No. 609,263. Patented Aug. 16, 1898.

P. BOYD.

APPARATUS FOR WIPING PIPE.

(Application filed Nov. 3, 1896.)

(No Model.) 3 Sheets—Sheet 1.

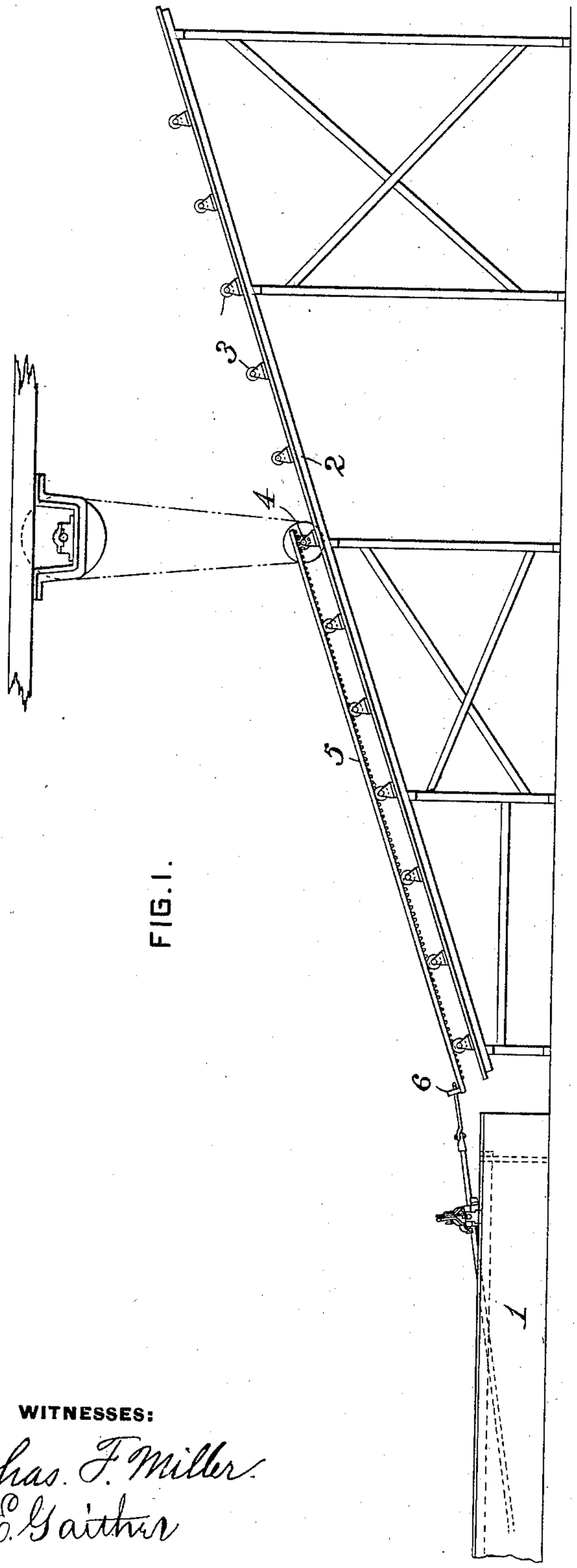

FIG. 1.

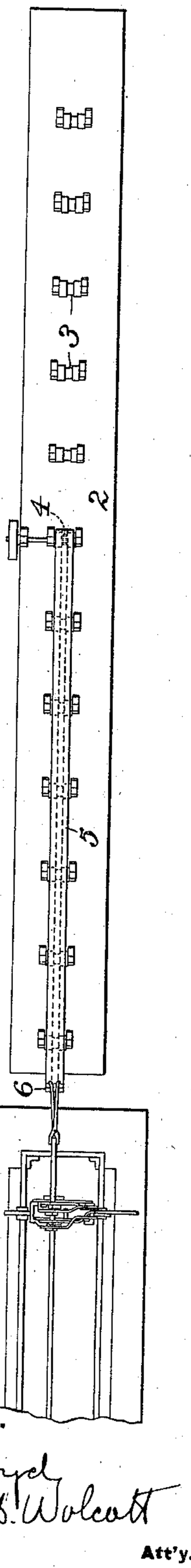

FIG. 2.

