

G. TUERKISCH.

CAR COUPLING.

No. 255,213.

Patented Mar. 21, 1882.

Fig. 1.

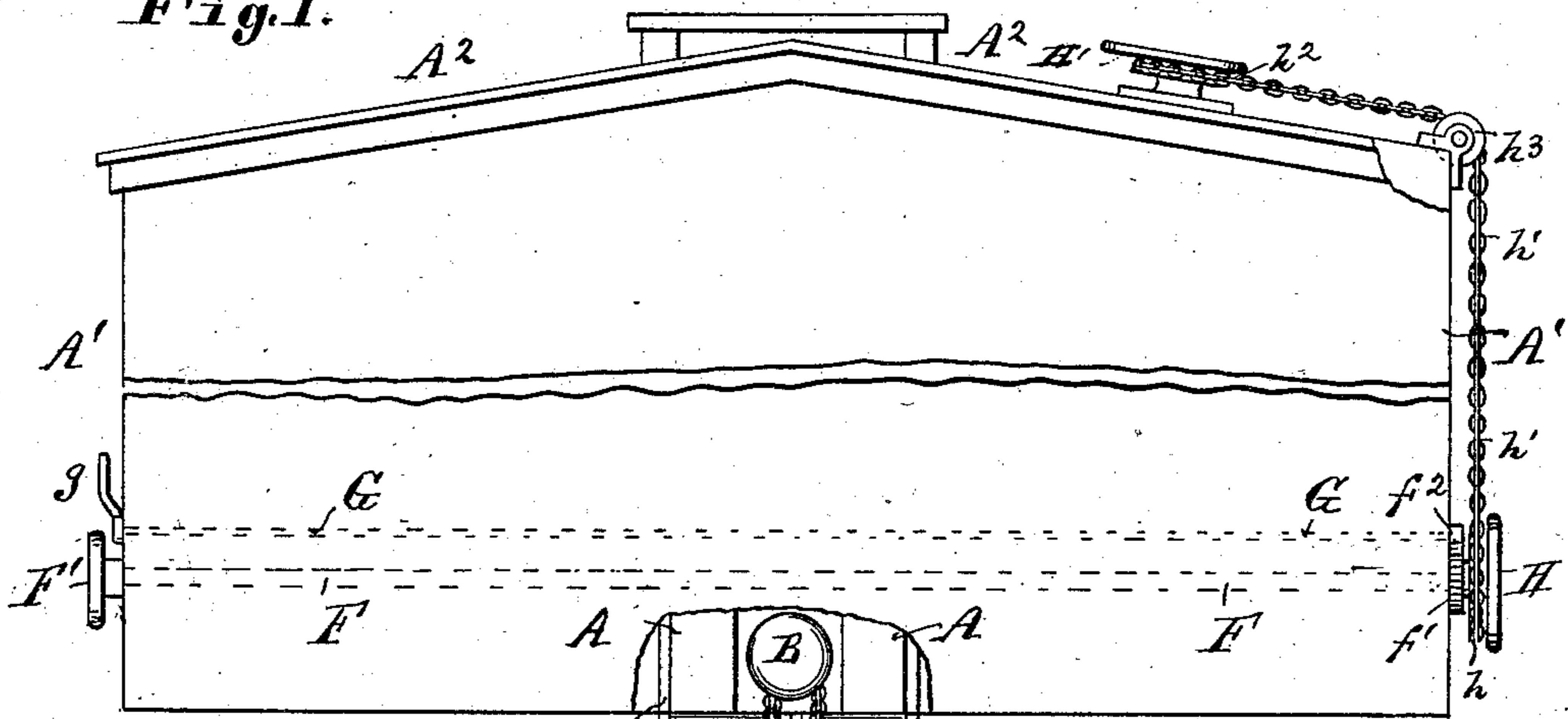


Fig. 4.

