

J. CANAN.  
Dredging-Machine.

No. 215,263.

Patented May 13, 1879.

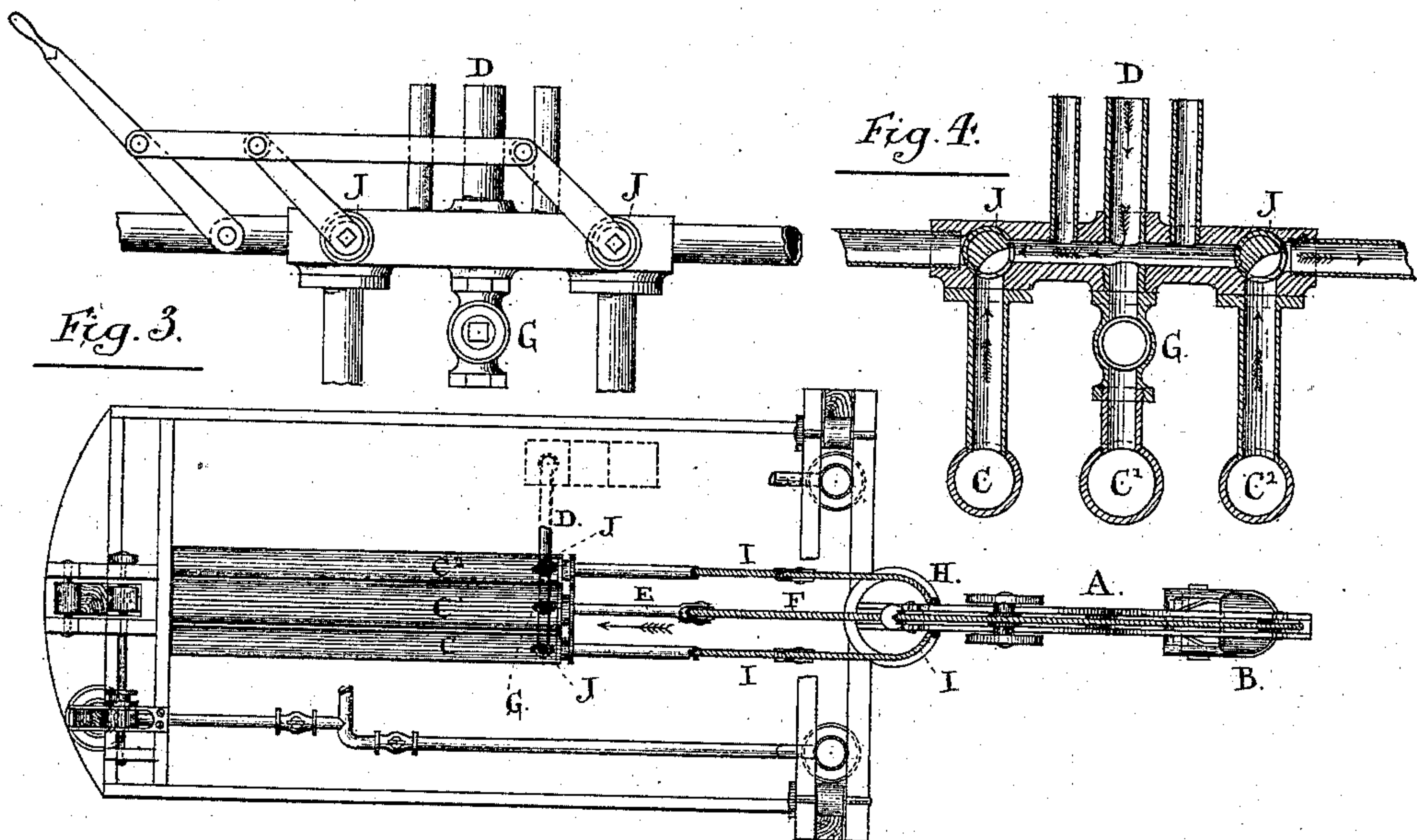


Fig. 1.