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FIG. 3.

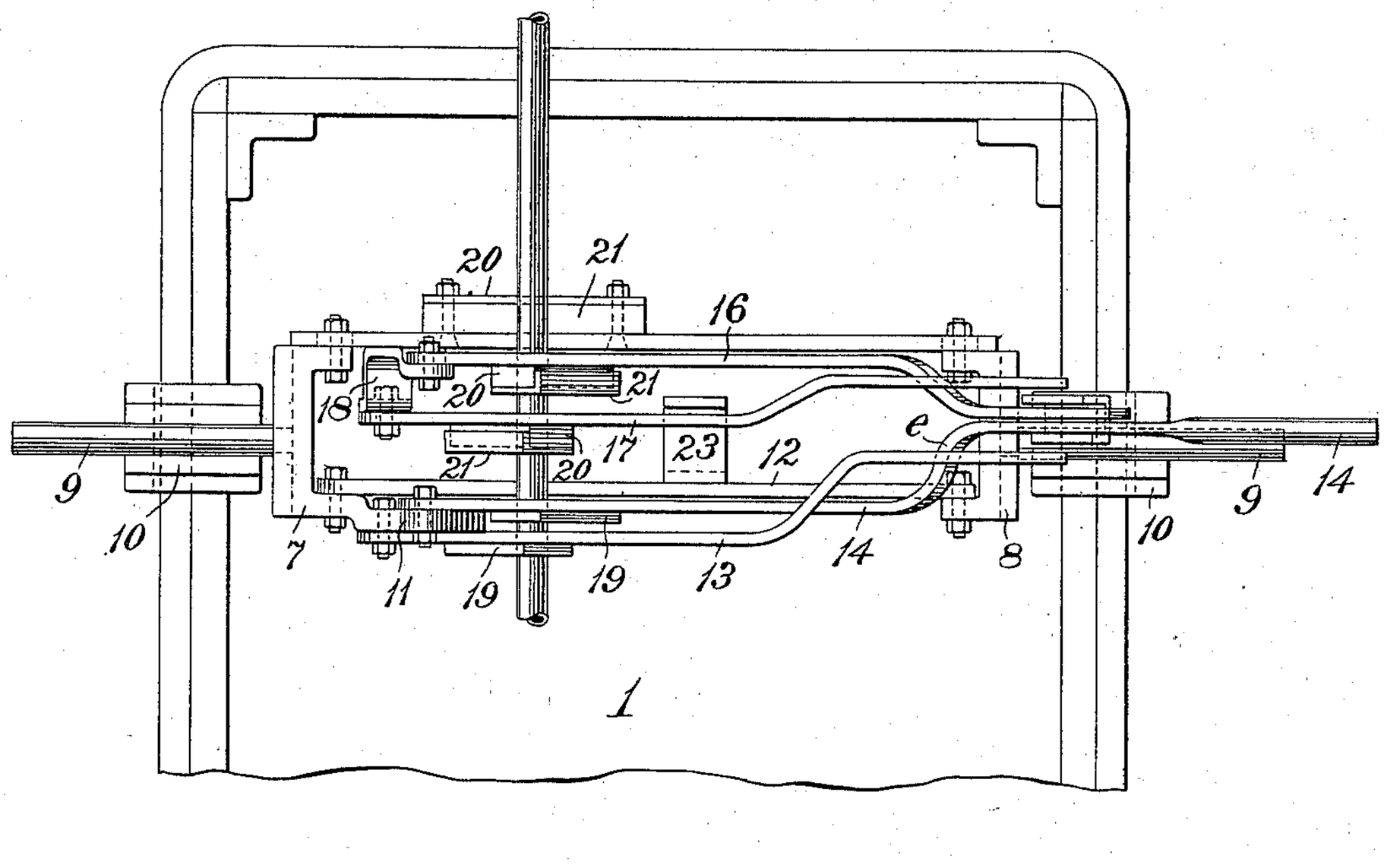


FIG. 4.