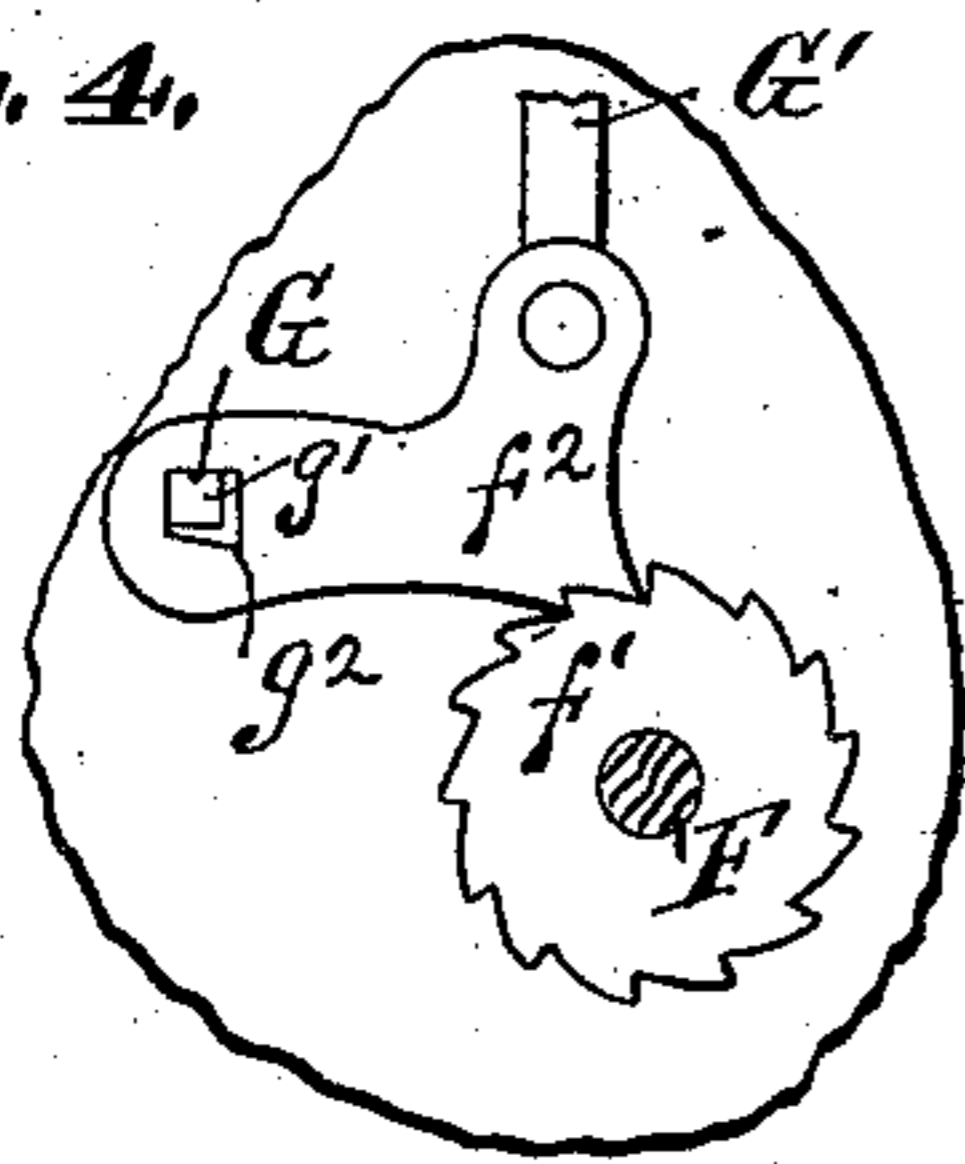


Fig. 2.

