

(No Model.)

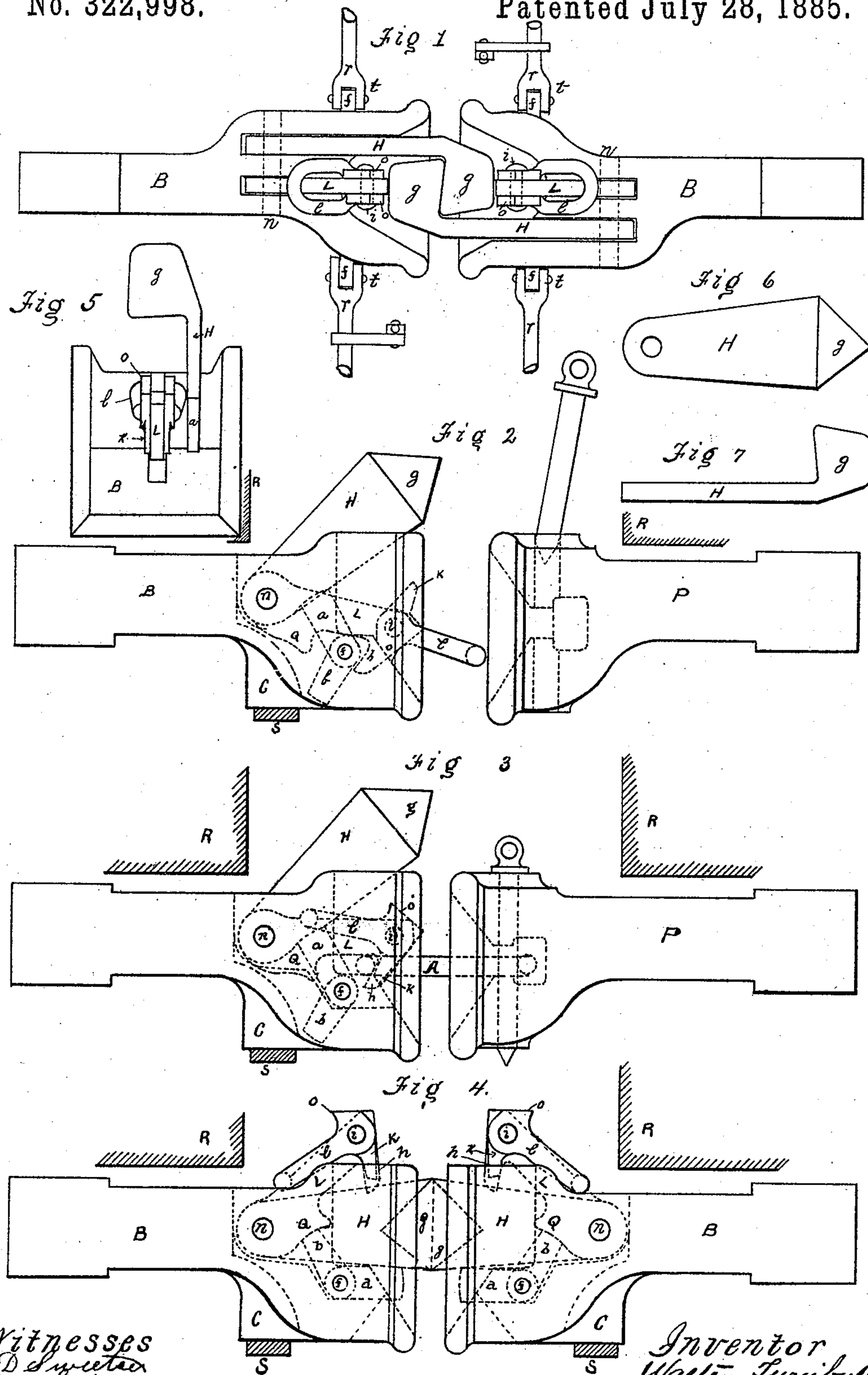
2 Sheets—Sheet 1.

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CAR COUPLING.

No. 322,998.

Patented July 28, 1885.



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# UNITED STATES PATENT OFFICE.

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## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 322,998, dated July 28, 1885.

Application filed February 24, 1885. (No model.)

*To all whom it may concern:*

Be it known that I, WALTER TURNBULL, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented a new and useful Automatic Car-Coupler, of which the following is a specification.

