

(No Model.)

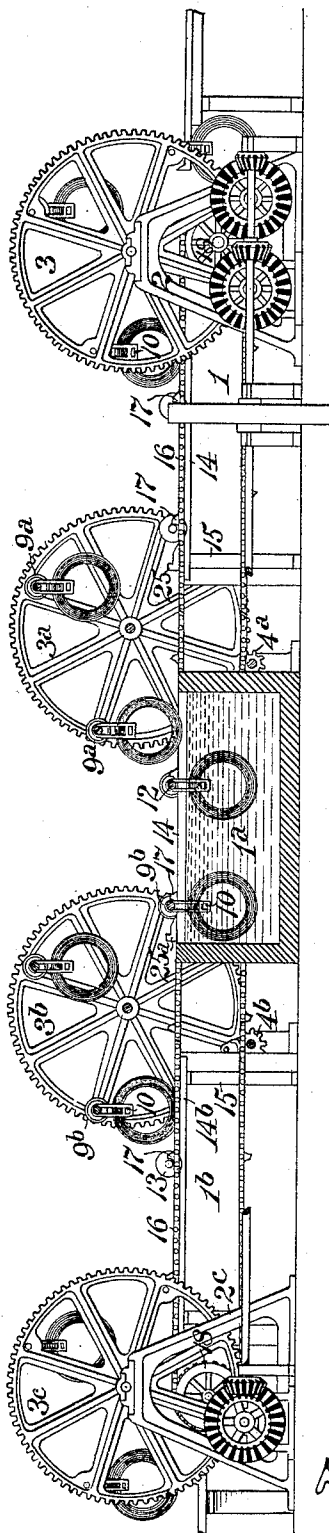
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W. L. HAYES & J. H. KONIG.
APPARATUS FOR TREATING WIRE.

No. 465,700.

Patented Dec. 22, 1891.

FIG. 1.



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W. L. HAYES & J. H. KONIG.
APPARATUS FOR TREATING WIRE.

No. 465,700.

Patented Dec. 22, 1891.