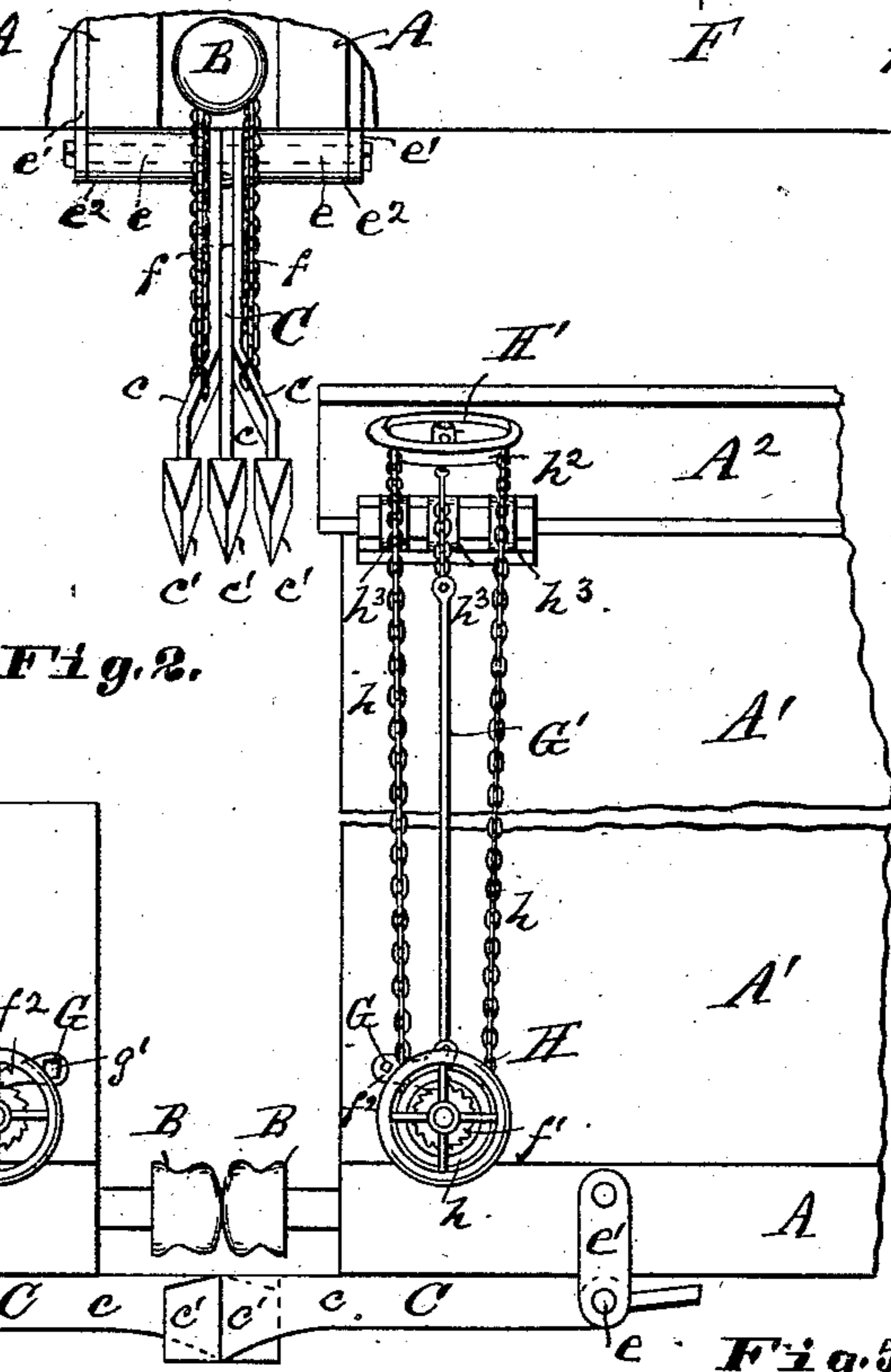


Fig. 3.

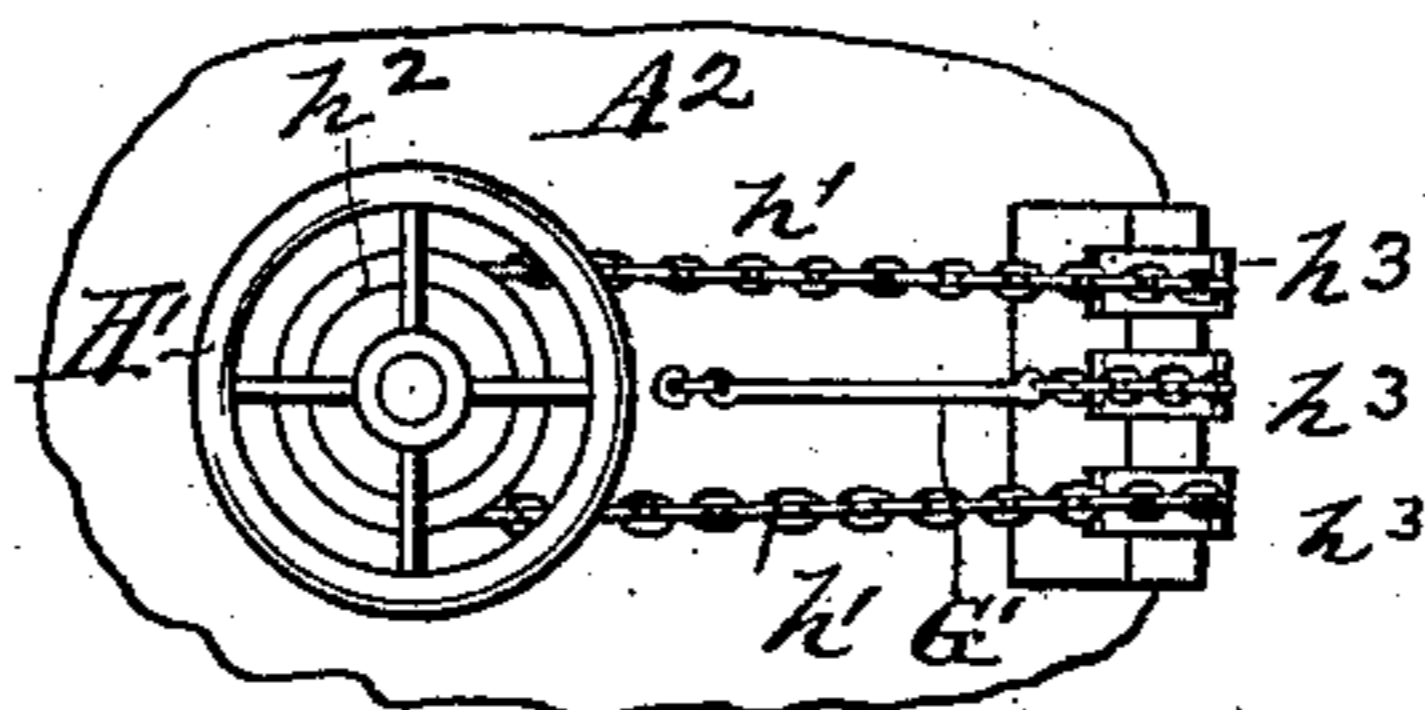


Fig. 5.

