

No. 819,265.

PATENTED MAY 1, 1906.

H. E. BROWN.
EMERGENCY CHAIN FOR RAILROADS.

APPLICATION FILED SEPT. 9, 1905.

2 SHEETS—SHEET 1.

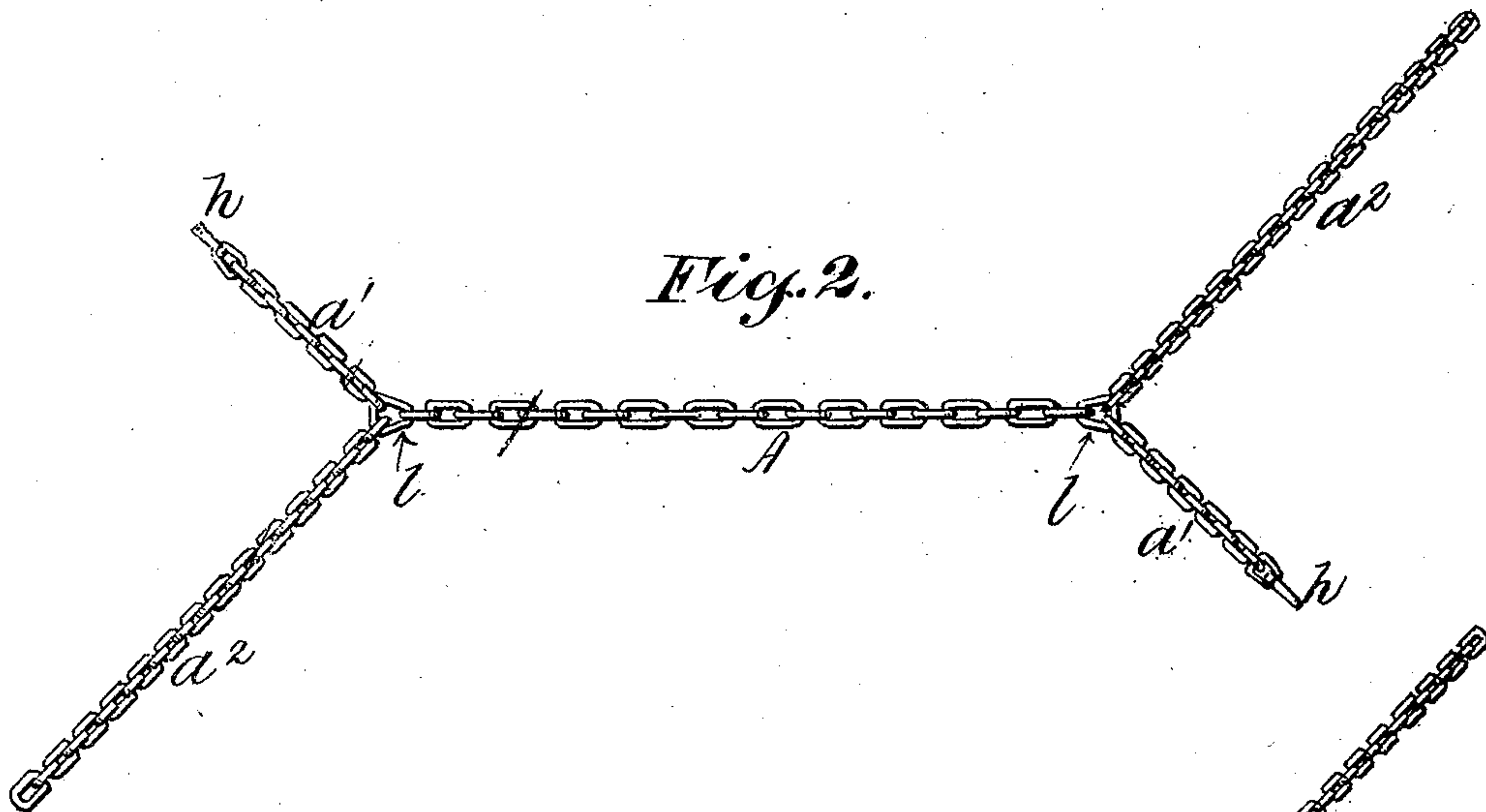


Fig. 1.

