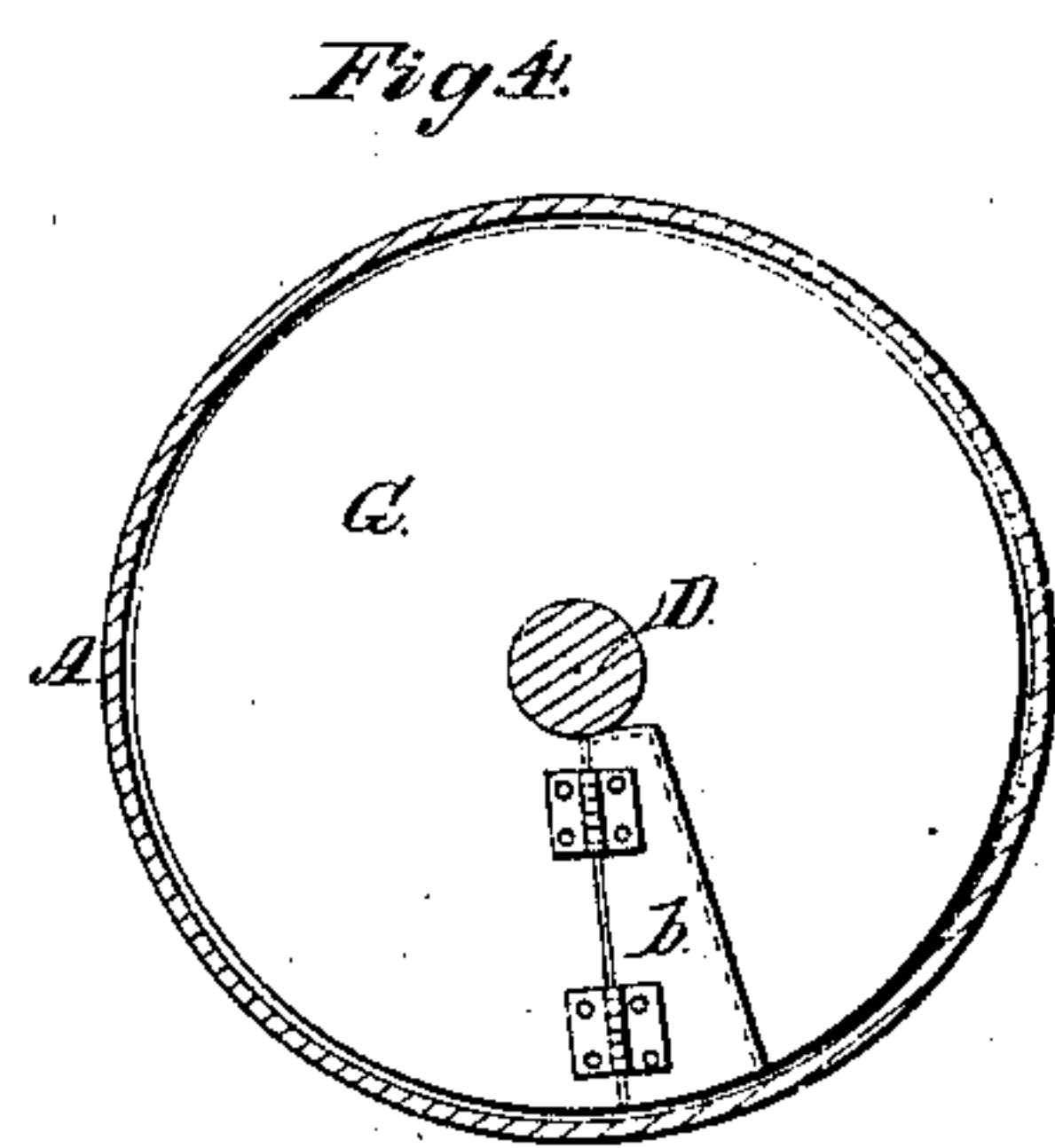
