

(No Model.)

G. D. COLEMAN.
SHIP'S RIGGING.

No. 414,631.

Patented Nov. 5, 1889.

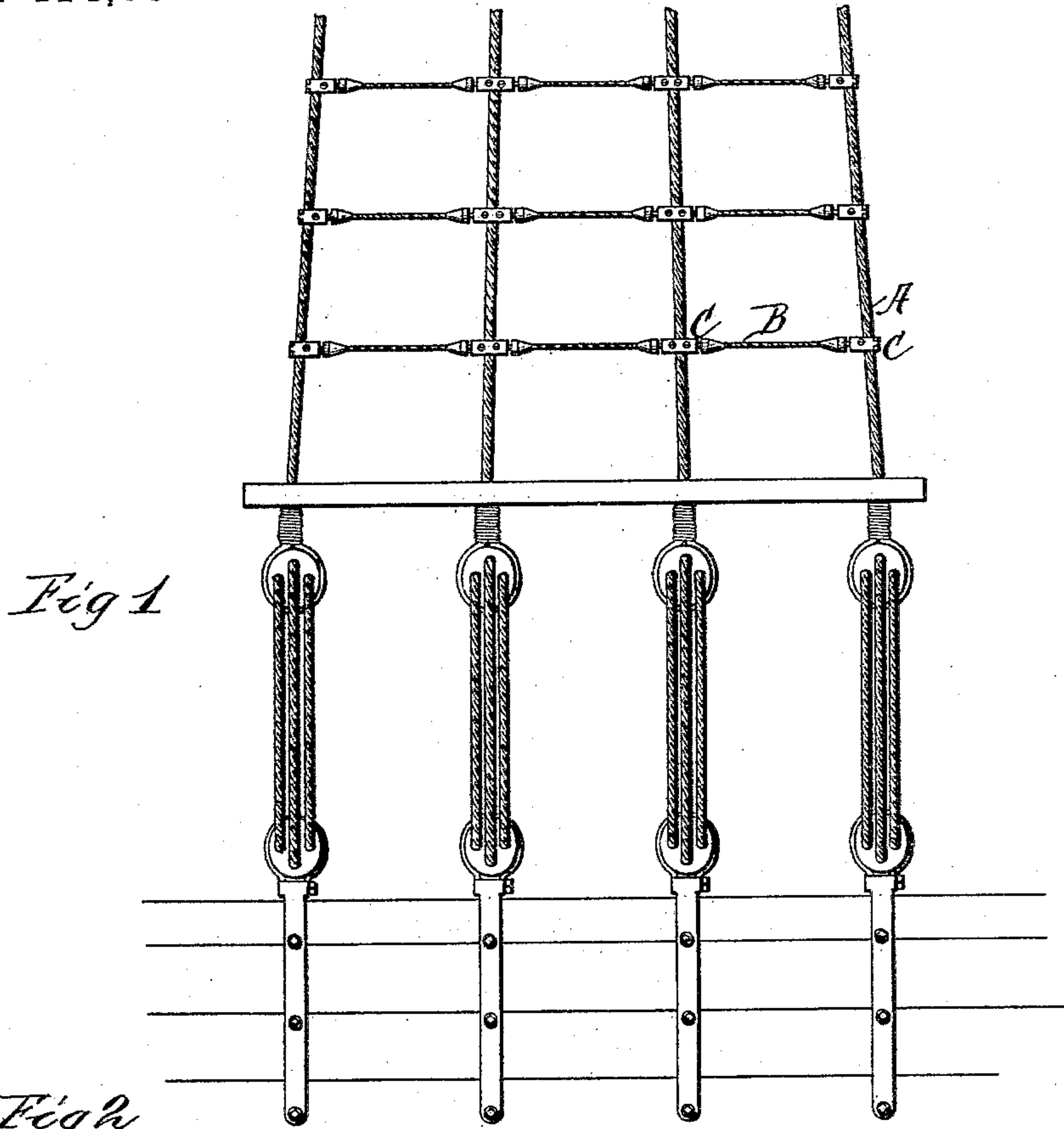
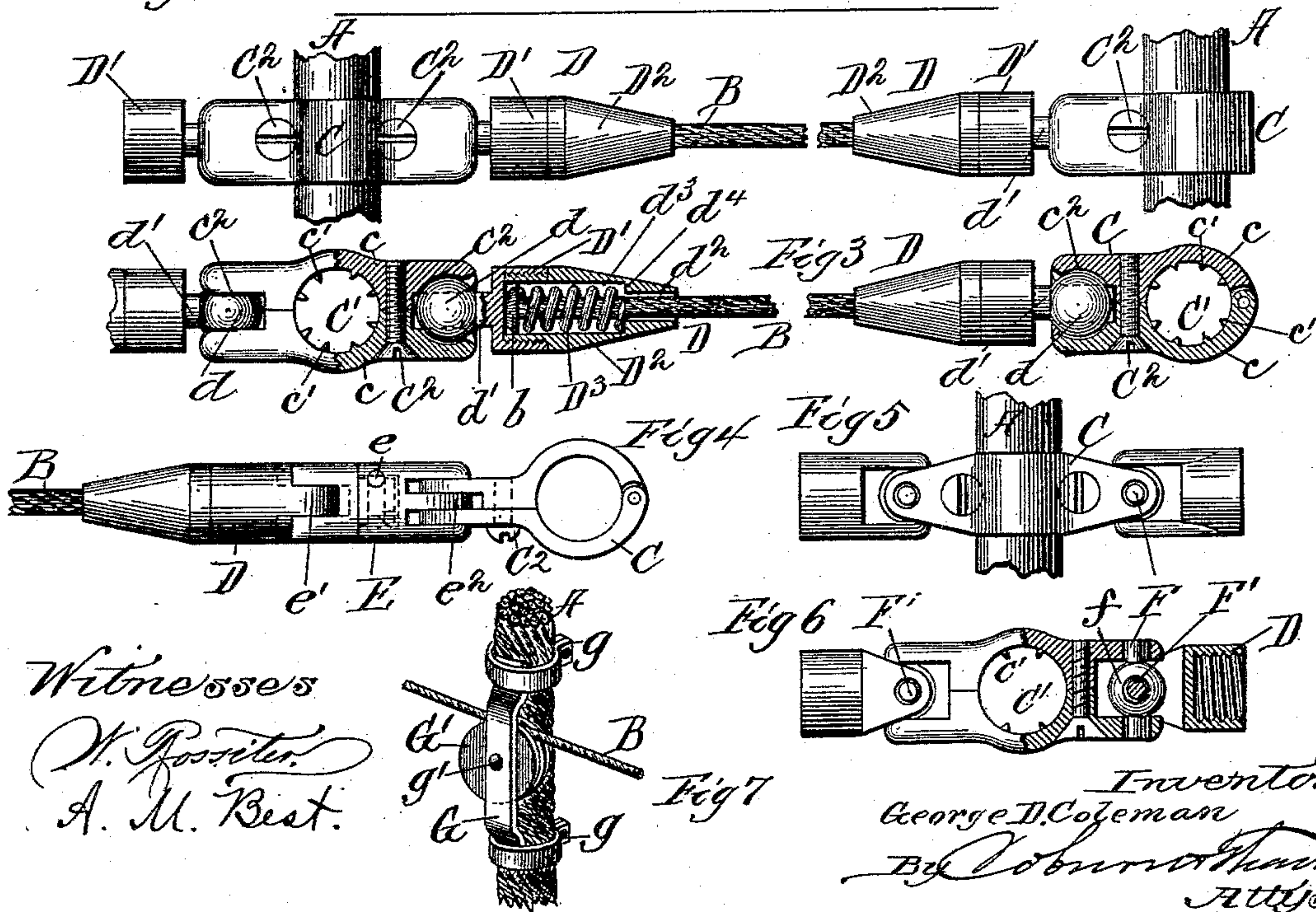


