

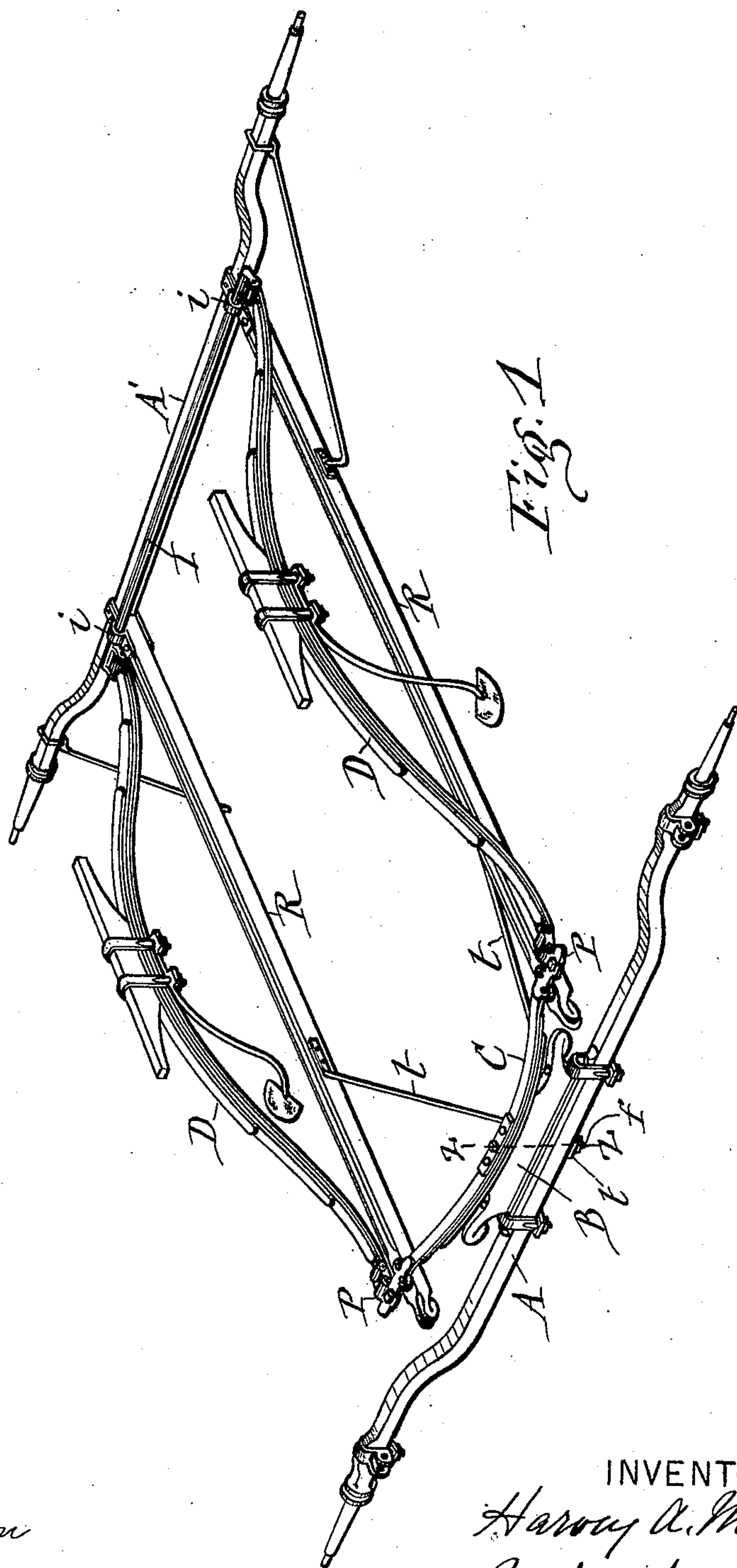
(No Model.)

4 Sheets—Sheet 1.

H. A. MOYER.  
SPRING VEHICLE.

No. 497,548.

Patented May 16, 1893.



WITNESSES:

*C. L. Rindixon*  
*J. J. Laassy*

INVENTOR:

*Harvey A. Moyer*  
*By Hull, Laessle & Co.*  
his ATTORNEYS.

