

(No Model.)

3 Sheets—Sheet 1.

P. BOYD.
APPARATUS FOR COATING PIPE.

No. 580,760.

Patented Apr. 13, 1897.

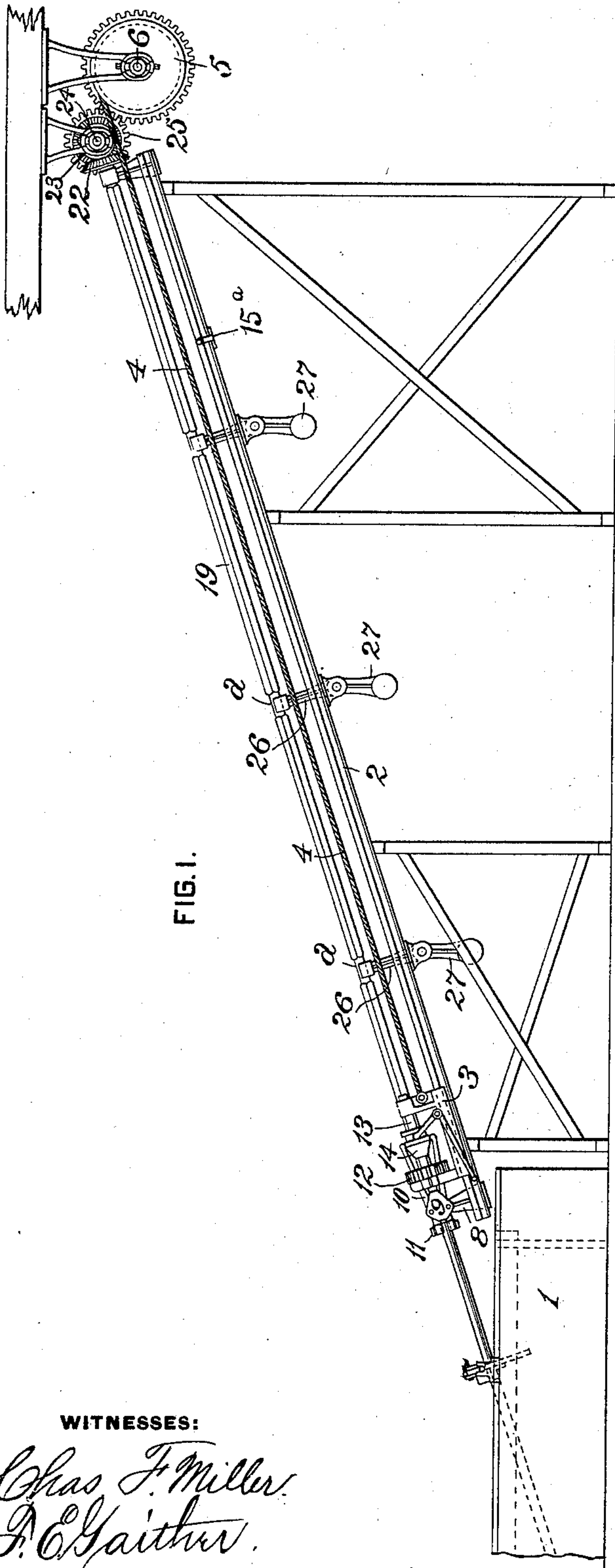


FIG. 1.

WITNESSES:

Chas F. Miller.
J. C. Gaither.

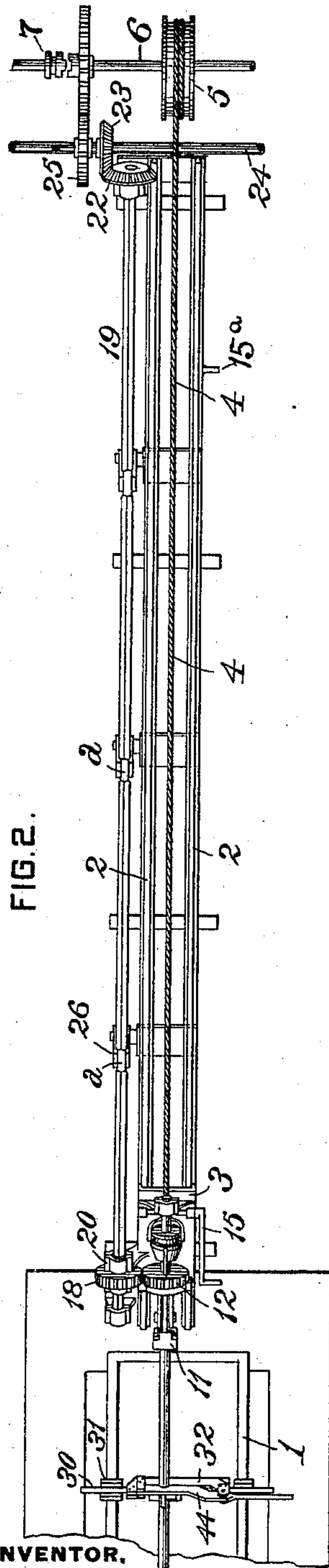


FIG. 2.

