No. 804,243. PATENTED NOV. 14, 1905.

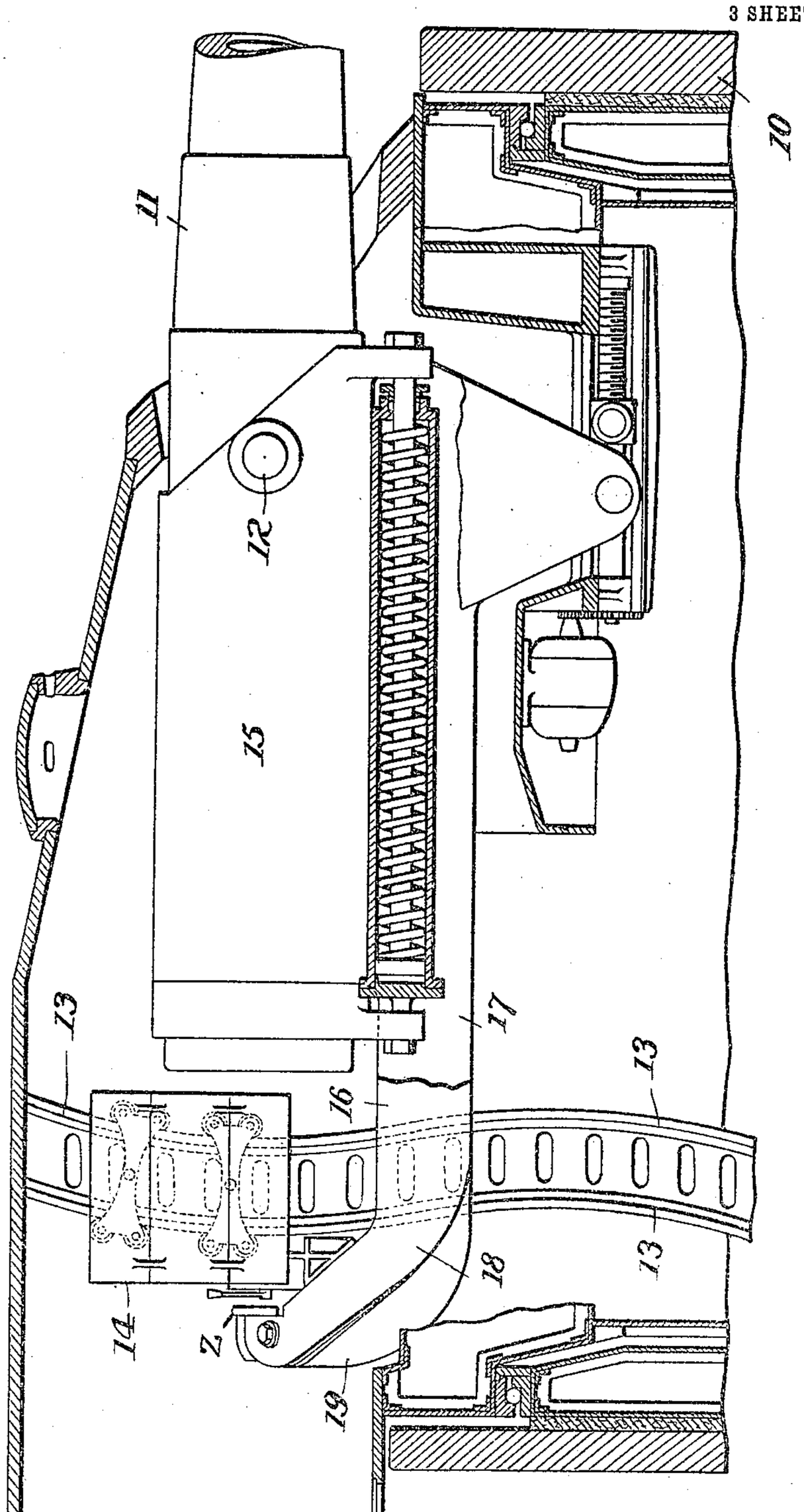
J. F. MEIGS & R. P. STOUT.

