

(No Model.)

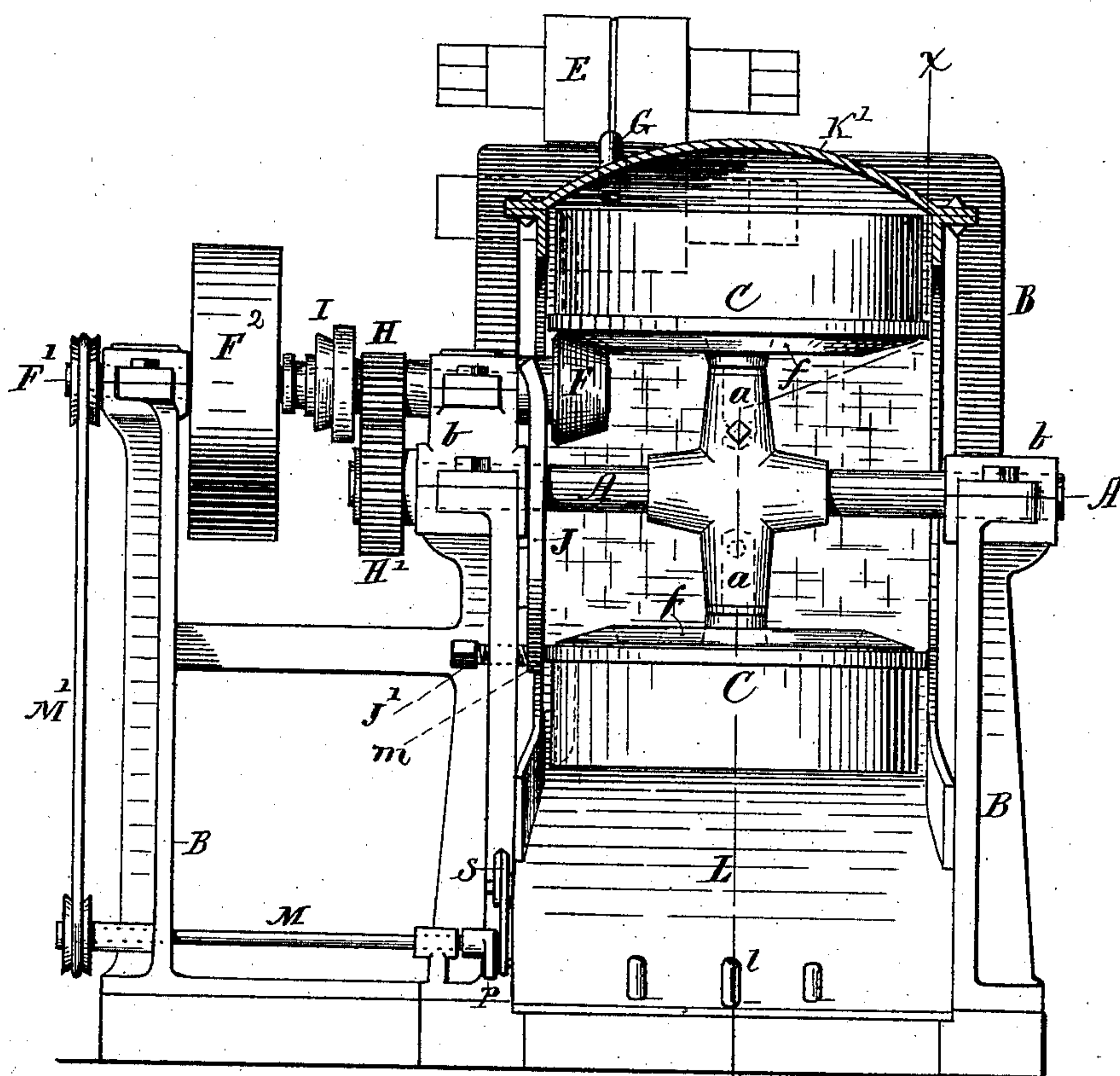
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REELING APPARATUS FOR WIRE RODS.