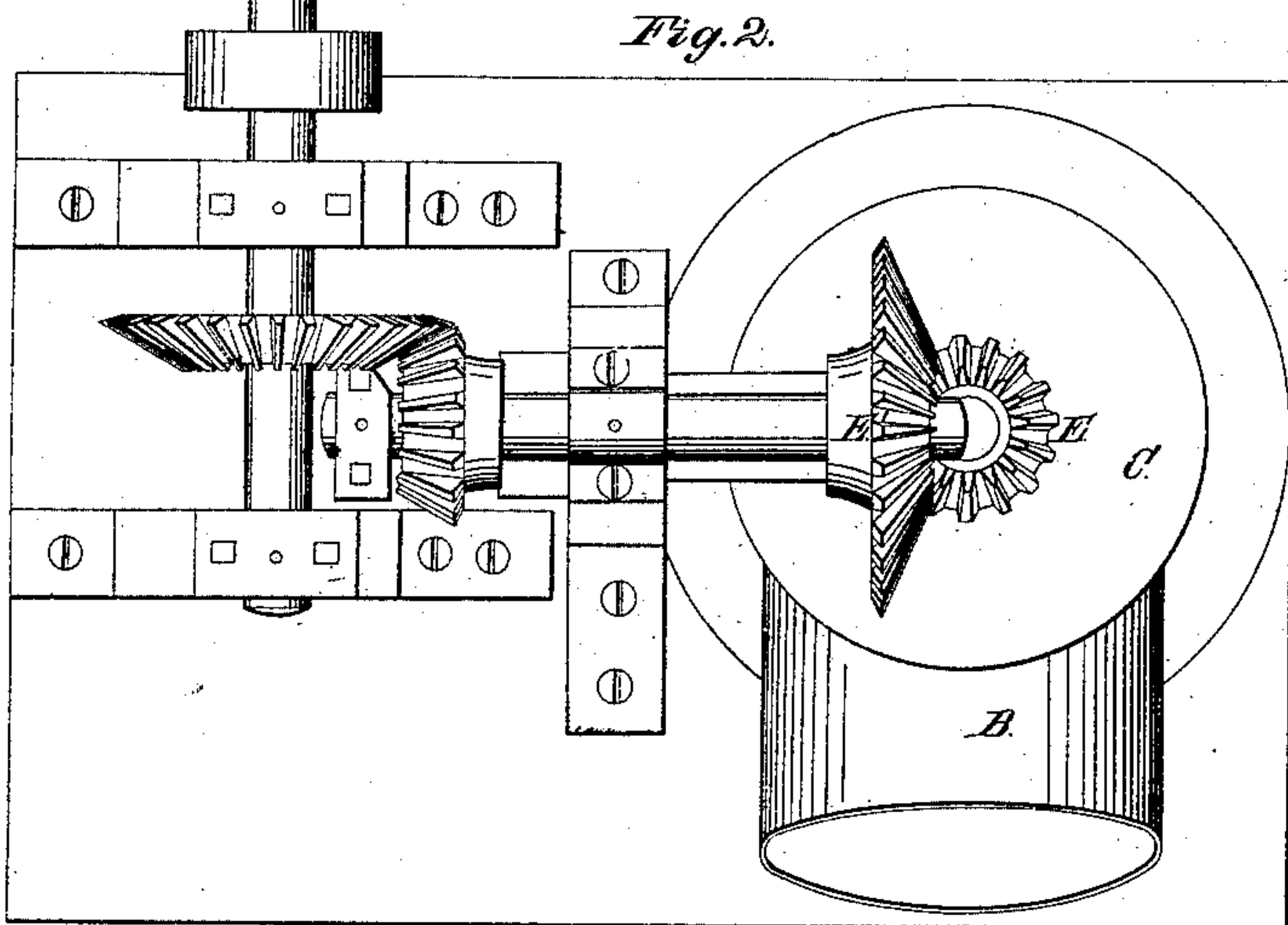
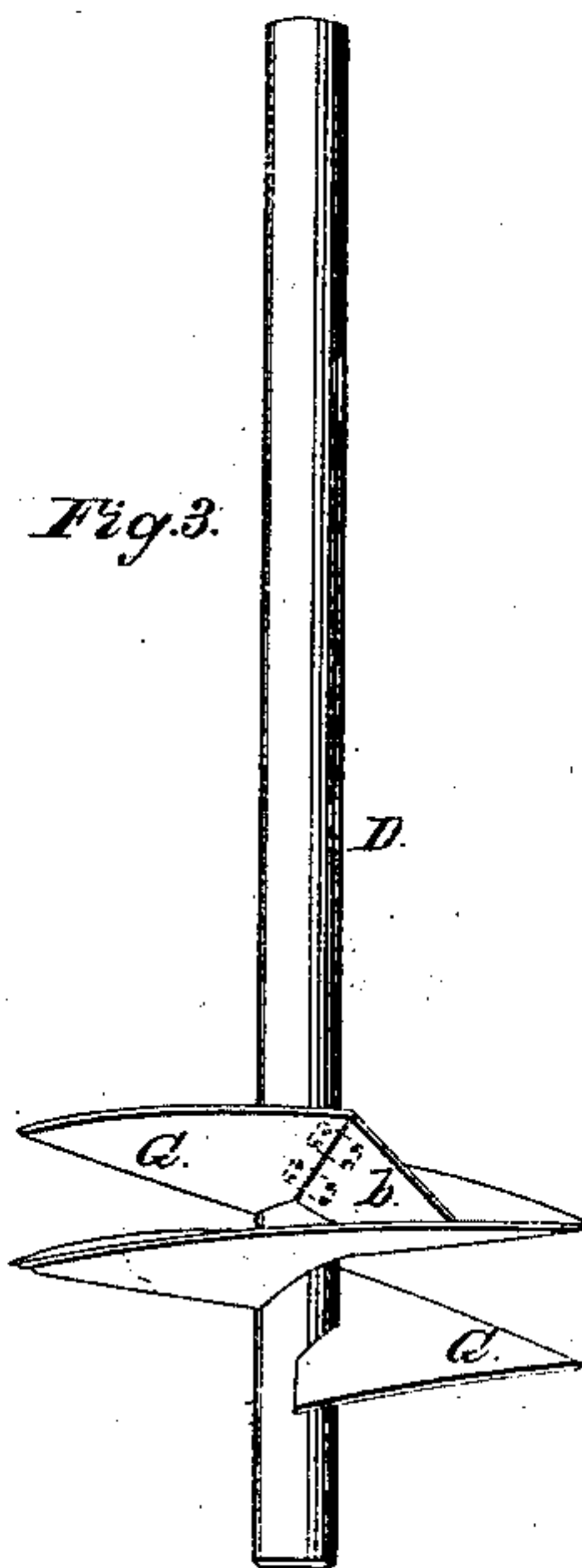
