

(No Model.)

2 Sheets—Sheet 1.

E. E. FITZGERALD.  
BUFFER FOR SAWMILL CARRIAGES.

No. 598,081.

Patented Feb. 1, 1898.

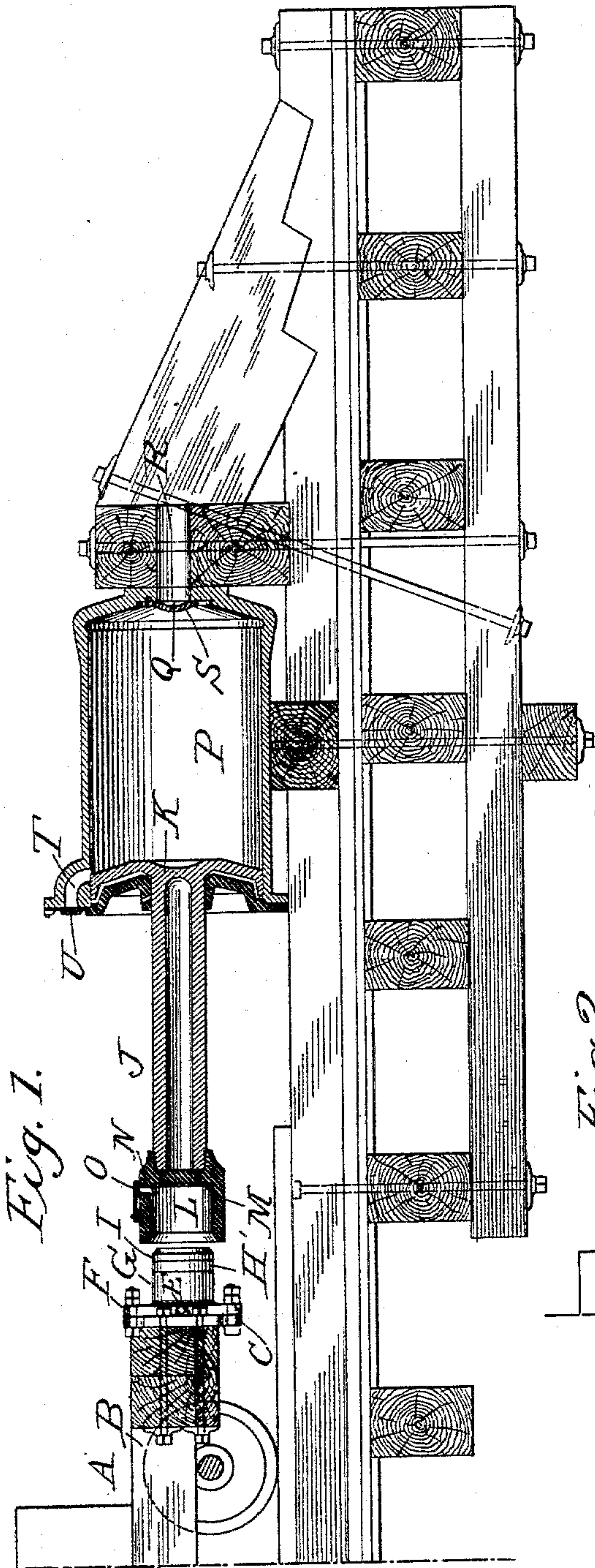


Fig. 1.