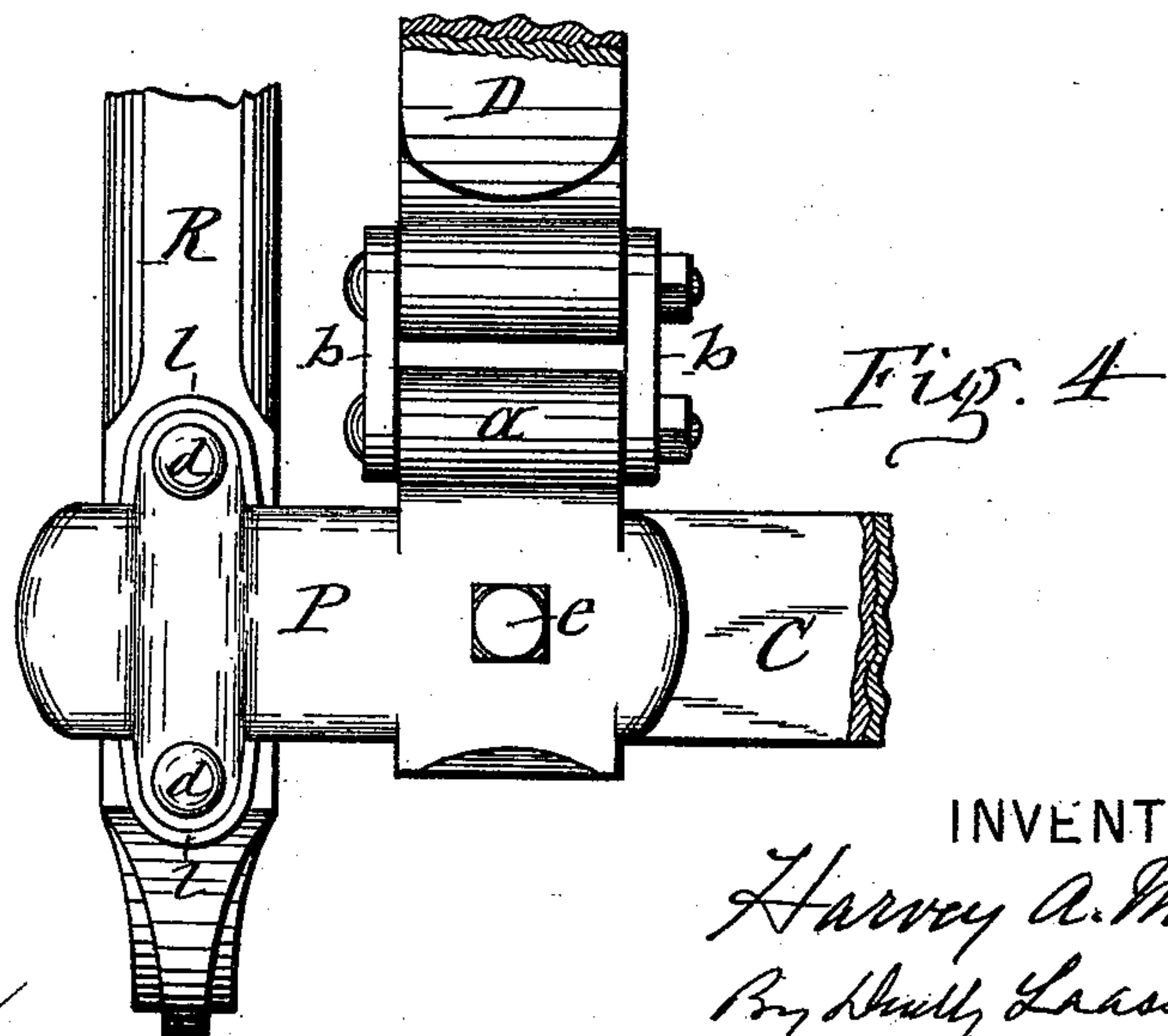
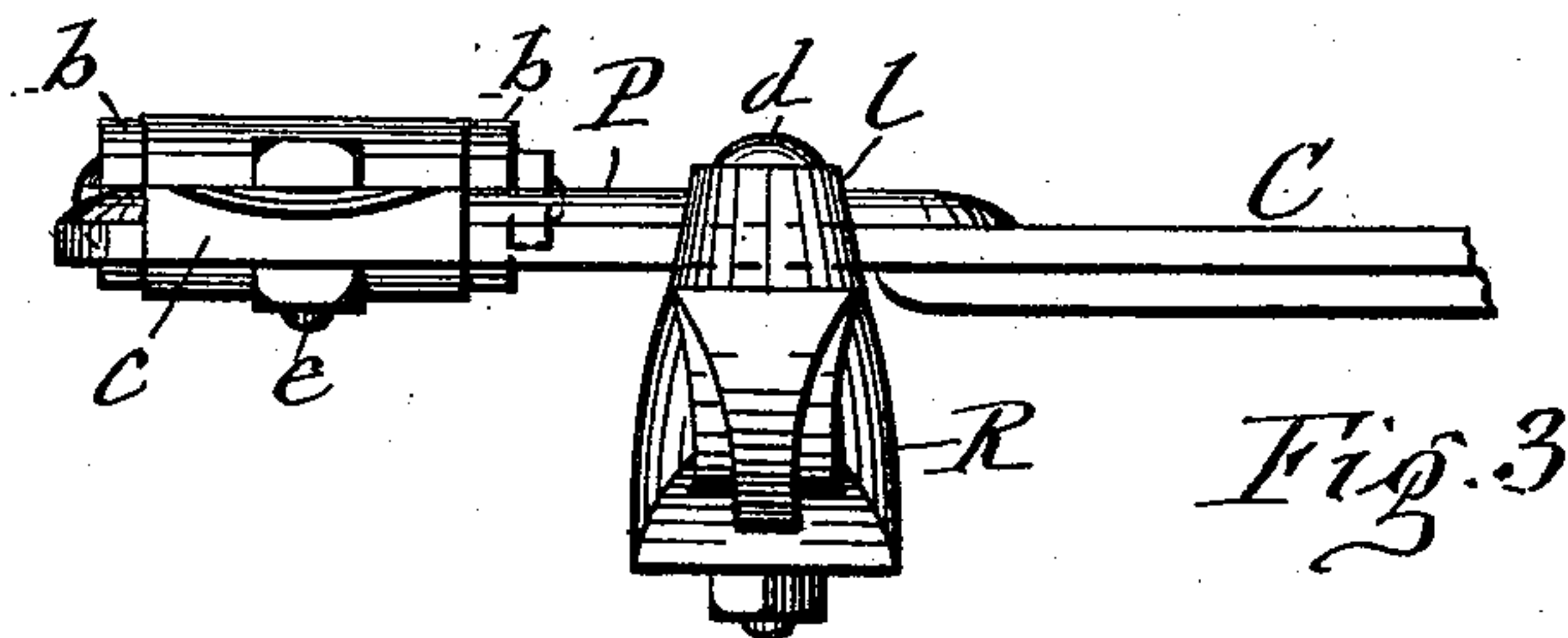
