

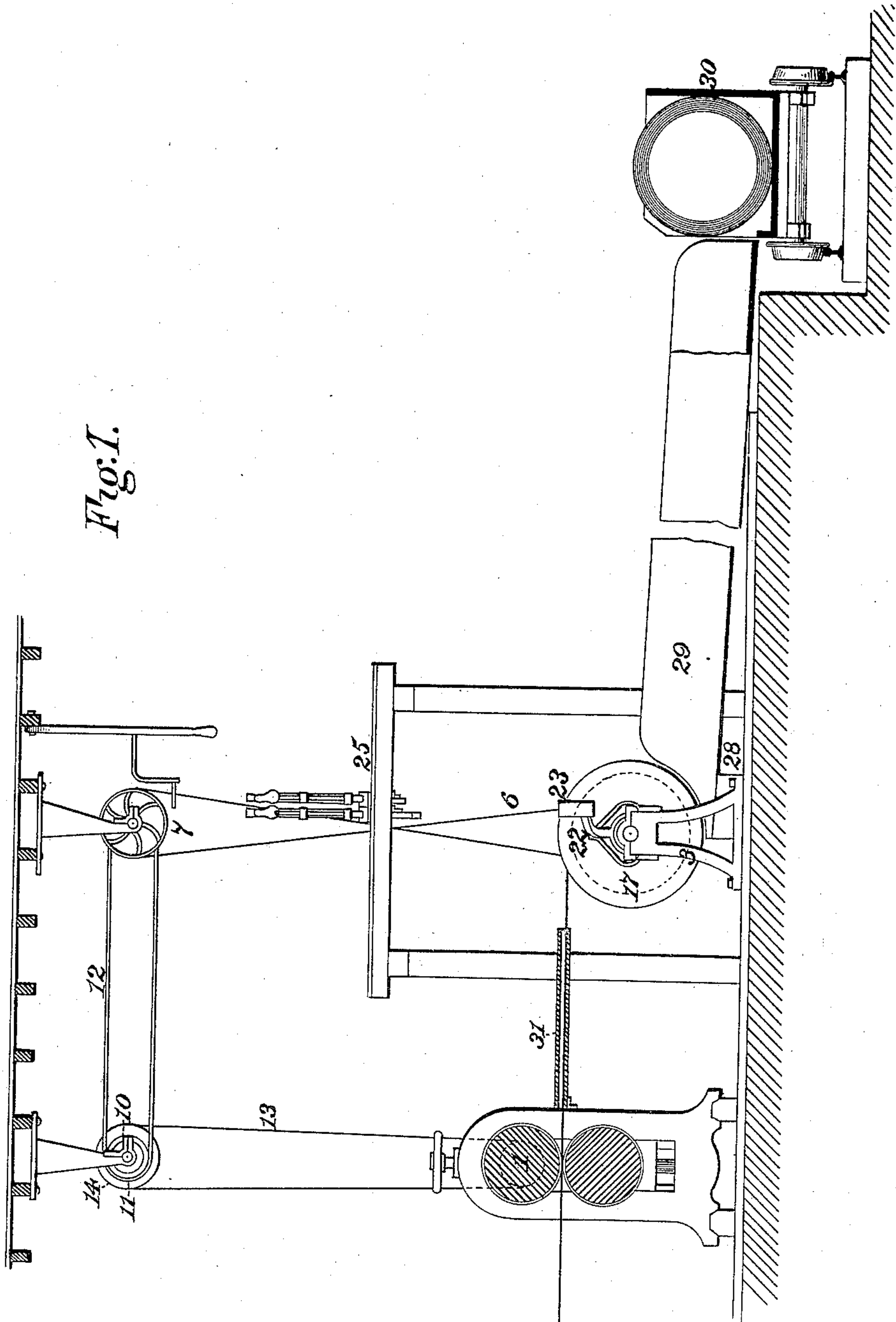
(No Model.)

2 Sheets—Sheet 1.

W. GARRETT.  
REEL FOR WIRE RODS.

No. 396,925.

Patented Jan. 29, 1889.



WITNESSES:

E. Merrill.  
F. E. Gaither.

INVENTOR,

William Garrett  
by Darwin S. Wolcott  
Att'y.