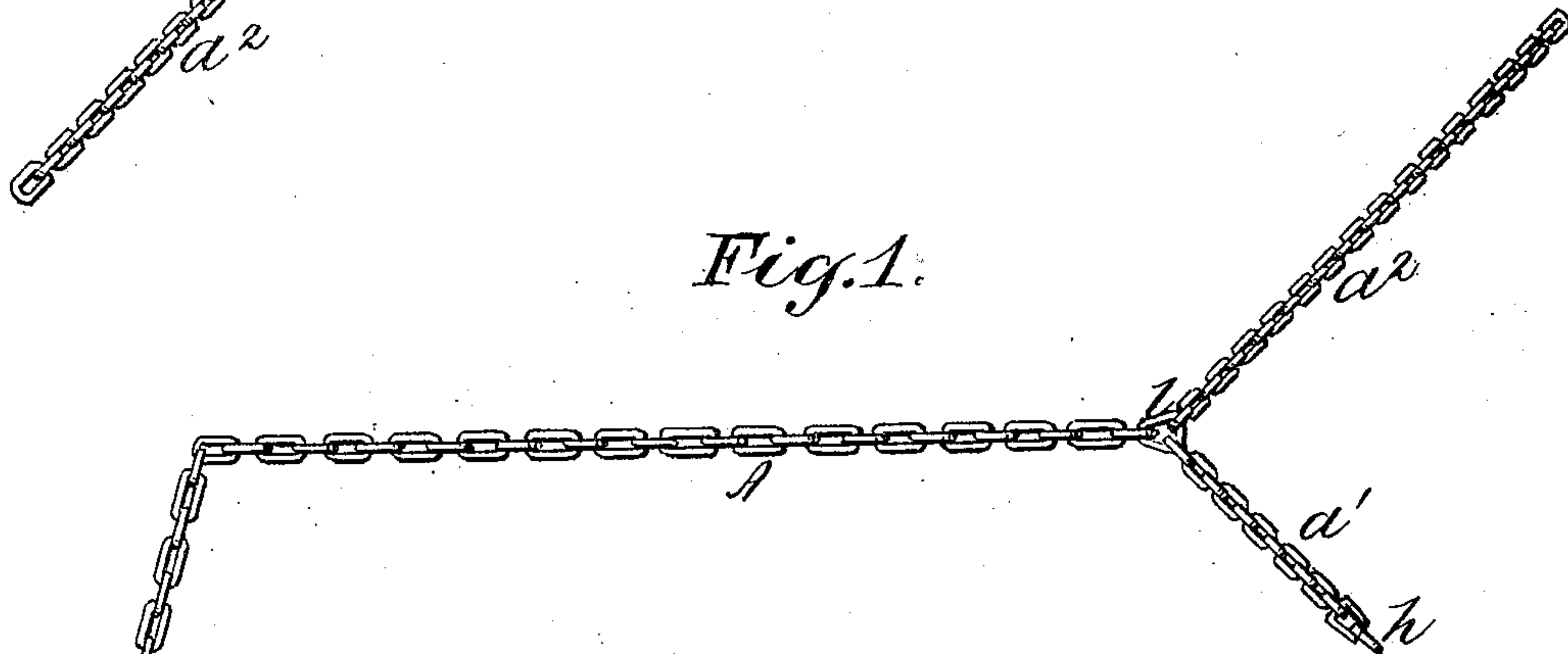


Fig. 3.

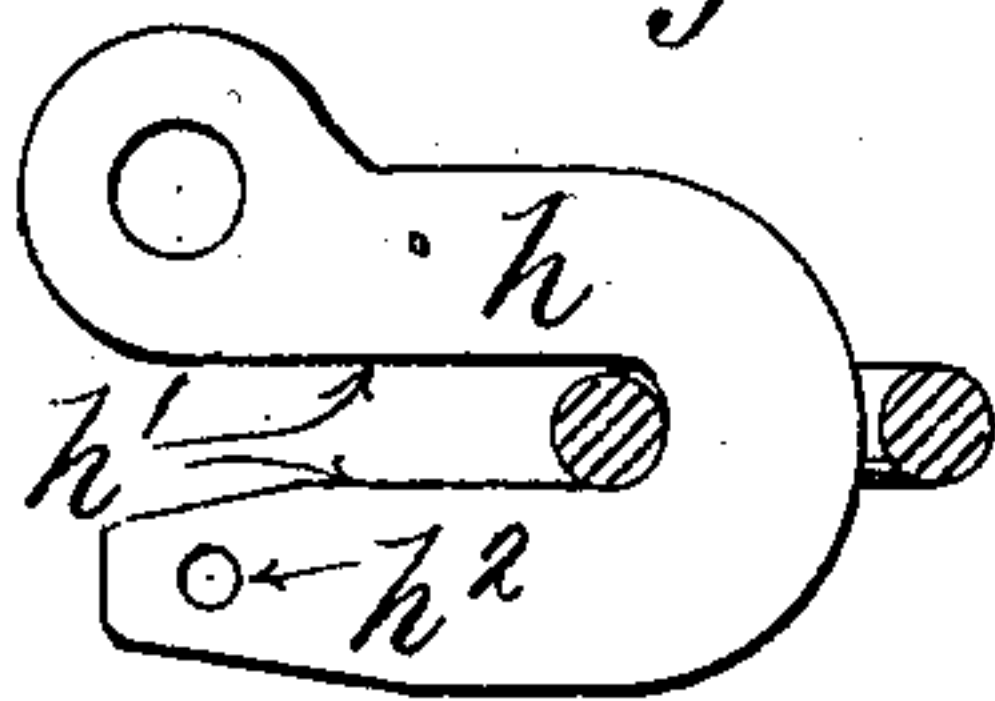


Fig. 4.

