

(No Model.)

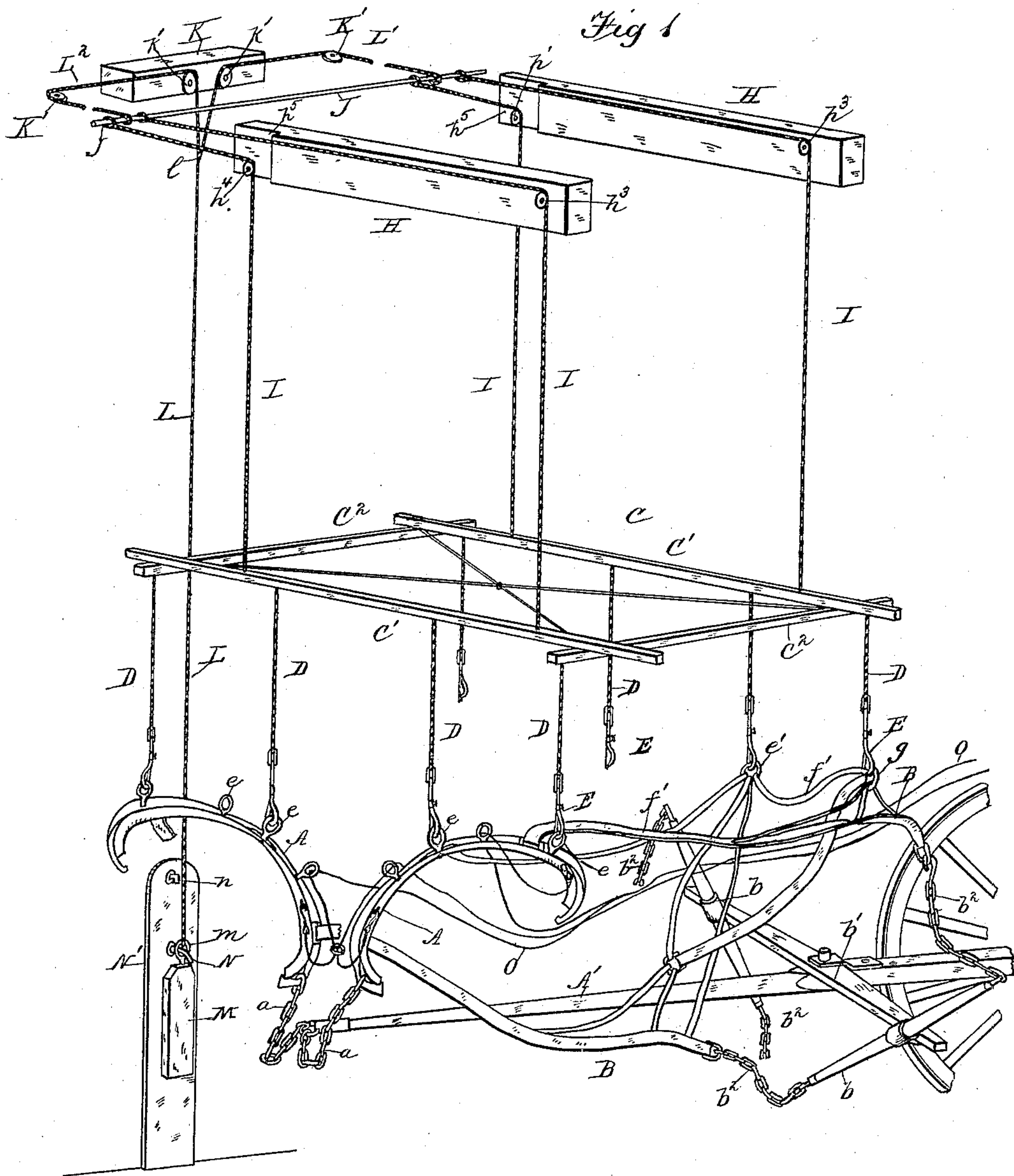
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G. C. HALE.