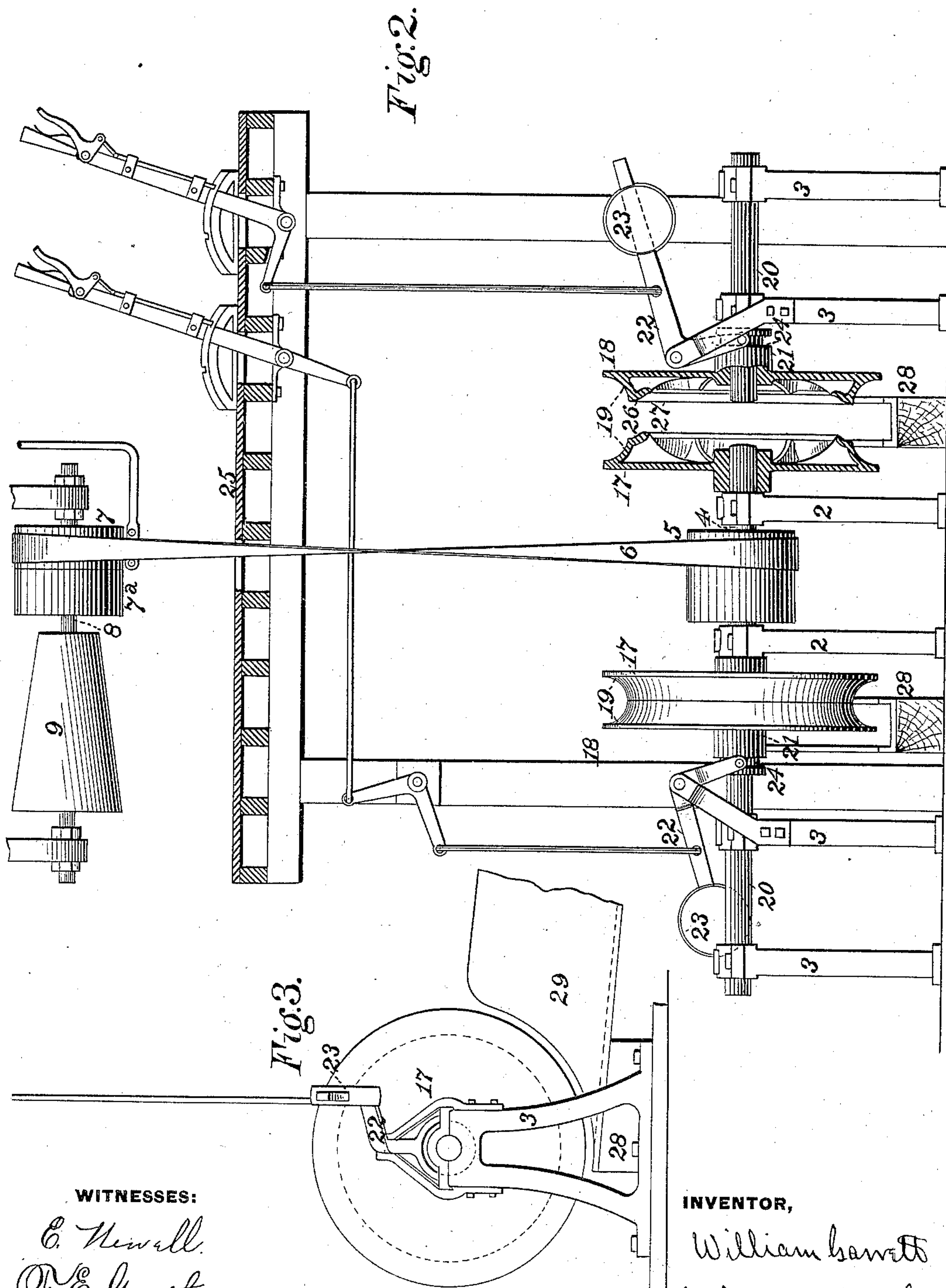
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*C. Newell.*  
*F. E. Gaither.*

INVENTOR,

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# UNITED STATES PATENT OFFICE.

WILLIAM GARRETT, OF JOLIET, ILLINOIS.

## REEL FOR WIRE RODS.

SPECIFICATION forming part of Letters Patent No. 396,925, dated January 29, 1889.

Application filed June 25, 1888. Serial No. 278,115. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM GARRETT, a citizen of the United States, residing at Joliet, in the county of Will and State of Illinois, have invented or discovered a certain new and useful Improvement in Reels for Wire-Rod Mills, of which improvement the following is a specification.

