

(No Model.)

2 Sheets—Sheet 1.

W. H. JOHNSTON & S. B. FOWLER.

MACHINE FOR FASTENING HANGERS ON ELECTRIC WIRE CABLES.

No. 583,411.

Patented May 25, 1897.

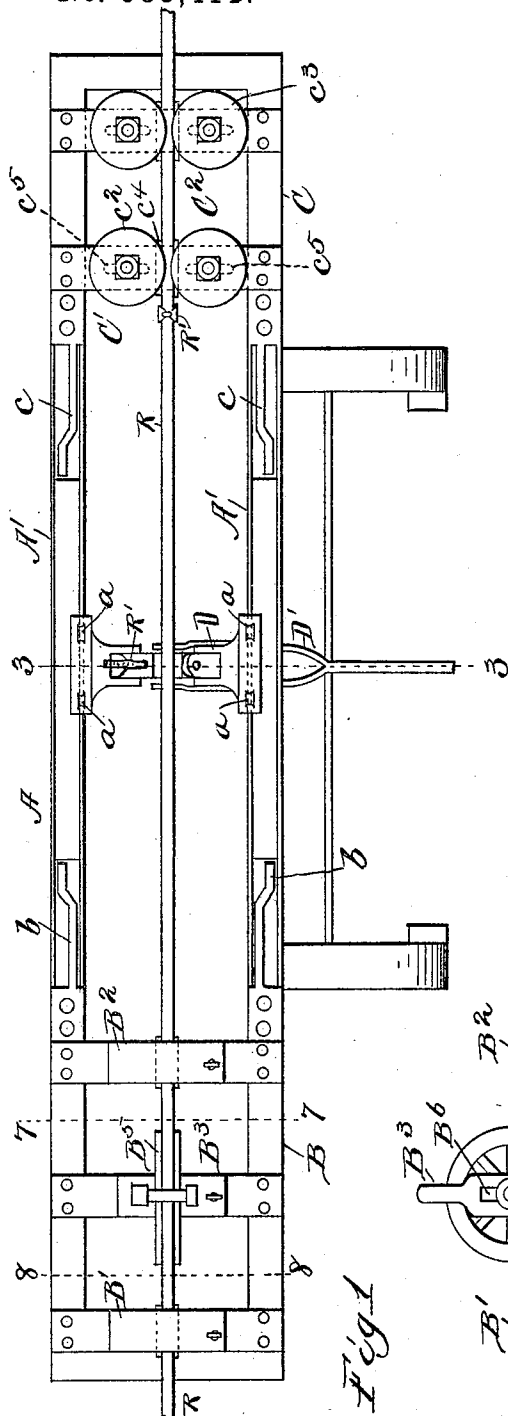


Fig 1

Witnesses
W. C. Corlies
C. A. Crawford

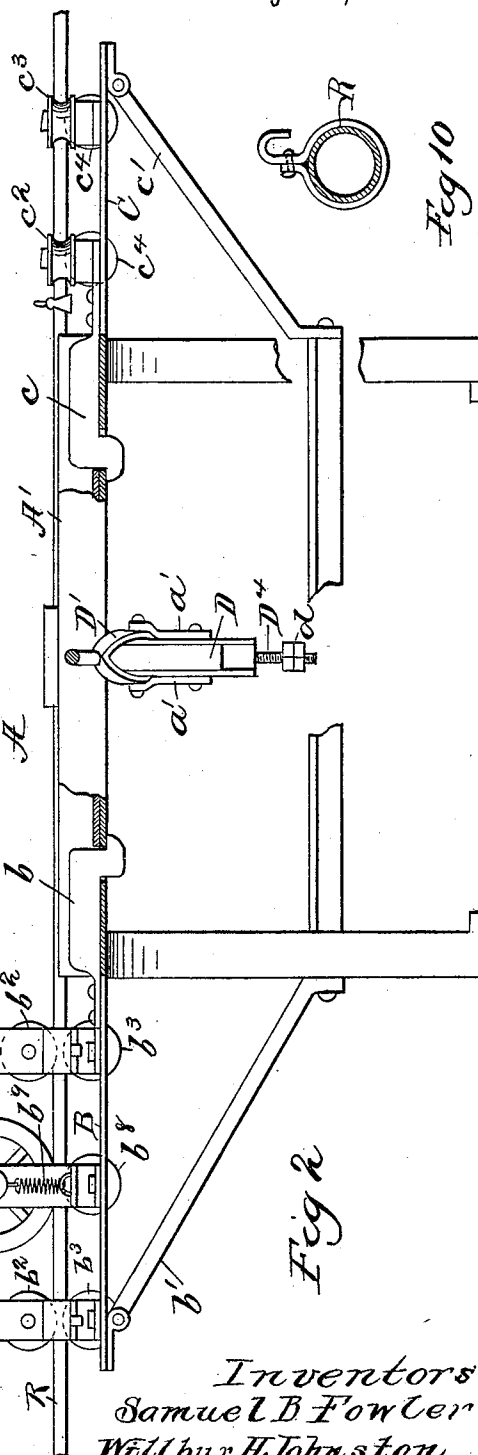


