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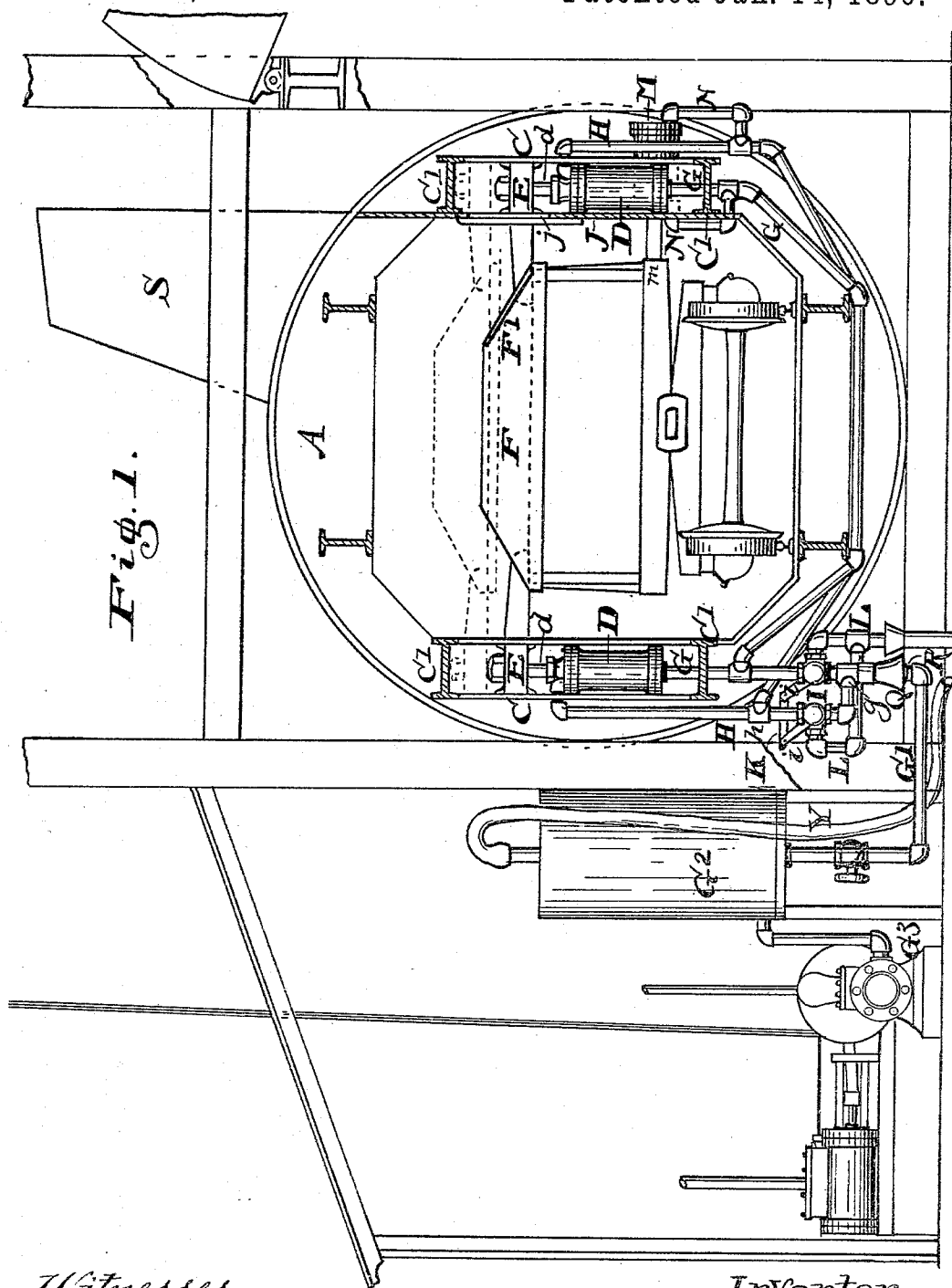
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T. LONG.

CAR UNLOADING APPARATUS.

No. 553,122.

Patented Jan. 14, 1896.