INVENTOR.

Peter Boyd
by Danvers S. Wolcott
Att'y.

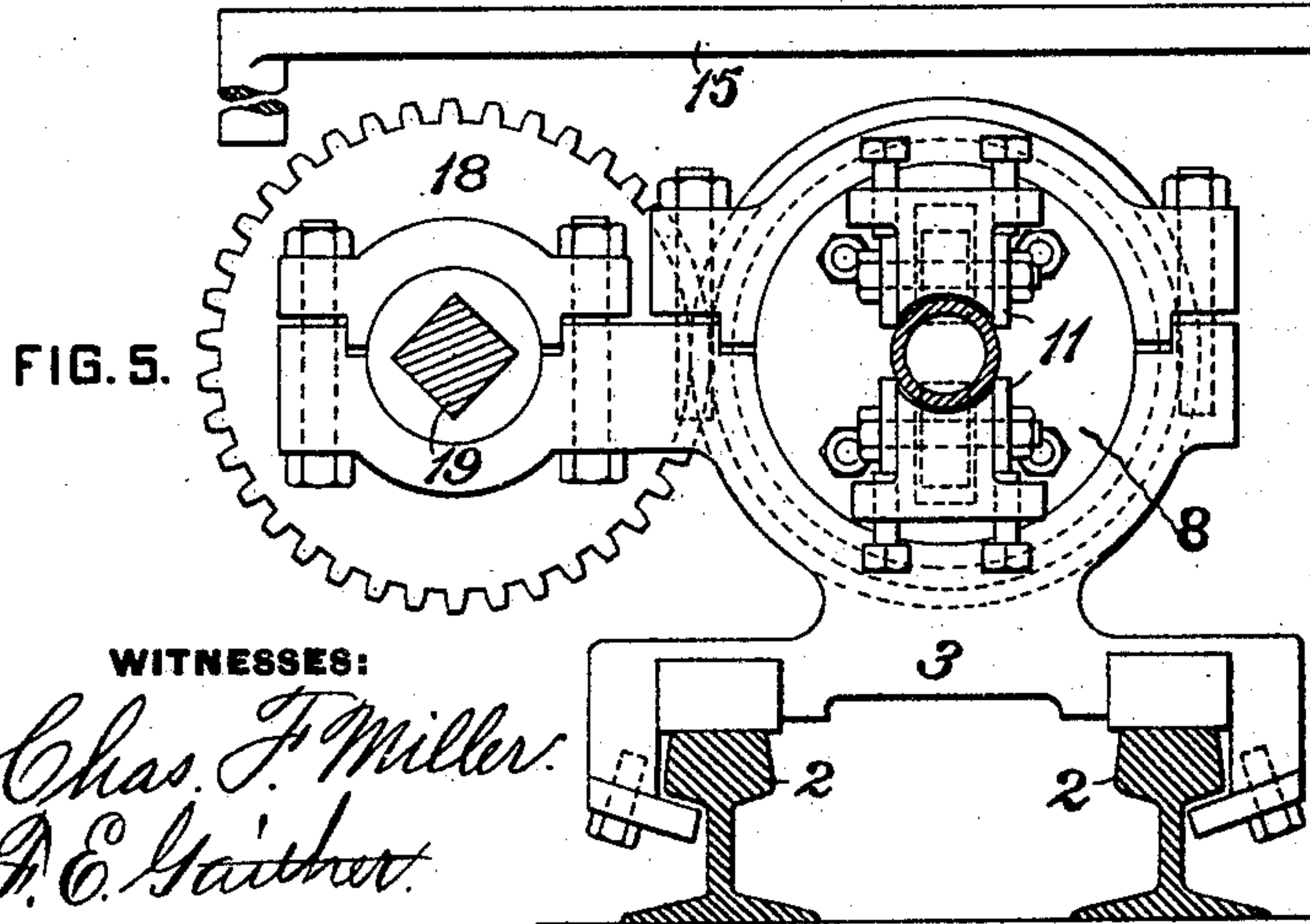