No. 379,104.

Patented Mar. 6, 1888.



— FIG. 1 X

Witnesses.

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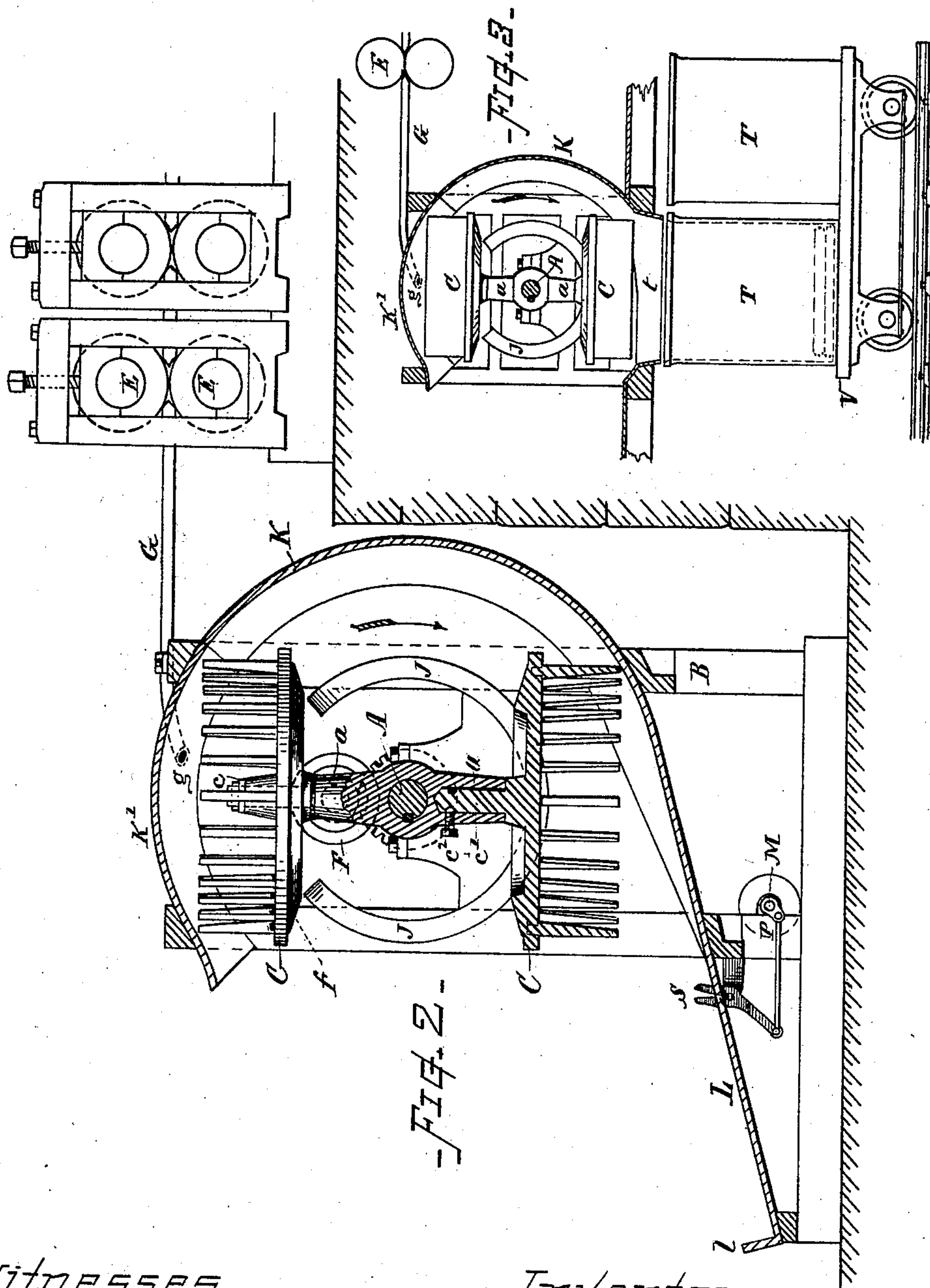
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# UNITED STATES PATENT OFFICE.