In reducing four-inch blooms to No. 4 wire rods the bloom, which prior to entering the first pass of the billet-rolls was approximately two feet long and four inches square, is by each succeeding pair of rolls reduced in transverse section and elongated until as it emerges from between the last pair of rolls of the rod-train in the form of wire rod it has been reduced to about one-quarter of an inch in diameter and has been elongated to about eight hundred feet. In order to provide for this progressively-increasing length, each succeeding train or pair of rolls must be driven at a proportionately higher speed, the peripheral speed of the last pair of rolls being between six or seven hundred feet a minute. Suitable reels driven at a high speed are provided for winding up and coiling these rods as they come from the last pair of rolls. These reels are located in front of and at a considerable distance from the last pair of rolls, and as the front end of the rod comes from the rolls and slides along the mill-floor toward the reels it is caught by a catcher and quickly bent around one of the fingers of the reel, which is then started and the length of rod quickly wound thereon. The reel is then stopped, the bundle of rod removed, the end of another length of rod attached, and the reel again started. As the operation of catching the front end of the rod and connecting it to the reel requires time even with an expert workman, the rod which is being rapidly fed out of the last pair of rolls must be prevented from becoming tangled and kinked during this short lapse of time. A boy provided with a hook is therefore stationed at the reels for the purpose of guiding the rapidly-moving rod and disposing the same in loops over the floor in such manner that it may be drawn onto the reels without becoming tangled or kinked; and, further, such delays frequently occur in removing a bundle of rod from the

reel that when the mill is being rapidly worked an entire length of rod is spread or looped out upon the floor before any of the reels are ready for use, although two or more may form a part of the plant.

The object of the invention herein is to provide such a construction and arrangement of reels as to dispense with the delays incident to the catching and attaching of the ends of the rods to the reels and to the discharging the bundles from the reels, thereby avoiding the necessity of spreading or looping out the rods upon the floors and rendering the operation of the entire plant more nearly automatic.

To these ends the invention consists, in general terms, in the construction and combination of devices, all as more fully hereinafter described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a view showing part of the rod-train in section and the reeling apparatus in elevation. Fig. 2 is a view in front elevation of the reeling apparatus, one of the reels being shown in section; and Fig. 3 is an end elevation of the reeling apparatus.

In the practice of my invention I arrange at a suitable distance—forty feet, more or less—in front of the last pair of rolls, 1, of the rod-train suitable bearings, 2 and 3, and in the bearings or journals 2, I mount the shaft 4, having the pulley 5 secured thereon midway between the bearings. A belt, 6, is passed around the pulley 5 and a pulley, 7, on the counter-shaft 8, on which is also secured a cone-pulley, 9. A similarly-shaped but oppositely-arranged pulley, 10, is secured to a second counter-shaft, 11, a belt, 12, being passed around said cone-pulleys. This second counter-shaft, 11, is driven by a belt, 13, passing around the pulley 14, keyed thereon, and a pulley secured on the driving-shaft of the rod-train. A belt-shifting mechanism is employed for shifting the belt 12 along the cone-pulleys in order to adjust the speed of the reels in accordance with the speed of the rolls 1, it being desirable that the peripheral speed of the reels should be equal to the peripheral speed of the rolls 1.

While preferring to employ an arrange-



ment of driving mechanism wherein the pulley 5, its shaft 4, and the parts operated thereby are rotated continuously, as in the mechanism above described, it may be desirable at times to stop and start said pulley, shaft, and their connected mechanism. I therefore arrange a loose pulley, 7<sup>a</sup>, alongside of the pulley 7 and provide suitable mechanism for shifting the belt 6 from the fast to the loose pulley, and vice versa.

On each end of the shaft 4 is secured one-half of the reels, each of which consists of two parts or disks, 17 and 18, preferably formed with grooves 19 cut in their contiguous edges, thereby forming a grooved or flanged wheel or drum when the disks are placed together, as shown at the left of Fig. 2, the flanges around the outer edges of the disks serving as guides or retainers to prevent any lateral displacement of the wire rod during the winding or reeling operation. The parts 18 of the two reels are mounted on the inner ends of the shafts 20, journaled in the bearings 3, arranged in line with the bearings 2 of the shaft 4. The parts or disks 18 are provided with comparatively long hubs 21 on their rear sides, so as to form long bearings on the shafts 20, on which they are so mounted as to permit of their being shifted along it toward and from the disks 17. This longitudinal movement of the disks along the shafts is effected by means of the bell-crank levers 22, having one of their ends forked for the purpose of engaging a groove, 24, on opposite sides of the hubs 21. (See Fig. 1.) The opposite ends of the bell-cranks are connected to operating-handles, preferably extending up to a platform, 25, above the reels, in order to remove the operator out of all danger, and to permit him to have a clear view of the reels and the rods as they emerge from the rolls. By a suitable arrangement of levers and connecting-rods I provide for the operation of both of the longitudinal adjustable disks and the mechanism for shifting the belt 6 from one point on the platform. The movements of the disks 18 toward the disks 17 are facilitated by weights 23, adjustably attached to one arm of each of the bell-cranks 22. A suitable arrangement of springs may be employed in lieu of the weights.