RAMMER FOR GUNS.

APPLICATION FILED MAY 18, 1904.

3 SHEETS—SHEET 1.

Fig. 1



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3 SHEETS—SHEET 2.

Fig. 2.

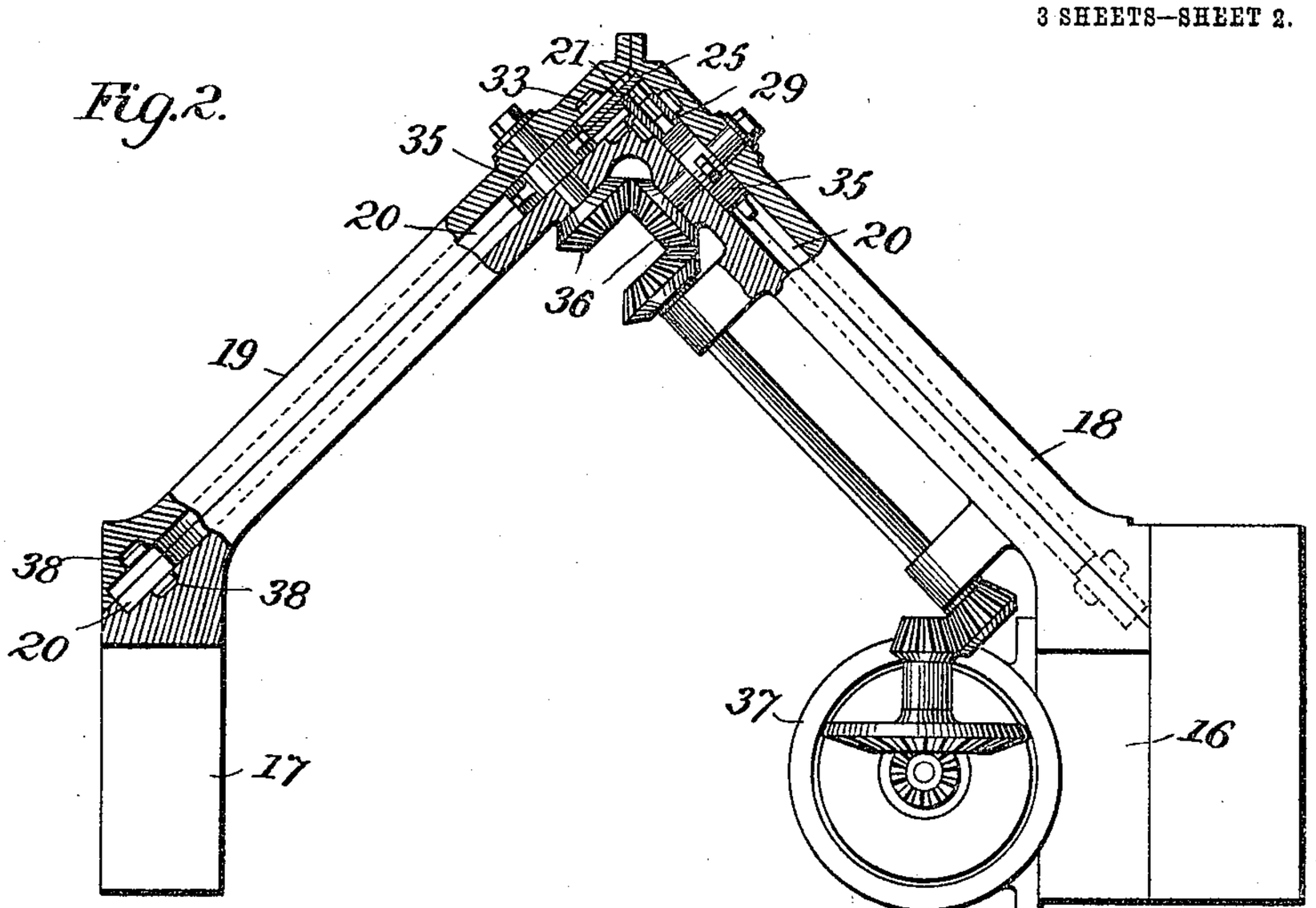
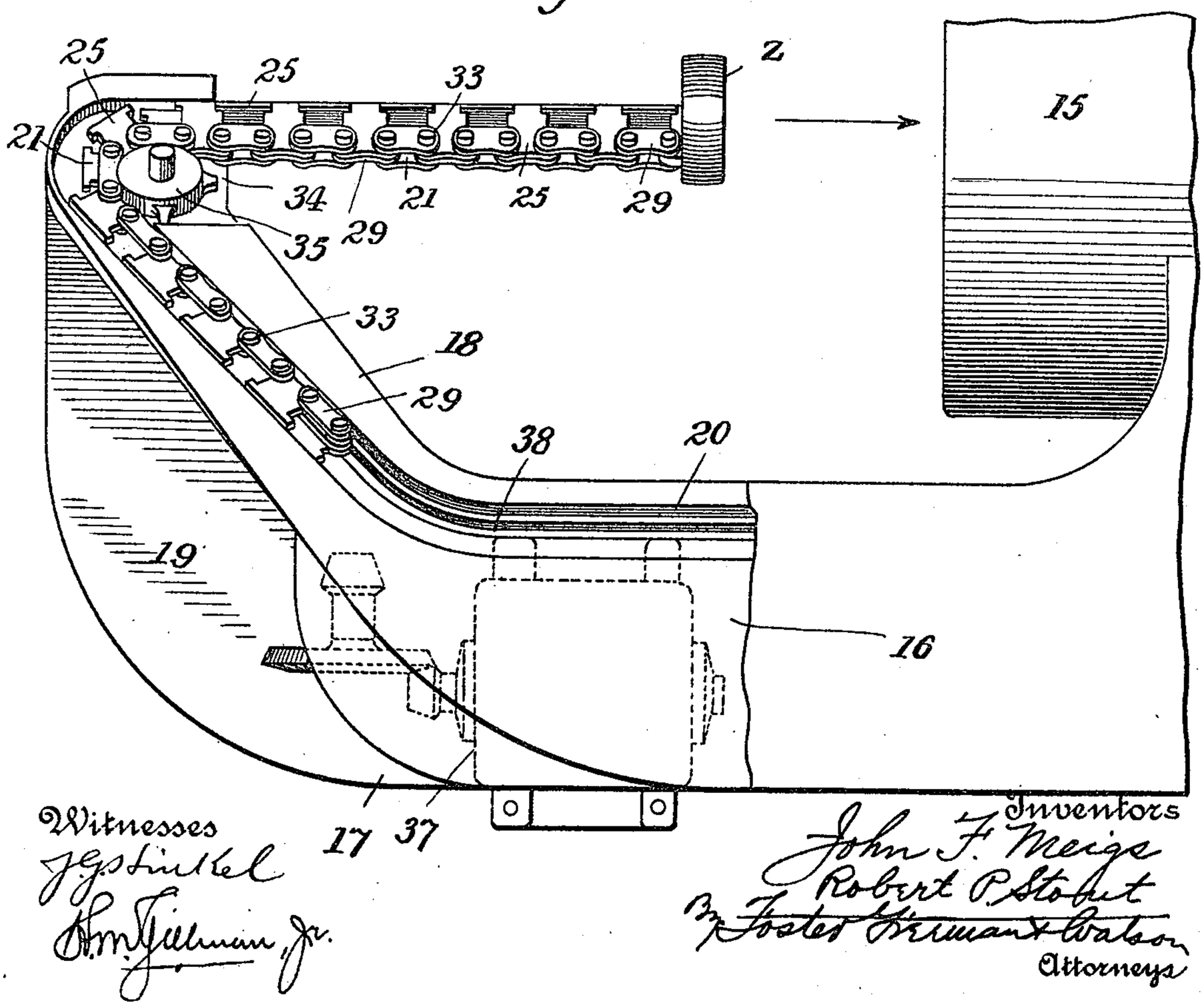


Fig. 3



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3 SHEETS—SHEET 3.