FRED H. DANIELS, OF WORCESTER, MASSACHUSETTS.

## REELING APPARATUS FOR WIRE RODS.

SPECIFICATION forming part of Letters Patent No. 379,104, dated March 6, 1888.

Application filed August 13, 1887. Serial No. 246,867. (No model.)

*To all whom it may concern:*

Be it known that I, FRED H. DANIELS, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Reeling Apparatus for Reeling Wire Rods and for Similar Purposes, of which the following, together with the accompanying drawings, is a specification sufficiently full, clear, and exact to enable persons skilled in the art to which this invention appertains to make and use the same.

The object of my present invention is to provide for use in connection with wire-rod-rolling mills, and for similar purposes, a reeling or coiling apparatus, wherein the coil-receptacle or reel-head is arranged so as to be tilted or inverted for effecting or facilitating the discharge therefrom of the coiled rod or product.

A further object is to provide a reeling apparatus having a plurality of reels or coil-receptacles movable or revoluble about a center or axis, and adapted to be alternately brought into position for respectively receiving a coil of rod, and then tilted or inverted for effecting the discharge of the coil therefrom.

A further object of my invention is to provide, in combination with the reels or coiling-receptacles adapted to be inverted, a guard or director for confining the coil within or upon the reel until it is carried to the desired position for the release of the same.

Other objects of invention are to provide practical and efficient mechanism for starting and stopping the rotation of the respective reels as they are respectively moved into and from position for receiving the rod and also for effecting their inversion, as desired; also, to afford facilities for receiving the coils as they are discharged from the reels or coiling-receptacles, and to provide means for conveniently severing the imperfect ends of the rod preparatory to binding the coils.

These objects I attain by mechanism the nature of which is illustrated in the drawings and explained in the following description, the particular subject-matter claimed being hereinafter definitely specified.

In the drawings, Figure 1 is an elevation view of a reeling apparatus illustrating the nature of my invention. Fig. 2 is a vertical section of the same at line *x x* on Fig. 1; and

Fig. 3 shows, on a smaller scale, a modification of the apparatus adapted for the discharge of the coils of rod directly into annealing-pots or other receiving-vessels.

Referring to parts, A denotes the main support or axle mounted in suitable bearings, *b b*, on the frame B, and provided with radial arms, hubs, or standards *a a*, which carry the reels or coiling-receptacles C C, the latter being in the present instance, and preferably, revoluble thereon. The reels or coil-receptacles may be mounted on the standards *a* in any suitable manner—as, for instance, by making the standard *a* to pass as an axle through a hub, *c*, formed on the reel-plate, as shown at the upper part of Fig. 2, or by providing a spindle, *c'*, on the reel-plate, which enters and turns within a bore or chamber in the standard, where it is retained by a key or screw, *c''*, that enters an annular groove in said spindle, as shown at the lower part of Fig. 2.

The reel-heads or coil-receivers have a circular row of guard-fingers, as in Fig. 2, or a peripheral rim or cylinder, as in Figs. 1 and 3, within which the coil or rod is formed and confined, the rod being received direct from the finishing-rolls of the rolling-mill E through the guide-pipe G, and coiled by rotation of the reel as it is delivered into the receptacle.

F indicates a wheel on the driving-shaft F' for imparting motion to the reel or coil-receptacle. Said wheel F engages, by frictional contact, gear-teeth, or other suitable engaging-surfaces, with a similarly-surfaced wheel or annular rim, *f*, connected with the reel C, so that the motion of the wheel F will be transmitted to the reel C when the latter is in upright position, or at position for receiving the rod.

F<sup>2</sup> indicates the pulley for the driving-belt.