On the inner faces of the disks 17 and near their peripheries I prefer to form grooves 26, corresponding projections or rings, 27, being formed on the inner faces of the disks 18, said grooves and projections serving as clamping-jaws to grasp and hold the rod at the beginning of and during the winding of the rods upon the reels, as will more fully hereinafter appear, and also to bridge over the space between the inner faces of the disk when a rod has been grasped between them, and thereby prevent any of the coils from being forced into said space. Below the reels are located blocks or supports 28, adapted to receive the bundles of rods when freed from the reels, and from the rear side of the reels extend troughs

29, along which the bundles roll to a car, 30, whereby the bundles are removed out of the way. Between the rolls 1 and the reels is arranged an adjustable trough or tube, 31, for guiding the rods first to one reel and then to the other, or two troughs or tubes may be employed.

As the front end of the rod passes between the disks 17 and 18 of one of the reels, said disks being separated for that purpose, the operating-handle is shifted, thereby moving the two disks together and clamping the rod between them, a short kink being formed in the rod by the groove 26 and projection 27. As the disk 17 rotates continuously, a corresponding motion will be imparted to the disk 18 as soon as the two disks are brought together, and the rod will be wound upon the reel thus formed by the two disks. After an entire length of rod has been wound upon the reel the disk 18 is pulled away from the disk 17, thereby releasing the bundle and permitting it to drop down onto the supporting-block. The high impetus imparted to the bundles by the disks will cause said bundles to roll along the delivery-troughs to the cars, thereby leaving the reels clear for operation on the next or any subsequent rod.

It will be seen from the above that no delay occurs in the use of the above-described apparatus in guiding the ends of the rods to the reels and connecting them thereto, as the trough or tube guides the rod to and between the disks, which are immediately closed thereupon, and as the peripheral speed of the reels is equal to that of the rolls the rod, as soon as caught, will be wound up as fast as delivered by the rolls 1. As the clamping-grooves and projections or rims when used extend entirely around the inner faces of the disks, it is immaterial at what point between them the rod is fed, nor is it material whether the rod is caught at or near the end or at a point twenty or thirty feet distant therefrom, as the protruding end will be wrapped around the reel.

As the construction of reel described relieves itself, and, as it is were, throws the bundles away from it, only one reel would be absolutely necessary in the usual construction or form of wire-rod plant; but to avoid all liability of delay through unforeseen accidents I prefer to use two or more, as shown.

As shown, the handles for operating the movable disks 18 are provided with teeth or other suitable device whereby the disks 18 may be held away from the disks 17 when desired.

I claim herein as my invention—

1. In an apparatus for reeling wire rods, the combination of two disks mounted in independent shafts, one of said disks being movable toward or from the other for the purpose of discharging the coil of long rod therefrom, substantially as set forth.

2. In an apparatus for reeling wire rods, the combination of two disks mounted upon inde-



pendent shafts, one of said disks being movable toward or from the other, and flanges or other retaining devices on the outer edges of the disks to prevent lateral displacement of the wire rod, substantially as set forth.

3. In an apparatus for reeling wire rods, the combination of two disks mounted on independent shafts, one of said disks being movable toward and from the other, whereby the rod may be grasped between said disks at the beginning of the reeling operation and the bundle automatically discharged therefrom, substantially as set forth.

4. In a reeling apparatus, the combination of a continuously-rotating disk and a loosely-mounted disk movable toward and from the rotating disk, said disks having their contiguous faces constructed, as regards their peripheral edges, to receive and hold a length of wire rod, substantially as set forth.

5. In a reeling apparatus, the combination of a continuously-rotating disk and a loosely-mounted disk movable toward and from the rotating disk, said disks having their contiguous faces constructed, as regards their peripheral edges, to receive and hold a length of wire rod, and provided with jaws or other de-

vices for grasping the rod, substantially as set forth.

6. In an apparatus for reeling wire rods, the combination of two disks separable from each other for the purpose of discharging a bundle of rod wrapped around the peripheries of said disks, and a trough for receiving such bundle and conducting the same away from the disks, substantially as set forth.

7. In an apparatus for reeling wire rods, the combination of two disks, one of which is movable toward and away from the other, said disks being provided on the inner faces with a groove and projection, respectively, substantially as set forth.

8. The combination of the delivery-rolls of a rod-train, a pair of separable disks forming a reel, a guide for conducting the rod from the rolls to said disks, and a trough for receiving and conducting away a bundle of rod from the reel, substantially as set forth.

In testimony whereof I have hereunto set my hand.

WILLIAM GARRETT.

Witnesses:

CHARLES PETTIGREW,  
F. S. PACKARD.