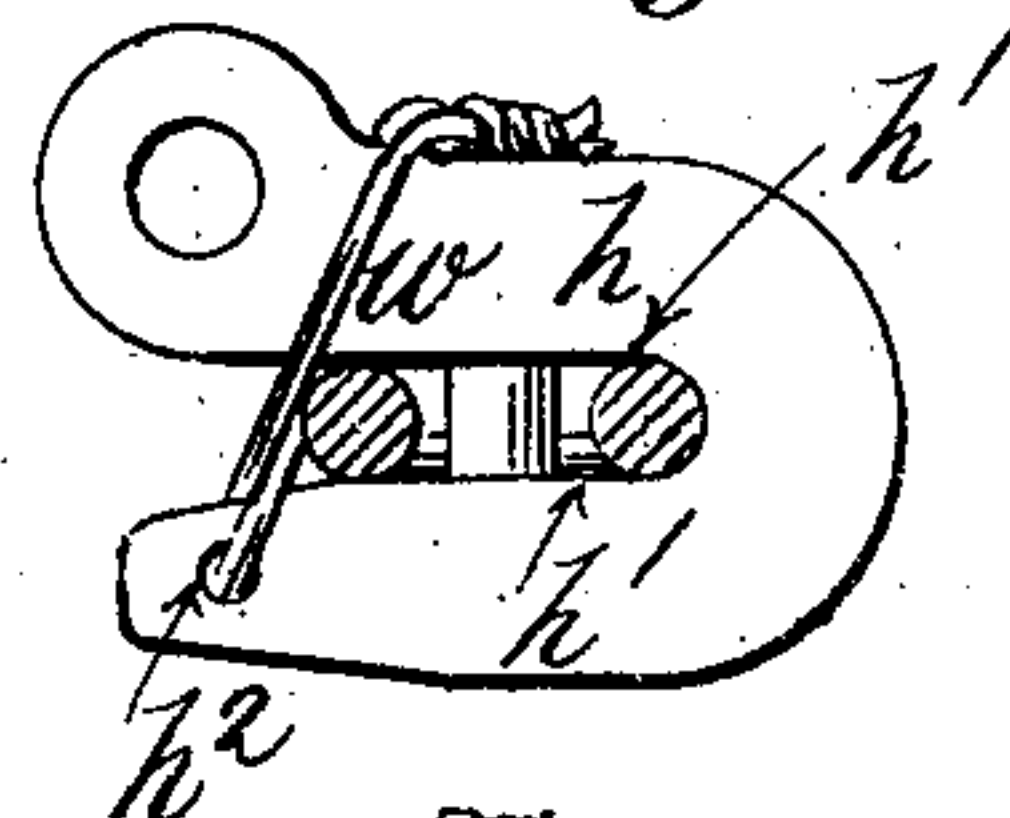
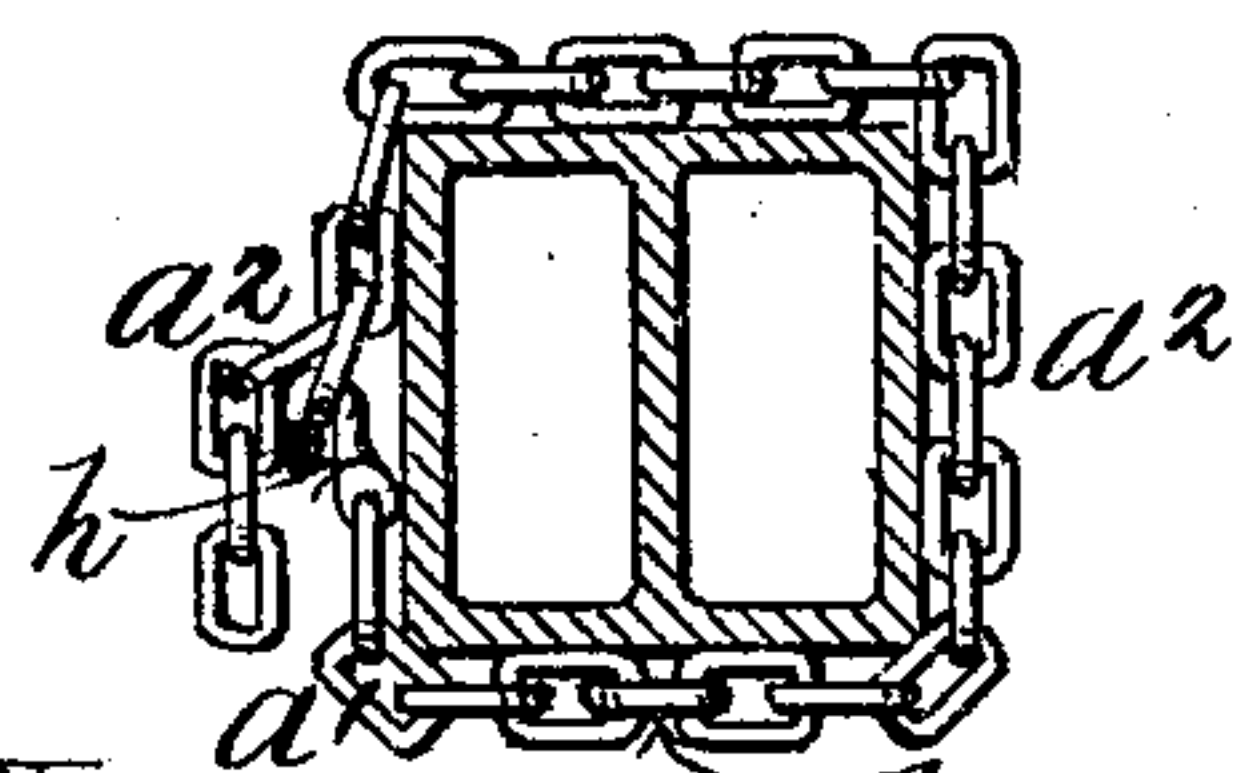


Fig. 9.



Witnesses:
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Fig. 6.

