

No. 687,727.

Patented Dec. 3, 1901.

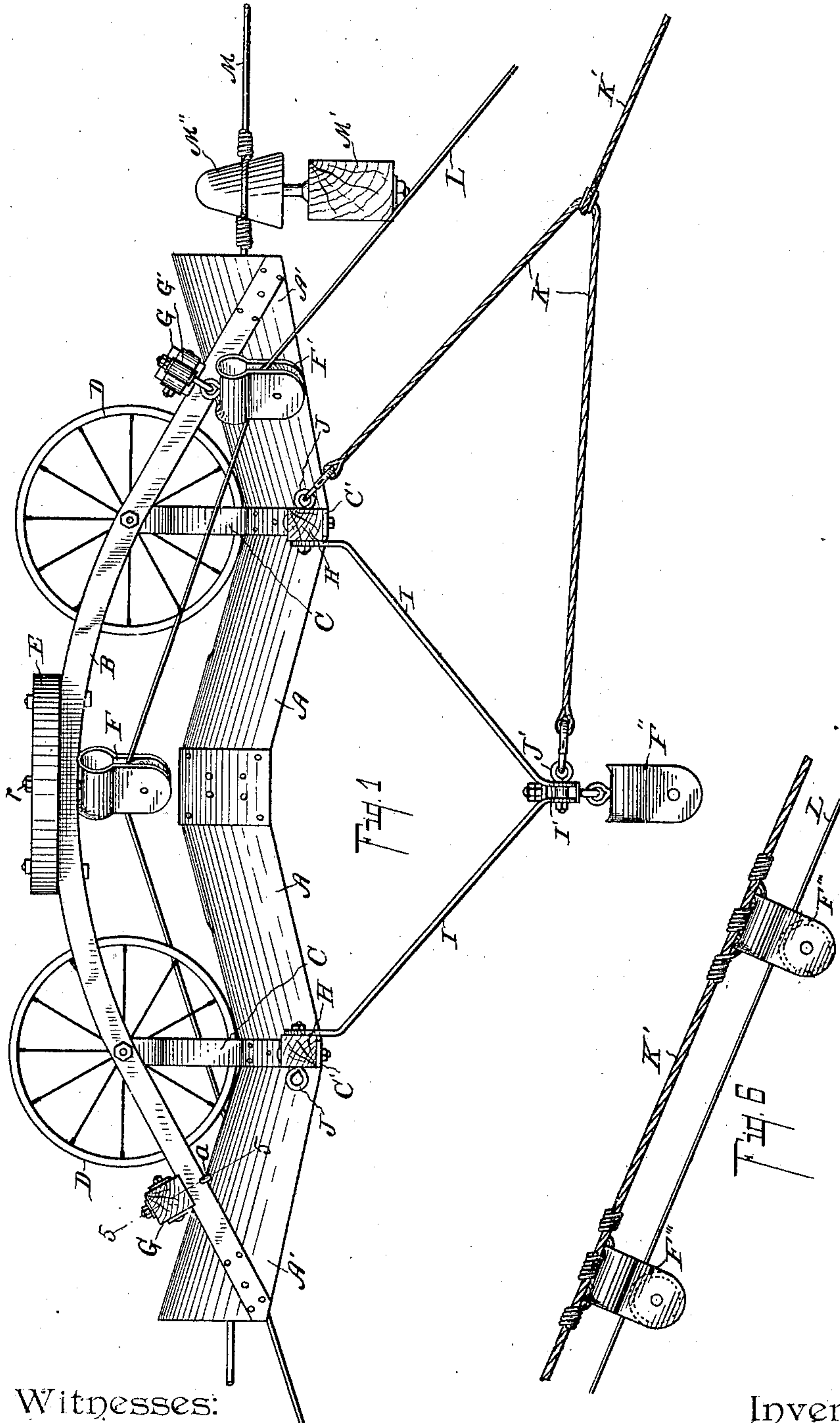
F. B. COLLINS.

MACHINE FOR STRINGING WIRES.

(Application filed Apr. 29, 1901.)

(No Model.)

