

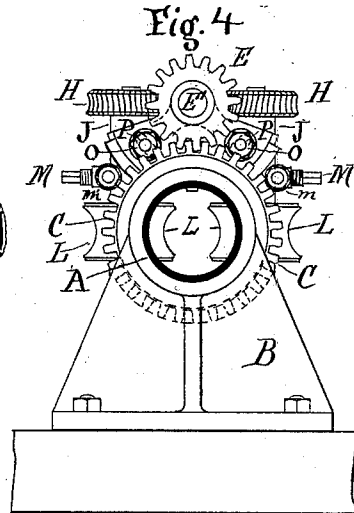
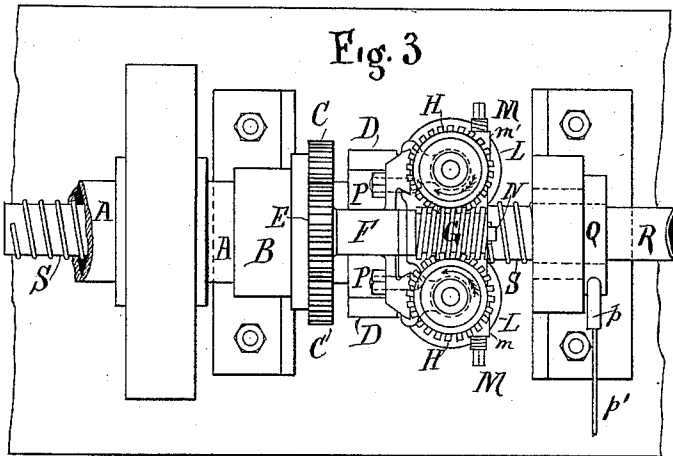
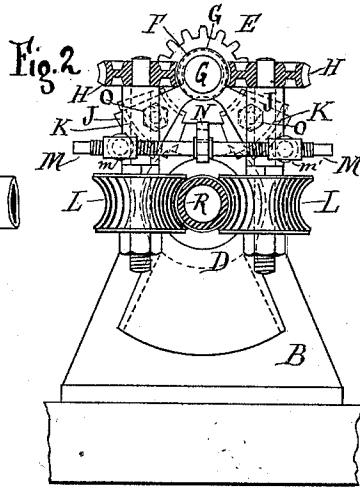
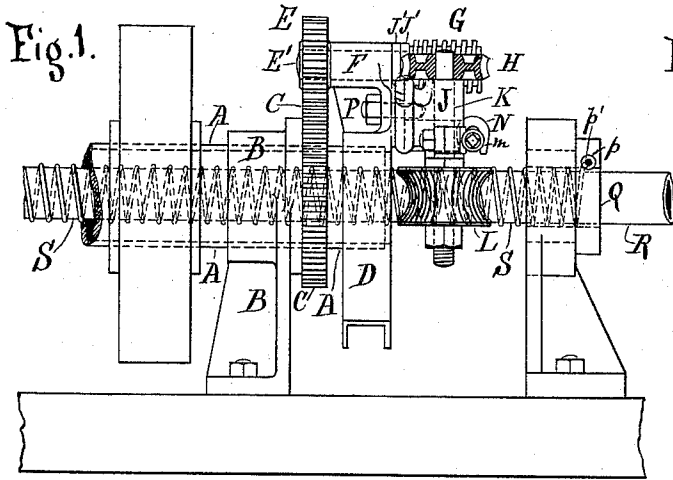
(No Model.)

J. MURPHY.

HOSE WINDING APPARATUS.

No. 391,908.

Patented Oct. 30, 1888.



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

JOHN MURPHY, OF BROOKLYN, NEW YORK.

## HOSE-WINDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 391,908, dated October 30, 1888.

Application filed June 28, 1888. Serial No. 278,467. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN MURPHY, a citizen of the United States, residing in Brooklyn, Kings county, and State of New York, have invented certain new and useful Improvements in Hose-Winding Apparatus, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates specially to the provision and arrangement of means whereby the hose to be wound is brought to a longitudinal strain, wound with wire and then released, so fixing the position of the wire about the hose that it will remain permanently fixed under any and all circumstances, conditions, and lengths.

My improvements consist in the construction and arrangement of the above-mentioned means, and in the combination of the several parts and portions or their equivalents, as hereinafter shown and specified.

In the drawings, Figures 1, 2, 3, and 4 represent side, front, plan, and rear views of a machine embodying my improvements.

Similar letters of reference designate like parts in all the figures.

The letter A designates a hollow central operating-shaft, through which the hose passes as it is wound.

B designates a bearing-bracket supporting the end of the hollow shaft and its attachments, and keeping all movements central and under complete control.

C designates a fixed gear-wheel, preferably attached directly to said bracket B.

D designates a crank wheel or arm attached to the end of hollow shaft A, and supporting all the moving parts effecting the winding of the hose.

E designates a gear-wheel adapted to engage with and revolve about the fixed wheel C.

F designates a bearing-hub for the gear-wheel E.

E' is the shaft of wheel E, at the opposite end of which is attached a worm, G.

