J. Gray,

Rotary Pump,

No. 12,022. Patented Dec. 5, 1854.

Fig. 1.

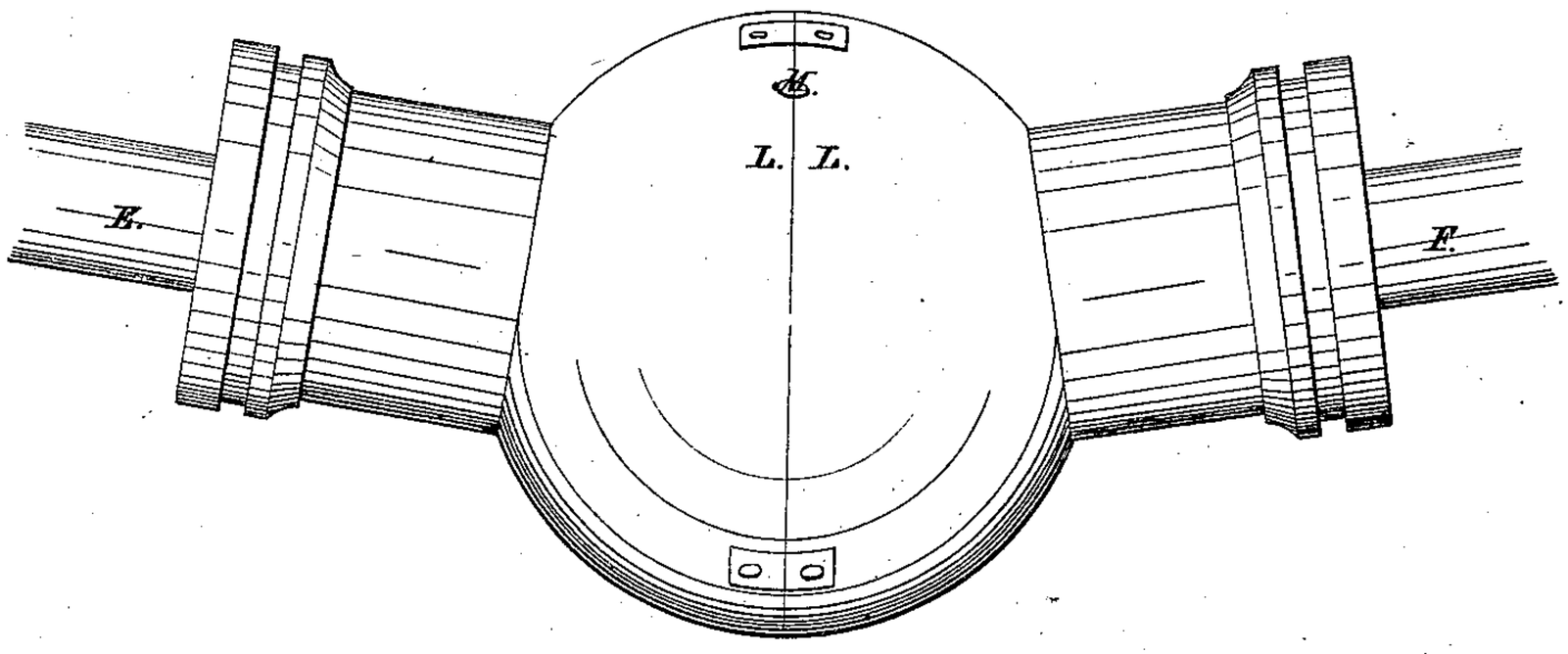


Fig. 2.