4 Sheets—Sheet 1.



Witnesses:

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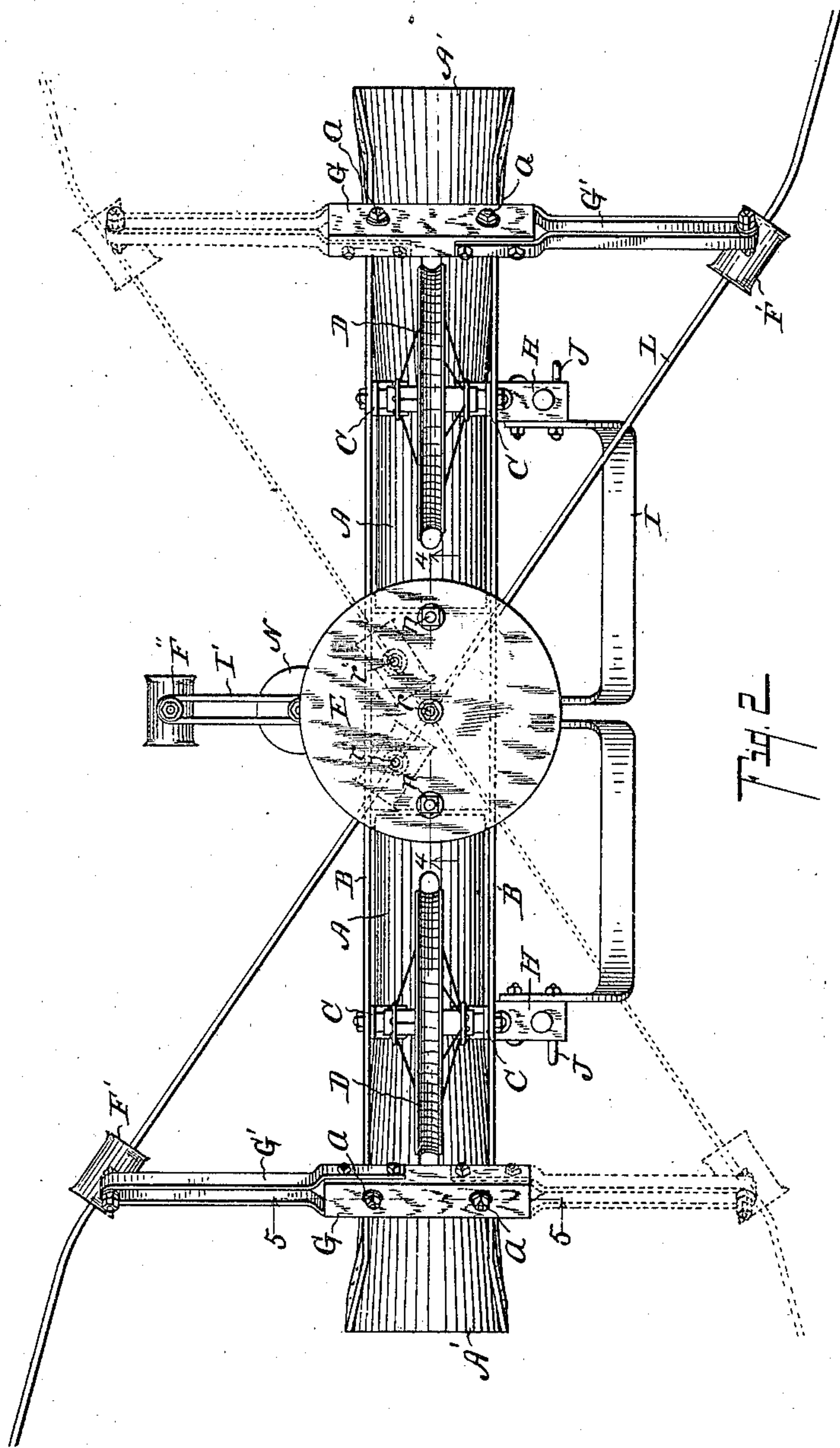