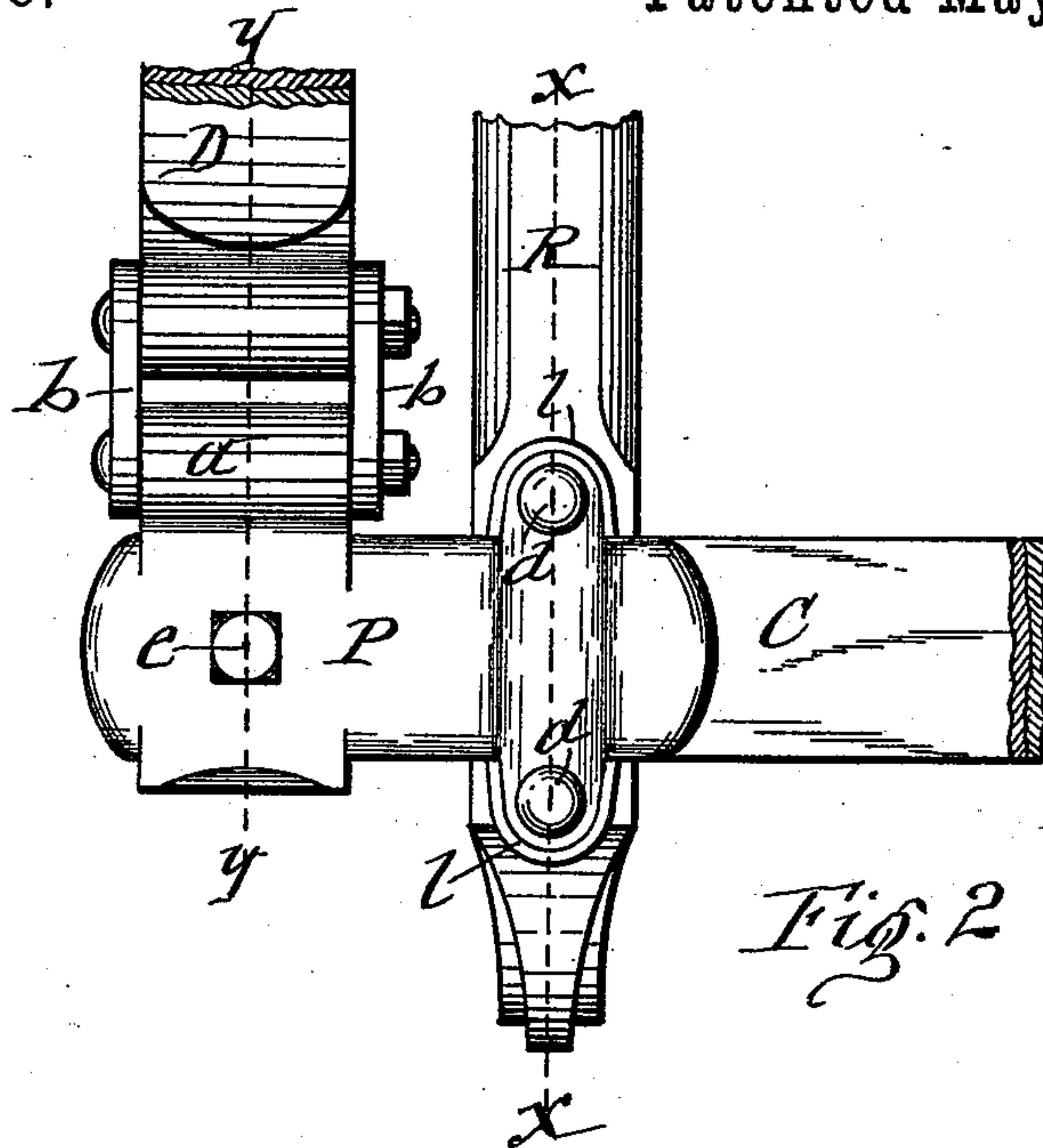
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WITNESSES:

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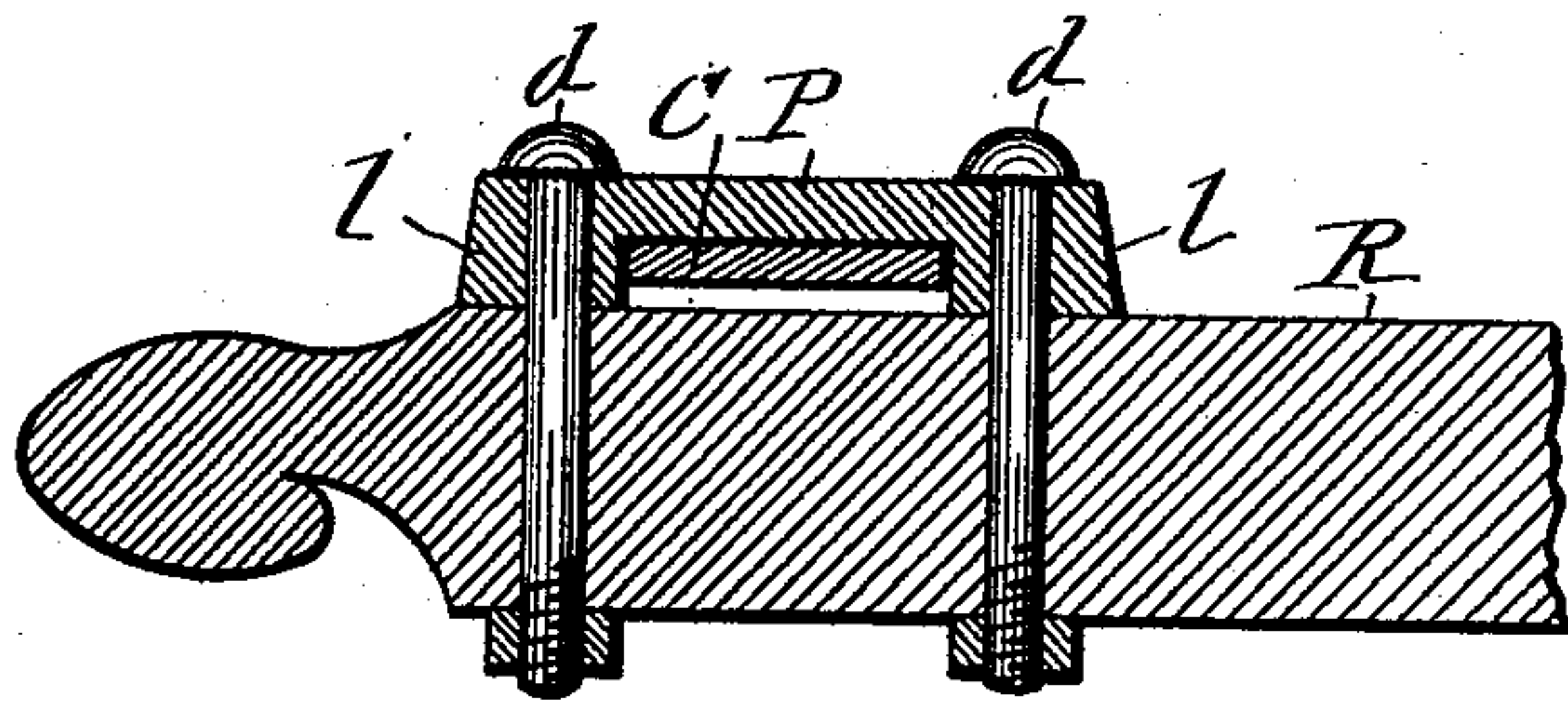
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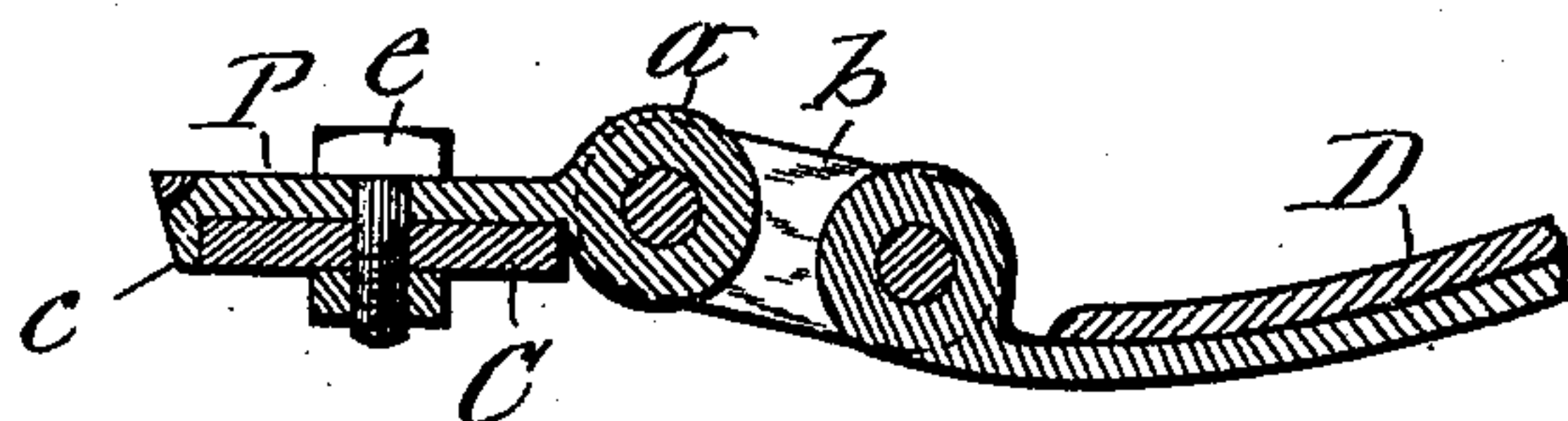
H. A. MOYER.  
SPRING VEHICLE.