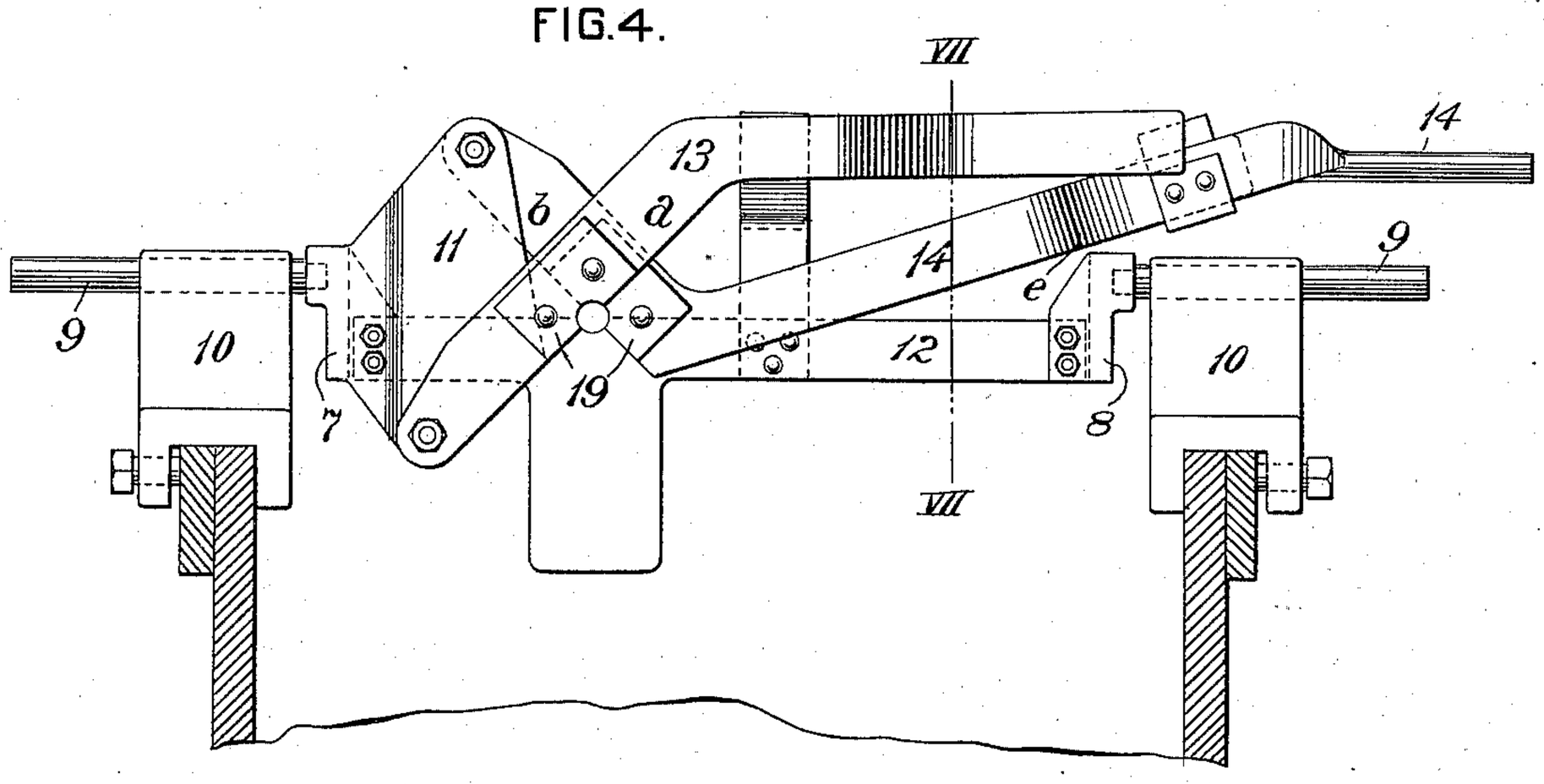
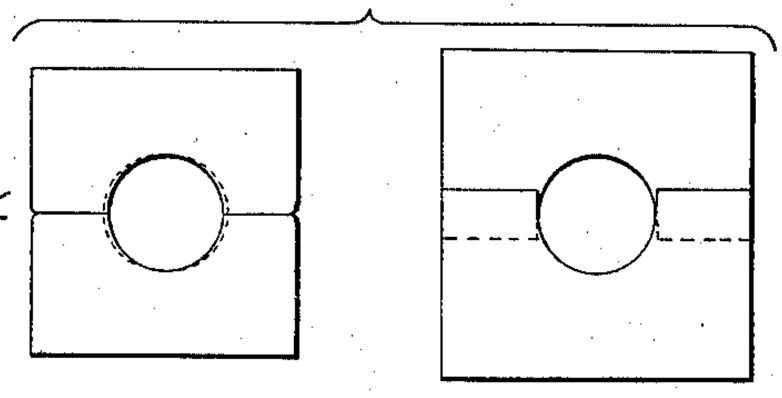