DEVICE FOR SUSPENDING HARNESS.

No. 330,320.

Patented Nov. 10, 1885.



attest:
A. L. Keaton
A. L. Keaton.

Inventor:
George C. Hale
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(No Model.)

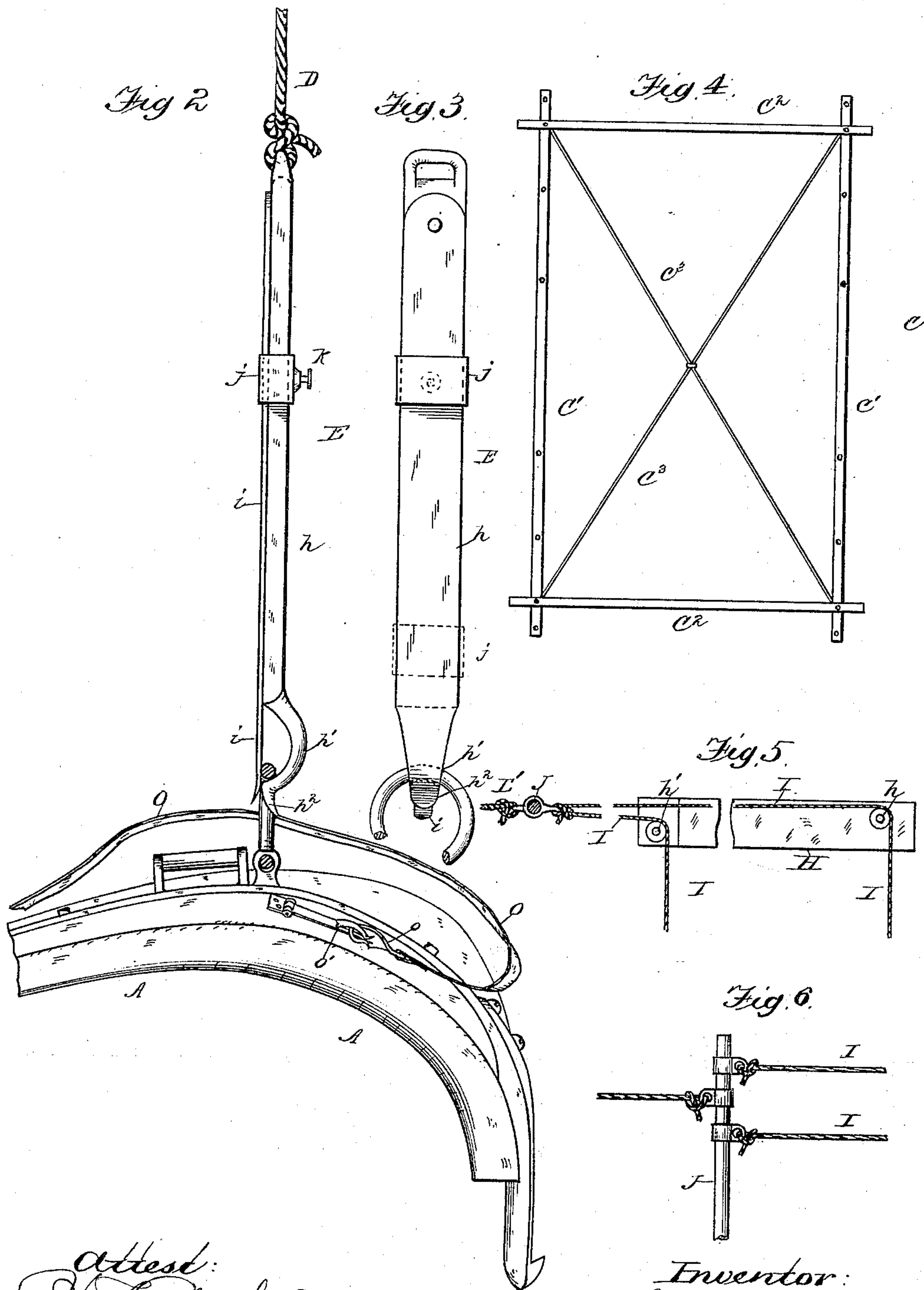
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G. C. HALE.