My invention relates to improvements in car-couplers, by which cars can be automatically coupled or uncoupled by a hook or grip coupling, or by a link-coupling; and the objects of my improvements are, first, to provide a means by which the operation of coupling cars together is absolutely automatic; second, to afford facilities by which the present system of link-and-pin couplers can be gradually and eventually entirely substituted by a hook or grip coupler, which would save the great amount of money lost by the theft or loss of coupling links and pins, as also facilitate the making up of trains and switching of cars in yards, &c.; third, to provide a means by which my improved automatic car-coupler will automatically couple and uncouple from either side or top of car, with the present system of link-and-pin couplers, so that my coupler can be gradually adopted by replacing the present link-and-pin couplers as they wear out, and equipping all new rolling stock with my coupler, as arranged to work in conjunction with the link-and-pin coupler, so that in the course of a few years the link-and-pin coupler will be entirely done away with, when the mechanism required to operate my coupler with the link-and-pin coupler can be dispensed with, and the coupling will be a simple grip or hook coupler consisting of but two pieces; fourth, to provide facilities by which the cars will uncouple when one car jumps from the track, which feature might in many cases prevent untold disasters to both life and property; fifth, to provide a means by which the cars can be coupled and uncoupled only from the sides or top of car, rendering it entirely unnecessary and useless for railway employes to endanger their limbs and lives by going between the cars to perform the operation of coupling or uncoupling cars; sixth, to afford facilities by which my coupler can be shaped so as to replace any of the many different patterns of link-and-pin couplers without disturbing the

timber of car or requiring new fittings; seventh, to afford facilities by which my coupler can be constructed of but few parts, and all the parts made fast and secure, so that there will be no loss caused by theft or loosing of parts; eighth, to afford facilities by which the cars will be separated the same distance apart as they now are by the link-and-pin couplers; ninth, to provide a means by which my coupler can be operated automatically without the necessity of any springs, chains, or other parts liable to render the operation imperfect or not positive and reliable; tenth, to provide a means by which my coupler can be set so that it will not couple cars together, which feature is very necessary to save time and facilitate the flying and switching of the cars in yard; eleventh, to provide a means by which the cars will have as much slack as is desirable, to enable the engine to start a long heavy train of cars gradually; twelfth, to afford facilities by which my coupler can carry a coupling-link secured to same, which can be used to couple automatically with a link-and-pin draw-head, in case the coupling-link of same is missing; thirteenth, to afford facilities by which my coupler can automatically couple together by the coupling-link in case the hooks or grips become broken or deranged; fourteenth, to provide a means by which the engine and tender can be coupled and uncoupled to the first car of train by the engineer or fireman from the engine-cab, which feature will materially facilitate the switching of cars and making up of trains in the yards; fifteenth, to provide means by which my coupler can be coupled together by grips or hooks, or by link, or with a common link-and-pin coupler on curves; sixteenth, to afford facilities by which my coupler is operated to couple with either the hook or link by one motion of levers from either side or top of car, and also to lock and maintain the coupler in either position, so that there may be no chance of setting the parts wrong or of their shaking down. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figures 1 and 4 are, respectively, a plan and side view of my couplers, showing the position of parts when coupled together by the hooks or grips. Fig. 2 is a side view showing the



position of the parts of my coupler when about to couple with a link-and-pin draw-head, the link of which is missing. Fig. 3 is a side view showing position of parts when coupled by a common coupling-link with the present link-and-pin coupler. Fig. 5 is an end view of coupler. Figs. 6 and 7 are, respectively, a side and plan view of the hook or grip lever. Fig. 8 is a side view of my couplers, showing position of parts when coupled together by the link. Fig. 9 is a transverse section on plan, N N, showing position of pawls and operating mechanism. Figs. 10 and 11 are, respectively, a plan and side view of link-levers. Figs. 12, 13, and 14 are, respectively, a side, plan, and end view of the subtended coupling-link. Fig. 15 shows the application of my coupler to the tender, and levers for operating same from the engine-cab. Figs. 16 and 17 show the application of my coupler to a box freight-car.

Similar letters refer to like parts throughout the several views.

The front end of draw-head B is shaped to receive and guide a common coupling-link, as shown on plan, and is provided with recesses to admit of the hook or grip lever H, and the link-lever L, and pawls *a* and *b*.

