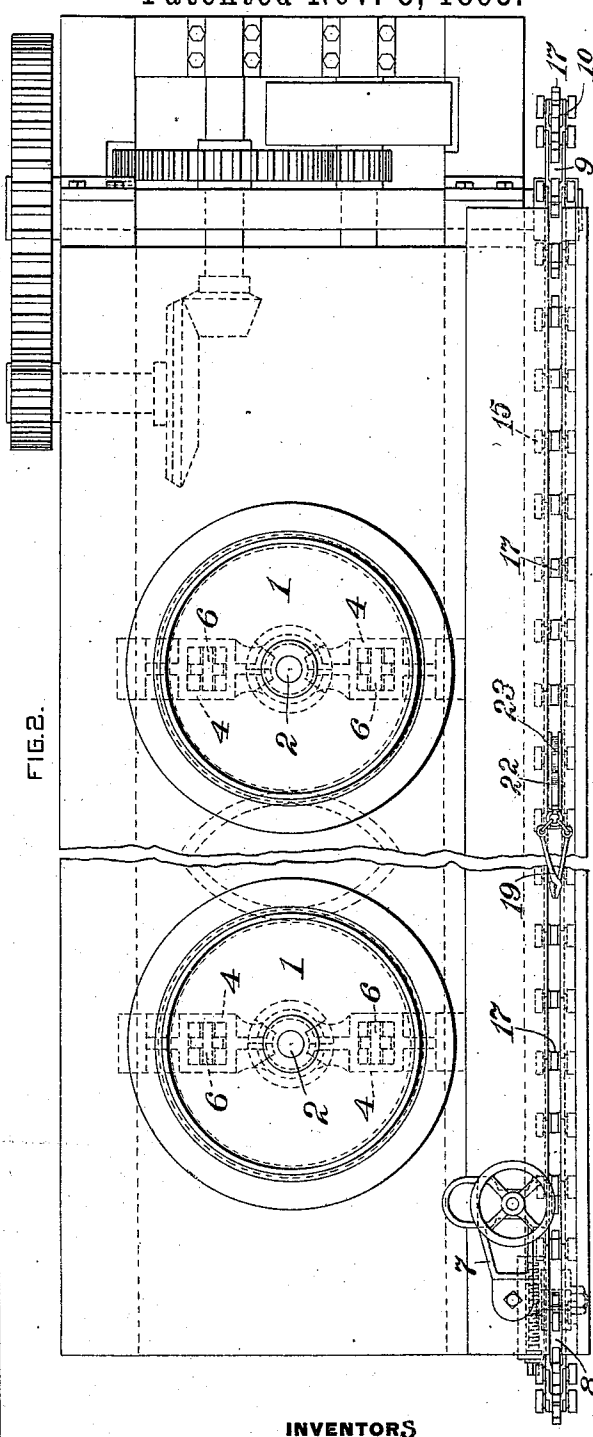
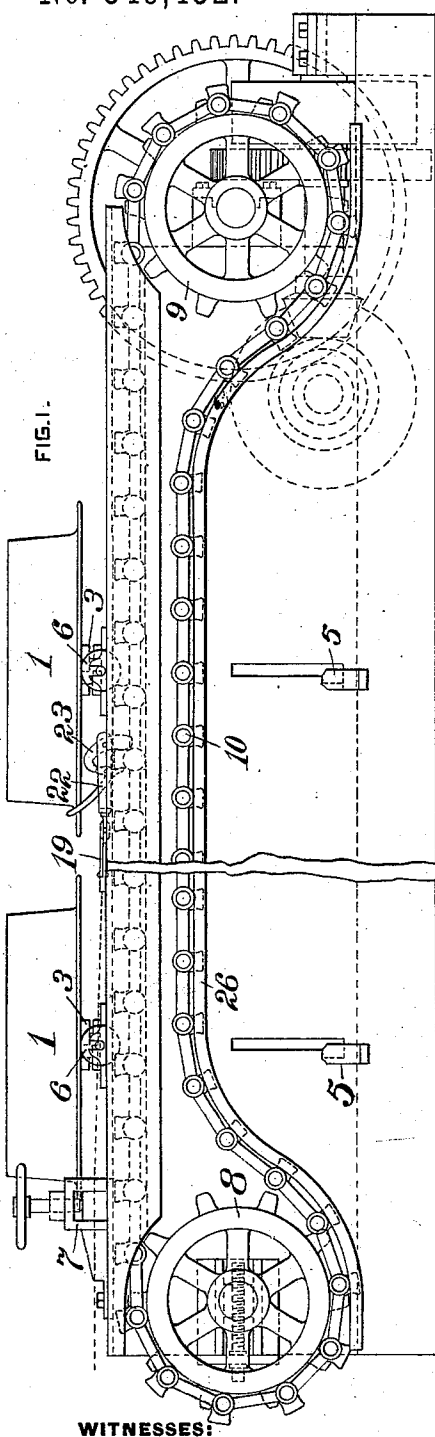


W. L. HAYES & L. W. JERNBERG.

WIRE DRAWING MACHINE.

