

(No Model.)

M. P. LAWRENCE.
DEVICE FOR REPLACING BOLTS.

No. 597,005.

Patented Jan. 11, 1898.

Fig. 1

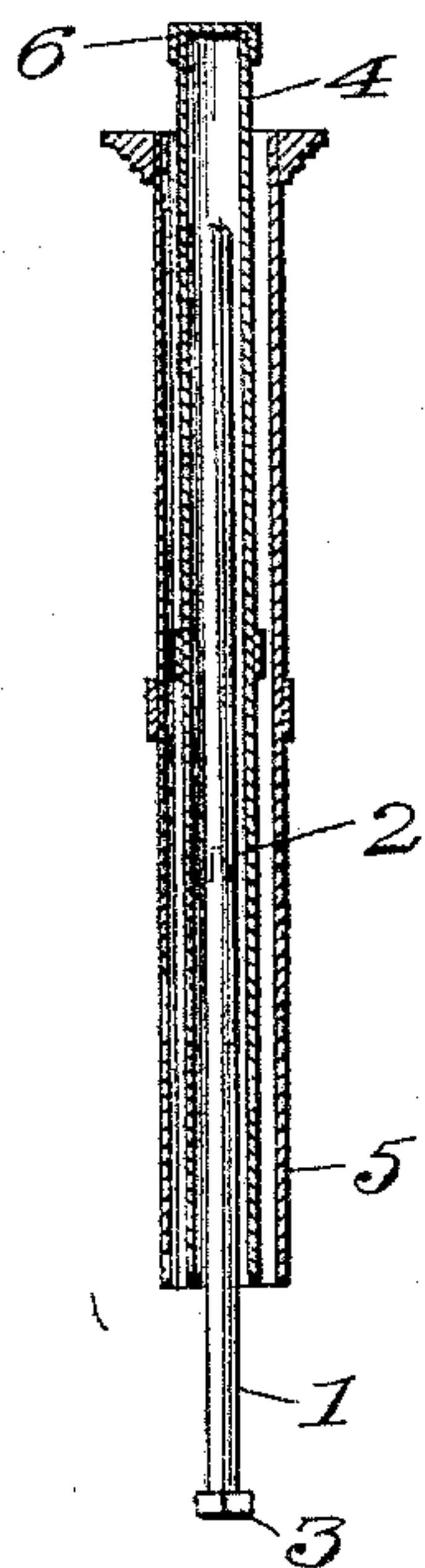


