

No. 614,597.

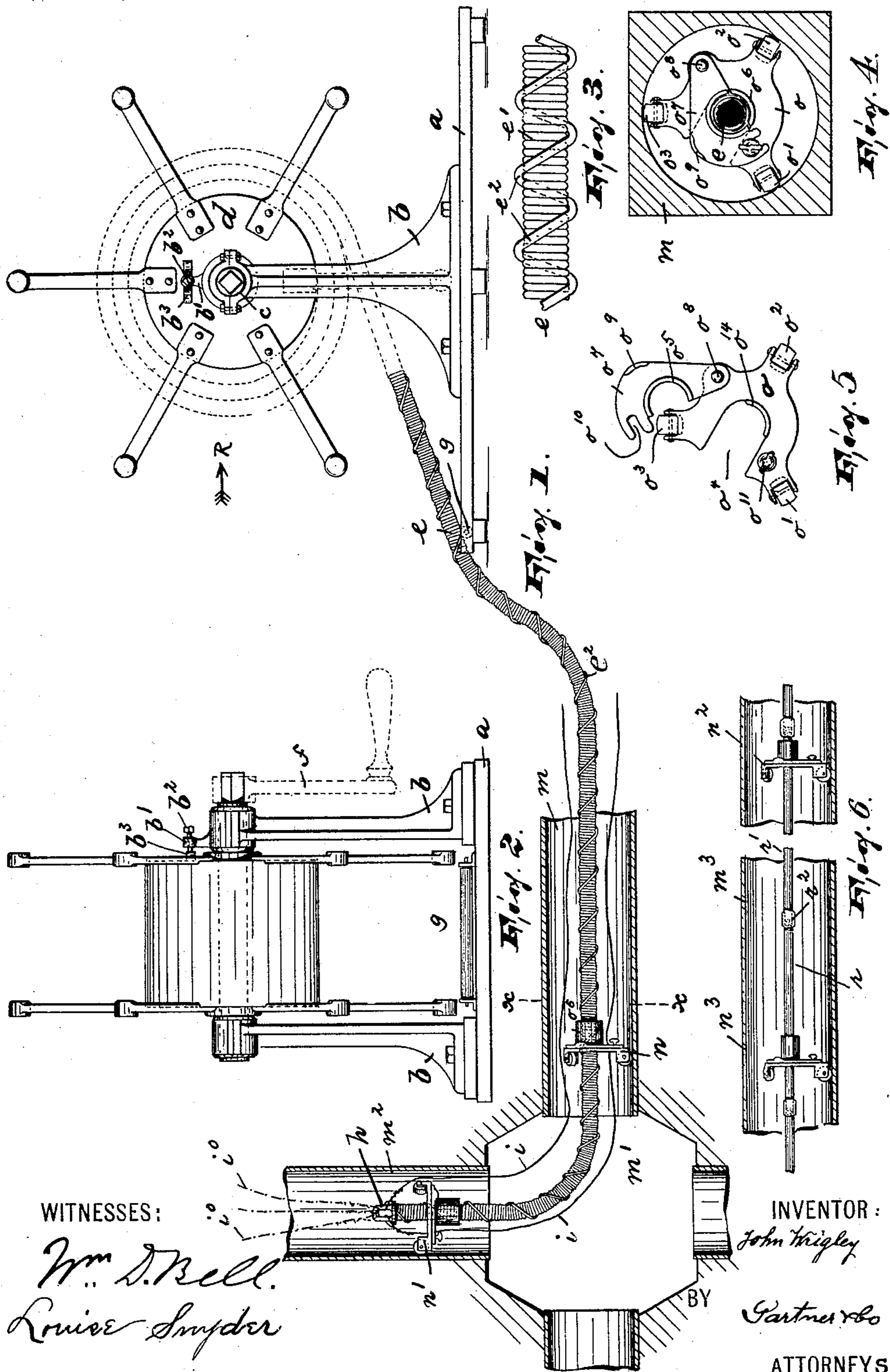
Patented Nov. 22, 1898.

J. WRIGLEY.

MEANS FOR CONVEYING CABLES, WIRES, OR THE LIKE THROUGH UNDERGROUND CONDUITS.

(Application filed June 14, 1898.)