DEVICE FOR SUSPENDING HARNESS.

No. 330,320.

Patented Nov. 10, 1885.



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G. C. HALE.

DEVICE FOR SUSPENDING HARNESS.

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Fig. 7.

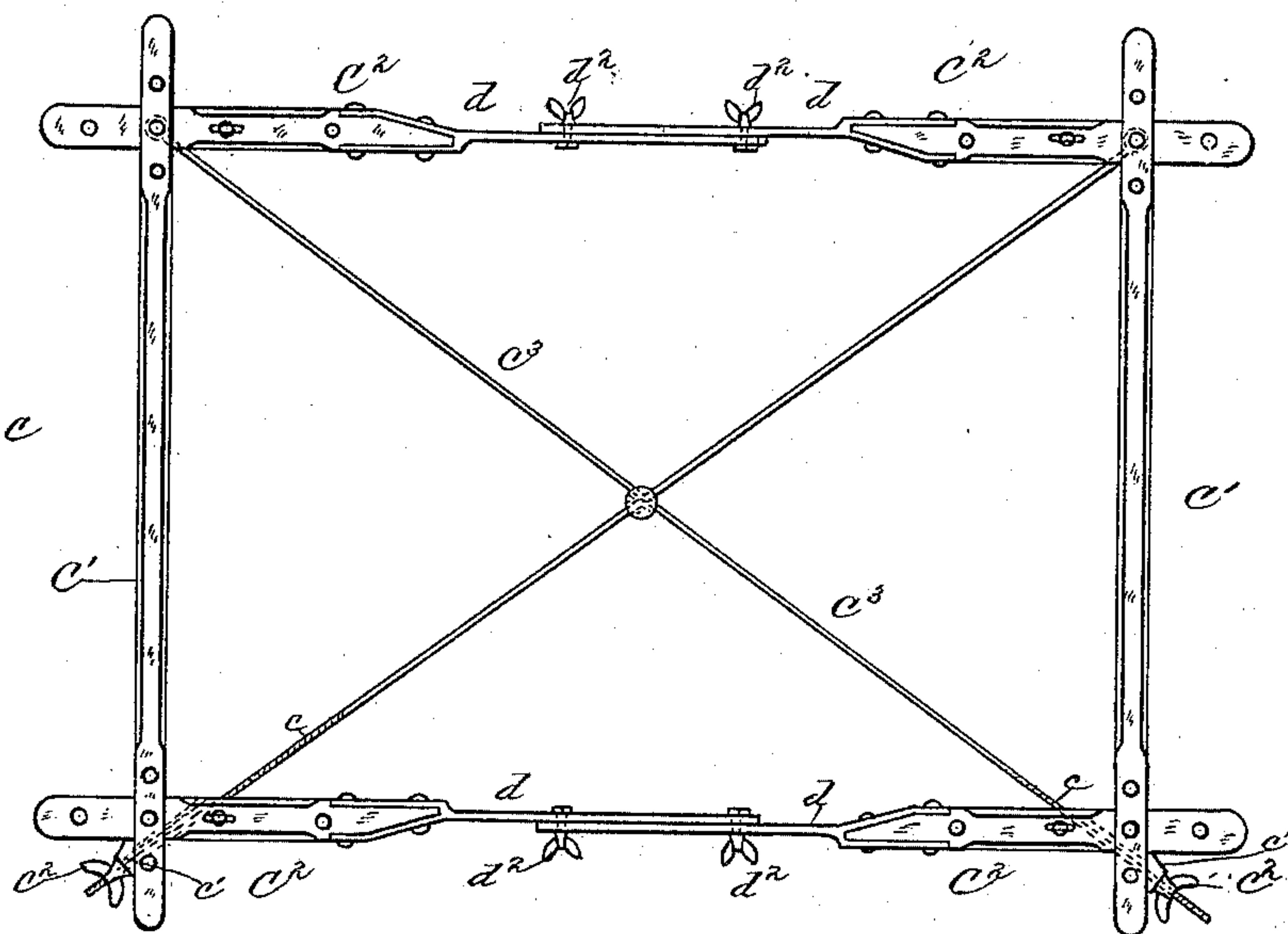


Fig. 8.