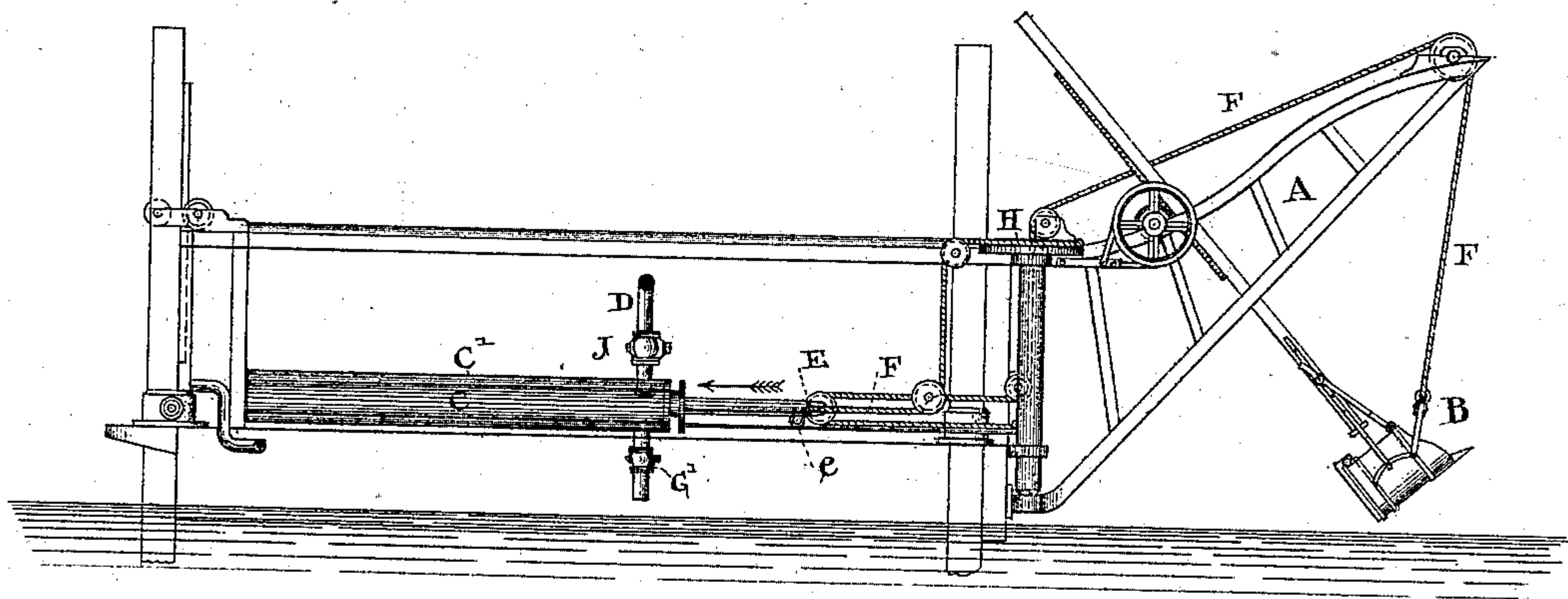


Fig. 2.

Witnesses:-

L. Whitehead.

J. H. Rice

Inventor:-

James Canan

by Ridout & Bird Co

Attys



# UNITED STATES PATENT OFFICE.

JAMES CANAN, OF ALLANBURG, ONTARIO, CANADA.

## IMPROVEMENT IN DREDGING-MACHINES.

Specification forming part of Letters Patent No. **215,263**, dated May 13, 1879; application filed February 21, 1879.

*To all whom it may concern:*

Be it known that I, JAMES CANAN, of the village of Allanburg, in the county of Welland and Province of Ontario, Canada, contractor, have invented certain new and useful Improvements on Dredging-Machines, which improvements are fully set forth and described in the following specification and accompanying drawings.

My invention has relation more particularly to improvements in that class of dredging-machines known as "spoon" or "dipper" dredges; and it consists in the application of hydraulic machinery for the purpose of raising the dipper and swinging the dipper-frame, as more particularly described hereinafter.