FIG. 10.



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(No Model.) 3 Sheets—Sheet 3.

FIG. 5.

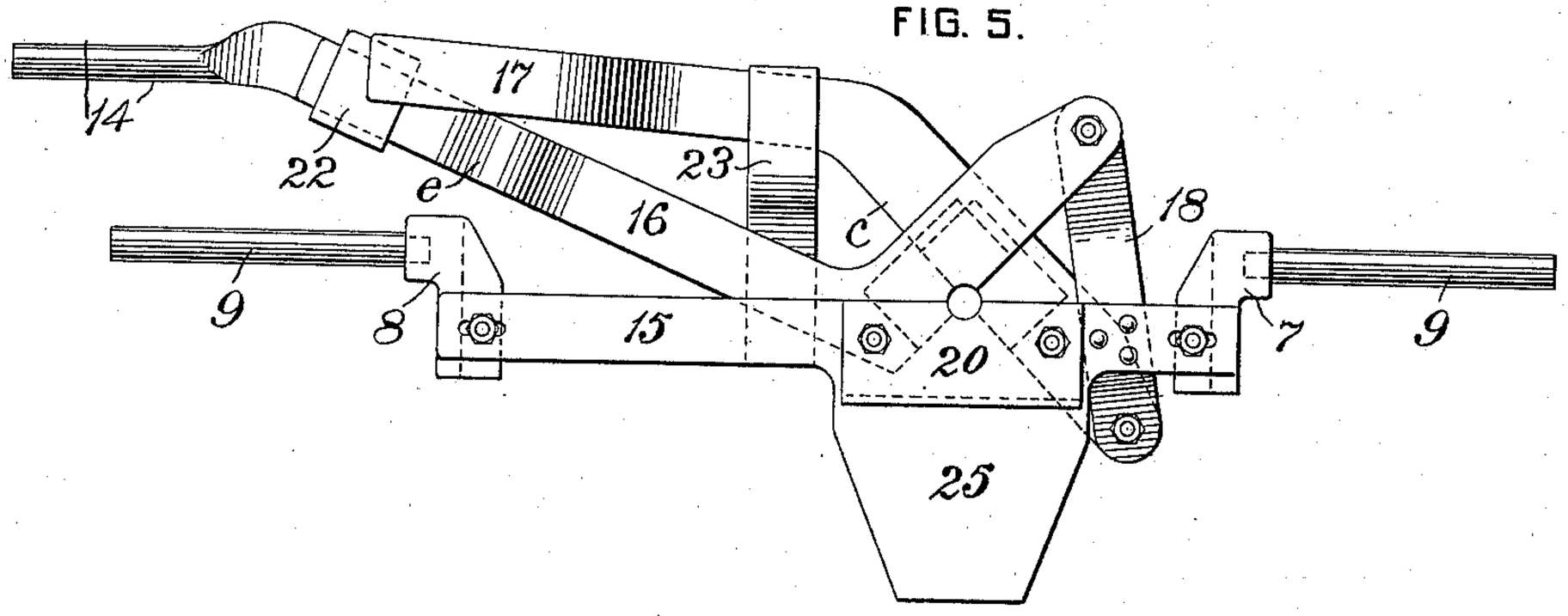


FIG. 6.

