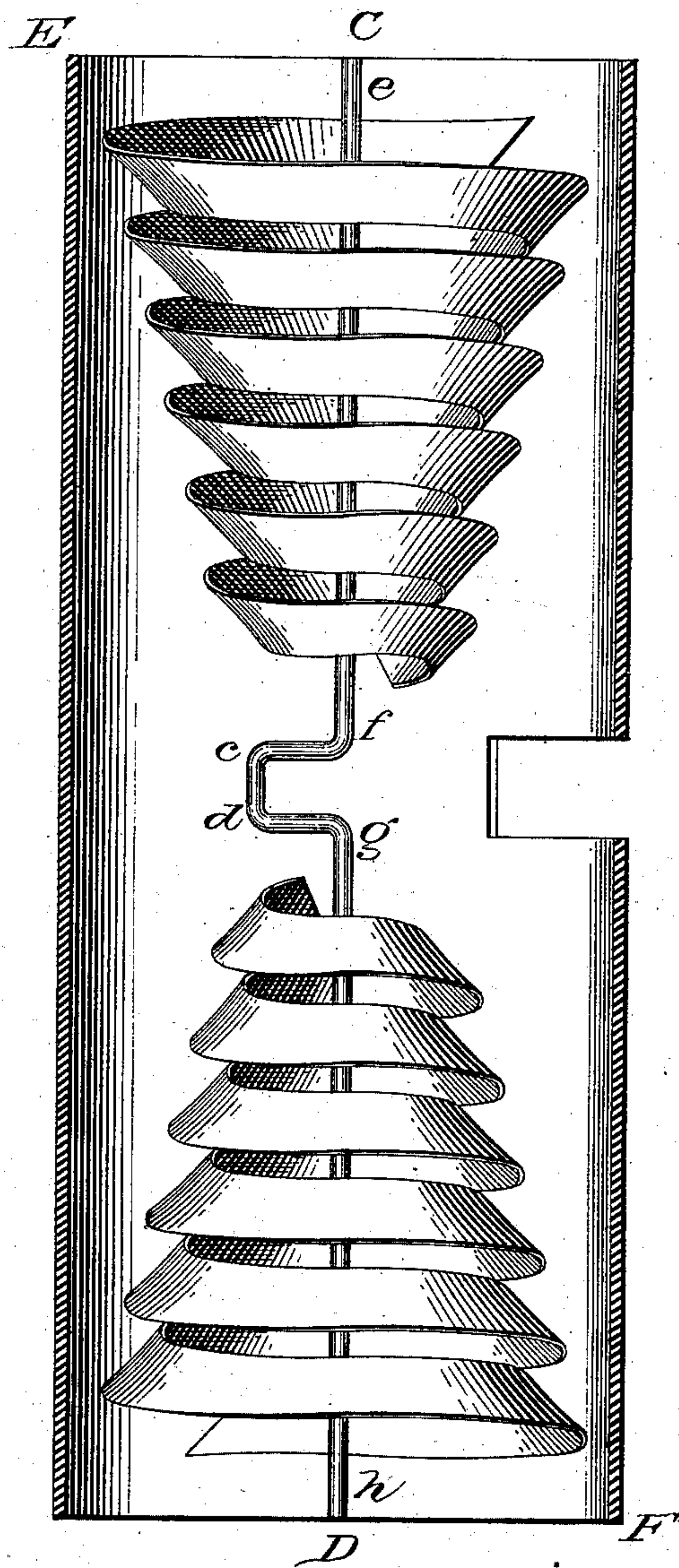


D. RUGGLES.  
Screw Propeller.

No. 242,842.

Patented June 14, 1881.



Witnesses:

*Edw. S. Ruggles*

*William J. Moon*

Inventor.

*Daniel Ruggles*

# UNITED STATES PATENT OFFICE.

DANIEL RUGGLES, OF FREDERICKSBURG, ASSIGNOR TO EDWARD S. RUGGLES, OF FRIEDLAND, VIRGINIA.

## SCREW-PROPELLER.

SPECIFICATION forming part of Letters Patent No. 242,842, dated June 14, 1881.

Application filed July 12, 1878.

*To all whom it may concern:*

Be it known that I, DANIEL RUGGLES, of Fredericksburg, in the county of Spottsylvania and State of Virginia, have invented a  
5 new and useful Machine or Mechanical Combination for Evolving and Transmitting Force or Power, which is substantially set forth in the following specification and accompanying drawings, in which—

10 Figure 1 is a perspective view of a hollow or open double-conical spiral screw, increasing its diameter each way from a point central of its length, attached by radial braces to a central axis, C D, and constructed with flattened  
15 or curvilinear metallic or non-metallic threads or flanges of a breadth, size, and spiral form convertible in position as well as in angular bearing upon said axis to meet every requirement of a screw-propeller, (see crank or axis  
20 *c d*, bearings *e f g h*.)

The said machine is to be used "single" or "multiple," movable or stationary, for all prac-

ticable mechanical combinations, and to be used either within or without a cylindrical casing, E F, either attached or free in the wa- 25 ter or in the atmosphere, as may be expedient, as a hollow or open conical spiral screw-propeller, and for any and all other purposes, to be driven by steam or other power for advancing or to retire by inversion. 30

The spiral flanges or threads are to be made solid or tubular, and, when tubular, to be operated by steam, water, air, magneto-electric force, or other auxiliary mechanical power.

I claim as my invention—

35 The open hollow or tubular double-conical or spheroidal screw-propeller, increasing in diameter each way from a point central of its length, substantially as and for the purpose set forth.

DANIEL RUGGLES.

Witnesses:

JOHN T. GOOLRICK,  
WM. S. WHITE.