

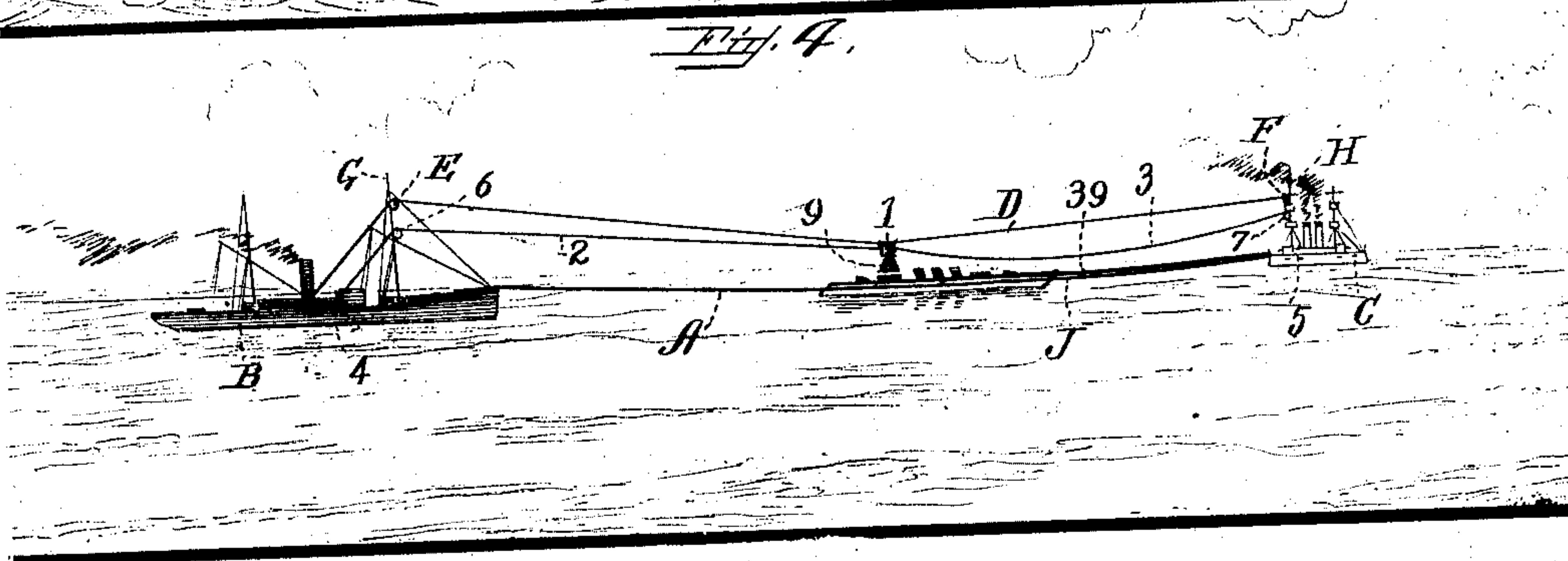
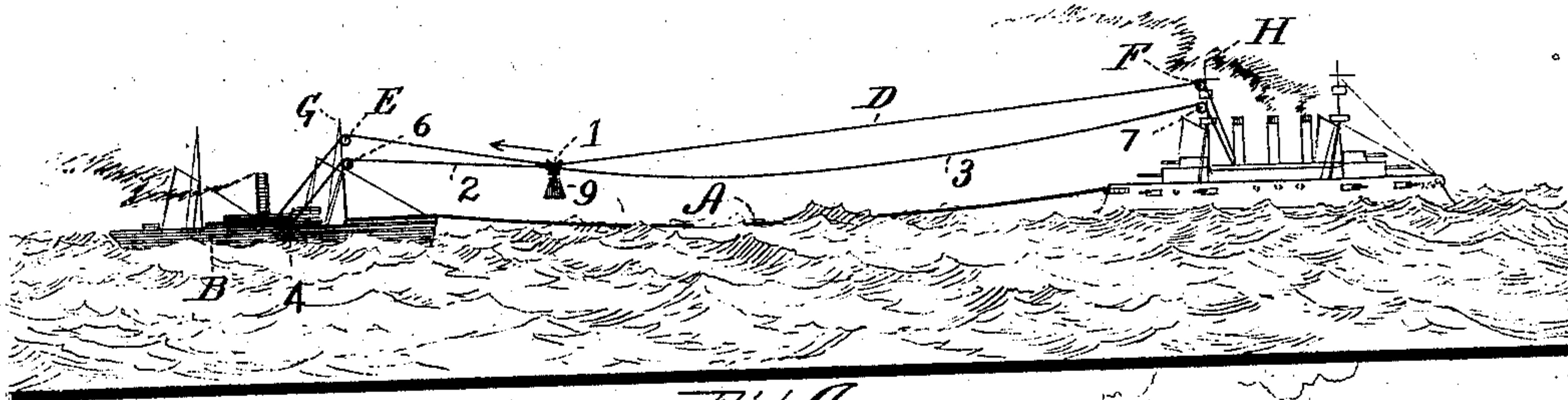
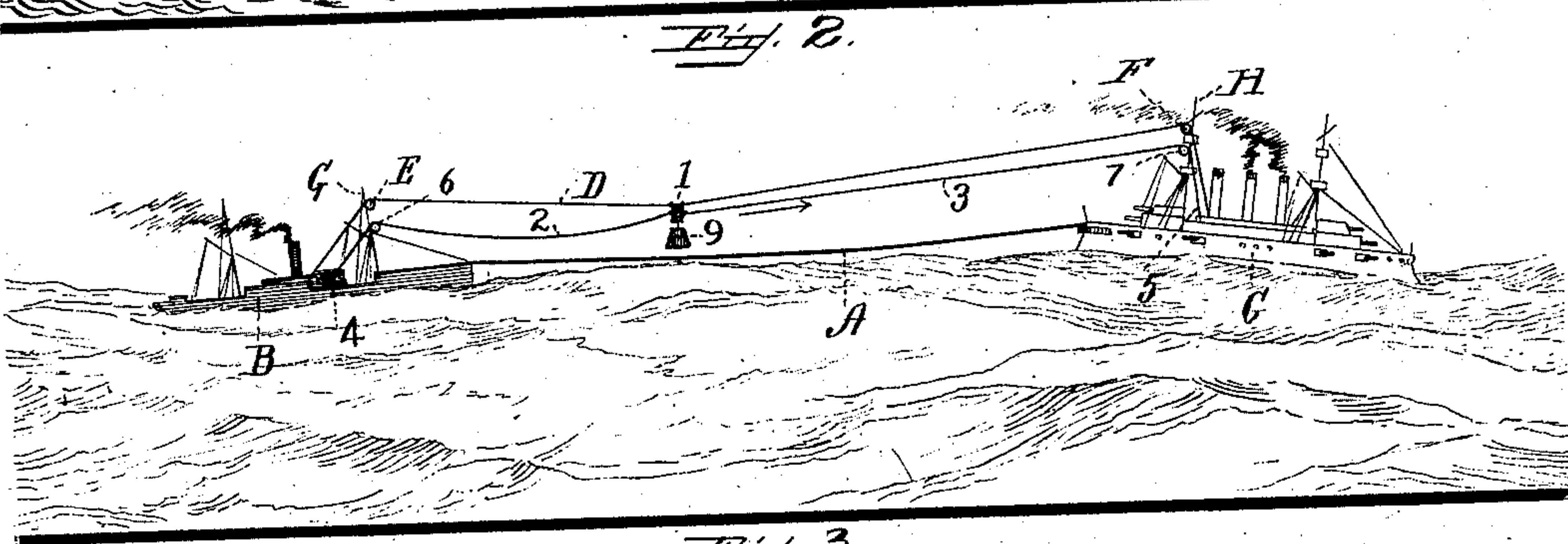
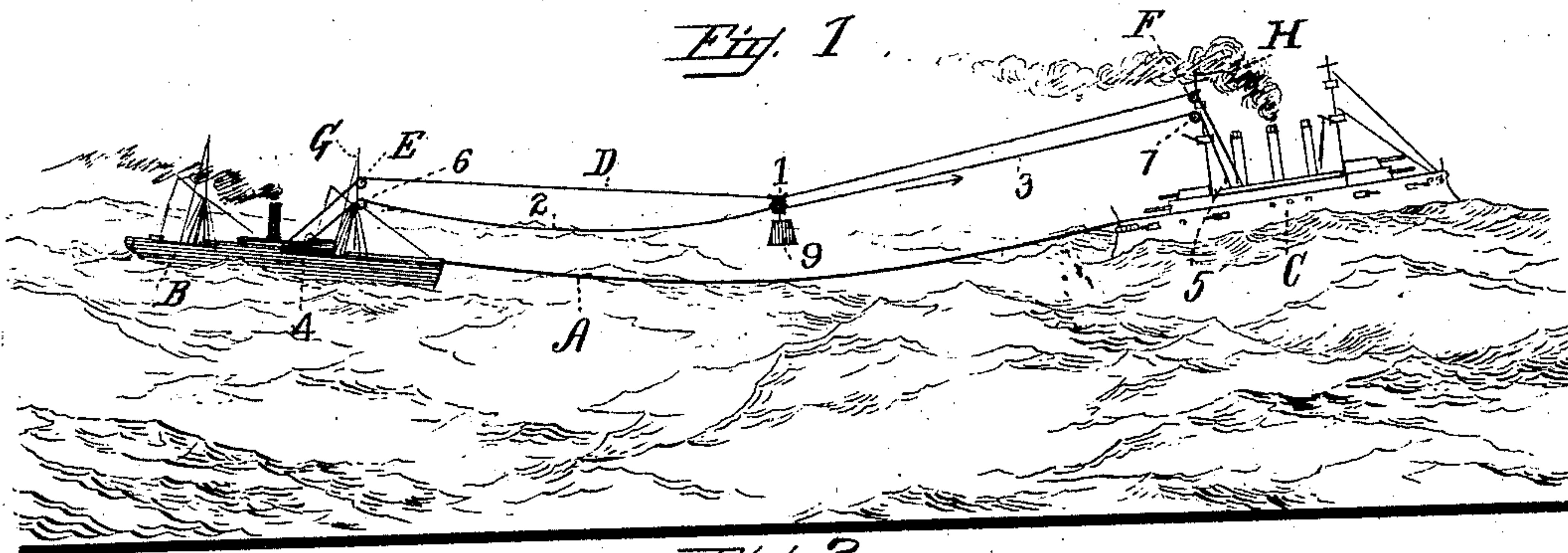
No. 859,542.

PATENTED JULY 9, 1907.

C. CHASE.  
CARRIER.

APPLICATION FILED JUNE 6, 1906.

6 SHEETS—SHEET 1.



Witnesses:  
H. E. Remick  
H. Remick Jr

Inventor:  
Charles Chase  
by his attorney  
Charles F. Richardson



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5 SHEETS—SHEET 2.