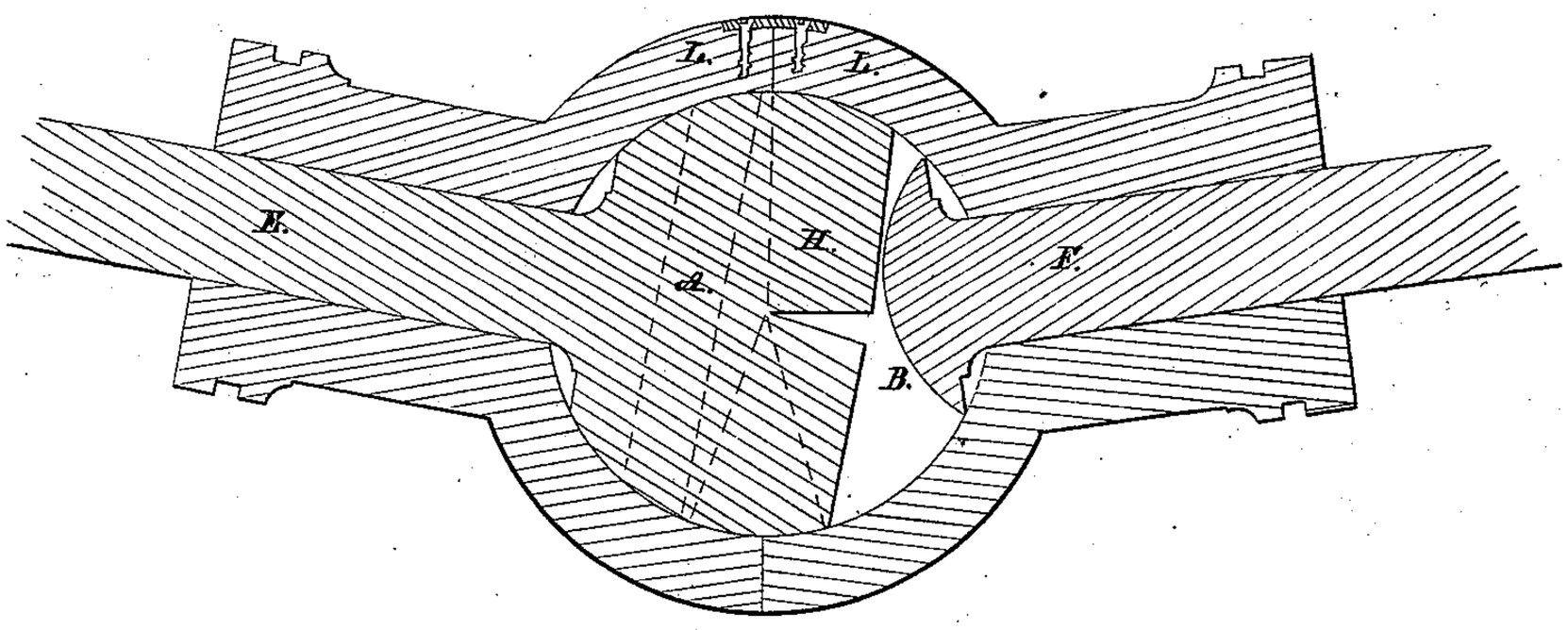


Fig. 3.

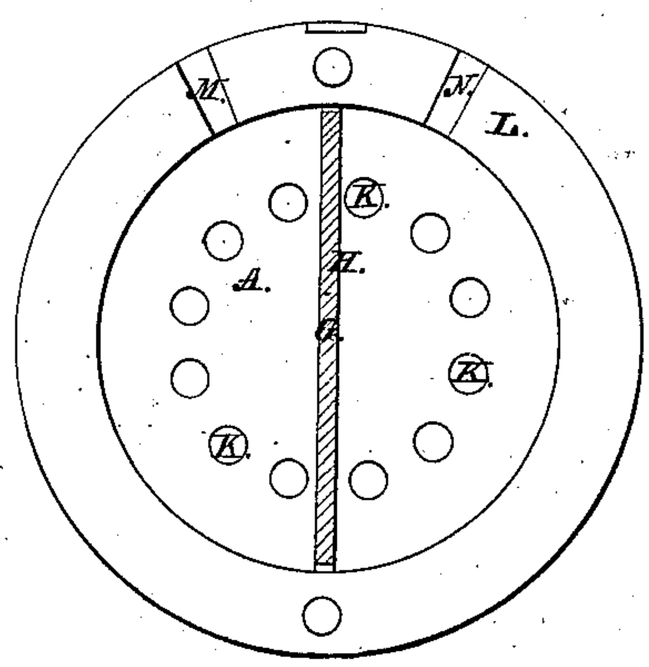


Fig. 4.