Fig. 4.

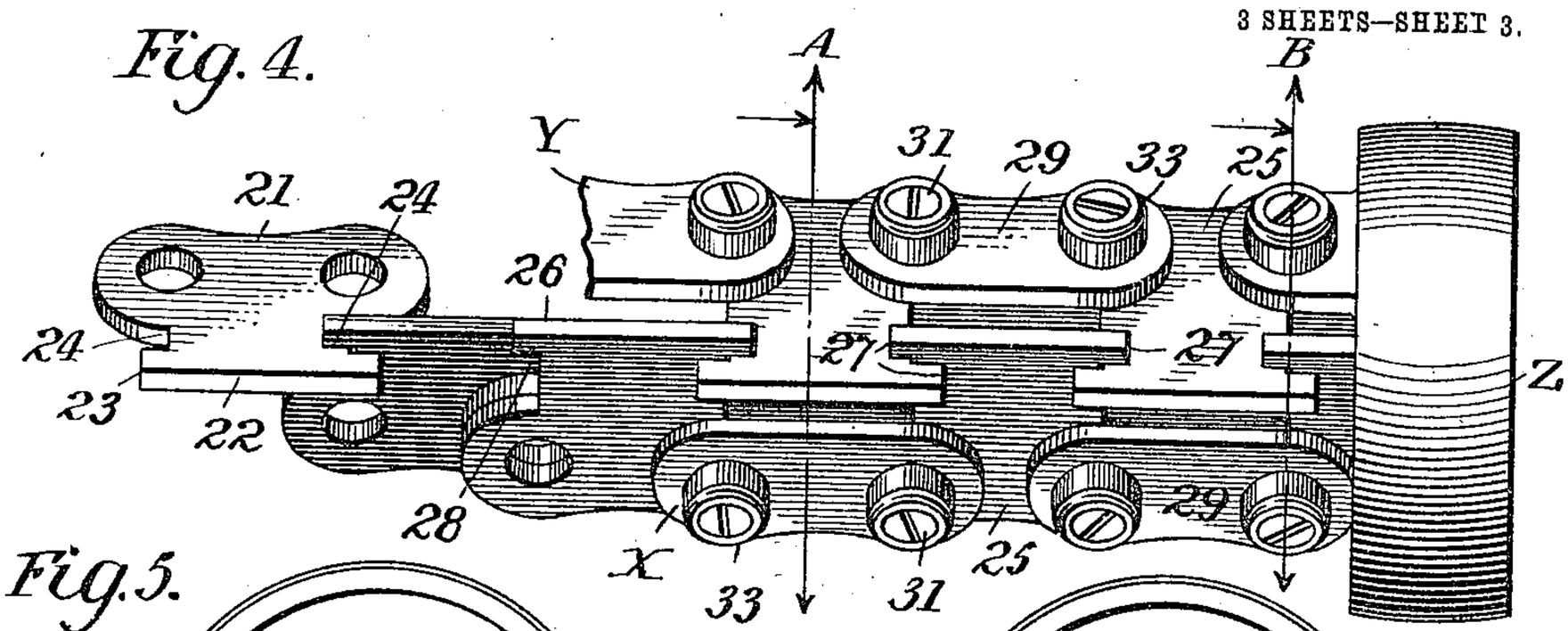


Fig. 5.