Fig 2

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Willbur H Johnston

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(No Model.)

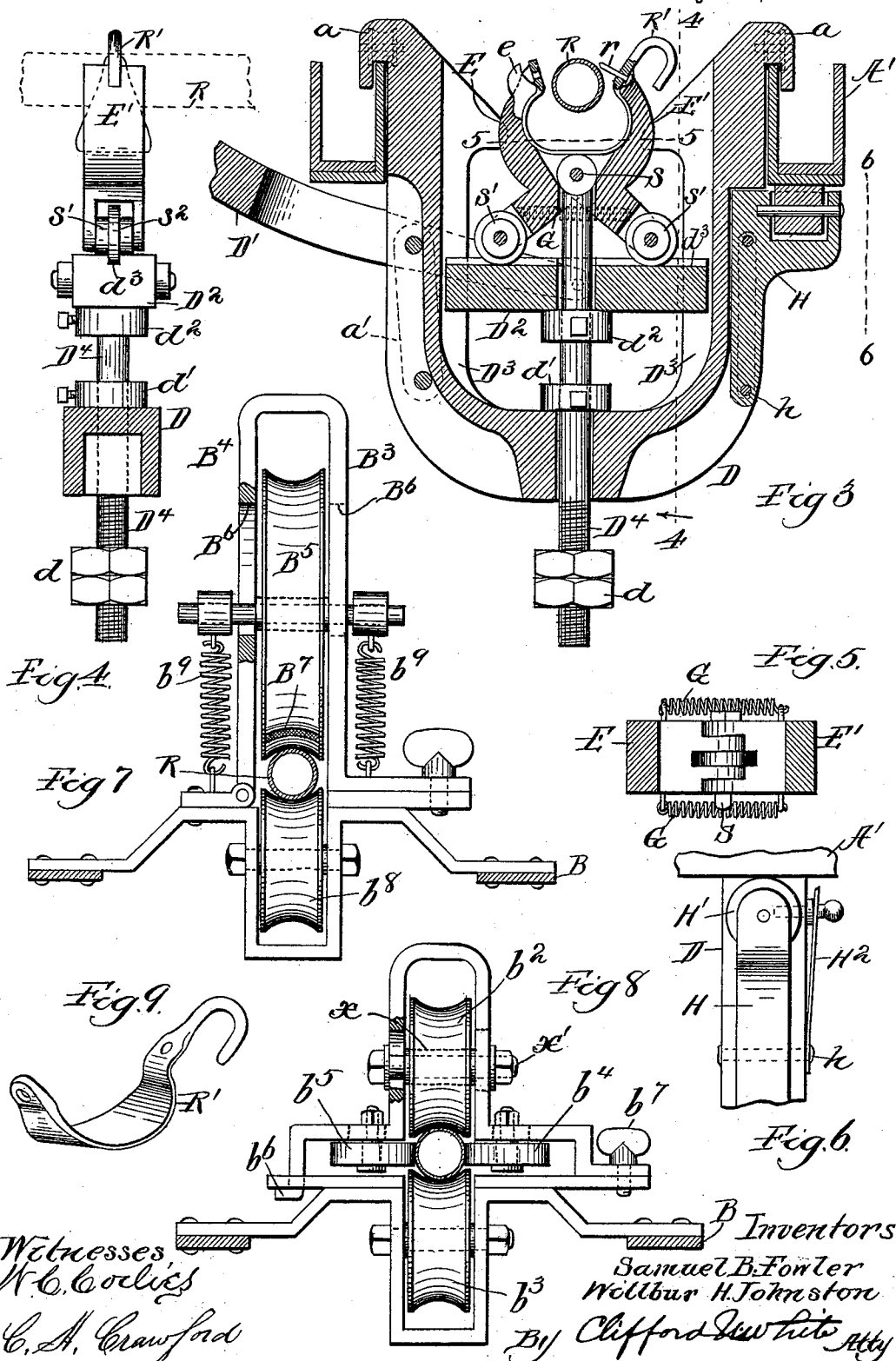
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By Clifford White, Atty