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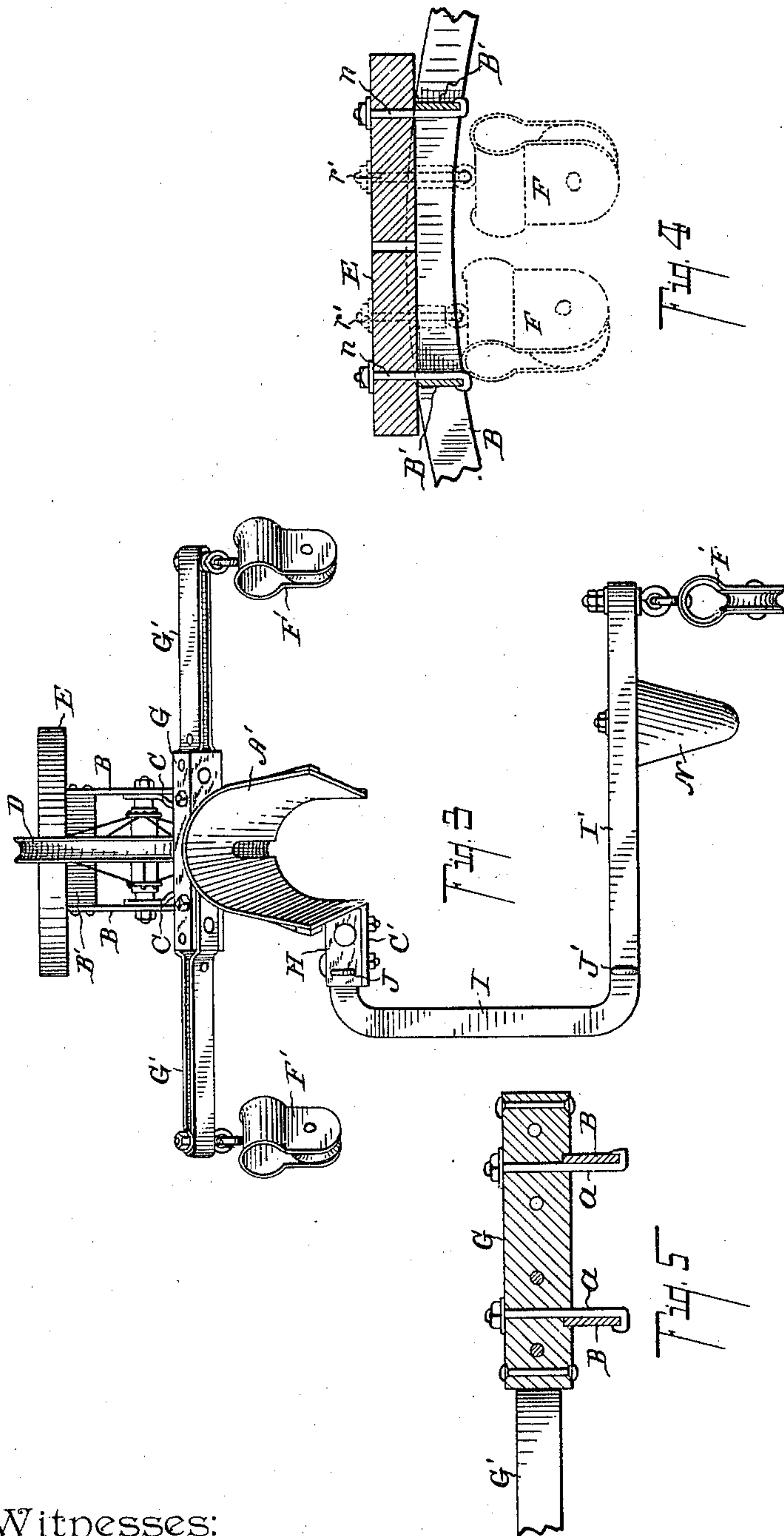
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4 Sheets—Sheet 3.



