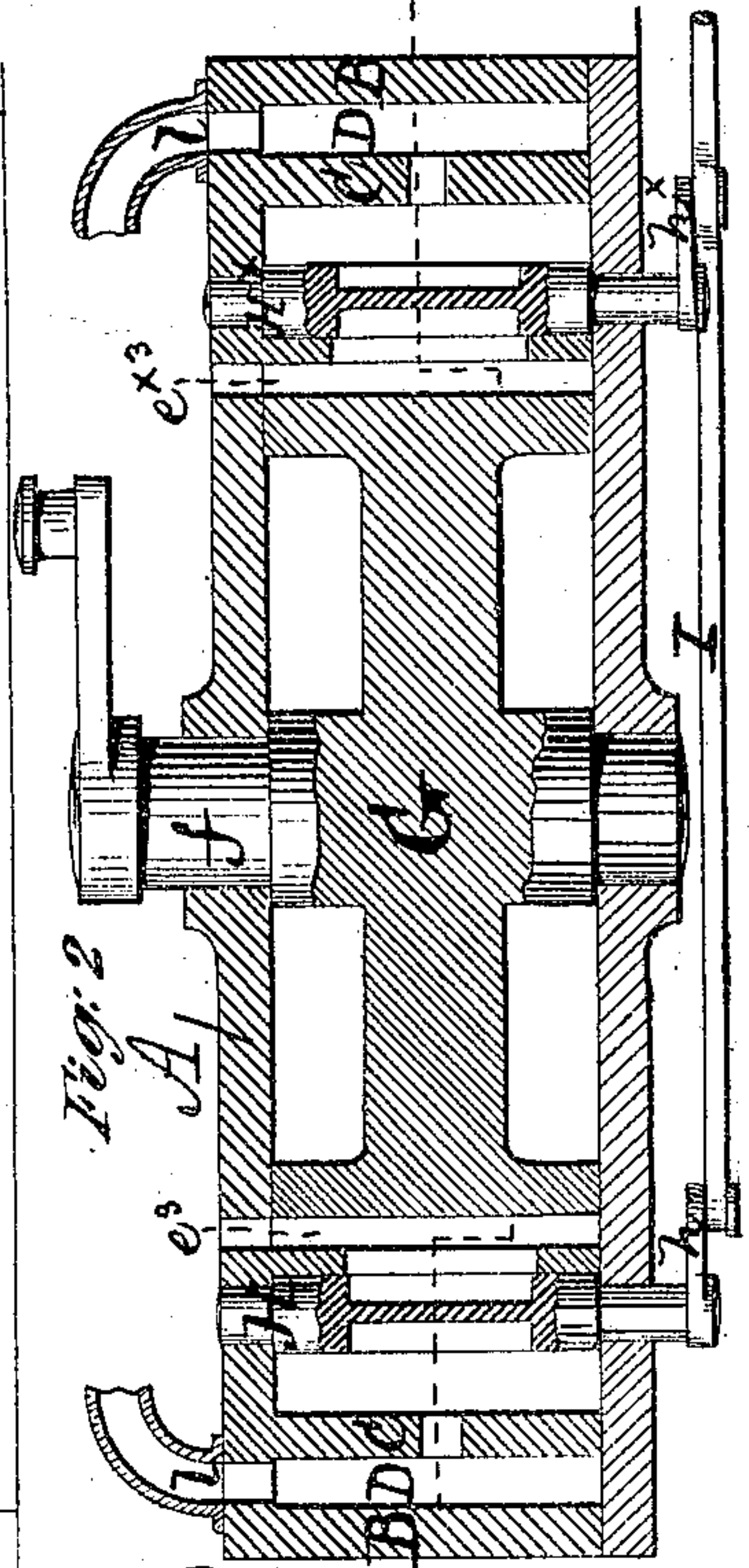