H indicates a pinion loose on shaft F' and meshing with a gear, H', on the axle-shaft A for rotating the same when the clutch I, which connects said pinion H for action with the shaft F', is thrown into engagement. The clutch I may be of any suitable construction and shifted by any suitable mechanism commonly used for such purpose. An automatic stop-clutch may be employed, if desired, so as to stop and hold the reels in coiling position and throw off the tilting-gear when the axle A has made a half-revolution.

J indicates a plate or circle, which serves as



a brake for stopping the rotation of the reels or coil-receptacles when they are moved from an upright position. Said brake is connected with the frame and disposed to bear against the periphery of the reel-plate, as indicated at *m*, Fig. 1. An adjusting screw or device, *J'*, is preferably combined with the plate *J* for regulating the pressure or frictional tension of the surfaces against each other for stopping the reels at an earlier or later position in their tilting action, as desired.

*K* indicates a semicircular guard or director, within which the reels swing when tilted or inverted, and which serve for confining the coil of rod within the coil receptacle *C* while inverting it, and until it has reached the proper position for its release therefrom. The upper end, *K'*, of the guard is preferably extended over the reel and serves as a hood or cover for the reel while the rod is being coiled. The guide-pipe *G* enters through said hood, as indicated at *g*. At its lower end the guard *K* connects with an inclined platform, *L*, onto which the coil of rod is deposited as it drops from the reel or receptacle *C*, and whereon it slides down against a stop, *l*, in convenient position to be taken off by the attendants. Shears *S* are disposed conveniently adjacent to the side of said platform, whereby the rough ends of the rod can be cut off preparatory to binding up the coils. Said shears are operated by a connection and crank, *P*, shaft *M*, and belt *M'* from the reel-driving shaft *F'*, or, if preferred, in other convenient manner whereby equivalent action is effected.

In the present instance I have shown two reels connected with the shaft *A* and rotated by axes perpendicular to the axis of said shaft *A*; but it will be understood that a greater or less number of reels might be employed, in connection with the axis *A*, for inverting in similar manner for coiling and discharging rods automatically.

In the operation of my improved apparatus the rod is delivered by guide *G* into the reel or coil-receptacle, which is in upright position, and coiled by the rotation of said reel. When the coil is completed, the clutch *I* is thrown in, and partial rotation of the shaft or supporting axle *A* is thereby effected, swinging the arms or standards *a* and reels *C* in the direction indicated by the arrow, and reversing the position of the two reels—that is, inverting the reel containing the coil and bringing the empty reel to an upright position for receiving another coil of rod. The reels are thus alternately brought into position for receiving and discharging the coils by partial rotation of the shaft *A*. When the swinging or tilting movement of the reel commences, its surface *f* is relieved from the wheel *F*, and its periphery is brought into contact with the stationary plate or brake *J*, thus stopping the rotary action of the reel. Then as the opposite reel is brought into upright position its periphery is released from the brake-plate *J*, and the surface *f* of its rim is brought into contact or en-

gagement with the driving-wheel *F*, so that rotary action of the second reel is commenced as soon as it arrives at position for receiving the rod. The coil of rod falls from the inverted reel upon the platform *L* and slides down against the stops *l* by its own gravity, where the attendant, seizing the ends of the rod by suitable tongs, passes them between the shears *S* and clips off the rough or imperfect portions, and then, by wrapping the ends around the coil, binds the coil and removes it from the platform *L* to any desired place of deposit.

In lieu of the gears *H H'* for rotating the supporting shaft or axle *A* for tilting or inverting the reels to effect the discharge of the coils, and for bringing the reels into position for receiving the rod, any other suitable or convenient mechanism may be employed for effecting equivalent results.

