

(No Model.)

F. CROCKER.

Gearing for Operating a Series of Pumps.

No. 241,192.

Patented May 10, 1881.

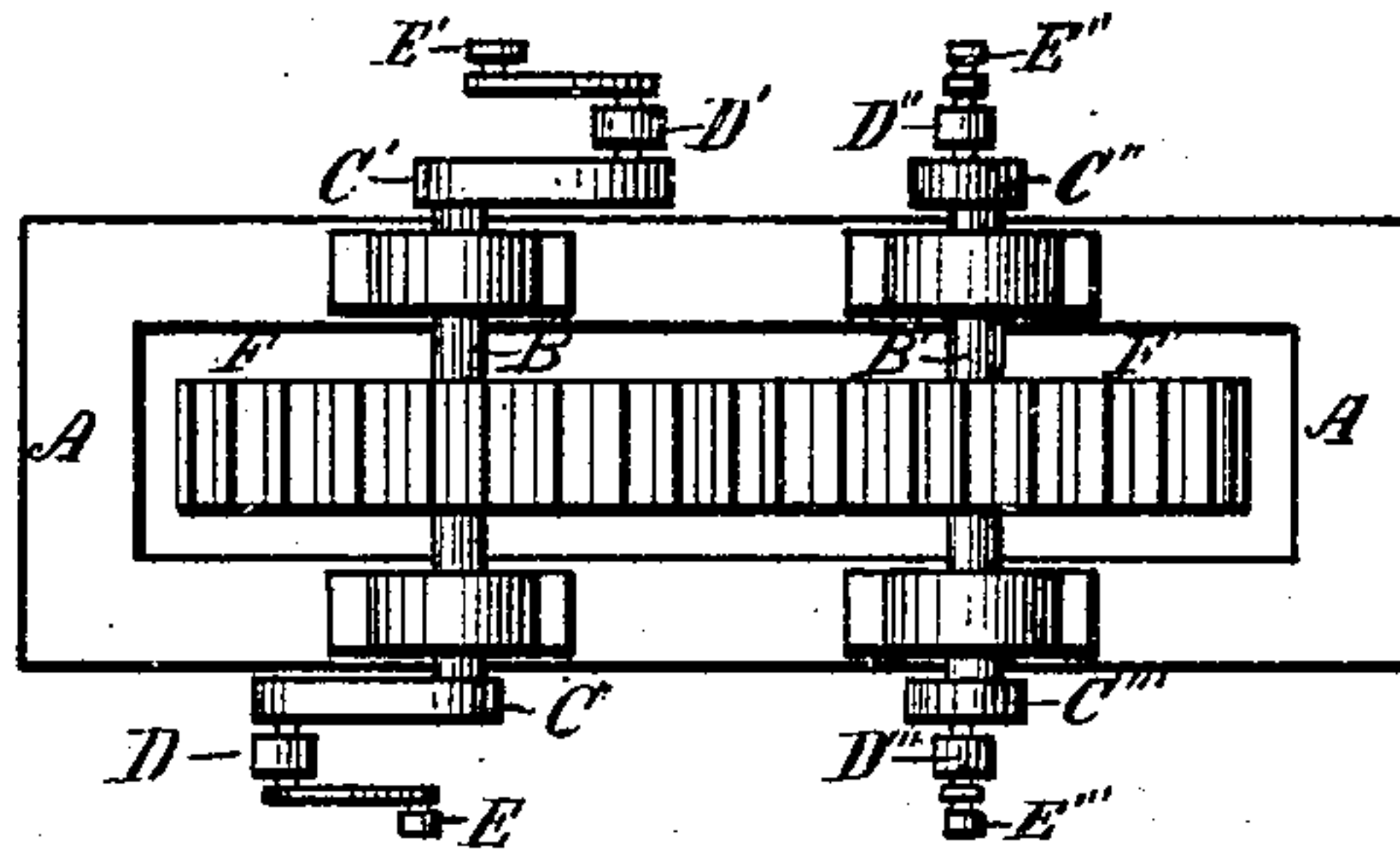


Fig. 1.