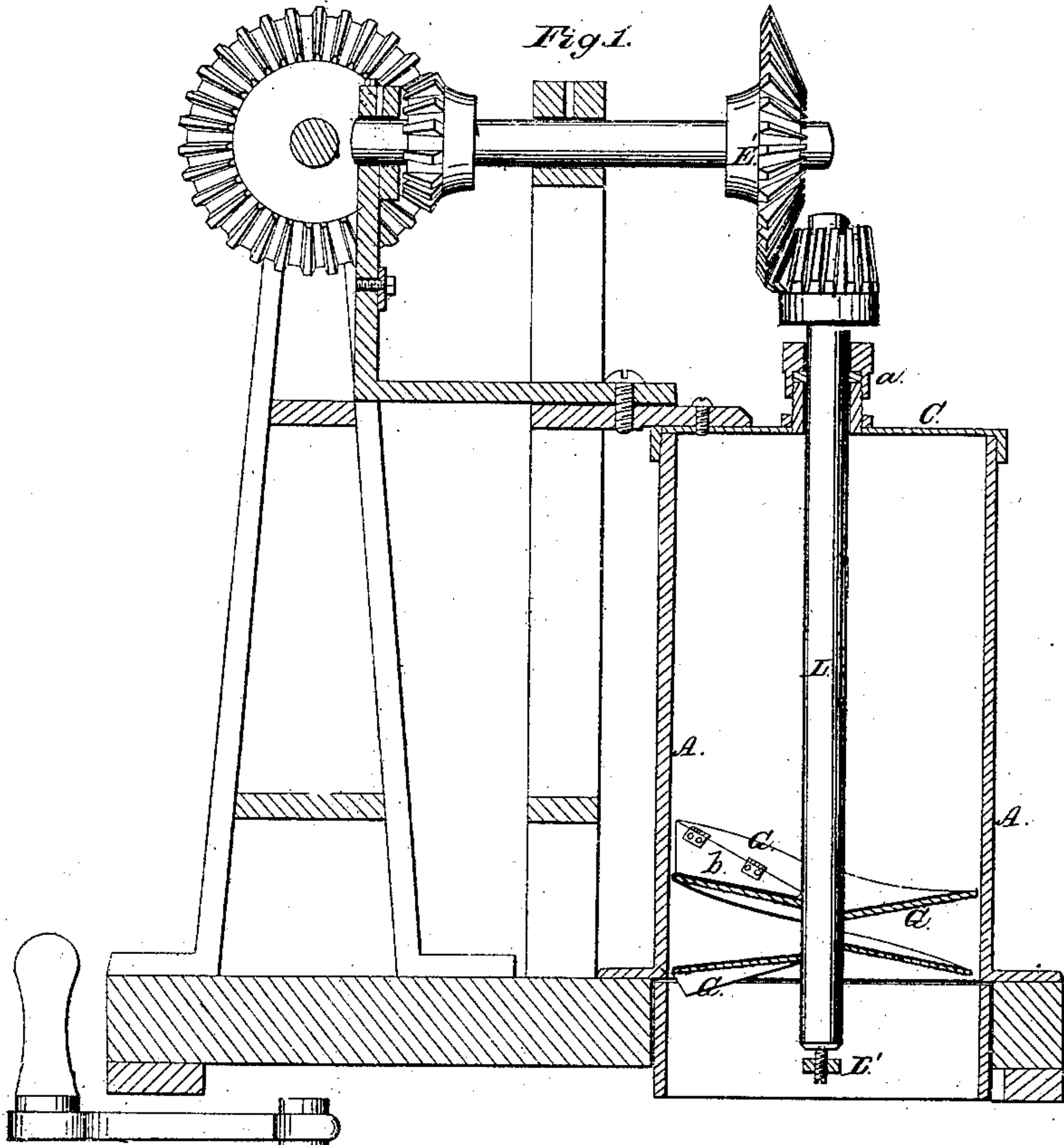