No. 549,452.

Patented Nov. 5, 1895.



WITNESSES:

Chas F. Miller.
J. E. Gaither.

INVENTORS

Will L. Hayes
Lawrence W. Jernberg
by Danvers S. Wolcott Att'y.

(No Model.)

2 Sheets—Sheet 2.

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FIG. 3.

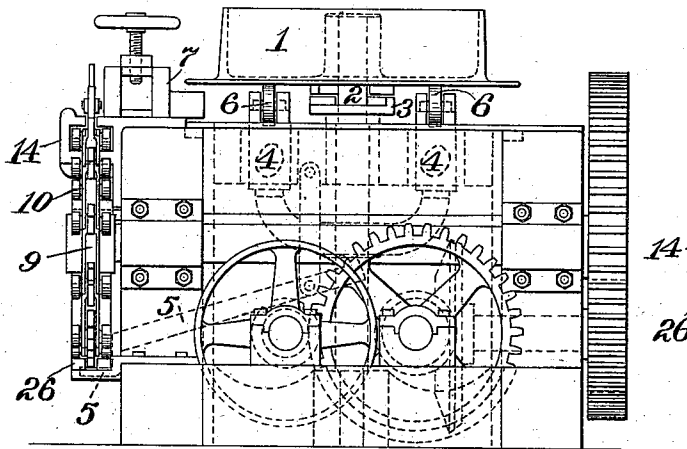


FIG. 6.

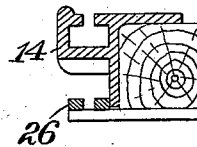


FIG. 4.

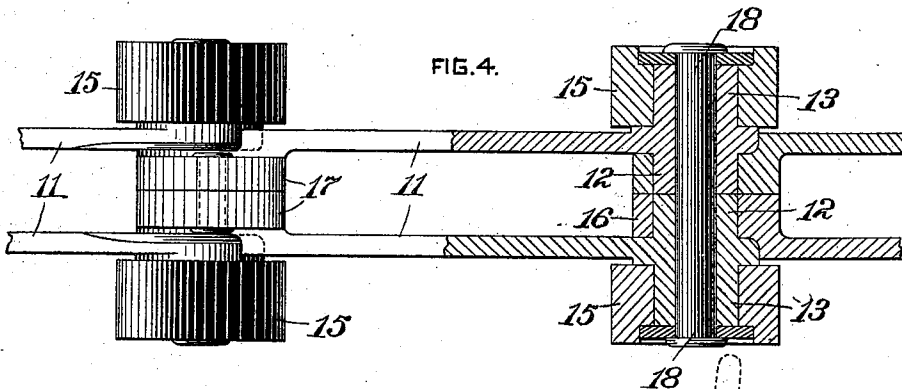
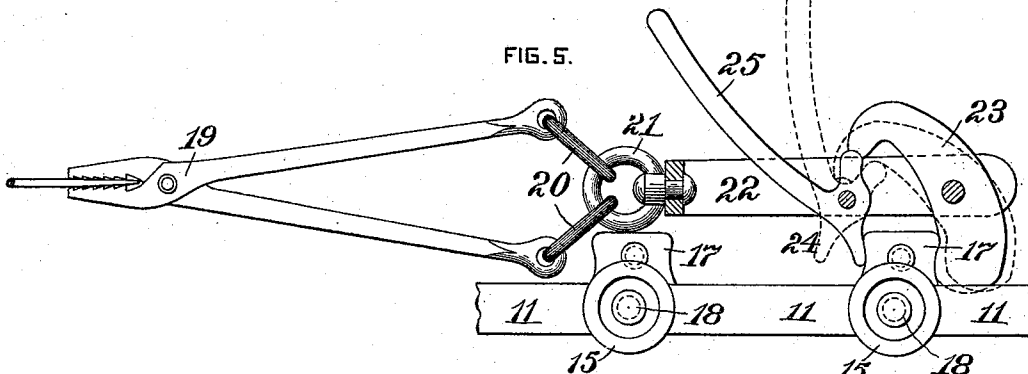


FIG. 5.



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UNITED STATES PATENT OFFICE.

WILL L. HAYES AND LAWRENCE W. JERNBERG, OF CLEVELAND, OHIO;
SAID JERNBERG ASSIGNOR TO SAID HAYES.

WIRE-DRAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 549,452, dated November 5, 1895.

Application filed February 26, 1895. Serial No. 539,720. (No model.)

To all whom it may concern:

Be it known that we, WILL L. HAYES and LAWRENCE W. JERNBERG, citizens of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented or discovered certain new and useful Improvements in Wire-Drawing Machines, of which improvements the following is a specification.

The invention described herein relates to certain improvements in apparatus for drawing wires, and has for its object the employment of means whereby the preliminary movement of a coil of wire may be continuous, similar to that imparted by the pulling-drum.

