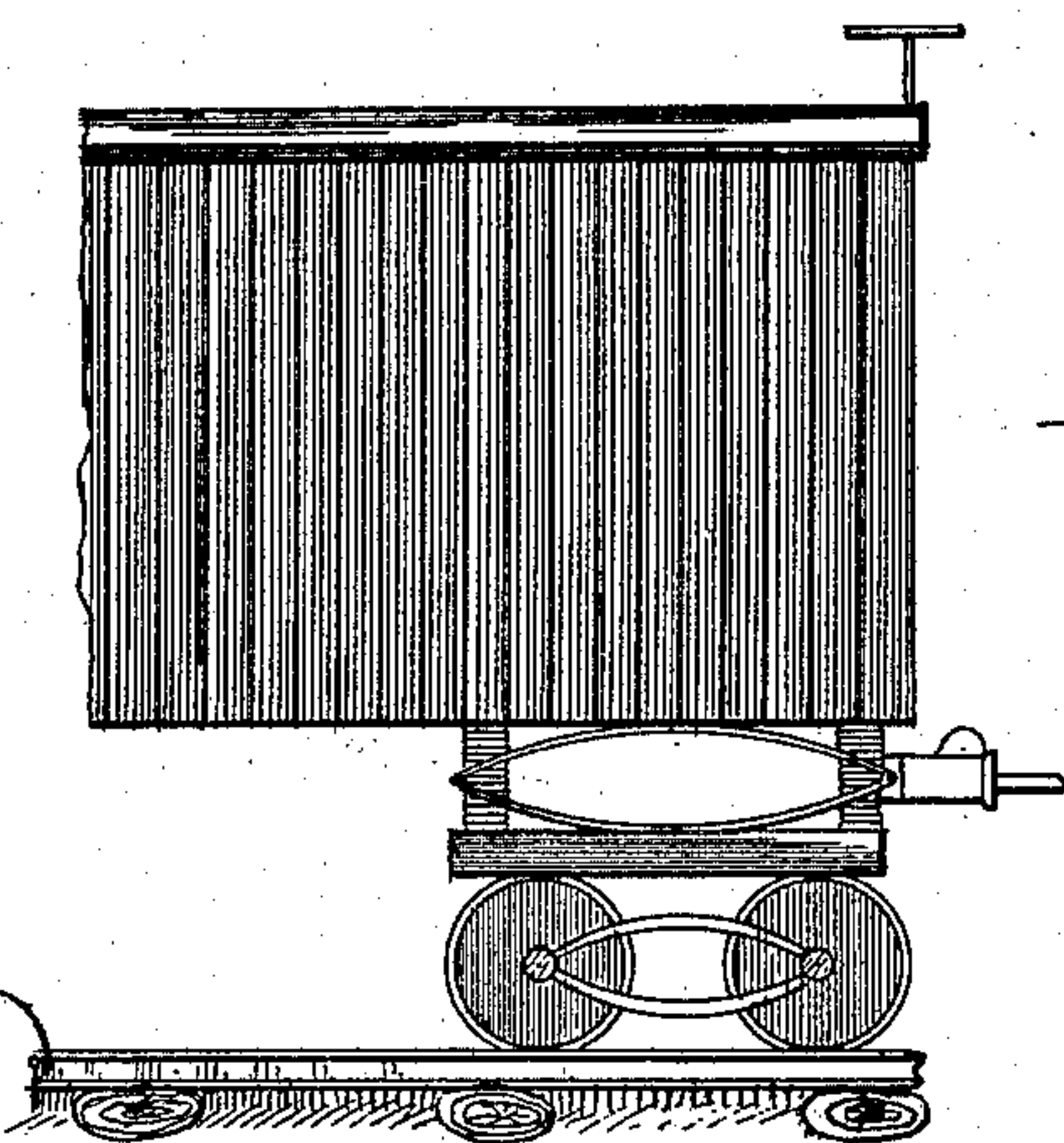