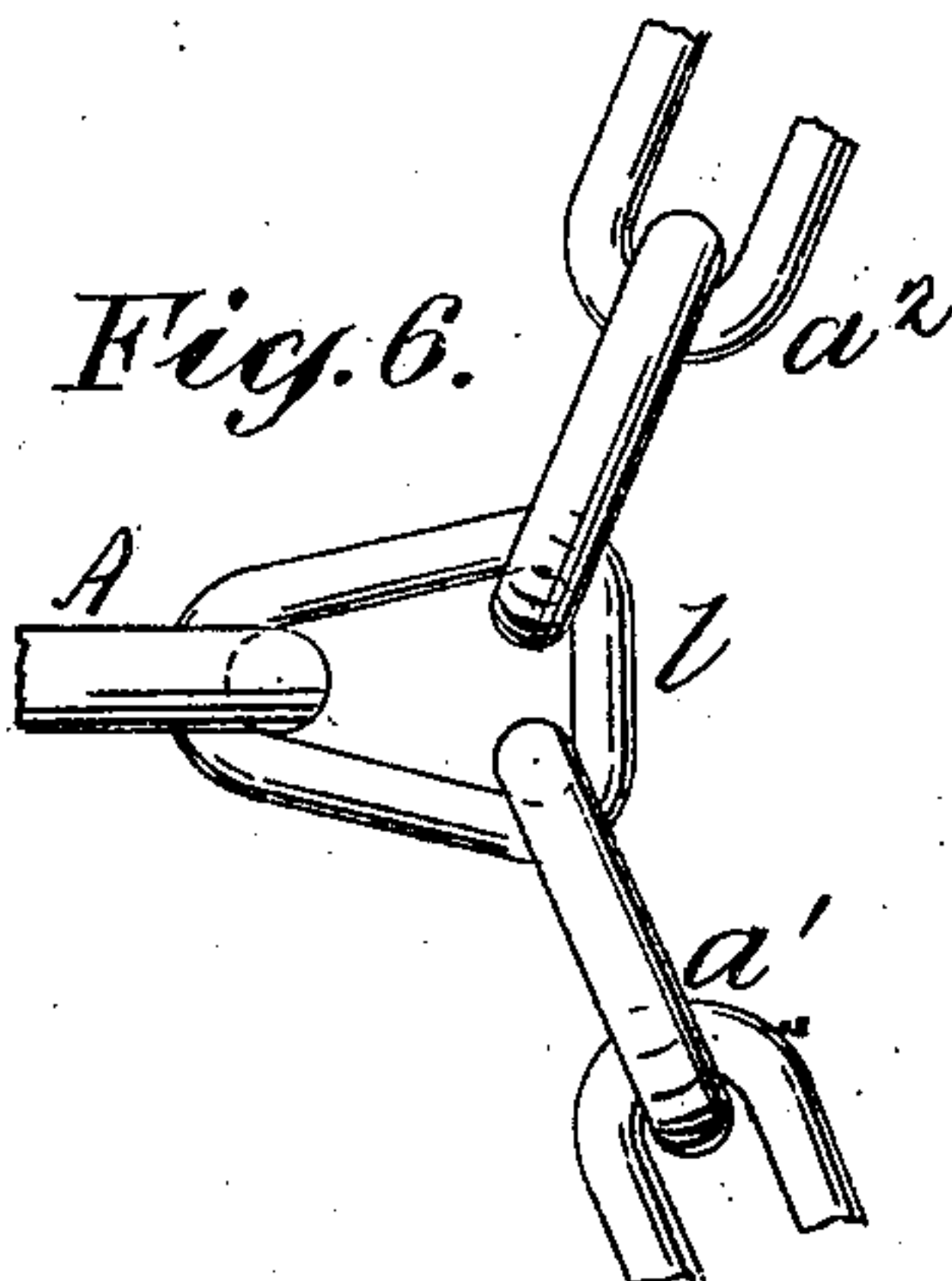
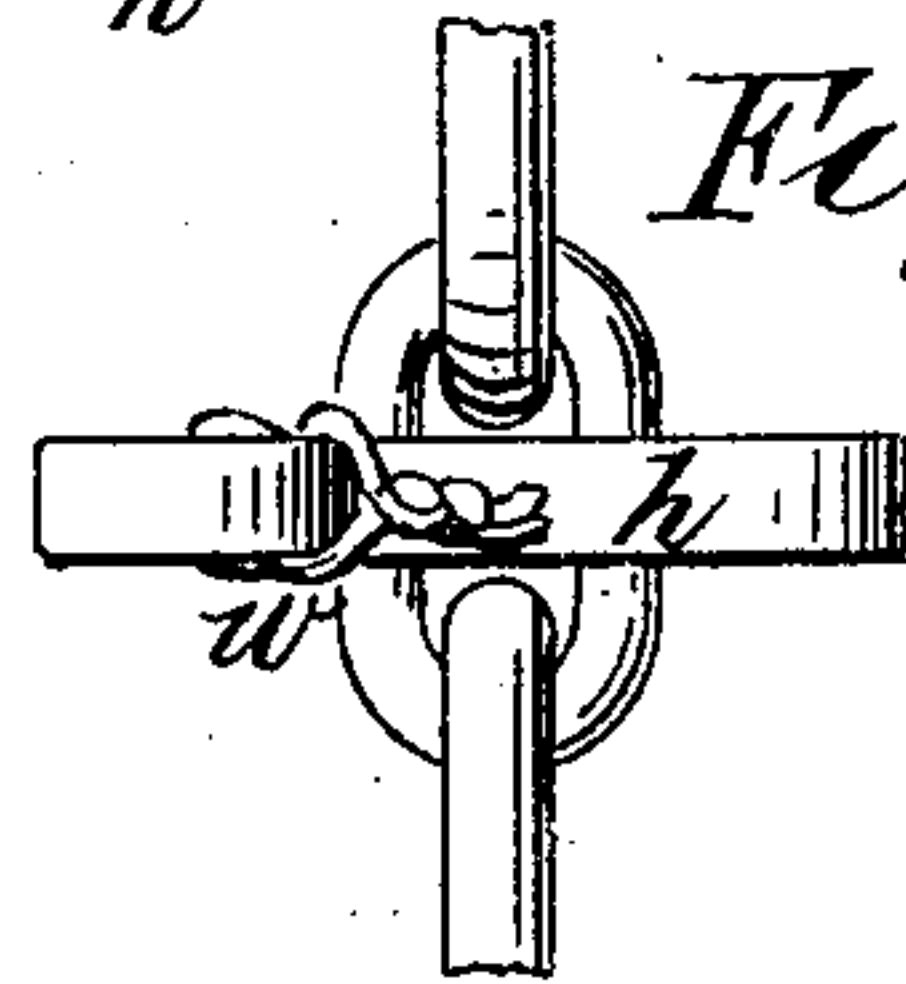


Fig. 5.