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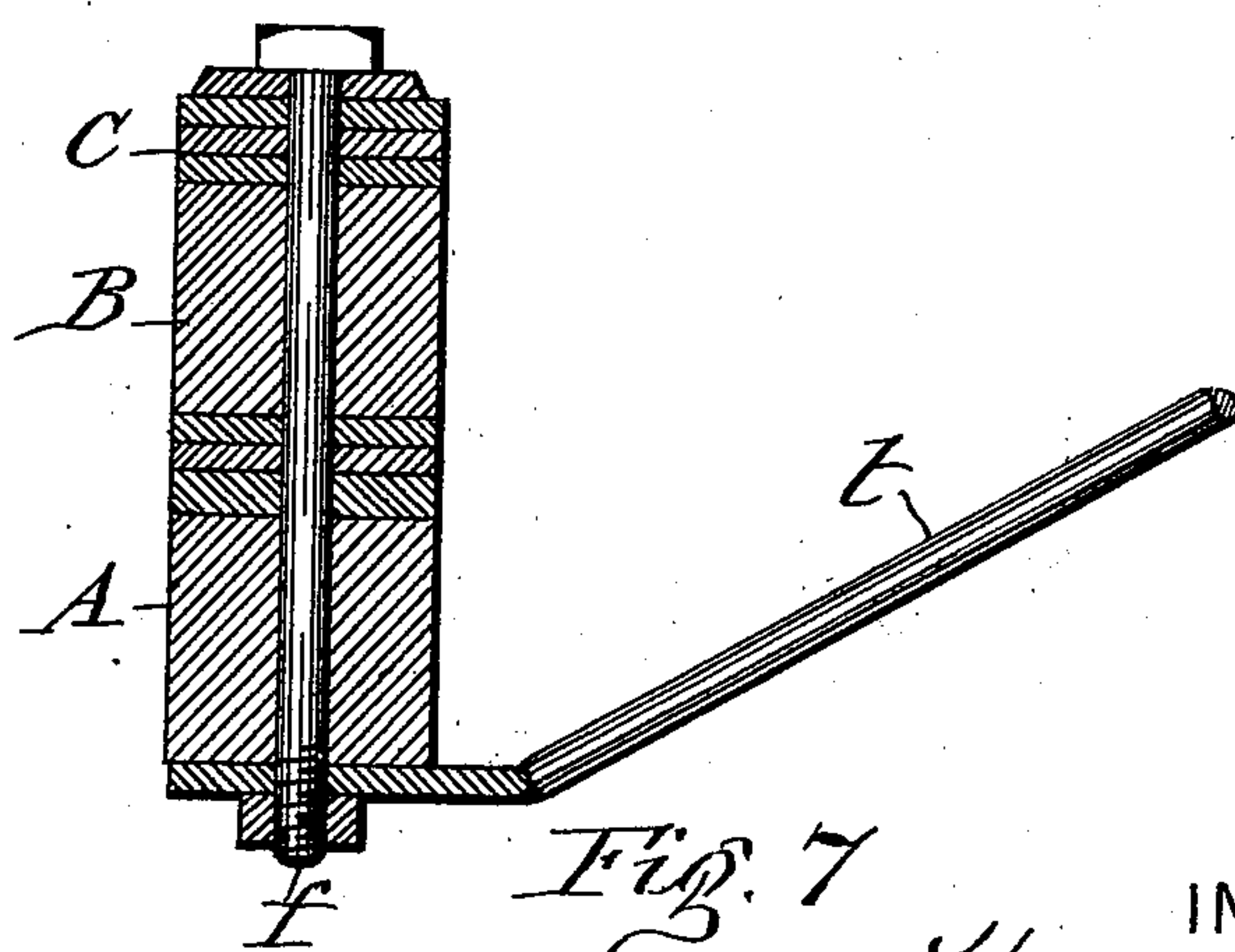
Patented May 16, 1893.