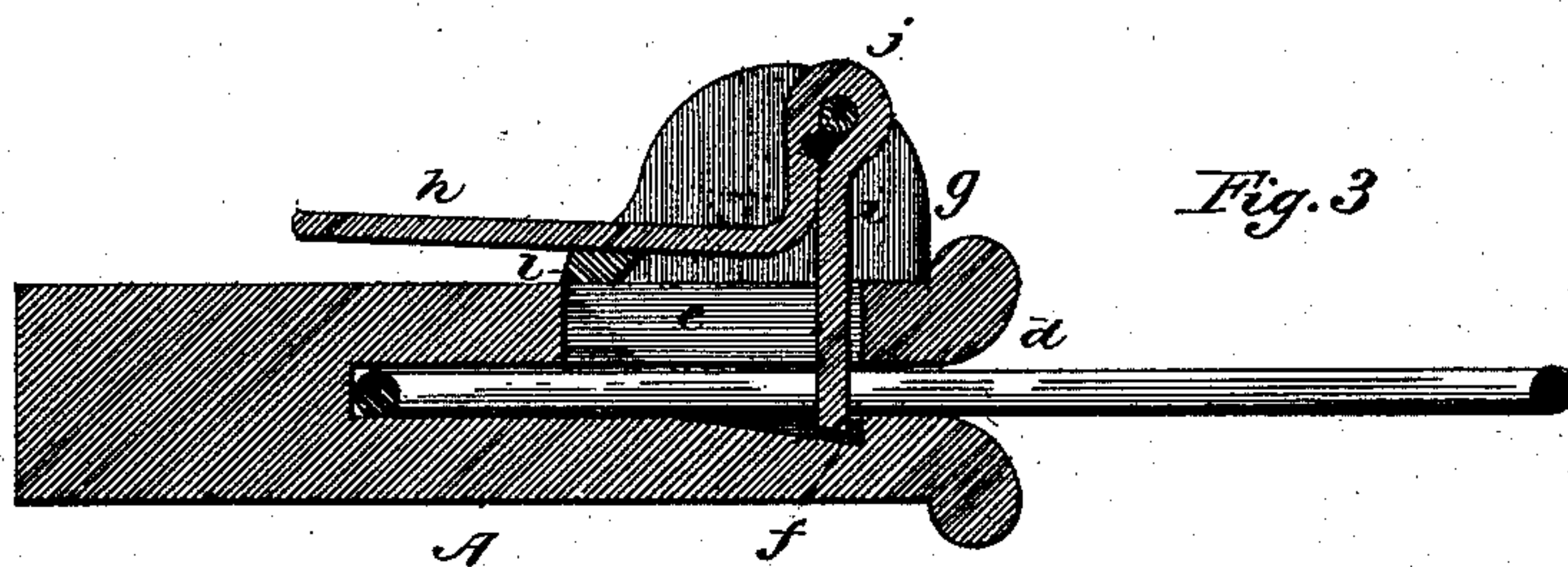
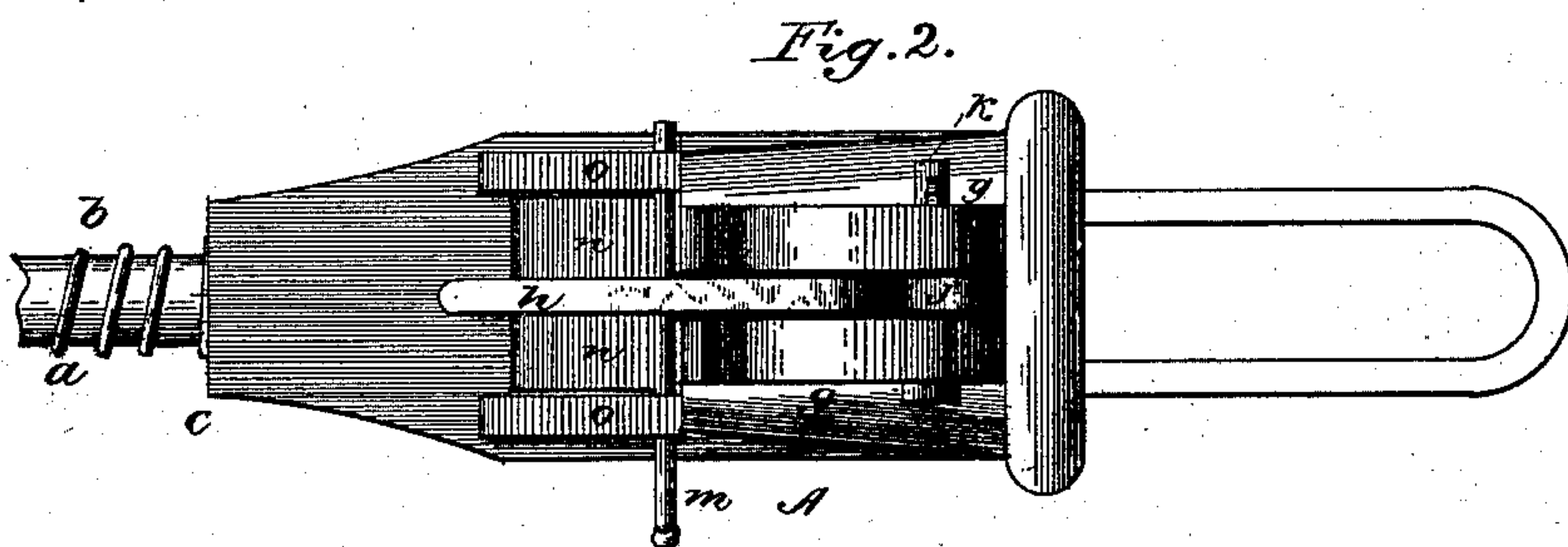