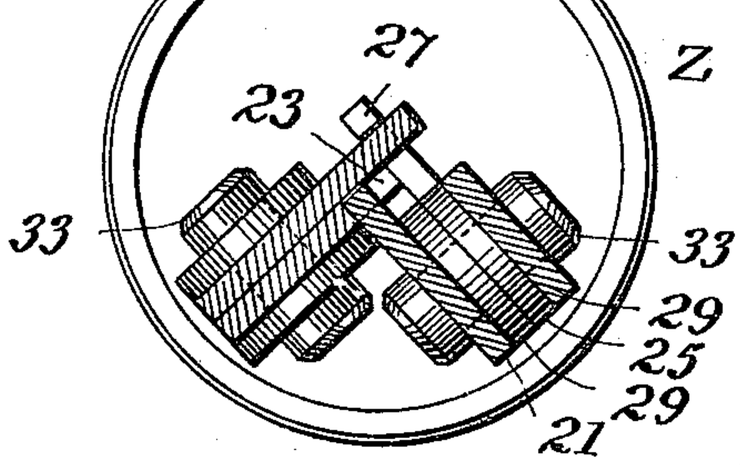


Fig. 6.

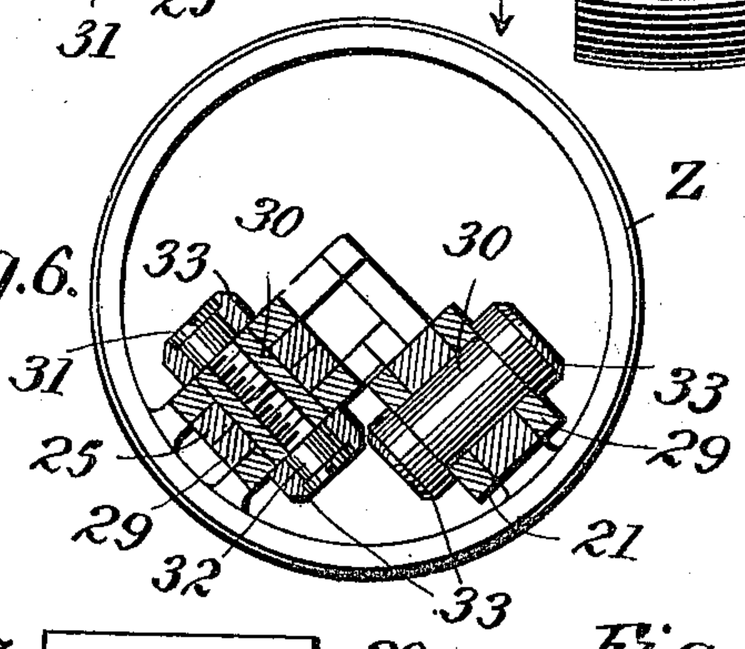


Fig. 7.

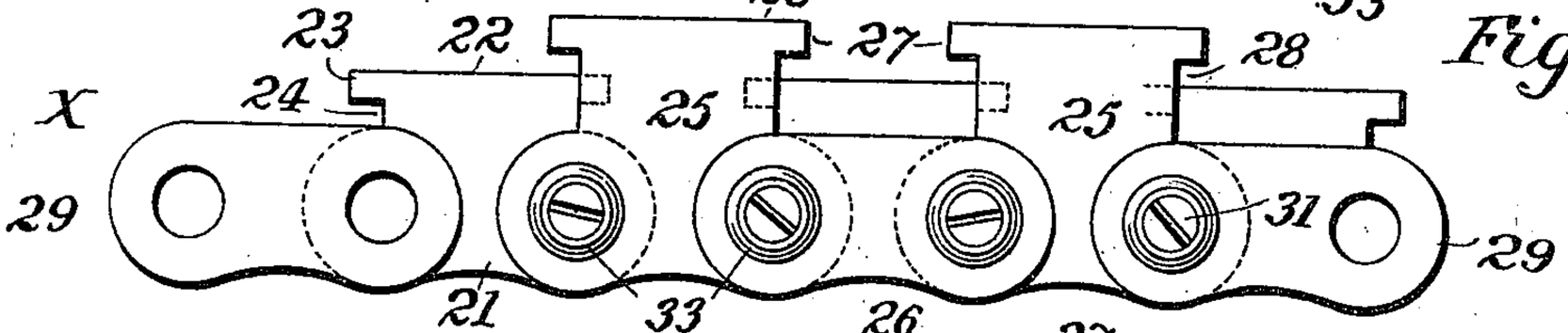


Fig. 8.

