

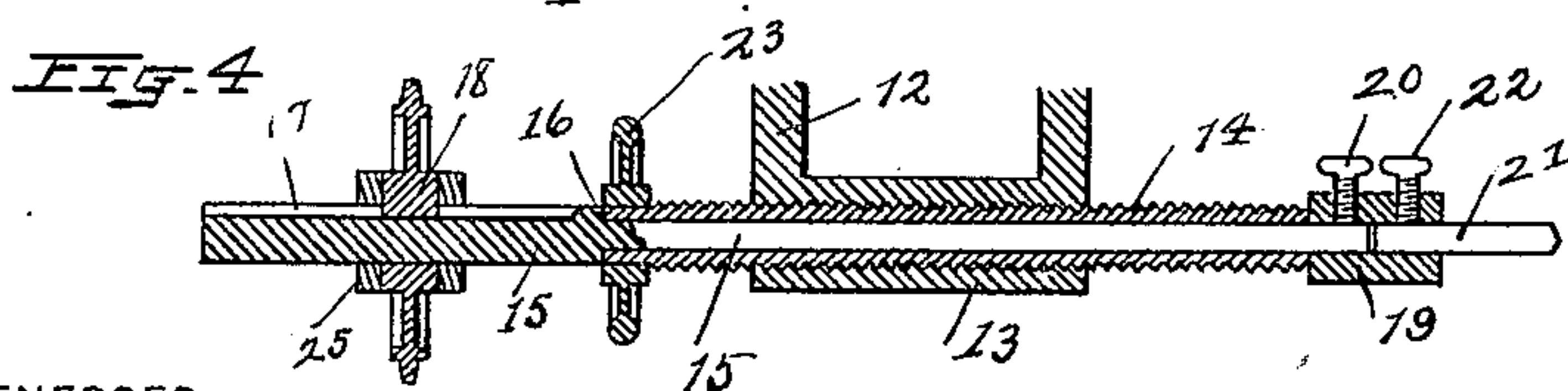
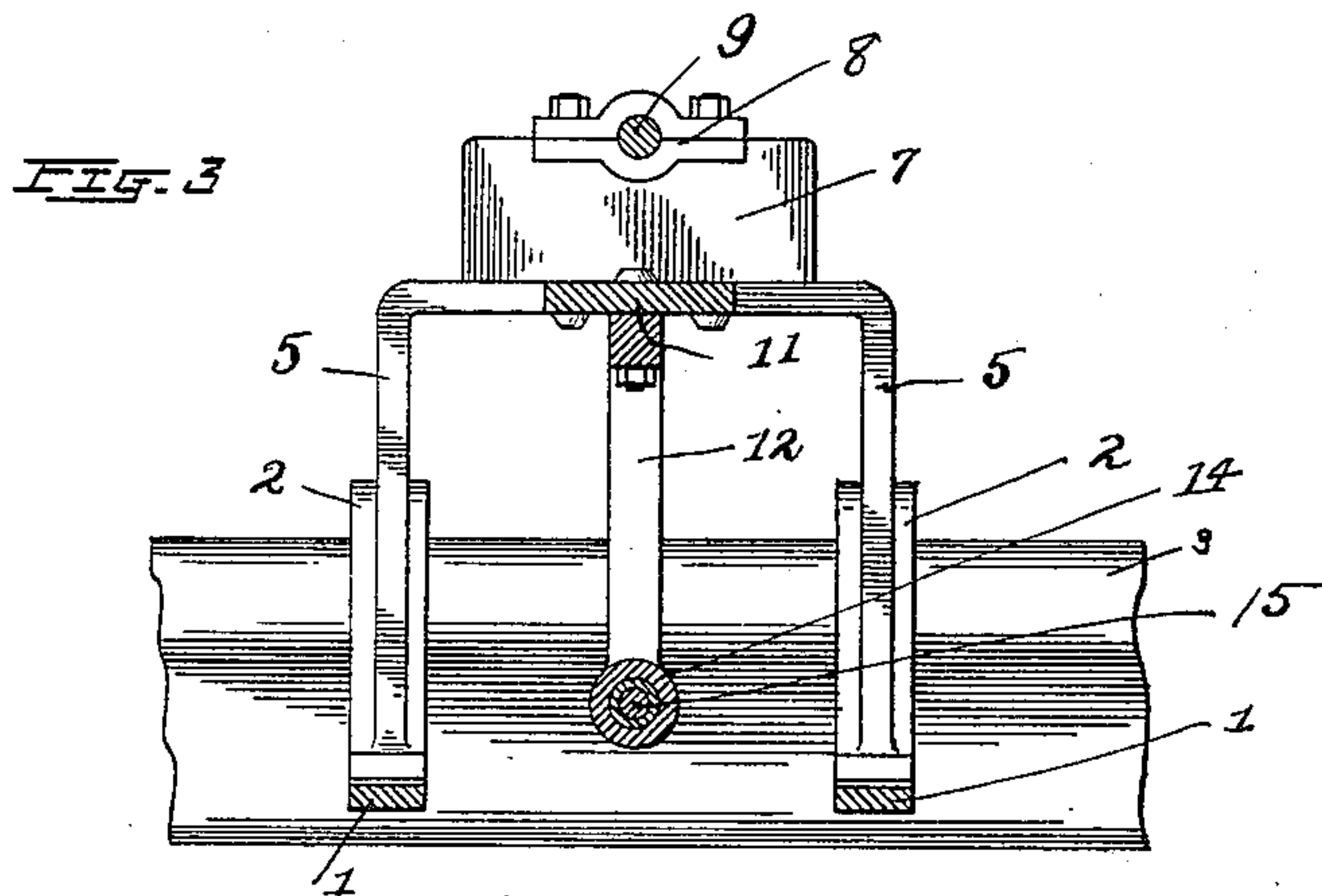