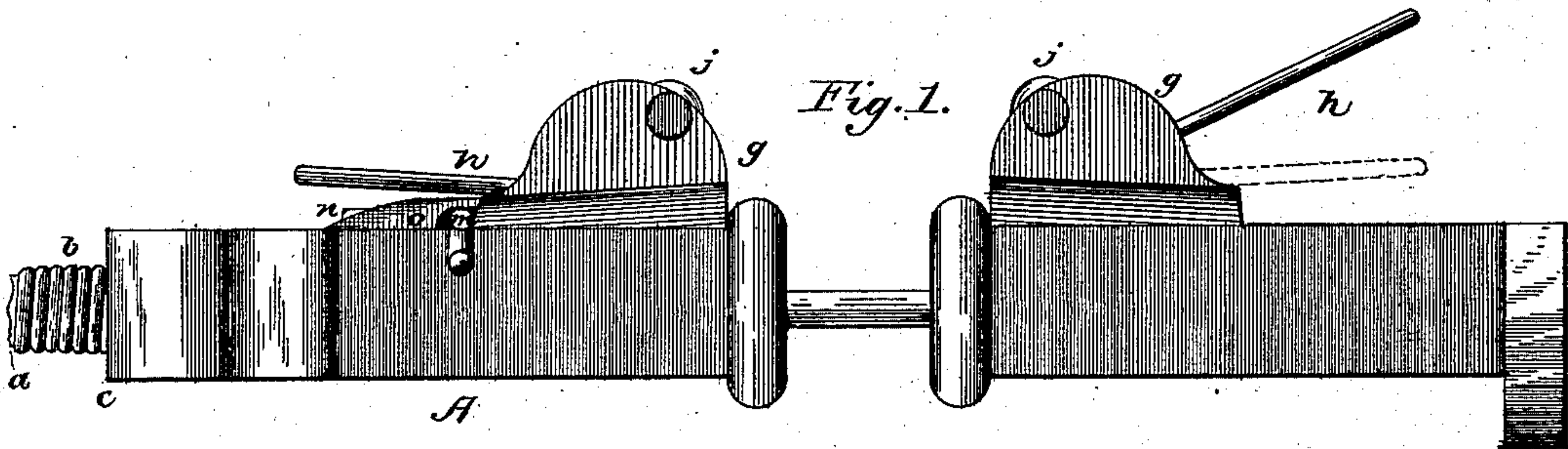


