

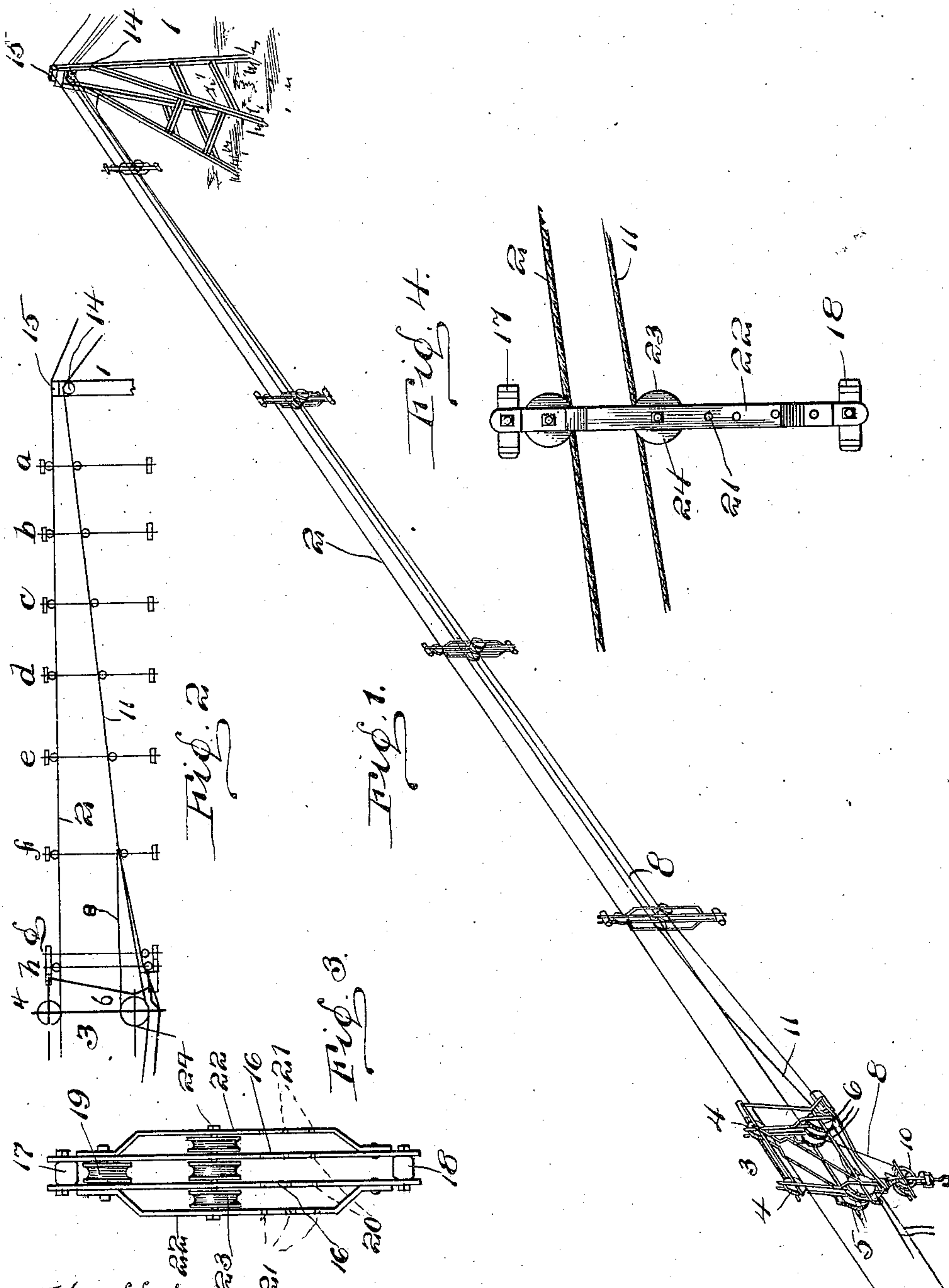
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PATENTED FEB. 19, 1907.

L. C. McCORMICK & S. FLORY.
SUSPENSION CABLEWAY.

APPLICATION FILED MAR. 29, 1906.

2 SHEETS—SHEET 1.



Witnesses
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2 SHEETS—SHEET 2.

