April 15, 1952 D. J. NEALE 2,592,943

LASHING MACHINE FOR AERIAL CABLES

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Fig. 1.

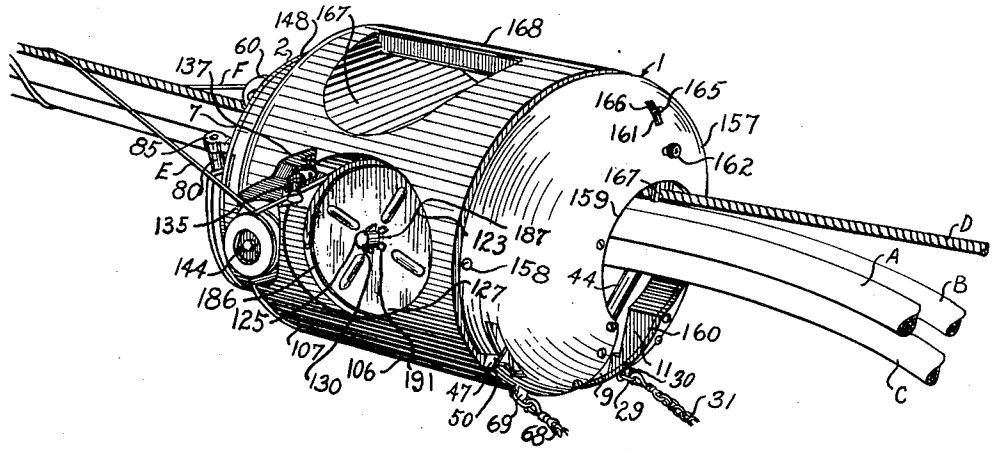
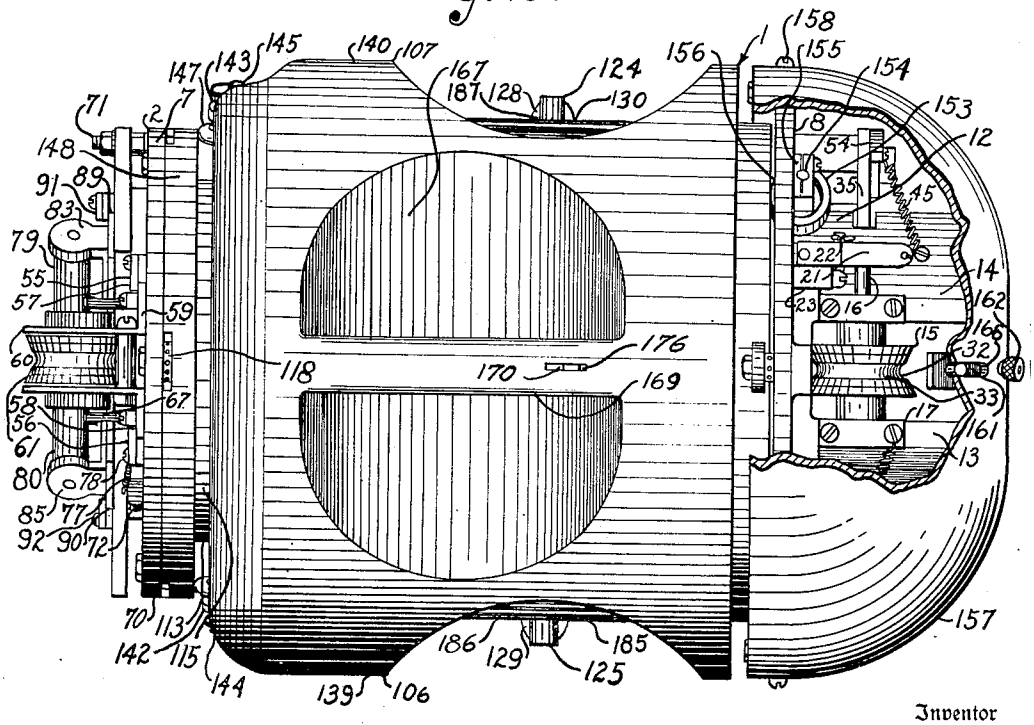


Fig. 2.



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Fig. 3.

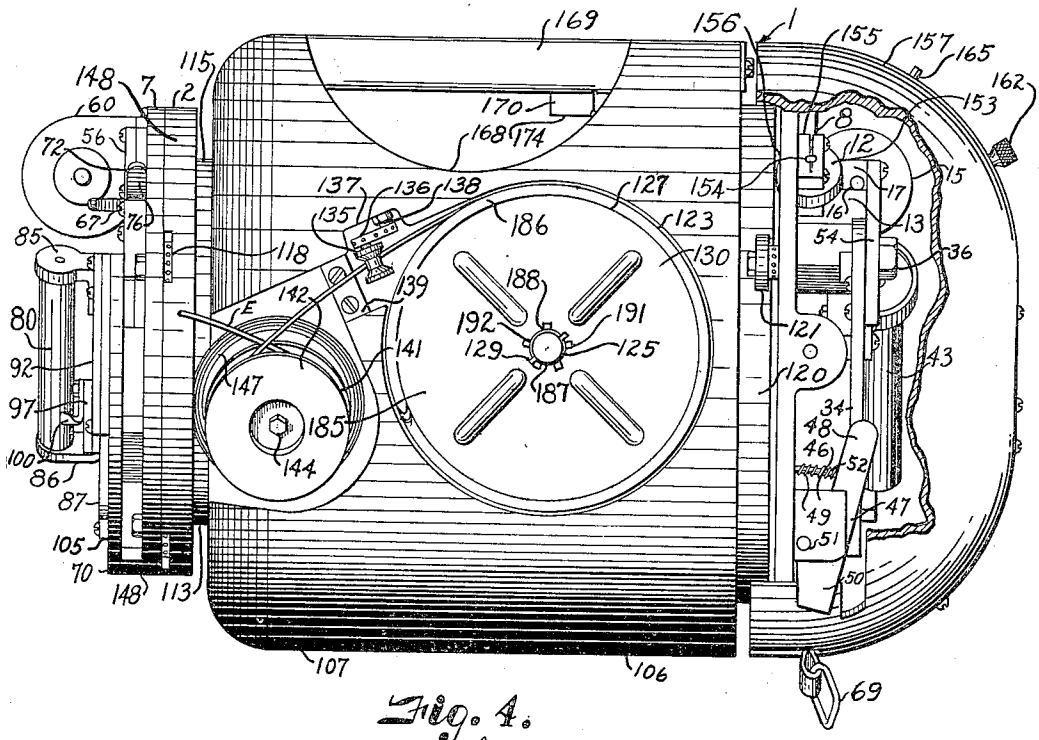
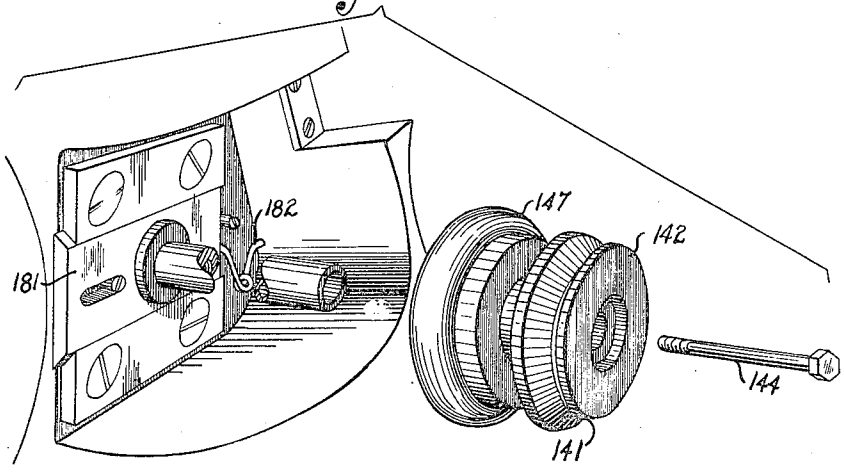