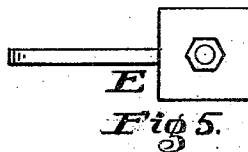
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Inventor,
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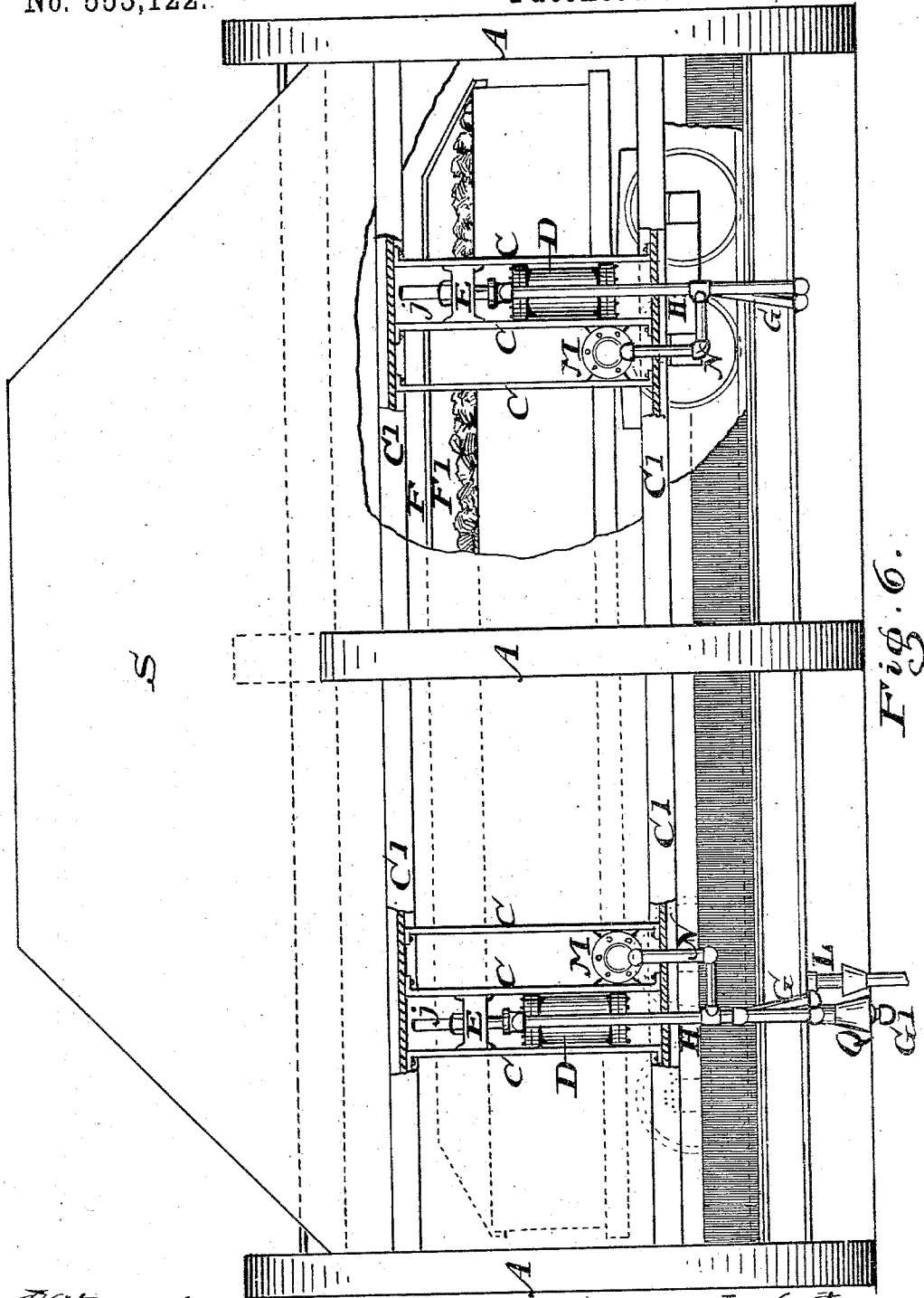