In the accompanying drawings, Figure 1 is a plan, and Fig. 2 a side view, of a dredging-machine in the construction of which my improvements are embodied. Figs. 3 and 4 are details.

A is the dipper-crane, constructed and mounted on the dredge in the usual manner, and provided with a dipper or spoon, B. The crane and dipper are arranged to operate in the usual manner; but the means by which they are operated are novel.

C<sup>1</sup> C<sup>2</sup> are hydraulic cylinders, connected to a suitable pump, or other source of supply, by a pipe, D, which cylinders are provided with valves, by means of which water may be admitted to or allowed to flow from the cylinders, as required in the working of the mechanism. These cylinders are provided with pistons and piston-rods, to the ends of which are connected cables, said cables, from the movement imparted to them by the piston-rods, operating the crane and dipper in the following manner: As shown in the drawings, the central cylinder, C<sup>1</sup>, is the dipper or spoon cylinder. From the end of the piston-rod E of this cylinder a connection is made over suitable friction-rollers to the dipper by a wire or chain cable, F. This cylinder is provided with an inlet-valve, G, and an outlet-valve, G', by the proper manipulations of which the piston is moved in either direction required, and the dipper elevated or lowered accordingly. The admission of water forces the piston in the direction of the arrow, thus elevating the dipper, while the opening of the outlet-valve G' permits the wa-

ter to discharge from the cylinder, thus allowing the dipper to be lowered by the force of its own weight.

The piston-rod is provided with a roller, c, which supports the weight of the rod when extended, and prevents sagging. The area of the piston is governed, of course, by the weight to be lifted and the pressure of water that can be applied, and the cable-connection between the piston-rod and dipper may also be varied by means of sheave-blocks to move the dipper faster or slower than the movement of the piston. As shown in the drawings, a movement of one foot would cause the dipper to rise two feet. This proportion under some circumstances might not be satisfactory. Therefore I do not limit my claim to the arrangement illustrated, as I propose to vary the proportion of parts as circumstances may direct.

C C<sup>2</sup> are the cylinders which operate the turn-table H of the crane. The piston-rods of these cylinders are connected by a continuous cable, I, which cable passes over suitably arranged friction-rollers and around the turn-table, in the manner shown. The operation of each of these cylinders is governed by a three-way cock, J, or other equivalent device, placed on the water-pipe. In moving the crane by means of these cylinders, water is turned on the cylinder at the side to which movement is desired, while the cock of the cylinder at the other side is moved so that the discharge-port will be open. Thus one cylinder will be filling and exerting a pull on the crane while the other cylinder is discharging. A retrograde movement of the crane is accomplished by reversing the position of the cocks.

That the position and arrangement of the cylinders could be varied from that shown I am aware. Therefore I do not limit my claim to any particular arrangement of parts.

The advantages of my invention are that most of the expensive and intricate mechanism now in use for operating steam dredging-machines is dispensed with, and simple, powerful, and cheap hydraulic machinery substituted therefor. A further advantage is that the liability of breakage is much reduced, and the cost for repairs will be placed at a minimum figure.

I do not claim, broadly, the application of

hydraulic machinery for operating cranes and excavator-shovels, and am also aware of English Patent No. 11,319 of 1846; but

What I claim as my invention is—

In a dredging-machine having the crane A and dipper B, the combination of the cylinders C C<sup>2</sup>, each provided with a valve, J, operating as described, whereby, as fluid is admitted to one cylinder it is allowed to escape from the other cylinder, the continuous cable I, secured to the piston-rods of said cylinders, and work-

ing over the turn-table H to swing the crane, the cylinder C<sup>1</sup>, having the valves G G', and the sheaved chain F, attached to its piston-rod and working over the outer sheave of the crane to raise the dipper, all arranged with relation to each other substantially as specified.

JAMES CANAN.

Witnesses:

GEO. A. AIRD,  
JOHN G. RIDOUT.