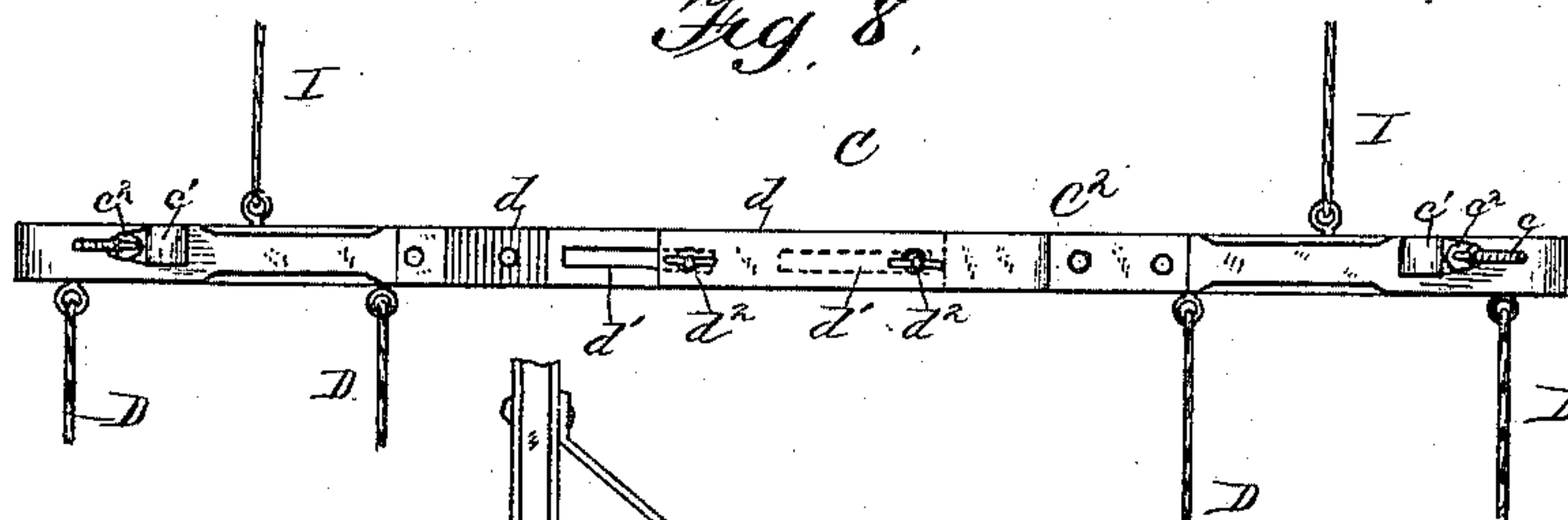