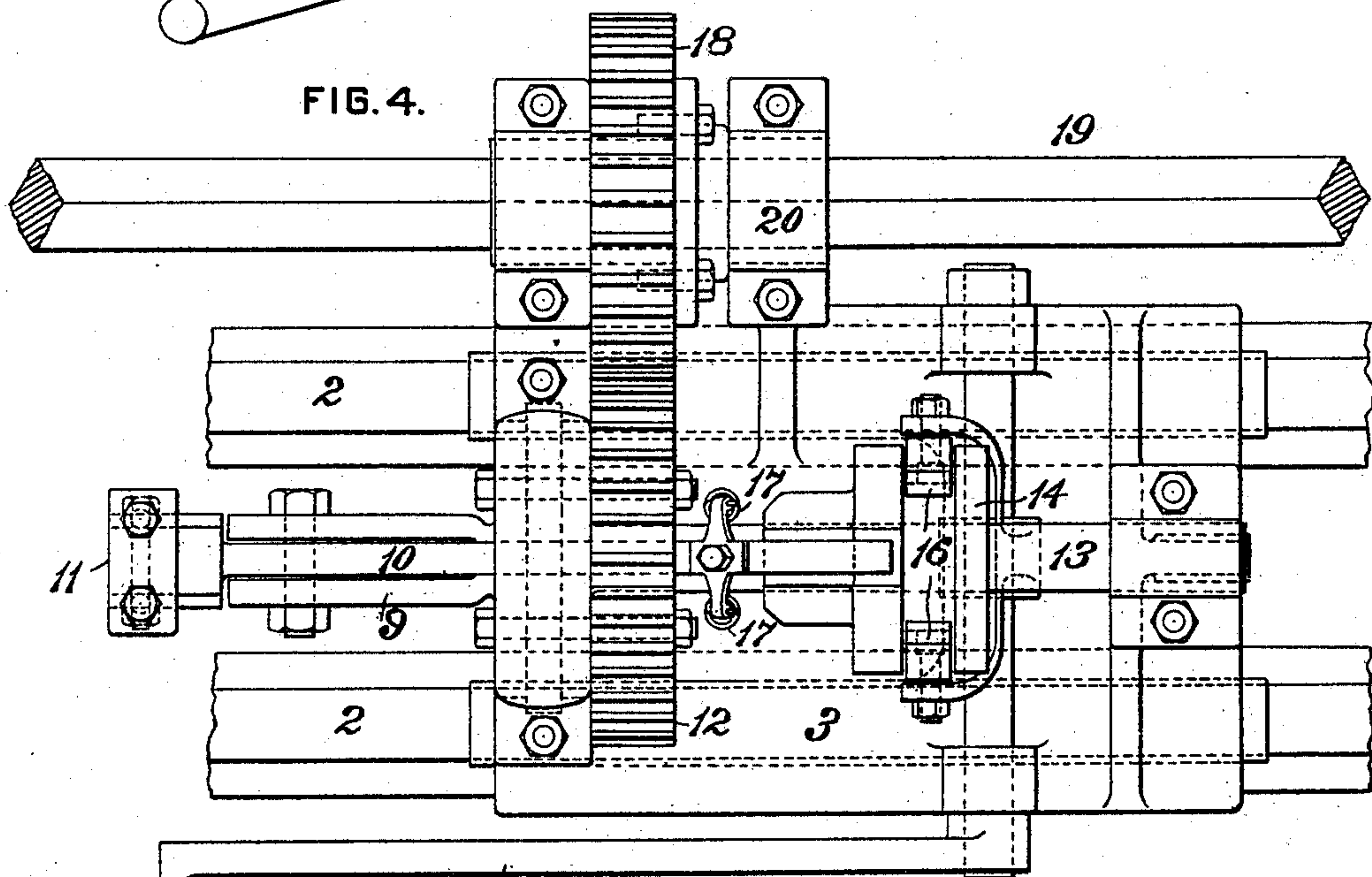
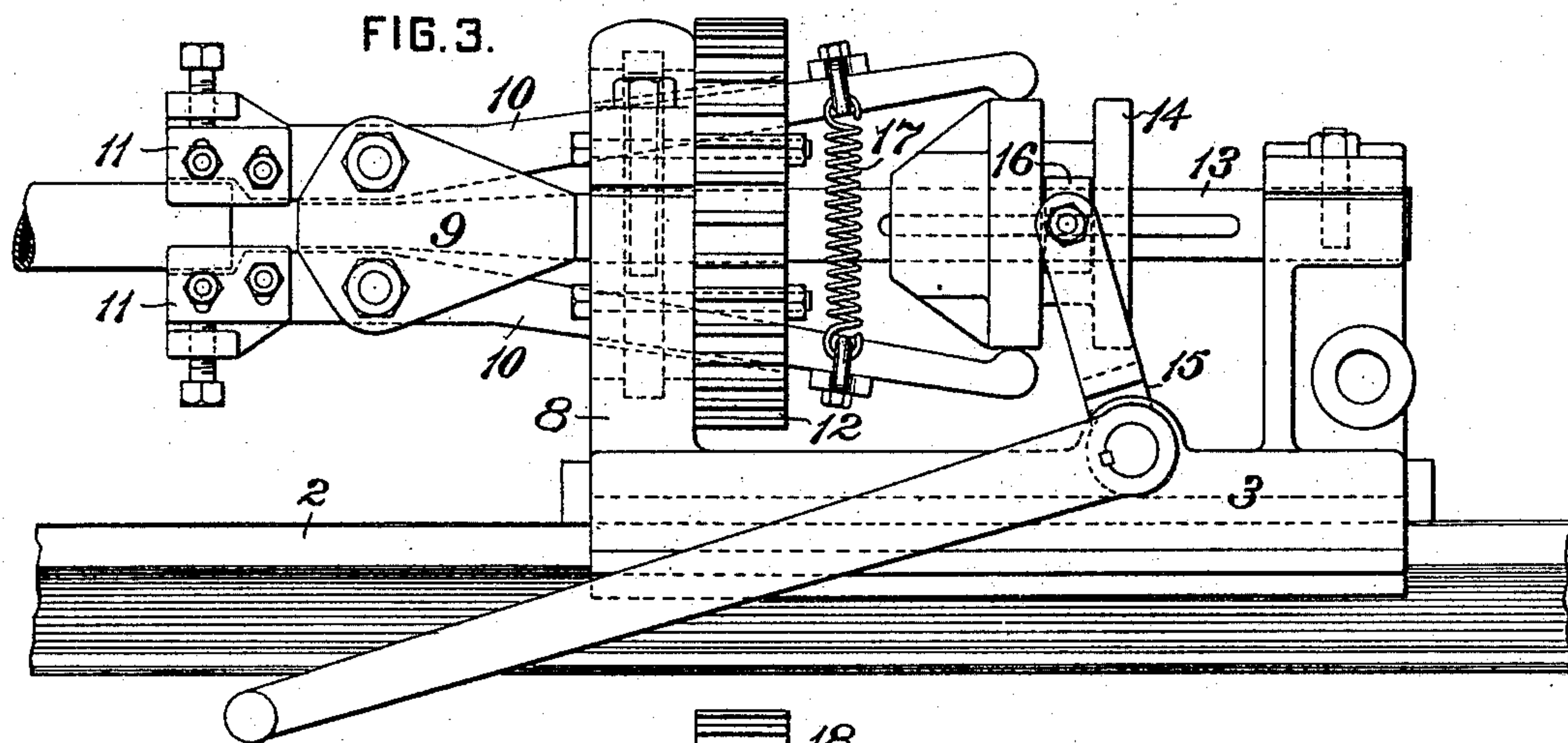
(No Model.)