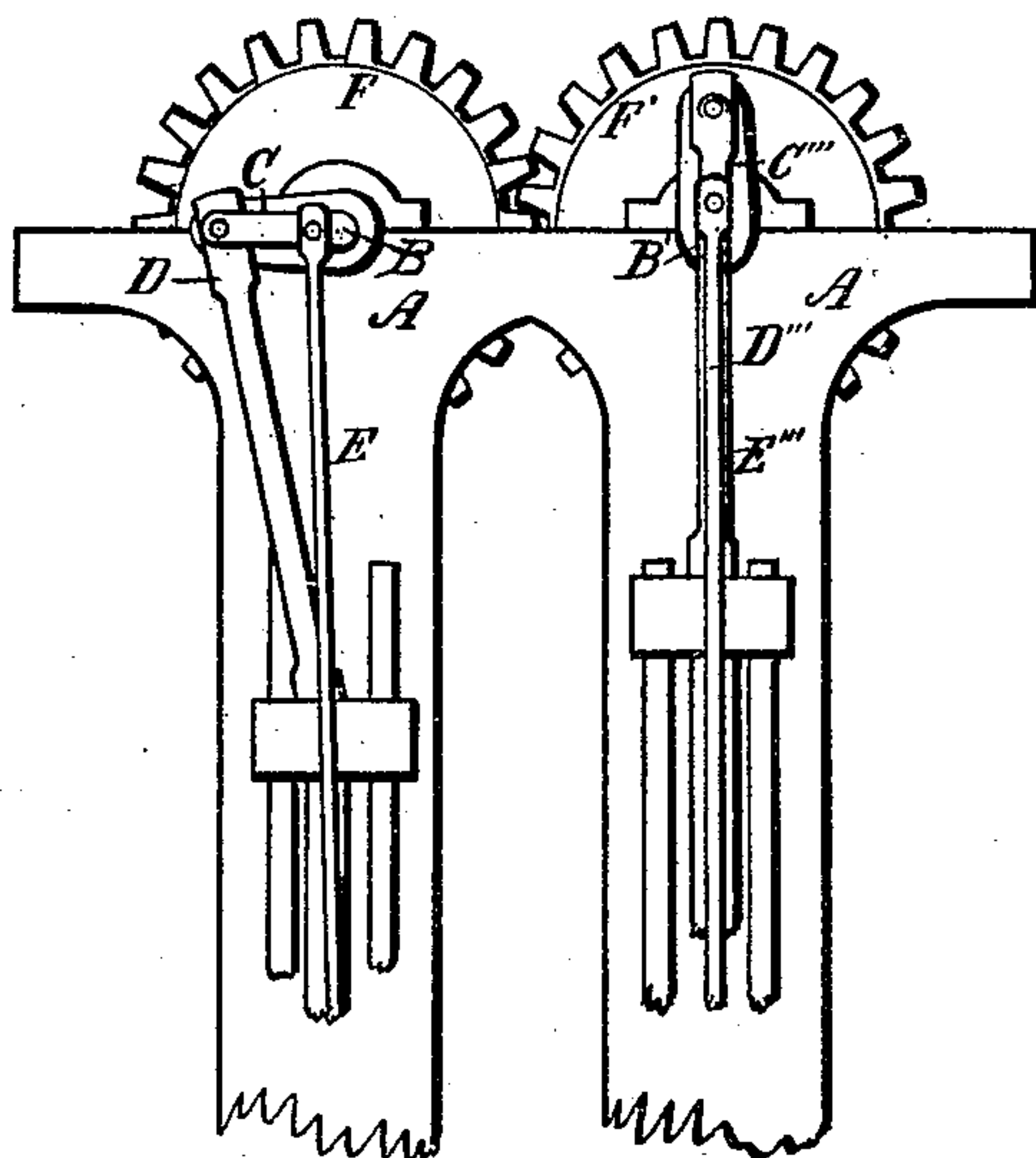


Fig. 2.

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Wm Abbott } WITNESSES.

Frederick Crocker
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UNITED STATES PATENT OFFICE.

FREDERICK CROCKER, OF OLEAN, NEW YORK.

GEARING FOR OPERATING A SERIES OF PUMPS.

SPECIFICATION forming part of Letters Patent No. 241,192, dated May 10, 1881.

Application filed September 20, 1880. (No model.)

To all whom it may concern

Be it known that I, FREDERICK CROCKER, of Olean, Cattaraugus county, State of New York, have invented an Improvement in Gearing for Operating a Series of Pumps for Pumping Liquids under High Pressure, of which the following is a specification.

My present invention is an improvement on a combination-pump invented by me, and for which I obtained Letters Patent of the United States dated October 28, 1879, No. 220,913, the object of this invention being to provide another method of connecting the driving-shafts of the pump. In my former invention the shafts were connected by cranks and parallel rods, the cranks on the ends of each shaft being placed at right angles to each other to obviate "dead-centers" in the entire series of pumps. In this new invention I connect the shafts by gear-wheels, and the cranks on each shaft are placed opposite each other, the cranks on one shaft being placed at right angles with the cranks on the other. In this manner the pumps are made to work in rotation, as in my former invention. The valve-connections in this new invention are made upon the outside of the steam-cylinders, and operated by wrists outside of the connecting-rods. The advantages secured by the new arrangement are, first, less strain upon the connecting-gear between the shafts, and, second, a more compact arrangement of the pumps and less rack upon the frame.

In the drawings, Figure 1 is a horizontal plan of the shafts and connections, and Fig. 2 a vertical view of the same.

The same letters indicate the same parts in both figures.

A is the frame; B B', shafts; C C' C'' C''', cranks; D D' D'' D''', connections with the steam-cylinders; E E' E'' E''' valve-stems, and F F' gear-wheels connecting the shafts B B'. On the shaft B the cranks C C' are placed opposite each other, as are also the cranks C'' C''' on the shaft B'; but the cranks on the shaft B' are placed at right angles with the cranks on the shaft B, thereby securing regular rotation in the operation of the four pumps, as was secured by my former invention. The gear-wheels F F' are needed merely to secure uniformity in motion in the shafts B B'. Except when the cranks on the one shaft are passing the dead-center the motion is assisted by the other shaft.

If it is desired to increase the capacity of the pump by adding more shafts and cylinders, it can be done in the same manner, setting the cranks at thirds, or as desired.

I claim as my invention—

As an improvement on my pump patented October 28, 1879, No. 220,913, the manner of connecting the different pumps by gear-wheels F F' placed upon the shafts B B', substantially as described, and for the purposes herein set forth.

FREDERICK CROCKER.

Witnesses:

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