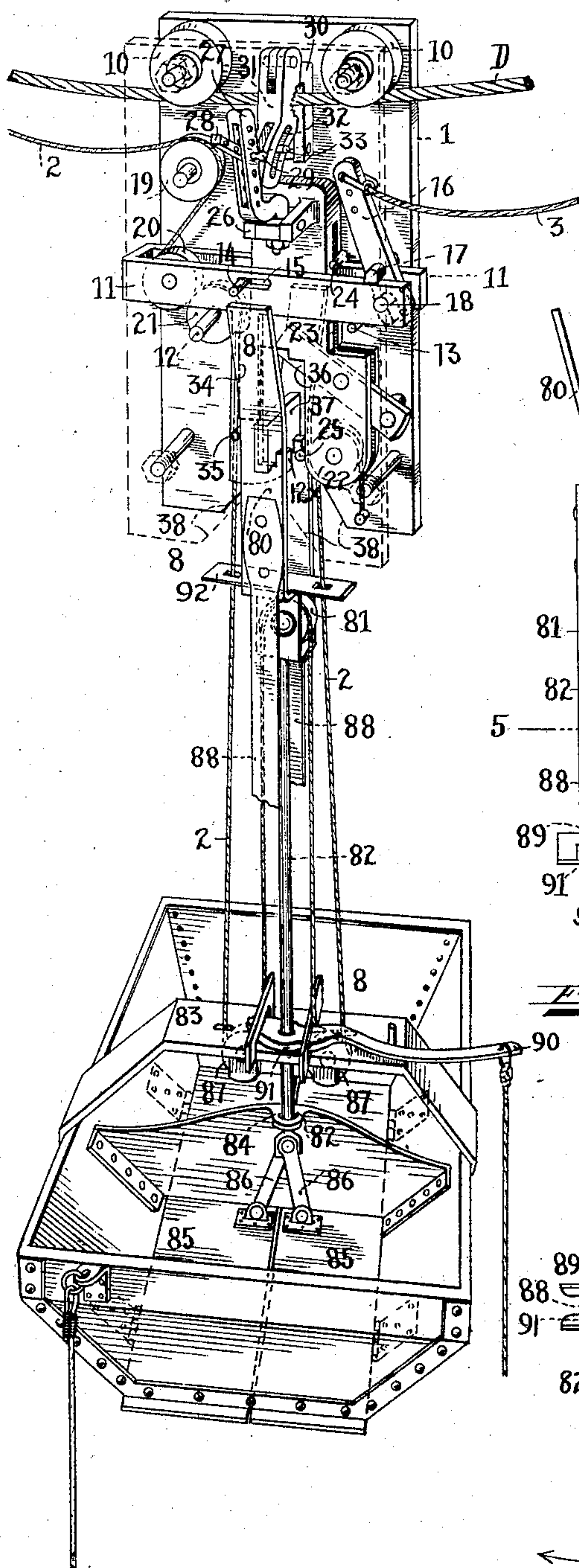


Fig. 5

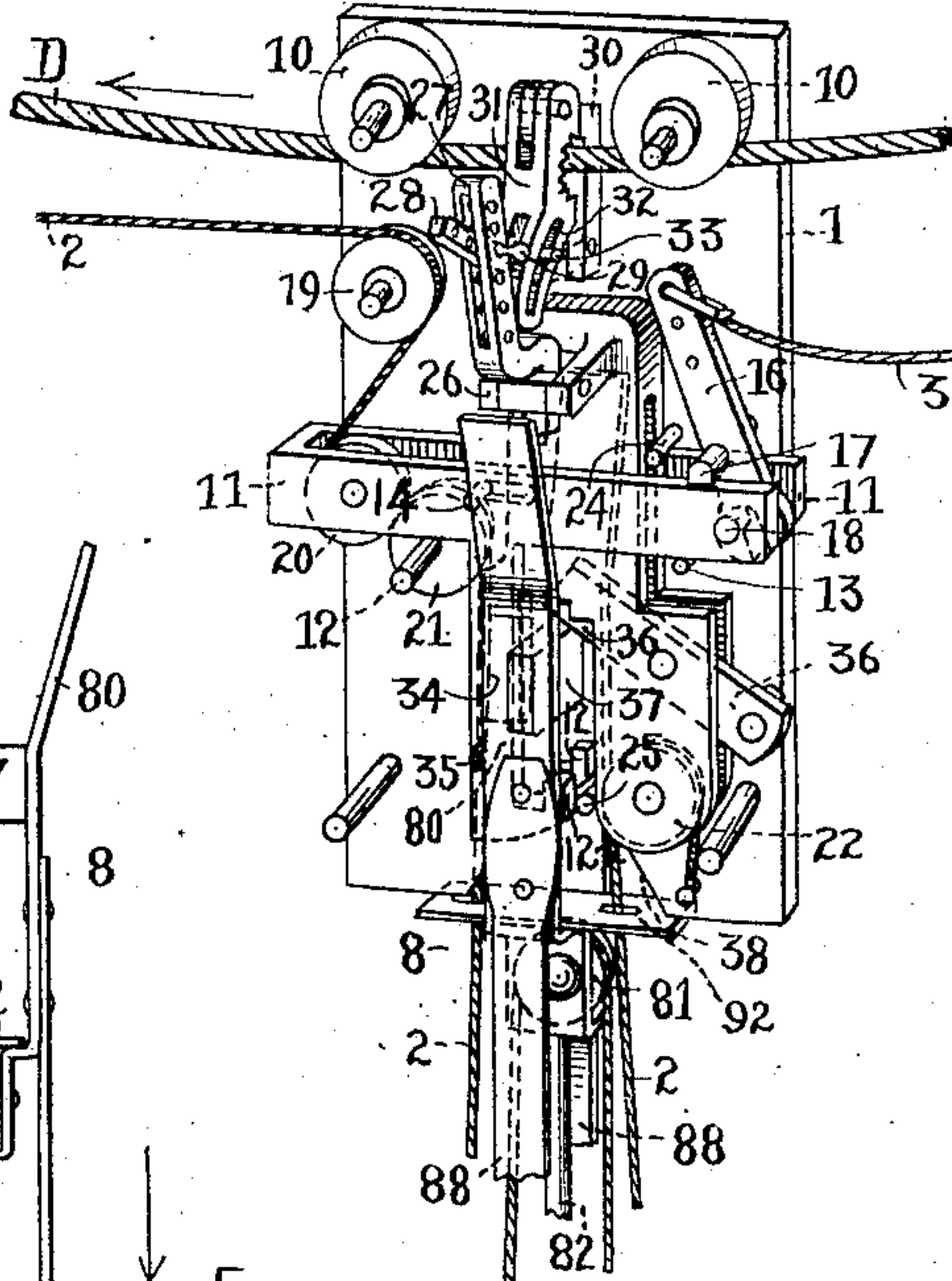


Fig. 6

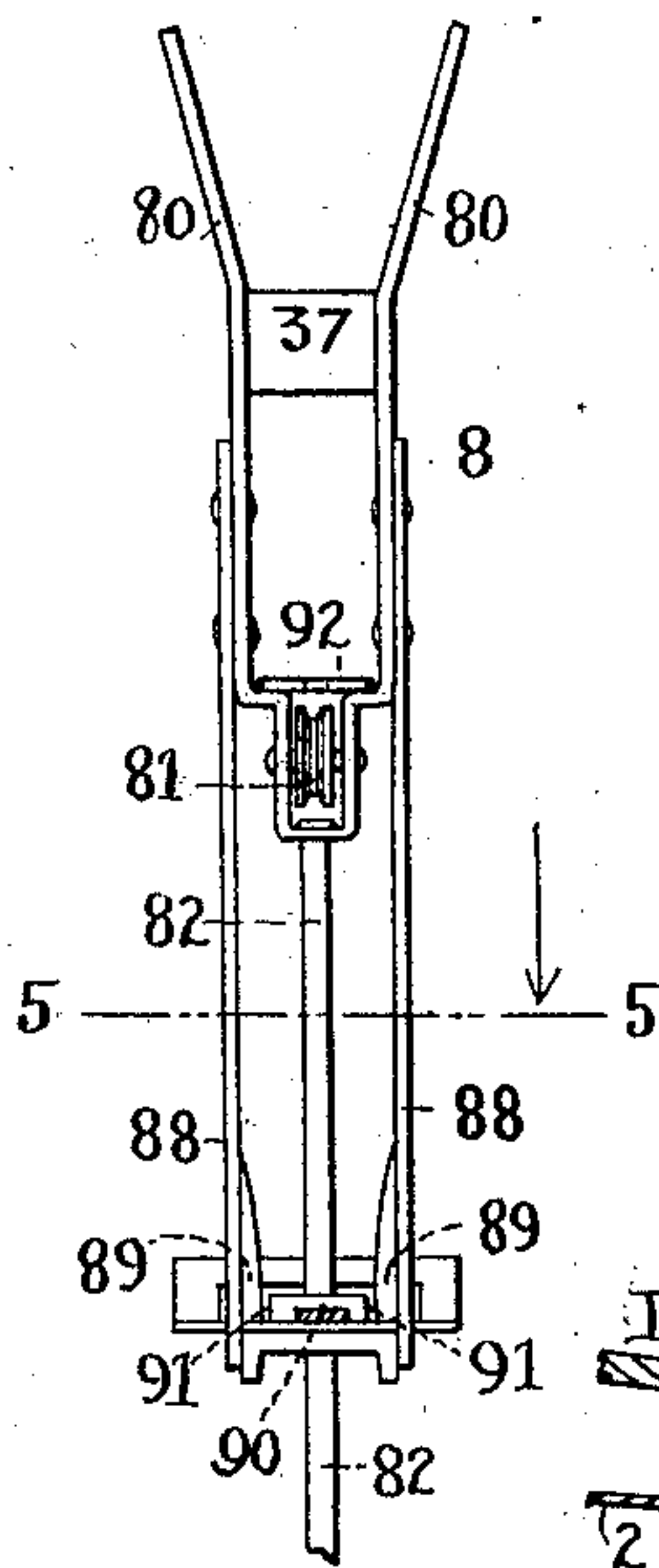


Fig. 5a

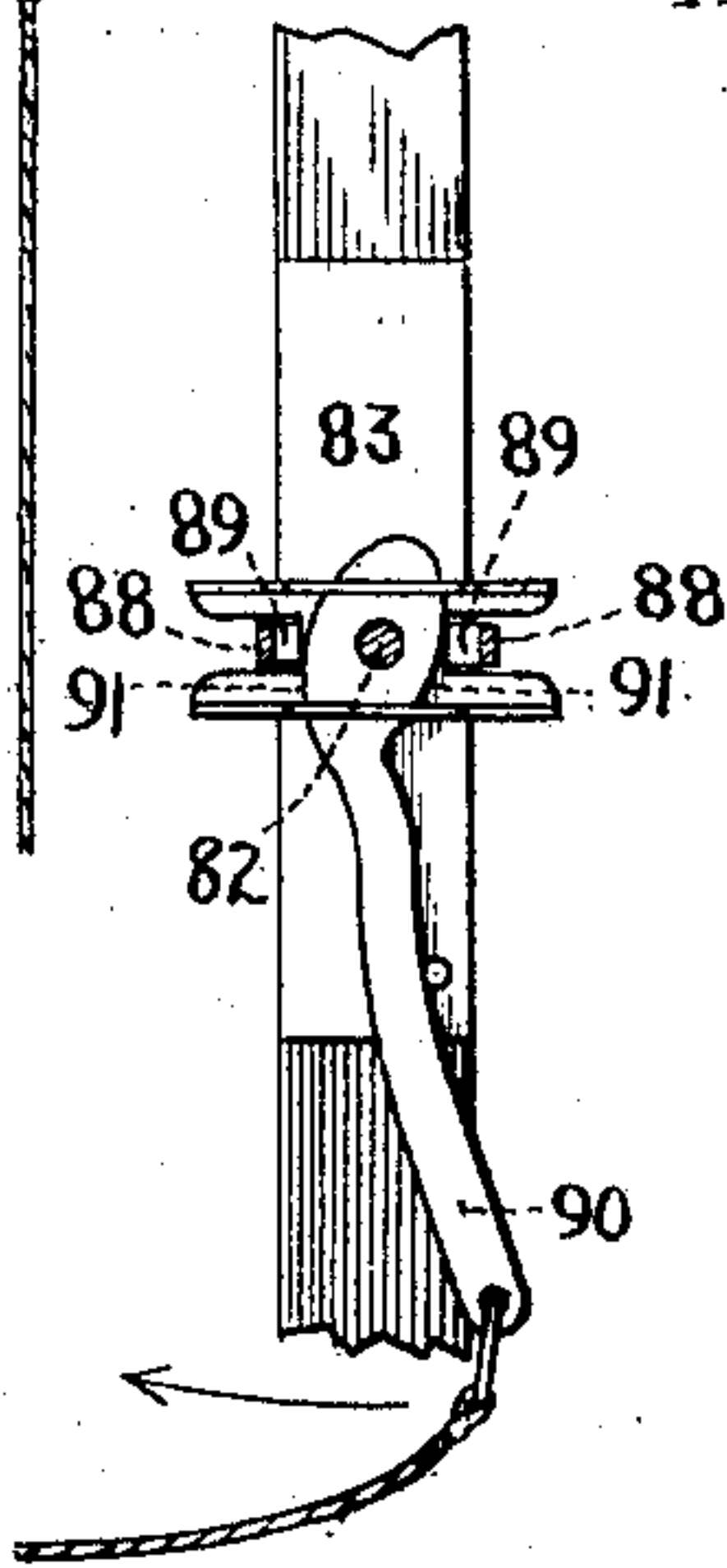


Fig. 5b