3 Sheets—Sheet 2.

P. BOYD.
APPARATUS FOR COATING PIPE.

No. 580,760.

Patented Apr. 13, 1897.



WITNESSES:

Chas. F. Miller.
J. E. Gaither.

INVENTOR.

Peter Boyd
by Danin S. Wolcott
Att'y.

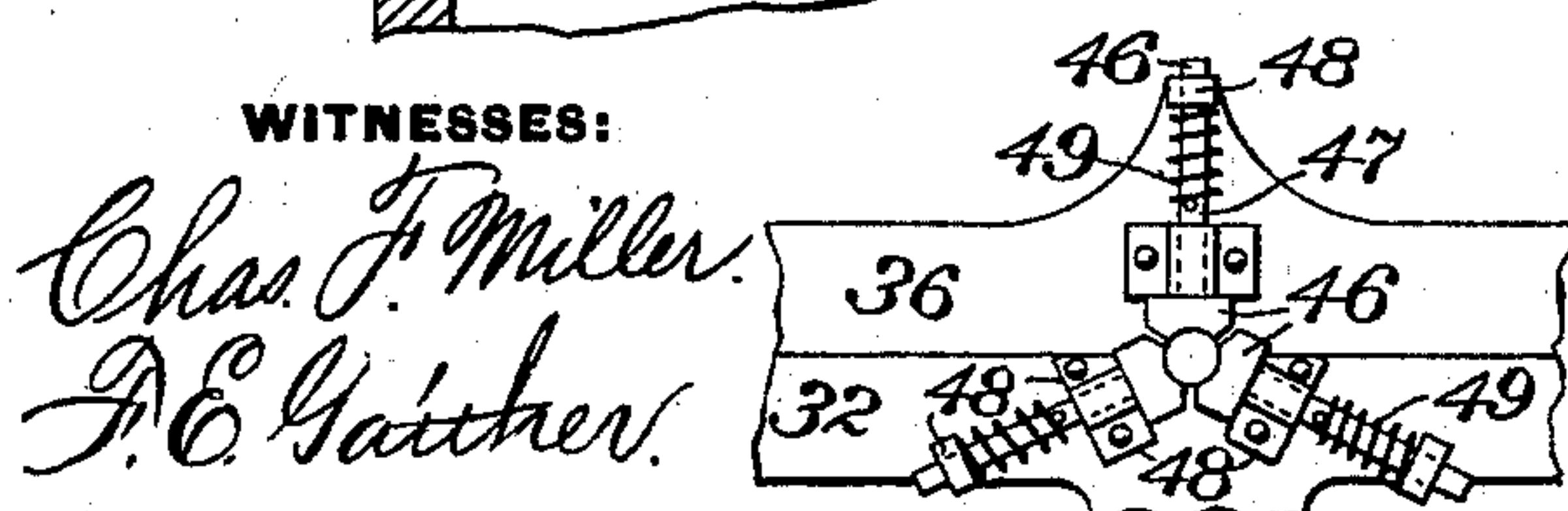