UNITED STATES PATENT OFFICE.

WILLBUR H. JOHNSTON, OF ST. LOUIS, MISSOURI, AND SAMUEL B. FOWLER,
OF CHICAGO, ILLINOIS, ASSIGNORS TO THE HALLETT IRON WORKS, OF
CHICAGO, ILLINOIS.

MACHINE FOR FASTENING HANGERS ON ELECTRIC WIRE CABLES.

SPECIFICATION forming part of Letters Patent No. 583,411, dated May 25, 1897.

Application filed July 18, 1896. Serial No. 599,738. (No model.)

To all whom it may concern:

Be it known that we, WILLBUR H. JOHNSTON, residing at St. Louis, in the State of Missouri, and SAMUEL B. FOWLER, residing at Chicago, in the county of Cook and State of Illinois, citizens of the United States, have invented certain new and useful Improvements in Machines for Fastening Hangers on Electrical Wire Cables, of which the following is a specification.

Heretofore these hangers have been secured to the cable by means of a pair of tongs which bent a hanger, somewhat similar in shape to the one here used, but not provided with means for riveting, around the cable, and which hanger supported the cable by means of its stiffness alone, which, it is needless to say, was an insecure support.

The object, therefore, of our invention is to provide easier and more effective means for putting the hangers on the cable, and also means for securely holding said hangers in their proper position when put on, that they may perform their functions with very much lessened, if not wholly, without the contingency of allowing the weight of the cable to bend the hanger and slip out of place. We attain these objects in a manner hereinafter fully described and claimed.

In the drawings, Figure 1 is a plan view of the improved machine for fastening the hangers onto the cable; Fig. 2, a side view of the same; Fig. 3, a cross-section on line 3 of Fig. 1, showing the construction of the device for riveting the hangers onto the cable; Fig. 4, a sectional view on line 4 of Fig. 3; Fig. 5, a sectional plan view on line 5 of Fig. 3; Fig. 6, a face view on line 6 of Fig. 3 of the stop to prevent the riveting device from tipping; Fig. 7, a section on line 7 of Fig. 1, showing the device for marking off the points on the cable at which it is desired to secure the hangers. Fig. 8 is a section on line 8 of Fig. 1, showing the construction of the pulleys through which the cable runs in order to hold it straight while passing through the machine; Fig. 9, a perspective view of one of the hangers before its attachment to the cable; Fig. 10, a view of hanger as it is attached to the cable.

The construction and operation of this im-

proved machine for fastening on the hangers is substantially as follows:

A is the main framework of the machine, shown in the drawings as constructed of angle-iron and having lengthwise across the top two channel-irons or tracks A' to accommodate the hanger clamping and riveting device. At the left-hand end of the framework, Fig. 1, is a framework B, detachably connected to the main framework A by means of hooks b, which engage in holes provided therefor in the channel-ways A' and the hinged bracket b', the lower end of said bracket being bifurcated and fitting over a screw in the end piece of the main framework. This framework B carries two sets of guide-pulley brackets B' and B², each of which contains a stationary grooved pulley b³ and an adjustable grooved pulley b², revolving on a sleeve x, which fits in the upright yoke, the said pulley being held in position by the bolt x', which passes through slots in the yoke sides and through the sleeve x and is secured by nuts, and also two side adjustable rollers b⁴ and b⁵, respectively. The yoke in which is secured the pulley b² and rollers b⁴ and b⁵ is hinged at the point b⁶ to a portion of the bracket and secured in position by the thumb-screw b⁷. These brackets are hinged for the purpose of facilitating the placing of the cable in place between the rollers and accommodating different sized cables, the object of said rollers being to keep the said cable straight while passing through the machine. Between the brackets B' and B² and secured to the framework B is a bracket B³, which carries in a lower yoke a small grooved pulley b⁸. The upper yoke B⁴ carries a grooved marking-wheel B⁵, which automatically adjusts itself to the diameter of the cable, and is held in close contact with said cable by the springs b⁹, the pulley being journaled in slots in the bracket B⁶. The circumference of pulley B⁵ may be any length that may be desired, and has at a point on its periphery a marker b⁷, which makes an imprint or mark on the cable at points equal to the distance it is desired to have between the hangers. The yoke b⁴ is also hinged on one side to the lower yoke and secured on the opposite side by a thumb-screw

similar to and for the same purpose as the brackets B' and B².

At the opposite end of the main framework A is another detachable framework C, attached by the hooks *c* and hinged bracket *c'*, that carries two sets of single yoke-pulley brackets C' and C², each of which carries two horizontal grooved pulleys *c*² and *c*³ and one vertical grooved pulley *c*⁴, which guide the cable after leaving the hanger-riveting device. The pulleys *c*² and *c*³ are made adjustable in slots *c*⁵ in the bracket to fit different-sized cables. The detachable frames B and C are made to fit either end of the main frame A, so that they may be placed according to the direction in which the cable is being drawn.

D is the yoke of the riveting device, which hangs between the channel-irons A' on the top of the main frame A, having rollers *a*, which run upon the edge of the channel-iron, facilitating the movement of the riveting device. Fulcrumed to a link *a'*, which in turn is pivoted to the yoke D, is a lever D', one end terminating in a handle outside of the machine, the opposite end being pivoted to a block D², sliding in guideways D³ in the yoke D. Through the center of this block D² and the bottom of the yoke passes a rod D⁴, threaded at its lower end to receive a nut and jam-nut *d*, which are adjusted to limit the upward movement of the rod D⁴. Between the block D² and the bottom of the yoke D are two collars *d'* and *d*², each provided with a set-screw, the collar *d'* being to limit the downward movement of the rod D, and the collar *d*² to limit the downward movement of the block D², to which is pivoted the lever D'.

The upper end of rod D⁴ terminates in an eye which engages with the pivot-pin *s* of the jaws E and E'. The jaws E and E' are angular in shape, pivoted at their apex on the pivot *s*. The lower ends of said jaws are provided with friction-rollers *s'*, which bear upon the block D², and are provided with a flange *s*², which fits in a groove *d*³ in the block D², said groove and flange being for the purpose of preventing any side or twisting motion of the jaws. The upper ends of said jaws are semicircular and adapted when closed to embrace the cable R. The upper end of jaw E' is adapted to engage the head of the rivet *r* in the hanger R', as shown in Fig. 4. The jaw E is provided at its upper end with a die *e*, adapted to receive the rivet *r* as it comes through the hole in the hanger R', and as the jaws advance still closer together to force it upward at right angles to its length, thereby preventing its withdrawal and securely locking the hanger on the cable. The upper portions of the jaws E and E' are held apart by springs G, secured to each jaw below the pivot *s* and having a contracting tendency.

To prevent the lifting of the riveting device while being operated, a casting H is pivoted between the flanges of the yoke D at a point under the guides A' and which carries a roller H', which travels on the under side of the

guide channel-irons A'. This casting is held in the position shown in Fig. 3, which is the position it assumes when the machine is operated by a spring-catch H², said catch being drawn out when it is desired to remove the riveting device until the casting H drops or swings downward from the pivot *h*.