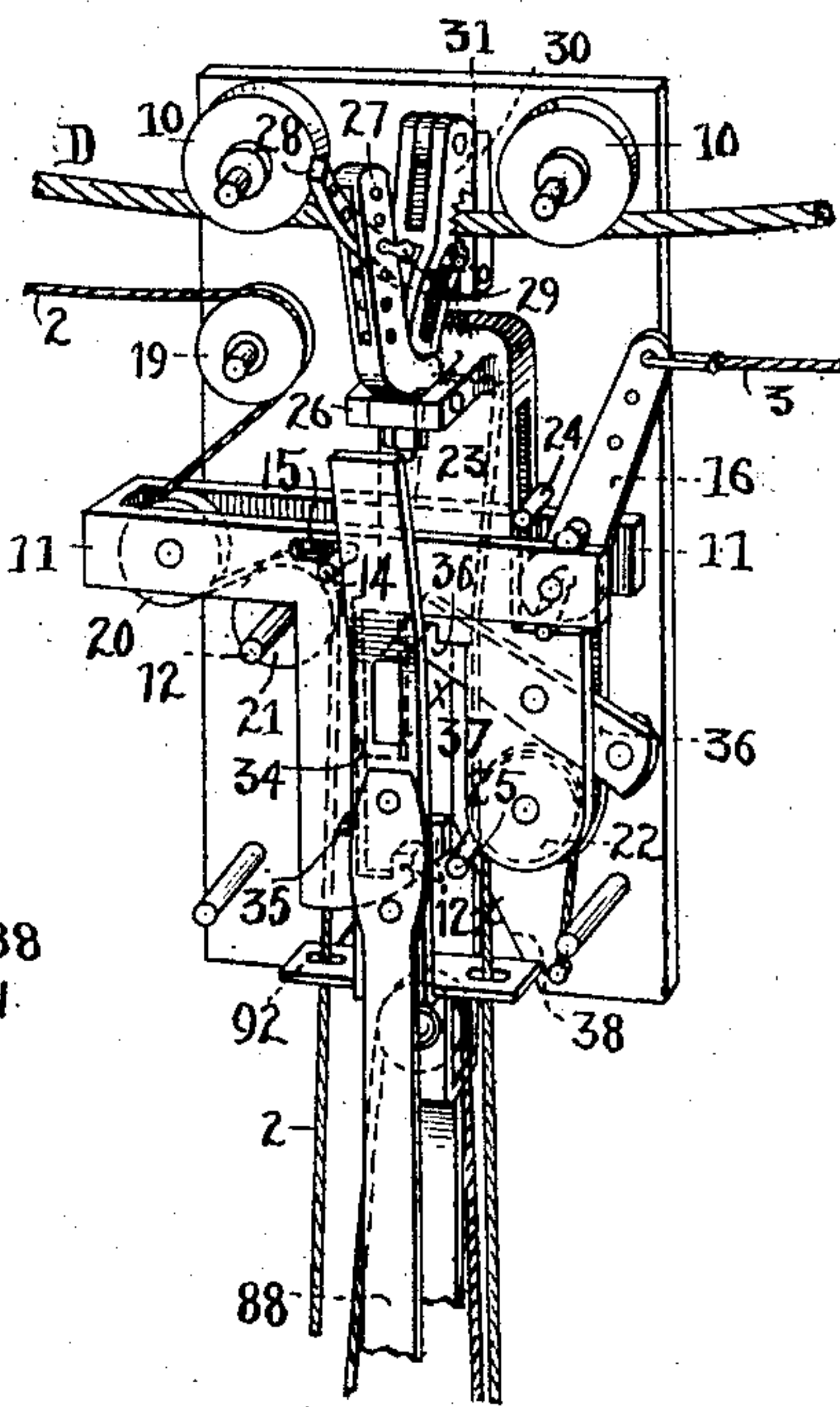


Fig. 7

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6 SHEETS—SHEET 3.

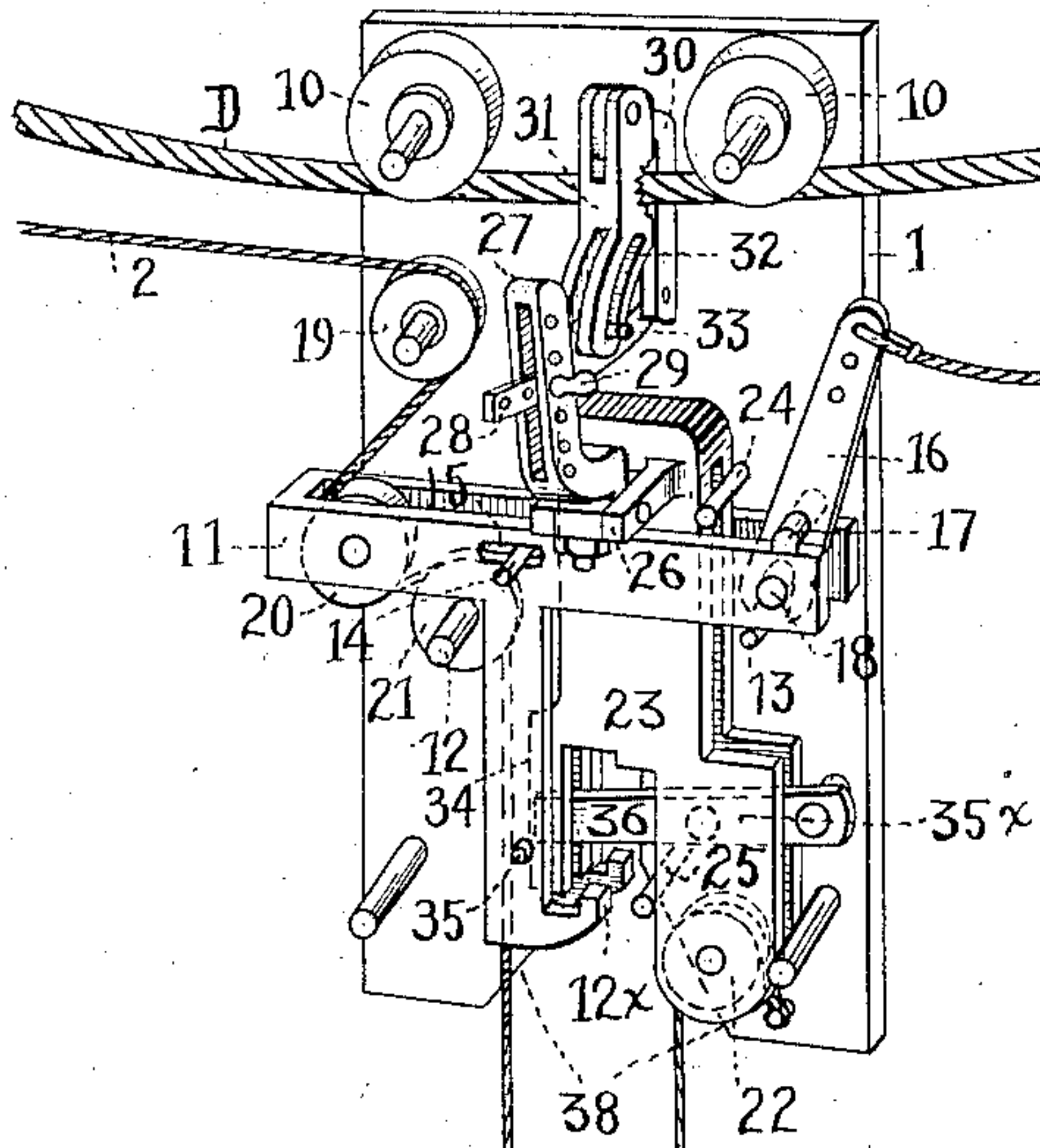
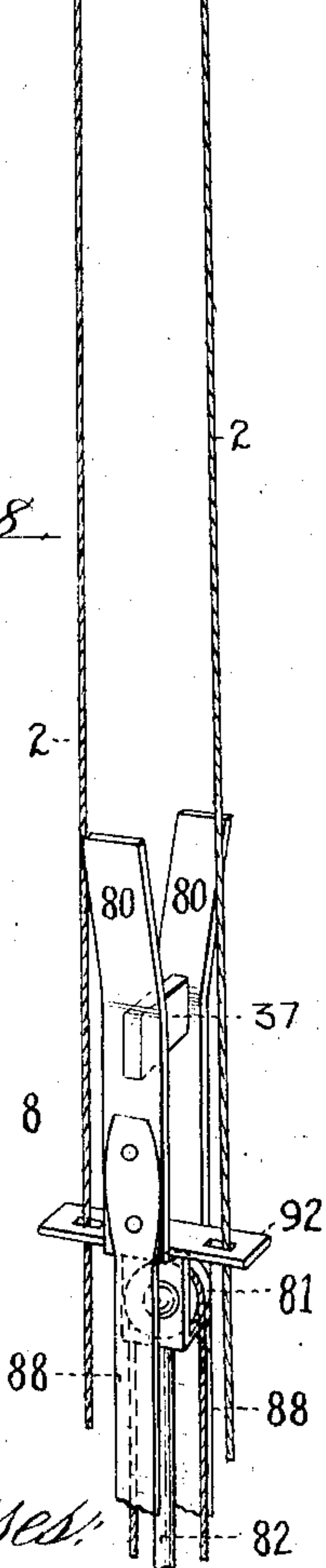


Fig. 8.