J. P. Gruber,

Centrifugal Pump,

N^o 57499.

Patented Aug. 28, 1866.



Witnesses

R. T. Campbell -
Edw. Schaefer

Inventor

Jno. P. Gruber
by atty
Mason, French & Son

UNITED STATES PATENT OFFICE.

JOHN P. GRUBER, OF NEW YORK, N. Y.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. 57,499, dated August 28, 1866.

To all whom it may concern:

Be it known that I, JOHN P. GRUBER, of the city and county of New York, have invented a new and Improved Pump; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a longitudinal section, taken vertically through the center of the improved pump. Fig. 2 is a plan view of the pump. Fig. 3 is a view of the elevating-screw. Fig. 4 is a horizontal section, taken through the pump-cylinder above the screw.

Similar letters of reference indicate corresponding parts in the several figures.

The nature of my invention consists in the application of one or more valves to a rotary screw, which is inclosed within a cylinder and adapted for raising water, said valves being applied directly to the screw, so as to open and allow of the free upward flow of water, but prevent the return of the water which has been elevated above the screw, as will be herein-after described.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawings, A represents the pump-cylinder, which may be made of any suitable capacity, and which is provided with a discharge-pipe, B, and a closely-fitting cover, C. Within this cylinder is a vertical shaft, D, which is stepped upon a bridge-tree, D', at the lower end of the pump, and passes up centrally through a stuffing-box, a, which is applied to the cylinder-head or cover C, as shown in Fig. 1.

The upper end of the shaft D has a bevel

spur-wheel, E, keyed on it, which engages with a large spur-wheel, E', that is driven at a very high rate of speed by any convenient means.

To the lower part of the shaft D a spiral flange, G, is applied, which may have several turns around its shaft, and at the upper opening of this spiral flange or screw a flap-valve, b, is applied, so as to open upward and allow of the free passage of water when the screw is rotated. This valve will close and prevent the return of water which has been elevated above it.

The circumference of the spiral flange G is made to fit snugly, but not too tightly, against the bore of the cylinder or case A, within which this flange works, for the purpose of preventing the pump from leaking at such points.

If desirable, a very large screw or a number of short screws may be applied to the shaft D, each one being provided with a valve corresponding to that above described.

By my invention I construct a very simple pump, which is not liable to get out of order, and which is well adapted for use on ships and for many other purposes.

The use of valves applied to a spiral flange or screw enables me to use the screw in a vertical position to advantage, and to operate the pump by a very simple application of power.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The application of a valve, b, to a rotary spiral flange, for the purpose of elevating water, substantially as described.

JOHN P. GRUBER.

Witnesses:

N. B. MOUNTFORT,
L. H. MCCOY.