(No Model.)

J. A. PERDUE.  
CAR COUPLING.

No. 407,679.

Patented July 23, 1889.



Witnesses  
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# UNITED STATES PATENT OFFICE.

JAMES A. PERDUE, OF BELFIELD, VIRGINIA.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 407,679, dated July 23, 1889.

Application filed March 20, 1889. Serial No. 304,044. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES A. PERDUE, a citizen of the United States, residing at Belfield, in the county of Greenville and State of Virginia, have invented certain new and useful Improvements in Car-Couplers; and I do hereby declare the following to be a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to various new and useful improvements in car-couplings.

The objects of my invention are to provide and produce a car-coupling device for railroad-cars, by which the cars may be coupled automatically, and when thus coupled there can be no possibility of an accidental separation. When the cars are coupled together by my improved coupling device, their separation can be effected very easily and with great facility and surety.

Car-couplers built in accordance with my invention, such as will be more fully hereinafter described and claimed, can be manufactured as economically as the corresponding devices now used; but the coupling device which I have invented is much more advantageous in practical use than such prior devices, for the reason that the coupling of the cars is effected automatically entirely, for the reason that the uncoupling of the cars is effected very easily from either side of the same, and for the additional reason that the cars when thus coupled will not become separated by accident, unless, of course, an actual breakage occurs. This automatic coupling of the cars is not original with me, and I of course make no claim to the same, and it is only to the particular device which I will describe hereinafter that the claim will be limited.

Although there have been a great many patents granted on car-couplers, and although some of these are for devices automatic in their actions, it is a peculiar fact that very few of these coupling devices have ever come into practical use for the reasons that they are either too expensive to manufacture, too complicated in construction to warrant their adaptability, or too uncertain in their action to recommend their attachment to railroad-

cars in which a positive and secure device is absolutely necessary.

It should not be inferred that the scarcity of automatic car-couplers in use is due to the fact that they are not necessary or even desired, for just the reverse is true; and it is a well-known fact that the hand-coupling arrangement now in vogue is a very dangerous one to operate and is very uncertain in its operation.

By the use of my invention all the principal objections to the prior automatic car-coupling devices are eliminated, while as a general thing the advantages of such automatic devices are retained.

The principal novelties in the construction of my invention consist in providing the usual buffers of ordinary railroad-cars with a peculiarly-constructed pivoted right-angled coupling-pin so constructed and arranged that when the adjacent buffers of two cars are brought together the link within one will enter the buffer of the other and will force the short arm of the coupling-pin backwardly until the forward portion of the link has cleared the same, so that the pin may drop back into its normal original position and thereby lock the link behind it, and in pivoting beneath the long arm of said coupling-pin a releasing-lever of a novel construction adapted to be operated from the side of the car, so that the long arm of the coupling-pin may be elevated, thereby disengaging the short arm from the link and allowing the latter to be withdrawn from the buffer, all as will be more fully hereinafter described and claimed, and which are illustrated in the accompanying drawings, forming a part of this application, and wherein the corresponding elements of the coupling device are designated by identical letters of reference in each view. In these drawings the coupler is illustrated in all its details by the following views:

Figure 1 is a side elevation showing the buffers of two adjoining cars as being secured together by my improved device and with the long arm of one of the coupling-pins being in an elevated position in order to illustrate the operation of the releasing-lever; Fig. 2, a top elevation of one of the buffers with a link locked in position therein; Fig.



3, a longitudinal section of a separate buffer with the parts in their normal position; and Fig. 4, a front elevation of a portion of a railroad car, showing a buffer attached thereto, and embodying my improvements and illustrating the arrangement of the releasing-lever with relation to the forward portion of the car.

A represents the buffer made, preferably, of metal in the usual manner, and of an ordinary construction, and this buffer is mounted at the forward portion in the customary supports or ways, so as to be capable of partaking of a limited longitudinal movement backward and forward. The extreme rear portion of this buffer is formed into a cylindrical stem *a*, and encircling this stem is a heavy spiral spring *b*, bearing between the shoulder *c* on the buffer and a corresponding shoulder on the bottom of the car. This spring will therefore tend to hold the buffer at the extreme limit of its forward path of movement, so that when the two buffers of two adjacent cars are brought violently together the shock will be taken up by these spiral springs, and each buffer will be simultaneously forced slowly toward its respective car. Although this arrangement of spiral spring *b* is very advantageous, since it tends to reduce the effects of all shocks to a minimum, and thereby in a measure prolonging the durability of buffers, it is not absolutely necessary to make use of this precise arrangement, and I do not wish to be limited in any way to the employment of buffer-springs in my device. It will be evident that two or even more stems *a* with their accompanying coil or spring may be used, and that this arrangement might be varied in many ways. For instance, instead of making use of the coil-springs *b*, it might be just as advisable to employ an elastic block of soft rubber in lieu thereof, or this spiral spring might be dispensed with and an ordinary leaf-springs substituted; but it would be apparent that such changes will all be within the spirit of my invention, and are merely details in construction as would be suggested to any mechanic of ordinary intelligence. This buffer is provided, as is customary, with an enlarged or flanged opening *d* in its extreme forward end, in order that the link may be effectively guided into the interior of the buffer in contact with the coupling-pin.