Fig 1

Fig 2



Witnesses

N. Rossiter.
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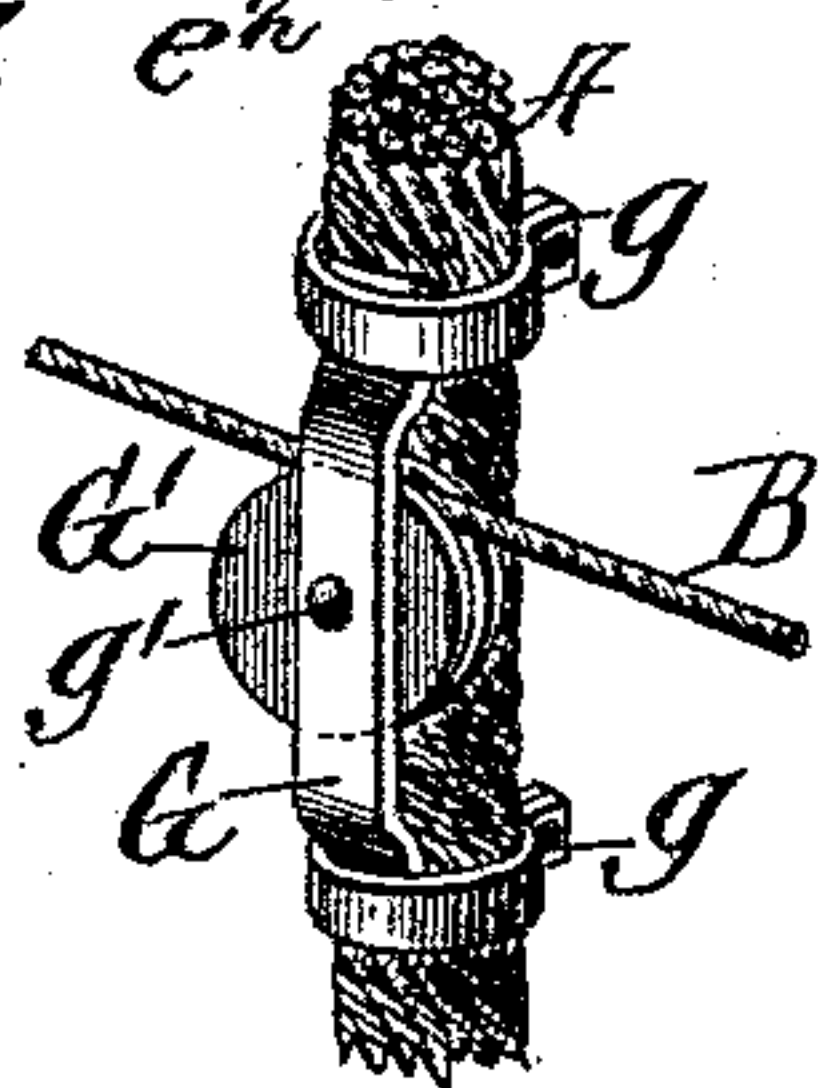


Fig 7

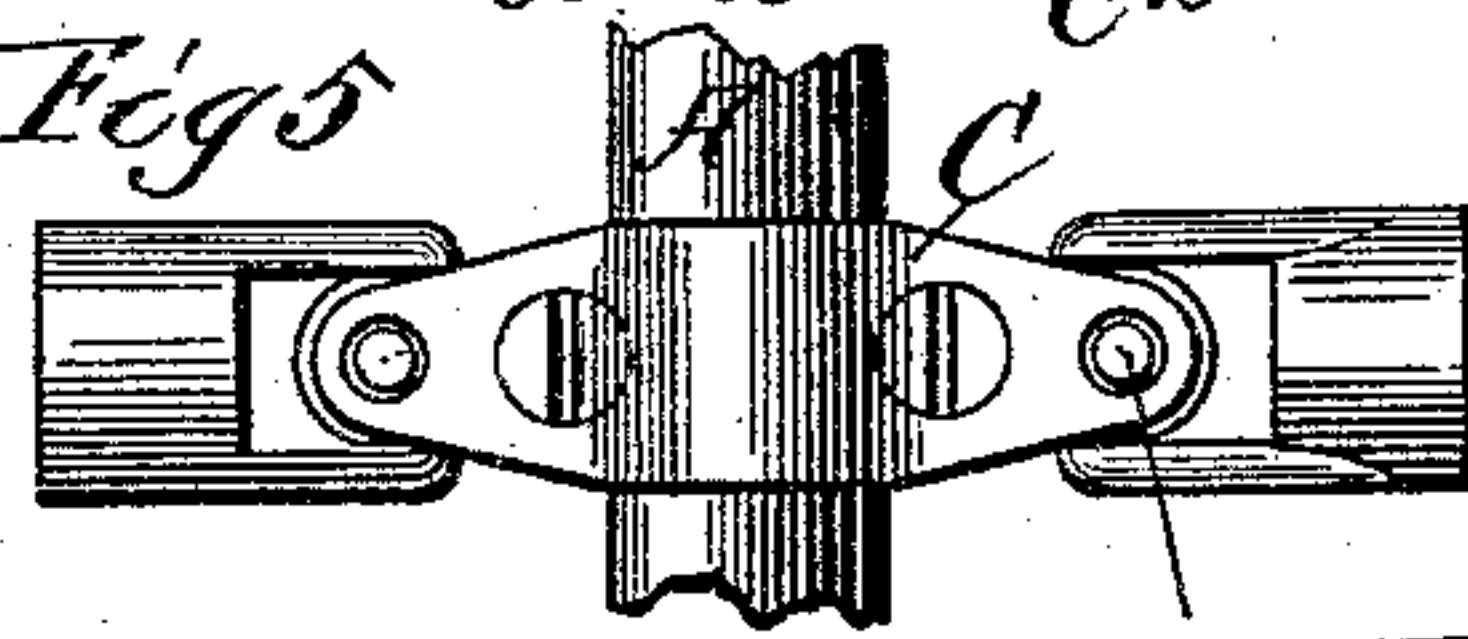


Fig 5

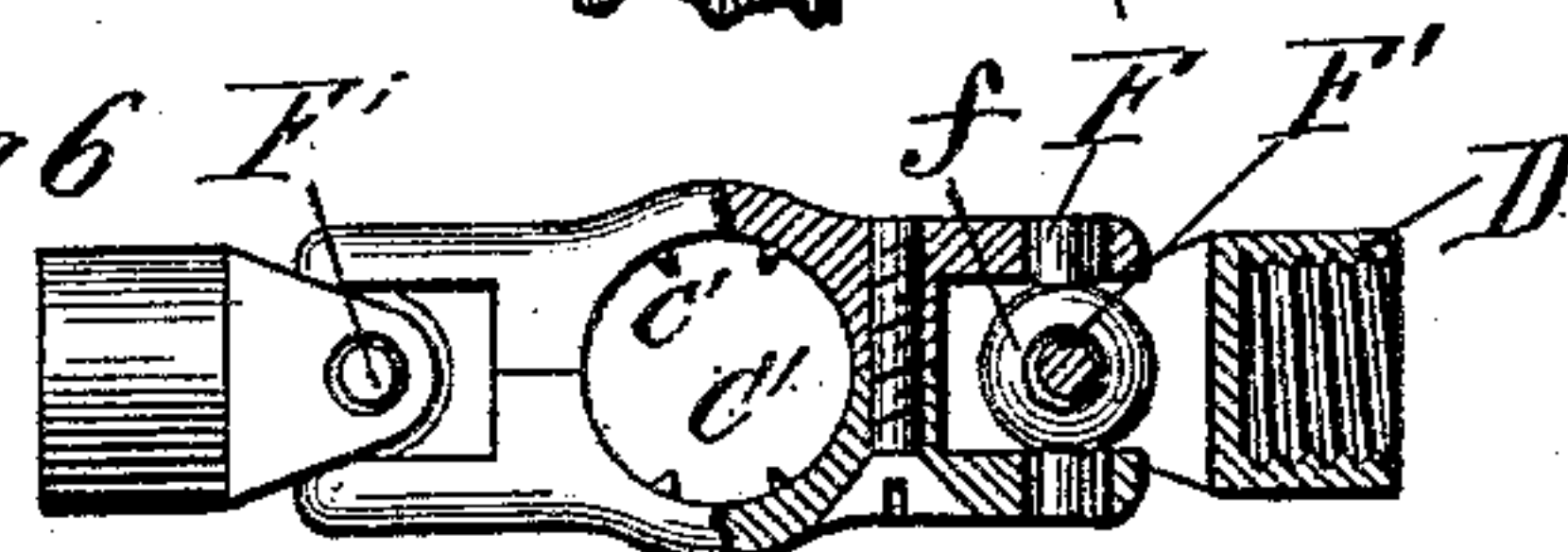


Fig 6

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UNITED STATES PATENT OFFICE.

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SHIP'S RIGGING.

SPECIFICATION forming part of Letters Patent No. 414,631, dated November 5, 1889.

Application filed December 24, 1888. Serial No. 294,526. (No model.)

To all whom it may concern:

Be it known that I, GEORGE D. COLEMAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Rigging, which is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

10 Figure 1 represents an elevation of a portion of a ship's rigging embodying my invention; Fig. 2, an enlarged detail view of a portion of the same; Fig. 3, a plan view, partly in section, of the construction shown in Fig. 2; Fig. 4, a plan view of a modified form of my invention; Fig. 5, an elevation of a second modification; Fig. 6, a plan view, partly in section, of the construction shown in Fig. 5; and Fig. 7, a detail perspective view of a
20 portion of the device.