It has heretofore been the practice in beginning the drawing operation to reduce one end of the wire, so that it will easily pass through the die a sufficient distance to permit of its being grasped by grippers, which are usually attached to one end of a lever operated by an eccentric on the shaft of each winding-drum. The throw of this eccentric is so small that the grippers must be released and a new grip taken on the wire to pull a further length through the die, and this operation must be repeated five or six times before a sufficient length has been drawn through to permit of the wire being attached to the drum. This operation is not only slow, but the grippers injure the wire wherever grasped, so that a considerable portion of each coil is wasted.

In general terms the invention consists in the construction and combination substantially as hereinafter more fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a view in side elevation of a drawing-bench having our improvements applied thereto. Fig. 2 is a top plan view of the same. Fig. 3 is an end elevation. Figs. 4 and 5 are detail views on an enlarged scale of the draw-chain and wire-gripping mechanism, and Fig. 6 is a transverse section of the housing for the chain.

In the practice of our invention it is preferred to arrange a series of two, three, or more winding or drawing drums land their operating mechanisms in line or on one "bench," as it is termed. These drums are

loosely mounted on the upper ends of continuously-rotating vertical shafts 2, with which they are adapted to be interlocked by clutch mechanisms 3, one member thereof being attached to the under sides of the drums and the other members to the vertical shafts. Yokes 4 are movably mounted below the drums which they support, when raised by the levers 5, at such a height that the members of the clutch mechanism will not engage. To facilitate the rotation of the drums when raised and to prevent excessive friction between the ends of the yokes and the under sides of the drums while the latter are being lifted to effect the disengagement of the parts of the clutch mechanism, rollers 6 are mounted on the ends of the yoke. A die-holder 7 is pivotally secured to the bench in suitable proximity to the first drum of the series, but, if desired, a similar holder for each drum may be employed.

In order to effect the initial step in the drawing operation—i. e., the pulling of a sufficient length of wire through the die to permit of the attachment of the end of the wire to one of the drums—a chain provided with suitable means for connection with the grippers is passed around wheels 8 and 9, mounted on the ends of shafts projecting from the front of the bench. One of these shafts is positively driven by suitably-arranged mechanism, and the other shaft is mounted in adjustable bearings in order that the chain may be brought to the necessary tension. Our preferred form of chain 10 consists of links provided with knobs at one end, as clearly shown in Figs. 4 and 5. Each of the links consists of two side bars 11, provided at one end with lateral bosses or projections 12 and 13, the outer bosses 13 being adapted to prevent any twisting of the chain by engagement with lateral recesses in the guide-trough 14 of the chain-housing. It is preferred to mount anti-friction-rollers 15 on the bosses 13 to facilitate the movement of the chain along the guide-trough. The internal bosses or connecting-pins 12 serve as bearings for the eyes 16, formed at the opposite end of the side bars of the links. On one side of the eyes 16 are formed projections or knobs 17, to which the gripping mechanism is attached. The sec-

tions of the links are held together by means of pins 18 passing through the bosses, and it is preferred to secure to two sections of knobs 17 by rivets, as shown in Fig. 5.

- 5 The handles of the grippers 19 are connected by links 20 to a swivel-ring 21 connected to the strap 22. Between the side bars of the strap is pivoted a pawl 23, having one side of its lower end adapted to fit in the slight recesses in the sides of the knobs 17, as shown in Fig. 5. The upper end of the pawl 23 is curved, so as to overhang the dog 24, which is also pivoted between the sides of the strap in such relation to the pawl that when the dog is shifted by its lever or handle 15 25, so that one end thereof will bear against one side of the knob, its opposite end will be in position to support the overhanging end of the pawl, thereby preventing any movement of the pawl whose lower end is in engagement with one side of the knob, as shown in Fig. 5. In order to prevent any accidental displacement of the dog, a slight recess is formed in the pawl for the reception of the upper end of the dog.

- The chain-housing, which extends the entire length of the bench, is formed with a trough along which the upper portion of the chain passes and with a curved supporting ledge 26 below the trough for the returning portion of the chain. The trough is made of such a depth that the knobs will not project above its upper surface, as shown in Fig. 1.

We claim herein as our invention—

1. In a machine for drawing rods, wire, 35 &c., the combination of an endless chain provided with knobs, wire grippers, a strap connected to the grippers, a pawl pivoted to the strap and adapted to engage one of the knobs on the chain, and a dog for locking the pawl in such engagement, substantially as set forth. 40

2. A chain for a machine for drawing rods, wire, &c., each link thereof consisting of a pair of side bars each provided at one end with internally projecting bosses, and at the opposite end with an eye, adapted to receive the bosses of the adjacent link, the eyes being provided with an external knob or projection, substantially as set forth. 45

3. A chain for a machine for drawing rods, wire, &c., each link thereof consisting of a pair of side bars, each provided with external and internal bosses at one end and at the opposite end with an eye adapted to receive the bosses of the adjacent link, said eyes being provided with an external knob or projection, in combination with a guide trough provided with lateral recesses for the reception of the externals on the links, substantially as set forth. 50 60

In testimony whereof we have hereunto set our hands.

WILL L. HAYES.

LAWRENCE W. JERNBERG.

Witnesses:

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WILL C. MARTIN.