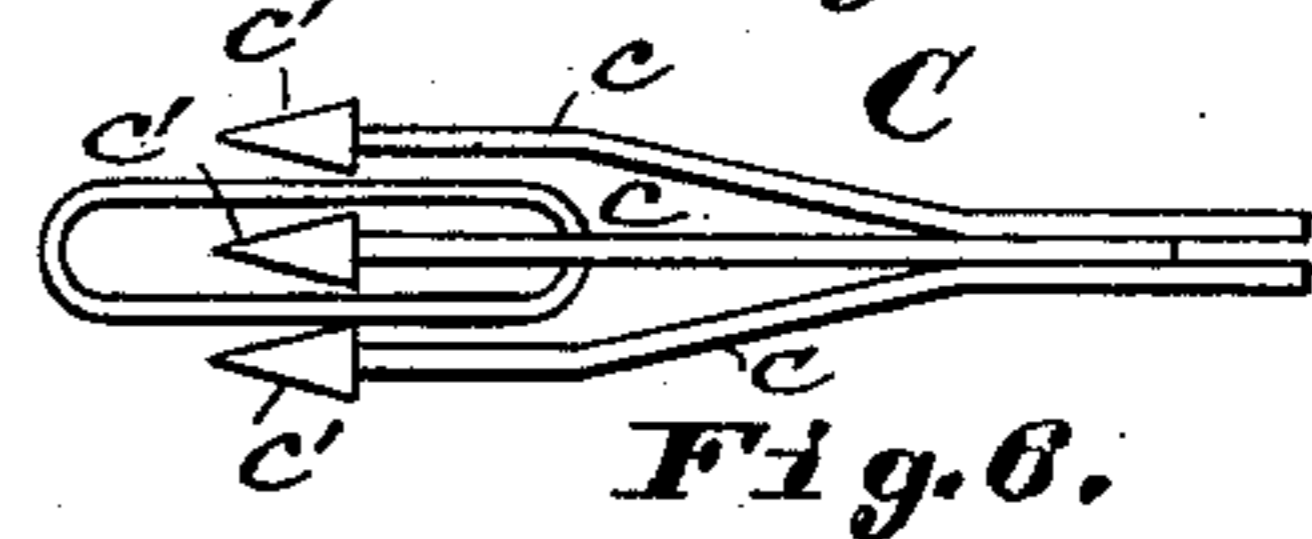
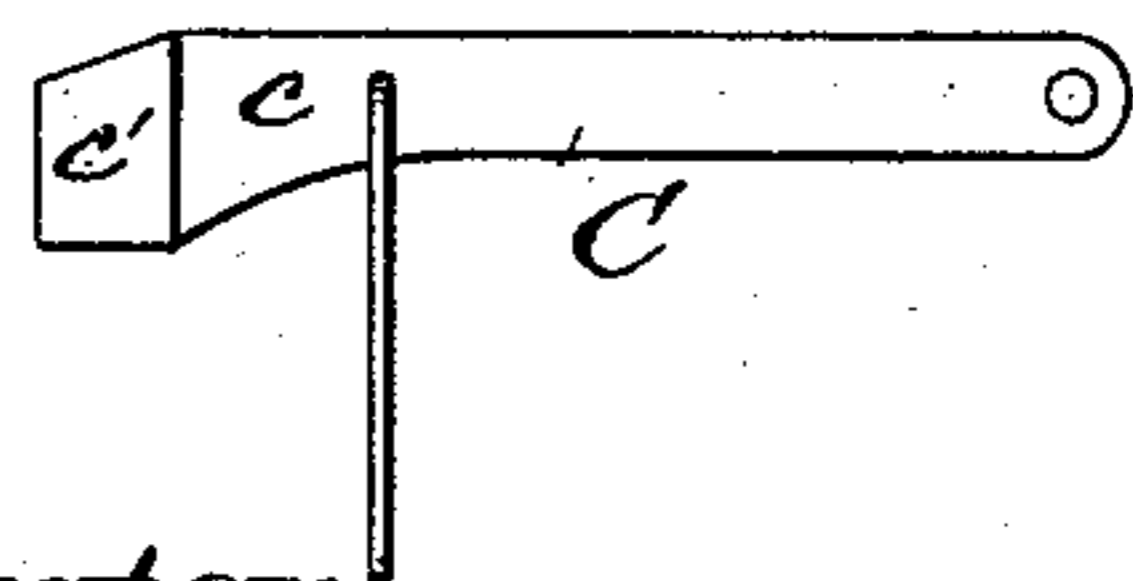


Fig. 6.



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John. H. Herthel,

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Atty's.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 8.