*Fig. 5*



*Fig. 6*



*Fig. 7*

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(No Model.)

4 Sheets—Sheet 4.

H. A. MOYER.  
SPRING VEHICLE.

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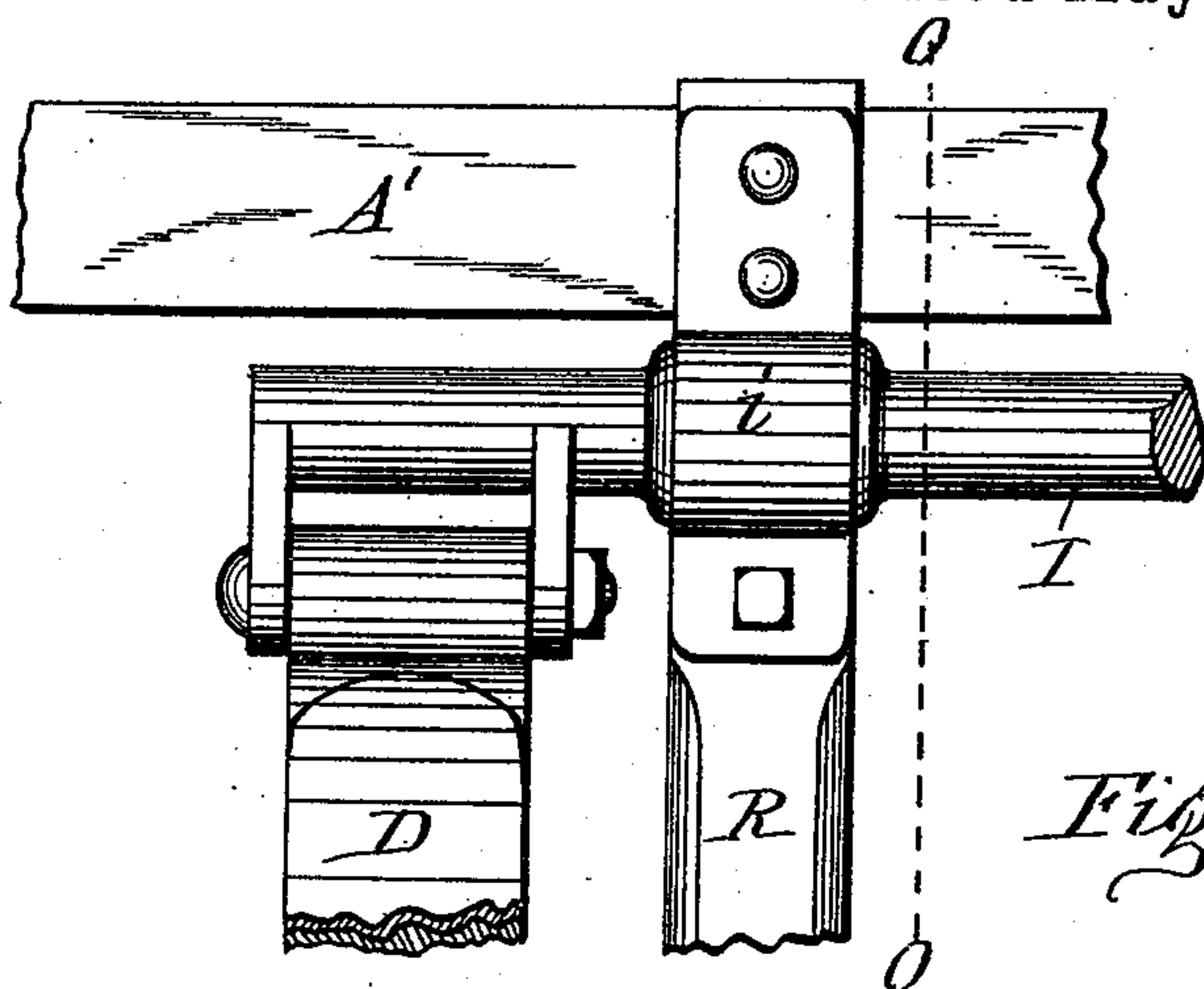