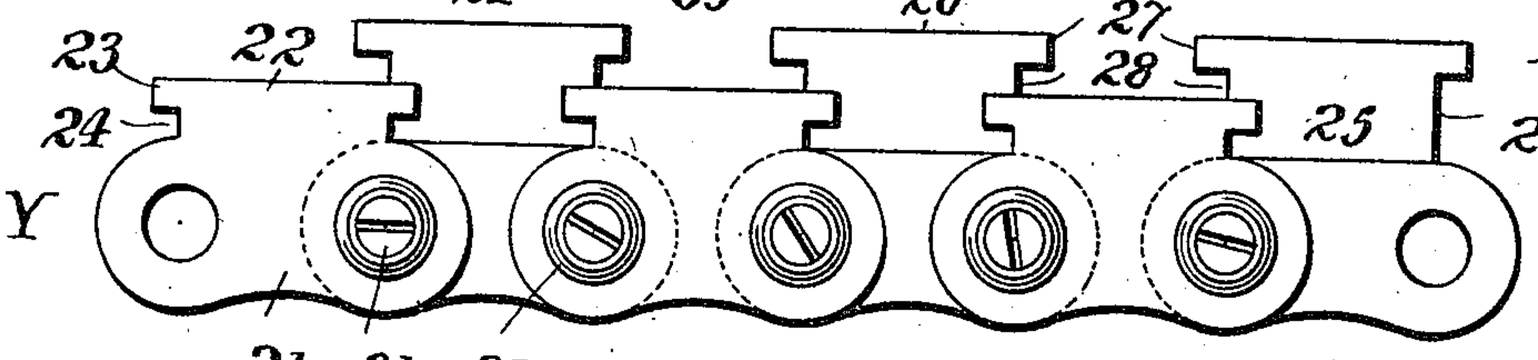
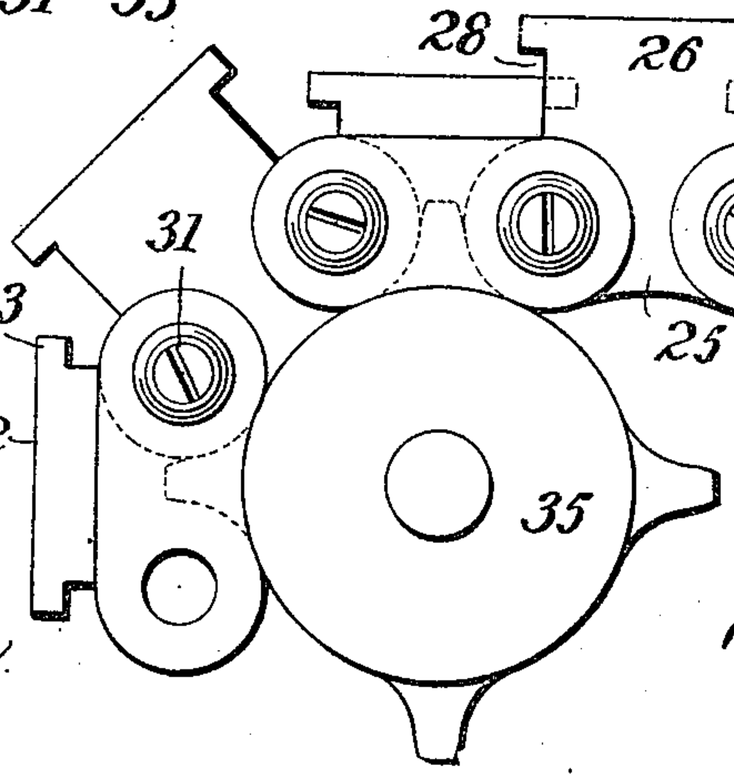


Fig. 9.