Witnesses:  
H. C. T. Smith  
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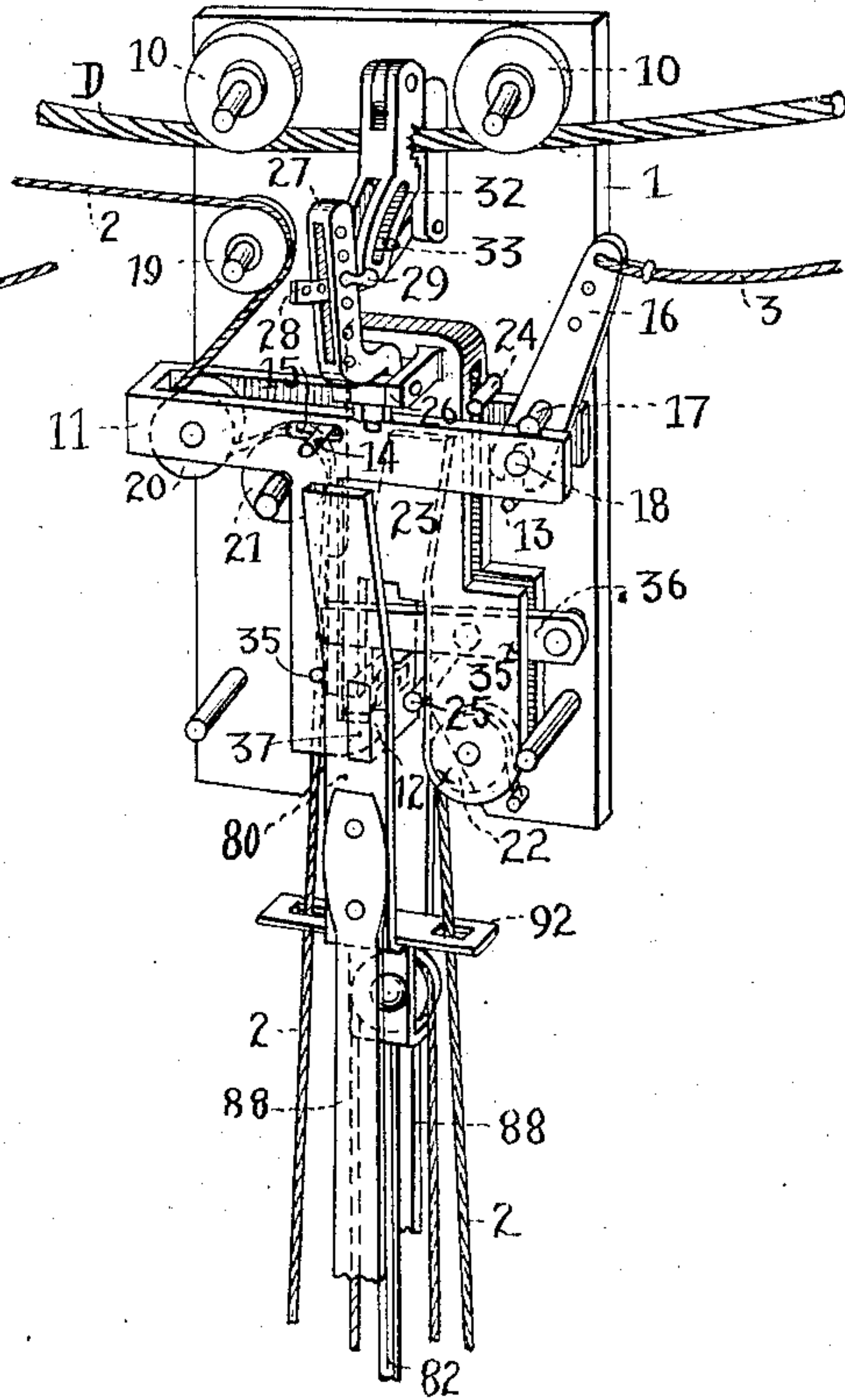


Fig. 9.

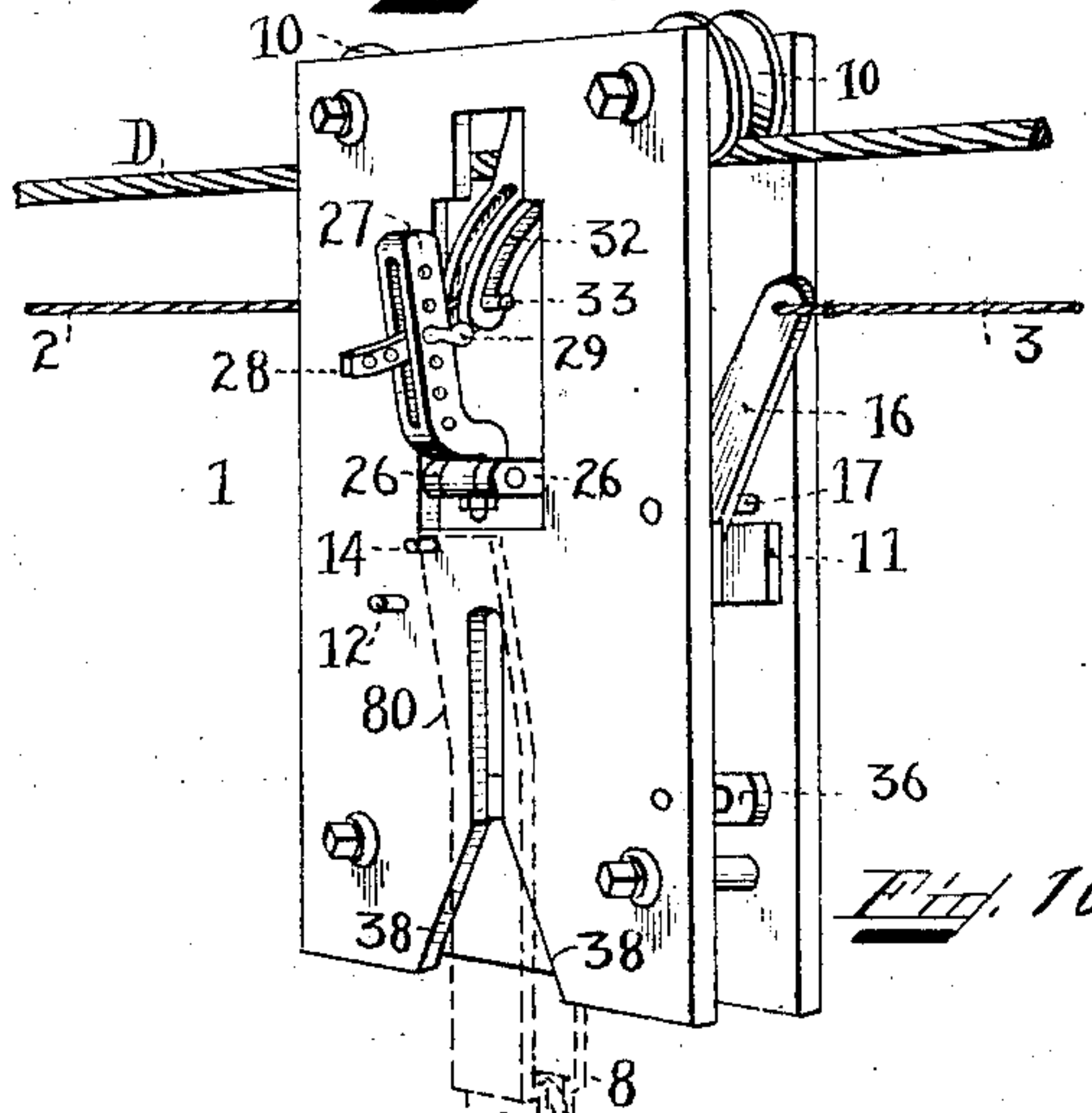


Fig. 10.

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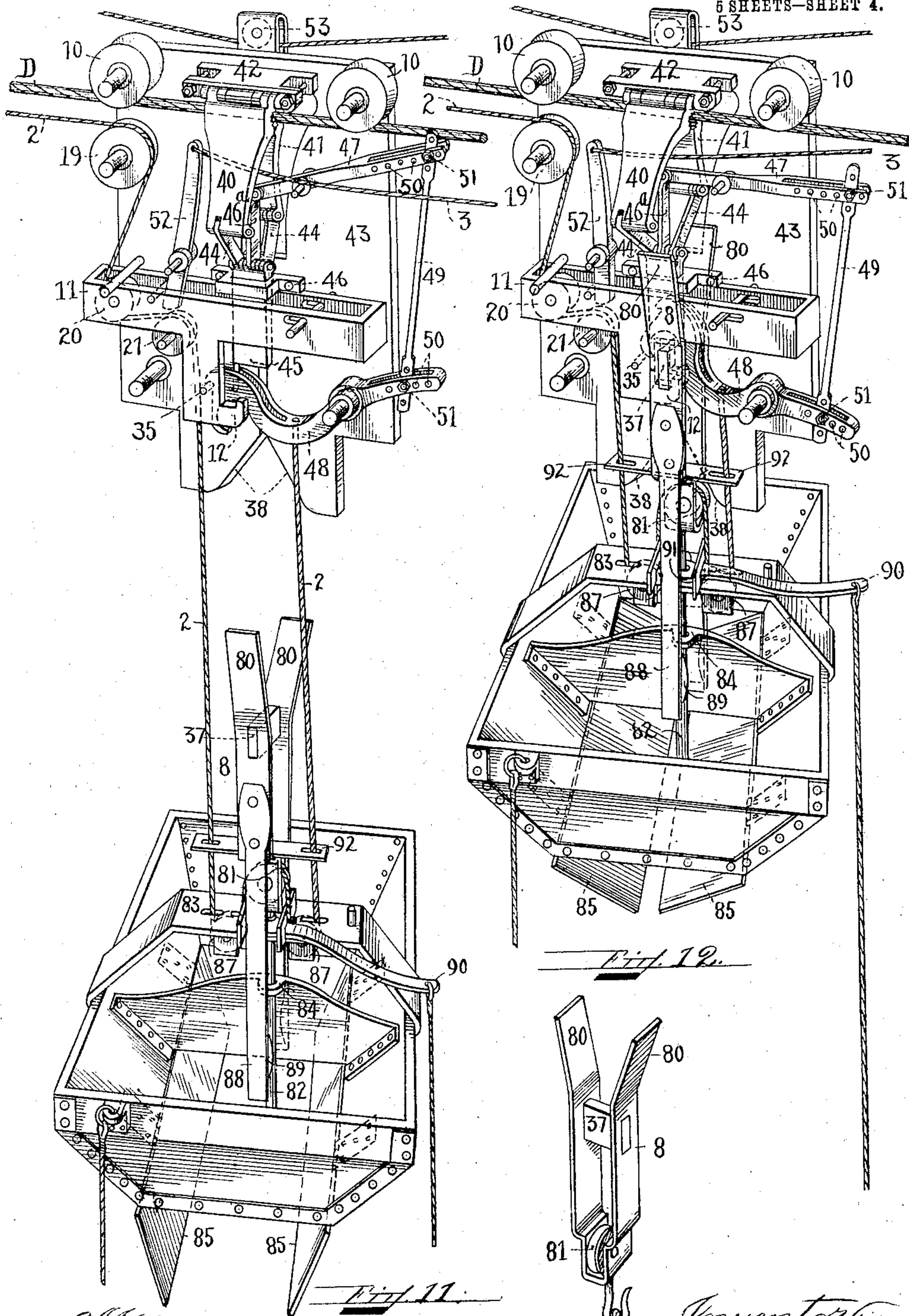
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5 SHEETS—SHEET 4.