Fig. 2

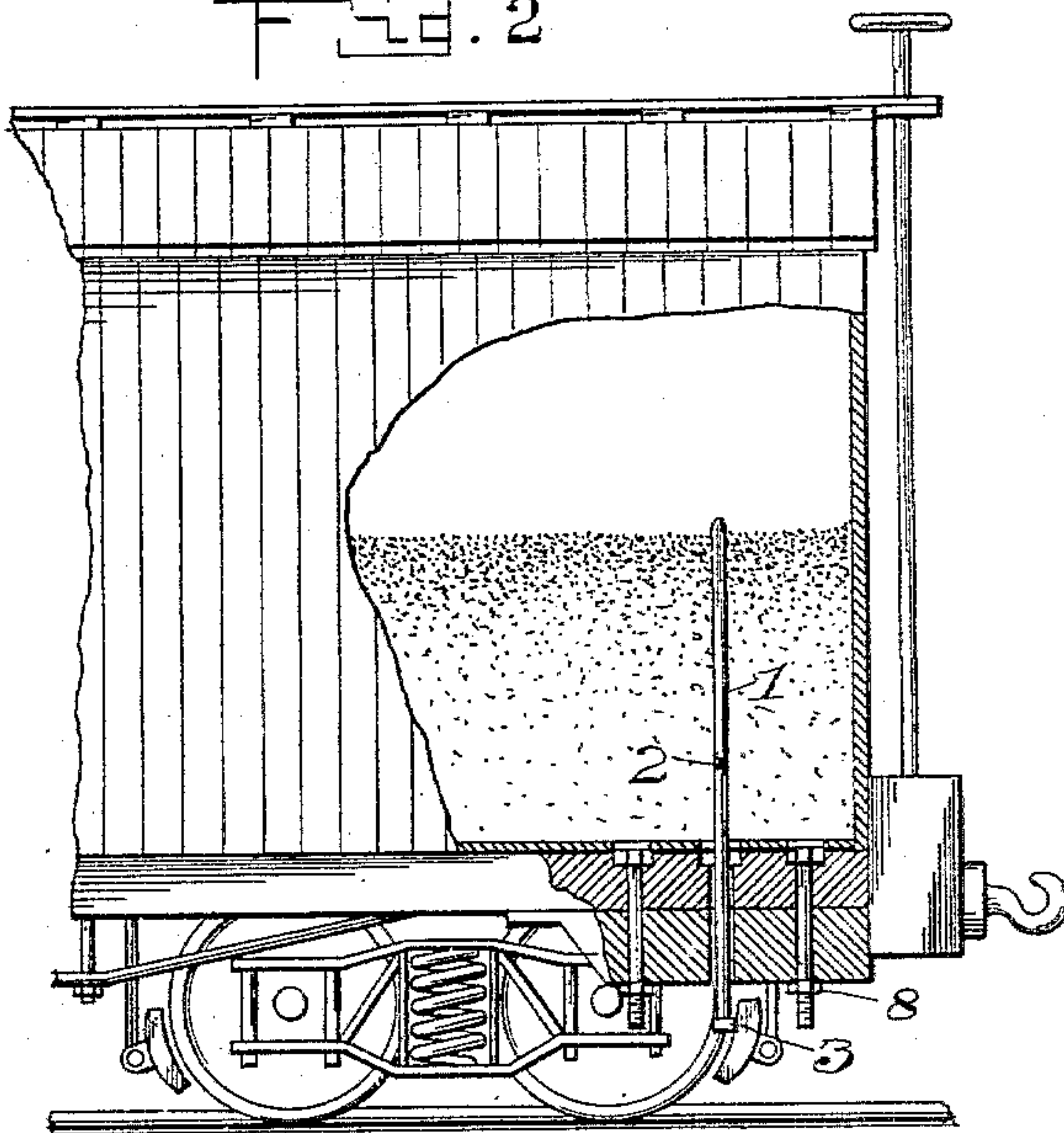


Fig. 3.

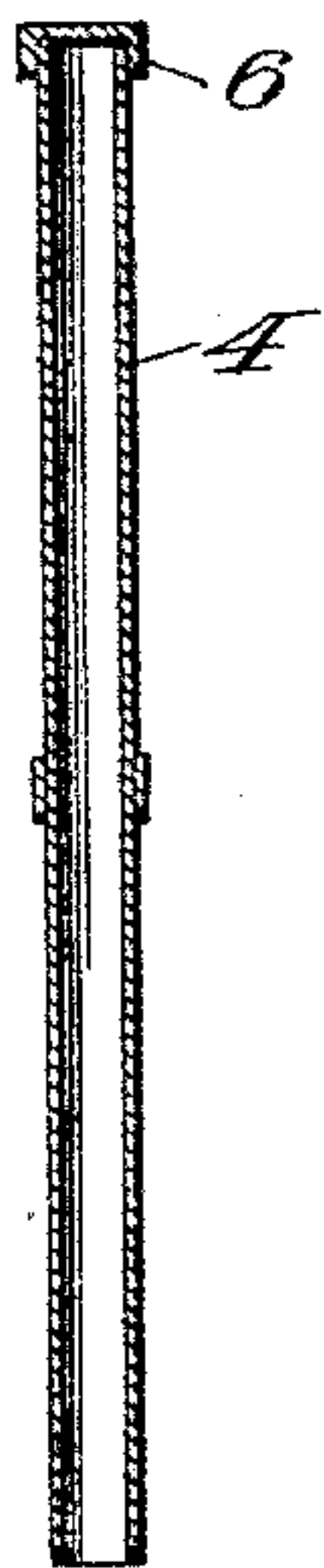


Fig. 4.