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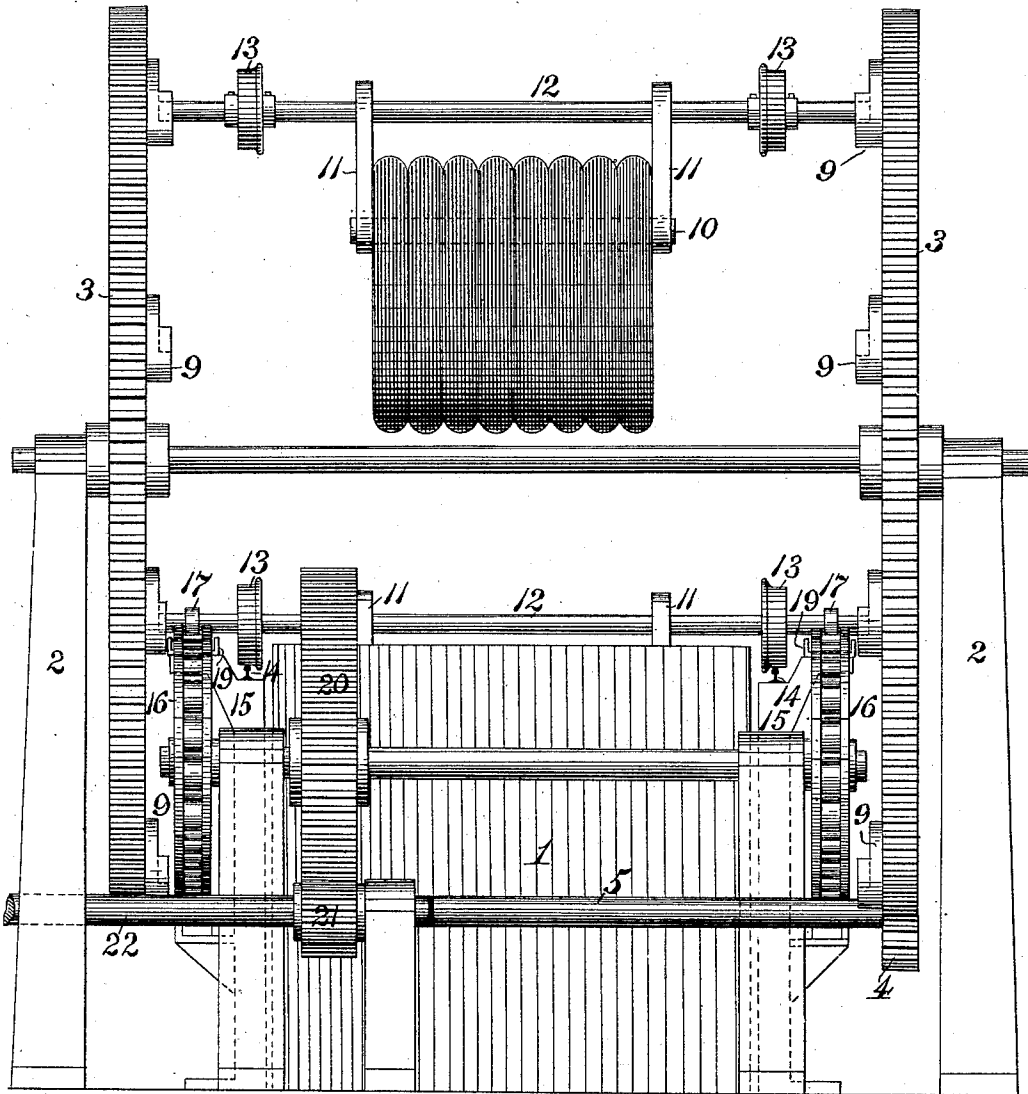
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W. L. HAYES & J. H. KONIG.
APPARATUS FOR TREATING WIRE.

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Patented Dec. 22, 1891.

FIG. 3.



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4 Sheets—Sheet 4.