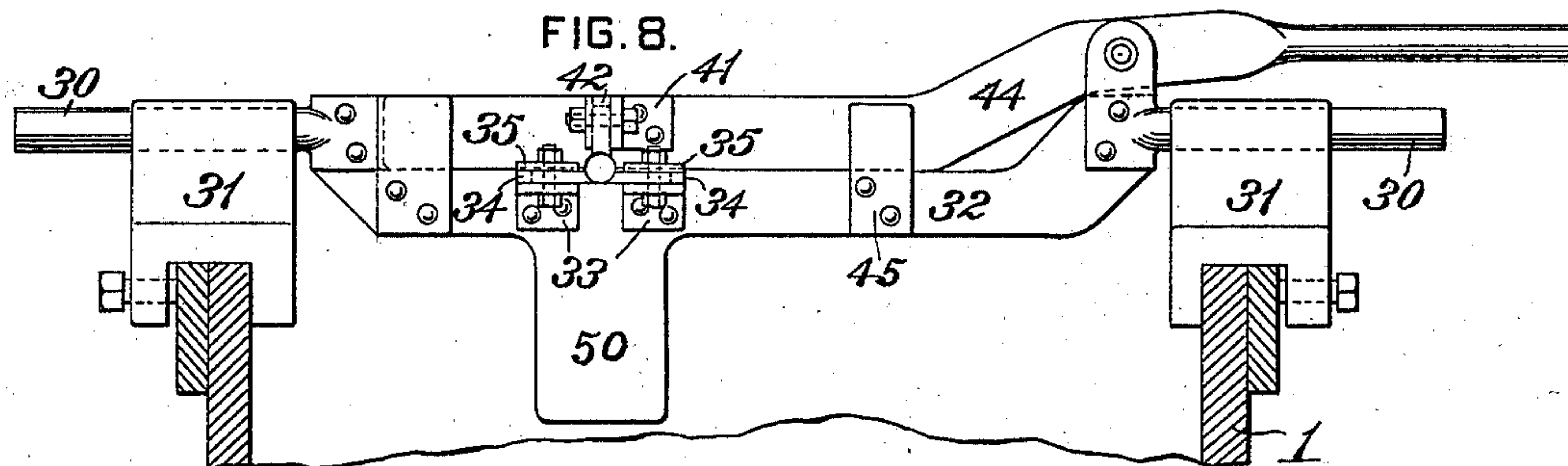
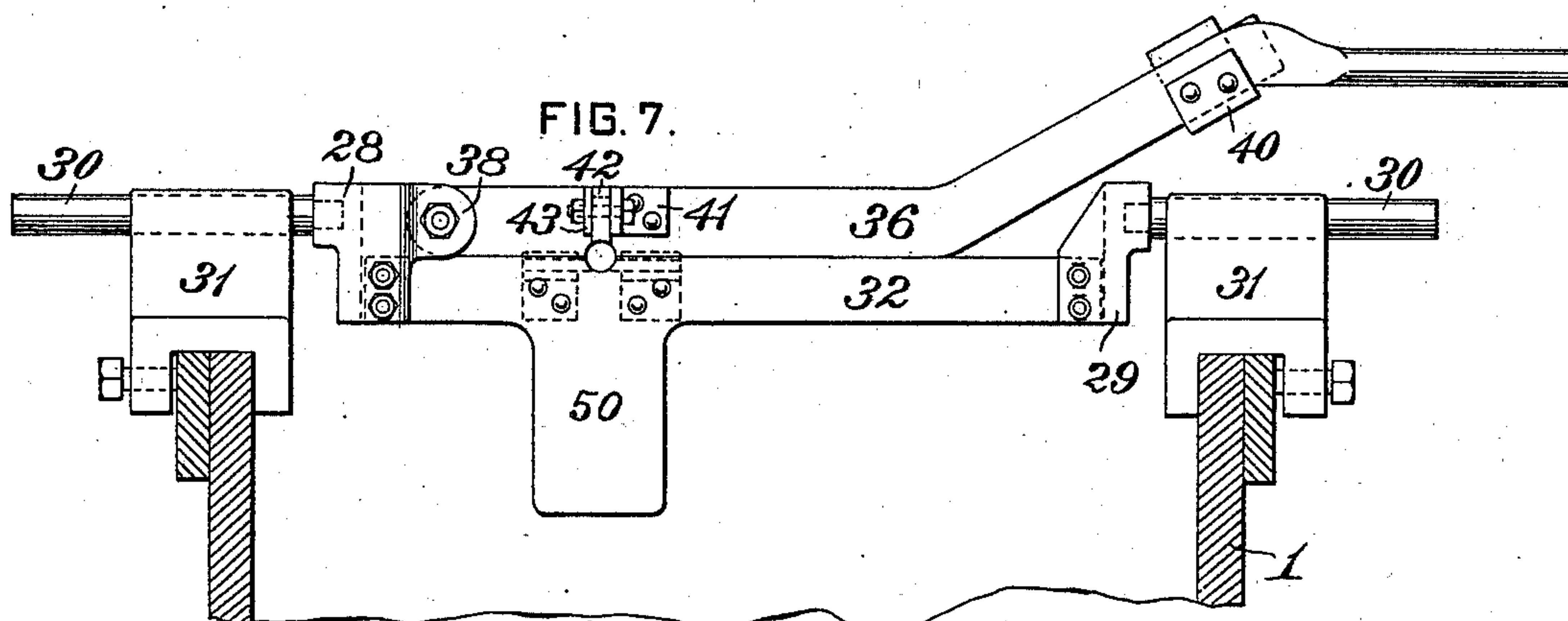
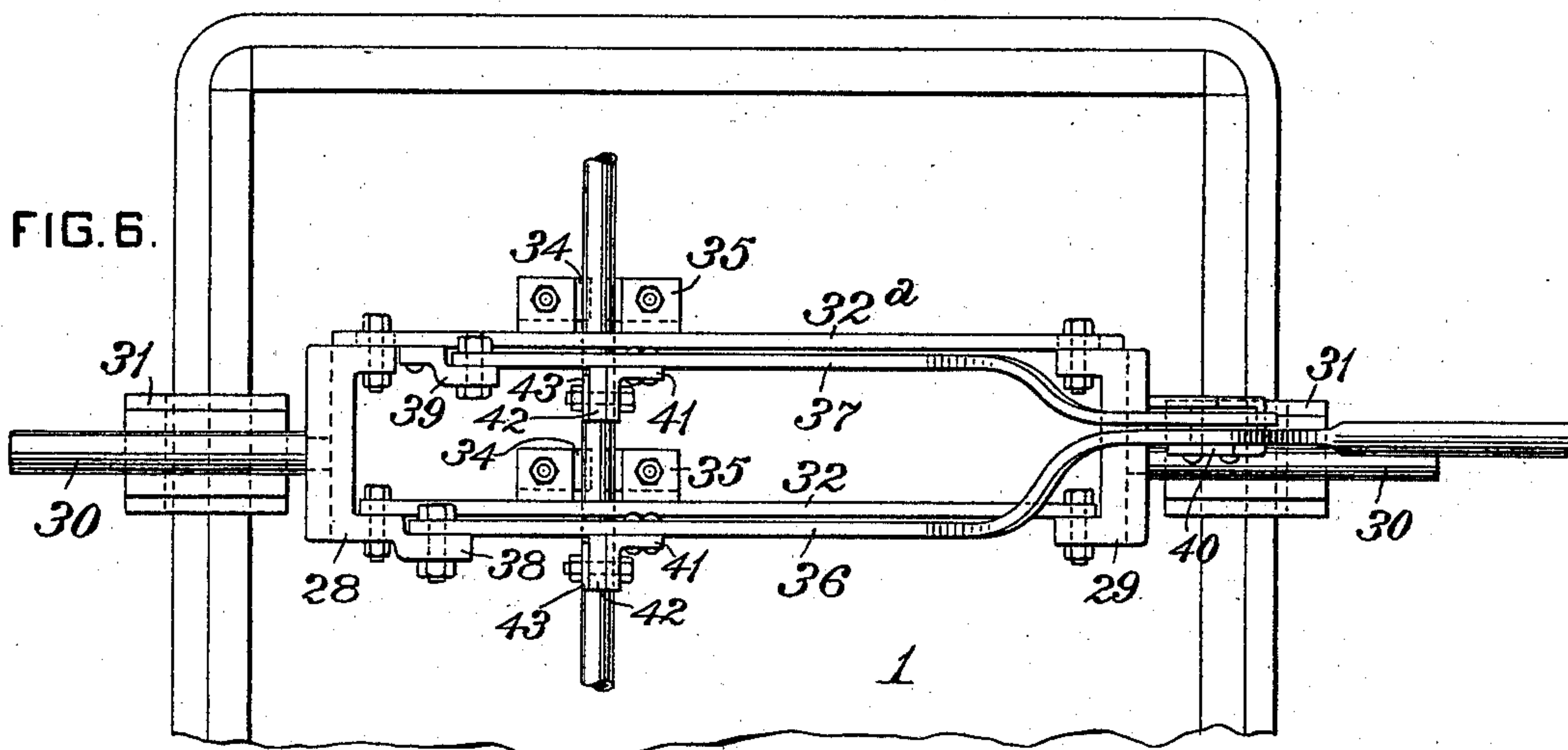
(No Model.)