Witnesses

G. B. Brudine.  
Julia M. Pond.

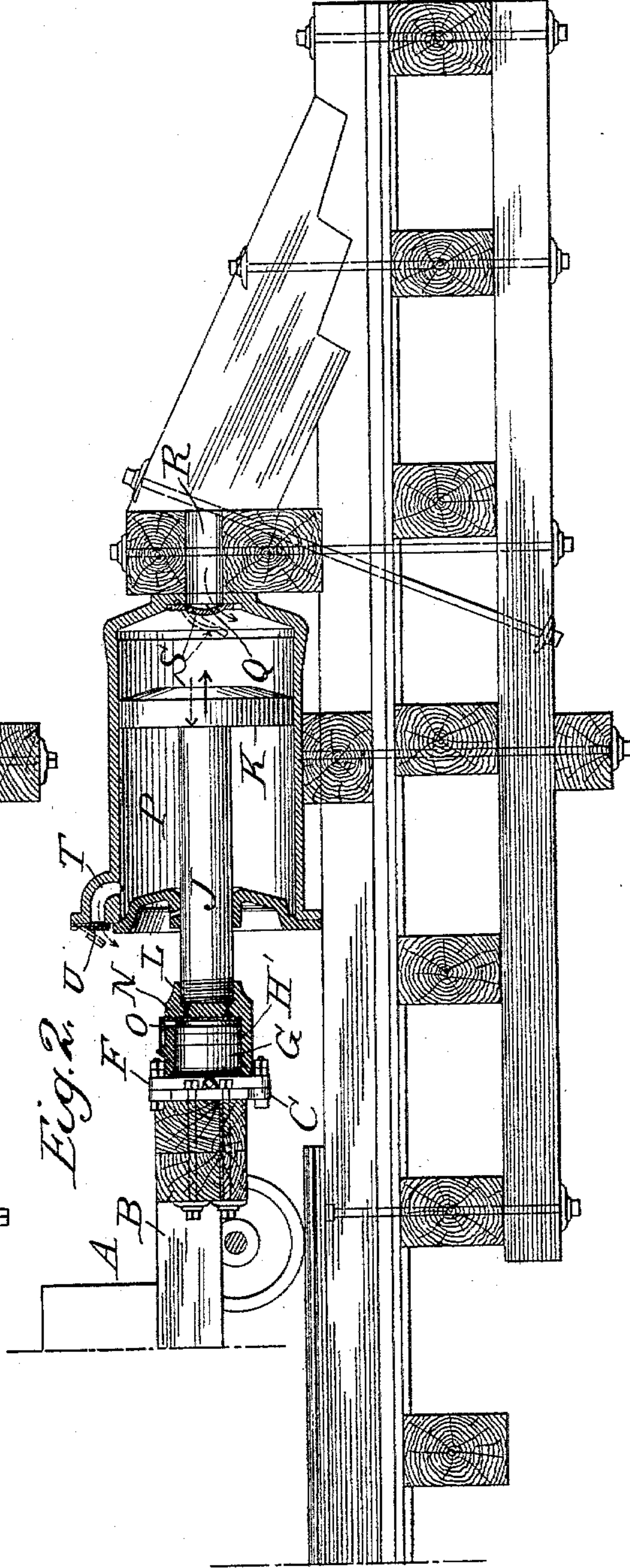


Fig. 2.

Inventor:  
Edward E. Fitzgerald,  
by Dodge & Sons  
Attorneys.



(No Model.)

2 Sheets—Sheet 2.

E. E. FITZGERALD.  
BUFFER FOR SAWMILL CARRIAGES.

No. 598,081.

Patented Feb. 1, 1898.