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2 SHEETS—SHEET 2.

Fig. 7.

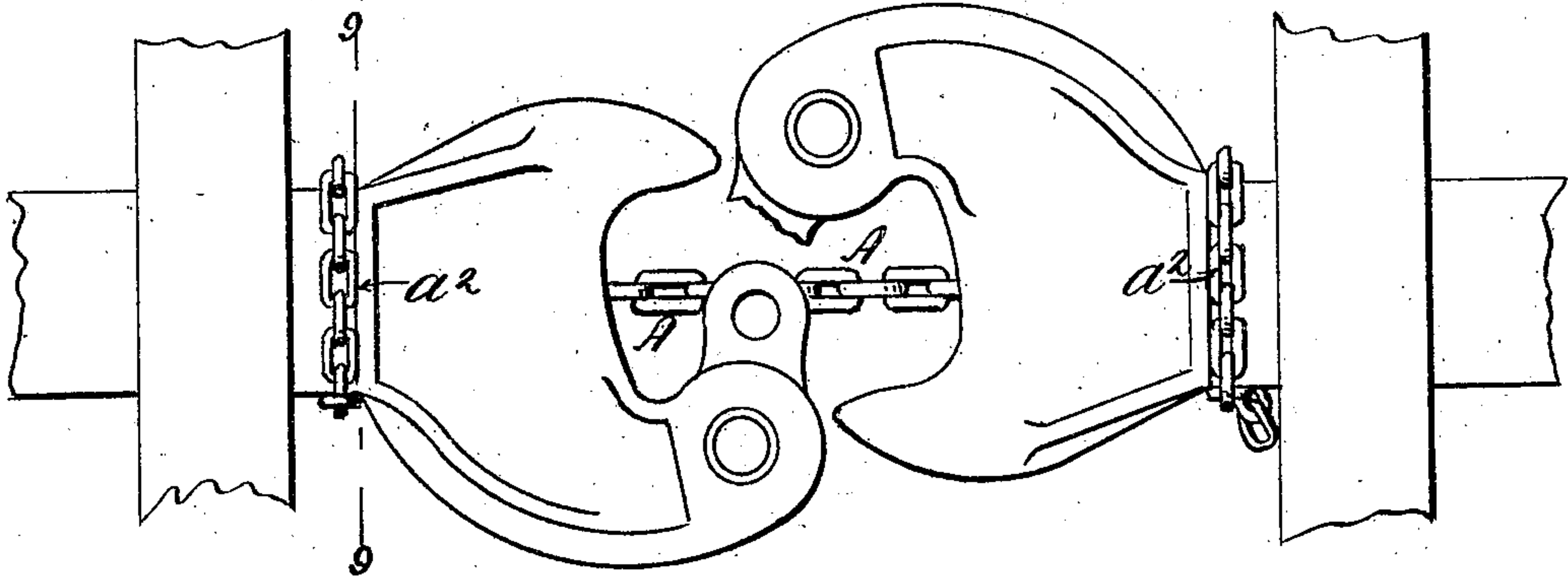


Fig. 8.

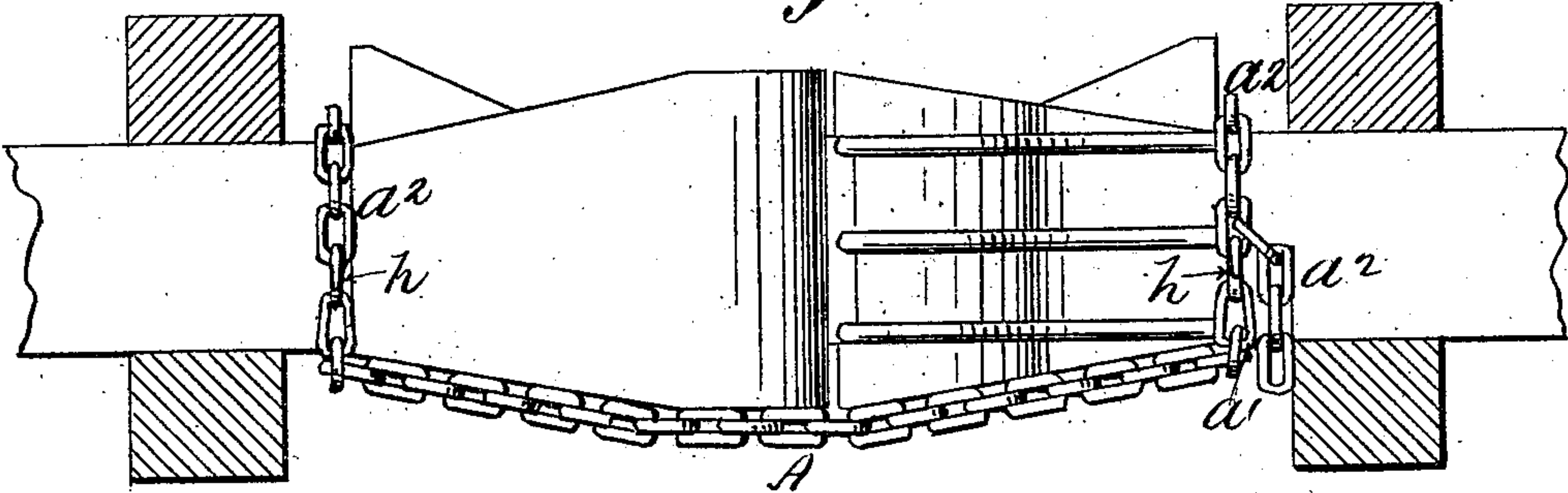


Fig. 10.