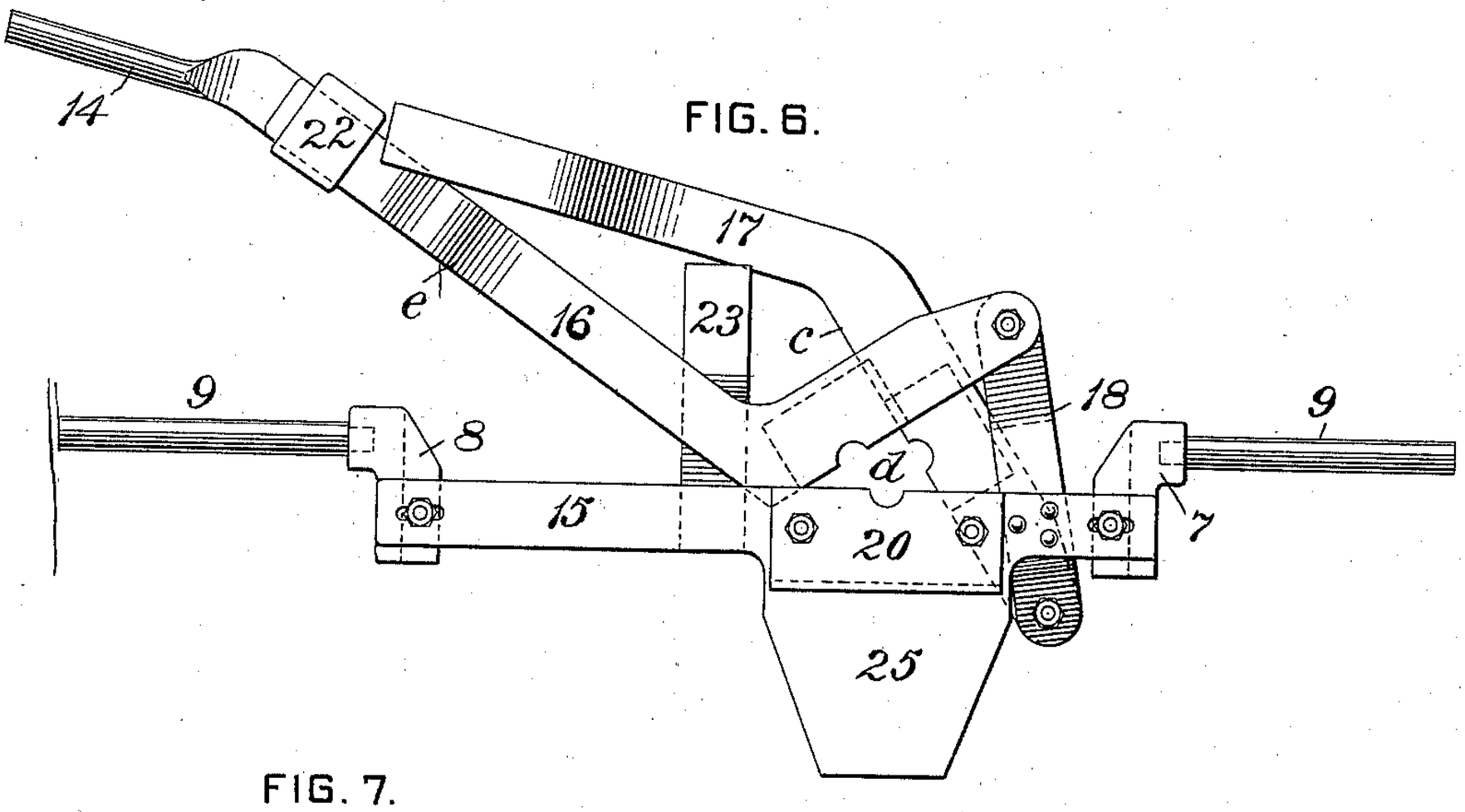


FIG. 7.