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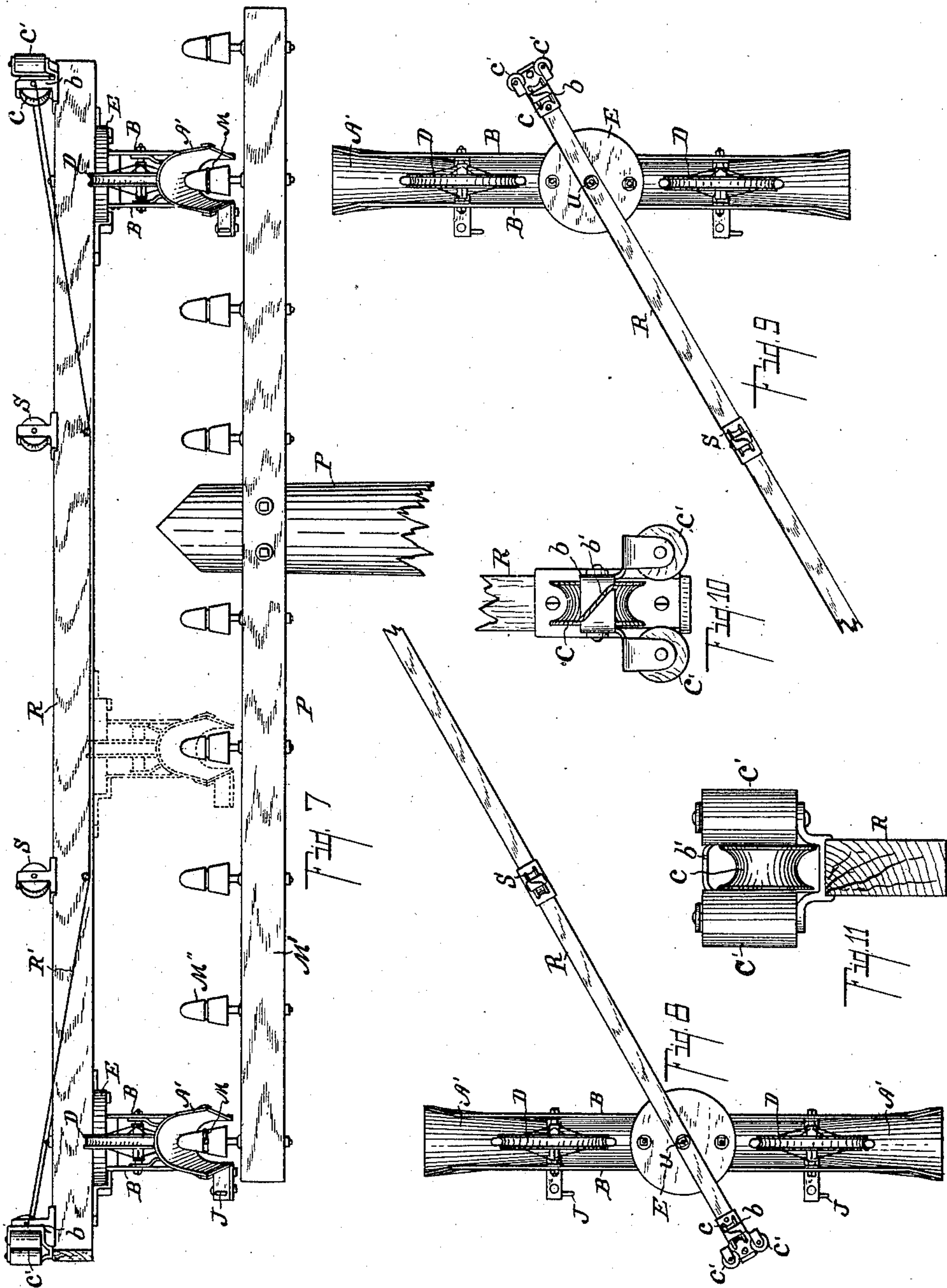
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(No Model.)