The operation of the machine is as follows, to wit: The cable is run between the guide-pulleys in brackets B', B², and B⁴ at the left end of the machine, as shown in Fig. 1, and between the jaws E and E' of the riveting device and out between the guide-pulleys at the right-hand end of the machine in the brackets C' and C², all of said pulleys being for the purpose of keeping the cable straight while passing through the riveting device D. The pulley B⁵, as the cable is drawn through the machine by means of the marker B⁷ on its periphery and its close contact with the cable R through the action of the springs *b*⁹, marks off on the cable the distance it is desired to have between the hangers. Hangers are placed in the jaws of the riveting device, as shown in Fig. 3, with a rivet in place, the head of which rests against the jaw E'. The operator having lever D' in charge at the proper time, which is when a mark made by the marking-wheel B⁶ comes opposite the jaws, presses down on the said lever D', which raises the block D². The spring on the jaws holding them open, this upward movement of the block D² carries with it the jaws E and E' and rod D⁴ until the nut *d* strikes against the yoke D. At the same time said nut *d* strikes the yoke D the bottom of the hanger has come in contact with the under side of the cable. It will now be seen that the continued raising of the block D² will spread the lower portion of the jaws E and E' from their pivot *s* and close the upper portion, which embraces the cable R with the hanger R', forcing the rivet *r* through the lip of the hanger into the die *e*, where it is turned at right angles to its length and securely holds the hanger around the cable. The operator then releases the lever, the spring forces the jaws apart, and the jaws E and E', block D², and rod D⁴ drop until the collar *d'* comes in contact with the yoke D, or to the position illustrated in Fig. 3, when a new hanger is placed in position and the above operation again takes place.

It will be seen that this riveting device may be used on the framework A without the end frames B and C for holding the cable straight and marking the distances off thereon for the hangers—as, for instance, men may guide the cable straight and the hangers may be fastened on indiscriminately, or the distance may be marked by hand, without departing from the spirit of the invention.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. A machine for securing hangers to electric cables which consists of a main frame-

work supporting thereon a device consisting of a pair of jaws and means for operating the same said jaws adapted, when operated, to embrace said cable with a hanger, a marking-wheel on said framework, and a series of pulleys at either end of said framework adapted to hold said cable straight while passing through said jaws, substantially as described.

2. A machine for securing hangers to electric cables which consists of a main framework supporting thereon a device consisting of a pair of jaws and a lever adapted to operate said jaws, said device adapted, when operated, to embrace said cable with a hanger, said main framework supporting a detachable framework at either end, each of which carries a series of adjustable pulleys adapted to guide said cable straight while passing through said machine, substantially as described.

3. A machine for securing hangers on electric cables which consists of a main framework supporting thereon a device, consisting of a pair of jaws and a lever for operating said jaws, adapted to embrace said cable and clamp the hangers thereon, said framework adapted to receive at either end thereof a detachable framework, each of which is provided with one or more series of grooved pulleys adapted to guide said cable straight while passing through said machine, one of said detachable frameworks being, also, provided with an adjustable wheel adapted to bear on said cable and mark the same at predetermined points, substantially as described.

4. A machine adapted to secure hangers on electric cables, which consists of a main framework carrying at each end thereof a detachable framework supporting a series of guide-pulleys thereon, and a yoke hung in said main framework, said yoke carrying a pair of jaws and having fulcrumed thereto a lever adapted to operate said jaws causing them to embrace the cable and clamp a hanger thereon, substantially as described.

5. A cable-hanger clamping and riveting device which consists, substantially, of a yoke, supported in a suitable framework, carrying a pair of jaws normally held open by means of a spring, and adapted to receive a hanger and rivet; a lever fulcrumed to said yoke and connected to a movable block sliding in guideways in said yoke and adapted, when raised by means of said lever, to close said jaws and embrace the cable with said hanger and rivet the same together, substantially as described.

6. A cable-hanger-clamping device consisting substantially of a suitable framework, a pair of jaws supported therein, a lever fulcrumed upon the framework, and a movable member actuated by the lever and arranged intermediate of the lever and jaws, said member being adapted to close the jaws and clamp a hanger upon the cable.