3 Sheets—Sheet 3.

P. BOYD.
APPARATUS FOR COATING PIPE.

No. 580,760.

Patented Apr. 13, 1897.



INVENTOR.

Peter Boyd
by Dennis Wolcott

Att'y.

UNITED STATES PATENT OFFICE.

PETER BOYD, OF WHEELING, WEST VIRGINIA, ASSIGNOR TO THE
RIVERSIDE IRON WORKS, OF SAME PLACE.

APPARATUS FOR COATING PIPE.

SPECIFICATION forming part of Letters Patent No. 580,760, dated April 13, 1897.

Application filed December 4, 1896. Serial No. 614,390. (No model.)

To all whom it may concern:

Be it known that I, PETER BOYD, a citizen of the United States, residing at Wheeling, in the county of Ohio and State of West Virginia, have invented or discovered certain new and useful Improvements in Apparatus for Coating Pipe, of which improvements the following is a specification.

The invention described herein relates to certain improvements in apparatus for galvanizing pipe, and has for its object an arrangement of mechanism whereby the pipe may be quickly removed from the bath in such position as to permit of the drainage of the metal from the interior of the pipe and may be drawn with a rapid axial rotation through the wipers, thereby producing a smooth polished surface on the pipes.

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, Figures 1 and 2 are views in side elevation and plan, respectively, of my improved apparatus. Figs. 3 and 4 are similar views, on an enlarged scale, of the carriage and rotating head. Fig. 5 is an end elevation of the same. Figs. 6 and 7 are a plan and a side elevation, respectively, of the wiping mechanism. Fig. 8 is a side elevation showing a modification in the construction of the wiping mechanism, and Fig. 9 illustrates a modified construction of the wipers.

In the practice of my invention the tank 1 for the spelter or coating metal is constructed and arranged in the usual or any suitable manner. At one end of the tank is arranged a framework, so constructed as to support the rails 2 in a position inclining upwardly from the end of the tank. On these rails is mounted the carriage or slide 3, adapted to be moved up and down by any suitable means, as, for example, by a rope 4, having one end connected to the slide or carriage and the other end passing around a drum 5, which is secured to a power-shaft 6. This power-shaft is connected by a clutch mechanism 7 to any suitable form of motor. The slide or carriage 3 is provided with posts or standards, the front standard having a bearing for the

enlarged head of shaft 13, while the rear end of the shaft is mounted in the rear standard. On this head 8 is secured an outwardly-projecting arm or block 9, on which the levers 10 are pivotally mounted. The front ends of these levers are provided with suitable clamping-jaws 11, so mounted upon the levers as to be capable of adjustment thereon, thereby adapting the clamping mechanism for use with pipes of different sizes.

The tails or rear ends of the levers 10 project backwardly through radial slots in the head 8 and gear-wheel 12, which is secured to the head or on the shaft 13, so as to rotate in unison with the head. On this shaft 13 is mounted a block 14, having its front end cone-shaped and adapted to be slid along the shaft, so as to force the conical end of the block between the tails of the levers, thereby forcing them apart and closing the jaws upon the pipe to be shifted. The movement of the block 14 along the shaft 13 is effected by a bell-crank lever 15, having one end forked, and provided with blocks 16, pivotally mounted thereon and fitting in a circumferential groove in the block 14.

In order to open the clamping-jaws the tails of the levers are connected together by springs 17, so proportioned as to length and tension as to subject the tails of the levers to a constant pull toward each other. The gear-wheel 12 intermeshes with a pinion 18, mounted on the shaft 19 and arranged between bearings on brackets 20, projecting from the slide or carriage. By this construction the pinion is caused to move longitudinally along the shaft 19, which is angular in cross-section and extends along parallel with the rails 2 throughout their entire length. At its upper end the shaft 19 is provided with a beveled pinion 22, arranged to intermesh with a corresponding pinion 23 on the counter-shaft 24, which is driven by a suitable train of gearing 25 by the shaft 6, as clearly shown in Figs. 1 and 2.

In order to provide suitable supports for the shaft 19 at points along its length and thereby prevent any sagging of the same, arms 26 are pivotally mounted upon the frame carrying the rails 2 and are provided at their upper ends with suitable bearing-seats, in which

the rounded portions *a* of the shaft 19 will rest. These arms 26 are provided with depending weights 27, so arranged as to bring the seats on the upper ends in line with the rounded portions *a* of the shaft. This construction permits of the moving of the temporary supports 26 to one side of the slide or carriage 3 when the latter is shifted along the rails and the prompt return of the supporting devices to operative position when the carriage is passed beyond such point of support. Care should be taken that these rounded portions *a* are of a length less than the width of the pinion 18 or the hub secured thereto, so that the shaft 19 will always be in driving engagement with the pinion.