H H designate a pair of worm-wheels engaging with and operated by the worm G.

J J designate a pair of bearings attached to crank-wheel D, either in a fixed or adjustable position, through which the axles or shafts of the worm-wheels H H pass. At the opposite

end of these axles or shafts (designated by K) are attached a pair of grip-wheels, L L. More than two may be used; but preference is given to that number. These wheels L L are adapted to grasp the hose and control its whole movement, turning it upon its own longitudinal axis, as well as moving it longitudinally, to suit the required pitch at which the wire is to be wound.

Where the apparatus is made to suit only a single diameter of hose, the bearings J J are adjusted to a permanently-fixed position central with the hollow shaft; but where a single apparatus is intended to wind all of the varying sizes of hose they are made adjustable toward or from the center of hollow shaft, and a rod, M, and associate right and left hand nuts *m* and *m'* is the preferred method of effecting such adjustments. These nuts *m* and *m'* are pivoted upon the bearings J J, to accommodate themselves to varying adjustments.

A special controlling lug or collar, N, is attached to crank-wheel D, to effect an exact central adjustment of the rod M and the grip-wheel bearings J J. These bearings J J are also preferably suspended by collars J' J' from the worm-shaft, and radial-faced guides are formed upon crank-wheel D for additional means of adjustment and security. A single bolt, P, holds each of the bearings and grip-wheels to a fixed adjustment. These bolts P move in slots O O, and are screwed tight to hold all the parts to a rigid position with reference to each other.

Q designates a guide sleeve or tube, through which both wire and hose are fed. It may be threaded or not, as desired. A special tube, *p*, is attached to guide sleeve Q, through which the wire is passed to the sleeve. At *p'* the wire is shown passing to this small tube *p*. At R the hose is shown passing toward the sleeve Q, and at S a portion of the wound hose is shown.

In the regular operation of this device, as shown, power is applied to revolve the shaft A and its attached crank-wheel D. Pinion E, being attached to this crank-wheel D and engaging with the fixed wheel C, is caused to revolve upon its own shaft or axis while it is moving around wheel C. The revolution of wheel E about its own shaft or axis effects the

revolution of worm G, attached to the same shaft, E, and worm G, engaging with worm-wheels H H, effects their revolution, as well as that of the grip-wheels L L, in an inward direction toward the crank-arm D, as shown by the arrows in Fig. 3, while at the same time they are being revolved about the central axis of the apparatus itself or the hollow shaft A and of the hose being treated. Thus by reason of the close grip of the grip-rollers upon the hose, by the revolution of said grip-rollers upon their own axis, and by their additional revolution about the axis of the machine, the hose is revolved upon its own longitudinal axis, and is advanced sufficiently in a longitudinal direction to effect a regular pitch in the winding, as may be desired.

The feed-sleeve Q is bored to a snug fit of the combined hose and wire sufficient to effect a slight strain upon both by reason of the grip and pull of the apparatus upon the hose while being wound. The proportions of the operating-gears, worms, and worm-wheels or their equivalents are variable to suit the required pitch of the winding.

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

1. In a hose-winding apparatus, the combination of the grip-rollers L L and mechanism, substantially as set forth, whereby said grip-rollers may be revolved each upon its own axis and both upon the central axis of the machine, substantially as and for purposes specified.

2. In a hose-winding apparatus, the combination of the adjustable grip-rollers L L and mechanism, substantially as set forth, whereby said adjustable grip-rollers may be revolved each upon its own axis and both upon the central axis of the machine, substantially as and for purposes specified.

3. In a hose-winding apparatus, the guide-

sleeve Q, in combination with means, substantially as set forth, for revolving the hose to be wound and drawing it with the wire through said sleeve both at one and the same time.

4. In a hose-winding apparatus, in combination with the grip-rollers L L, bearings J J, worm-wheels H, worm G, crank arm or wheel D, having bearing F attached thereto, pinion E, gear-wheel C, and the hollow shaft A, substantially as and for purposes set forth.

5. In a hose-winding apparatus, in combination with the grip-rollers L L and bearings J J, an adjusting-rod, M, adapted to increase or decrease the distance between said grip-rollers to suit the size of hose to be treated, substantially as set forth.

6. In a hose-winding apparatus, in combination with the grip-rollers L L and bearings J J, adjusting rods M, worm-wheels H H, worm G, crank-wheel D, provided with bearing F, pinion E, gear-wheel C, and hollow operating-shaft A, substantially as and for the purposes specified.

7. In a hose-winding apparatus, in combination with the sleeve Q, the grip-rollers L L, bearings J J, worm-wheels H H, worm G, crank arm or wheel D, having bearing F attached thereto, pinion E, gear-wheel C, and hollow operating-shaft A, substantially as and for purposes set forth.

8. In a hose-winding apparatus, in combination with the feed-sleeve Q, the grip-rollers L L, bearings J J, adjusting-rod M, worm-wheels H H, worm G, crank arm or wheel D, having bearing F attached thereto, pinion E, gear-wheel C, and hollow operating-shaft A, substantially as and for purposes specified.

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