Fig. 4.



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Fig. 5.

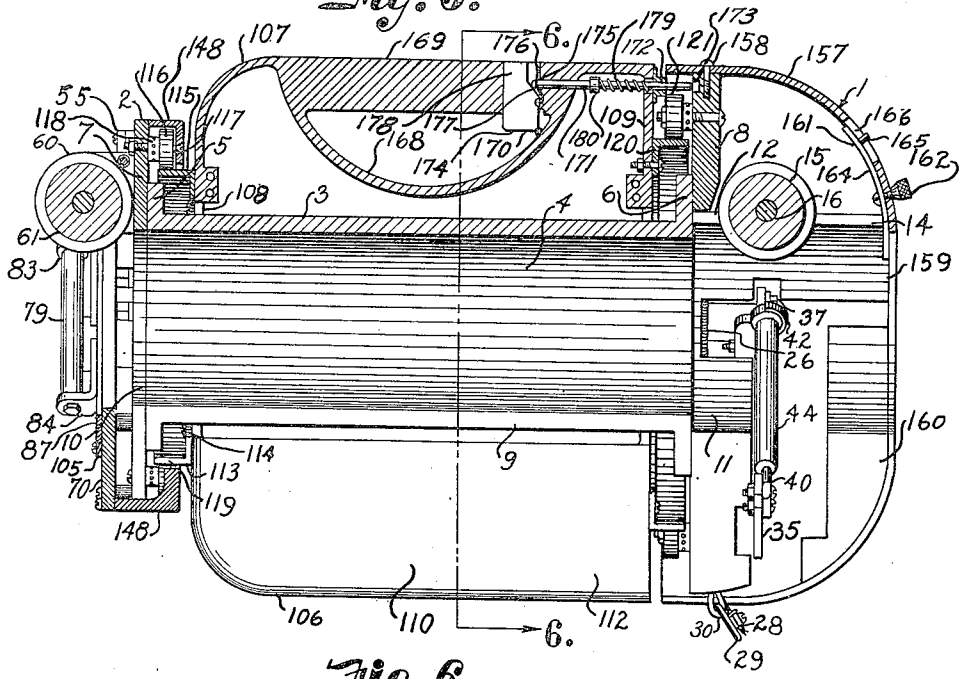


Fig. 6.

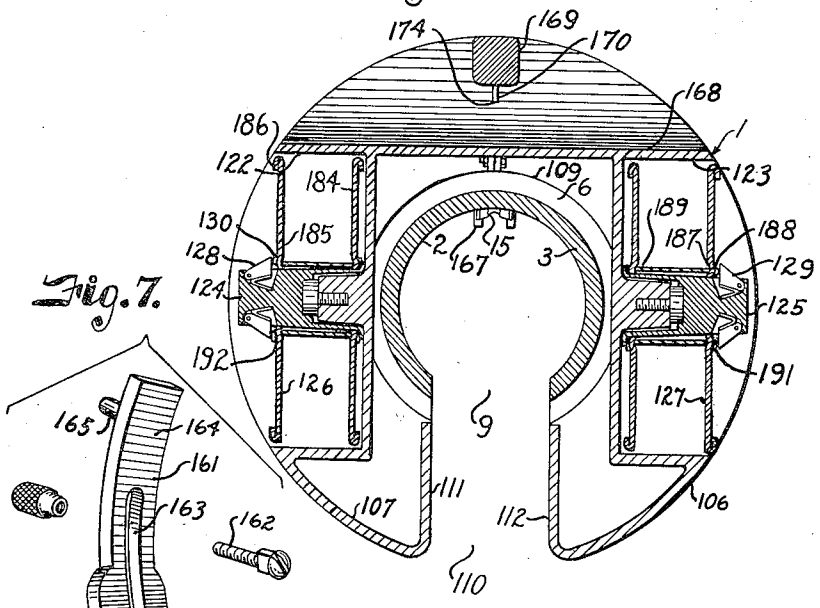


Fig. 7.

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LASHING MACHINE FOR AERIAL CABLES

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Fig. 8.