(No Model.)



WITNESSES:

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MEANS FOR CONVEYING CABLES, WIRES, OR THE LIKE THROUGH UNDERGROUND CONDUITS.

SPECIFICATION forming part of Letters Patent No. 614,597, dated November 22, 1898.

Application filed June 14, 1898. Serial No. 683,401. (No model.)

To all whom it may concern:

Be it known that I, JOHN WRIGLEY, a citizen of the United States, residing in Elmira, Chemung county, and State of New York, have invented certain new and useful Improvements in Means for Conveying Cables, Wires, and the Like Through Underground Conduits, Tubes, &c.; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My present invention relates to improvements in means for conveying cables, wires, &c., through underground conduits, piping, tubing, and the like; and its object is to provide simple, strong, and effective means for the above-mentioned purpose and which means can be easily handled and quickly and readily put into operation.

The invention consists in the improved conveying means for cables, wires, &c., and in the combination and arrangement of the various parts thereof, substantially as will be hereinafter more fully described, and finally embodied in the clauses of the claim.

Referring to the accompanying drawings, in which like letters of reference indicate corresponding parts in each of the several views, Figure 1 illustrates in section a manhole and portions of the conduits radiating therefrom and also in side elevation my improved conveying means in operative position, the end portion of the flexible shafting being arranged on a portable reel; Fig. 2, a front elevation of the portable reel, looking in the direction of the arrow R in Fig. 1; Fig. 3, an enlarged detail view of a portion of the flexible shafting; Fig. 4, an enlarged sectional view on the line *x x* of Fig. 1; Fig. 5, a front elevation of the guiding means illustrated in Fig. 4, showing its members in opened position; and Fig. 6, a sectional view of a portion of one of the conduits, illustrating the guiding means used in connection with pipes or rods.

In said drawings, *a* represents a platform supporting the standards *b b*, furnishing suitable bearings for the shaft *c*, upon which is mounted a reel *d* of any well-known construc-

tion. Within a projecting portion *b'* of one of the brackets *b* is arranged a set-screw *b²*, carrying at its inner end a brake (preferably a spring-brake) *b³*, bearing against the respective side of the reel for the purpose of producing friction, and thus regulating the speed of the reel while the flexible shafting is being unwound, as will be manifest. On said reel, as illustrated in dotted lines in Fig. 1 of the drawings, is wound a flexible shafting *e*, consisting of a closely-wound wire coil *e'* and of an auxiliary wire coil *e²*, Fig. 3, which latter is arranged or wound in opposite direction to the winding of the coil *e'* and is of a wider or greater pitch than the latter. The flexible shafting is provided with the auxiliary coil *e²*, so as not only to strengthen said shafting, but also to permit some looseness of the carriage *n* thereon, so that when a sharp turn is made the necessary bending in said shafting is not appreciably affected by the sleeve *o⁶*.

The reel is adapted to be operated by a crank-handle *f*, (shown in dotted lines in Fig. 2,) while an antifriction-roller *g* is arranged on the platform *a*, over which roller the flexible shafting runs in its passage to and from the reel.

To the front portion of the flexible shafting *e* and to both coils thereof is secured in any desired manner an implement, in the drawings an eyebolt *h*, to which are fastened the free ends of wires or cables *i i*, which are to be passed through the conduit *m*, manhole *m'*, and conduit *m²*.

On the flexible shafting *e* and at certain intervals are removably secured guide-carriages *n n'* of dimensions to fit the conduits in which they are to be used. Each of said guide-carriages consists of a frame *o*, substantially triangular-shaped and furnishing at its angles bearings for rollers *o'* *o²* *o³*, which latter are adapted to bear against and travel upon the inner surface of the conduit. The frame *o* is provided in its central portion with an elongated slot *o⁴*, having its inner portion substantially semicircular and provided with a rearwardly-extended curved plate *o¹⁴*, adapted to form in connection with the plate *o⁵* a sleeve *o⁶* for engaging and clamping the flexible shafting *e*, as will be manifest. The curved plate *o⁵* projects rearwardly from a latch or

plate o^7 , pivotally secured, as at o^8 , to the frame o and provided with a suitable thumb-piece or handle o^9 . Said plate or latch o^7 is also provided with an elongated slot o^{10} , adapted to be penetrated by a thumb-screw o^{11} , which latter is arranged in the frame o and serves to lock the plate o^7 in normal position.