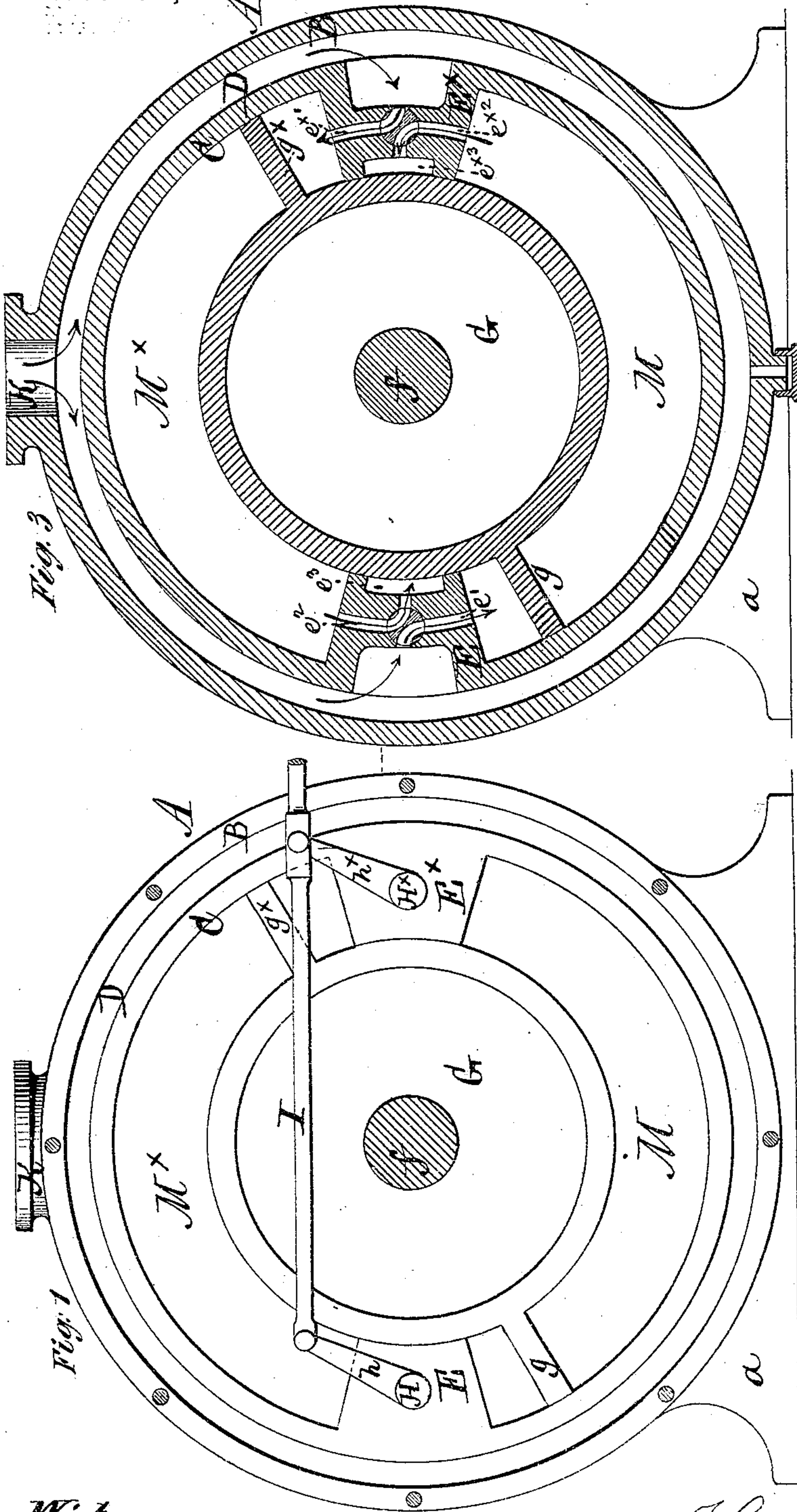