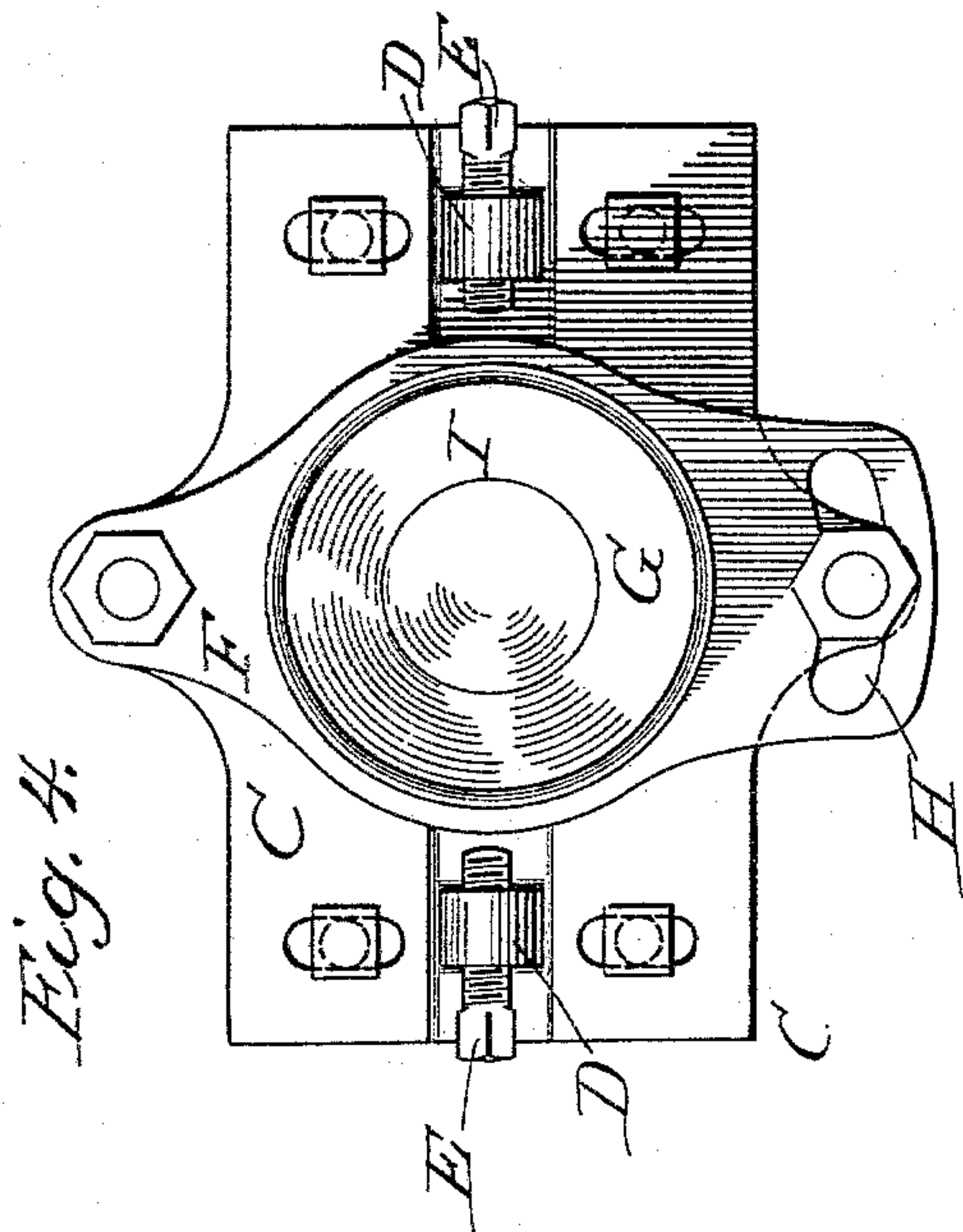


Fig. 6.