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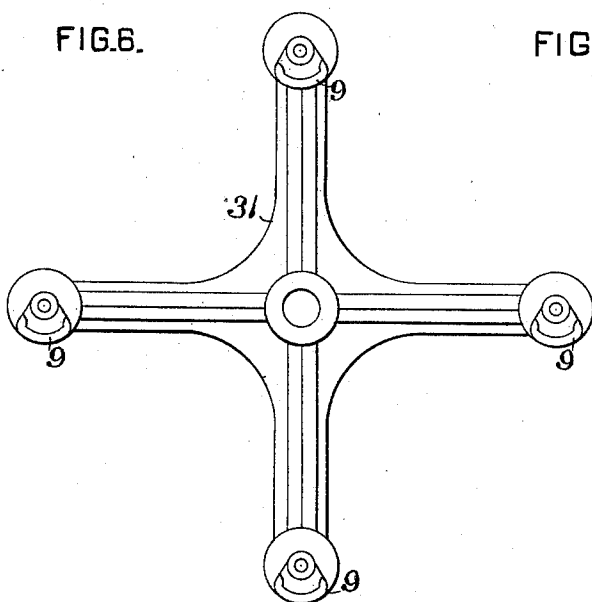
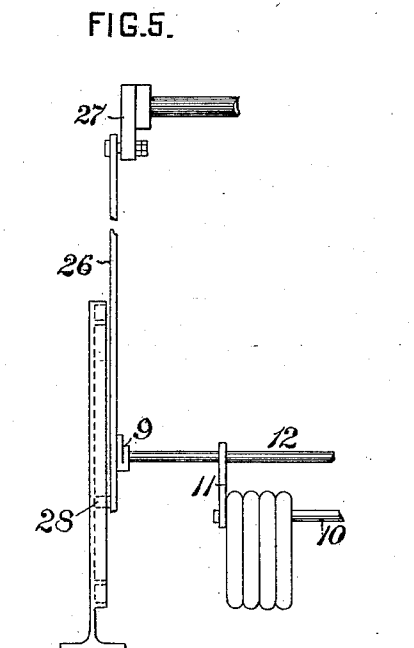
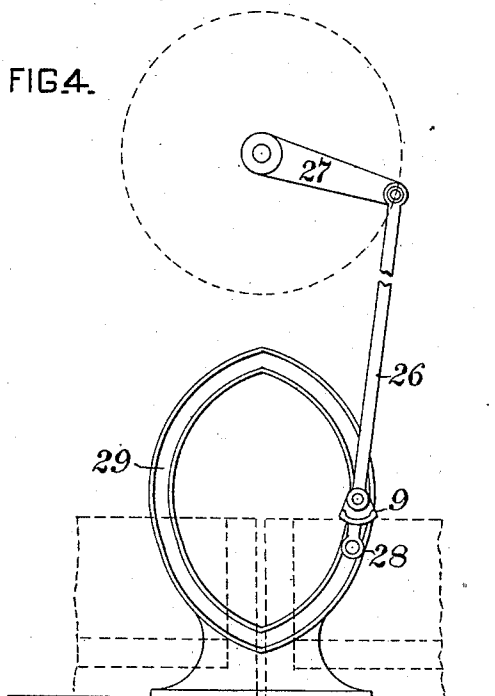
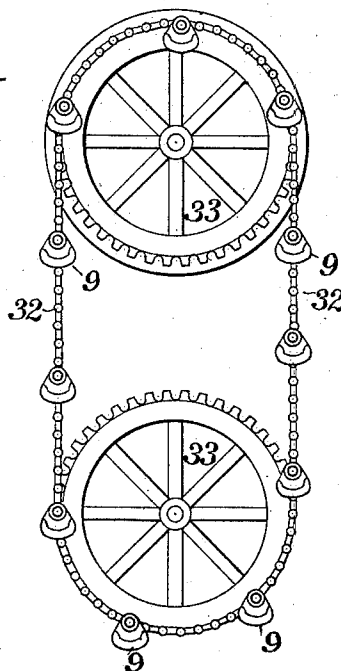


FIG. 7.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR TREATING WIRE.

SPECIFICATION forming part of Letters Patent No. 465,700, dated December 22, 1891.

Application filed March 2, 1891. Serial No. 383,334. (No model.)

To all whom it may concern:

Be it known that we, WILL L. HAYES and JOHN H. KONIG, 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 Apparatus for Treating Wire, &c., of which the following is a specification.

The invention described herein relates to certain improvements in apparatus for pickling, cleaning, and coating wire, &c., and has for its object a construction of apparatus whereby the wire or wire rods in coils can be automatically placed in the first bath, moved therethrough, and then transferred to next or cleaning bath, and so through the entire series of baths.

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

In the accompanying drawings, forming a part of this specification, Figure 1 is a view in side elevation of our improved apparatus. Fig. 2 is a plan view of the same. Fig. 3 is an end elevation thereof. Figs. 4, 6, and 7 are side elevations of modifications of the lifting mechanism, and Fig. 5 is an end elevation of the mechanism shown in Fig. 4.

In the practice of our invention two, three, or more vats 1 1^a 1^b, dependent upon the manner in which the wire is to be treated, are arranged in a row, as shown in Fig. 1. At the front and rear ends of the first and last vats and intermediate of the other vats are uprights 2 2^a 2^b 2^c, provided with bearings on their upper ends for the shafts of the lifters 3, 3^a, 3^b, and 3^c, which may be made in the form of gear-wheels, as shown in Figs. 1, 2, and 3, arms moving in an ellipsoidal path, as shown in Figs. 4 and 5, a spider or frame, as shown in Fig. 6, or an endless chain passing around sprocket-wheels, as shown in Fig. 7. As shown in Figs. 1, 2, and 3, these gear-wheels intermesh with pinions 4 on counter-shafts 5, which are provided on their outer ends with beveled pinions 6, arranged to intermesh with corresponding pinions 7 on the power-shaft 8. Pockets 9 are pivoted at suitable intervals around the inner perimeters of the gear-wheels, said pockets having their free ends so weighted as to always remain in a vertical or operative position.