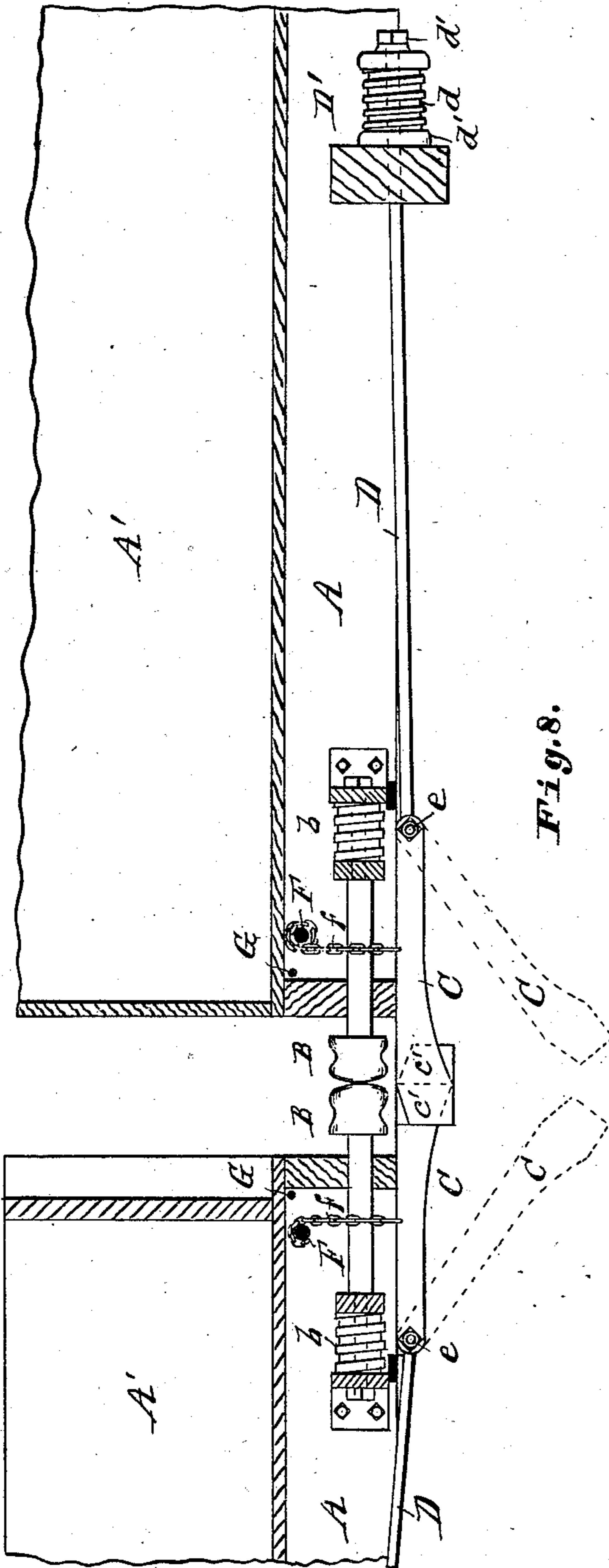


Fig. 8.

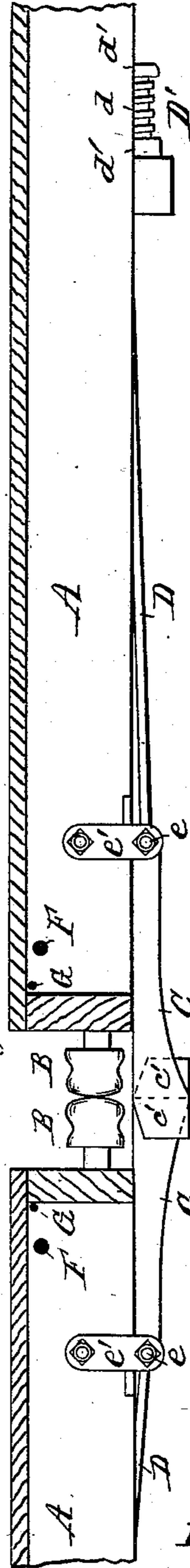


Fig. 9.

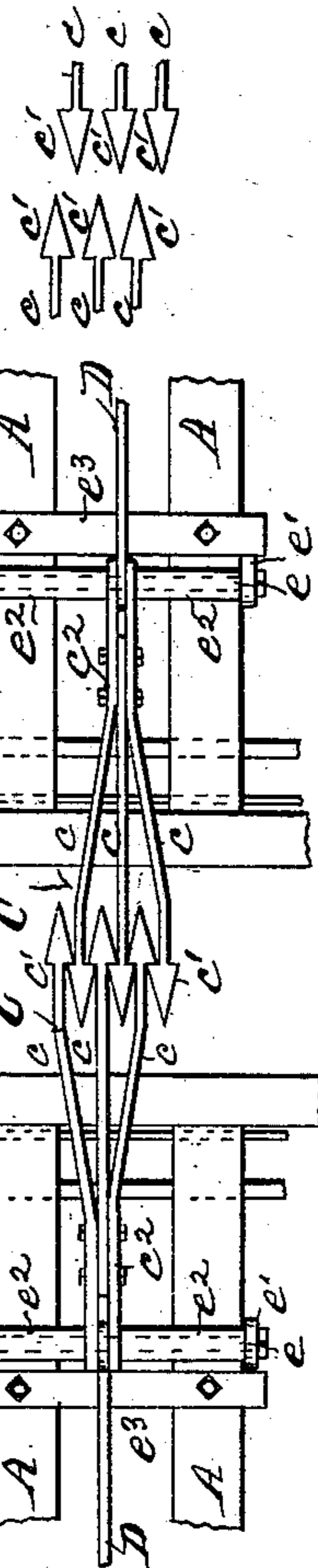


Fig. 10.