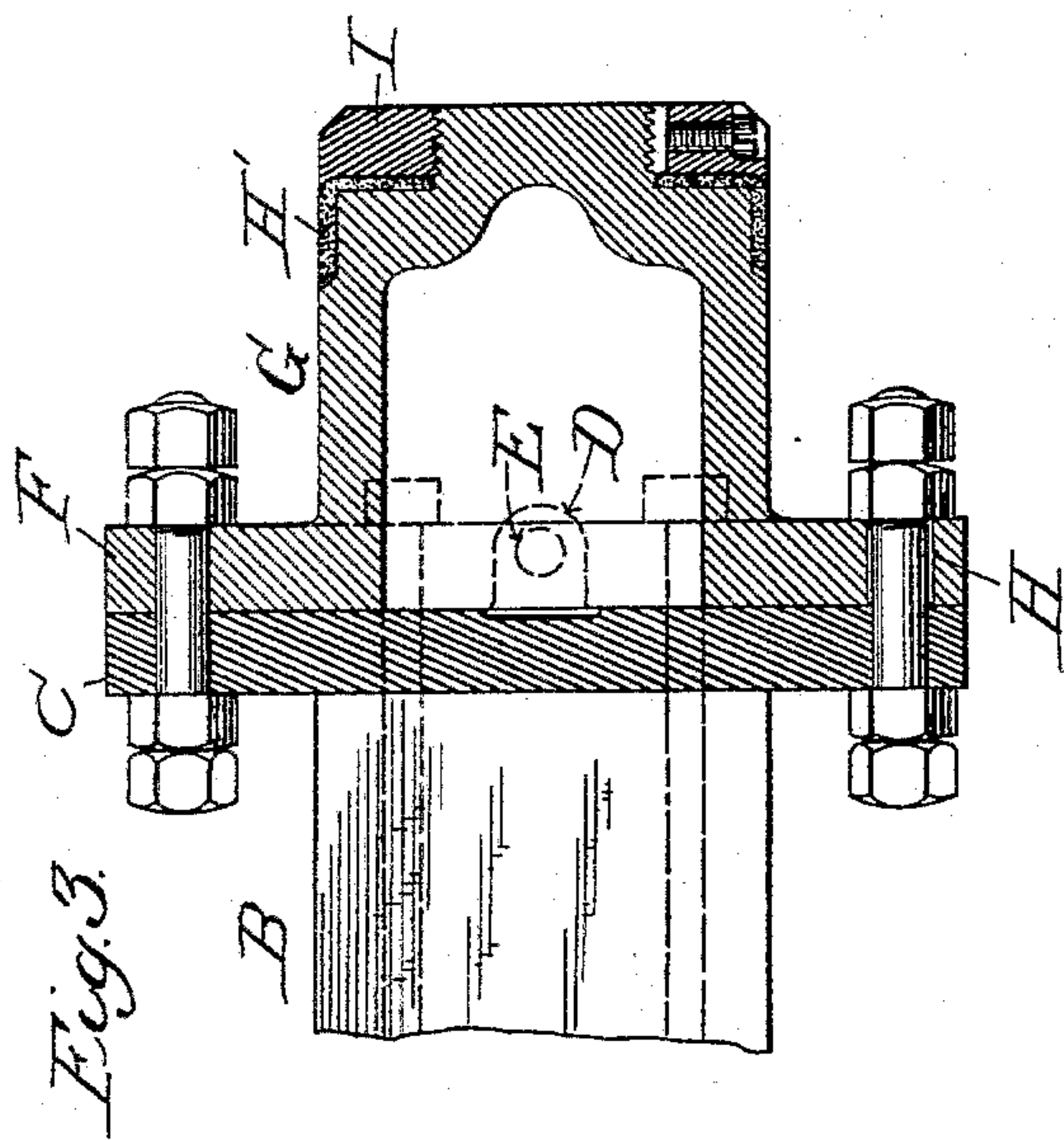
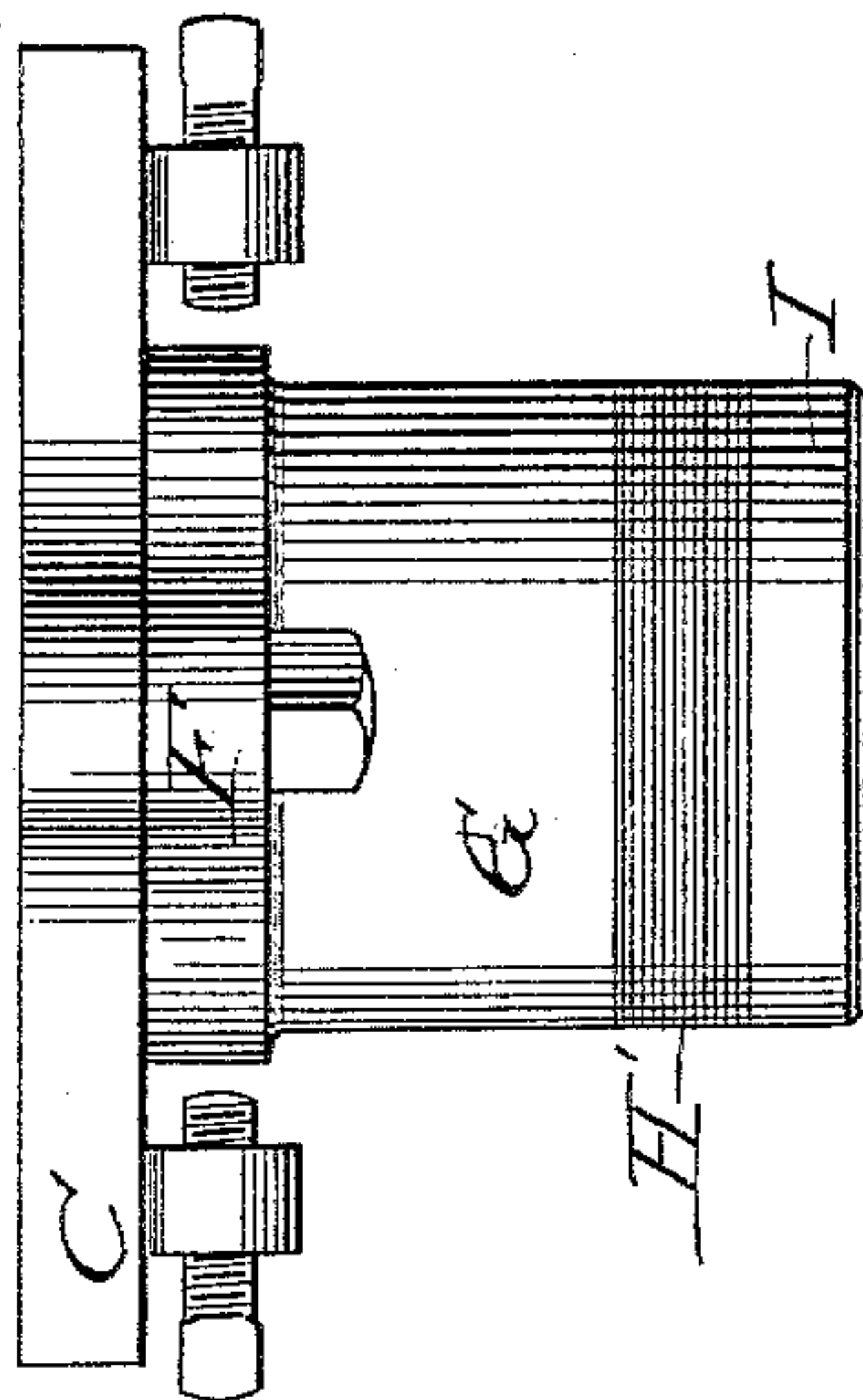