In some instances it may be desirable, instead of discharging the coils upon a platform, as *L*, to discharge them upon a car, or upon a traveling belt, or into annealing-pots, in which case the apparatus could be made substantially as indicated in Fig. 3, an opening, *t*, being provided beneath the reels, through which the coils fall upon the car or drop into the annealing pots *T*, which are moved under the reel upon a suitable car or truck, *V*; or, when preferred, a traveling belt or apron may be disposed beneath the opening *t* for receiving the coils and transferring them away from the reeling apparatus.

In practice two sets or pairs of reels or coil-receptacles, such as described, would preferably be used for taking care of the product of a single "continuous" rolling-mill, the rods being switched and guided alternately to the respective reels, substantially in the manner now practiced with other kinds of automatic reeling mechanism.

What I claim as of my invention, and desire to secure by Letters Patent, is—

1. In apparatus for reeling wire rods and similar product, the combination, with a supporting-frame, of a reel or coil-receptacle hinged or jointed thereto, so that it may be tilted or inverted to facilitate the discharge of the coiled rod.

2. In apparatus for reeling hot wire rods and similar product, a reel or coil-receptacle, having an axis on which said reel can be tilted or inverted to facilitate the discharge of the coiled rod therefrom, in combination with actuating-gear, whereby tilting action of said reel is effected, for the purpose set forth.

3. In apparatus for reeling wire rods, a reel or coil-receptacle mounted upon a standard, in connection with an axis to swing about said axis for tilting or inverting the position of said receptacle to effect the discharge of the coiled rod therefrom, substantially as described.

4. The combination of a supporting-frame, a reel or coil-receptacle hinged or jointed thereto, so that it may be tilted or inverted to



facilitate the discharge of the coiled rod, and a bed to receive the coil of rod as it is discharged from said receptacle and to conduct it away from the same, substantially as hereinbefore set forth.

5 5. In an apparatus for reeling wire rods, a plurality of reels or coil-receptacles supported in connection with a horizontally-disposed axis, about which said coil-receptacles or reels  
10 are revoluble, in combination with mechanism for revolving the same for tilting or inverting the receptacles to facilitate the discharge of the coiled rod therefrom, and a receiving-bed or inclined platform onto which  
15 the coils are deposited from the reel, substantially as set forth.

6. The combination of the rotatable coil-receptacles mounted upon supporting-standards that are revoluble about a horizontal  
20 axis, and an operating mechanism that engages and imparts rotary movement to said receptacles, respectively, as they are brought into position for receiving and coiling the rod, substantially as hereinbefore set forth.

25 7. The combination, substantially as described, of the main supporting-axle provided with radial standards, the revoluble reels or coil-receptacles carried by said standards, the driving mechanism for imparting rotative action to said receptacles, and a frictional brake  
30 or surface with which the receptacles make contact for stopping their rotation when tilted or inverted, as set forth.

8. The combination of the coil-receptacles,  
35 adapted to be revolved or inverted for dis-

charging the coil of rod therefrom, and a guard adapted for confining the coiled rod therein while the receptacle is passing from one position to another, substantially as and for the purpose set forth.

9. The combination of a reel for automatically coiling wire rods as fast as they are delivered from the rolling-mill, provided with means for inverting or tilting the same for freeing the finished coil of rod from the reeling-receptacle, and a guard or hood that covers the reel while at the position where the coil is being formed, and is also adapted to protect and prevent the coil from dropping out of the receptacle while the reel is being  
40 45 50 inverted, substantially as set forth.

10. An apparatus for reeling hot wire rods, comprising mechanism for coiling the wire rods, means for discharging the finished coil of wire rod from the reel, and shearing devices  
55 for trimming off the ends preparatory to bundling the coil for its final delivery, substantially as set forth.

11. The combination, with reeling apparatus and the coil-receiving bed or platform, of  
60 the operated shears adjacent to said platform, and means for imparting motion thereto, substantially as and for the purpose set forth.

Witness my hand this 10th day of August,  
A. D. 1887.

FRED H. DANIELS.

Witnesses:

CHAS. H. BURLEIGH,  
ELLA P. BLENUS.