Fig. 5.

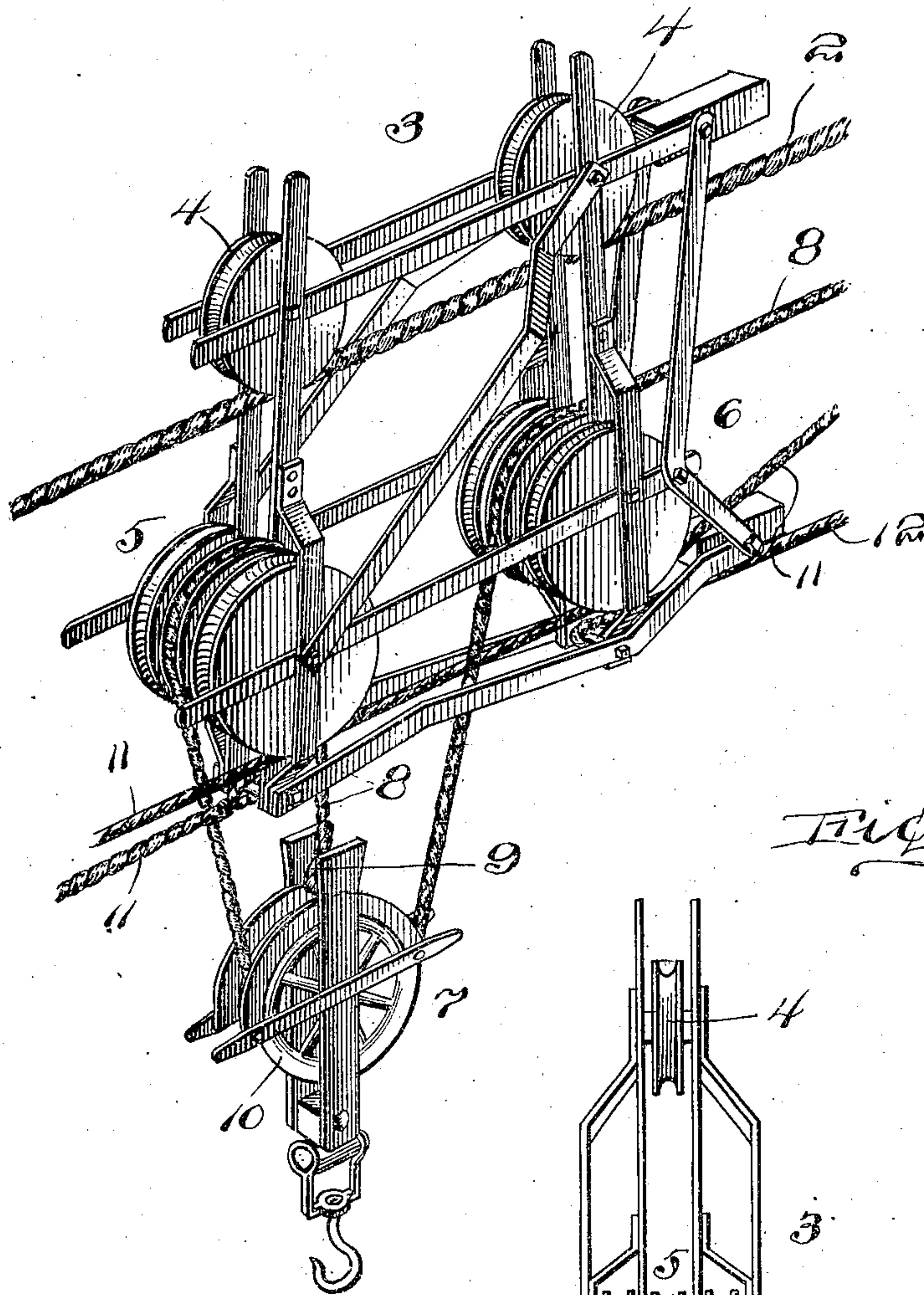
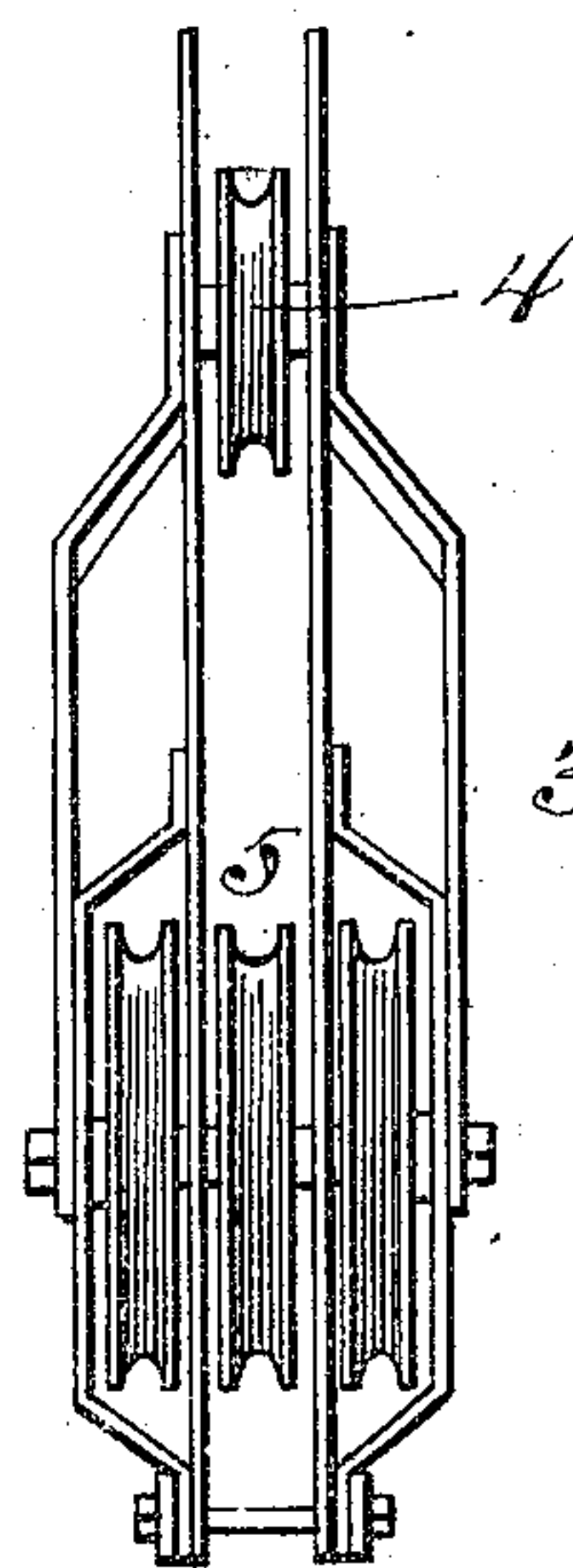