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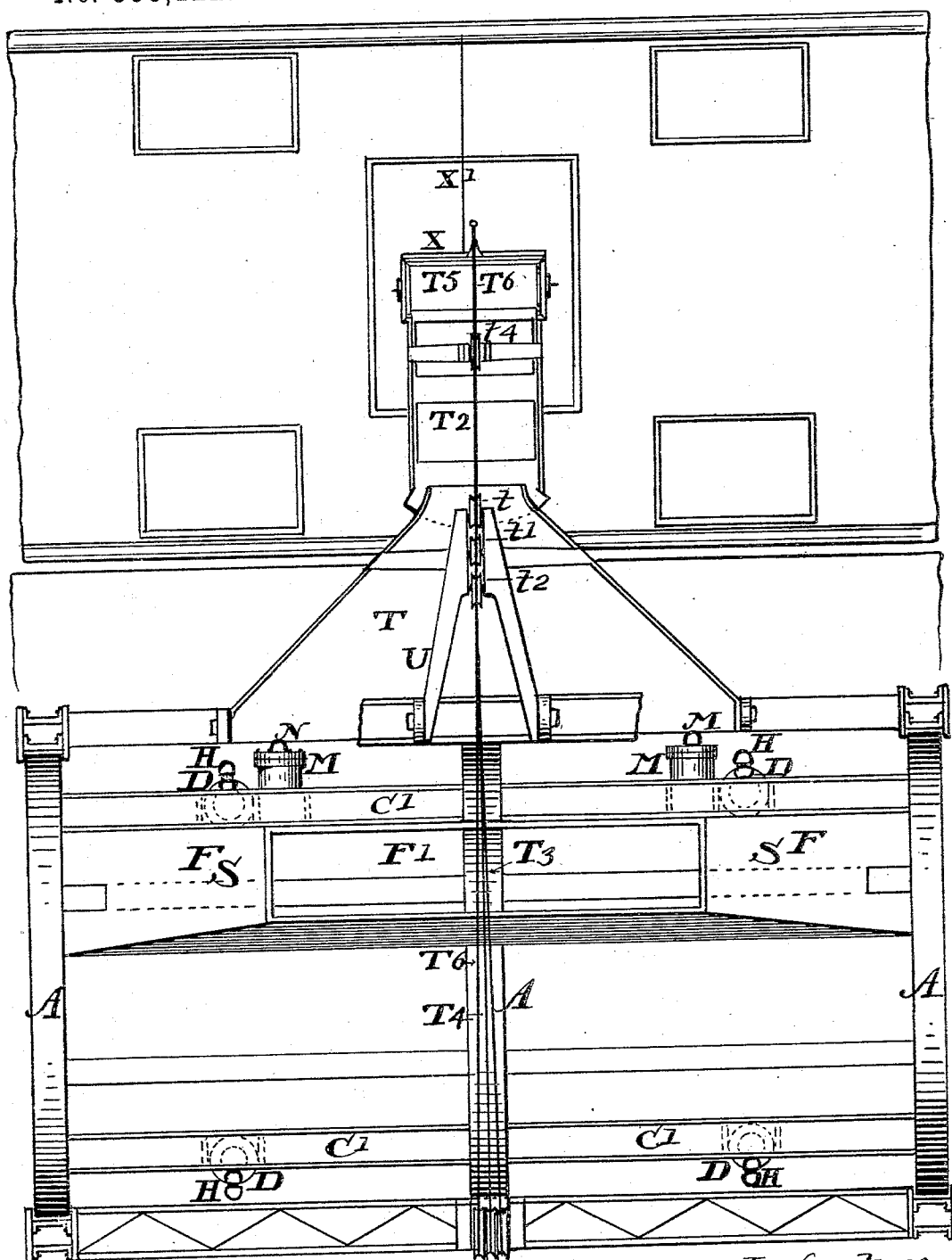
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Fig. 7.