In Fig. 6 the guide-carriages n^2 and n^3 are arranged or clamped upon a series of rods $r r'$, suitably connected together by couplings r^2 , and which rods can be used in place of the flexible shafting for conveying wires, cables, &c., through straight conduits.

It must be remarked that in place of the rods $r r'$ a wire cable consisting of strands of wire connected in the usual manner can be used in connection with my improved guide-carriages if so desired.

In operation when the wires or cables $i i$ are to be conveyed through conduit m into the conduit m^2 their free ends are fastened to the eyebolt h and one of the guide-carriages n' is mounted or clamped upon said shafting in close proximity to its eyebolt h . The shafting and its carriage are then inserted into the conduit m and by operating the reel d (and, if necessary, by additional pushing) the carriage n' is caused to travel through said conduit toward the manhole m' , where it is received and passed or served into the entrance of the conduit m^2 . Additional guide-carriages n are clamped or mounted upon the flexible shafting e whenever it is deemed necessary to reduce the friction by keeping the flexible shafting and the wires or cables carried thereby out of contact with the conduits. It must be remarked that the said wires or cables are carried by the flexible shafting in the spaces formed between the outer periphery of the frame o and the inner surface of the conduit, as will be manifest. Should, however, the cables be of such dimensions that they could not conveniently lay between the spaces just above mentioned, the said cables or wires are not conveyed through the conduits by pushing the flexible shafting through the latter; but in such cases the flexible shafting is first carried through the various conduits and intermediate manhole, and after the cables $i^0 i^0$ have been secured to the eye-bolt h , as shown in dotted lines in Fig. 1, the said flexible shafting, together with said cables, is pulled through said conduits by being wound upon the reel d . It must further be remarked that instead of one auxiliary coil two or more auxiliary coils arranged upon each other can be used, whereby the flexible shafting will be greatly strengthened.

I do not intend to limit myself to the precise constructions shown and described, as numerous changes and alterations can be made without changing the scope of my present invention; but,

Having thus described my said invention,

what I claim as new, and desire to secure by Letters Patent, is—

1. A flexible shafting consisting of a closely-wound wire coil, an auxiliary coil tightly arranged thereon but wound in opposite direction and having a wider or greater pitch than the first-mentioned coil, and an implement at one end of said flexible shafting and connected with both of its coils, substantially as and for the purposes described.

2. A flexible shafting consisting of two coils wound closely upon each other but in opposite direction, in combination with one or more guide-carriages removably arranged on the outer coil, substantially as and for the purposes described.

3. A flexible shafting consisting of a closely-wound wire coil, and of an auxiliary coil tightly arranged thereon but wound in opposite direction, in combination with one or more guide-carriages removably arranged upon the outer coil, substantially as and for the purposes described.

4. A flexible shafting consisting of a closely-wound wire coil and of an auxiliary coil tightly arranged thereon but wound in opposite direction and having a wider or greater pitch than the first-mentioned coil, in combination with one or more guide-carriages removably arranged upon the outer coil, substantially as and for the purposes described.

5. A flexible shafting consisting of a closely-wound wire coil, an auxiliary coil tightly arranged thereon but wound in opposite direction and having a wider or greater pitch than the first-mentioned coil, an implement at one end of said flexible shafting and connected with both of its coils, in combination with one or more guide-carriages removably arranged upon the outer coil, substantially as and for the purposes described.

6. A carriage for guiding flexible shafting, cables, wires, rods, &c., through conduits, or pipes, consisting of two members pivotally connected together and forming a central projecting sleeve, and of a series of rollers carried by said carriage, substantially as and for the purposes described.

7. A carriage for guiding flexible shafting, cables, wires, rods, &c., through conduits or pipes, consisting of two members pivotally connected together and forming a central projecting sleeve, a series of rollers carried by one of said members, and means for locking said members in normal position, substantially as and for the purposes described.

In testimony that I claim the foregoing I have hereunto set my hand this 9th day of June, 1898.

JOHN WRIGLEY.

Witnesses:

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