Fig. 6.



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UNITED STATES PATENT OFFICE.

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SUSPENSION-CABLEWAY.

No. 844,386.

Specification of Letters Patent.

Patented Feb. 19, 1907.

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To all whom it may concern:

Be it known that we, LEWIS C. McCORMICK and SAMUEL FLORY, citizens of the United States of America, residing at Morgantown, in the county of Monongalia and State of West Virginia, and at Bangor, in the county of Northampton and State of Pennsylvania, have invented certain new and useful Improvements in Suspension-Cableways, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in suspension-cableways, as horizontal or inclined cableways; and the invention relates more particularly to fall-rope carriers or trolleys.

The primary object of this invention is to dispense with the use of chains heretofore employed for properly placing fall-rope carriers or trolleys upon a main cableway. In lieu of the chains or similar connections we have devised positive and reliable means for effecting a proper spacing of carriers or trolleys upon a cableway to prevent a fall-rope or similar ropes from sagging and interfering with the general operation of a suspension-cableway.

It is a well-known fact in connection with horizontal and inclined cableways of long spans that a plurality of fall-rope carriers or trolleys are employed for supporting fall-ropes or similar cables to prevent said ropes or cables from sagging, due to the deflection of the cable, especially for very long spans. In order to properly space and position the carriers or trolleys upon the main cableway to support the fall-rope or similar cables, chains have been employed to connect the carriers or trolleys, the chains hanging in festoons as the carriers or trolleys are collected upon the main cableway and equally spacing the carriers or trolleys when the fall-rope is played out. Considerable trouble has been experienced by the chains becoming entangled and hindering the general operation of a suspension-cable, time and labor being expended in installing chain-connected carriers or trolleys and considerable expense attached to the general cost of a suspension-cableway.

