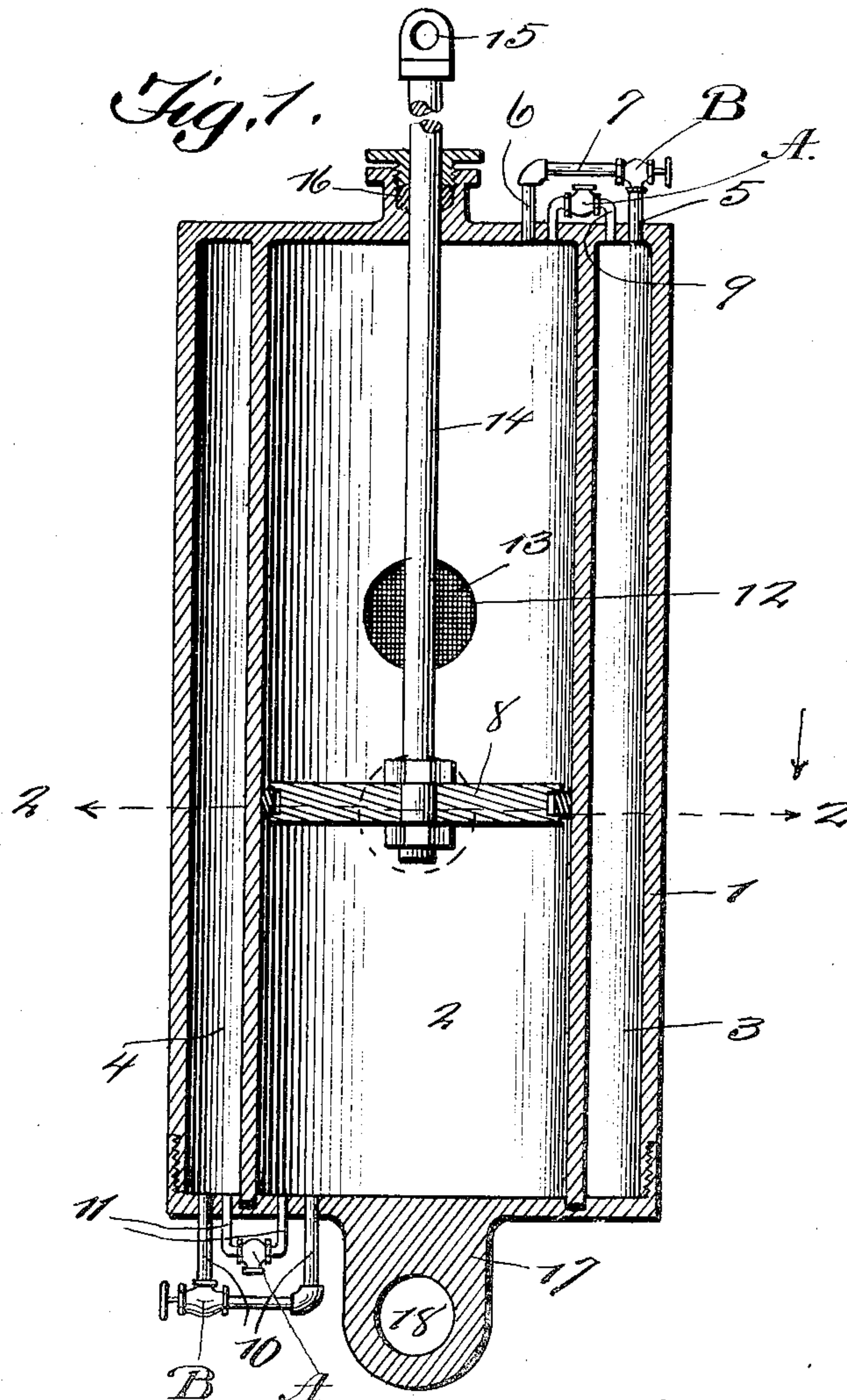


No. 887,925.