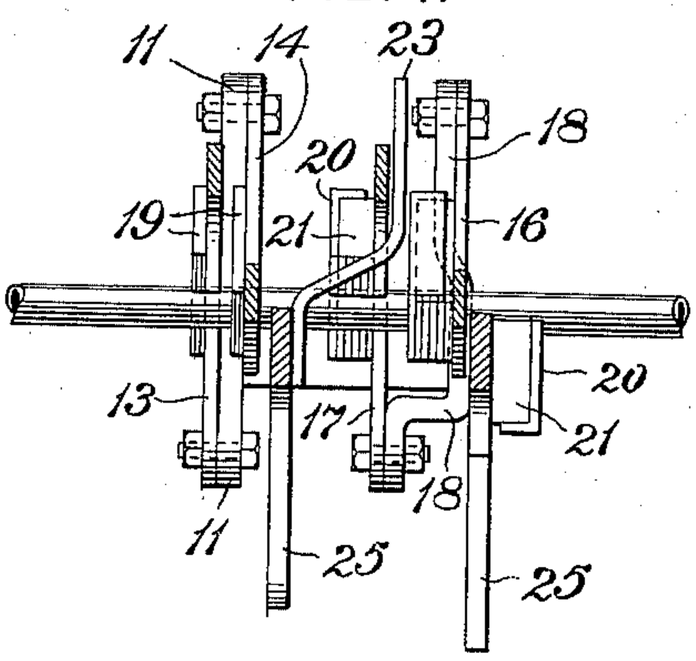


FIG. 8.

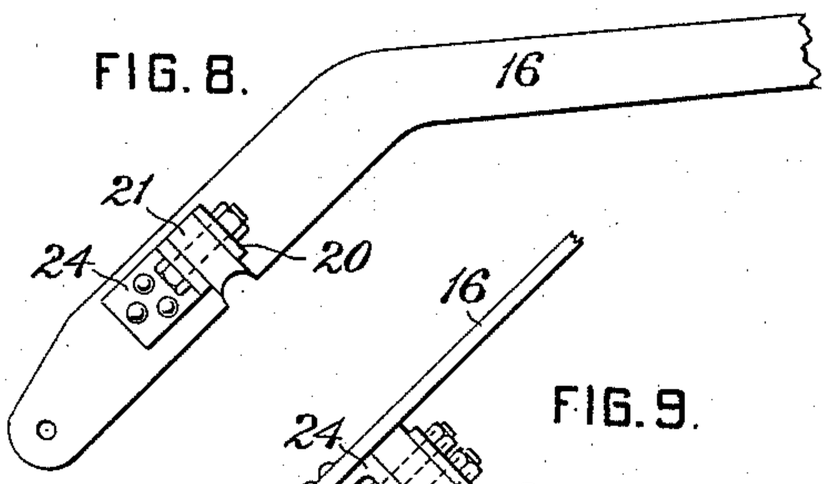
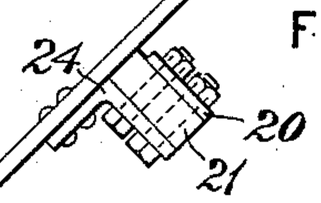


FIG. 9.



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UNITED STATES PATENT OFFICE.

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

APPARATUS FOR WIPING PIPE.

SPECIFICATION forming part of Letters Patent No. 609,263, dated August 16, 1898.

Application filed November 3, 1896. Serial No. 610,941. (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 Wiping Pipe, of which improvements the following is a specification.

Apparatus for galvanizing pipe consists, generally stated, in a metal-pot of a length somewhat greater than that of the pipe to be treated arranged over a furnace for maintaining the spelter in a molten condition. In order to remove surplus metal from the surface of the pipe, a wiper is arranged at one end of the bath, through which the pipe is drawn, and in order to drain the interior of the pipe it is drawn from the bath in an inclined position, and to facilitate this an inclined running-board is arranged at the exit end of the pot, up and down which the drawing-boy can move. The wiping devices heretofore in use consist of a stationary and a movable member, each provided with a semicircular slot, the walls of which close around the pipe as the movable member is shut down. Experience has shown that the sides of the semicircular notches become rapidly worn away, so that while the bottoms and tops of the notches will bear upon the pipe by a further movement of the movable member the sides of the notches will stand at some distance from the pipe, as shown in Figure 10, and have no wiping action thereon, as such sides are not adjustable. Another difficulty encountered in drawing the pipe from the bath is the constant change in angle, so that it is difficult to properly adjust the wiping mechanism.

The object of the present invention is to provide for a constant and uniform bearing of the wiper upon the pipe regardless of irregularities in the wear and also to provide for the automatic adjustment of the wiper to the varying angles at which the pipe is placed while being drawn from the bath.