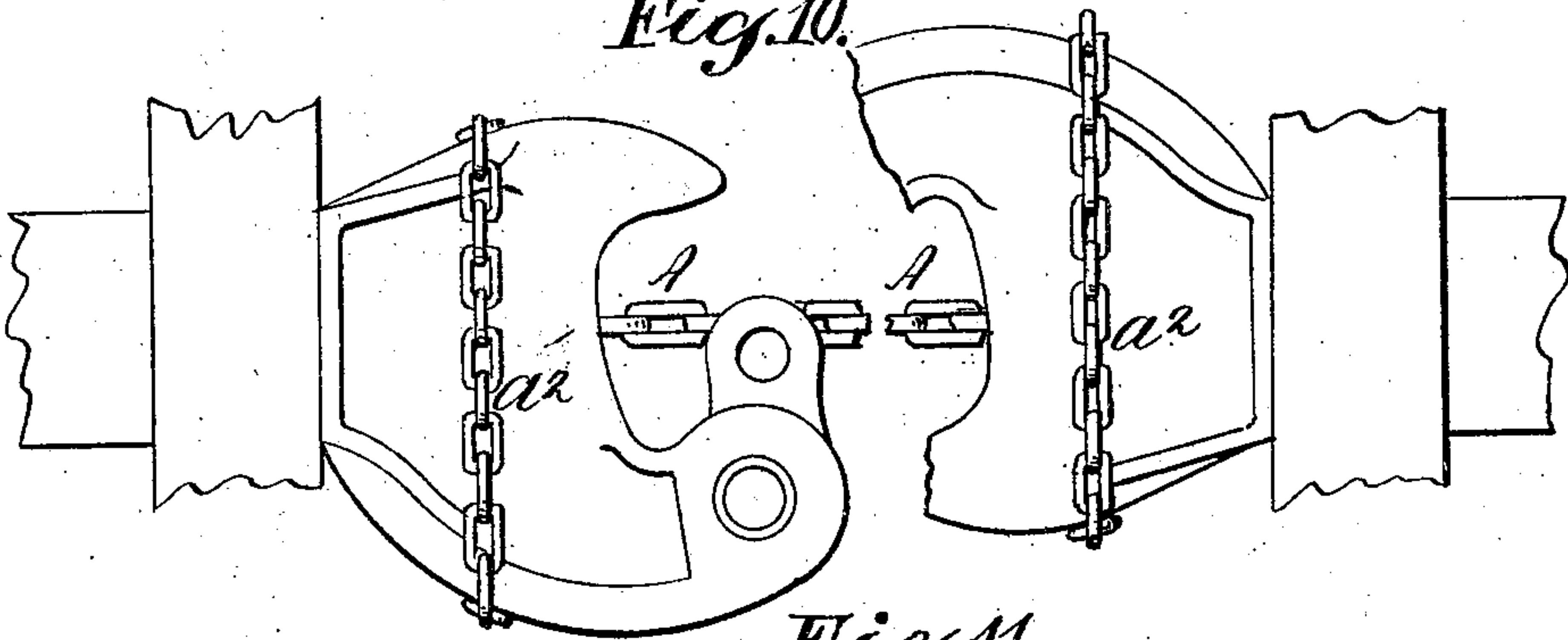
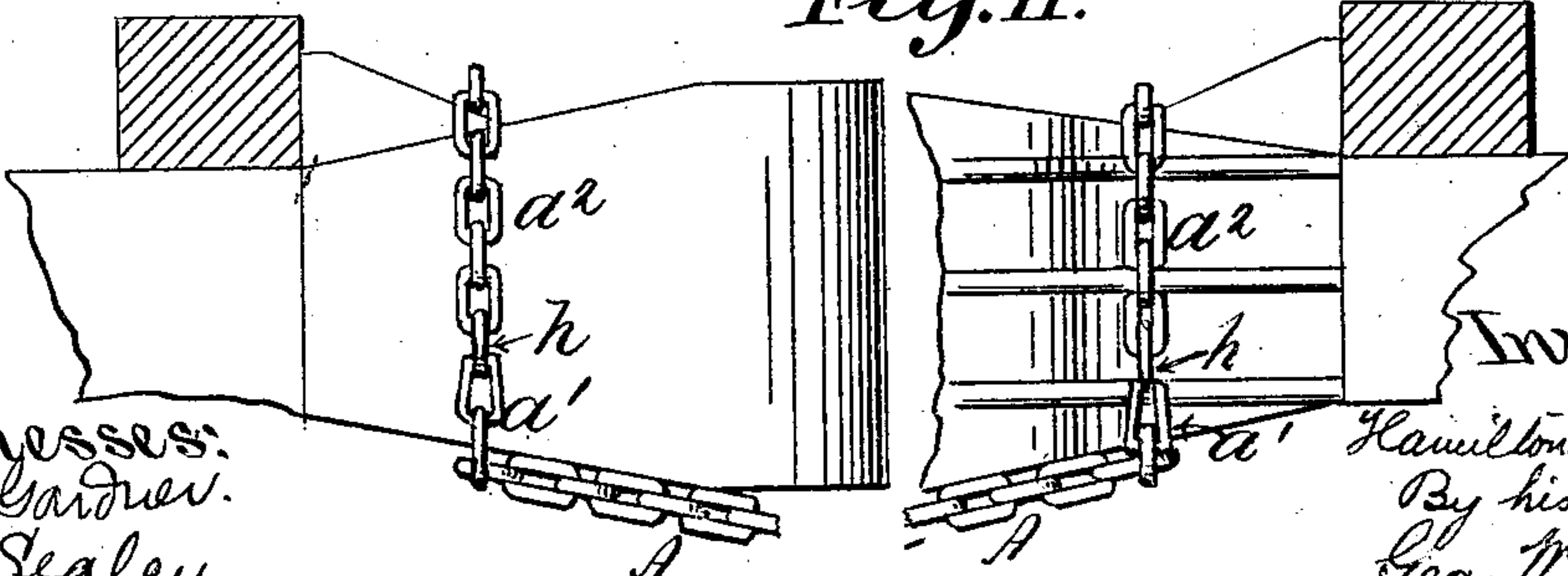