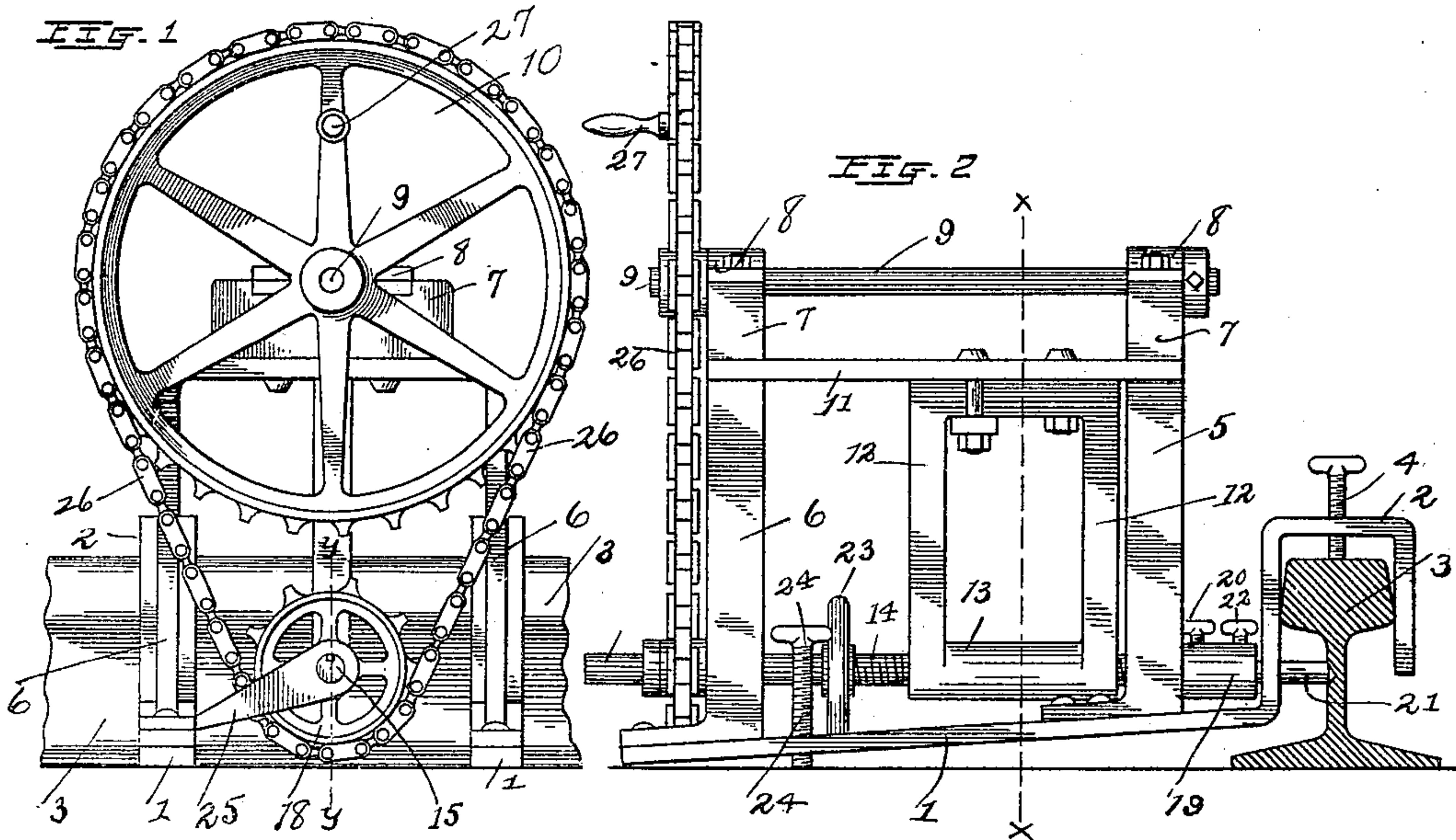
No. 659,704.