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APPLICATION FILED JUNE 8, 1906.

5 SHEETS—SHEET 5.

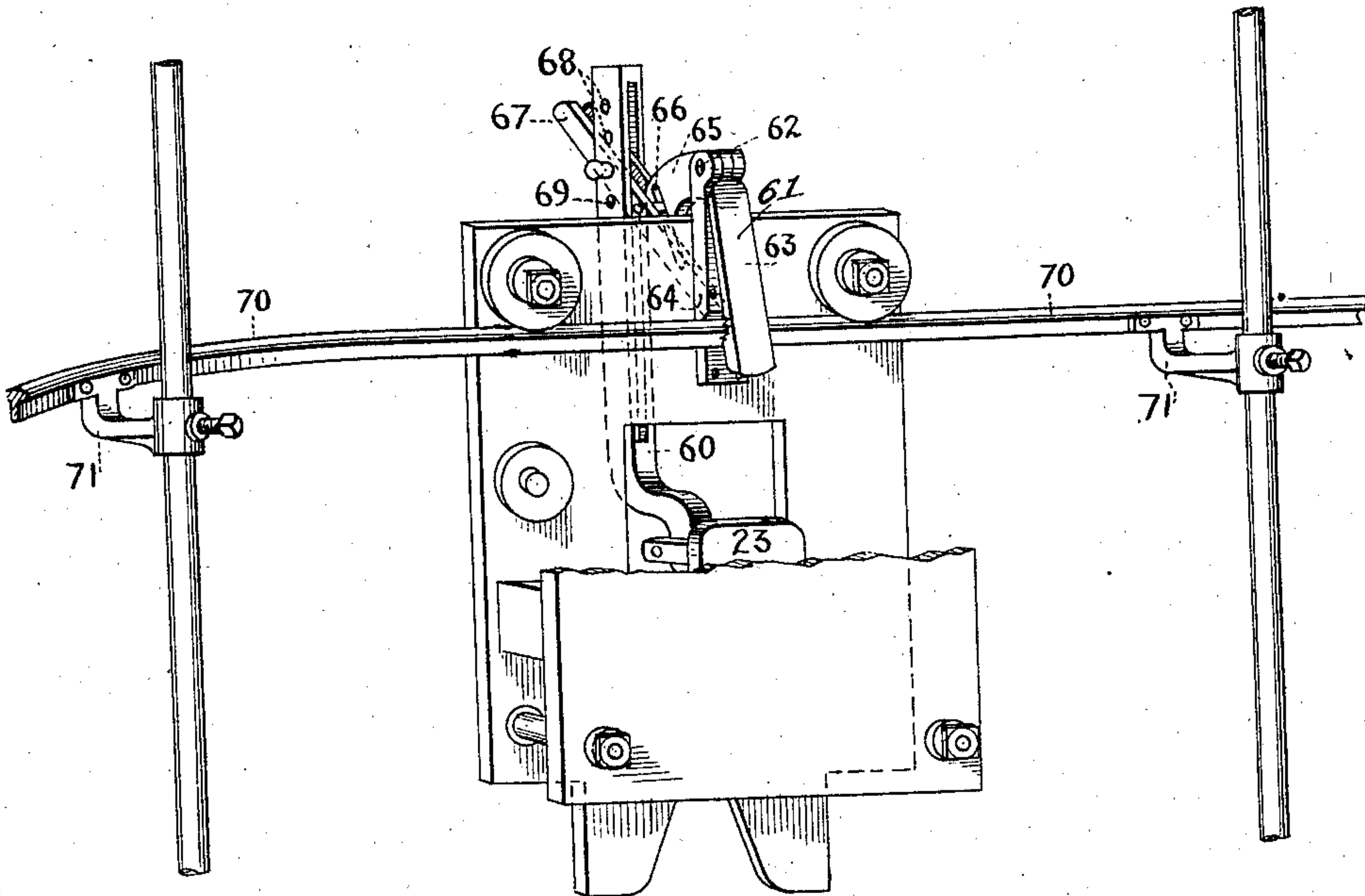


Fig. 14.

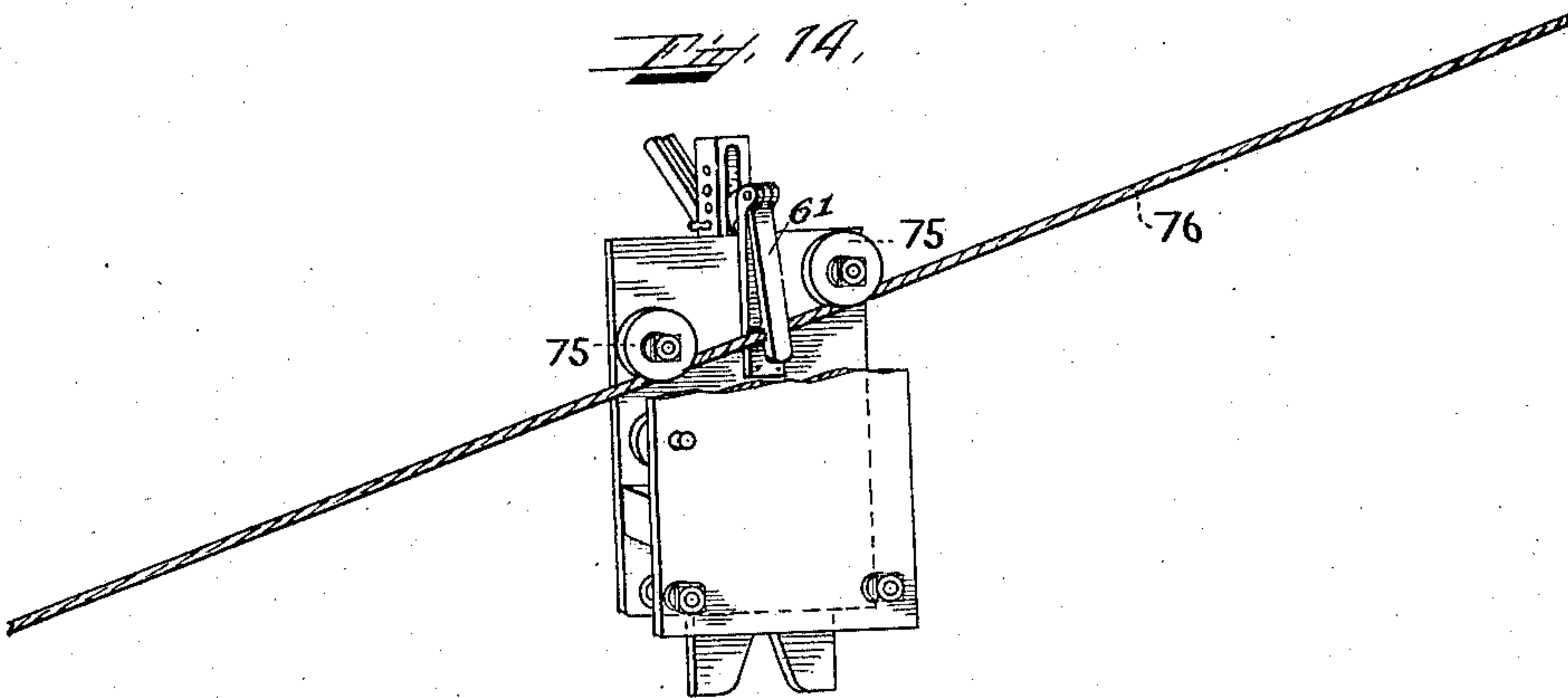


Fig. 15.

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Inventor:  
Clark Chase  
by his attorney,  
Charles F. Richardson



# UNITED STATES PATENT OFFICE.

CLARK CHASE, OF FALL RIVER, MASSACHUSETTS, ASSIGNOR TO AMERICAN CABLEWAY COMPANY, OF FALL RIVER, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

## CARRIER.

No. 859,542.

Specification of Letters Patent.

Patented July 9, 1907.

Application filed June 6, 1905. Serial No. 263,969.

*To all whom it may concern:*

Be it known that I, CLARK CHASE, a citizen of the United States, residing at Fall River, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Carriers, of which the following is a specification.

My invention relates to a class of mechanism known as carriers, and, while it may be successfully used in many different environments, it is particularly useful in moving from place to place heavy loads, such, for example, as coal, dirt, merchandise or the like. Its first feature resides in means whereby a carriage sustaining a load and being distant from the operator and source or sources of mechanical power, may be moved along its support, locked thereto and unlocked therefrom, whenever and wherever the operator, for any reason desires. To accomplish the above result, I design said means, first, so that two forces whose sources are distant from the carriage, are mechanically transmitted to, and modified at, the carriage, and their resultant causes the load to become movably secured to the carriage, and to be controlled by one of said forces; second, so that the movably secured load causes mechanism on the carriage, to grip the support and lock the carriage thereto; third, so that one of said forces causes the load to cease acting on the gripping mechanism, by ceasing to be movably secured to the carriage; and fourth, so that one of said forces may, if desired, be used for the purpose of moving said carriage along its support, in the direction of the force applied to the carriage; while the other of said forces may be inactive.

The second feature of my invention consists of mechanical means whereby a load-bearing member may be successfully fastened, unfastened from, and movably secured to a sustaining member, by the use of two forces whose sources are distant from the sustaining member; each force when applied at the sustaining member, being opposite to that of the other.

The third feature of my invention is found in mechanical means whereby the weight of a bucket or receptacle of a load-bearing member which may be fastened, unfastened and movably secured to a stationary or to a movable sustaining member, is utilized for closing and opening the bucket, as for the purpose of loading and unloading the contents of the bucket. This feature, although shown and described, is not claimed herein, but is claimed in application No. 306,177, filed by me March 15, 1906, for United States Letters-Patent for hoisting buckets.

As my invention is of great utility when employed in apparatus for coaling ships at sea, the preferred forms of my invention are illustrated and described in the drawings and description of such apparatus; the modi-

fication showing the formal variations in the structures to adapt the invention to some of its many possible environments.