Like letters refer to like parts in all the figures of the drawings.

My invention relates to rigging, and more particularly to that portion of the standing rigging known as "ratlines," and has for its object to provide means whereby the ratlines may be readily and firmly attached to the shrouds, kept taut, and prevented from sagging and from wearing unequally.

30 To these ends my invention consists in certain novel features, which I will now proceed to describe, and will then particularly point out in the claims.

In standing rigging as ordinarily constructed, the ratlines are connected to the shroud by forming their ends into a suitable eye by splicing, the said eye surrounding the shroud and being secured thereto by lashing or seizing. This lashing or seizing frequently
40 wears through, owing to chafing of the running rigging or to other causes, and when this occurs, as soon as any weight is placed upon the ratline it gives way, either slipping from its position or breaking. Moreover, the
45 ratline itself stretches from constant use, and soon takes a permanent sag, which not only renders it an unsafe footing, but also injures the appearance of the standing rigging. The wear, of course, comes entirely upon that portion of the ratline which is uppermost, and
50 since the same portion is always uppermost,

the ratline not being free to rotate, the strands thus exposed are soon worn through, thus rendering the ratline liable to break at this worn place. It is to obviate these objections 55 that I have devised my present invention, the construction of which is as follows:

In the drawings the shrouds are represented at A, four of these being shown in the present instance, the number varying according 60 to the circumstances of each case. They are constructed, as usual, of wire rope, although, of course, other suitable material may be employed. The ratlines proper are shown at B, and are preferably constructed of wire rope, 65 although other suitable material may be employed therefor. The clamping devices, whereby the ratlines are connected to the shrouds, are shown at C. These clamping devices are constructed in two different 70 forms, to wit, those which embrace the end shrouds and those which embrace the intermediate shrouds. The form first referred to is shown at the right of Figs. 2 and 3 and in Fig. 4, and consists of two separable 75 halves *c*, having formed between them an aperture *C'*, of a diameter corresponding to that of the shroud to which it is to be secured. Sharp teeth or projections *c'* are formed on the interior of this aperture to engage with 80 the shroud and hold the clamping devices more firmly in position. The two members *c*, of which the clamp *C* is composed, are connected together by means of screws *C²*, and there is formed in the end of the clamping device a 85 spherical recess or socket *c²*, for the purpose hereinafter described. The clamping devices, which are mounted on the intermediate shrouds, and which are shown at the left in Figs. 2 and 3, and also in Figs. 5 and 6, are 90 similar in construction, consisting of two separate halves *c*, provided with a central aperture *C'*, having teeth *c'*, and connected by means of screws *C²*. In this case, however, a spherical recess or socket *c²* is provided at 95 each end of the clamping device, instead of at one end only, as in the construction just described.

Each ratline B is provided at each of its ends with an end piece D, which is connected 100 to the corresponding clamping device by a universal joint. In the structure shown in

Figs. 1, 2, and 3 this is effected by providing the end piece D with a ball or sphere d , which fits within the corresponding socket c^2 of the clamping-piece and is retained therein, while at the same time it allows free play in all directions at this point. Each end piece D is composed of two separate members D^1 and D^2 . The former of these members has the form of an internally-threaded cup, to which the ball d is connected by a reduced neck d' , and into which the other member screws, as shown in Fig. 3. This other member D^2 is apertured longitudinally to receive the end of the ratline B, the said aperture being comparatively small at one end, as shown at d^2 , and being enlarged from that point onward, as shown at d^3 . The end of the ratline is provided with an enlargement, as shown at b , and a coiled spring D^3 , arranged within the aperture d^3 , abuts at one end against this enlargement, its other end abutting against the shoulder d^4 at the other end of the recess d^3 . The two members D^1 and D^2 are of a like external diameter, so that the exterior surface of the end piece D is smooth or flush throughout its length, and the member D^2 is tapered or conical in shape, as shown, so as to present a smooth incline from the surface of the ratline, instead of an abrupt shoulder.