In the top of this buffer is formed a slot *e*, within which the short arm of the right-angled coupling-pin passes, and at the bottom of this buffer a groove *f* is located for the reception of the lower end of the before-mentioned short arm. A small bracket or support *g* is secured to the upper part of the buffer on each side of the slot *e*. The construction of these brackets is entirely immaterial, and it is only necessary that such brackets may offer a rigid pivotal support for the coupling-pin.

As mentioned before, the coupling-pin is

made, generally, right-angled, and is preferably of the form shown in the drawings—that is to say, with a long horizontal arm *h*, a short vertical arm *i*, and a loop *j*. This coupling-pin is made of a single piece of material, as shown, thereby obtaining a very rigid, simple, and economical device; but it should not be understood that I am thereby confined to such a limited construction, because instead thereof the three parts of the coupling-pin may be made of separate pieces and various other changes might be instituted. The solid form I have illustrated, however, is preferable to any other and its advantages are self-evident. The right-angled coupling-pin is pivoted between the two brackets or supports *g* by means of an ordinary pivoting-pin *k*, passing through the loop *j* in such a manner that the short arm *i* extends down into the interior of the buffer with its lower end engaging with the forward portion of the groove *f*, and the long arm *h* projects horizontally backward toward the rear of the buffer. Directly over the extreme rear portion of the slot *e* is a small block *l*, arranged so as to prevent the lower end of the short arm *i* from passing entirely clear of the slot when it is being forced back and upwardly by the link. The block may be made integral with the buffer, if desired, and is located so that the long arm of the coupling-pin will rest thereon when all the parts are in their normal position and will be elevated some distance above the buffer.

The releasing device is situated directly underneath the long arm of the coupling-pin, and it consists simply of a shaft *m*, having an integral rectangular lug *n* thereon engaging with and adapted to elevate said long arm. The shaft *m* is mounted on top of the buffer in any suitable form of journals *o o*, and extends, preferably, to one side of the car, so as to be conveniently operated by means of a handle or equivalent device. The lug *n*, instead of being made integral with the rod *m*, may be made separate therefrom; but with either form the functions of this lug would remain the same—i. e., to be elevated by a partial rotation of the shaft *m*, and thereby elevate the long arm of the coupling-pin.

The following is the manner of operation of my device: It is supposed that two cars are being brought together for the purpose of coupling them and that an ordinary coupling-link is inserted and locked within the buffer of one of these cars. This link will enter the opening in the buffer of the other car and will impinge against the short vertical arm of the coupling-pin, thereby forcing the same backwardly and elevating the long arm, the two parts moving pivotally on the pivoting-pin *k*. This backward movement of the short arm will continue until the link has entirely cleared the same, when the parts will drop back to their original position by means of their own gravity and the link will be effectively locked behind the short arm of the coupling-pin. When the two buffers are brought



together, the shock occasioned thereby is taken up by the spiral springs, before mentioned, and if the short arm of the coupling-pin is elevated too rapidly it will be effectively prevented from passing entirely clear of the buffer by means of the block *l*, before mentioned, covering the rear portion of the slot *e*. The short arm is capable of resisting a great strain for the reason that its lower end bears firmly in the forward portion of the groove *f* and its upper portion bears against the front of the slot *e*, while the intermediate part of the short arm between these two points, and with which the link engages, is comparatively small. By means of the releasing device the long arm of the coupling-pin may be elevated, thereby disengaging the short arm from the link and allowing the cars to be separated. It will be evident that this releasing device can be dispensed with altogether, and that the disengagement of the link may be effected by simply elevating the long arm directly by hand.

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

In a car-coupling, a buffer *A*, having an annular chamber therein, brackets *g g* on the top of said buffer, a coupling-pin mounted in said brackets and made of a simple bar bent to form a long arm *h*, a short arm *i*, and a pivoting-loop *j*, a groove *f* in said buffer for the reception of the lower end of said short arm, a block *l*, secured to said buffer for the support of the long arm, a rod *m*, pivoted to said buffer and provided with a crank at its end, and a lug *n* on said rod and adapted to engage with the long arm of the coupling-pin, for the purpose set forth, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES A. PERDUE.

Witnesses:

N. B. CLEMENTS,

R. D. WHITEHORN.