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UNITED STATES PATENT OFFICE.

TIMOTHY LONG, OF CLEVELAND, OHIO.

CAR-UNLOADING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 553,122, dated January 14, 1896.

Application filed June 17, 1895. Serial No. 553,016. (No model.)

To all whom it may concern:

Be it known that I, TIMOTHY LONG, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Car-Unloading Apparatus, of which the following is a specification.

This invention relates to unloading apparatus for railway-cars; and it consists of a hydraulic clamping device for holding the car onto the railway-track while being turned over and an adjustable discharge-chute, applicable to my dumping apparatus, Patents Nos. 527,117 and 527,118, dated October 9, 1894, consisting of the constructions and combinations, substantially as hereinafter described and pointed out in the claims.

In the accompanying drawings, Figure 1 is an end elevation of a car-unloading apparatus having my improvements attached. Fig. 2 is an end elevation of a trestle-tower frame having the new adjustable chute attached. Fig. 3 is a detached view of one of the hydraulic clamps. Fig. 4 is an enlarged sectional view of a pair of two-way valves used in the pipes leading into the ends of the cylinders of the hydraulic clamps. Fig. 5 is a top view of a clamping-jaw. Fig. 6 is a front side elevation of the rolling car-holding cylinder, having the side wall broken away to show the car in place with the clamps adjusted for holding the car. Fig. 7 is a top or plan view of the cylindrical car-holding frame and the discharge-spout and the adjustable chute as arranged for discharging the load into a boat.

A, Figs. 1, 6, and 7, represents a cylindrical car-holding frame of the character and make as those contained in my patents before mentioned, and S is the discharge-spout permanently attached and which turns with the cylinder to connect with the receiving-apron at the front side of the trestle.

The first subject of this application, the hydraulic car-clamping mechanism, is described as follows:

C C C are upright cross-beams secured between the two side longitudinal beams C' C' at each side of the cylinder and parallel with the sides of the car. D D are hydraulic cylinders permanently fixed between two of the said upright cross-beams C C. On the piston-rods d, which pass through the upper

heads of the cylinders, are fixed clamping-jaws E E, which pass through slots j j in the side walls J J, and bear upon the top edge of the car-body, as seen in Fig. 1. F is a cover for the car, supported and carried by the said clamp-jaws, designed for holding the contents of the car and preventing it falling off, except through the opening F' in the front side of the cover when the car is turned over.

G G are water-pipes attached to the lower heads of the cylinders D D, one of which pipes, as seen in Fig. 1, connects with a main supply-pipe G', taking its supply from a pressure-tank G², that is kept provided with water under pressure by a force-pump G³. The pipes G leading from three of the cylinders D connect with the pipe of this first cylinder, so that all the cylinders are operated at one and the same time.

H H are branch pipes attached to the upper heads of the cylinders D. The branch of the first cylinder is connected to its pipe G at g, and all the branches from the other cylinders are connected with the branch H of said first cylinder at h, whereby the cylinders are simultaneously operated in the opposite direction.

I I are two-way valves fixed in the pipes G and H under the first cylinder, so arranged as to work in opposition—that is, when one is turned to admit water into the cylinders the other is opened for discharge of the water from the opposite end of the cylinders. The levers i i of said valves are joined by a link K, to be operated in conjunction. When the levers are turned in the position seen in Fig. 4 the water forces the pistons down for clamping the car and lowering the cover F.

L L are waste-pipes attached to one side of the valves I I, and are connected below to lead into a funnel waste-pipe. When the levers i i are turned upright the valves are reversed and the water is then admitted to the lower ends of the cylinders, and the clamps and cover are lifted and the car is released. When the levers i i are turned outward the valves are both entirely closed.

M M are also hydraulic cylinders fixed in the beams C C transversely to the cylinders D D, and at the front side of the car-holding frame. The piston-rods of these cylinders are employed for supporting the car when the

same is turned over by bearing against the side of the car at *m*.

N N are water-pipes connecting the cylinders *M M* with the pipes *G* and *H*, and said cylinders are simultaneously operated with the cylinders *D D*, a means for separating the pipe *G* of the first cylinder *D* from the supply-pipe *G'* when the operation of hoisting and turning the cylindrical frame and car is performed, consisting as follows:

Q is a bell-shaped terminal on the pipe *G*, Fig. 4, having a chamber in which is contained a check-valve *v*, which closes by the inside pressure of the water whenever separation is made to prevent the escape of water.