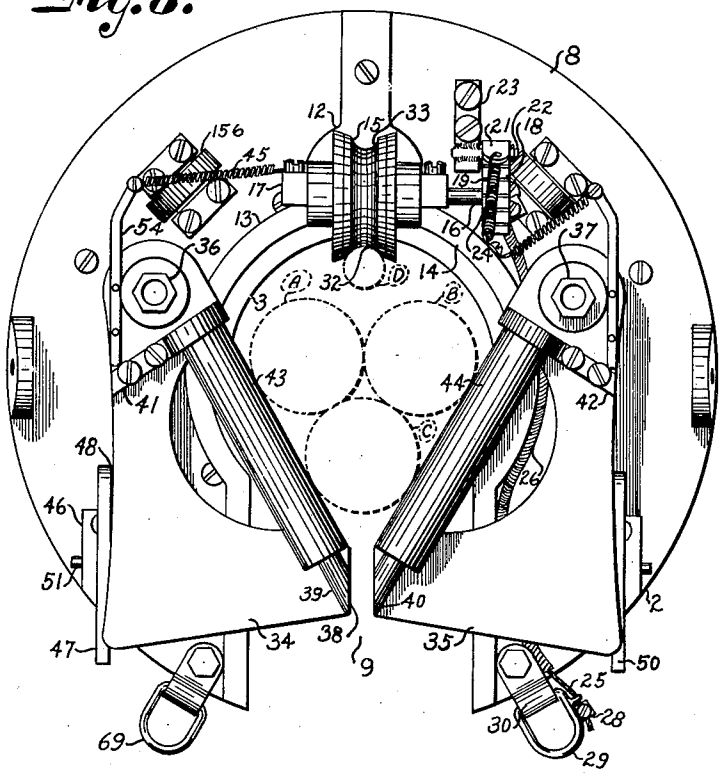
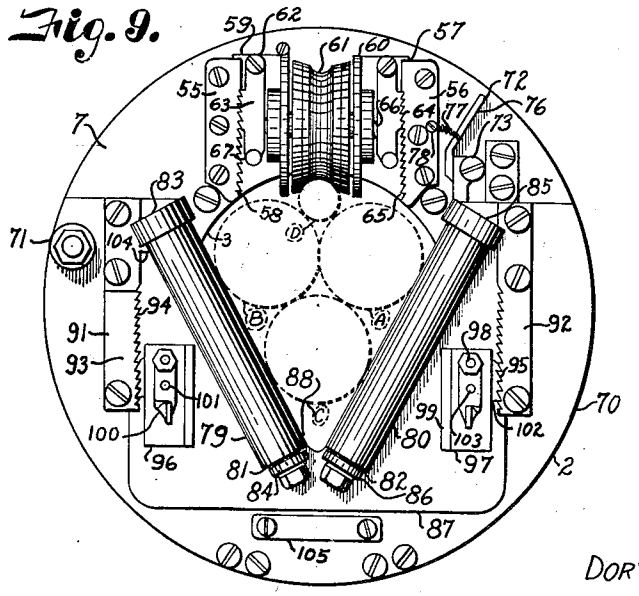


Fig. 9.



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LASHING MACHINE FOR AERIAL CABLES

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Fig. 10.

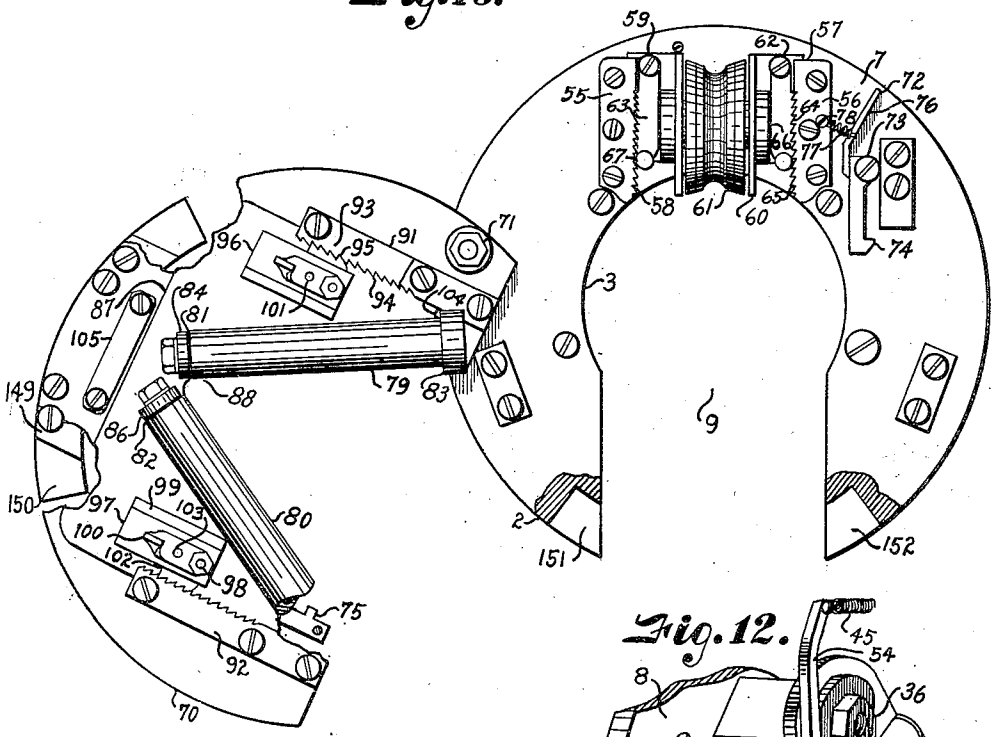


Fig. 11.

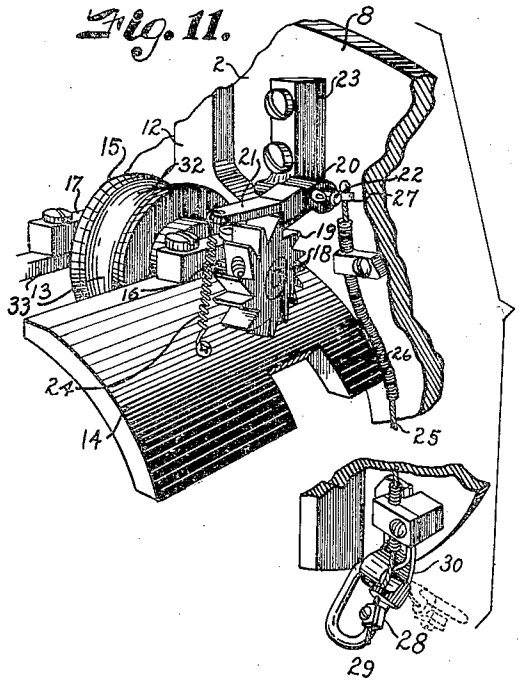
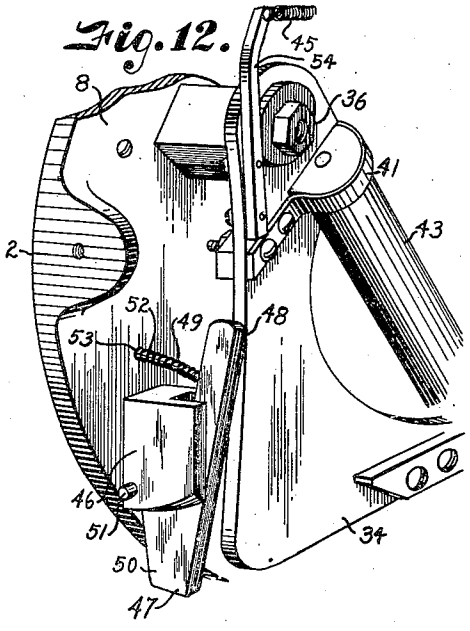


Fig. 12.