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Charles Pickles  
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# UNITED STATES PATENT OFFICE.

GUSTAVUS TUERKISCH, OF EAST ST. LOUIS, ILLINOIS.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 255,213, dated March 21, 1882.

Application filed December 19, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, GUSTAVUS TUERKISCH, of East St. Louis, St. Clair county, and State of Illinois, have invented a new and useful Car-Coupling, of which the following is a specification.

My invention relates to improvements in automatic car-couplers, and specially to that class known as the "arrow-headed couplers."

The chief objects of my improvements are to effect the automatic coupling of the cars; also, to enable the operator to effect the uncoupling or coupling of the cars from either side thereof and below or on the ground, as well as from the top of the car, thus in all cases obviating the necessity of the operator stepping between the cars in order to couple or uncouple the same. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Sheet 1, Figure 1, represents a front or end view of the car having my improved coupler attached thereto, the latter being shown in dropped or lowest position. Fig. 2 is a side elevation, showing my improvements applied to a low as well as a high car, the positions of the couplers being shown as coupled, also showing the mechanism employed to raise or lower the couplers or effect the coupling of the cars from the side, or from the ground, or from the roof of the car. Fig. 3 is an enlarged plan view of simply the hand-wheel, chain, and pulley—parts that are provided on the roof of the car. Fig. 4 shows the ratchet-wheel, its pawl, and transverse shaft. Figs. 5 and 6 show my arrow-headed coupler provided with the old link to illustrate that the latter can be used in connection with my improvements, if desired. Sheet 2, Fig. 7, is a vertical central longitudinal section of chiefly the bottom parts of the cars having bumpers, with my improved couplers shown in full lines as coupling the cars together and in dotted lines as being uncoupled. Fig. 8 is a side elevation of the main parts shown in Fig. 7, the couplers being shown coupled. Fig. 9 is a top or plan view to show my arrow-headed couplers and their connections to parts between the timbers of the car-floor, the couplers being shown as interlocked or in engagement,

while Fig. 10 is simply a detail plan view of the appearance of the arrow-headed portion of the couplers and the positions they relatively occupy when uncoupled.

A represents the bottom frame-work, such as the draft-timbers under the floor of a car; A', the sides of the car, and A<sup>2</sup> the top portion or roof of the car as ordinary.

B represents the spring buffer or bumper, which projects centrally from the ends of the car, its buffer-rod impinging upon a coiled spring, *b*, and arranged between the draft-timbers at bottom of car, in manner usual.

C represents in entirety the couplers or my improved draft-bars for main purposes of coupling and uncoupling the cars. My couplers C consist preferably of three similar-shaped metallic draft-bars, *c c c*, formed each with arrow-heads *c' c' c'*, as shown in Figs. 1, 2, 5, 6, 7, 8, 9, 10. The three arrow-headed draft-bars (constituting each coupler) are arranged in vertical order and alongside of each other, the two outer draft-bars being spread apart from the center draft-bar, and all rigidly coupled in said positions by bolts at *c*<sup>2</sup>, as clearly shown in Figs. 5 and 9.

D is a draw-rod, which connects the rear end of each coupler C to a buffer at D', the latter consisting of a spring, *d*, between collars *d' d'*, and located between the cross and draft timbers at bottom of the car. (See Figs. 7 and 8.) The buffers D' lessen the jar caused by the sudden starting of the car, and as the pull of the couplers is also upon the draw-rod D when the train is moving the strain is thus thrust or exerted upon the said buffers D'.

*e* is a transverse shaft passed through the rear end of each coupler C (also through the forward end of the draw-rod D) for purposes of journaling the said couplers in such a manner that they can be lowered to uncouple, also be raised again to couple. Hence the ends of the transverse shafts *e* are journaled in bearings of two opposite hangers or standards, *e' e'*, which have their upper ends respectively pivoted to the sides of the longitudinal draft-timbers A. (See Figs. 1, 2, 7, 8, 9.) Each coupler is rigidly secured to its transverse shaft *e*, so as to move with same, and sleeves or bushings *e*<sup>2</sup> are placed on both sides of the couplers

and between the standards, so as to prevent lateral play on part of the couplers. Thus in Figs. 1 and 9 the transverse shaft  $e$  is shown in dotted lines, while the bushings  $e^2$  on each side of the coupler are shown in full lines.