In the accompanying drawings, forming a part of this specification, Fig. 1 is a side elevation of my improved galvanizing apparatus. Fig. 2 is a top plan view of the same. Fig. 3 is a top plan view, on an enlarged scale, of the wiper, showing it in position on one end of the metal-tank. Fig. 4 is a front elevation of the same. Fig. 5 is a rear elevation showing the wiper closed. Fig. 6 is a similar view showing the wiper open. Fig. 7 is a transverse section, the plane of section being indicated by the line 7 7, Fig. 4. Figs. 8 and 9 illustrate modified forms of the wiping device, and Fig. 10 illustrates the manner in which the wiping devices now in use become worn and inoperative.

In the practice of my invention the melting-pot 1 is constructed and arranged in the usual manner, and adjacent to one end thereof is arranged an inclined running-board 2, on which are secured a series of guide-rollers 3 and a toothed driving-roller 4, which is operated by any suitable means. On these guide and driving rollers is arranged a toothed rack 5, provided at its lower end with jaws 6 or any suitable means for engaging the tongs, which are applied to the pipe after it has passed through the wiper arranged at the end of the melting-pot adjacent to the inclined running-board.

My improved wiper consists of end blocks 7 and 8, which are provided with trunnions 9, adapted to be supported by suitable bearings 10, secured to the edges of the melting-pot. The end block 7 is provided with an arm 11, to which is secured one end of the plate 12, the opposite end thereof being secured to a lug projecting from the end block 8. As shown in Fig. 4, this plate is provided with a semicircular notch whose walls form the lower portion of the wiper. Angular levers 13 and 14 are pivotally mounted on the arm 11 in such relation to each other that when lowered the inner portions of such levers will approach the notch formed in the plate 12. In the edges of the inner portions *a* and *b* of these levers are formed notches similar to that in the plate 12 and so located with reference to each other that when the outer ends of the levers are lowered the walls of such notches will, in connection with the notch of the plate 12, form a complete circle. By reference to Fig. 4 it will be observed that the portions *a* and *b* of the levers 13 and 14 cross each other at or about an angle of ninety

degrees and that said portions overlap and form angles of about forty-five degrees with the plate 12. It results from this construction that the operative wiping edge of the notch in the plate 12 will be overlapped by the operative wiping edges of the notches in the portions *a* and *b* of the levers, and also that the operative wiping edge of the notch in the part *a* of lever 13 will be overlapped by a portion of the notch in the part *b* of lever 14. Thus it will be seen that the portions of the notches which are liable to be enlarged by wear are in line with (as regards direction of the movement of the pipe to be operated on) the portions in the other members of the wiper, which, by adjustment or further movement, will compensate for such wear. As shown in Fig. 3, the handle end of lever 14 is bent or curved so as to lie in or approximately in a vertical plane passing through the trunnions 9, and this bending or curving of the lever forms a shoulder *e*, which will afford a support for the free end of lever 13, which is also bent so as to lie upon the shoulder *e*. This construction permits of the simultaneous or independent lifting of the levers 13 and 14.

The rear or "polishing" wiper, as it might be termed, is formed by a plate 15 and by levers 16 and 17. As shown in Figs. 5 and 6, the plate 15 is adjustably secured to the end blocks 7 and 8, such adjustment being secured by means of slots formed in the ends of the plates, which are attached to the blocks by means of bolts passing through the slots. An arm 18 is secured to the plate 15, and to the ends of this arm are pivoted the levers 16 and 17. These levers are of similar shape and construction to the levers 13 and 14 of the front wiping mechanism and are so pivoted to the arm 18 that the notches formed in the parts *c* and *d* of the levers, when the latter are lowered to operative position, will form, in connection with the notch in the plate 15, a complete circle. As shown in Fig. 5, the levers 16 and 17 are so constructed and pivoted with relation to each other that the walls of the notches therein will not only overlap each other, but will also overlap portions of the walls of the notch in the plate 15, as was described in connection with the levers 13 and 14. It will be observed that as the levers 16 and 17 are both pivoted to the arm 18, which is secured to the plate 15, said levers will move with said plate, as will be hereinafter described. As shown in Fig. 3, the outer or free end of the lever 16 is so bent or curved that it will lie parallel and closely adjacent to the handle end of lever 14. The lever 17 has its outer or free end so bent that it will rest upon the shoulder *e* of lever 16, so that said levers can be raised simultaneously or independently of each other. The lever 14 is provided with a clip 22 for the reception of the end of the lever 16, so that by raising the lever 14 all the levers will be raised with it. In order to prevent any lateral movement of the lever 17 while a pipe is being drawn through the wiper, it is laterally braced by an arm 23, secured to the plate 12 and projecting up behind the lever 16 when the latter is in its lower or operative position, as clearly shown in Figs. 3, 4, and 7.