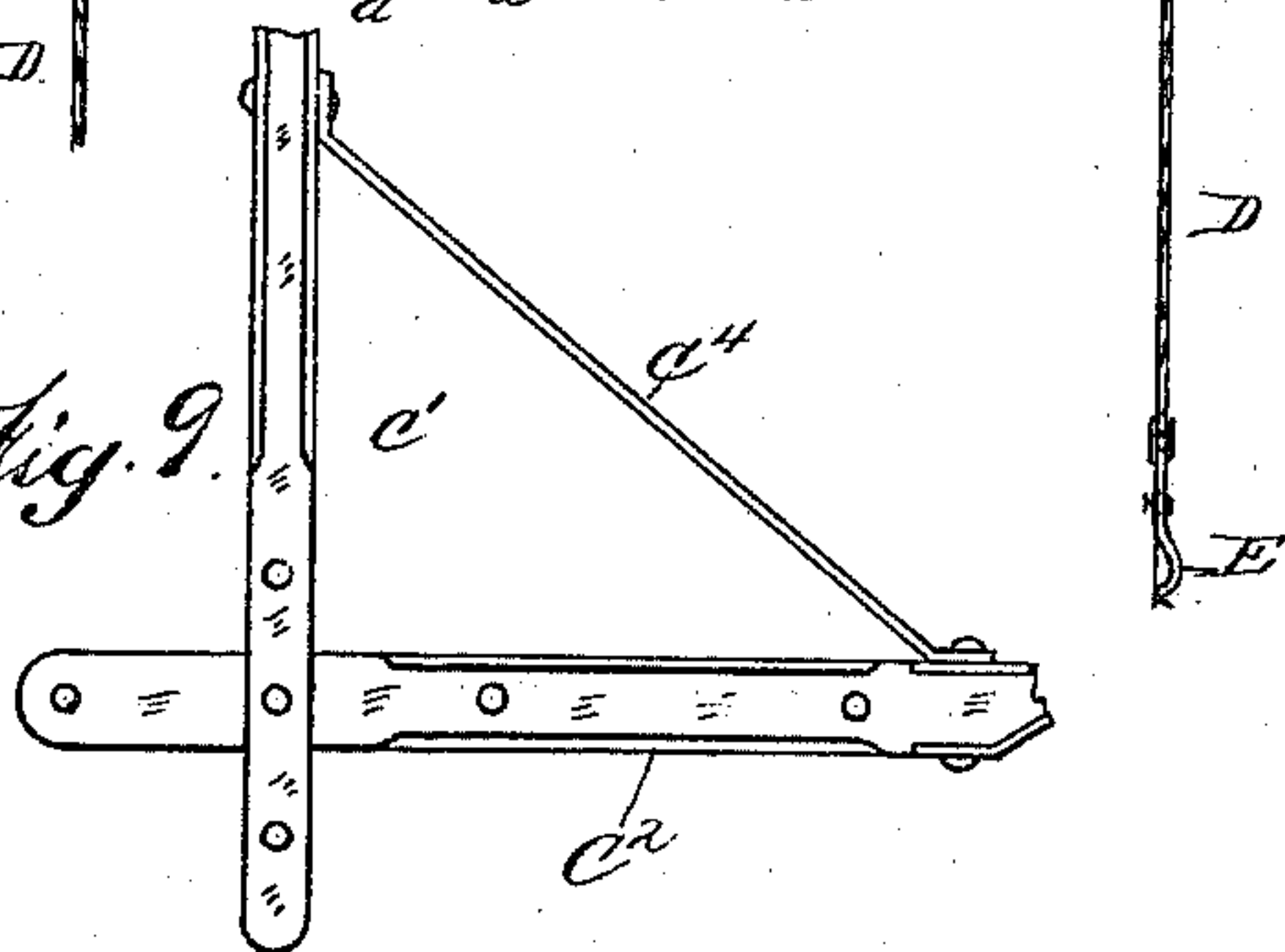