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UNITED STATES PATENT OFFICE.

JOHN F. MEIGS AND ROBERT P. STOUT, OF SOUTH BETHLEHEM, PENNSYLVANIA, ASSIGNORS TO BETHLEHEM STEEL COMPANY, OF SOUTH BETHLEHEM, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

RAMMER FOR GUNS.

No. 804,243. Specification of Letters Patent. Patented Nov. 14, 1905.

Application filed May 18, 1904. Serial No. 208,579.

To all whom it may concern:

Be it known that we, JOHN F. MEIGS and ROBERT P. STOUT, citizens of the United States, and residents of South Bethlehem, Northampton county, State of Pennsylvania, have invented certain new and useful Improvements in Rammers for Guns, of which the following is a specification.

The object of the present invention is to provide a rammer for guns which may be conveniently manipulated and which shall occupy a minimum space.

The invention is particularly designed for use in turrets or other contracted places in which economy of space is a prime consideration.

A further feature of the invention is that it permits the gun to be loaded at any angle—that is, the loading may be effected without changing the elevation of the gun.

The invention will be described in connection with the accompanying drawings, in which—

Figure 1 is a sectional view of part of a turret, showing a gun provided with the improved rammer; Fig. 2, a rear view of the rammer-frame, partly broken away. Fig. 3 is a side view of the same, showing the rammer partly projected toward the gun. Fig. 4 is an enlarged detail view of a part of the head and a part of the shaft of the rammer. Fig. 5 is a section on the line A A of Fig. 4. Fig. 6 is a section on the line B B of Fig. 4. Fig. 7 is an outside view of one of the rammer-chains. Fig. 8 is an inside view of the other rammer-chain, and Fig. 9 is a view illustrating the positions assumed by the chain-links in passing over the sprocket-wheels.

Referring to the drawings, 10 indicates a turret, in which a gun 11 is mounted in the usual manner. The means for elevating and directing the gun form no part of the present invention and a description of them may therefore be omitted. The gun turns on its trunnions 12, and in the rear of the gun is a track or guide 13 for the ammunition-car 14, the said track or guide being for a portion of its length concentric with the trunnions, whereby the car may be adjusted always into the same relation with the gun regardless of the elevation of the latter.

Connected with the sleeve 15, in which the gun recoils, is a rammer-frame comprising beams 16 and 17, which extend rearwardly from the gun parallel with its axis, and knee-shaped extensions 18 19, which extend upwardly and inwardly, meeting at a point in line with the axis of the gun and being preferably arranged at an angle of ninety degrees with each other, as shown in Figs. 1, 2, and 3.

Each of the beams 16 17 is provided with a guideway 20 for a chain constituting a part of the rammer. The rammer comprises two chains X Y, pivoted and connected to a common head Z. These chains are identical in construction with the exception that the high and low links are reversed. The chain Y has a series of low links 21, provided with projecting blades 22, having lateral projections or horns 23 and notches 24 below the horns 23. Alternate with the links 21 are links 25, having blades 26, projecting higher than the blades 22 and likewise provided with laterally-extending horns 27 and with notches 28 under said horns. The chain X is similar to the chain Y excepting that the parts are reversed, the high links being on the outside of each chain and the low links on the inside. The chains are reinforced by ordinary links 29, each chain being composed of successive pairs of links, one link of each pair being an ordinary link and the other link being an interlocking link. As shown in Fig. 6, the links are connected by sleeves 30, and sleeves are sustained in position by headed screws 31, which are tapped into the sleeves. The screws 31 have bearings 32, upon which are mounted rollers 33, for a purpose to be presently explained. Rigidly connected to the head Z are half-links which are connected pivotally with the links of the chain.