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2,592,943

UNITED STATES PATENT OFFICE

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LASHING MACHINE FOR AERIAL CABLES

Dory J. Neale, Topeka, Kans.

Application February 7, 1949, Serial No. 74,923

12 Claims. (Cl. 175—376)

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This invention relates to a cable lashing machine such as used for securing aerial cable to a messenger or supporting strand and has for its principal object to provide a machine of this character for spinning a plurality of lashing wires about a supporting strand and one or more aerial cables to be supported thereby.

Other objects of the invention are to provide a cable lashing machine having a streamlined, light-weight construction which is easily handled and applied in working position on a messenger; to provide a lashing machine with a spinning head carrying a plurality of lashing wire reels and which is rotatable about the spinning axis through driving mechanisms actuated by the lay of each lashing wire progressively with movement of the machine along a messenger; and to provide a lashing machine having a substantially balanced spinning head to effect uniform tension and lay of the lashing wires.

Further objects of the invention are to provide a spinning head in which the housings for the driving mechanisms and reels enhance the structural strength of the head for reducing weight; to provide a lashing machine with roller guides arranged in V formation to support the aerial cables in proper relative relation while they are being lashed to a messenger; to provide differential adjustment of the guide and supporting rollers through ratchet locks; to provide a lashing machine with a no back mechanism for holding tension on the lashing wires; to provide for ground release of the no back mechanism when desired; to provide the lashing machine with a carrying handle; and to provide a safety lock that is manipulated through the handle for locking the spinning head from rotation on its carriage or trolley while the machine is being transported or applied in working position.

In accomplishing these and other objects of the invention, I have provided improved structure, the preferred form of which is illustrated in the accompanying drawings wherein:

Fig. 1 is a perspective view of a lashing machine constructed in accordance with the present invention and illustrating operation thereof for lashing a plurality of aerial cables to their supporting strand or messenger.

Fig. 2 is a plan view of the lashing machine, a part of the casing being broken away to better illustrate the interior mechanism.

Fig. 3 is a side elevational view, partly illustrating one of the lashing wire reels and power units for effecting drive of the spinning head, a part of the casing being broken away to show the mechanism enclosed thereby.

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Fig. 4 is a detail fragmentary view showing mounting of one of the power pulleys and friction wheel driven thereby, the parts being shown in disassembled spaced relation.

Fig. 5 is a longitudinal section through the lashing machine.

Fig. 6 is a cross section on the line 6—6 of Fig. 5.

Fig. 7 is a perspective view of the guide yoke for keeping the foremost trolley wheel in rolling contact with the messenger.

Fig. 8 is an end view of the forward end of the lashing machine.

Fig. 9 is an end view of the rear end of the lashing machine.

Fig. 10 is a view similar to that illustrated in Fig. 9 with the gate in open position for applying the machine on a messenger and passing the aerial cables into the spinning head.

Fig. 11 is a perspective view of the no back mechanism for controlling the forward trolley wheel.

Fig. 12 is a fragmentary perspective view of one of the forward guide rollers and the latch for retaining the supporting bracket of the roller with the roller in cable lifting position.

Referring more in detail to the drawings:

1 designates a cable lashing machine embodying the features of the present invention and which is adapted for lashing one or a plurality of aerial cables, for example, three, designated A, B and C to a supporting strand or messenger D by means of spirally spun lashing wires E and F as shown in Fig. 1.

The lashing machine includes a trolley 2 comprising a cylindrical body 3 forming a longitudinal passageway 4 having radially directed annular flanges 5 and 6 at the respective ends thereof mounting ring-shaped heads 7 and 8 respectively. The cylindrical body has a longitudinal gap or throat 9 connected with the passageway 4 and registered with openings 10 and 11 in the heads 7 and 8 to pass the machine over a messenger and the cables to be lashed thereto as later described.

The front head 8 has a forwardly projecting flange 12 framing the end opening and gap of the cylindrical body. Projecting forwardly from the flange in diametrically opposed relation with the gap are spaced apart extensions 13 and 14 to accommodate a trolley wheel 15 therebetween. The trolley wheel is fixed on a shaft 16 having the ends rotatably mounted in bearings 17 carried by the respective extensions 13 and 14 as best shown in Figs. 2, 8 and 10. One end of the shaft 16 projects through its bearing and carries a ratchet wheel 18 having circumferentially arranged teeth 19 adapted to be engaged by the

tooth 20 of a pawl 21. The pawl 21 is pivotally mounted on a pin 22 that is carried by a bracket 23 secured to the end plate 8 as best shown in Fig. 11. The pawl projects forwardly over the ratchet wheel and is connected by a spring 24 with the extension 14 so as to retain the tooth 20 thereof in contact with the teeth 19 of the ratchet wheel 18 for preventing reverse rotation of the trolley wheel 15. The pawl, however, permits rotation of the trolley wheel in a forward direction since the teeth 19 are shaped to successively flip the pawl out of tooth engagement as the wheel rotates in a forward direction on the messenger. The pawl is adapted to be released so as to permit free rolling of the trolley wheel 15 in either direction by means of a cable 25 which is reciprocable in a flexible housing 26 attached to the head 8 as shown in Fig. 11. One end of the cable 25 is attached to a pin 27 projecting from the pawl 21 and the other end is connected by a clamp 28 with a ring 29, the ring being pivotally carried in a bracket 30 attached to the head 8 adjacent one side of the gap therein. When the tooth 20 of the pawl 21 is engaged with a tooth 19 of the ratchet wheel 18, the cable 25 retains the ring in the forward position so that when the ring 29 is rocked in the opposite position by means of a rope or chain 31, the pawl 21 is rocked to lift the tooth 20 thereof out of engagement with the ratchet wheel 18 and thereby permit freedom of movement of the trolley wheel 15 in either direction. The flexible member 31 is of sufficient length so that it may be manipulated from the ground when desired.