Patented Oct. 16, 1900.

J. B. SOLOMON.
DRILLING MACHINE.

(Application filed May 6, 1897. Renewed Aug. 17, 1900.)

(No Model.)



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JESSE B. SOLOMON, OF JEFFERSON, MADISON COUNTY, OHIO, ASSIGNOR OF ONE-HALF TO A. C. MILLIKEN AND T. C. GREGG, OF SAME PLACE.

DRILLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 659,704, dated October 16, 1900.

Application filed May 6, 1897. Renewed August 17, 1900. Serial No. 27,231. (No model.)

To all whom it may concern:

Be it known that I, JESSE B. SOLOMON, a citizen of the United States, residing at West Jefferson, in the county of Madison and State of Ohio, have invented a certain new and useful Improvement in Drilling-Machines, of which the following is a specification.

My invention relates to the improvement of drilling-machines; and the objects of my invention are to provide a drilling-machine of improved construction and arrangement of parts, to so construct said machine as to adapt the same for rapid and accurate drilling of holes through the webs of railway-rails and similar metal bodies, to provide improved means of adjustment, and to produce other improvements in details of construction, which will be more fully pointed out hereinafter. These objects I accomplish in the manner illustrated in the accompanying drawings, in which—

Figure 1 is an end view of my improved machine. Fig. 2 is a side elevation of the same, showing the machine in position for drilling through the web of a T-rail. Fig. 3 is a sectional view on line *x x* of Fig. 2; and Fig. 4 is a central vertical section of the feed-screw and adjoining parts, taken on line *y y* of Fig. 1.

Similar numerals refer to similar parts throughout the several views.

In the construction of my improved drilling-machine I employ two parallel base-bars 1, each of which terminates in its outer or forward end in a yoke or hook 2, which is substantially of the inverted-U shape shown. These yokes or hook-shaped bar ends 2 are adapted, as indicated in the drawings, to embrace opposite sides of the head or tread of a railway-rail 3. Through the upper side of each of the hooks 2 passes a set-screw 4, which by being turned in contact with the tread of the rail 3 is adapted, for the purpose hereinafter shown, to elevate said hooks and result in the bars 1 assuming the inclined positions shown. From the forward end portions of the base-bars 1 extend upwardly the vertical arms of a bearing-frame 5, while from the rear end portions of said bars extend upwardly similar vertical arms of a bearing-frame 6, the arms of the frame 6 being pre-

erably of greater length than the arms 5. Upon the upper side of each of the frames 5 and 6 is supported a bearing-block 7, and upon each of said bearing-blocks is arranged a boxing 8. Journaled in these boxings 8 and extending therethrough are the ends of a horizontal or substantially-horizontal shaft 9. On its outer end said shaft 9 carries a comparatively large sprocket-wheel 10.

11 represents a horizontal frame-bar which extends centrally beneath the under sides of the upper portions of the frames 5 and 6, and from this bar 11 depends a hanger-frame 12, which terminates in a transverse tubular and internally-threaded portion 13.