In using the apparatus a series of coils or bundles of wire are arranged alongside of each and a bar 10 is passed through them, the ends of the bar engaging or being secured in links 11, depending from a shaft 12. The shaft being connected, as described, to the wire bundles, the latter are carried by a truck or other suitable means until the ends of the shaft 12 are in the path of the pockets 9 on the gear-wheels or lifters 3, which, as shown in Figs. 1 and 2, are placed on opposite sides of the vat and in such relation to the front end of the vat that a vertical plane passing through the axes of the pockets 9 will, during a portion of the rotation of the lifters, pass outside of the front end of the vat and during another portion of such rotation will enter the vat. As the gear-wheels or lifters rotate two corresponding pockets will engage the ends of the shaft 12 and carry it and the bundles depending therefrom up and backwardly, finally depositing the flanged wheels 13, mounted on the shaft 12, upon the rails 14. These rails 14 are supported on brackets 15, secured to the sides of and extend the entire length of the vat, as shown in Figs. 2 and 3, said vat being made of such a depth that when the wheels 13 rest upon the rails the bundles will hang clear of the bottom of the vat, as shown in Fig. 1. The bundles are moved along through the vat by means of endless chains 16, provided with dogs 17, arranged to engage the shaft outside of the wheels 13, as shown in Figs. 1 and 2. These chains pass around sprocket-wheels 18, arranged at opposite ends of the line of vats, and the upper portions of the chains between the sprocket-wheels pass along channel-irons 19, supported, as shown in Fig. 3, by the brackets, thereby prevent such portions of the chain from swaying down, so as to permit of the dogs passing under the shafts 12. On the shaft of the sprocket-wheels at the front end of the line of vats is secured a gear-wheel 20, intermeshing with a pinion 21 on the counter-shaft 22, which has on its outer end a beveled pinion 23, intermeshing with a correspondingly-shaped pinion 24 on the power-shaft 8.

In order to disengage the shafts 12 from the dogs 17 when the bundles arrive at the rear end of the vat, a suitable tripping device, as inclines 25, is secured to the edges

of the vat, as shown in Fig. 2. As the shaft 12, with the depending bundles, approaches the rear end of the vat the shaft will ride up the inclines, and, being raised a sufficient height to permit of the passage of the dogs under them, will rest upon the level top portions of the inclines until the ends of the shaft are engaged by the pockets of the lifter 3^a. This lifter 3^a raises the bundles of coils from the vat 1 and transfers them to the vat 1^a, the wheels 13 being placed upon the rails 14^a. The shaft, with the depending bundles, is carried along the vat 1^a by the dogs 17 on the chains 16. As the shaft approaches the rear end of the vat 1 it is raised above the level of the dogs 17 by the trip-inclines 25^a, when it is caught by the pockets of the lifter 3^b and transferred in the manner herein described to and through the vat 1^b. The lifter 3^c at the rear end of the vat 1^b removes the bundles from said vat and deposits them on a truck.

It will be readily understood by those skilled in the art that any number of vats and the appliances for depositing the bundles in the vat, moving them through the same, and then transferring them to another vat or truck may be employed.

In lieu of constructing the lifters in the form of gear-wheels, as shown in Figs. 1, 2, and 3, pockets 9 may be pivoted to pitman 26, connected to rotating crank-arms 27 and provided with studs 28, entering elliptical grooves 29, formed in plates 30, as shown in Figs. 4 and 5. These plates are arranged in the position as regards the vats as the gear-wheels, shown in Figs. 1, 2, and 3.