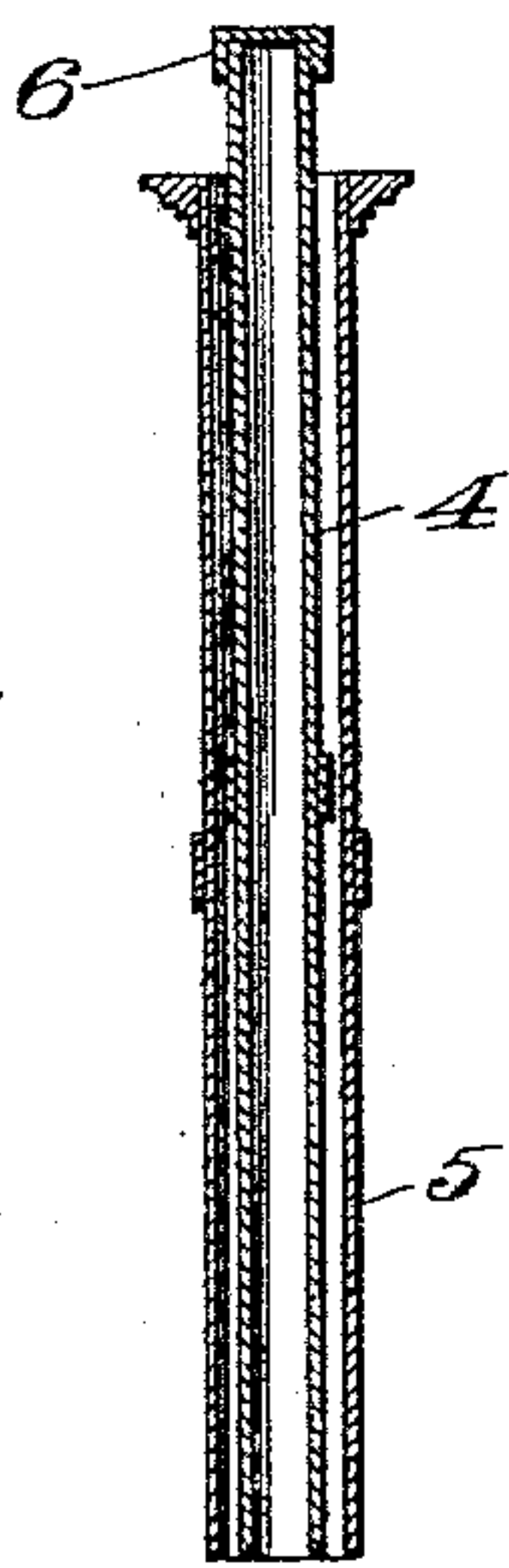
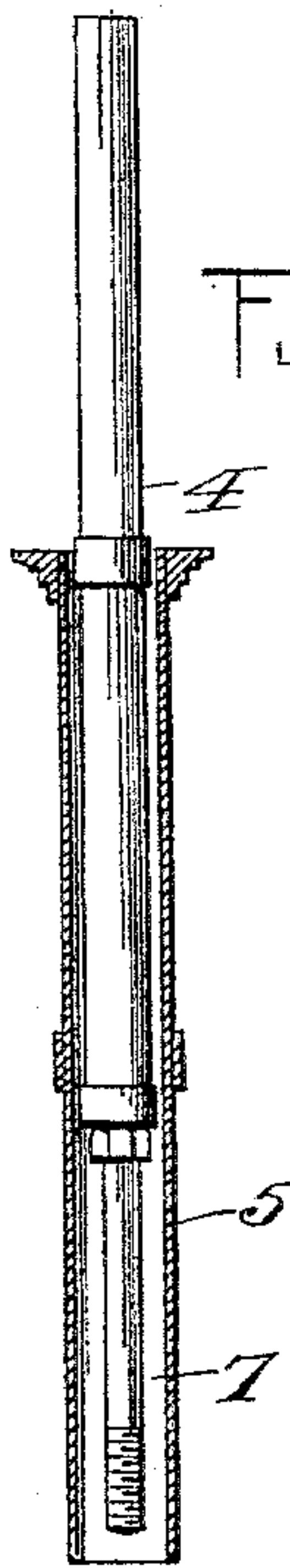


Fig. 5.



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MORRIS P. LAWRENCE, OF PHOENIXVILLE, PENNSYLVANIA.

DEVICE FOR REPLACING BOLTS.

SPECIFICATION forming part of Letters Patent No. 597,005, dated January 11, 1898.

Application filed May 28, 1897. Serial No. 638,617. (No model.)

To all whom it may concern:

Be it known that I, MORRIS P. LAWRENCE, of Phoenixville, in the county of Chester and State of Pennsylvania, have invented certain new and useful Improvements in Devices for Replacing Bolts; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to a bolt-replacing device designed more especially for use upon cars loaded with loose material, such as grain in bulk, and in places, for example, such as where the draft-timber is bolted to the bottom of the car and in which heretofore when the bolt became broken or lost it has been necessary to unload the car for replacing the bolt, an operation involving much labor and loss of time. The present invention is designed to overcome this difficulty and obviate the necessity for unloading the car in order to replace the lost bolt; and to this end the invention consists in the employment of a jointed rod for penetrating the car-load in combination with means for covering and permitting the withdrawal of the rod and the insertion of a bolt in its place without interference from the contents of the car.