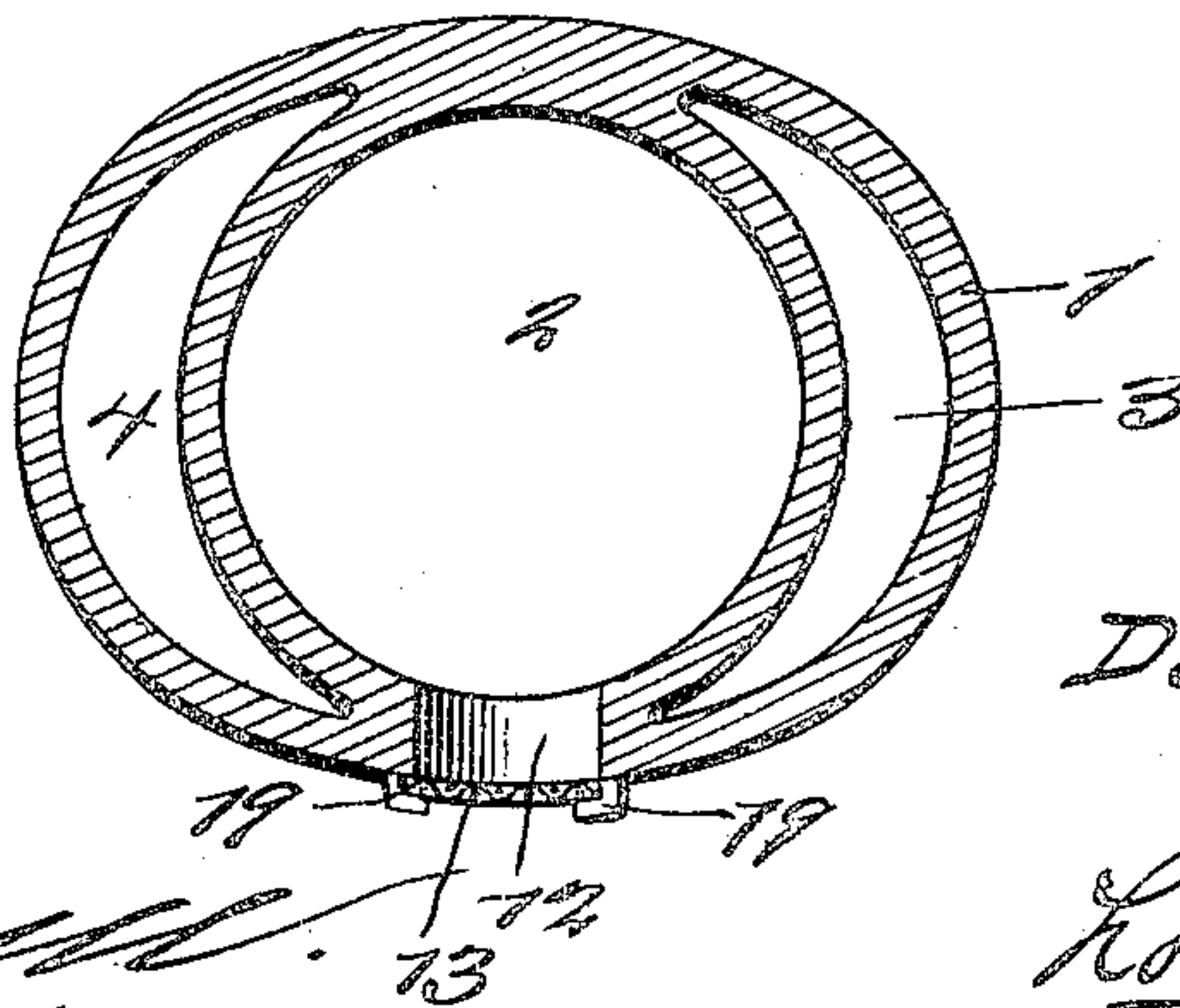
PATENTED MAY 19, 1908.

D. M. DAVIS.  
SHOCK ABSORBER.

APPLICATION FILED JUNE 1, 1907.



79. 7.



Witnesses:-

Ernest F. Riley

Inventor:-  
David M. Davis

By  
Louis A. Hill  
Atty



# UNITED STATES PATENT OFFICE.

DAVID M. DAVIS, OF WASHINGTON, DISTRICT OF COLUMBIA.

## SHOCK-ABSORBER.

No. 887,925.

Specification of Letters Patent.

Patented May 19, 1908.

Application filed June 1, 1907. Serial No. 376,869.

*To all whom it may concern:*

Be it known that I, DAVID M. DAVIS, citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Shock-Absorbers, of which the following is a specification.

This invention relates to shock-absorbers, and while adapted for use for a variety of purposes, it is particularly designed to be employed with the supporting spring of a vehicle to obviate shocks due to the jolting of the vehicle body.

The object of the invention is to provide an improved device for this purpose which will be efficient in operation and of a simple and inexpensive nature.

Other objects and advantages of the invention will appear from the annexed detailed description.

