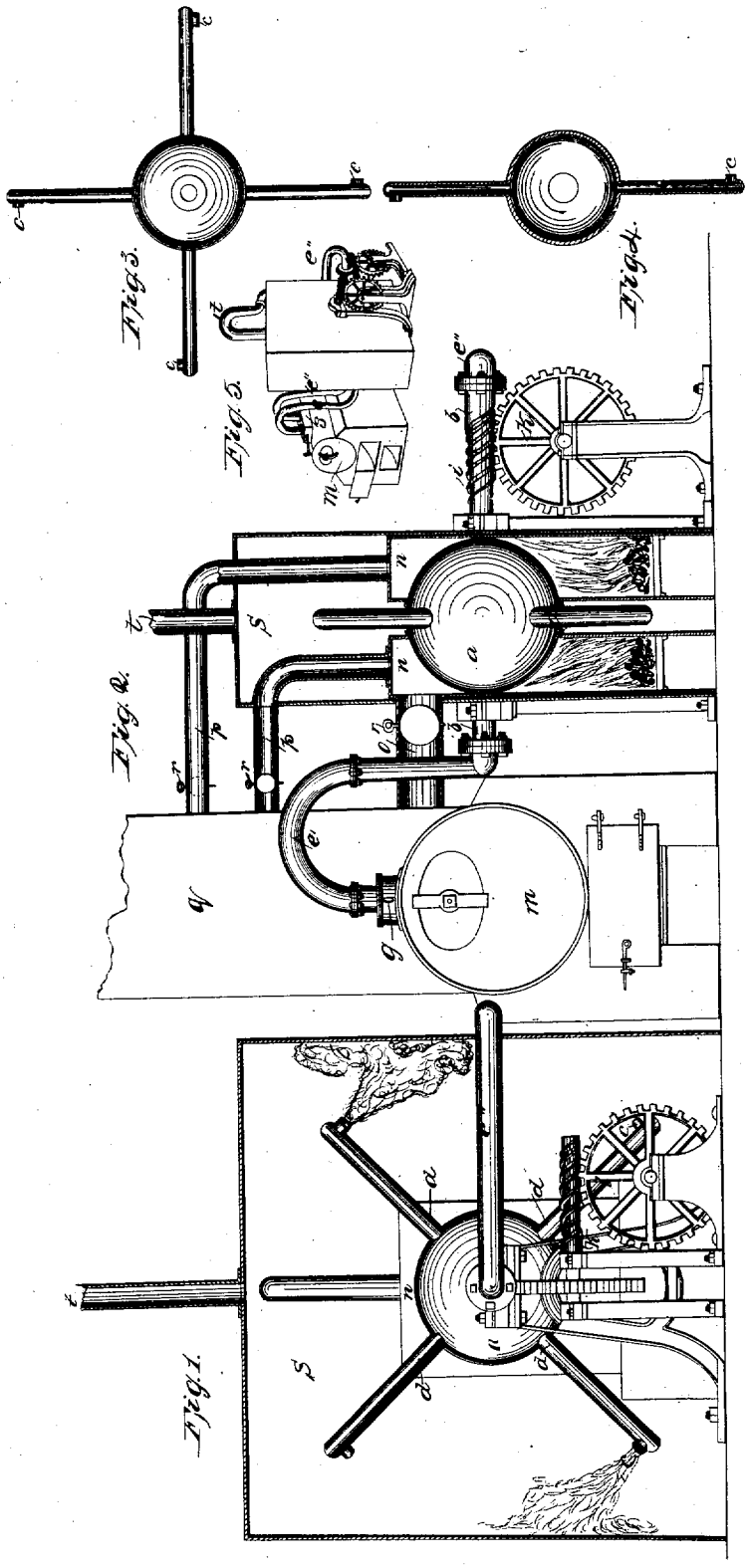
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J. INGHAM & J. DAVIS.

STEAM ENGINE.

Patented Feb. 12, 1834.