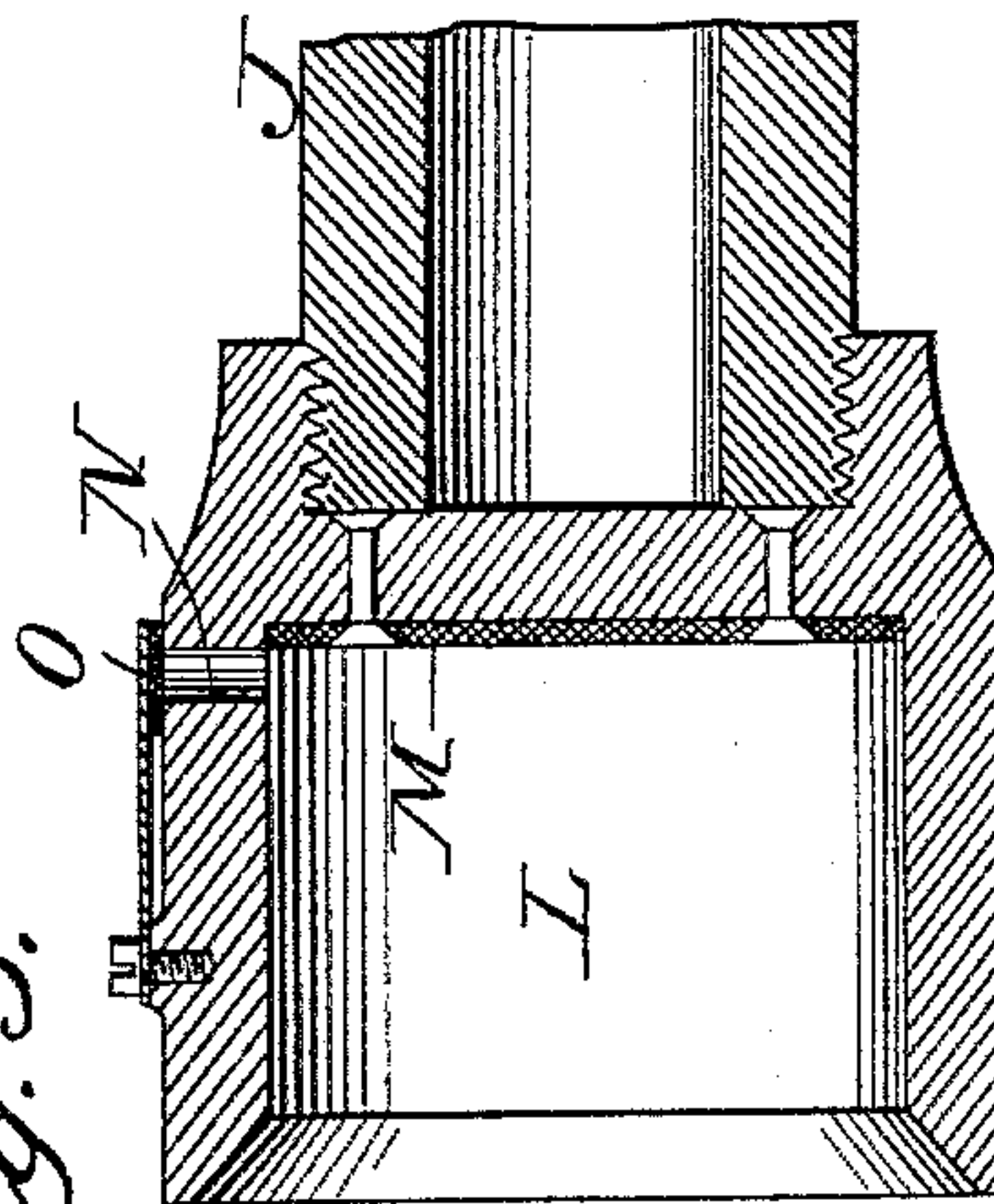