In Fig. 6 is shown a frame 31, provided with a series of radial arms having pockets 9 pivoted to their outer ends, and in Fig. 7 is shown an endless chain or belt 32, passing around sprocket-wheels 33 and having a series of pockets pivoted thereto. These and other constructions which will readily suggest themselves to the skilled mechanic may be employed as lifters in lieu of the gear-wheels shown in Figs. 1 and 2.

We claim herein as our invention—

1. In an apparatus for treating wire, &c., the combination of a treating-vat, a rotating lifter adapted to receive a bundle of wire on the side thereof remote from the vat, transfer it to the opposite side, and deposit it in the vat, mechanism for moving the bundle along the vat, and a second independent lifter for raising the bundle from and depositing it at a point outside of such vat, substantially as set forth.

2. In an apparatus for treating wire, &c., the combination of a vat, a shaft provided with means for attaching a bundle of wire or other articles thereto, a series of movable pockets constructed to engage the shaft at a point beyond one end of the vat and deposit it on and transverse of the vat, traveling dogs for shifting the shaft along the vat, and a second series of movable pockets for en-

gaging the shaft and depositing it beyond the opposite end of the vat, substantially as set forth.

3. In an apparatus for treating wire, &c., the combination of a vat, a shaft provided with means for attaching a bundle of wire thereto, a series of movable pockets adapted to engage the shaft at a point beyond one end of the vat and deposit it on the vat and transverse thereof, traveling dogs for shifting the shaft along the vat, a trip independent of the pockets for disengaging the shaft from the dogs, and a second series of movable pockets for engaging the shaft and depositing it at a point beyond the opposite end of the vat, substantially as set forth.

4. In an apparatus for treating wire, &c., the combination of a vat, rails arranged along-side of the vat, a shaft provided with means for attaching a bundle of wire thereto and having bearing-wheels secured thereon, a series of movable pockets adapted to engage the shaft at a point beyond one end of the vat and deposit it on the vat with the wheels riding on the rails, chains movable from end to end of the vat and provided with dogs for engaging the shaft, and a second series of pockets movable from a point over the vat to a point beyond the opposite end thereof, substantially as set forth.

5. In an apparatus for treating wire, &c., the combination of a vat, a shaft provided with means for attaching a bundle of wire thereto, a pair of rotating wheels at one end of the vat, pockets pivoted thereto and adapted to engage the ends of the shaft, means for shifting the shaft along the vat, and a pair of wheels at the opposite end of the vat, having pockets pivoted thereto and adapted to engage the ends of the shaft, substantially as set forth.

6. In an apparatus for treating wire, &c., the combination of a vat, a shaft provided with means for attaching a bundle of wire thereto, a pair of wheels at one end of the vat, pockets pivoted thereto and adapted to engage the shaft and deposit it transverse of the vat, and a second pair of similarly-constructed wheels arranged at the opposite end of the vat for removing the shaft therefrom, substantially as set forth.

7. In an apparatus for treating wire, &c., the combination of a series of two or more vats, a rotating lifter adapted to receive a bundle of wire on the side remote from the vat, transfer it to the opposite side, and deposit it in the front end of one of the vats, mechanism for moving the bundle along the vat, a lifter arranged between the adjacent ends of two vats and adapted to transfer the bundle from the rear end of the first vat to the front end of the second vat, mechanism for moving the bundle along the second vat, and a lifter arranged at the rear end of the second vat and adapted to remove the bundle therefrom, substantially as set forth.

8. In an apparatus for treating wire, &c.,

the combination of a series of two or more vats, a shaft provided with means for attaching a bundle of wires thereto, movable pockets for engaging the shaft and placing it transversely of the first vat, traveling dogs for moving the shaft along the vat, movable pockets for transferring the shaft to the next vat, traveling dogs for moving the shaft along said second vat, and movable pockets for transferring the shaft from the vat, substantially as set forth.

In testimony whereof we have hereunto set our hands.

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JNO. H. KONIG.

Witnesses:

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WILL C. MARTIN.