Fig. 11.



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UNITED STATES PATENT OFFICE.

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EMERGENCY-CHAIN FOR RAILROADS.

No. 819,265.

Specification of Letters Patent.

Patented May 1, 1906.

Application filed September 9, 1905. Serial No. 277,768.

To all whom it may concern:

Be it known that I, HAMILTON E. BROWN, a citizen of the United States, residing at Yonkers, Westchester county, and State of New York, have invented certain new and useful Improvements in Emergency-Chains for Railroads, of which the following is a specification.

My invention relates to what are known as "emergency-chains" used on railways for the purpose of temporarily connecting the adjacent ends of cars when the means for coupling the same are rendered inoperative from any cause, as by reason of lack of alinement between opposed draw heads and bars, slip resulting from excessive wear to draw-heads, knuckles, or other parts, broken draw-heads, knuckles, or pin-holes, difference in make of opposed draw-heads, &c.

Heretofore what are known on the railroads as "standard emergency-chains" have been constructed of a single length extending about fourteen feet, with a large loop at one end and a hook at the other, the cross-section of the metal composing the links being seven-eighths of an inch in diameter and the chain as a whole weighing about one hundred and seventy pounds. In use the end of the chain provided with the loop is passed around a truss-rod or other portion of the underbody of a car or around the king-bolt casing or a draft-timber or other portion of a truck, the hook and body of the chain being passed through a loop and then around any like available portion of the adjoining car or truck, the chain being then doubled back upon itself, so that the hook may be connected with the loop, the object of doubling being not only to afford the requisite strength to withstand the shock and strain resulting from such rigid connections, but also to render the coupling as short as possible, consistent with the requisite play or clearance between the opposed ends of the cars and a chain of exceptional length being necessary in order to make connections with various parts underneath the different car-bodies, as has heretofore been customary. In other words, a considerable surplus of chain has to be provided in the old form of standard emergency-chain to insure the requisite margin of strength and to compensate for irregularities in distance between the parts to be coupled together by the chain, necessarily rendering the latter heavy and cumbersome and difficult to manipulate. Furthermore, the parts

to which it is designed to be attached, as above set forth, are difficult of access, and the whole operation of thus connecting the adjoining ends of two cars is long and tedious and the cause of much vexation and delay under ordinary conditions of use.

The object of my invention is to obviate these difficulties and to afford a relatively light emergency-chain adapted to be conveniently applied to the draw-heads or draw-bars of adjoining cars in case the coupling mechanism is broken or inoperative from any cause—in fact, to afford adequate means whereby a supplementary coupling of the draw-bars may be quickly effected in case of necessity in such manner that the elasticity of the draw-bar springs may still be utilized in the draft. This latter feature is of importance in that a much lighter chain may be used than that which is indispensable in the old form of standard emergency-chain, which, moreover, is not designed nor adapted for application to draw-bars, and which can only be connected with rigid parts of a car-truck or car structure, in which case the dead strain is very severe. Hence, owing to its comparative lightness, my new emergency draw-bar-coupling chain may be readily handled and manipulated by one person and applied to adjoining draw-bars in a small fraction of the time involved in the use of the old emergency-chain and method of temporary copulation. In fact, I have found by actual experience that approximately only one-tenth the time is involved in connecting two cars by the use of my emergency draw-bar-coupling chain as compared with the use of the old form of emergency-chain, while obviously the copulation is more safe and advantageous, since the rolling-stock is not subjected to the severe jar and strain unavoidable where the connections are made with rigid parts.

My invention consists, essentially, in a draw-bar-coupling chain having one or both of its ends bifurcated to straddle a draw-bar or draw-head, one of the bifurcated parts being formed with a hook of special construction for engagement with a link of the other bifurcated part and the latter being of greater length than the branch provided with the hook, so as to compensate for differences in the size of draw-heads or draw-bars, it being desirable that the bifurcated end of the chain be drawn and held taut over the part to which it is applied.

My invention also includes certain other

special features of construction hereinafter described and claimed—as, for instance, the making of the main or draft chain or portion of the coupling of a chain of larger size and strength than a chain used to form the bifurcated ends of the coupling.

In the accompanying drawings, Figure 1 is a view of the simpler form of my draw-bar-coupling chain, the parts being extended for convenience of illustration. Fig. 2 is a similar view of a preferred form of the chain having both its extremities bifurcated. Fig. 3 is a detail, upon an enlarged scale, of the special form of hook used upon my coupling-chain; Fig. 4, a similar view illustrating a special use of the hook, the link in engagement therewith being shown in cross-section; Fig. 5, a view of the parts shown in Fig. 4, taken at right angles thereto. Fig. 6 is a detail view, upon an enlarged scale, of the triangular link used at the bifurcation of the chain. Fig. 7 is a top view of adjacent portions of draw-heads, draw-bars, &c., illustrating the practical application of my draw-bar-coupling chain. Fig. 8 is a side elevation of the parts shown in Fig. 7; Fig. 9, a transverse section taken upon plane of line 9 9, Fig. 7. Fig. 10 is a top view of adjacent portions of draw-heads, draw-bars, &c., in which the draw-heads are close to the head-blocks, illustrating the practical application of my draw-bar-coupling chain under such conditions. Fig. 11 is a side elevation of the parts shown in Fig. 10.