The knee-pieces 18 19 are arranged at an angle of ninety degrees with each other and meet at a point in line with the center line of the gun, as previously stated. The guides 20 for the chains extend up through the knee-pieces and terminate in a common opening 34, which is directed toward the gun in the axial line thereof. Just below the opening 34 the chains pass over sprocket-wheels 35, the shafts of which are also arranged at an angle of ninety degrees with each other and have bearings in the knee-pieces 18 19. As the chains pass over the sprocket-wheels the high

links are separated at their outer ends, permitting the high links of one chain to enter between and interlock with the high links of the other chain, as illustrated in Figs. 4 and 5. Likewise the low links of each chain interlock with the low links of the other chain. The chains can only flex in one direction—that is, about their pivots—and as the pivots of the two chains are arranged at an angle to each other each chain prevents the other from bending or yielding, as will be obvious from an inspection of the drawings. The chains as they leave the sprocket-wheels are therefore interlocked and form a rigid straight rammer-shaft which is movable to and from the gun as the sprocket-wheels may be turned forward or backward.

The sprocket-wheels may be driven by any suitable mechanism. As shown, they are provided with intermeshing beveled gears 36, which are driven through suitable gearing by an electric motor 37. The knees 18 19 may be of different curvature from that shown. The gun illustrated is one of a pair of guns in a turret, and the knees 18 19 are differently shaped to accommodate them to the turret. They may be of any shape suitable to guide the chains and to support the rammer. The guideways 20 are preferably provided with lateral grooves 38, in which the rollers 33 run to carry the chains with a minimum of friction.

It will be obvious that our improved rammer results in a great economy of space in the rear of the gun, in fact occupying but one-half of the space which would be occupied by an ordinary rammer having the same degree of movement. It also has the advantage of being always in the same relation with the gun, and therefore adapted for loading the gun at any elevation. Although the construction shown is the one preferred and the best one at present known to us, it will be obvious that our invention is not limited to the particular construction of chains or the particular means for operating and guiding the same illustrated and described.

What we claim, and desire to secure by Letters Patent, is—

1. A rammer having a shaft consisting in a plurality of interlocking chains.

2. A rammer having a shaft consisting in two interlocking chains.

3. A rammer having a shaft consisting in two interlocking chains adapted to flex in intersecting planes.

4. A rammer comprising a plurality of interlocking chains, and a common head to which said chains are connected.

5. A rammer comprising a pair of interlocking chains adapted to flex in intersecting planes, and a common head to which said chains are connected.

6. A rammer having a shaft consisting in two interlocking chains each chain comprising a series of high links and a series of low links, said links being provided with interlocking horns, the high links of each chain being adapted to interlock with the high links of the other chain, and the low links of the respective chains being likewise adapted to interlock, whereby said chains are adapted to form a rigid rammer-shaft.

7. The combination with a gun, of a rammer-frame having chain-guides and chains running in said guides and adapted to interlock to form a rammer.

8. The combination with a gun, of a rammer-frame connected with the sleeve or carriage of the gun and movable therewith, chain-guides in said rammer-frame, said guides terminating in an opening in line with the axis of the gun, chains in said guides adapted to interlock to form a rammer-shaft, and means for driving said chains simultaneously to operate the rammer.

9. The combination with a gun, of a rammer-frame comprising beams connected with the gun sleeve or carriage, knee-pieces extending upwardly and inwardly from said beams and meeting in line with the axis of the gun, chain-guides in said beams and knee-pieces, and terminating in an opening in line with the axis of the gun, sprocket-wheels to carry the chains from said guides to said opening, and means to drive said sprocket-wheels simultaneously, the chains being adapted to interlock as they pass around the sprocket-wheels to form a rigid rammer-shaft.

10. The combination with a gun and the rammer-frame, of the guides in said frame having lateral grooves, and the chains adapted to run in said guides and provided with rollers to run in said grooves, said chains being adapted to interlock to form a rigid rammer-shaft.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOHN F. MEIGS.
ROBERT P. STOUT.

Witnesses:
EDWIN A. MILLER,
EARL G. RUSH.