Fig. 5.



Witnesses  
W. B. Bunker  
John M. Pond

Inventor:  
Edward E. Fitzgerald,  
by Dodge & Sons,  
Attorneys.



# UNITED STATES PATENT OFFICE.

EDWARD EUGENE FITZGERALD, OF MILWAUKEE, WISCONSIN, ASSIGNOR  
TO THE EDWARD P. ALLIS COMPANY, OF SAME PLACE.

## BUFFER FOR SAWMILL-CARRIAGES.

SPECIFICATION forming part of Letters Patent No. 598,081, dated February 1, 1898.

Application filed June 24, 1897. Serial No. 642,086. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD EUGENE FITZGERALD, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Buffers for Sawmill-Carriages, of which the following is a specification.

My invention relates to buffers for sawmill-carriages, the construction and advantages of which will be hereinafter set forth, reference being had to the annexed drawings, wherein—

Figure 1 is a sectional view of the buffer and so much of the carriage as is necessary to a proper understanding of the invention; Fig. 2, a similar view, the parts being shown in different operative relation; Fig. 3, a detail sectional view of the pivoted plunger; Fig. 4, a front face view of the same; Fig. 5, a detail sectional view of the hollow head or dash-pot which is secured to the end of the piston-rod, and Fig. 6 a top plan view of the plunger.

The object of my invention is to provide a simple and at the same time efficient buffer, one which is automatic in its action and free from any unnecessary complications in its structure.

Referring to Figs. 1 and 2, A designates the sawmill-carriage, and B the girth or timbers thereof, to which is securely bolted a plate C of the construction shown in detail in Figs. 3, 4, and 6. The openings in said plate through which the securing-bolts pass are elongated, so that it may be brought into exact alinement with the other parts of the structure, to be hereinafter described. The plate is also provided with two lugs D D, extending from its face and threaded transversely to receive set-screws or bolts E E. A plate F, having formed integral therewith a plunger G, is pivoted at its upper end to the upper side of plate C, while a bolt secured to said plate C extends through and works in a radial slot H, formed in the lower end of plate F. The plunger is, of course, free to swing on its pivot, limited only by the set-screws or bolts E. The head of plunger G is formed by placing over the reduced end there-

of a leather cup or washer H' and screwing up against it a follower or nut I, secured in place by a set-screw.

J denotes the piston-rod, and K the piston of the buffer proper. To the outer or forward end of the rod there is secured a dash-pot or cylinder L, designed to receive plunger G. The mouth of said pot is flared slightly, so as to insure the entrance of said plunger, if the parts do not happen to be in exact alinement for any reason. To the bottom of the pot or cylinder there is secured a layer of leather M for the purpose of absorbing the shock and forming a cushion against which the plunger may act as it enters. An opening N is formed in the pot in line with the bottom of the same, and a spring-valve O covers the opening, permitting free egress of the air as the plunger enters, but preventing ingress through opening N as the plunger is withdrawn. P indicates the cylinder in which piston K works. Said cylinder is firmly secured to the framing of the mill and is formed with a central opening Q at its rear end, which opening is in line with an opening R, formed in the timbers back of the cylinder, as shown in Figs. 1 and 2. An outwardly-seating valve S is provided for opening Q. An opening or channel T is formed at a point near the forward end of cylinder P, the point of entrance being far enough from the head of the cylinder that as the piston moves toward that end it will pass said opening and form an inclosed air-space in front of itself. An inwardly-seating valve U is provided at the outer end of said channel or opening T.