In the simpler form of coupling shown in Fig. 1 one end a of the main or draft chain A is formed with a hook h , while the other extremity is bifurcated, being formed with a hook extension a' and with an auxiliary extension a^2 . In this case the end a of the chain is looped around a draw-bar or draw-head, the loop being secured by the engagement of the hook h with one of the links of the chain and the other or bifurcated end of the coupling-chain being connected with the opposed draw head or bar in the manner hereinafter set forth. I prefer, however, to make the draw-bar-coupling chain duplex in form—that is to say, with both of its extremities bifurcated—as shown in Fig. 2. This is the form of coupling-chain shown in Figs. 7 to 11, inclusive. Thus each end of the main or draft chain A has attached to it a hook extension a' and an auxiliary extension a^2 .

All three parts (the draft-chain A, hook extension a' , and auxiliary extension a^2) are preferably united by a triangular link l . (Shown clearly in Fig. 6, by reference to which it will be seen that the angles of the link l constitute seats for the connecting-links of the respective chains.) By this means interference or crowding of the links is avoided, the parts lie snug and flat in use, and the strain is evenly distributed throughout.

The hooks h used on the coupling-chain are also of special construction in that they are formed with inner surfaces h' h' , which are parallel for a distance sufficient to accommodate between them both sides or members of a link over which the hook may be passed, as shown in Fig. 4. When thus passed over the entire link instead of through it, as in Fig. 3, the inner sides of the hook embrace closely both sides or longitudinal members of the link, and the pressure or strain upon both hook and link is distributed and rendered uniform.

The engagement between link and hook may be rendered positive for the time being by means of a wire bolt w , passed through a lateral hole h^2 , formed in the hook for the purpose, the wire encircling the hook and being fastened in position by twisting its ends together, as illustrated in Fig. 4.

The main or draft portion A of the chain is preferably made of metal seven-eighths of an inch in diameter in cross-section, while the hook extension a' and auxiliary extension a^2 may be made of metal five-eighths of an inch in diameter in cross-section. The main chain A is approximately eighteen inches in length in the preferred duplex form of coupling, while the hook extension a' is about one-half the length of the auxiliary extension a^2 . By thus proportioning the hook extension a' with relation to the auxiliary extension I am enabled to arrange so that the connection between the two may be effected at the side of the draw-head or draw-bar instead of above the same, which is the point of greatest strain during draft. Thus I relieve the hook and engaging link from the maximum strain.

The main portion or draft-chain of the coupling is above described, and shown in the drawings, as extending under the draw-heads, although obviously it may be otherwise arranged, if found expedient, with like results.

The practical application of my invention is illustrated in the last five views of the drawings, by which it will be seen that the bifurcated ends of the main chain A, constituted by the hook extensions a' and the auxiliary extensions a^2 , are passed around or made to straddle from the under side either the draw-bars behind the draw-heads or the draw-heads themselves, as may be found most expedient, the bifurcated ends being hooked together, as herein set forth, and positive connections being insured and maintained between the parts by wiring the hooks, if deemed expedient. In either case the draft is met and neutralized by the draw-bar springs and sudden undue strain is obviated, so that a single length of draft-chain is ample, my draw-bar chain coupling as a whole being only about one-third as heavy as the emergency-chain heretofore used. In this connection it may be mentioned that the tri-

angular link performs an important function in that it provides for the perfect alinement of the hook extension and the auxiliary extension with relation to each other and at right angles to the main draft or chain—a matter of some importance in the practical application of the emergency-coupling, because by its use the bifurcated ends of the coupling may be made to fit the draw-head or draw-bars snugly and evenly and in such manner that the strain of draft from the main chain is imparted to and distributed between both the auxiliary and the hook extensions equally, thereby admitting of the use of lighter extension-chains than would be otherwise safe or expedient.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A draw-bar emergency coupling-chain formed with a bifurcated end consisting of an auxiliary extension, and a hook extension, said extensions adapted to pass around one draw-bar with the hook engaging the auxiliary extension, and the other end of the chain having a hook and adapted to pass around the other draw-bar, the hook engaging in a link.

2. A draw-bar emergency coupling-chain formed with bifurcated ends each consisting of a hook extension and an auxiliary extension, the hook extension being formed with a

hook having a lateral hole through one of its members, for the purpose set forth.

3. A draw-bar emergency coupling-chain formed with bifurcated ends each consisting of a hook extension and an auxiliary extension, the hook extension being formed with a hook having inner parallel surfaces and with a lateral hole through one of its members for the purposes set forth.

4. A draw-bar emergency coupling-chain formed with bifurcated ends each consisting of a hook extension and an auxiliary extension united to the main portion of the chain by a triangular link, the hook extension being formed with a hook having a lateral hole through one of its members, for the purpose set forth.

5. A draw-bar emergency coupling-chain formed with bifurcated ends each consisting of a hook extension and an auxiliary extension united to the main portion of the chain by a triangular link, the hook extension being formed with a hook having inner parallel surfaces and with a lateral hole through one of its members for the purposes set forth.

HAMILTON E. BROWN.

Witnesses:

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GEO. WM. MIATT.