The trolley wheel has a resilient facing 32 to enhance friction thereof with the messenger and the facing is provided with an annular groove 33 to facilitate retention and guiding of the wheel thereon.

In order to guide the aerial cables into lashing position, the front head 8 carries brackets 34 and 35 that are pivotally mounted on opposite sides of the passageway through the trolley on studs 36 and 37. The brackets 34 and 35 depend from the studs 36 and 37 alongside of the gap in the head and have inwardly directed terminals 38 that are adapted to extend across the gap and mount the lower ends of shafts 39 and 40 respectively. The other ends of the shafts are carried in bearing brackets 41 and 42 that are attached to the brackets 34 and 35 near their pivotal mounting whereby the shafts are positioned on upwardly and outwardly diverging axes to rotatably mount elongated guide rollers 43 and 44. The rollers 43 and 44 are thus supported in V form across the entrance end of the passageway 4 whereby the aerial cables ride within the V in bearing contact with the rollers 43 and 44 as shown in Fig. 8. The position of the guide rollers 43 and 44 thus brings the cables together in a substantially triangular form and in position so that the aerial cables A and B are adapted to closely engage the messenger with the aerial cable C tangentially contacting the aerial cables A and B.

In order to retain the guide rollers 43 and 44 in cable supporting position against action of coil springs 45, the plate 8 is provided with brackets 46 which pivotally mount latch levers 47 having ends 48 that are resiliently retained in engagement with the back sides of the roller brackets 34 and 35 by coil springs 49 (Figs. 3 and 12). The opposite ends of the levers 47 project slightly beyond the periphery of the head 8 to provide handle portions 50 by which they may be rocked against action of the springs 49. As soon as the ends 48 of the levers pass below the roller brackets 34 and 35, the springs 45 (Fig. 8) swing the roller brackets out of position across the gap in the head 8.

The levers 47 are mounted on cross pins 51 and the springs 49 are retained in position by sleeving them on arcuate guides 52 that are carried by the levers 47 and which move into openings 53 in the head 8 as the levers are rocked to release the roller brackets 34 and 35. The springs 45 are connected to the flange extensions 13 and 14 and with arms 54 projecting upwardly from the roller supporting brackets.

Mounted on the outer face of the rear head 8 in substantial alignment with the sides of the gap therein and above the gap in the head are parallel guides 55 and 56 having inwardly facing flanges 57 spaced from the head to provide guide grooves 58 slidably retaining oppositely disposed flanges 59 of a trolley wheel mounting bracket 60 which carries a freely rotatable trolley wheel 61 corresponding in construction with the trolley wheel 15 previously described for supporting that end of the trolley. Mounted on the flanges of the trolley wheel bracket are pivot pins 62 carrying depending levers 63 having a series of laterally disposed ratchet teeth 64 which are retained in engagement with ratchet teeth 65 on the overlying portions of the guides 55 and 56. The levers 63 are normally retained in tooth engagement by coil springs 66 interposed between the free ends of the levers and sides of the wheel bracket. The teeth 64 and 65 are shaped so that the wheel bracket can be shifted toward the passageway 4 through the cylindrical body of the trolley but the teeth retain the bracket from movement in the opposite direction unless the levers are moved together to release the teeth thereon from the teeth of the guides. To facilitate movement of the levers, the free ends thereof are provided with pins 67 that are adapted to be gripped oy the fingers of the operator. The pins also facilitate movement of the wheel bracket to a retracted position. The trolley wheels are thus adapted for rolling support on the messenger to carry the machine therealong under pull of a cable 68 that is connected with a ring 69 which is attached to the forward head on the opposite side of the gap with respect to the ring 29 previously described.

The end of the trolley carried by the wheel 61 is closed by an arcuate plate or gate 70 that is hinged at one side of the plate on a stud 71 to swing to and from closing relation with the gap. The gate is retained in closed position by a catch 72 that is pivoted on the end plate by a screw 73 and which is provided with a hook 74 adapted to engage a keeper 75 attached to the underside of the gate as shown in Fig. 10. The catch has an arm 76 extending from the opposite direction to release the catch. The catch is normally retained in latch position by a coil spring 77 having one end hooked to the arm and the other to a screw 78 on the guide 56. The inner periphery of the gate 70 corresponds in radius to the passageway 4 through the body of the trolley and forms a circular opening in which the aerial cables are supported in contact with the messenger by means of angularly arranged rollers 79 and 80. The rollers are journalled on shafts 81 and 82 having the ends mounted in bearings 83—84 and 85—86 that are mounted on a slide plate 87, the plate 87 being provided with a V-shaped notch 88 corresponding to the angle of

the rollers. The opposite side edges of the plate are guided in groooves 89 and 90 of parallel guides 91 and 92 that are mounted on the outer face of the gate 70 at the respective sides of the circular opening. The guides have overlapping flanges 93 provided with a series of ratchet teeth 94 that are engaged by ratchet teeth 95 on pawls 96 and 97. The pawls are pivotally mounted on the slide plate by means of pins 98 journalled in brackets 99 attached to the slide plate 87 and forming housings for enclosing the ratchet levers. The ratchet levers are moved into and out of contact with the ratchet teeth on the guides by levers 100 pivoted on the pins and which are connected with the ratchet levers by pins 101 that extend through the arcuate slots 102 in the brackets and engaged in openings 103 in the levers 100 respectively.

Movement of the slide plate 87 is limited in the direction of the trolley roller by a lug 104 that extends from the guide 91. The movement of the plate 87 is limited in the opposite direction by a lug 105 carried on the gate at a point directly below the opening formed thereby.

With this construction, it is obvious that the aerial cables are kept in substantially triangular formation and in contact with the underside of the supporting strand or messenger, the position of the rollers being adjustable to conform with the diameter of the cables.

The machine also includes a spinning head 106 that is rotatably mounted about the axis of the cylindrical body of the trolley. The spinning head includes a substantially cylindrical casing 107. The casing 107 has rounding ends terminating in inwardly extending end flanges 108 and 109 encircling the end flanges of the cylindrical body of the trolley. The housing also has a longitudinal gap 110 in the circumferential wall thereof and the sides of the gap are defined by inwardly extending parallel flanges 111 and 112 spaced apart according to the spacing of the longitudinal gap in the trolley.