The back end of the draw-head B is shaped to suit the fittings of any coupler it may replace, or to a standard design for new cars.

The hook or grip lever H and link-lever L are secured to draw-head B by the pin *n*, the levers being fitted loose on the pin *n*.

The grip *g* of the hook-levers H is shaped as shown in drawings, so that the grip *g* of one draw-head will ride over and engage with the grip of the other draw-head. The face of these grips *g* can be made beveled, to draw together, as shown in Fig. 1; or they may be made straight, or with projections and corresponding recesses on face of grips to lock same together.

The link-lever L is provided with the hook *h*, so shaped that a coupling-link will ride under and engage with it, as shown in Fig. 3, and is also provided with a shank, Q, to form a bearing for pawl *b*.

Secured to the link-lever L by the pin *i* is a link, *l*, provided with the shank K and *o*, the object of shank K being to keep the link-lever in position to receive a coupling-link when link-lever is down, as shown in Fig. 3. The object of shank *o* is to maintain the link *l* in position to be guided into the approaching draw-head, as shown in Fig. 2. The forward end of link-lever L and of link *l* is shaped to a point, as shown in drawings, so that the grip *g* of hook-lever H will ride under the hook *h* of link-lever L, should the link-lever L and hook-lever H be down in draw-heads which are coming together.

The hook-lever H and link-lever L are uncoupled and operated by the pawls *a* and *b*, placed in recesses in front end of draw-head B and under the levers, as shown in drawings. These pawls *a* and *b* are secured to a square shaft, *f*, running through the draw-head B, and

connecting by swivel-joints *t* with operating-rod *r*, extending to sides of car, and bent to form handles or levers *v*, by which the coupler is operated from either side of the car, the rods *r* being held in position by the bearings *w*, secured to ends of car.

The coupler is operated from the top of the car by the rod *d*, connected to the rod *r* by the lever *e*, and terminating in a handle, *m*, at the top of car. This rod *d* is maintained and guided by the guide or bearing *m'* on the end of car.

The pawls *a* and *b* are so placed on the shaft *f* that when the pawl *a* lifts the hook-lever up and out of the way the pawl *b* allows the link-lever L to fall in position to automatically couple with a link-and-pin coupler, and when the pawl *a* has raised the hook-lever H it assumes the position shown in Figs. 2, 3, and 8, and the pawl *a* is kept from going farther around by the casting, as shown in Fig. 3, and the position of pawl *a*, when it has raised the hook-lever H, being past the vertical and inclined backward against the casting of draw-heads, forms a lock for maintaining the hook-lever H, and keeps same from jolting or falling down, and is further assisted by arranging the handles or levers *v* or rods *r*, so that when the heavy hook-lever H is up, or in the position shown in Figs. 2, 3, and 8, they hang down, as shown in Fig. 9. When the pawl *b* has raised the link-lever L up and out of the way, the pawls *a* and *b* assume the position shown in Fig. 4, and they are locked and maintained in this position by the heavy hook-lever H, resting on point of pawl *a*, which maintains the link-lever L and keeps same from jolting down.

The coupling on end of tender is operated by the rod *u*, connecting with the lever *p* to the rod *r* of draw-head, the other end of rod *u* being attached to lever *y* working in the fulcrum *z*.

P represents a common link-and-pin draw-head, and R the outlines of box-car, showing the relative position of same with couplers.

C is a projection cast on the under side of draw-head, to form an even surface for same to rest in strap *s*, suspended from the outer ends of draft-timbers.

A represents a common coupling-link.

Having thus described the construction of my improved automatic car-coupler, the operation of same is as follows: Suppose it be desired to couple up cars which are equipped with my automatic coupler by the hook or grip coupling, the handles or levers *v* are turned over, and the pawls *a* and *b* and the hook-lever H and link-lever L assume the position shown in Fig. 4, when the cars come together and the grip *g* of the hook-lever H of one car rides over and engages with the grip of the other car, as shown in Fig. 4.