$e^3$  represents cross-timbers bolted to the under sides of the draft-timbers (see Fig. 9) to serve as stops and limit the backward motion of the hangers or standards. Also, the arrangement of each coupler  $C$  to each transverse shaft  $e$  is such as shown in Fig. 9—that is to say, each rear end of coupler is secured the same distance in opposite directions from the center line, and so as to position the respective arrow-heads of the one coupler to come in line of the openings between the arrow-heads of the complement coupler. (See also Fig. 10.) The arrow-heads  $c'$  are made widest when measured vertically. Hence the constructive shape of each draft-bar, when viewed from the side, is as shown in Figs. 2, or 7, or 8. The object of so shaping the said draft-bars is to insure a coupling action even in cases where one coupler of a car is higher than the opposite one, and otherwise to enable the arrow-heads to hook into each other on any point along their vertical line or face.

My improvements further relate to the following mechanism, by means whereof the operator can from either side of the car and standing on the ground, also from the top of the car, raise or drop each coupler  $C$  to suit the requirements of the case—viz., raise said couplers to a proper height to effect the necessary coupling of the cars, or lower said couplers so as to swing clear the one from the other and become entirely disengaged or uncoupled. I connect each coupler  $C$  by a suitable chain,  $f$ , to a transverse shaft,  $F$ , which completely crosses the car near one end thereof. (See dotted lines in Fig. 1, also shown in Figs. 2, 4, 7, 8, and 9.) This shaft  $F$  turns properly in bearings and at one side of the car. I simply provide on the end of said shaft a hand lever or wheel,  $F'$ , as shown in Fig. 1. On the opposite end of the shaft  $F$  is secured a ratchet-wheel,  $f'$ , in which a pawl,  $f^2$ , can engage, the latter, however, being mounted on the end of a separate shaft,  $G$ , as indicated by dotted lines in Fig. 1. (Also see Figs. 2, 4, 7, 8, 9.) The purpose of the ratchet-wheel and pawl is to secure the lower or main shaft,  $F$ , from turning; and hence to turn said shaft the operator must first disengage the pawl from the ratchet, and, further, be capable of doing this from either side of the car, also from the roof of the car. To accomplish these purposes the pawl-shaft  $G$  extends completely across the car, (see Fig. 1,) and at one end said shaft  $G$  has a hand-lever,  $g$ , while to the opposite end I secure to the end of said shaft  $G$  the pawl  $f^2$  in manner as follows:

By referring to Fig. 4 the end  $g'$  of the pawl-shaft  $G$  is shown as made square-shaped, and the opening  $g^2$  of the pawl proper to fit said end of the shaft is enlarged at one corner, as shown, so as to give the pawl sufficient play to

be lifted out of engagement with the ratchet-wheel without disturbing the said pawl-shaft  $G$ . By so attaching the pawl to the square end of the shaft  $G$  two ways are provided to disengage the pawl from the ratchet: first, by a lift movement imparted to the pawl only; secondly, by a partial turn motion of the pawl-shaft, which causes it to gripe hold of the pawl and lift it. To disengage the pawl from that side of the car where the hand-lever  $g$  is, the operator simply by means of said lever imparts a partial turn movement to the pawl-shaft  $G$ , and this by its square-shaped end gripes hold of the pawl sufficiently to disengage it from the ratchet. Again, to disengage the pawl from the opposite side of the car where the ratchet-wheel is, the operator can simply take hold of the lift-rod  $G'$ , which has its lower end connected to the pawl, while the upper end of said rod, by a further chain or rope, extends to and can be properly fastened to the top or roof of the car. (See Figs. 2 and 4.) Hence it can be here stated that also from the roof of the car the rod  $G'$  can likewise be lifted by the operator to disengage the pawl from the ratchet-wheel. As apparent, the disengagement of the pawl from the ratchet-wheel is to permit the main shaft  $F$  to be turned in order to wind or unwind the chain  $f$ , that lifts or lowers the coupler  $C$ . This latter action can also be done by the operator from either side of the car or from the roof of the car. Thus by means of the hand-wheel  $F'$  the shaft  $F$  can be turned from one side of the car, so as to raise or lower the couplers by causing the chain  $f$  to wind upon or unwind from the said shaft  $F$ . Again, from the opposite side of the car this same action can be accomplished by turning the same shaft  $F$  by means of the hand-wheel  $H$ . (See Figs. 1 and 2.) Lastly, there remains to be described the further mechanism that enables the operator to turn the shaft  $F$  from the roof of the car in order to couple or uncouple cars.

By referring to Figs. 1 and 2 it will be seen that I have secured to the main shaft  $F$ , between its ratchet and hand wheels, a chain-wheel,  $h$ , around which passes the lower part of an endless chain,  $h'$ . Further, this chain  $h'$  passes up along the side of the car and sufficiently over the roof thereof to finally pass round a chain-wheel,  $h^2$ , that forms part of the hand-wheel  $H'$ , properly secured in its bearings and arranged within easy reach of the operator. (See Figs. 1, 2, 3.)