By the first and second features of my invention, the locking and unlocking of the carriage to the support, is under the complete control of two lines operatively connected to the carriage, and further, except to lock the carriage to the support, the two lines are not simultaneously operated in opposition to each other, and there is no tendency to cause them to part, as, for example, there would be, if these lines were operatively connected with a collier and a ship coaling therefrom, and said lines were taut when the ship and collier began to pitch away from each other. Each of the two ropes may be consequently smaller and less strong and of lighter weight than the ropes usually employed; the trolley wire and carriage, therefore, have less weight to support, and less power is required to move the carriage along its support. Further, no springs are employed; the co-operating parts are simple and strong in construction, and act positively.

By the third feature of my invention, the discharge of the bucket is under easy manual control of the operator, while its closing and locking are entirely automatic. The advantages resulting from this feature will be obvious, especially when the bucket is of large dimensions, and the movably secured bottom is very heavy.

Figures 1, 2, 3, and 4, show the first and second features of my invention employed in apparatus for coaling ships at sea; and how, by reason of the looseness of one of two traction ropes attached to the trolley carriage, the pitching of the two ships cannot so tighten said traction ropes as to cause either of them to part. Figs. 5, 6, 7, 8 and 9, show the successive positions of the various parts of the first and second features my invention assumed during the acts of unlocking and locking the carriage to its support or trolley wire, and also unfastening and fastening the load bearing member to the carriage; the front plate is removed to show the parts, which otherwise would be concealed by it. Fig. 10 shows the various parts assembled between the front and back plates of the apparatus. Figs. 11 and 12 represent a modification of the first feature of my invention; in Fig. 11, the carriage being locked to the trolley wire, and in Fig. 12, unlocked. Figs. 5, 5<sup>a</sup>, 5<sup>b</sup>, 11, and 12 show the third feature of my invention, namely, a new tub or bucket or receptacle, which may, as for the purpose of dumping, and loading, be opened and closed by its own weight, when combined with a support that permits the fastening and unfastening of the load-bearing member to and from the carriage, or sustaining member; so much of the load-bearing member as is



shown broken away, in Fig. 5, for the sake of clearness, being supplied and explained by the shortened side view shown in Fig. 5<sup>a</sup>, and in the sectional plan view in Fig. 5<sup>b</sup>, on line 5—5 of Fig. 5<sup>a</sup>. Fig. 13 shows a form of load-bearing member provided with a common hook, instead of my bucket. Fig. 14 represents a modification of preferred form of employing the first feature of my invention, and is adapted to permit the carriage to pass over a device sustaining the carriage support, such, for example, as a straight or curved rail. Fig. 15 represents a modified form of my invention, and is adapted for use upon a permanently inclined support, as a wire, rail, or the like.

In the drawings illustrating the principle of my invention and the best mode now known to me of applying those principles, a tow line A, see Figs. 1, 2, 3 and 4, connects a collier B, and a war ship C, and is made fast to a towing-machine, upon either ship; a trolley-wire D, cable, or support, passes through blocks E, F, upon masts G, H, of the collier B and the war ship C; one end being fast to one vessel, and the other to a towing-machine on the other ship; a parting of the tow line A, or the trolley-wire D, is thus obviated, but such towing-machine constitutes no part of my invention.

A carriage 1 or movable sustaining member is mounted on the trolley-wire D, and is operatively connected by ropes 2, and 3 with rope-drum-engines 4, 5, on the collier B, and the war ship C; these ropes passing through blocks 6, 7, on the masts G, H, of the collier B and the war ship C; movably secured to carriage 1 is a load-bearing member 8 having a receptacle 9, bucket, or tub. Notice is to be taken here that when the carriage 1 moves in the direction, shown by the arrows in Figs. 1, 2 and 3, one rope trails loosely behind the carriage; also that when the carriage is locked, as will be explained later, to the trolley wire, as for the purpose of loading a torpedo-boat J, see Fig. 4, only the hoisting and lowering rope 2 is taut; the other being loose. The ropes, not acting in opposition to each other, the pitchings of the collier and the war ship cannot cause them to part

Having shown, in a general way, the environment of my invention when employed in apparatus for coal-ing ships at sea, I will now describe the particular mechanisms embodying the principles of my invention.

Grooved wheels 10 movably secure the carriage 1 upon the trolley wire D, and the load-bearing member 8 is removably secured to the carriage 1 by a bolt 11 which has a depending hook 12<sup>x</sup> to sustain the load-bearing member 8. This bolt 11 is movably mounted on the carriage 1; pins 12 and 13 support it, and pin 14, engaging slot 15, confines and limits the movement of the bolt 11 to that forward and back, across the carriage. The forward movement is brought about by that of a lever 16 fulcrumed on the pin 17 and having its slotted end portion engage a pin 18 forming part of the bolt 11; the rope 3 being fast to the driving end of the lever; the back movement is due to tension on the other rope 2, which passes over three pulleys 19, 20, 21, is made fast to the carriage 1, and supports the load-bearing member 8. The first and third pulleys 19, 21, are mounted on the carriage 1, while the second pulley 20 is on the movable bolt 11, and at one side of the first and third pulleys 19, 21, so that any tension of the rope 2, due to the weight of the load-bearing member 8, and tending

to cause the rope to become tangent to the first and third pulleys, acts against the second pulley 20, and gives to the bolt 11 its backward movement.

The mechanism so far particularly described relates to the means required to fasten and unfasten the load-bearing member to the carriage, or movable sustaining member.

It will be noted that the rope 2 passes over a pulley 22 in a slide 23 which is free to move, say at right angles to the movement of the bolt 11, said movement being limited by guide pins 14, 24, 25. Projecting forward from the top portion of the slide 23 are lugs 26, between which is pivoted an upward extending bar 27 whose upper portion is slotted for the mounting therein of a cam-slot bar 28, pivoted to the carriage plate; the slotted bar 27 and cam-slot bar 28 have holes therein, and are pivotally adjusted in their relations by a pin 29 engaging said holes. Fixed to the carriage-plate and adjacent to the trolley wire D is a jaw 30 to which is pivoted a second jaw 31, having in its end portion a cam-slot 32 which in turn is engaged by a cam-pin 33 in cam-slot bar 28; the trolley wire D lies between suitably designed gripping surfaces of these jaws 30, 31; the cam-slot 32 being so designed that a downward, on an upward movement of the slide 23 will close, or open the jaws 30, 31, and lock or unlock the carriage 1 and the trolley wire D. The lower portion of the slide 23 is bi-furcated to allow the load-bearing member 8 to removably engage the hook 12 of the bolt 11; one part 34 extends downward, to be moved respectively into, and then out of, engagement with a pin 35 in bolt 11, to prevent, and to permit, the bolt 11 to be moved by tension due to the weight of the load-bearing member 8, on the rope 2; the other part 35<sup>x</sup> of said bi-furcation has the pulley 22 over which the rope 2 passes, and, when under tension, tends to cause the slide 23 to move downward; this latter part has a lifting lever 36, fulcrumed to the carriage 1, and pivoted to said part 23, the free end portion of said lever 36 lying in the path of a cross-bar 37 of the load-bearing member 8 when the latter is moving, and being guided by guiding edges 38 of the carriage plates, into position to be fastened to the hook 12<sup>x</sup> on the carriage 1, or sustaining member. The mechanism whereby a carriage may be locked to its support and then unlocked therefrom, has now been described.

Without pointing out the construction of the receptacle, or bucket of the load-bearing member 8, until later, I will now follow out the operations of the mechanism using the first and second features of my invention.

In Fig. 5, the carriage 1 is simply resting on the trolley wire D; the lines 2, 3, are loose; the load-bearing member 8 is sustained by the hook 12<sup>x</sup> on the carriage 1 and not by the rope 2, and the slide 23; the jaws 30, 31, are out of contact with the trolley wire D, and the carriage 1, with its load-bearing member 8, is free to be moved in either direction along the trolley wire D. For the sake of illustration, I will assume that the carriage 1, with a load of merchandise, has moved from the war ship C to the torpedo-boat J, shown in Fig. 4; that the carriage is just moving into position directly over the spot where the load is to be lowered from the carriage and left; the torpedo-boat, being towed by its tow-line 39, connected to the war ship C, and also being lashed to the tow-line A connecting the collier B with the war ship C. When in the above position, the



carriage 1 and its details will clearly appear from an examination of Fig. 6. The carriage 1 being in position to be locked to the trolley D, and the load-bearing member to be lowered to the torpedo-boat J, a signal is given to that effect to the collier B and the war ship C; the drum-engine 4 on the collier B slightly tightens the rope 2, and the carriage 1 tends to move towards the collier in the direction of the arrows, see Figs. 4 and 6, but, at the same time, the drum-engine 5 on the war ship C tightens on the rope 3, see Fig. 7, the cross bar 37 of the load-bearing member 8 rises out of the hook 12X, against the opposition of the lifting lever 36 due to the weight of the load-bearing member 8 acting on the slide 23; as the lever 36 and slide 23 can't descend, the jaws 30, 31, can't grip the trolley D, and the carriage 1 and the trolley wire D remain unlocked; but as the force exerted on the bolt 11 through the lever 16 and the rope 3 is greater than the force through the rope 2, acting in opposition on the bolt 11 through the pulleys 19, 20, 21, the bolt 11 is pushed into the new, that is, the unfastening position, shown in Fig. 7; the cross bar 37 is in the highest position; the portion 34 of the slide 23 is above the pin 35 in the bolt 11; and the jaws 30, 31 of the gripping mechanism are wide open. The moment the two ropes 2, 3, are taut and all the parts are in the positions shown in Fig. 7, the drum of the engine 4 on the collier B is released, and the hook 12 having been moved, and being held by the lever 16 and the taut rope 3, at one side of, and not underneath the cross bar 37, the load-bearing member 8 is free to descend by reason of its own weight; but as this weight acts through the rope 2 passing over the pulley 22 in the slide 23, the slide instantly descends unopposed, as appears in Fig. 8; its lower portion 34 engages the pin 35 of the bolt 11, and thus holds the bolt in its unfastening position; the cam-lever bar 28 descends with the slide 23, its cam pin 33 moves along the cam slot 32, forces the jaws 30, 31, into gripping contact with the trolley wire D, and the carriage is locked thereto, so long as the weight of the load-bearing member 8 acts through the rope 2 on the slide, and the connecting mechanism.