Fixed to the outer side of the rear end flange is an angle 113 having one flange fixed to the end flange of the housing by fastening devices such as screws 114. The other flange extends outwardly toward the end plate 7 and forms a track 115 which is supported on a plurality of circumferentially spaced rollers 116 carried on the trolley, the rollers 116 being mounted on heads 117 having eccentrically positioned shanks 118 that are carried by the end plate 7, the shanks being rotatably adjustable in the end plate to permit adjustment of the rollers and thereby maintain the track in concentric relation with the tubular body of the trolley. The track also has a gap 119. The opposite end of the spinning housing has a similar track 120 fixed to the end flange 109 but which is of larger diameter for support by a series of circumferentially arranged rollers 121 adjustably carried on the end flange 8 in the same manner as the rollers on the end flange 7. The housing is thus adapted for rotatable support about the axis of the trolley. Formed in diametrical opposite sides of the housing are reel recesses 122 and 123 carrying spindles 124 and 125 respectively. Mounted on the spindles are reels 126 and 127 carrying the lashing wires E and F. The reels may be retained on the spindles by means of latches 128 and 129 that are carried by the spindles and latch over the hubs 130 of the reels. The wires are guided from the reels by grooved guide pulleys 135 that are eccentrically carried on disks 136 adjustably mounted in a lateral recess 137 on threaded studs 138. The wires extend through notches 139 and 140 in the spinning head housing and make a loop about the grooved faces 141 of pulleys 142 and 143, the pulleys being rotatably mounted on studs 144 and 145 and mounted in driving relation with the pulleys of friction wheels 146 and 147 respectively which are located in position to engage a track 148 on the head 7. The driving track is extended across the gap in the end plate by an arcuate segment 149 attached to the inner face of the gate 70, the ends of the segment being provided with tongues 150 which engage in slots 151 and 152 on opposite sides of the gap so as to take the end thrust when the friction rollers bear upon the gate. The friction rollers are maintained in contact with the drive track by means of rollers 153 that are rotatably mounted on pins 154 carried in brackets 155 secured to the outer face of the end plate 6. The rollers are set so that the peripheries thereof extend through slots 156 in the end plate and bear against the edge of the outwardly extending flange forming the track 120. In order to further supplement driving contact of the friction wheels 146 and 147 against the tracks, the studs are mounted on slide plates 181 having guide support on the spinning head to move the wheels against the track under pressure of springs 182.

The trolley wheel 15 at the front of the machine and related cable supporting rollers are covered by a housing 157 which is secured in position on the trolley by screws 158. The housing has an end opening 159 and gap 160 which registers with the passageway and gap through the body of the trolley. The housing carries a messenger guide 161 which is adjustable with respect to the messenger by a screw 162 carried in the housing and which passages through a guide slot 163 in a tongue 164 of the guide. The tongue also carries a pin 165 that is guided in a slot 166 of the housing 157 to cooperate with the screw 162 in retaining the guide in vertical position. The guide has a fork end 167 that straddles the messenger.

In order to facilitate carrying the lashing machine and application thereof to a messenger, the side of the spinning head housing opposite the gap therein is provided with an arcuate recess 168 that is bridged by a longitudinally extending handle 169. The handle is of hollow formation and contains a bolt actuating lever 170 which pushes a bolt 171 that is reciprocable through an opening 172 in the flange 109 into a socket 173 carried by the head 8. The lever has a depending portion 174 that is adapted to be engaged by the fingers when the handle is gripped so as to project the bolt 171 into engagement with the socket 173. The bolt 171 is retained in contact with the socket 173 by a rounded end 175 on the end of the bolt engaging in a groove 176 of the lever. To project the bolt 171, the lever 170 has an inclined cam portion 177 which bears against the bolt 171 when the lever 170 is moved upon gripping of the handle. To release the bolt 171, the lever 170 has an upwardly projecting end 178 that is pushed downwardly by the thumb to disengage the rounded end 175 of the bolt 171 from the groove 176, the bolt being retained under action of a spring 179 that is sleeved over the bolt and has one end bearing against the housing and its opposite end bearing against a collar 180 on the bolt.

In using the device, the reels of spinning wire

are applied to the spindles 125 at the respective sides of the spinning head and the ends are extended under the guide pulleys 135 and then looped about the grooves of the pulleys 142 and 143. The machine is carried to the point of application by the handle 163 with the lever 170 in position so that the notch 176 thereof engages the rounded end 175 of the bolt 171 to hold the bolt in engagement with the socket 173. The spinning head is thus locked from rotation with respect to the trolley with the gap 119 thereof registering with the gap 9.

The handle portions 59 of the levers 47 are engaged to rock the levers against action of their springs 49. The springs 45 then swing the roller carrying brackets 34 and 35 out of position to open the throat or gap 9 of that end of the machine. The gate 70 is then swung to open position as shown in Fig. 10 by shifting the catch 72 to release the hook 74 thereof from engagement with the keeper 75. The gate then swings downwardly and outwardly away from the throat or gap 9 so that the entire machine may be then applied over the messenger and the aerial cables that are temporarily supported thereon, the trolley wheels 15 and 61 being seated to roll along the messenger as illustrated in Figs. 8 and 9.

The roller carrying brackets 34 and 35 are then moved into position so that the rollers close the gap 9 at the forward end of the trolley and support the aerial cables as shown in dotted lines (Fig. 8). In this position, the latch levers 47 move into engagement with the roller brackets so as to lock the brackets in cable supporting position. The gate 70 is then closed and latched to carry the rollers 79 and 80 in position for supporting the aerial cables at the opposite ends of the machine. The trolley wheel 61 and rollers 79 and 80 are then adjusted to properly center the aerial cables and messenger with respect to the axis of rotation of the spinning head. These adjustments are effected by releasing the levers 63 from tooth engagement with the ratchet teeth 65 and sliding the trolley wheel bracket along the guides until the trolley wheel is in proper position, after which the levers 63 are released and the springs 66 return them into position so that the teeth thereon engage the teeth of the guides, to support the trolley wheel in adjusted position.

The rollers 79 and 80 are adjusted by sliding the plate 87 in the guides 91 and 92. This is effected by releasing the teeth 95 on the pawls 96 and 97 from engagement with the teeth 94 on the guides 91 and 92. After the plate has been shifted to bring the rollers into desired position, the pawls are allowed to return into position so that the teeth thereof engage the teeth of the guides and which lock the plate from further movement. The free ends of the spinning wires are then attached in fixed relation to the messenger and aerial cables. A rope or other flexible connection 68 is connected with the ring 69 and a rope or flexible connection is made with the ring 29. The yoke 167 is adjusted with respect to the messenger by loosening the nut of the screw 162 and moving the yoke to desired position, after which the nut is re-engaged to retain the yoke in position. The spinning head is then released by tripping the lever 170. This is effected by applying pressure on the projecting end 178 and shifting it downwardy through the handle so that the spring 179 on the pawl 171 withdraws the bolt from engagement with the socket 173. The spinning head is then free to rotate about the axis of the trolley upon application of draft power to the flexible connection 68.