The lever 15 may be shifted by hand to permit of the opening of the clamping-jaws when the slide or carriage has reached the proper point in its upward movement, but it is preferred to secure an arm 15^a in such position on the framework that the lever will strike the arm and be shifted thereby, so as to release the pipe from the clamping-jaws.

It will be readily understood from the foregoing that a pipe or other article which is clasped by the grippers will be moved along longitudinally and also given a rapid axial rotation during such longitudinal movement.

While any suitable form or construction of wiping mechanism may be used in connection with the drawing device above described, the construction shown in Figs. 6, 7, 8, and 9 is preferred. This wiper consists of blocks 28 and 29, provided with trunnions 30, adapted to be supported in suitable seats in blocks 31, which are provided with suitable means whereby they may be secured to the edges of the tank 1.

The blocks 28 and 29 are connected together by bars 32 32^a, and on these bars are secured brackets 33, which serve as supports for the wipers 34, adjustably secured upon the brackets by means of clamping-plates 35, and bolts passing through the clamping-plates, and brackets and slots in the wipers. Levers 36 and 37 are pivotally mounted, one upon the ear 38, formed on the block 28, and the other upon a lug 39, secured to the bar 32^a.

The free ends of the levers 36 and 37 are bent so as to lie parallel and in close proximity with each other, as shown in Fig. 6, and one of the levers, as 36, is provided with a clip 40, arranged so as to project under the end of the lever 37, in order that the latter may be raised, when desired, by the lever 36. This construction will permit, however, the independent lifting of the lever 37. On the levers 36 and 37 are secured blocks 41, on which are clamped the wipers 42 by means of plates 43 and suitable bolts passing through the blocks, wipers, and plates. In order to compensate for wear, the wipers are slotted so as to permit of their adjustment on the blocks.

In the construction shown in Figs. 6 and 7

the levers 36 and 37 are pivoted at one end and are moved toward and from the bars 32 and 32^a by lifting the opposite ends of the levers. In the construction shown in Fig. 8 the movable member of the wiping mechanism is formed by the lever 44, which is pivoted at a point adjacent to its handle end, so that it is moved away from the stationary bars by forcing down the handle. In order to prevent any lateral movement of the levers while a pipe is being drawn through the wipers, bracing-strips 45 are secured at the stationary bars in such position as to properly brace the levers.

It sometimes happens in drawing a pipe through the wipers that the outgoing end is shifted laterally, and in order to prevent any strain upon the wiping mechanism or a twisting of the pipe by such lateral movement the bar 32^a, forming one part or member of the rear wiper, is adjustably secured to the blocks 28 and 29. As shown in Fig. 6, this adjustability is secured by forming longitudinal slots in the bar 32^a, through which the bolts connecting the bar to the blocks will pass.

In Fig. 9 is shown the construction whereby an automatic adjustment is effected. In this construction the wipers 46 are secured on the ends of stems 47, which are mounted in suitable bearings 48 on the two members of the wiping mechanism. When three wipers are employed, two of them are arranged upon one of the parts or members of the wiping mechanism, as the bar 32, and one upon the lever 36, or vice versa. The wipers are forced in toward the pipe by means of springs 49, surrounding the stems 47, and bearing at their ends against shoulders on the stems and the rear bearings 48 of the stems.

In order to prevent the adherence of the spelter or coating metal to the wiping mechanism, the bars 32 and 32^a are provided with downwardly-projecting bolts or enlargements 50, which will be immersed in the molten spelter of the bath when the wiping mechanism is in operative position.

I claim herein as my invention—

1. In an apparatus for coating pipe, the combination of a tank, wiping mechanism, clamping-jaws adapted to grasp the pipe, and means for moving the jaws away from the wiping mechanism and for rotating the jaws during such movement, substantially as set forth.

2. In an apparatus for coating pipe, the combination of a tank, wiping mechanism, a slide or carriage, a rotatable head mounted on the slide or carriage, clamping-jaws carried by the rotating head, a rotating shaft parallel with the line of movement of the carriage, connections between the shaft and rotatable head, and means for moving the head away from the wiping mechanism, substantially as set forth.

3. In an apparatus for wiping pipe, the
combination of two wiping mechanisms, each
consisting of a stationary and a movable
member, and a connection between the mov-
5 able members of the two wiping mechanisms,
and wipers adjustably attached to each of
said members, substantially as set forth.

In testimony whereof I have hereunto set
my hand.

PETER BOYD.

Witnesses:

J. D. McFADDEN,
G. HENRY CROOK.