7. A cable-hanger clamping and riveting

device consisting of a yoke supported in a suitable framework, a lever fulcrumed to said yoke and connected to jaws operating in said yoke, said jaws adapted to receive and hold a cable-hanger and rivet for the same, one of said jaws provided with a recess or pocket for holding the head of said rivet, the other with a die to receive and clench said rivet when the device is operated, substantially as and for the purpose described.

8. A cable-hanger clamping and riveting device consisting of a yoke supported in a suitable framework, a lever fulcrumed to said yoke and connected to a block sliding in vertical guideways in said yoke, angular jaws pivoted to one another, resting on said block and normally held open by a spring or springs, and a vertical guide-rod secured to said jaws and sliding through said block and yoke, substantially as and for the purpose set forth.

9. A cable-hanger clamping and riveting device consisting of a yoke supported in a suitable framework, in a manner to allow its lateral adjustment in said frame, a lever fulcrumed to said yoke and connected to angular jaws operating in said yoke, said jaws pivoted to one another and provided with means for holding them normally open, a block sliding in vertical guideways in said yoke and adapted to support said jaws, a guide-rod secured to the pivot of said jaws and passing through said block and yoke, and means on said guide-rod to limit the upward and downward movement of said jaws, substantially as described.

10. In a cable-hanger clamping and riveting device, the combination with a skeleton framework of a series of guide-pulleys at either end thereof adapted to hold the cable straight while passing through the machine, a yoke supported in said framework, a lever fulcrumed thereto, jaws sliding in said yoke and connected to and operated with said lever, and means for holding said jaws normally open, substantially as and for the purposes set forth.

11. In a cable-hanger clamping and riveting device, the combination with a skeleton framework of a series of guide-pulleys at either end thereof supported in an independent detachable framework, an adjustable marking-wheel adapted to mark on the cable the desired distance between the hangers, jaws, supported in said first-mentioned framework, adapted to receive a cable-hanger and when closed adapted to embrace and bend said hanger around said cable, and means for operating said jaws, substantially as described.

12. In a cable-hanger clamping and riveting machine, the combination with a skeleton framework of a detachable framework secured at either end, each of which is provided with a series of guide-pulleys, a marking-wheel mounted on one of said frames adapted to mark off predetermined distances on the cable, a yoke suspended in said skeleton frame-

work, a block sliding in vertical guideways in said yoke and supporting two angular jaws pivoted to one another, means for holding the said jaws normally open, a guide-rod secured to the pivot-pin of said jaws and operating through said block and yoke, a lever pivoted to said block and fulcrumed to said yoke, and means for limiting the upward and downward movement of said jaws and block, substantially as and for the purposes described.

13. In a cable-hanger clamping and riveting machine, the combination with the main framework of a yoke suspended between the sides of said frame and adapted to be moved lengthwise in said frame, a lever fulcrumed to said yoke and connected to a block moving in guideways in said yoke, angular jaws resting on said block and pivoted to one another, the upper portion of said jaws being semicircular in shape and adapted to receive a cable-hanger and rivet and, when closed, to embrace the cable, means for holding said jaws normally opened and a die in one of said jaws adapted to receive and clench said rivet when the jaws are closed, substantially as and for the purposes set forth.

14. A framework, a block movable therein, a pair of jaws having their similar ends bear-

ing upon the said block, such ends adapted to be moved apart by the block to close the jaws and clamp a hanger on the cable, and means for actuating the said block.

15. A cable-hanger clamping and riveting device consisting substantially of a suitable framework, an adjustable marking-wheel adapted to mark on the cable the desired distance between the hangers, jaws supported in the framework, adapted to receive a cable-hanger and embrace the cable with said hanger and means for actuating the said jaws.

16. A cable-hanger clamping device consisting substantially of a suitable framework, an adjustable marking-wheel thereon, a pair of jaws supported in the said framework, a lever fulcrumed upon the framework, and a movable member actuated by the lever and arranged intermediate of the lever and jaws, said member being adapted to close the jaws and clamp a hanger upon the cable.

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

WILLBUR H. JOHNSTON.

SAMUEL B. FOWLER.

Witnesses:

W. S. MORRIS,

CLIFFORD N. WHITE.