As the machine is drawn along the messenger, draft on the spinning wires and pay thereof from the storage reels causes the pulleys 142 to rotate about the axis of the studs 144. Rotation of the pulleys causes the friction wheels 147 to roll along the track 148 and effect rotation of the spinning head about the axis of the trolley. This movement of the trolley causes the spinning wires to be wound spirally around the messenger and the aerial cables as shown in Fig. 1.

Tension is kept upon the spinning wires in case of slacking off of the draft power applied by the flexible connection 68 by the ratchet wheel 18 which is connected with the trolley wheel 15 so as to thereby prevent any retractive movement or back up of the machine. In case it is desired to release the tension, this is effected by pulling on the flexible connection 31. This movement rocks the ring 29 and pulls on the cable 25 to lift the pawl 21 out of engagement with the ratchet wheel. Upon release of pulling force, the spring 24 returns the pawl in engagement with the ratchet wheel to prevent further back up of the machine.

With the machine in operation, it is obvious that two spirals are wound around the messenger and aerial cable and that the aerial cables are retained in tangential contact and in engagement with the messenger so that the spirals of lashing wires are drawn tightly therearound with the spirals formed by one wire in spaced relation with the spirals formed by the other wire.

The reels 130 include spaced disks 184 and 185 having rolled peripheries 186. The centers of the disks have openings 187 encircled by annular corrugations 188 to seat the ends of a sleeve 189. The sleeve 189 has tongues 191 that extend through slots 192 in the corrugations and are bent retractively over the outer faces of the disks to retain the assembly. The openings 187 are of a size to be freely passed over the spindles 124 and 125. The lashing wires have the inner ends suitably anchored to the sleeves as by extending the ends through openings in the sleeves and after being wound on the reels have their outer ends temporarily anchored in a slot 192 of the rolled rim of the outermost disks prior to application of the reels to the spindles. After application to the spindles the outer ends are disengaged and wrapped around the pulleys 142 and 143 respectively.

From the foregoing it is obvious that I have provided a cable lashing machine which is adapted to spin a plurality of lashing wires and which supports one or more aerial cables in the required position to be secured by the lashing wires.

What I claim and desire to secure by Letters Patent is:

1. A lashing machine for securing aerial cable to a messenger including a trolley having a longitudinal passageway extending therethrough to accommodate the messenger and the aerial cable to be lashed thereto, a spinning head, means supporting the spinning head on the trolley for rotation about the axis of the passageway, and a pair of aerial cable guide rollers at each end of the passageway having axes diverging from a point below and in direct alignment with the trolley wheels forming V-shaped supports adapted for tangential contact with opposite sides of the aerial cable to retain the aerial cable in alignment with the messenger.

2. A lashing machine adapted to be drawn along a messenger for securing aerial cable to

the messenger including a trolley having a longitudinal passageway extending therethrough in the direction of movement of the trolley and having a longitudinal gap for applying a trolley over a messenger and the aerial cable to be lashed thereto, a spinning head, means for supporting the spinning head on the trolley about the axis of said passageway, a pair of aerial guide rollers at each end of the passageway having axes diverging from a point below and in alignment with the trolley wheels to provide V-shaped supports adapted for tangential contact with opposite sides of the aerial cable to retain the aerial cable in direct alignment with the messenger, and means carrying the guide rollers at the respective ends of the trolley and having movable support on the trolley, said carrying means on the rear end being adjustable on the trolley in the direction of the axis of rotation of the spinning head to support the aerial cable in a desired position relatively to said axis.

3. A lashing machine adapted to be drawn along a messenger for securing aerial cable to the messenger including a trolley having a longitudinal passageway extending therethrough in the direction of movement of the trolley and having a longitudinal gap for applying a trolley over a messenger and the aerial cable to be lashed thereto, wheels at the respective ends of the trolley and adapted to roll along the messenger, a spinning head, means for supporting the spinning head on the trolley about the axis of said passageway, a pair of aerial guide rollers at each end of the passageway having axes diverging from a point below and in direct alignment with the trolley wheels to provide V-shaped supports and adapted for tangential contact with opposite sides of the aerial cable to retain the aerial cable in alignment with the messenger, means carrying the guide rollers at the respective ends of the trolley and having movable support on the trolley, said carrying means on the rear end being adjustable in the direction of the axis of rotation of the spinning head to support the aerial cable in a desired position relatively to said axis, and means adjustably supporting the trolley wheel at the rear end of the trolley for shifting the machine to position the axis of rotation relatively to the messenger.

4. A lashing machine for securing aerial cables to a messenger including a trolley having a longitudinal passageway extending therethrough in the direction of movement of the trolley and having a longitudinal gap for applying a trolley over a messenger and the aerial cable to be lashed thereto, a spinning head, means for supporting the spinning head on the trolley about the axis of said passageway, a pair of aerial guide rollers at each end of the passageway having axes diverging from a point below and in alignment with the trolley wheels to provide V-shaped supports for the aerial cable to retain the aerial cable in alignment with the messenger, brackets carrying the guide rollers at one end of the trolley and having pivotal support on the trolley to move the guide rollers from said V relation to a position on the respective sides of the gap for passing the aerial cables in position to be engaged by said guide rollers when the brackets are pivoted on the trolley to carry the guide rollers into said V relation, and latches on the trolley and engaging the brackets to retain the brackets with said rollers in V relation.

5. A lashing machine for securing aerial cables

to a messenger including a trolley having a longitudinal passageway extending therethrough in the direction of movement of the trolley and having a longitudinal gap for applying a trolley over a messenger and aerial cable to be lashed thereto, a spinning head, means for supporting the spinning head on the trolley about the axis of said passageway, a pair of aerial guide rollers at each end of the passageway having axes diverging from a point below and in alignment with the trolley wheels to provide V-shaped supports for the aerial cable to retain the aerial cable in alignment with the messenger, a slide carrying the pair of guide rollers at the rear end of the trolley, guides on the trolley engaging opposite sides of the slide, and ratchet connections between the guides and slide for adjustably retaining the rollers with respect to the trolley wheels.