Fig. 9.



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UNITED STATES PATENT OFFICE.

GEORGE C. HALE, OF KANSAS CITY, MISSOURI.

DEVICE FOR SUSPENDING HARNESS.

SPECIFICATION forming part of Letters Patent No. 330,320, dated November 10, 1885.

Application filed February 2, 1885. Serial No. 154,616. (No model.)

To all whom it may concern:

Be it known that I, GEORGE C. HALE, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Swinging Harness, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in swinging harness, especially adapted for use by fire-departments; and the novelty consists in the construction, combination, and the adaptation of the various parts for service, substantially as hereinafter fully set forth, and more particularly pointed out in the claims.

My invention has for its object to wholly suspend a swinging harness over the pole of a fire-engine or like apparatus, so that the horses can readily place themselves in position for hitching without obstruction by the harness, and with one effort to detach the harness simultaneously with the lowering thereof from its suspending-frame.

My invention has, further, for its object the provision of means whereby the harness can be suspended at proper height and be quickly and readily detached from the suspending devices and secured in position on the horses.

In the drawings, Figure 1 is a perspective view of a swinging harness embodying my invention in position over the pole of a fire-engine or like apparatus, showing one complete set of harness, the other set, exclusive of the collar, being omitted for the sake of clearness. Fig. 2 is an enlarged detail view of the suspending-hook and the collar. Fig. 3 is an enlarged side elevation of the hook. Fig. 4 is a plan view of the harness-suspending frame detached from the apparatus, and Figs. 5 and 6 are enlarged details of the equalizing-rod. Figs. 7 and 8 are a plan and side elevation of the suspending-frame when made adjustable, and Fig. 9 is an enlarged detail thereof.

Referring to the drawings, A designates a collar, the lower end of one side of which is connected by a chain or strap, a , with the forward end of the pole A' ; B B, the traces or tugs, connected at their rear ends with a whiffletree, b , by chains b^2 , secured to the double-tree, the latter being pivoted to the pole A' , as usual.

For the sake of clearness, I will describe only one set of harness; but it will be understood that two sets of harness are generally, if not universally, used. I preferably employ in this apparatus a collar constructed in accordance with the device shown and described in Letters Patent No. 229,120 granted to me on June 22, 1880; but I would have it understood that I hold myself at liberty to employ a collar of any construction other than that shown in said Letters Patent, in which safety from flying open and quickness of adjustment, &c., are combined.

C designates the harness-suspending frame, preferably, though not necessarily, rectangular, composed of side and cross bars, C' C^2 , secured together at their ends and strengthened by straining-rods C^3 , running diagonally across from corner to corner of the frame, as shown. One end of each of the rods C^3 is rigidly secured so the frame at the angle formed by the meeting ends of the cross and side bars, while the other end is screw-threaded, as at c , and passes through slots in the bars C' C^2 and bearing-blocks c' , and receive thumb-nuts c^2 , thus providing means whereby the frame can be made more rigid by taking up slack in the joints thereof. The frame may be made rigid, as shown in Figs. 1 and 4, above described, or adjustable, to accommodate harnesses of varying sizes, as shown in Figs. 7, 8, and 9. When the frame is made adjustable, the side bars, C^2 , are each preferably formed in two pieces or sections, in which case one end of each section is secured to the cross-bar C' , while the other end is preferably provided with a slotted strap, d , bolted or otherwise secured thereto, as presently described. The sections are secured together in any desired position by means of one or more pins or bolts which pass through the slotted straps and are held by means of thumb-nuts d^2 , or keys which are driven through slots in the bolts.

In lieu of the straining-rods C^3 , I may employ braces C^4 and secure them to the cross and side bars, C' C^2 , at the angle formed by the meeting ends of said bars, as seen by reference to Fig. 9, thus providing strong braces at the points of strain. It will be observed that by means of the slotted side bars and means for securing the same together the frame C can be adjusted in the direction of the length of

the harness, so as to accommodate harnesses of different sizes, which is greatly desired.

D designates cords, ropes, chains, or straps for suspending the harness from the frame C, one end of each cord or chain being connected to the frame, while the lower end thereof is provided with means—as, for example, a combined spring and hook, E, presently described—for attachment to the harness.

I employ four cords or chains and hooks for suspending each set of harness, two of which are arranged at the front of the harness for attachment to the collar, while of the remaining pair one engages a ring on the back-band and the other the outside trace. The two front suspending-cords, which are preferably not secured to the same bar of the frame C, engage the middle and outside terrets or rings *e* of the collar, thus elevating the outside end of the collar and holding the sections thereof apart. The frame-suspending cords I and the harness-suspending cords D may, if preferred, all be attached to the end bars of the frame. Cords and hooks are arranged at the rear of the frame in like manner as those at the front thereof, for supporting the traces, &c., the hook suspended from the cross-bar C' engaging the ring *e'*, which connects the back band and straps, and the hook suspended from the side bar engaging the ring *g*, which connects the back-strap *f'* and outside trace, B.