The plates 12 and 15 are made of such a length that when attached to the blocks 7 and 8 the framework thus formed will be of a length somewhat less than the width of the melting-pot, thereby permitting of a movement of the wiping mechanism transversely of the pot. It is preferred to form the wiping-notches in plates 19, which can be detachably secured to the plates 12 and 15 and the several levers, rather than in the plates and levers, for the reason that when the edges of the notches become so worn away as to be inoperative it will be necessary to renew only these removable plates and not the entire mechanism. It is preferred to form the operative wiping edges in the plate 12 and the levers 13 and 14 of metal, but to use some soft resilient material, as asbestos, in the secondary or rear wipers. The asbestos 21 may be secured to the plate and levers by means of bolts and a washer 20, as shown in Figs. 3 and 7, or an angle-plate 24 may be attached to the plate or levers and the asbestos 21 may be clamped thereto, as shown in Figs. 8 and 9. The pipe may be drawn through these wipers by the draft mechanism hereinbefore described or by boys moving up and down an inclined running-board, as is the present practice. When boys are used for the purpose of drawing the pipe, they are liable to move to one side or the other of the direct line of draft, and in order to prevent any twisting of the mechanism or bending of the pipe one of the wipers, and by preference the rear one, is made movable transversely of the mold-pot. This transverse movement is permitted by the adjustable connection of the plate 15 with the blocks 7 and 8, as hereinbefore described.

Each of the wiping mechanisms is provided with a metal plate 25, preferably formed on or secured to the stationary plates 12 and 15 of the wiping mechanisms and constructed to project down into the molten metal and by conduction maintain the wiping mechanisms at approximately the temperature of the bath.

It is characteristic of my improvements that a diametrical line of any one of the semicircular notches of the wipers when the latter are in operative position will form an acute angle with the corresponding diametrical line of the notch of one of the other wipers and preferably with the corresponding line of all of the other notches, so that while the notch of each wiper will inclose one-half or nearly one-half of the circumference of the pipe all of the wipers are necessary to entirely surround the same.

I claim herein as my invention—

1. A pipe-wiping mechanism consisting of three or more members operating in different

planes, each containing a wiping-groove semicircular or approximately so and arranged in different radial positions around the line of feed of the article to be wiped, whereby when all the members are in opposite position the diametric line of the half-round recess in some one of the members shall form an acute angle with a corresponding diametric line of the recess of at least one and preferably with both of the half-round recesses of the other members, substantially as set forth.

2. An apparatus for wiping pipe having in combination two wiping mechanisms each consisting of a relatively stationary member and two or more members movable toward and from the relatively stationary member, one of said mechanisms being adjustable with relation to the other mechanism, substantially as set forth.

3. An apparatus for wiping pipe, having in combination a plate adapted to be supported transversely of the melting-pot and adjustable transversely thereof, and two levers pivotally mounted on the plate in such relation thereto as to be movable at different angles toward and from the plate, substantially as set forth.

4. An apparatus for wiping pipe having in combination two wiping mechanisms provided with common trunnions and bearings for said trunnions adapted to be secured on the melting-pot, substantially as set forth.

5. An apparatus for wiping pipe having in combination two wiping mechanisms, each consisting of a plate and two levers pivotally mounted so as to be movable at different angles toward and from the plate, one lever of each wiping mechanism being provided with a shoulder for supporting the other lever thereof, the supporting-lever of one mechanism being provided with a clip for the reception of the supporting-lever of the other mechanism, substantially as set forth.

In testimony whereof I have hereunto set my hand.

PETER BOYD.

Witnesses:
A. LEONHART,
F. P. JONES.