Cars which are coupled together by the hook or grip coupler are uncoupled by turning the handles or levers *v* back until the pawls *a* and *b* and hook-lever H and link-lever L as-



sume the position shown in Fig. 3, when the cars can be pulled apart. Suppose it be desired, for reason of the breaking of the hook-levers H or other cause, to couple up cars equipped with my coupler by the link *l*: The handles or levers *v* are turned until the pawls *a* and *b* and hook-lever H and link-levers L assume the position shown in Fig. 3, when the link *l*, secured by pin *i* to link-lever L of one car is pulled over, and is maintained, in the position shown in Fig. 2, by the shank *o* resting on casting ready to be guided into the draw-head of the next car. When the cars come together, and the link *l* rides under and automatically engages with the hook *h* of the link-lever L of the advancing car, as shown in Fig. 8, and is uncoupled by turning the handles or levers *v* of the car, having the link *l* turned back on link-lever L, till the pawls *a* and *b*, and hook-lever H and link-lever L assume the position shown in Fig. 4, when the cars can be pulled apart.

Suppose it be desired to couple a car equipped with my automatic coupler with a car equipped with a link-and-pin coupler having a coupling-link A in same: The handles or levers *v* are turned till the pawls *a* and *b*, hook-lever H, and link-lever L assume the position shown in Fig. 3, the hook *h* of the link-lever L being kept in position to receive the coupling-link A, by the shanks K on link *l* resting on casting or draw-head B, when the cars come together and the coupling-link A rides under and engages with the hook *h* of link-lever L, as shown in Fig. 3, and is uncoupled by turning the handles or levers *v* until the pawls *a* and *b*, and hook-lever H, and link-levers L assume the position shown in Fig. 4, when the cars can be pulled apart.

Suppose it be desired to couple a car equipped with my coupler with a car which is equipped with a link-and-pin coupler the coupling-link of which is missing: The levers or handles *v* are moved till the pawls *a* and *b*, hook-lever H, and link-lever L assume the position shown in Fig. 3, when the link *l* is pulled over, which allows the link-lever L to fall to the position shown in Fig. 2, and the link *l* is maintained in position to be guided into the approaching draw-head by the shank *o* resting on inclined surface of the draw-head B. The pin in the link-and-pin draw-head is placed as shown in Fig. 2, when the cars come together, and the link *l* rides into the link-and-pin draw-head and the shock of contact shakes the pin down and couples same, and is uncoupled by drawing the coupling-pin of the link-and-pin coupler, when the cars can be pulled apart.

My coupler can be operated from top of box-cars by the rod *d*, and it can be operated by the engineer or fireman from the engine-cab by the rod *u* and lever Y, as shown in Fig. 15.

Having thus described the construction and operation of my improved automatic car-coupling, I claim as new, and desire to secure by Letters Patent—

1. In an automatic car-coupler, the combination of the draw-head B, provided with recess for hook-lever H, and pawl *a*, with the hook-lever H, secured to draw-head by pin *n*, and provided with grip *g*, and pawl *a*, shaft *f*, rod *r*, and handle *v*, all substantially as set forth and for the purpose specified.

2. The combination, in an automatic car-coupler, of the draw-head B, shaped at front end to guide and receive a common coupling-link and provided with recesses to receive the pawls *a* and *b*, hook-lever H, and link-lever L, and projection C, with the hook-lever H, provided with grip *g*, and the link-lever L, provided with the hook *h* and shank Q, and the pin *n*, all substantially as described and for the purpose specified.

3. In an automatic car-coupler, the combination of the draw-head B, hook-lever H, and link-lever L with the pawls *a* and *b*, shaft *f*, rod *r*, bearings *w*, rod *d*, handles *m*, and joints *t*, all substantially as set forth and for the purpose specified.

4. In an automatic car-coupler, the combination of the draw-head B, hook-lever H, and link-lever L with the link *l*, provided with pin *i*, and shanks K and *o*, all substantially as set forth.

5. In an automatic car-coupler, the combination of the pawls *a* and *b* and shaft *f* with the draw-head B, hook-lever H, link-lever L, rods *d*, and joints *t*, all substantially as set forth.

6. In an automatic car-coupler, the link-lever L, provided with hook *h* and shank Q, and the link *l*, provided with pin *i* and shanks K and *o*, all substantially as described.

7. In an automatic car-coupler, the combination of draw-head B, hook-lever H, and link-lever L with the pawls *a* and *b*, shaft *f*, rod *r*, and the lever *p*, rod *u*, and lever *y*, working on fulcrum *z*, all substantially as set forth and for the purpose specified.

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