It will be observed that the harness is wholly suspended and free from the apparatus, and that the collar is tilted to one side and the outside trace elevated to a height sufficient to enable the horse to quickly and readily move into proper position without obstruction from the traces, collar, or other portion of the harness.

The snap-hook E consists of a bar having a flat rectangular body, *h*, provided with or formed into, at its lower end, a hook, *h'*, and a spring, *i*, riveted at its upper end to the bar and adapted to bear at its lower end on the extreme end of the hook *h'*, as shown. The hook is provided with a lip, *h''*, having a beveled or rounded inner surface, to enable a ring or terret of the harness to pass readily into the hook, the lower end of said hook being abruptly curved inward to bring the weight of the harness thereon and relieve the spring from strain, while the force of spring *i* can be varied by means of the sleeve *j*, adapted to slide up and down on the bar and spring, and provided with an adjustable screw, *k*, adapted to bear on the rear surface of the bar, and thus hold the sleeve in any desired position thereon.

H H designate cleats or bars secured to the ceiling immediately over the cross-bars C' C', each having rollers *h³ h⁴*, the roller *h⁴* being set on a plane below its fellow, and mounted in a cut-away portion, *h⁵*, of the rear end of the bar H.

The frame is suspended in proper position by means of cords or ropes I I, preferably four in number, two secured to each end of the

cross-bars C', near the ends thereof, and thence passing over the pulleys *h³ h⁴*, and connecting with a rod, J, extending transversely across from bar to bar, the remaining two cords or ropes of each side bar being connected to the ends thereof, as shown.

K designates a bar or cleat secured to one of the walls of the room, near the ceiling thereof, provided with rollers *k'*, over which pass cords L' L' which are secured to the equalizing-rod J, and bear on pulleys K' K', the latter pulley K' being secured to the wall in a line with the bar K. The cords L' L' connect with the cord L, which extends down to the floor, and is provided with a hook or ring, *m*, and a weight, M.

N designates a hook secured to the wall or a post, N', over which is passed the ring or hook *m* of the cord L, thus serving to secure the rope L, by means of which the frame can be raised or lowered. When it is desired to lower the frame and harness for the purpose of cleaning the latter, the hook or ring *m* is disengaged from the hook N and passed over a hook or bracket, *n*, secured to the post N' at a distance above the hook *m* equal to the distance it is desired to lower the frame from its normal suspended position.

O designates the reins or lines of the harness, which are provided at their forward ends with snap-hooks *o*, which, when the harness is suspended, engage hooks *o'*, preferably of similar construction to the hooks E, secured to the collar and to the driver's seat of the apparatus, as is usual.

The operation of my invention is as follows: In case of the striking of an alarm of fire, the horses move to the proper position beneath the harness, when the latter is disengaged from the suspended frame by merely pulling down upon the same, after which the collar is fastened and the snap-hooks of the reins secured to the rings of the bits, the hook *o'* of the collar permitting of the ready withdrawal of the snap-hook *o*, which may be of any preferred construction. The frame, being relieved of the weight of the harness, will automatically be drawn up out of the way of the engine and driver by the counter-weight M and its suspending ropes or chains, the combined weight of the frame and harness being greater than the weight of the counter-weight. In order to overcome the danger of the harness falling too low, and to suspend the same at its proper height, I employ the hook *m*, located at a suitable point.

It will be observed that during the elevating of the frame by the weight the bars thereof are kept in a line with each other, or, in other words, the frame is maintained at a level and prevented from tilting to one side by the equalizing-rod J and the cords, two of the latter of which are arranged above the remaining two on cleats H, to prevent the cords from becoming entangled, and thus to enable them to work more effectually.