One embodiment of the invention comprises the construction and arrangement of parts hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the claims hereto appended.

In the drawings, Figure 1 is a longitudinal vertical section of a device embodying the features of the invention; Fig. 2 is a cross sectional view on line 2—2 of Fig. 1, looking in the direction of the arrow, the piston being removed.

Referring to a detailed description of the drawing, wherein like reference characters designate corresponding parts throughout the several views, 1 designates a housing comprising a main cylinder compression chamber 2 and chambers or tanks 3 and 4, the housing being preferably formed elliptical in cross-section as illustrated in the drawing, Fig. 2, to provide for formation of chambers 3 and 4 with the chamber 2 in single composite structure.

8 designates a piston adapted for reciprocation in the chamber 2, said piston being provided with piston rod 14 which extends to the exterior of the housing 1 and is provided with means for connecting the same with the body of a vehicle; the housing 1 being provided with means 18 for connecting the same to the running gear of the vehicle.

The chamber 2 is provided with openings 13 to the atmosphere, said openings being preferably covered with wire gauze or mesh to exclude dust from the cylinder. Fluid passages 7 and 9 connect the receiving chamber 3 with the chamber 2 at one end

thereof and fluid passages 10 and 11 are provided to connect the receiving chamber 4 with the chamber 2 at the opposite end thereof. Check valves A are provided for the fluid passages 9 and 11, being arranged to permit the passage of fluid from the chamber 2 to the receiving chambers 3 and 4 but to prevent the return of fluid from said chambers to chamber 2 through said passages. The passages 7 and 10 are provided with regulating valves B in order that the amount of fluid permitted to pass through said passages may be varied.

The normal position of the piston 8 is between the openings 13 as will be understood, on a downward movement of the piston past one of the openings 13 the fluid in the lower part of the compression chamber 2 is compressed and fluid passes slowly therefrom through the passages 10 and 11 to the receiving chamber 4 so that gradual cushioning of the piston is attained. On the return movement of the piston, fluid from the chamber 4 slowly escapes to the chamber 2 by way of the passage 10 only, the return of fluid from said chamber being therefore much slower than its entrance thereinto. The piston on its upward movement past the openings 13 is cushioned in a manner similar to that on its downward stroke by means of the receiving chamber 3 and the passages 7 and 9. It is obvious that the device herein set forth is operative if but one auxiliary chamber be employed.

What is claimed is—

1. A shock-absorber comprising a cylinder having communication with the atmosphere, a piston in said cylinder, receivers, fluid passages from the cylinder to the receivers, return fluid passages from the receivers to the cylinder, non-return check-valves for the first-mentioned passages, and regulating valves for the return passages.

2. A shock-absorber comprising a cylinder having communication with the outside atmosphere, a piston in said cylinder, receivers having communication with the cylinder at opposite ends thereof, the communication between each receiver and the cylinder including a fluid passage from the cylinder to the receiver and a return passage to the cylinder, a non-return check valve for the first passage, and a regulating valve for the return passage.

3. In a device as set forth, an elongated hollow member, comprising three chambers,



a central cylinder-shaped chamber and two auxiliary chambers being formed by constructing the said member elliptical, a piston mounted for reciprocatory movement in the  
5 central chamber, said members having air vents, said auxiliary chambers having communication with the central chamber at opposite ends thereof.

4. In a device as set forth, a hollow member elliptical in cross-section, comprising  
10 three chambers, a central chamber and two auxiliary chambers, a piston movable in the central chamber, said central chamber having air vents intermediate the ends thereof,  
15 said auxiliary chambers having communication with the central chamber at opposite ends thereof.

5. In a device as set forth, a hollow member elliptical in cross-section comprising  
20 three chambers, a central chamber and two auxiliary chambers, a piston movable in the

central chamber, said central chamber having air vents intermediate the ends thereof, the auxiliary chambers having communication with the central chamber in such wise  
25 that upon the upward stroke of the piston, the air is forced into one of said auxiliary chambers and upon the downward stroke, air is forced into the other auxiliary chamber, at the same time air is returned from the  
30 first-named auxiliary chamber in reduced volume upon the downward stroke of the piston while air is returned from the second mentioned auxiliary chamber in reduced volume upon the upward stroke of the piston  
35 thereof.

In testimony whereof I affix my signature in presence of two witnesses.

DAVID M. DAVIS.

Witnesses:

E. L. McCLELLAND.

SAMUEL P. ABBOTT.