Fig. 8

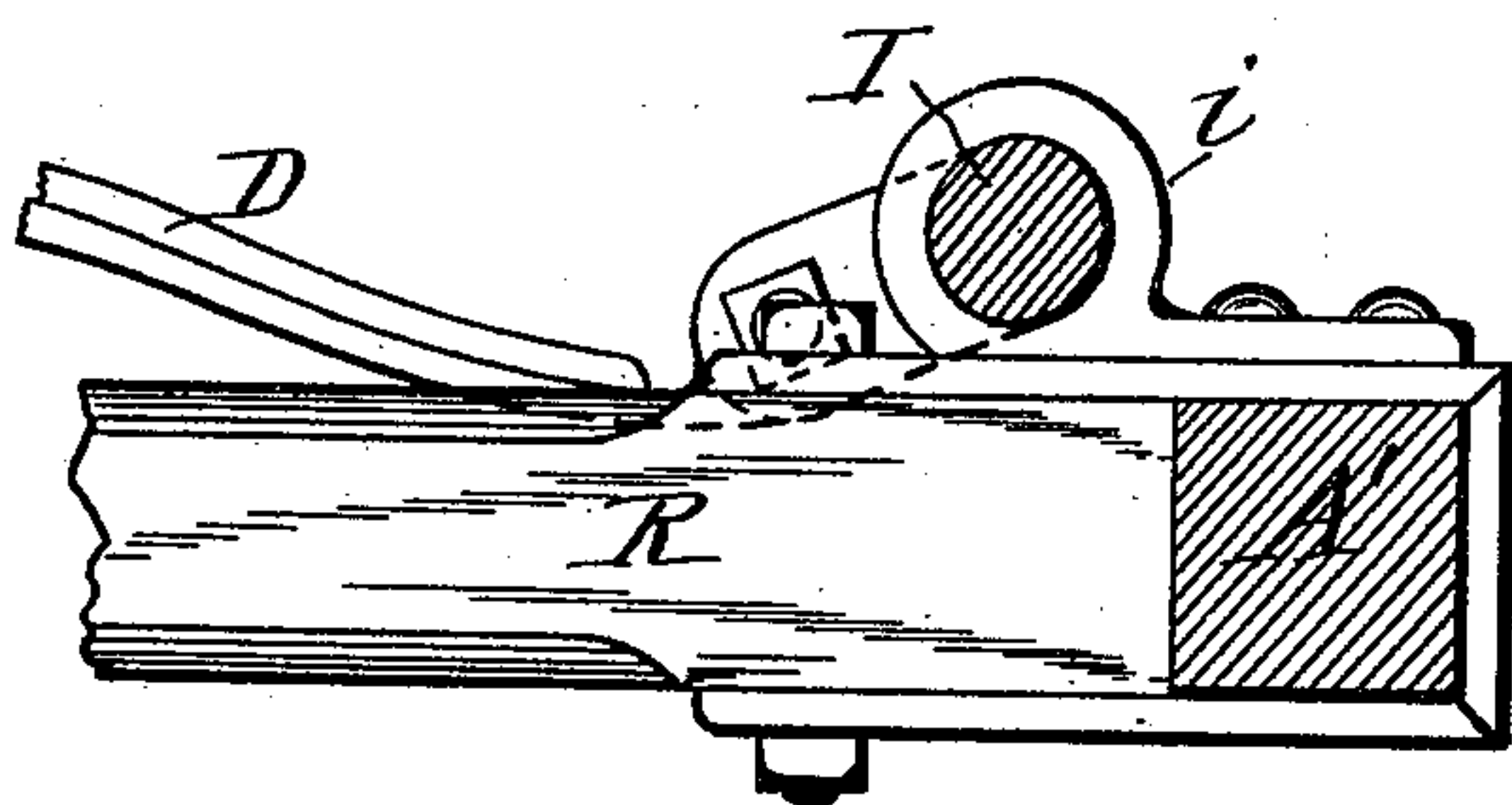


Fig. 9

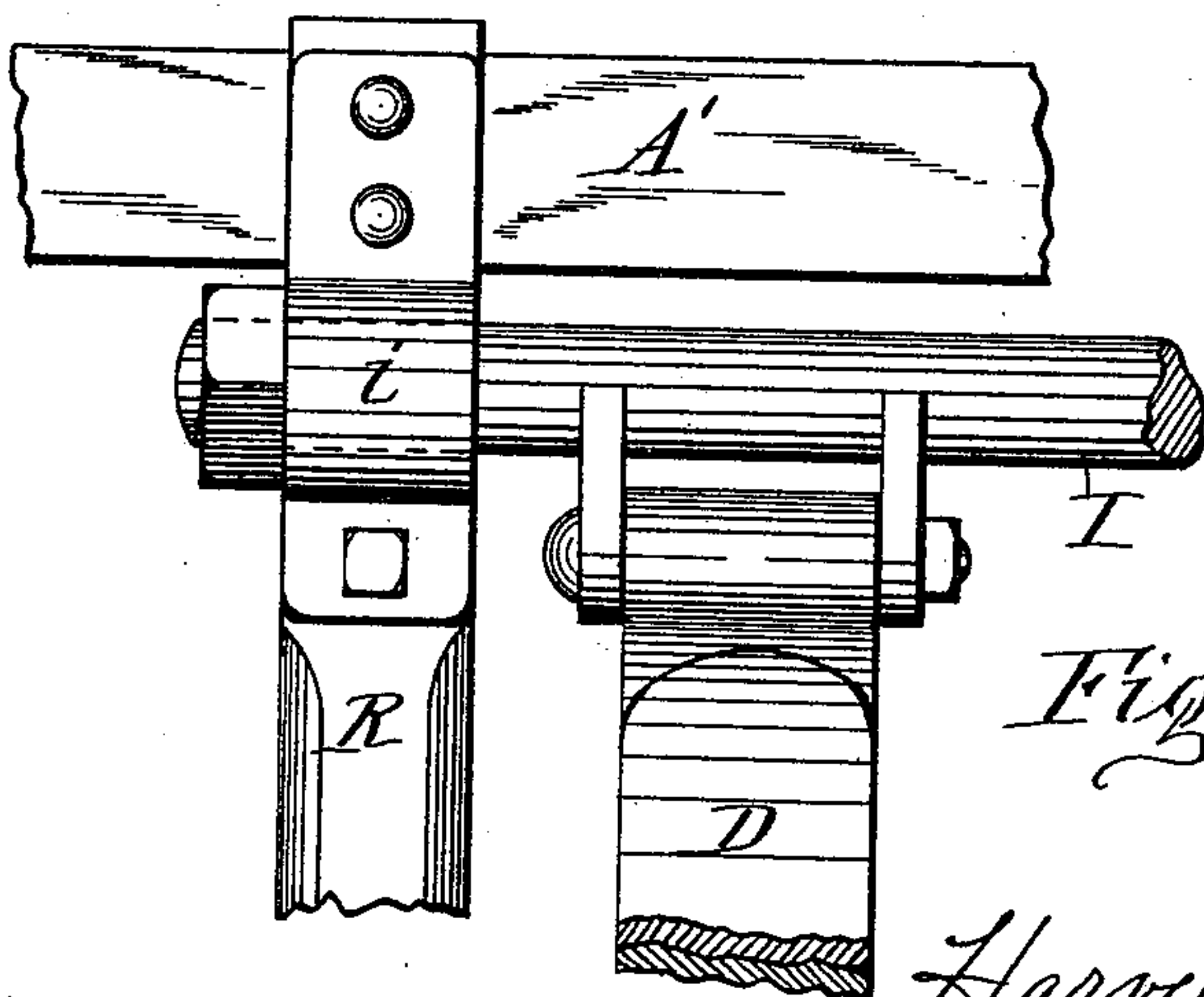


Fig. 10

WITNESSES:

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# UNITED STATES PATENT OFFICE.

HARVEY A. MOYER, OF SYRACUSE, NEW YORK.

## SPRING-VEHICLE.

SPECIFICATION forming part of Letters Patent No. 497,548, dated May 16, 1893.

Application filed January 16, 1893. Serial No. 458,456. (No model.)

*To all whom it may concern:*

Be it known that I, HARVEY A. MOYER, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Spring-Vehicles, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to the class of vehicles which support the body upon side-springs.

The object of my present invention is to mount said side springs on the running gears in such a manner as to produce an easier riding and more durable wagon than the ordinary side spring wagon. And to that end the invention consists in the improved construction and combination of parts hereinafter described and set forth in the claims.

The invention is fully illustrated in the annexed drawings, in which—

Figure 1 is a perspective view of a spring gear embodying my invention. Fig. 2 is an enlarged top plan view of the connection of one of the reaches and side spring to the spring-head block. Fig. 3 is a front view of the same. Fig. 4 is a plan view of a modification of the arrangement of the aforesaid parts. Figs. 5 and 6 are transverse sections respectively on lines *x, x*, and *y, y*, in Fig. 2. Fig. 7 is an enlarged transverse section on line *z, z*, in Fig. 1. Fig. 8 is an enlarged top plan view of the attachments of the rear end of one of the reaches and side spring. Fig. 9 is a transverse section on line *o, o*, in Fig. 8, and Fig. 10 is a plan view of a modification of the arrangement of the said parts.