It further consists in certain details of construction of the device and method of replacing the bolts hereinafter described and claimed.

In the accompanying drawings, Figure 1 represents in section the bolt-replacing device complete. Fig. 2 represents a longitudinal section through the draft and floor timbers at one end of a box-car, shown loaded with grain or other loose material in bulk, with the jointed rod inserted from underneath into the perforation from which the bolt has been lost. Fig. 3 shows the tube for covering the inside jointed rod. Fig. 4 shows a second tube or casing applied over the inner tube and permitting the withdrawal of said inner tube and of the jointed rod, and Fig. 5 shows the manner of inserting the bolt to replace the one lost.

In Fig. 1 the parts of the outfit are shown mounted one within the other, 1 indicating the jointed rod provided at a point near cen-

trally of its length at 2 with a joint permitting one part of the rod to be flexed relatively to the other, one end of said rod being provided with a head 3, adapting it to be driven through a bolt-hole in the place of the bolt lost and to be replaced.

4 indicates a tube or casing surrounding rod 1 and also composed of two or more lengths united by a screw-threaded joint and which serve to give the desired length to the casing or tube, and 5 indicates a similar casing of larger diameter adapted to surround the inclosing casing 4. The inner casing or tube 4 has one end closed, as indicated at 6. The rod and casing therefore are jointed or formed in sections in the manner described for giving them the necessary length to pass through the material with which the car is loaded, and as the rod 1 has to be applied from underneath and passed up through both floor and draft or other timbers from which the bolt is lost and through the load upon the car-floor it will be apparent that such a rod cannot be used from underneath the car, where space is limited, unless jointed in the manner described, which adapts first one length to be pushed upward from underneath the car and then followed by another length in alinement with the first. When the end of the rod passes above the contents of the car, the tube 4 is passed over said end and, moving snugly in contact therewith, crowds the grain away from said rod and serves to straighten the joints in the rod as it presses downward thereon, length after length being added to the tube until the lower end thereof rests upon the car-floor, with the upper closed end of the tube projecting above the car-load. The rod, however, may have screw-threaded joints similar to those of the casing-tubes, if preferred. The outer tube or casing 5 is now placed over the inner casing 4 and lengthened in the same manner until its upper end also projects above the car-load, with the lower end resting upon the car-floor, having pressed the grain away from the inner casing-tube 4. The jointed rod can now be withdrawn from below the car, and the casing-tube therefor may be withdrawn through the upper open end of the outer tube 5, leaving the latter free for the passage through it of the bolt indicated at 7

to be inserted through said casing-tube 5 and into the place of the lost bolt, in which it is secured by means of a nut 8, applied to its lower end, as indicated. The tube 4 may be
5 inverted for driving the bolt to place through the casing 5, the closed end of the tube 4 acting upon the bolt-head for that purpose. The tube or casing 5 can now be withdrawn and the same appliances may be used in the same
10 manner for replacing other bolts that may be lost. The jointing of the rod and also of the casings therefor is essential, because of the limited space in which the operator has to work, either underneath the car or from above
15 the load in the car.

I have described the application of the device to cars; but it will be apparent that it may be used upon other vehicles and in places where it is desirable to replace lost bolts
20 without removing the material placed upon the surface through which said bolts are to be passed.

By the construction of the device as described an effective means is provided for re-
25 placing bolts lost from cars or other like places without necessitating the unloading of the car or vessel in which the material constituting the load is placed in bulk, thereby, as stated, obviating the loss of much time and

effecting a great saving in the expense of re- 30 placing lost bolts.

Having thus described the invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a bolt-replacing device, the jointed 35 rod, an inner casing therefor, and an outer tube or casing for said inner casing and rod for permitting their removal and the insertion of a bolt, substantially as described.

2. The combination in a bolt-replacing de- 40 vice, of a jointed rod and an inner and outer tube, or casing therefor, the latter permitting the withdrawal of the rod and inner casing and the insertion of the bolt, substantially as described.

3. In a bolt-replacing device, the combina- 45 tion of the jointed rod and the inner and outer casing-tubes therefor, said tubes being formed in sections and coupled together for giving the required length thereto, substan- 50 tially as described.

In testimony whereof I have signed this specification in the presence of two subscrib- ing witnesses.

MORRIS P. LAWRENCE.

Witnesses:

GARRETT MOULDER,
SAMUEL P. REAVER.