H. CHAVOUS.  
Rotary Engines.

No. 151,567.

Patented June 2, 1874.



Witnesses,  
Michael Byard  
Fred Wayne

Hilary Chavous  
by his Attorney,  
Brown & Allen



# UNITED STATES PATENT OFFICE.

HILLRY CHAVOUS, OF UNION CITY, INDIANA, ASSIGNOR TO HIMSELF AND  
WILLIAM P. DE BOLT, OF SAME PLACE.

## IMPROVEMENT IN ROTARY ENGINES.

Specification forming part of Letters Patent No. **151,567**, dated June 2, 1874; application filed  
February 7, 1874.

*To all whom it may concern:*

Be it known that I, HILLRY CHAVOUS, of Union City, in the county of Randolph and State of Indiana, have invented certain Improvements in Rotary Engines, of which the following is a specification:

My invention relates to certain improvements on that for which Letters Patent No. 132,251 were granted to me, under date of October 15, 1872, whereby I prevent the too great condensation of steam and utilize the full expansive power thereof.

The improvements are fully hereinafter described and claimed.

In the accompanying drawing, Figure 1 represents a side elevation of my improved engine with the side plate removed. Fig. 2 is a transverse horizontal section taken in the line  $x x$  of Fig. 1. Fig. 3 is a vertical section taken in the line  $y y$  of Fig. 2.

A represents the case, of cylindrical form, resting upon a base or pedestal,  $a$ . Inside of the peripheral portion B of the case, and parallel therewith, is an annular partition, C, between which and said outer portion is the steam-chest D. On the inner side of the partition C, at points diametrically opposite each other, are two abutments,  $E E^x$ , which serve the same purpose as the abutments described in my patent aforesaid, and also serve as valve-seats. In the center of the case A is journaled a shaft,  $f$ , to which is attached the oscillating double piston, consisting of a cylindrical block, G, with two heads or followers,  $g g^x$ , projecting radially from its periphery. The spaces between the periphery of the block G and the inner side of the partition C form two segmental chambers,  $M M^x$ , extending between the abutments  $E E^x$ , in which chambers the piston-heads  $g g^x$  oscillate. On one end of the shaft  $f$  is a crank for engagement with the pitman or connecting-rod, by which motion is communicated to the main shaft or other machinery. The abutments  $E E^x$  are formed with feed and exhaust ports for the steam, and in said abutments are seated the oscillating valves  $H H^x$ , which may be of the ordinary form known as four-way cocks, and to the stems of which are at-

tached arms  $h h^x$ , having their outer ends connected with a rod, I, operated by the eccentric. The steam is conducted from the boiler through a pipe, which may communicate with the steam-chest through an opening, K, in the periphery of the case, as shown in Fig. 3; or the pipe may be forked and communicate with the steam-chest at two points near the valve-seats, as shown at  $l l$  in Fig. 2. The case A, with its jacket B and partition C, and the abutments  $E E^x$ , are cast in one piece, and the valve-seat and steam-ports are drilled and finished afterward. The case and segmental chambers are provided with suitable openings for drawing off any condensed steam which may accumulate therein.

By the construction and arrangement of parts in this invention, the steam passes from the steam-chest directly to the piston-heads after leaving the valves, thus utilizing the full expansive power of the steam, instead of compelling it to travel a considerable distance before striking the piston, as in my patent aforesaid. In this invention, also, the steam strikes the two piston-heads simultaneously, instead of acting on a single piston, as in my patent aforesaid. When the parts are in the position shown in Fig. 3, the steam enters the steam-chest D through the pipe K, passes through the ports  $e^1 e^x$ , and strikes the piston-heads simultaneously, as indicated by the arrows, the exhaust taking place through the ports  $e^2 e^3$  and  $e^{x2} e^{x3}$ . When the piston-heads reach the end of the stroke, the valves are reversed, and the steam is taken through the ports  $e^2 e^{x2}$ , the exhaust taking place through the ports  $e^1 e^3$  and  $e^{x1} e^{x3}$ .

What I claim as new, and desire to secure by Letters Patent, is—

In combination with the abutments E and  $E^x$ , valves  $H H^x$ , and oscillating piston G, formed with the heads  $g g^x$ , the continuous annular steam-chest D, all arranged substantially as described.

HILLRY CHAVOUS.

Witnesses:

JAMES STARBUCK,  
JOHN ROSENBUSH.