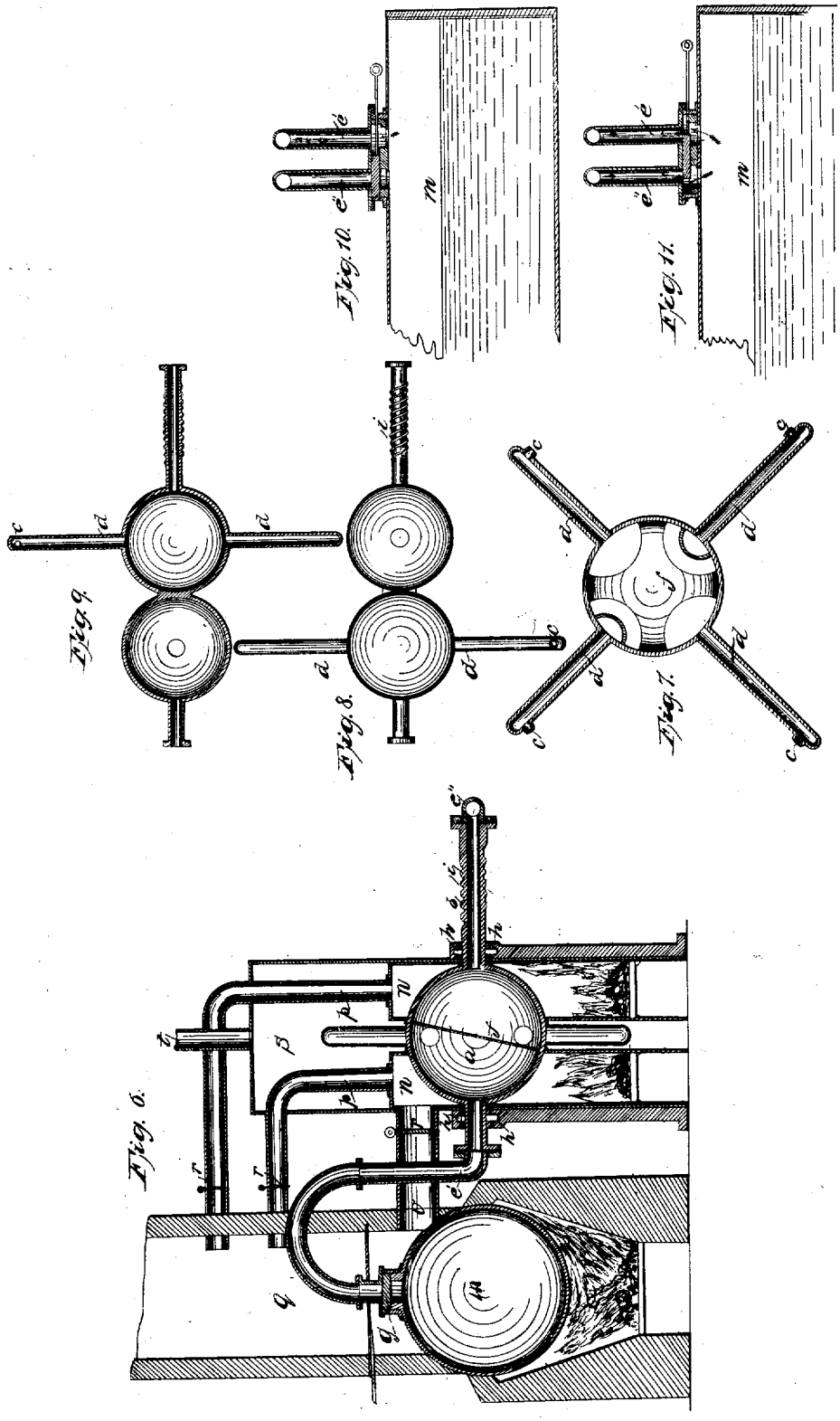
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John Ingham & Julius Davis, Fabius, N. York.

Letters Patent

The Schedule referred to in these Letters Patent and making part of the same containing a description of the said John Ingham and Julius Davis themselves of their improvement in the use and application of steam & endless screw and in the apparatus for propelling machinery by steam

To all to whom these presents shall come

Be it known that We John Ingham & Julius Davis of Fabius in the County of Onondaga in the State of New York have invented certain new and useful improvement in the use and application of steam; and the use and application of the endless screw, and in the machinery and apparatus to be used in propelling machinery by steam of which the following is a description

First. Said improvement consist in attaching to & connecting with the hollow globe or cylinder (usually entended such machinery as may be necessary to operate all kinds of machinery. Said Globe or cylinder is a metallic Globe or cylinder similar to that described in the Mechanics Magazine, and is placed upon a hollow metallic shaft and secured with it. Said shaft passing through the centre of the Globe or cylinder so that the same may be securely fastened on the shaft. Two or more hollow arms or tubes are inserted in said Globe or cylinder of equal length and dimensions and balancing each other and on right angles to each other and of such lengths as may be adapted to the machine to be moved. These arms or tubes are closed at their outer ends, and have an orifice near the outer ends and on opposite sides of the arms from which the steam issues at right angles with the line of the shaft through which the steam passes into the globe or cylinder, and the steam thus issuing from said orifices produces by its reacting power a revolving motion of the boiler or cylinder and shaft. The steam is conducted from the boiler into the end of the shaft by a tube connecting the boiler and the shaft, and through the shaft into the globe or cylinder and from the Globe or cylin-