4 Sheets—Sheet 4.



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UNITED STATES PATENT OFFICE.

FRANK B. COLLINS, OF VASSAR, MICHIGAN.

MACHINE FOR STRINGING WIRES.

SPECIFICATION forming part of Letters Patent No. 687,727, dated December 3, 1901.

Application filed April 29, 1901. Serial No. 58,017. (No model.)

To all whom it may concern:

Be it known that I, FRANK B. COLLINS, a citizen of the United States, residing at the city of Vassar, in the county of Tuscola and State of Michigan, have invented a certain new and useful Machine for Stringing Wires, of which the following is a specification.

This invention relates to a new and useful machine for placing wires upon the cross-arms of telegraph or telephone poles or for placing wires on the cross-arms of poles for any purpose whatever.

It is the object of my invention to provide a suitable moving guide which will take the wire up from the ground or from a suitable vehicle and deliver it in proper position on the cross-arm while moving rapidly and deliver the same at the exact point it is desired, so that after the machine is operated all that will be necessary is for the lineman to attach the wire to its proper insulators. The machine is also effective in removing old wires which have for any reason become defective or which it is desired to remove or replace. The machine is effective in removing an old wire and placing a new one in its stead at a single operation.

The minor objects of the machine are to provide a structure which will travel on a wire in position and readily pass over insulators on cross-arms and at the same time deliver a wire either upon the cross-arm supporting the wire over which it is traveling or to a cross-arm beneath.

A further object is to provide a double machine which is so mounted and supported that it will travel readily on two wires on a cross-arm, passing over poles and insulators, and shall be adjustable and accommodate itself to wires which are supported at varying distances apart.

Further minor objects will appear in the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in this specification.

The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is fully illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a detail side elevation of a sin-

gle member of my improved machine. Fig. 2 is a plan view of the said single member, an extra pair of cross-arms and extra guide-sheaves being indicated by dotted lines. Fig. 3 is an end elevation of the structures appearing in Figs. 1 and 2, showing a counter-weight where only a single member of my machine is to be used. Fig. 4 is an enlarged detail sectional view on line 4 4 of Fig. 2, the pulleys being indicated by dotted lines, showing the method of holding the central top plate in position by the clip-bolts. Fig. 5 is a transverse oblique detail sectional view on lines 5 5 of Figs. 1 and 2, showing the manner of retaining the cross-arms in position by clip-bolts. Fig. 6 shows the tow-line or cable K' for drawing my improved machine forward along the wires with guiding-sheaves F''' F''', supported at intervals thereon, to serve as guides for carrying the wire upward and delivering it by means of the machine onto the cross-arms. Fig. 7 is a detail elevation view of the top of a post with cross-arm, showing my complete double machine in position thereon. Figs. 8 and 9 show the same structure broken in sections, the oblique direction of the cross-bar appearing. Fig. 10 is an enlarged detail plan view of the end of the cross-arm, showing the guiding provision for the wire at that point. Fig. 11 is an end elevation of the same.

In the drawings all of the sectional views are taken looking in the direction of the little arrows at the ends of the section-lines, and similar letters of reference refer to similar parts throughout the several views.

Referring to the lettered parts of the drawings, A A designate an inverted trough-like sheet-metal casing, the end sections A' of which flare slightly outward. This inverted trough-like section is made of sheet metal, the ends of which are somewhat elevated and the center part also curves or projects upwardly, so that there is a downwardly-depressed portion toward each end. A frame made up of side bars B B, which arch upwardly and extend from end to end, serves to strengthen the entire structure. Cross-bars G G, secured by suitable clip-bolts α to the side bars B B, are toward each end and just above the trough-like casing. The arms C C are riveted to the sides thereof at its lowest point and extend upwardly and are secured to the side bars B

B, at which point is an axle on which are placed grooved wheels D D. The casing is slotted by a longitudinal slot opposite each of these grooved wheels to such an extent that a telegraph-wire of the ordinary size will readily enter the same and permit the grooves of the wheel to engage and rest upon it. The lower ends of the arms C C are bent outwardly and serve as supports for insulating blocks H, hereinafter to be described.