R is a tapering nozzle on the pipe *G'* over which the bell sets when connection is made and which pushes up the check-valve for re-opening the passage. As a substitute for this check-valve a hose *Y* may be attached to the top of the pressure-tank *G²* and connected to the pipe *G* instead of the bell. This hose could be carried upward when the car is raised.

T is an apron hinged to the side beam of the trestle-tower, having its front side beveled off to the middle.

T² is a chute hinged to the apron by which it may have sidewise adjustment, enabling it to be turned to reach hatchways or coal-bunkers of boats.

U is a boom hinged to the top of the trestle-tower and is provided with three pulleys *t t²*.

T³ is a rope attached to the boom for supporting the apron, and passes through a pulley *t³* on the apron, thence back up and over pulley *t²*, thence back to a pulley at the back of the trestle, thence down to and is wound on a drum of a hoisting-engine at the back of the trestle.

T⁴ is a rope also attached to the boom and passes down to and through a pulley *t⁴* on the chute *T²*, thence back up and over pulley *t²*, thence back to a pulley at the back of the trestle and on down to a drum of the hoisting-engine.

The outer end of the chute *T²* is provided with a telescopic extension *T⁵* hinged on so that it may be raised and lowered for adjustment. *T⁶* is a rope attached to the extension *T⁵* passed up and over a pulley *t* on the boom, thence back to a pulley at the back of the trestle, and on down to a drum of the hoisting-engine.

X is a gate hinged onto the end of the extension for retaining the contents until such time as may be desired for discharge. *X'* is a rope attached to the said gate, by means of which the same may be pulled open from the deck of the boat or otherwise.

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

1. In a car-unloading apparatus, the combination of the cylindrical frame *A*, vertical cylinders *D D*, and horizontal cylinders *M M*, supported in the framework of said cylinder *A*, pistons and piston rods in each of said cylinders, clamping jaws *E E* attached to the piston rods of cylinders *D D*, the piston rods of cylinders *M M* bearing against the side of the car, water pipes connected to said cylinders *D D* and *M M*, and means for forcing water into said cylinders for clamping and holding the car, as and for the purpose set forth.

2. In a car unloading apparatus, the combination with the cylindrical car holding frame, of the hydraulic cylinders "*D, D*," supported in the cross-beams of said frame, piston rods *d d* playing in said cylinders *D D*, clamping jaws *E E* attached to the said piston rods and guided in the cross-beams, water pipes "*G, G*" and branch pipes "*H, H*," connecting the ends of the cylinders "*D, D*" with the supply pipes "*G'*," the two way valves "*I, I*" in the pipes "*G* and *H*," the hose "*Y*" connecting the pipe "*G*" with the pressure water tank "*G²*" substantially as described and for the purpose set forth.

3. The combination in a car unloading apparatus, with the hydraulic cylinders "*D, D*," supported in the framework of the car holding cylinder, piston rods *d d*, playing in said hydraulic cylinders, clamping jaws *E E* attached to said piston rods and the car cover "*F*" supported by the said jaws, and means substantially as described for operating the pistons of said hydraulic cylinders, as and for the purpose set forth.

4. The combination in a car unloading apparatus, of a cylindrical car holding frame, provided with an adjustable car cover "*F*," the supporting trestle tower, apron "*T*" hinged to a cross-beam or girder of the tower, chute "*T²*" pivotally attached to the apron, the telescopic extension "*T⁵*" hinged to the end of the chute "*T²*," ropes "*T³, T⁴, T⁶*" attached to the apron, chute and telescopic extension and connected with pulleys "*t, t², t³*" in the boom "*U*" at the top of the trestle tower, thence back over pulleys at back of the tower thence down to and wound on drums of a hoisting engine, adapted for holding and adjusting the chute to different positions substantially as and for the purposes set forth.

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Witnesses:

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