The operation of the device is as follows, assuming the parts to be in the relation shown in Fig. 1: As the carriage moves forward plunger G enters cylinder L, forcing the air out therefrom through opening N; the end of the plunger abutting against the leather backing M. The piston-rod and piston K are then moved, the piston traversing the cylinder P, forming a vacuum in rear of itself by reason of the valve U closing, and compressing the air in front by reason of valve S being forced to a closed position, the parts assuming the relation shown in full lines in Fig. 2, in which position the carriage will be brought to a



stop. While in this position the carriage may be offset by reason of the plunger G being pivoted as above described. Assuming now the carriage movement is reversed, plunger G will be securely held in piston L by reason of valve N closing, and being so held will draw piston-rod J and piston K back, valves S and U opening, permitting free ingress and exit of the air, respectively, upon opposite sides of the piston. This movement continues until piston K passes beneath the mouth of opening T, when of course the air between the front of the piston and the head of the cylinder will begin to be compressed. When the air thus confined reaches a certain degree of compression, and the area of the piston being much larger than that of the plunger, said plunger will be withdrawn from cylinder L, the parts being thus brought back into operative position without the expenditure of any unnecessary force. Should the piston K become fast for any reason, a rod or bar may be inserted through openings R and Q and the piston forced to its proper position.

It will be noted from the foregoing that no clutches, ratchets, or like mechanical structures are employed in the apparatus, and consequently the buffer is much less liable to breakage and failure to act than those wherein such devices are employed.

Having thus described my invention, what I claim is—

1. In combination with an offsetting sawmill-carriage, a buffer; and pivotal connections between said carriage and the buffer.

2. In combination with an offsetting sawmill-carriage; a buffer; and connections between the buffer and carriage for permitting the carriage to offset after the buffer is in operative relation therewith.

3. In combination with a sawmill-carriage; a buffer; and connections substantially as described between said buffer and the carriage whereby the carriage may move laterally with relation to the buffer when the parts are in operative relation.

4. In combination with a sawmill-carriage; a plunger connected thereto; a cylinder; a piston working therein; a piston-rod; and a second cylinder carried by the end of the piston-rod designed to receive the plunger.

5. In combination with a sawmill-carriage; a plunger connected thereto; a cylinder; a piston working in said cylinder; a piston-rod; and a second cylinder carried by the end of the piston-rod, said second cylinder being so

vented as to permit free insertion of the plunger, and to prevent its free withdrawal.

6. In combination with a sawmill-carriage; a buffer therefor, comprising a cylinder, a piston working therein to compress the air in front and to create a vacuum in rear thereof when moving inward; a piston-rod connected to the piston; a cylinder carried by the outer end of the rod; and a plunger carried by the carriage designed to enter said cylinder, the cylinder being so vented as to permit the free insertion of the plunger and to prevent its free withdrawal.

7. In combination with a sawmill-carriage; a buffer therefor, comprising a cylinder, a piston working therein to compress the air in front, and to create a vacuum in rear thereof when moving inward; a piston-rod; a cylinder carried thereby; a plunger mounted upon the carriage designed to enter said cylinder, the cylinder being so vented as to permit the free insertion of the plunger and to prevent its free withdrawal; and means for forming an air-cushion between the piston and its cylinder-head upon the return movement of the piston to cause its stoppage and the separation of the plunger and its cylinder.

8. In combination with a sawmill-carriage; a plunger connected thereto; a cylinder as P provided with valves S and U; a piston working therein; a piston-rod; and a cylinder mounted upon the end of said rod and provided with an inwardly-seating valve at its base, said cylinder being designed to receive the plunger, substantially as described.

9. In combination with a sawmill-carriage; a buffer therefor; a plunger pivotally mounted on said carriage and designed to act in conjunction with said buffer; and means for limiting the swing of said plunger.

10. In combination with a sawmill-carriage; a plate C secured thereto provided with lugs D and screws E; a plunger as G pivoted to said plate; a cylinder P provided with valves S and U; a piston working in said cylinder; a piston-rod connected thereto; and a cylinder as L provided with an inwardly-seating valve at its base, mounted upon said rod and designed to receive the plunger G, substantially as described.

In witness whereof I hereunto set my hand in the presence of two witnesses.

EDWARD EUGENE FITZGERALD.

Witnesses:

GEO. H. BURNHAM,  
B. A. BRENNAN.