To raise the load-bearing member 8 and removably fasten it to the carriage, see Fig. 9, the hoisting rope 2, upon signal to the collier B is put into motion. The cross-bar 37 passes upward between the hook 12 and guiding edges 38 of the plates of the carriage 1, comes into contact with the lifting lever 36 and for the purpose of unlocking the carriage from the trolley, begins raising the lever 36 together with the slide 23, cam-lever pin 33, in cam slot 32 in the pivoted gripping jaw 31 and continues so to move them against the opposing weight of the load-bearing member until the parts assume the positions, shown in Fig. 6; that is, the slide 23, has moved out of engagement with the pin 35, and the bolt 11, by reason of tension on the rope 2, is forced along until the hook 12X, is underneath the cross bar 37 of the load-bearing member 8, and the jaws 30, 31, have released the trolley D. By releasing the drum, on engine 4, on the collier B, the cross bar 37, drops, engages the hook 12X, the hook 12X sustains the weight of the load-bearing member 8 and the force or weight of the load-bearing member, operating the gripping mechanism ceases; the load-bearing member 8 is now simply hanging on the hook 12X, of the carriage; the

carriage is unlocked from the trolley and is free either to be moved to the collier B, by rope 2, line 3 being loose and payed out from the war ship C, as in Figs. 3 and 4; or to be moved to the battle ship C, as in Figs. 1 and 2, by the rope 3, the rope 2 being loose and payed out by the collier B. In fine, when the load-bearing member is fastened to the carriage, the carriage with its load is free to be moved in either direction by one of the ropes, the other rope being loose, and these ropes in no way oppose each other to cause their parting by reason of the vessels' pitching in any kind of sea; and the carriage with its load-bearing member may, by the use of these two ropes, be locked to the trolley and then unlocked therefrom, whenever and wherever one desires such locking and unlocking.

A modification of the gripping mechanism is shown in Figs. 11 and 12. Two jaws 40, 41, are pivoted to a member 42, projecting from carriage-plate 43, above the trolley wire D; they straddle the wire, and their free end portions are connected by links 44, pivoted on a guide-bar 45 mounted in a bearing 46 fastened to the plate 43. Also connected pivotally to this guide-bar 45 is a link 46<sup>a</sup>, through which a reciprocating movement is given to the slide; two levers 47, 48, are pivoted to the plate 43 and are adjustably connected by a link 49, whereby greater or less movement may be imparted to the jaws 40, 41, in their gripping operation, and also whereby the jaws may be adjusted for use with trolley wires or supports of different sizes and diameters; the free end portions of the levers 47, 48, and link 49, may be provided with a series of holes, for the reception of pivoting pins 51. The end of the rope 3 is made fast to a lever 52, and the end of rope 2 is secured to lever 48. When the load-bearing member is sustained by the hook, see Fig. 12, the action of the weight of the load-bearing member on the lever 48, and the connecting jaws to grip the trolley, ceases. It will be observed that the lever 48, instead of the slide 23 of the preferred form, falls in front of the pin 35, in bolt, as for the purpose of holding the bolt open for the reception of the cross bar 37, of the load-bearing member 8, during the operation of fastening the latter to the carriage.

A reference to Fig. 11 shows the carriage locked to the trolley wire D, and the load-bearing member 8 unfastened from the carriage and partially sustained by the lever 48 which has dropped down into the path of the pin 35 of the bolt, holds the bolt open, and the jaws in gripping engagement with the trolley wire. In Fig. 12, the cross bar 37 of the load-bearing member, has been raised against the lever 48; the end of the latter contacting the pin 35, has been raised out of contact therewith, and the weight, acting through the rope 2, snaps the bolt 11 and its hook 12X into position under the cross bar to receive it when it is lowered; simultaneously, the other end of the lever 48 has transferred its motion through the link 49, the lever 47, the link 46, the slide 45, which in turn moves the jaws, and, operating on the links connected to the jaws 40, 41, causes them to expand, ungrip the trolley, and unlock the carriage therefrom; tension on the rope 2 is released; the cross bar 37 with the weighted lever 48 bearing thereon, descends and engages the hook; the rope 3 being loose; the weight of the load-bearing member ceases to act on the gripping mechanism, and the



carriage is free to be moved along the trolley wire in either direction.

To fasten the carriage to the trolley wire, tension is put upon the rope 2, the cross bar 37 is lifted out of the hook 12X, the lever 52 operated by rope 3 thrusts the bolt into position, shown in Fig. 11; rope 2 is released, the load-bearing member becomes detached from the carriage, the end of the lever 48 drops, causes the gripping mechanism to seize the trolley, engages with the pin 35, of the bolt, and holds the bolt open until it is released in the operation of fastening the load-bearing member to the carriage, as has already been shown and described in Fig. 12.

It is to be observed that there is a guide pulley 53 on top of the carriage plate 43. This is for convenience in case both drum-engines are on one ship, and a support for that portion of the rope approaching the engines and between the ships, is necessary; either rope passes to and through a block on the mast of the other ship and returns through the guide pulley 53 to the drum-engine, while the other rope, as already described, returns directly to the other drum engine on the same ship.

In Fig. 14 is shown another modified form of gripping mechanism adapted for use upon a support straight or curved, sustained, as by brackets, and operated by means already described, and not deemed necessary here to be shown. An upwardly extending bar 60, projects rearwardly from the slide 23 and is back of the carriage plate instead of being in front, as it is shown in the preferred form. A jaw 61 in the form of a bell crank lever is pivoted at 62, the gripping portion 63 of the lever, co-operating with a jaw 64, fast to the carriage plate; the rearward portion 65 of this lever has a cam slot 66, which is in engagement with a cam-pin lever 67 pivoted to the rear of the plate and having its free end portion adjustably secured to the bar 60 by a series of holes 68 and a pin 69, whereby the bar 60 and cam-pin lever 67 are pivotally secured together. By this construction the mouth of the jaws 63, 64, permits the carriage to be easily mounted on, and removed from, rail or support 70, and also allows the carriage to pass freely by brackets 71 sustaining the support.

In Fig. 15, I have shown how wheels 75 of a carriage may be arranged for use upon a support, rope or rail 76, which occupies a permanently inclined position.

The next and last feature of my invention resides in a new receptacle, bucket, or tub, and it is shown in Figs. 5, 5<sup>a</sup>, and 5<sup>b</sup>. This feature is separately claimed in a divisional application filed by me, as above stated. A cross bar 37, engages a supporting member or carriage, and is mounted in guide plates 80, which assist in guiding the load-bearing member into fastening engagement with the carriage. Mounted between these guide plates 80 and below them, is a pulley 81; extending down from the guide plates is a rod 82 which passes through two guides 83, 84, forming part of the tub, and holding the rod 82 in a plane, say perpendicular to the plane of the tub. Pivoted to the lower sides of the tub, and forming its bottom are two doors 85 opening downward; each door is pivotally connected to the free end portion of rod 82 by a link 86. Mounted on the guide member 83 are two pulleys 87, one on each side of the rod; and in engagement with the side and top portion of the

guide member 83, are two spring members 88, fixed to the guide plates 80, and having shoulders 89 catching and engaging said top and side portions of the guide member 83, as clearly appears from Figs. 5<sup>a</sup> and 5<sup>b</sup>. Pivoted upon the rod 82 is a dumping lever 90, designed to be operated by hand or by a lanyard, and having cam surfaces 91 to engage the adjacent shoulders 89 of the spring members 88. The rope 2 passes from the pulley 21 of the carriage down through a guide 92, guide plate 83, round the pulley 87, up over the pulley 81, down under the second pulley 87, up through the guide plate 83, guide 92, to operate the gripping mechanism, as through the pulley 22 in the slide 23, and is made fast to the carriage plate.

Assuming the various parts of the tub are in the positions shown in Figs. 5, 5<sup>a</sup> and 5<sup>b</sup>, the load-bearing member including the tub is entirely sustained by the hook on the bolt, but when the cross bar 37 has become detached from the hook, the weight of the tub is sustained by the rope 2 which is engaging the pulleys 87, 81, 87; the strands of the rope 2 tending to draw the pulley 81 downward toward the pulleys 87, 87; but this tendency is counter-acted by the shoulder 87 of the stiff spring members 88 engaging the edge and top portion of the guide member 83, and the bottom of the tub remains closed. The tub being detached from the carriage, that is, movably secured to the carriage, and ready for dumping, the dumping lever 90 is moved, as in the direction indicated by the arrow in Fig. 5<sup>b</sup>, the shoulders 89 are moved out of engagement with the guide member 83, and the weight of the tub, acting on the rope and its pulleys, causes the pulley 81 and the rod 82 to move downward, and the doors of the bottom are forced open; the parts appearing in the positions shown in Fig. 11.

The tub having been dumped, it is returned to the carriage by hauling on the rope 2; the parts of the tub remaining in the same positions, shown in Fig. 11, until the cross bar 37 engages, and becomes detachably fastened to the hook 12X of the carriage, in a manner already described; at which moment, the rope 2 being slackened, the weight of the tub causes the tub to descend, the guides 88 to move down the bar 82, and the doors 85 of the bottom to begin to close, all of which is apparent in Fig. 12. The shoulders 89 of the spring members 82 slide along the edges of the guide member 83 and when they pass these edges they snap into engagement with the guide member 83, force the cam lever 90 back into position for the next dumping of the tub, and securely close the bottom of the tub. In fine, after the tub is unfastened from its sustaining member, or carriage, it may be dumped at the time desired, by moving the dumping lever; and, if, after the tub is dumped, and the cross bar is above the hook, and in position to be fastened thereto, the haul line is released, the tub is automatically closed by the action of its own weight.

The tub is illustrated as combined with the preferred and also the modified form of carriage to show its capability of use in connection with any kind of sustaining member. It is to be clearly understood that my improved carriage is in no way dependent for its successful operation, upon the particular tub used, because any load-bearing member, such for example, as shown in Fig. 13, which has suitable means to be de-



tachably secured to the supporting member, will serve for the successful operation of the carriage. Further, it is to be understood that my new receptacle, tub, or bucket, may be used with other forms of supporting members, either stationary, or movable as a carriage, and its co-operative action in no way depends upon the particular features of the carriage shown and described.

Desiring to claim my invention in the broadest manner legally possible, and it being understood that the salient features of my invention may be embodied in many different forms without departing from the principles thereof:

What I claim is:

1. A carrier made up of a carriage; a support with which the carriage is in movable engagement; locking and unlocking mechanism mounted on the carriage, to grip the support whereby the carriage and the support may be locked together and then unlocked; a load-bearing member; means whereby the load-bearing member may cause the locking and unlocking mechanism to lock and unlock the carriage and the support; the weight of the load bearing member tending to hold the locking mechanism in engagement with the support; and means whereby the load-bearing member may be removably fastened to the carriage, and then be unfastened therefrom; the fastening and unfastening mechanism being operated from sources of power being distant from the carriage.
2. A carrier made up of a carriage; a support with which the carriage is in movable engagement; locking and unlocking mechanism mounted on the carriage to engage the support frictionally, whereby the carriage and support may be locked together and then unlocked; a load-bearing member; a hoisting and lowering rope operatively connected with the locking and unlocking mechanism, and with the load-bearing member, movably mounted upon said rope; and means whereby the load-bearing member may be removably fastened to the carriage and then unfastened therefrom.
3. A carrier made up of a carriage; a support with which the carriage is in movable engagement; locking and unlocking mechanism consisting of gripping members mounted on the carriage, to grip the support, whereby the carriage and support may be locked together and then unlocked; a load-bearing member; a hoisting and lowering rope operatively connected with the gripping members, and the load-bearing member, movably mounted upon said rope; and means whereby the load-bearing member may be removably fastened to the carriage, and then unfastened therefrom, for the purpose of unlocking and locking the carriage and the support, by removing the weight of the load-bearing member from the rope, and then throwing it thereon.
4. A carrier made up of a carriage; a support with which the carriage is in movable engagement; locking and unlocking mechanism consisting of gripping members, one of which is rigid with the carriage, and the other is pivoted thereto; these members being located so that they may grip the support; a cam-slot in the pivoted member; a movable slide operatively connected with said cam-slot; a load-bearing member; a hoisting and lowering rope, operatively connected with the slide, and the load-bearing member movably mounted upon said rope; and means whereby the load-bearing member may be removably fastened to the carriage and then unfastened therefrom, for the purpose of unlocking and locking the carriage and the support by removing the weight of the load-bearing member from the rope, and then throwing it thereon.
5. A carrier made up of a carriage; a support with which the carriage is in movable engagement; locking and unlocking mechanism, consisting of gripping members, one of which is rigid with the carriage and the other is pivoted thereto; said members being located so that they may grip the support; a cam-slot in the pivoted member; a cam-lever, pivoted to the carriage and having a pin to engage the cam-slot; a movable slide mounted on said carriage, and pivotally connected with said cam-lever; a load-bearing

ing member; a hoisting and lowering rope operatively connected with the slide and the load-bearing member, movably mounted upon said rope; and means whereby the load-bearing member may be removably fastened to the carriage and then unfastened therefrom, for the purpose of unlocking and locking the carriage and the support, by removing the weight of the load-bearing member from the rope, and then throwing it thereon.