To obviate the above defects, we have devised a simple, efficient, and durable carrier or trolley, which is adapted to be used in

connection with a cable-carriage, said cable-carriage, together with the carriers or trolleys, being constructed to maintain a series of equally-spaced carriers or trolleys upon the main cableway without the use of chains. To accomplish this result, we not only reduce the expense of the ordinary suspension-cableway, but provide a construction which is free from all danger of being injured by constant use, free from interruption by entanglements, and more simple to operate.

With the above and other objects in view the invention consists in the novel construction, combination, and arrangement of parts to be hereinafter more fully described and claimed, and, referring to the drawings accompanying this application, like numerals of reference designate corresponding parts throughout the several views, in which—

Figure 1 is a diagrammatic perspective view of a portion of a suspension-cableway constructed in accordance with our invention. Fig. 2 is a diagrammatic side elevation of the same. Fig. 3 is a front elevation of a fall-rope carrier or trolley constructed in accordance with our invention. Fig. 4 is a side elevation of the same. Fig. 5 is an enlarged detail perspective view of a cable-carriage constructed in accordance with our invention, and Fig. 6 is an edge view of the same.

As the structural features of our invention simply reside in the cable-carriage and fall-rope carriers or trolleys, we have illustrated a portion of a suspension-cableway diagrammatically in order that the application and advantages of our invention may be fully understood. It is the common practice, especially in connection with horizontal cableways, to use two A-towers, one of which we have illustrated and designated 1. Extending over the A-tower 1 is a main cableway 2, said cableway extending over an A-tower (not shown) or, as in the case of an inclined cableway, being suitably anchored. Upon the cableway 2 is adapted to travel a cable-carriage 3, said carriage consisting of a substantially rectangular metallic frame, in which are journaled two supporting-sheaves 4 4, adapted to travel upon the main cableway 2 and support said carriage.

In the lower part of the metallic frame of the carriage is journaled a plurality of sheaves 5 and 6, said sheaves being journaled

at the very lowest practical point within the frame 3, whereby certain operating-ropes passing under or over the same will be retained, as far as possible, away from the main cableway 2. In some instances the cable-carriage 3 will be made of a greater depth than carriages heretofore employed, this being arbitrary and depending entirely upon the type of cable-carriage in connection with which our invention is used.

A conventional form of fall-block 7 is used in connection with the cable-carriage, a cable or rope 8 being connected to the fall-block 7, as at 9, passing upwardly over one of the sheaves 5 of the carriage, downwardly under the sheave 10 of the fall-block, upwardly over one of the sheaves 6 of the carriage, to the A-tower, from where it passes to a conventional form of cableway-hoist. Another cable 11 is connected to one end of the carriage, said cable passing over a turn-sheave on an A-tower (not shown) and then passing under the sheaves 5 and 6 to the A-tower 1, from where it passes to the cableway-hoist. Still another cable 12 is connected to the opposite end of the carriage 3, said cable passing over the A-tower 1 to the cableway-hoist, and this cable, together with the cable 11, is employed for moving the carriage 3 in either direction upon the cableway 2, while the cable 8 is employed for raising and lowering the fall-block 7 and owing to this function obtains the term of "fall-block rope or cable."

The main feature about the cable-carriage just described resides in journaling the sheaves 5 and 6 as far distant from the sheaves 4 4 as possible and passing the return cable 11 under the sheaves 5 and 6, the object of which will presently appear.

Reference will now be had to the A-tower 1, and in connection with this tower we arrange the main sheaves 14 in as close proximity to the cableway bearing-block 15 as possible, whereby when the cable-carriage has moved away from the A-tower 1 the return cable 11 will be maintained at an angle or incline relative to the main cableway 2, as clearly illustrated in Figs. 1 and 2 of the drawings, thus maintaining a changeable V-shaped arrangement of the cables, having for its vertex the main A-tower 1.