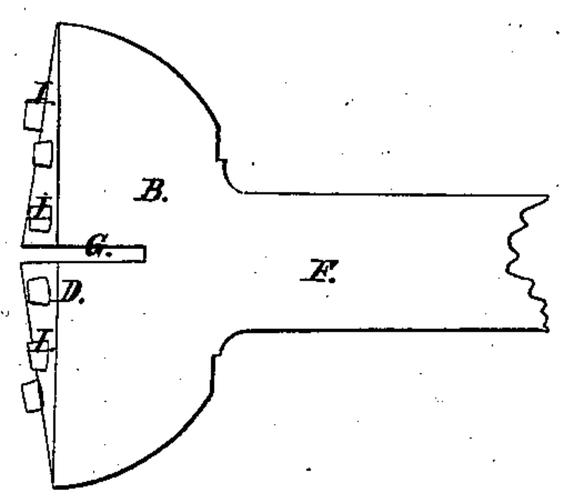
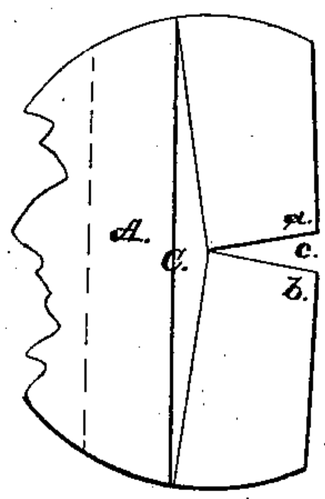


Fig. 5.



N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOSHUA GRAY, OF BOSTON, MASSACHUSETTS.

ROTARY PUMP.

Specification of Letters Patent No. 12,022, dated December 5, 1854.

To all whom it may concern:

Be it known that I, JOSHUA GRAY, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new or Improved Rotary Pump or Engine; and I do hereby declare that the same is fully described and represented in the following specification and the accompanying drawings, letters, figures, and references thereof.

Of the said drawings, Figure 1, represents a side elevation of my invention or pump; Fig. 2, is a vertical and longitudinal section of the same; Fig. 3, is a transverse section taken through the middle; Fig. 4, is a side view of one of the flat cones or disks to be hereinafter described.

In the said drawings, A, and B, denote two flat cones, each of which is formed upon the base of a segment C, or D, of a sphere mounted on one end of a shaft E, or F, as seen in the drawings. Each of these spherical segments with its flat cone is scored or grooved directly across it as seen at G, in Figs. 3, and 4. A flexible diaphragm or partition H, is fixed or fastened in one of the grooves of one of the spherical segments or flat cones and is made to extend into and work water tight through the groove of the other segment or flat cone; a side view of such partition and spherical segment to which it is attached being given in Fig. 5. In such figure it will be seen that that part of the partition which extends beyond the surface of the cone is divided at the apex of the cone into two parts, *a*, *b*, by means of a notch *c*, the same being in order to enable the partition to have more freedom of action or play in the groove of the opposite spherical segment than it otherwise would have. The shafts of these spherical segments or the axes of the cones are arranged at an angle to one another so as to bring the surfaces of the cones in contact on a line extending from their apices to their circumferences. One of these cones is provided with a range of cogs or teeth I, I, I, extending around its apex and made to work in connection with or into a corresponding set of recesses or holes K, K, K, bored or formed in the surface of the other cone and around its apex—the same being in order to enable one of the cones when put in revolution on its axis to impart motion or a corresponding revolution to the other cone and spherical segment on its axis. These cones and spherical segments are arranged within a round case L, which fits closely to the exterior surface of the segments both above and below the line of touching, if the cones are provided with orifices, holes or pipes as seen at M, and N. One of these orifices being what may be termed the ingress and the other the egress orifice. If while the cones are put in revolution in one direction, one of these orifices by means of a pipe be connected with a cistern of water, the water will be elevated or drawn up through said orifice into the case and will be discharged from said case through said other orifice. By a little different arrangement of the orifices or placing them on opposite sides of the case, an apparatus of the above kind may be used to advantage as a rotary steam engine, steam being admitted through one orifice and discharged at the other. A rotary pump or engine of the above description will be found in practice to be very efficient and useful.

What I claim as my invention is—

The combination of the two flat cones A, B, and the flexible diaphragm or partition H, applied together and in a case provided with ingress and egress pipes or orifices, such cones being arranged in contact and with their axes at an angle to each other, and the whole being made to operate together and for the purpose essentially as above explained.

In testimony whereof I have hereunto set my signature this twenty-fifth day of September A. D. 1854.

JOSHUA GRAY.

Witnesses:

R. H. EDDY,

F. P. HALE, Jr.