6. A lashing machine for securing aerial cables to a messenger including a trolley having a longitudinal passageway extending therethrough in the direction of movement of the trolley and having a longitudinal gap for applying a trolley over a messenger and the aerial cable to be lashed thereto, a spinning head, means for supporting the spinning head on the trolley about the axis of said passageway, a pair of aerial guide rollers at each end of the passageway having axes diverging from a point below and in alignment with the trolley wheels to provide V-shaped supports for the aerial cable to retain the aerial cable in alignment with the messenger, a slide carrying one pair of the guide rollers, guides on the trolley engaging opposite sides of the slide, and ratchet connections between the guides and slide for adjustably retaining the rollers with respect to the trolley wheels, the trolley wheel at the end of the trolley having the slide being adjustable on the trolley to and from said guide roller mounting slide.

7. A lashing machine for securing aerial cables to a messenger including a trolley having a longitudinal passageway extending therethrough in the direction of movement of the trolley and having a longitudinal gap for applying a trolley over a messenger and the aerial cable to be lashed thereto, a spinning head, means for supporting the spinning head on the trolley about the axis of said passageway, a pair of aerial guide rollers at each end of the passageway having axes diverging from a point below and in alignment with the trolley wheels to provide V-shaped supports for the aerial cable to retain the aerial cable in alignment with the messenger, brackets carrying the guide rollers at the front end of the trolley and having pivotal support on the trolley to move the guide rollers from said V relation to a position on the respective sides of the gap for passing the aerial cable in position to be engaged by said guide rollers when the brackets are pivoted on the trolley to carry the guide rollers into said V relation, latches on the trolley and engaging the brackets to retain the brackets with said rollers in V relation, a slide carrying the other pair of guide rollers, guides on the trolley for mounting the slide, and ratchet means interconnecting the guides and slide for adjustably retaining said rollers with respect to the trolley wheels.

8. A lashing machine for securing aerial cables to a messenger including a trolley having a longitudinal passageway extending therethrough in the direction of movement of the trolley and having a longitudinal gap in connection with said

passageway for applying the machine over a messenger and aerial cables to be lashed thereto, trolley wheels mounted on the ends of the trolley above said gap for supporting the trolley on the messenger, a pair of aerial cable guide rollers at each end of the passageway and having axes diverging from a point below and in alignment with the trolley wheels to provide V-shaped supports for the aerial cable, a track on the rear end of the trolley, a gate pivotally mounted on the trolley to close said gap, a track segment on said gate for forming a continuation of the track across said gap, a slide adjustably mounting one pair of the guide rollers on said gate, brackets pivoted on the opposite end of the trolley and carrying the other pair of guide rollers, means for latching said brackets with their rollers in said V relationship, a spinning head rotatable on the trolley about the axis of said passageway, friction wheels carried by the spinning head and having rolling contact with said track, a track at the opposite end of the spinning head, rollers carried on the trolley and engaging said last-named track for holding the friction wheels in contact with the first-named track, means for storing reels of lashing wire on opposite sides of the spinning head, and driving wheels having driving connection with the friction wheels and adapted to be engaged by bites in the lashing wire for effecting planetation of the friction wheels about said track and rotation of the spinning head responsive to lay of the lashing wires when the machine is in use.

9. A lashing machine for securing aerial cables to a messenger including a trolley having wheels adapted to roll along the messenger, a spinning head, means for supporting the spinning head for rotation on the trolley about said messenger and cables to be lashed thereto, a plurality of lashing wire coil supporting means on opposite sides of the spinning head, individual driving means adapted to be actuated by the respective lashing wires to be paid from said supporting means when the machine is in use, means for tensioning the lashing wires between the coil supporting means and the driving means to maintain a uniform drive by said lashing wires, and means connecting said driving means in driving relation with the trolley to effect rotation of the spinning head to spin the lashing wires in spirals about said aerial cables and messenger.

10. A lashing machine for securing aerial cables to a messenger including a trolley having a longitudinal passageway extending therethrough in the direction of movement of the trolley and having a longitudinal gap in connection with said passageway for applying the machine over a messenger and aerial cables to be lashed thereto, trolley wheels mounted on the ends of the trolley above said gap for supporting the trolley on the messenger, aerial cable guide rollers at each end of the passageway forming supports for the aerial cable, a track on the rear end of the trolley, a gate pivotally mounted on the trolley to close said gap, said track including a track segment on said gate for forming a continuation of the track across said gap, a spinning head rotatable on the trolley about the axis of said passageway, friction wheels carried by the spinning head and having rolling contact with said track, a track at the opposite end of the spinning head and rollers carried on the trolley and engaging said last-named track for holding the friction wheels in contact with the first-named track, means for storing a coil of lashing wire on each side of the spinning head, driving wheels having driving connection with the friction wheels and adapted to be engaged by bites formed in the lashing wire payed from said coils for effecting planetation of the friction wheels about said track and rotation of the spinning head responsive to lay of the lashing wire when the machine is in use, tension wheels for engaging the lashing wires between the coil storing means and the driving wheels, and means for adjustably supporting the tension wheels on the trolley to adjust tension on the lashing wires to maintain substantially uniform drive of the driving wheels by said lashing wires.

11. A lashing machine for securing a plurality of aerial cables to a messenger including a trolley having wheels adapted to roll along the messenger, a pair of guide rollers at each end of the trolley, means for mounting the rollers of the respective pairs on the trolley with the rollers diverging upwardly and outwardly with respect to each other for supporting the aerial cables in tangential contact with each other, a spinning head, means for supporting the spinning head for rotation on the trolley about said messenger and cables to be lashed thereto, and a plurality of lashing wire coil supporting means on the spinning head for supporting and paying out a plurality of lashing wires when the spinning head is rotated to spin the lashing wire in spirals about said aerial cables and their supporting messenger.

12. A lashing machine for securing an aerial cable to a messenger including a trolley having wheels adapted to roll along the messenger, a spinning head, means for supporting the spinning head for rotation on the trolley about said messenger and aerial cable to be lashed thereto, a lashing wire coil supporting means on the spinning head, driving means adapted to be actuated by the lashing wire to be payed from said supporting means, a tension wheel for engaging the lashing wire between the coil supporting means and the driving means, and means for adjustably supporting the tension wheel on the trolley to adjust tension of the lashing wire to maintain a uniform drive of the spinning head by said lashing wire.

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