The fall-rope carriers or trolleys which we employ in connection with the cableway just described consists of two parallel plates or bars 16 16, the upper and lower ends of said bars being connected together by strong and durable bumpers or cushions 17 and 18. Journalled between the bars or plates 16 16, directly beneath the bumper 17, is a sheave 19, said sheave being adapted to support the carrier or trolley upon the main cable 2. The bars or plates 16 are provided with a plurality of horizontally-alining openings 20, said openings also alining with

openings 21, formed in side straps 22 22, carried by the bars or plates 16 16. Adjustably journalled between the bars 16 16 and the straps 22 22 are a plurality of sheaves 23 23, said sheaves having a journal-pin 24 common to all of said sheaves.

The number of fall-rope carriers or trolleys used in connection with a cableway depends entirely upon the span or length of the cableway and upon the deflection in the main cableway, as the cable-carriage passes back and forth upon it. In order that our invention may be fully understood, we have illustrated a number of carriages or trolleys as being used to support the fall-block cable or rope 8. In installing a suspension-cableway we consider the distance the cable-carriage 3 travels and the distance between the sheaves 4, 4 and 5 and 6. As the trolleys are of a depth corresponding to the cable-carriage and as the sheaves 23 are adjustably mounted in said trolleys, we adjust the sheaves in the trolleys whereby the trolleys will only travel a predetermined distance upon the cableway 2. In describing this feature of our invention reference will be had particularly to Fig. 2 of the drawings, where it will be observed that the sheaves 23 of each trolley, suspended from the cableway 2, are arranged in stepped order relative to one another, whereby the trolley *a* will only travel a prescribed distance upon the cableway 2, while the trolley *b* will travel a little farther upon the main cableway, and so on with the trolleys *c*, *d*, *e*, *f*, *g*, and *h*. By observing the trolley *a* it will be noted that the sheaves 23 are in closer proximity to the sheave 19 than any of the other trolleys, while the sheaves 23 of the trolley *h* are farthest away, thereby permitting of the trolley *h* traveling farther out upon the cableway from the A-tower 1 than any of the other trolleys. As the length of a cableway can be readily determined and the depth of the cable-carriage, the sheaves 23 of each trolley can be easily and quickly adjusted to a nicety, whereby the V-shaped arrangement of the cableway and operating-cables will prevent the trolleys from traveling farther thereon than what is permitted by the relative position of the sheaves 23 to the sheaves 19.

From the foregoing it will be apparent that where a series or plurality of trolleys are used upon a cableway that the trolleys adjacent to the cable-carriage 3 will be maintained in a gathered form when the cable-carriage is in close proximity to the A-tower 1. Therefore I have provided the trolleys with the bumpers or cushions 17 and 18 to prevent said trolleys from suddenly contacting with the cable-carriage 3 and with one another, thus reducing the liability of said carriage and trolleys being injured.

It is thought from the foregoing that the many advantages of our improved cableway

will be apparent to those skilled in the art, and we desire it to be understood that such changes as are permissible by the appended claims may be resorted to without departing from the spirit and scope of the invention.

What we claim, and desire to secure by Letters Patent, is—

1. In a suspension-cableway, the combination with a main cable, an **A**-tower, a carriage mounted upon said cable, a return rope connected to said carriage and passing over said **A**-tower, and a fall-block rope carried by said carriage and said **A**-tower, of a plurality of trolleys movably mounted upon said cable, adjustable sheaves carried by each trolley and adapted to support said fall-block rope, and means to maintain said return rope at an angle to said main cable, substantially as described.

2. In a suspension-cableway, the combination with an **A**-tower, a main cable, a carriage movably mounted upon said main cable and having a return rope passing over said tower, and a fall-block rope passing over said tower,

of means for maintaining said return rope at an angle to said main cable, and trolleys, and adjustable sheaves carried thereby for supporting said fall-block rope at predetermined points along said main cable, substantially as described.

3. The combination with trolleys, of a **V**-shaped cableway adapted to support said trolleys and limit their movement thereon, substantially as described.

4. The combination with a **V**-shaped cableway, of trolleys supported thereon, and limited in movement thereby, and adjustable sheaves on said trolleys.

In testimony whereof we affix our signatures in the presence of two witnesses.

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SAMUEL FLORY.

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