The universal joint connecting the end piece of the ratline to the clamping device may be constructed in any suitable manner, and I have shown in the drawings two modified forms of this connection. The first is shown in Fig. 4 of the drawings, in which there is interposed between the clamping device C and end piece D a two-part link or connection E, the two members of which are connected by a swivel-joint e . The end piece D is pivoted to one member of this link, as indicated at e' , and the other member of the link is pivoted to the clamping device C, as shown at e^2 . By this construction a free movement in all directions, as well as freedom of rotation of the ratline, is obtained, as in the construction in Figs. 1, 2, and 3; but I deem the construction first described preferable, for the reason that it is simpler and stronger and occupies much less space. The second modification is shown in Figs. 5 and 6, in which the clamping device C is provided with a pivot-pin F, passing horizontally through the same and having a central enlargement or ball f , through which passes a pivot-pin F' , attached to the end piece D. This construction allows a free movement in all directions and forms practically a universal joint, but it has the advantage of not permitting the ratline to rotate.

The device illustrated in Fig. 7 is employed as a substitute for the clamping devices on the intermediate shrouds at and near the upper ends of these latter. At this point the shrouds approach each other so closely that the clamping devices and end pieces described would occupy almost all the space between the shrouds and render the ratline su-

perfluous and useless. To overcome this difficulty, I employ at this point only the clamping-pieces on the outer shrouds, employing a continuous ratline which reaches from one outer shroud to the other.

G represents a yoke secured on one or more of the intermediate shoulders by means of clips g , and having pivoted to it, as shown at g' , a grooved roller G' , which occupies the space between the said yoke and the shroud. The ratline B passes between the yoke and the shroud and rests upon this roller. The object of this device is to hold the ratline firmly in position and prevent its chafing against the shrouds at this point.

The construction which I have just described operates to overcome the disadvantages attendant upon the ordinary construction in a sufficiently obvious manner. The ratlines may be readily connected to the shrouds at any desired point and as readily disconnected by means of the clamping devices for that purpose, and when thus connected they are not only firmly held in position, but all danger of displacement, owing to chafing or wear, is entirely done away with. The ratlines may yield to the foot, as does the ordinary ratline; but the spring, D^3 will always return them to a taut position, thereby preventing their sagging and preserving a neat appearance. The employment of the universal joint to connect the ratline to the clamping device prevents any danger of wear or breakage at this point, which danger would be present were the connection a rigid one. Moreover, the ratline being free to rotate, the wear is distributed equally over its whole surface, and a much longer service is thereby obtained than is obtained from the ordinary ratline.

It is obvious that various modifications in the details of construction and arrangement of the parts may be made without departing from the principle of my invention, and I therefore do not wish to be understood as limiting myself strictly to the precise details hereinbefore described, and shown in the drawings.

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

1. The combination, with the shrouds, of the metallic clamping-pieces mounted thereon, the ratlines, and the metallic end pieces secured to and inclosing the ends of the ratlines and connected to the clamping-pieces, substantially as and for the purposes specified.

2. The combination, with the shrouds A and ratlines B, of the clamping devices C, connected to the ends of the ratlines, and each consisting of two members c , having between them the aperture C' to fit the shroud provided with teeth c' to enter the shroud, and connecting-screws C^2 , to clamp the two members upon the shroud, substantially as and for the purposes specified.

3. The combination, with the shrouds, of the

clamping-pieces mounted thereon, and the ratlines connected to said clamping-pieces by a universal joint at each end, substantially as and for the purposes specified.

5 4. The combination, with the shrouds and the clamping-pieces mounted thereon and provided with suitable sockets, of the ratlines having end pieces provided with balls to fit said sockets, substantially as and for the purposes specified.

10 5. The combination, with the shrouds and the clamping-pieces mounted thereon, of the ratlines connected at their ends to said clamping-pieces by a swivel-joint, whereby said ratlines are free to rotate, substantially as and for the purposes specified.

15 6. The combination, with the shrouds and the clamping-pieces mounted thereon, of the ratlines connected to said clamping-pieces, and a spring or springs connected with said ratlines to keep them taut, substantially as and for the purposes specified.

7. The combination, with the shroud A and clamping-piece C, of the ratline B, having end piece D connected thereto, and consisting of 25 the members D' and D², the latter apertured to receive the end of the ratline, which is provided with a terminal enlargement b, and a suitable spring D³, substantially as and for the purposes specified.

8. The combination, with the outer shrouds, the two-part clamping-pieces C, mounted thereon, and the ratline provided with end pieces D, swiveled to said clamping-pieces, of one or more intermediate shrouds, and a yoke 30 G and wheel G', mounted on said intermediate shroud or shrouds to support the central portion of the ratline, substantially as and for the purposes specified.

GEORGE D. COLEMAN.

Witnesses:

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