At the center of the arched side bars I provide a plate E, preferably a board, which is secured to suitable cross-arms between the side bars B B at this point and preferably making use of small clip-bolts *n n*, like those used for securing the cross-bars G in position. The top of plate E is flat and perfectly horizontal when the machine is in position on the wire. Where I use the machine double, which is its preferred construction, on the top of this plate E, I place a cross-bar R, which is pivoted by the bolts *u u* to the center thereof at each end. This cross-bar is provided with a suitable truss, as R', to strengthen it when it may seem necessary owing to the length of the same. On each end of this cross-bar I provide a guiding-pulley *c c* with vertical guiding-rolls *c' c'* to each side thereof, (see Figs. 8, 9, 10, and 11,) and at intervals along the top I provide other guiding-pulleys S. I slit the casings *b* to these pulleys diagonally, as at *b'*, to permit the insertion of the telegraph-wire into the same by turning the wire diagonally to the pulley. That insures that the wire will always be retained within the pulley and be delivered at the point required. The machine double can only be used where a pair of wires are already in position, where it will be found to be quite advantageous, as it distributes the weight over both wires and can be drawn forward very rapidly without danger of accident of any kind. Where but a single wire is in position but the single member of my machine can be used, as I have illustrated in Figs. 1 to 5, inclusive. The single member is kept in position by securing to blocks H H, secured to the side thereof, downwardly-depending arms I, which are jointed together at their lower ends and then extended laterally underneath the machine, as appears at Fig. 3, and a weight attached to properly counterbalance and hold it in equilibrium in its upright position. The machine is then drawn forward by connecting the tow-line or cable K' to a loop of rope or cable K, which is secured to an eye J' on the arm I' and to an eyelet J on the block H, the same being secured by hooks, so that it can be readily detached, the loop K extending through an eye in the end of the tow-line or cable K'.

On the wood cross-bars G, I secure laterally-extending arms G', which are easily detachable and can be reversed and shifted from one side to the other, or additional arms can be put on, so that there is an arm projecting toward each side. (Indicated by dotted lines

and full lines in Fig. 2.) Guiding sheaves or pulleys F' F' are supported on these arms by a suitable bolt extending through the slot formed therein, and where a single wire is being put into position or removed a single guiding-pulley F is secured by a suitable bolt, as *r*, under the central arch under arms B B, so that a wire, as L, may extend up through the same and over beyond the machine and be laid upon cross-bars, or in the event of its being removed it will pass up over the pulleys and down and off to the ground at one side. When it is desired to place a wire on a cross-arm below a higher cross-arm, on which a wire is already placed, the wire is delivered directly over the guide-pulley F'', supported on the inner end of the arm I'. When this guide-pulley is used, the weight of the wire is sufficient to hold the machine in equilibrium and the weight N can be dispensed with.

I prefer to use the wooden cross-bar R, as it is a very cheap and efficient insulating material for this position, and I also, it will be noted, intersperse blocks of wood H between the supporting-guide and any connections, so that the circuits will not be interfered with by the use of my improved machine. Of course other insulating material could be used, but bars of wood are found to be entirely sufficient. I make use also of platforms or circular plates E at the top of the machine of wood for the same reason. That affords insulation for the wire that is being put in position or removed and keeps it very effectively insulated from the wire in position and use. As a consequence my improved machine can be made use of in installing new wires or removing old ones without in any way interfering with the service over the wires in position. This is very desirable and permits such work to be performed without interfering in any way with the established lines of communication.

My machine will be found particularly desirable for use in placing long stretches of wire through the country rather than for stringing wires in cities, where there are many cross-wires.

In Figs. 1 and 7 I illustrate my device in position for operation. P represents a telephone-pole; M', the cross-arm; M'', the insulators, and M the telegraph-wire strung thereon.

I prefer in the manufacture of my machine to make various parts of aluminium, on account of its extreme light weight, as it will relieve any material strain on the wires on which it travels. However, the machine is quite effective when constructed of sheet-steel and an all-steel construction. I desire to remark that the arms I and I' are very effective in use with a double machine in placing a wire on a lower cross-arm, so that the feature of these arms is not confined to the machine when only a single member is used. I have illustrated my improved machine

made up of various parts riveted or otherwise secured together. I desire to remark that it may be found to be more practicable to make the same of fewer pieces especially conformed, or it may be desirable to make the same of a larger number of pieces—for instance, it may be desirable to make the part A A with the ends A' A' all of a single piece, and it may be found desirable to make the side arms B B together of a single piece. I believe, however, I have illustrated the structure in its most economical and satisfactory form for manufacture.