$h^3$  represents suitable pulleys secured to the edge or corner of the car in line where the chain passes over the top portion of the car.

To raise or lower the coupler  $C$  from the top of the car the operator, after disengaging the pawl by a pull or lift on the rod  $G'$ , turns the hand-wheel  $H'$ , which, by means of the endless chain, turns the shaft  $F$  below and causes the chain  $f$  from which the couplers hang to wind or unwind, raise or drop the couplers as required. In similar manner to raise or lower the couplers from below or standing on the

ground within reach of the hand-wheel H, this latter from that side of the car is operated. On the opposite side of the car, where the hand-wheel F' is, this latter can be turned for the

5 same purpose.

In the act of coupling the arrow-heads *c'* of one coupler enter between the open spaces between the heads *c'* of the opposite coupler (see Fig. 10) until said arrow-heads become  
15 interlocked or their hook ends engage each other, as clearly shown in Fig. 9, when the cars are safely coupled. In uncoupling, however, either or both couplers C can be made to disengage by turning the shaft F, that unwinds  
15 the chain *f* and permits the couplers by gravity to swing clear of each other. (See dotted lines in Fig. 7.) My improvements therefore entirely obviate the necessity on the part of the operator to step between the cars in order to  
20 couple or uncouple the same, and the said operation can be effected by the operator from either of the more convenient positions—viz., from either side or from the roof of the car.

My improvements can be applied to high or  
25 low cars, also to freight and passenger cars.

If desired, the couplers C can be provided with the old link, which, when not used, hangs from the center draft-bar, *c*, (see Fig. 6,) and when used the link is raised (see Fig. 5) for  
30 the engagement of the old coupling-pin.

I do not claim broadly a car-coupler consisting of a draft-bar having arrow-head; but

What I do claim is—

1. In combination with the draft-timbers A,  
35 hangers or standards *e'*, the transverse shaft *e*, the couplers C, each consisting of a series of draft-bars, *c*, formed each with arrow-heads *c'*, the chain *f*, the main shaft F, having ratchet-wheel, pawl, and hand-wheel parts, by means  
40 whereof the said couplers can be raised or lowered and coupled or uncoupled, substantially as and for the purposes set forth.

2. In combination with the bottom timbers of a car, the coupler C, secured to a transverse  
45 shaft, *e*, hangers *e'*, chain *f*, main shaft F, carrying ratchet-wheel *f'*, the pawl *f''*, made to engage the square end of a shaft, G, both said shafts F and G extending transversely across the car, by means whereof the said pawl can  
50 be disengaged from the ratchet-wheel from both sides of the car, and the coupling as well as uncoupling of the couplers C can also be made from both sides of the car.

3. In combination with the draft-timbers A, the couplers C, consisting of the draft-bars *c*,  
55 having arrow-heads *c'*, the transverse shaft *e*, hangers or standards *e'*, chain *f*, main shaft F, arranged transversely across the bottom of the car, having hand-wheels F' H, the pawl and ratchet-wheel, the former capable of being  
60 actuated by the separate shaft G, arranged similarly across the bottom of the car from side to side thereof, by means whereof the said pawl can be disengaged from its ratchet-wheel from either side of the car, also the said couplers C  
65 can be raised or lowered from either side of the car, substantially as and for the purposes set forth.

4. In combination with the draft-timbers A, the couplers C, consisting of draft-bars *c*, hav-  
70 ing arrow-heads *c'*, the transverse shaft *e*, hangers *e'*, chain *f*, main shaft F, having hand-wheel and ratchet-wheel, the pawl, with a lift-rod, extending along the side of the car to its top or roof, the endless chain passing around  
75 a lower chain-wheel on the end of said shaft F, also passing round an upper chain-wheel, with hand-wheel on the roof of the car, by means whereof from the top or roof of the car the said  
80 pawl can be disengaged from the ratchet-wheel and the couplers C be raised or lowered, as and for the purposes set forth.

5. In combination with the draft-timbers A, the couplers C, consisting of the draft-bars *c*,  
85 formed with arrow-heads *c'*, the shaft *e*, hangers *e'*, chain *f*, main shaft F, extending completely across the bottom of the car, the hand-wheels F' H, the ratchet-wheel *f'*, the pawl *f''*, capable of being actuated by the shaft G, which extends also across the car, the lift-rod G', the  
90 chain-wheel below on shaft F, the chain-wheel and hand-wheel on the roof of the car, the endless chain *h'*, by means whereof the pawl can be disengaged from the ratchet-wheel, either from the roof or both sides of the car, also the  
95 couplers be raised or lowered by the operator either from the roof or top of the car or from either side thereof, substantially as set forth.

In testimony of said invention I have hereunto set my hand.

GUSTAVUS TIERKISCH.

Witnesses:

WILLIAM W. HERTHEL,  
JOHN W. HERTHEL.