14 represents a tubular feed-screw which passes through and engages with the internal threads of the tubular frame-arm 13. This tubular screw 14 has extending loosely there-through a shaft 15, which is provided on the outer side of one end of said screw with a shoulder portion 16, which is adapted to abut against the end of said screw. On the outer side of the screw end last referred to said shaft 15 is provided with a longitudinal keyway 17, which is adapted to receive the projecting key or feather of a similar sprocket-wheel 18, which is mounted thereon. The opposite and outwardly-projecting end portion of the shaft 15 extends within the rear portion of a sleeve 19, said sleeve abutting against the end of a screw 14 and being rigidly connected with the shaft 15 by means of a set-screw 20. The outer end portion of the sleeve 19 is adapted to receive the shank of a suitable drill 21, which is rigidly held therein by means of a set-screw 22.

By the means above described it will be seen that the drill 21 will be thus supported between the hook portion 2 of the bars 1 and in position for entering the web of the rail 3, the head of which is embraced by said hooks.

Upon the outer end of the screw 14 is secured a hand-wheel 23. Through the outer and normally lower portions of the bars 1 are formed vertical screw-holes, through which extend vertical set-screws 24, the lower ends of the latter being adapted to bear upon the upper surfaces of railway-ties or other bodies upon which the bars 1 are supported.

As indicated at 25, the outer end of the

shaft 15 is journaled in a suitable bearing-arm which extends from one of the frame-bars 1.

26 represents an endless sprocket-chain 5 which passes over and connects the sprocket-wheels 10 and 18. The sprocket-wheel 10 is, as indicated at 27, provided with a suitable outwardly-extending handle.

In order to utilize my invention for the purpose of drilling holes through a track-rail 3, the above-described machine is so placed as to cause the rail head or tread to be embraced by the bar-hooks 2 in the manner indicated in Fig. 2 of the drawings. In case it is found 15 that the drill is not then supported in the proper horizontal position it is evident that the frame which supports the feed-screw and drill may be readily adjusted to the desired position by turning the set-screws 24. 20 The point at which the drill enters the web of the rail may be regulated by turning the set-screws 4. The drill being thus supported in the proper position and opposite the proper point to be drilled, rotary motion is communicated to the wheel 10, which through the chain 25 26 operates to impart rotary motion to the small sprocket-wheel 18 and to the shaft 15, upon which said sprocket is mounted. In this manner the desired rotary drilling motion is 30 communicated to the drill 21.

In order to impart the desired forward feed to the drill during its rotary movement, it is obvious that the hand-wheel 23 may be turned, which will result in the feed-screw 14 moving 35 forward and carrying the shaft 15, sleeve 19, and set-screw 21 with it. In this longitudinal movement of the feed-screw and its connecting parts it is obvious that the position of that portion of the shaft upon which the 40 sprocket-wheel 18 is mounted will move through the hub of said sprocket-wheel.

If desired, it is evident that gear-wheels which mesh one with the other might be substituted for the wheels 10 and 18; but the em-

ployment of the sprocket-wheels and chain 45 connection herein described admits of the large wheel 10 being driven to the right to produce the proper drilling rotation of the drill.

From the construction and operation which 50 I have described it will be seen that a simple, effective, and reliable drilling-machine is produced which may be readily placed in position for drilling holes through track-rail webs or other metallic bodies and which by the ex- 55 penditure of a comparatively small amount of power may be made to do its work rapidly and accurately. It will also be observed that the construction of my improved drilling-machine is such as to admit of its production at 60 a reasonable cost of manufacture and without complication.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is— 65

In a drilling-machine the combination with the parallel bars 1 having hook-shaped terminations 2, set-screws 4 passing therethrough as described, set-screws 24 passing through 70 said bars as described, frames 5 and 6 rising from said bars, a hanger-frame depending from said frames, said hanger-frame having an internally-threaded arm 13, a shaft 9 journaled in said frames 5 and 6, and a sprocket-wheel on one end of said shaft, of a tubular 75 feed-screw 14 passing through and engaging with the threads of the frame-arm 13, a hand-wheel on said screw, a shaft 15 passing through said screw, a sleeve connecting the outer end of said screw with a drill a smaller sprocket- 80 wheel movably mounted on said shaft 15 and an endless chain connecting said sprocket-wheels 10 and 18, substantially as and for the purpose specified.

JESSE B. SOLOMON.

In presence of—

JOHN J. CARK,
E. T. TEMPLE.