I attach importance to the suspending-frame,

whether made rigid or adjustable, to the means for maintaining the same in a horizontal position when drawn upward, to suspending the outer traces and collar, the former being hitched to the whiffletree, and to my particular construction of snap-hook.

I am aware that modifications in details of construction and of the form and proportion of parts herein shown and described can be made without departing from the principle or sacrificing the advantages of my invention—as, for instance, the side bars can each be made in one piece, of any preferred material, and the construction and arrangement of cleat H, pulleys, counter-weight, &c., can be changed. I would therefore have it understood that I do not confine myself to the apparatus herein shown and described as an embodiment of my invention, but reserve the right to make such changes as fairly fall within the scope of my invention herein disclosed, in view of state of art prior to the date of my invention.

It is obvious that in lieu of the cords for connecting the hooks or clamps to the suspended frame the necessary flexible connection can be secured by means of rods which are connected to the frame and provided at the lower end with suitable hooks or clamps.

Inventions herein shown and described, but not claimed, will be made the subject-matter of a separate application.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination, with a swinging harness, of a frame, harness suspended from said frame, cords or chains adapted to suspend the frame, and an equalizing-bar, substantially as and for the purpose specified.

2. The combination, with the swinging harness, of a rectangular suspended frame extending over the harness from front to rear and side to side, substantially as shown, and a series of hooks or clamps secured to the frame by means of cords or chains depending therefrom, all arranged and operating as and for the purpose set forth.

3. The combination, with a swinging harness, of a frame, harness suspended from said frame, cords or ropes connected with and adapted to suspend said frame, a hoisting-rope to which the frame-suspending cords are connected, a counter-weight, and a hook, as N, with which the counter-weight is adapted to engage, substantially as described, and for the purpose specified.

4. The combination, with a swinging harness, of a suspended frame, a set of harness detachably suspended therefrom, bars or cleats secured to the ceiling and arranged over the frame, cords or chains connected to the frame and adapted to suspend the same, an equaliz-

ing-bar, to which the frame-suspending cords are connected, and a rope, also connected to said bar and provided with a counter-weight, substantially as described, and for the purpose specified.

5. The combination, with a swinging harness, of a suspended frame, a set of harness detachably suspended therefrom, bars or cleats secured to the ceiling and arranged over the frame, cords or chains connected with and adapted to suspend the frame, an equalizing-bar, to which the frame-suspending cords are connected, and a rope, also connected to said bar and provided with a counter-weight adapted to engage a hook, as N, whereby when the harness is detached the weight will become disengaged from the hook and the frame be carried upwardly out of the way of the apparatus, substantially as described.

6. The combination, with a swinging harness, of a frame, a set of harness suspended therefrom by suitable means, as D, cleats or bars H, arranged over said frame and provided with rollers, frame-suspending cords I, bar J, having the ends of the cords I connected thereto, a cleat secured to the wall of the room and provided with pulleys, ropes, or chains L L', connected to the equalizing-bar and provided with a counter-weight, and a hook, as N, all arranged as shown and described, and for the purpose specified.

7. The combination, with a swinging harness, of a suspended frame having cords or chains provided with hooks depending therefrom, and its end bars adjustably connected together, substantially as described.

8. The combination, with a swinging harness, of a suspended counterweighted frame, composed of cross and side bars, the latter being made in two sections, each section provided with slotted straps and bolts for adjustably securing the same together, cords or chains connected to said frame and provided with hooks or clamps, and a set of harness with which the hooks are adapted to engage, substantially as and for the purpose set forth.

9. The combination, with a swinging harness, a suspended frame, ropes or cords, as D, connected thereto and provided at their free ends with hooks or clamps, as E, consisting of a bar provided with a hook at its lower end, a spring riveted to said bar, and a sliding sleeve provided with a thumb-screw, as and for the purpose described.

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

GEORGE C. HALE.

Witnesses:

THOS. H. EDWARDS,
H. G. CRAIN.