Similar letters of reference indicate corresponding parts.

A— and —A'— represent respectively the front and rear axles which I preferably form with a depressed central or main portion, as shown in Fig. 1 of the drawings for the purpose of carrying the body of the vehicle in a convenient low position.

C— represents an elastic head-block, which I preferably form of a semi-elliptic spring fastened at its central portion to the top of a bolster —B— which rides on top of the front axle and is pivoted thereto by the king-bolt —f—, as shown in Fig. 7 of the drawings.

R—R— represent reaches which abut with

their rear ends against the front of the rear axle and are fastened thereto by metallic straps —h— as shown in Figs. 8 and 9 of the drawings. The front ends of said reaches are connected respectively to opposite ends of the spring head-block —C— as hereinafter described.

D—D— denote the side-springs which are hung at their rear ends on shackles —g—g— formed on the equalizing bar —I— which is mounted in bearings —i—i— attached to the tops of the reaches. The reaches —R—R— are in proximity to the sides of the side springs and parallel therewith, and each of said springs and its adjacent reach are connected to one end of the spring head-block —C— by one and the same plate —P— which maintains the front ends of the side spring and reach a uniform distance apart. The reach passes under the head-block to carry said reach as low as possible. The plate —P— is placed upon the top of the end portion of the head block —C— and fastened thereto by a bolt or rivet —e— passing vertically through said parts. Said plate is formed with downwardly projecting perforated lugs —l—l— in front and rear of the head-block —C— and extend beneath the same, and to the under sides of said lugs is fastened the reach —R— by bolts or rivets —d—d—. Said lugs sustain the reach out of contact with the spring head-block and allow the latter to play longitudinally when subjected to vertical vibration. From the rear of the plate —P— projects the shackle eye —a— on which the front end of the side spring is hung by links —b—b—.

In order to obtain a more secure hold on the head-block I form the plate —P— with a downward projecting lip —c— which engages the front edge of the head-block, as shown in Fig. 6 of the drawings. The tendency of tilting the head-block —C— rearward by the strain applied to the side springs, is counteracted by the attachment of the reaches to the same plates which attach the side spring to the head-block. The reaches may be arranged either at the inner sides of the springs as shown in Figs. 1, 2, 3, 8 and 9, or at the outside of said springs as represented in Figs. 4 and 10 of the drawings. The reaches are additionally sustained by the oblique braces —t—t— extending from the reaches to the bottom of



the front axle where they are connected to the king-bolt —*f*— as shown in Fig. 7 of the drawings.

A wagon equipped with the described spring gear possesses the much desired elasticity afforded by the long side-springs combined with a cross-spring, and the undue lateral swaying of the body is obviated by the equalizing bar.

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

1. In combination with the two axles, a spring-head block, reaches connecting the rear axles to the ends of the head-block, an equalizing bar adjacent to and parallel with the rear axle, and side springs hung on said equalizing bar and to the ends of the head-block, as set forth.

2. The combination of the axles formed with depressed central portions, a bolster on the front axle, a semi-elliptic spring mounted on said bolster, reaches attached to the depressed portion of the rear axle and to the ends of the aforesaid spring, an equalizing bar mounted on the rear ends of the reaches, and side-springs hung on said equalizing bar and to the ends of the aforesaid semi-elliptic spring, substantially as set forth.

3. In combination with the axles, a spring head-block pivoted to the front axle, side-springs and reaches parallel with and in proximity to said springs and connected with the same to the ends of the head-block, and braces extending from the reaches and connected to the king-bolt as set forth.

4. In combination with the spring head-block, plates mounted on the ends of said head-block, swinging couplings on the rear edges of said plates, the side springs hung on said couplings, and the reaches extending un-

der the ends of the head-block and attached to the aforesaid plates, as set forth.

5. In combination with the spring head-block —*C*— and side-springs —*D*—*D*—, the plates —*P*—*P*— mounted respectively on the opposite ends of said head-block, each of said plates being formed with the lugs —*l*—*l*— projecting beneath the head-block and with the rearwardly projecting shackle-eye —*a*—, the reach —*R*— bolted to the under sides of the said lugs and held thereby out of contact with the head-block, and links —*b*—*b*— coupling the end of the side-spring to the aforesaid shackle-eye substantially as described and shown.

6. In combination with the spring head-block —*C*— and side-springs —*D*—*D*—, the plates —*P*—*P*— mounted respectively on opposite ends of said head-block, each of said plates being formed with the downwardly projecting lip —*c*— engaging the front edge of the head-block, perforated lugs —*l*—*l*— projecting beneath the head-block at the front and rear thereof, and shackle-eye —*a*— extending rearward from the plate, the reach —*R*— extending across the undersides of said lugs, attaching bolts —*d*—*d*— passing through the lugs and fastening the reach thereto, the attaching bolt or rivet —*e*— passing vertically through the said plate and head-block, and links —*l*—*l*— coupling the side spring to the shackle-eye —*a*—, substantially as described and shown.

In testimony whereof I have hereunto signed my name this 11th day of January, 1893.

HARVEY A. MOYER. [L. S.]

Witnesses:

H. M. SEAMANS,  
C. L. BENDIXON.