into said arms or tubes — Second. To produce a reverse motion or motion in an opposite direction to that before mentioned two other following arms or tubes closed at the ends as before mentioned and constructed in the same manner and having similar orifices but opening in directions opposite to those first mentioned are inserted in the globe or cylinder and the steam is conducted from the boiler into the other end of the shaft by another tube and through the globe or shaft to the globe or cylinder. And in this case the globe or cylinder is divided into two apartments or chambers one of which is connected with the arms or tubes first mentioned and the other with the arms or tubes last mentioned. Or to produce motion in opposite directions. There may be two globes or cylinders placed on the shaft in the manner before mentioned with arms or tubes as before described having no internal passage for the steam from one to the other. and receiving the steam from the boiler through the opposite ends of the shaft by two distinct tubes. In order to conduct the steam to either end of said shaft so as to produce motion in the desired direction. The tubes through which the steam is conducted from the boiler to the shaft may be inserted in the boiler near to each other. and a moving or sliding valve may be so constructed as when it closes the passage from the boiler through one tube; it opens the other passage; and by half opening one of said passages it to the shaft closes the other — In the latter case the steam will pass equally from the boiler through each tube to each end of the shaft and into each of the globes or cylinders (when there are two (or into each partitional chamber of the globe or cylinder when there is but one and divided as before mentioned) and will produce a balance of power and a cessation of motion. And in this situation the steam may be kept on when the motion is required without danger of explosion because the steam will continually escape through its several passages

& As the power of the various hereafter mentioned upon the shaft will have a tendency to move the shaft endways and to cause friction in order to balance and counteract that friction the orifices through which the steam escapes from the arms or tubes may be so placed that the steam will issue and escape from the tube in a line nearly at right

angles with the shaft but a little obliquely & in a direction to give a force opposite to that in which the figure presses the shaft. Or the friction caused by the screw as above mentioned may be counteracted or balanced by a plate of iron fixed on or near the end of the shaft upon friction rollers. And friction rollers may be placed under the shaft working with the cones or cylinders in all cases when necessary to relieve the friction and also under the shafts of all the wheels to give motion to the machinery to be moved. A middle screw is placed upon or near the end of the shaft on which the globe or cylinder is [illegible] on both ends as circumstances may require. And a wheel the shafts of which is at right angles with the shaft on which the globe or cylinder is placed; is so placed that the cogs or teeth may catch or mesh with the screw and is moved by it as the screw revolves. A screw may be placed on or near the end of the shaft of said wheel and another wheel may be connected with in the manner above described. And any other number of wheels and screws may be placed and connected together in a similar manner for the purpose of increasing the power to any desired degree, the use of which will be to increase the force but to diminish the motion of the wheel. In order to save fuel and to make the greatest use of the heat produced by any given quantity of fuel the box may be made of cast iron or some other metal or suitable material may be applied to make the globe or cylinder and to receive the heat issuing from the furnace and boiler. And the box is so placed that the communication may be cut off to the globe or cylinder and shut off through the chimney without going into the cylinder by opening and closing a valve or damper fitted into the box for that purpose. The heat being thus let into the globe or cylinder will warm it and expand the included steam and produce the same power with less fuel. The globe or cylinder may be rendered steam tight if necessary or desirable by making a door in the outer side of said box and by burning coal or other fuel in the box and under the globe or cylinder, or in any other mode that may be deemed expedient.

Fourthly. Also the employing of steam or heated air or any other fluid in moving the machinery and of applying it to different purposes

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a jacket or box may be made around the globe or cylinder & inclosing the same from which the steam escapes which will receive all the steam as it escapes from the same. A pipe or tube may be inserted into this jacket or box by which the steam may be conducted to any place where it may be wanted for the purpose of warming Rooms, boiling water or any other use to which it may be applied — This jacket or box is to be so placed as to receive the steam without receiving the smoke from the furnace or boiler and so as to prevent the steam from falling back upon the fire & chimney may be
made of sheet iron or other suitable material, and so placed as to inclose the boiler or cylinder and the boxes made to receive the escaped steam and the chimney through which the smoke may pass off and the steam also at pleasure. The furnace in which the flue and cylinder & boiler are placed should be made of cast iron or some other incombustible material and the boiler may be constructed and placed in the common manner, and the heat may be applied in the usual way to the boiler. This Engine and apparatus may be used for propelling boats & vessels upon the water for working all kinds of mills and manufactories, for moving carriages on rail roads and on the land; for raising vessels upon marine railways, and for moving
raising all heavy bodies and for all other purposes to which steam power can be applied. — 2nd Title. The claim as mentioned and set forth in the foregoing specification is the following things, viz. 1st The use and application of the machinery as set forth in the manner and for the purposes before mentioned — 2nd The manner of using the globe or cylinder as herein described and especially the placing of the steam pipe in the escape heat of the boiler and other heat as before stated & the jacket or chamber by which the escape heat is led into the globe or cylinder as directed from it at pleasure — 3rd The method of changing the direction & application of the steam as to produce motion in different directions as before described — 4th The producing of great power by the use of steam with less expense of fuel or machinery and with less danger of explosion than in many of the methods heretofore practised or known.

Dated the 21st day of January A.D. 1834

Witnesses:
J. Bayley — Robert Hinde — Richard Roberts — Edm. Kingham
G. Wright — Geo. Mellingly — Benjamin Hick — Wm. Davis
Engineer

Drawing

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