6. A carrier made up of a carriage; a support with which the carriage is in movable engagement; locking and unlocking mechanism, consisting of gripping members, one of which is rigid with the carriage, and the other pivoted thereto, said members being located so as to grip the support; a cam-slot on the pivoted member; a cam-lever, pivoted to the carriage and having a pin to engage said cam-slot; a movable slide mounted on the carriage; an arm pivoted to the slide and also pivoted to the cam-lever; a load-bearing member; a hoisting and lowering rope, operatively connected with the slide and with the load-bearing member, movably mounted upon said rope, whereby the carriage and the support may be locked together and then unlocked; and means whereby the load-bearing member may be removably fastened to the carriage and then unfastened therefrom, for the purpose of unlocking and locking the carriage and the support by removing the weight of the load-bearing member from the rope, and then throwing it thereon.

7. A carrier made up of a carriage; a support with which the carriage is in movable engagement; locking and unlocking mechanism, consisting of adjustable gripping members whereby the carriage and the support may be locked together, and then unlocked; a load-bearing member; a hoisting and lowering rope operatively connected with the gripping members, and with the load-bearing member movably mounted on said rope; and means whereby the load-bearing member may be removably fastened to the carriage and then unfastened therefrom, for the purpose of unlocking and locking the carriage and the support, by removing the weight of the load-bearing member from the rope and then throwing it thereon.

8. A carrier made up of a carriage; a support with which the carriage is in movable engagement; locking and unlocking mechanism, consisting of adjustable gripping members whereby the carriage and the support may be locked together and then unlocked; a load bearing member; a movable slide mounted in the carriage and connected to said locking and unlocking mechanism; a hoisting and lowering rope operatively connected with said slide and with the load bearing member movably mounted on said rope; and means whereby the load bearing member may be removably fastened to the carriage and then unfastened therefrom for the purpose of unlocking and locking the carriage and the support, by removing the weight of the load bearing member from the rope and then throwing it thereon.

9. A carrier made up of a carriage; a support with which the carriage is in movable engagement; locking and unlocking mechanism whereby the carriage and the support may be locked together and then unlocked; a load bearing member; a bolt which permits the load bearing member to become fastened to the carriage and then become unfastened therefrom; means to move the bolt into fastening position; a rope in operative engagement with said carriage and with the load bearing member, and operatively connected with said locking and unlocking mechanism; a lever fulcrumed to the carriage, one arm engaging the bolt and the other arm receiving its operating force, this lever having its arm so proportioned that the force applied to the bolt through this lever will overcome that tendency of the bolt to move into fastening position, and will move the bolt into a position that will permit the load bearing member to become unfastened from the carriage; means to hold the bolt in said position when the force operating the lever ceases; and means whereby the load bearing member when raised in position to be fastened to the carriage, releases said bolt which, by the unopposed fastening force, moves into position to fasten the load bearing member to the carriage.

10. A sustaining member, movably mounted upon a support; a load-bearing member movably secured to said sustaining member; a bolt in the sustaining member and



adapted to support the load-bearing member; means in said sustaining member to guide said load-bearing member into position to engage said bolt; means to move said bolt in one direction to permit the said load-bearing member to rest upon said bolt; means to move the bolt in an opposite direction; means controlled by the operator, to act in opposition to said latter means, so as to hold the sustaining member in any position desired upon the support, and permit the said latter means to move said bolt, and thus allow said load-bearing member to become disengaged from said bolt.

11. A carrier made up of a carriage; a support with which the carriage is in movable engagement; locking and unlocking mechanism consisting of gripping members one of which is rigid with the carriage and the other pivoted thereto; said members being so located that they may grip the support; a cam-slot in the pivoted member; a cam-lever pivoted to the carriage and having a pin to engage said cam-slot; a movable slide mounted on the carriage; an arm pivoted to the slide and also pivoted to the cam-lever, said arm and said cam-lever being provided with means whereby their common pivot may be adjusted in its relation to each; a hoisting and lowering rope operatively connected with the slide, and the load-bearing member movably mounted on said rope, whereby the carriage and the support may be locked together and then unlocked; and means whereby the load-bearing member may be removably fastened to the carriage and then unfastened, for the purpose of unlocking and locking the carriage and the support, by removing the weight of the load-bearing member from the rope, and then throwing it thereon.

12. A carrier made up of a carriage; a support with which the carriage is in movable engagement; locking and unlocking mechanism whereby the carriage and the support may be locked together and then unlocked; a load-bearing member; a bolt which permits the load-bearing member to become fastened to the carriage, and then become unfastened therefrom, and which is provided with a pulley; two pulleys on said carriage; said bolt pulley lying at one side of a tangent drawn between said two pulleys on the carriage; a rope in operative engagement with these pulleys and the load-bearing member, and having its end operatively connected with the said locking and unlocking mechanism; a lever, fulcrumed to the carriage, one arm engaging the bolt and the other arm receiving its operating force; this lever having its arms so proportioned that the force applied to the bolt will overcome that due to the weight of the load-bearing member, and will move the pulley and the bolt into a position that will permit the load-bearing member to be unfastened from the carriage; means to hold the bolt in said position when the force operating the lever ceases; and means whereby the load-bearing member when raised in position to be fastened to the carriage, releases said bolt, which, by the unopposed action of the weight of the load-bearing member, moves into position to fasten the load-bearing member to the carriage.

13. A carrier made up of a carriage; a support with which the carriage is in movable engagement; locking and unlocking mechanism whereby the carriage and the support may be locked together and then unlocked; a load-bearing member; a bolt which permits the load-bearing member to become fastened to the carriage and then become unfastened therefrom, and which is provided with a pulley; two pulleys on said carriage; said bolt pulley lying at one side of a tangent drawn between said two carriage pulleys; a slide operatively connected with said locking and unlocking mechanism, and movably secured to the carriage, and to be moved into and out of engagement with the bolt; a rope in operative engagement with these pulleys, load-bearing member and slide; and a lever fulcrumed to the carriage, one arm engaging the bolt and the other arm to receive its operating force; this lever having its arms so proportioned that the force, when applied at the bolt, will overcome that due to the weight of the load-bearing member, and will move the pulley and the bolt into position for unfastening the load-bearing member.

14. A carrier made up of a carriage; a support with which the carriage is in movable engagement; locking and unlocking mechanism whereby the carriage and support may be locked together and then unlocked; a load-bearing

member; a bolt which permits the load-bearing member to become fastened to the carriage and then become unfastened therefrom, and which is provided with a pulley; two pulleys on said carriage; said bolt pulley lying at one side of a tangent drawn between said two carriage pulleys; a slide operatively connected with said locking and unlocking mechanism, and movably secured to the carriage, and to be moved into and out of engagement with the bolt; a rope in operative engagement with these pulleys, load-bearing member and slide; a lever fulcrumed to the carriage, one arm engaging the bolt and the other arm to receive its operating force; this lever having its arm so proportioned that the force, when applied at the bolt, will overcome that due to the weight of the load-bearing member, and will move the pulley and the bolt into position for unfastening the load-bearing member; and a lifting lever pivoted to the carriage and the slide, whereby the load-bearing member, when raised into position to be fastened to the carriage, engages the lifting lever which moves the slide out of engagement with the bolt and releases said bolt, and the latter, by the unopposed action of the weight of the load-bearing member, moves into position to fasten the load-bearing member to the carriage.

15. A sustaining member; a load-bearing member; a bolt which permits the load-bearing member to become fastened to the sustaining member, and to become unfastened therefrom, and which is provided with a pulley; two pulleys on said sustaining member, said bolt pulley lying at one side of a tangent drawn between said two sustaining member pulleys; a rope in operative engagement with these pulleys, and the load-bearing member, and having its free end fast to the sustaining member; a lever fulcrumed to the sustaining member, one arm engaging the bolt, and the other arm to receive its operating force; this lever having its arms so proportioned that, to move the bolt into a position to permit the load-bearing member to be unfastened from the sustaining member, the force applied at the bolt will overcome that due to the weight of the load-bearing member, and will move the pulley and bolt into unfastening position; means to hold the bolt in said position when the force operating the lever ceases; and means whereby the load-bearing member, when raised into position to be fastened to the sustaining member, releases said bolt which, by the unopposed action of the weight of the load-bearing member, moves into position to fasten the load-bearing member to the sustaining member.

16. A sustaining member; a load-bearing member; a bolt which permits the load-bearing member to become fastened to the sustaining member, and to become unfastened therefrom, and which is provided with a pulley; two pulleys on said sustaining member; said bolt pulley lying at one side of a tangent drawn between said two pulleys; a slide movably secured to the sustaining member, to move into and out of engagement with the bolt; a rope in operative engagement with these pulleys, the load-bearing member, and the slide; a lever fulcrumed to the sustaining member, one arm engaging the bolt, and the other arm to receive its operating force; this lever having its arms so proportioned, that to move the bolt into a position to permit the load-bearing member to be unfastened from the sustaining member, the force applied at the bolt will overcome that due to the weight of the load-bearing member, and will move the pulley and bolt into unfastening position, and the weight of the load-bearing member on the rope acting on the slide, will cause the slide to engage the bolt to fasten it in its open position, and permit the force, acting on the lever, to cease its action; a lifting lever pivoted to the sustaining member and the slide, whereby the load-bearing member, when raised into position to be fastened to the support, engages the lifting lever, moves the slide out of engagement with the bolt and releases said bolt, which, by the unopposed action of the weight of the load-bearing member, moves into position to fasten the load-bearing member to the sustaining member.

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

CLARK CHASE.

Witnesses:

RICHARD P. BORDEN,  
ROBERT C. DAVIS.