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

1. In a machine for stringing wire, the combination of an inverted-trough-like casing A, the ends of which are curved upwardly and slightly flaring and the central part of which is bowed slightly upward; a framework made up of side pieces B, B, curved upwardly and extending from end to end thereof; grooved wheels D, D, on suitable transverse axles extending to the lower portions of said casing which is slotted to permit the wheels to rest upon a wire beneath; cross-arms insulated from said side pieces B, B, and a top plate of wood or like insulating material and guiding-pulleys supported on said cross-arms and central block and tow-line or cable connected to suitable insulated blocks on said machine and means for supporting the same in the upright position, coacting substantially as described for the purpose specified.

2. In a machine for stringing wire, the combination of an inverted-trough-like casing A, the ends of which are curved upwardly and slightly flaring and the central part of which is bowed slightly upward; a framework made up of side pieces B, B, curved upwardly and extending from end to end thereof; grooved wheels D, D, on suitable transverse axles extending to the lower portions of said casing which is slotted to permit the wheels to rest upon a wire beneath; cross-arms insulated from said side pieces B, B, and a top plate of wood or like insulating material, and guiding-pulleys supported on said cross-arms and central block and a tow-line or cable connected to suitable insulated blocks on said machine and a counterbalance-weight supported on a downwardly and under curved area for supporting the same in the upright position, coacting substantially as described for the purpose specified.

3. In a machine for stringing wire, the combination of an inverted-trough-like casing A, the ends of which are curved upwardly and slightly flaring and the central part of which is bowed slightly upward; a framework made up of side pieces B, B, curved upwardly and extending from end to end thereof; grooved wheels D, D, on suitable transverse axles extending to the lower portions of said casing which is slotted to permit the wheels to rest

upon a wire beneath; cross-arms insulated from said side pieces B, B, and a top plate of wood or like insulating material, and guiding-pulleys supported on said cross-arms and central blocks on said machine and means for supporting the same in the upright position; a tow-line or cable with guiding-pulleys supported along the same, coacting substantially as described for the purpose specified.

4. In a machine for stringing wires the combination with a suitable framework; grooved wheels thereon for traveling over the said wires; a suitable guide like an inverted trough with ends curved slightly upward to guide the same over insulators; and suitable guiding-pulleys supported by the machine for delivering the wire onto or off from a cross-arm when the machine is propelled by a suitable tow-line or other means for the purpose specified.

5. In a machine for stringing wires, the combination with a suitable framework; grooved wheels thereon for traveling over the said wires; a suitable guide like an inverted trough with ends curved slightly upward to guide the same over insulators; and suitable guides supported by the machine for delivering the wire onto or off from a cross-arm when the machine is propelled by a suitable tow-line or other means for the purpose specified.

6. In a machine for stringing wire, the combination of a pair of frames with suitable grooved wheels thereon for resting upon wires in position; flaring guides on the said frames to raise and pass them over insulators; top plates having horizontal upper surfaces and a rigid bar with vertical pivots therethrough into the top plates for supporting the said pair of frames in the upright position; suitable guiding-rollers supported on the said machine for delivering the wire onto or off from the cross-arms, as specified.

7. In a machine for stringing wires, the combination of a carriage adapted to travel on a wire in position; guides thereon to receive and deliver a wire that is to be installed or removed.

8. In a machine for stringing wires, the combination of a carriage adapted to travel on a wire in position; guides thereon to receive and deliver a wire that is to be installed or removed, or to remove a wire, as specified.

9. In a machine for stringing wires, the combination of a pair of carriages suitably connected together and adapted to travel on wires in position; guides supported by the said carriages to receive and deliver the wire that is to be installed or removed.

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses.

FRANK B. COLLINS. [L. S.]

Witnesses:

LAWRENCE B. DAVIS,
ALBERT ASCHE.