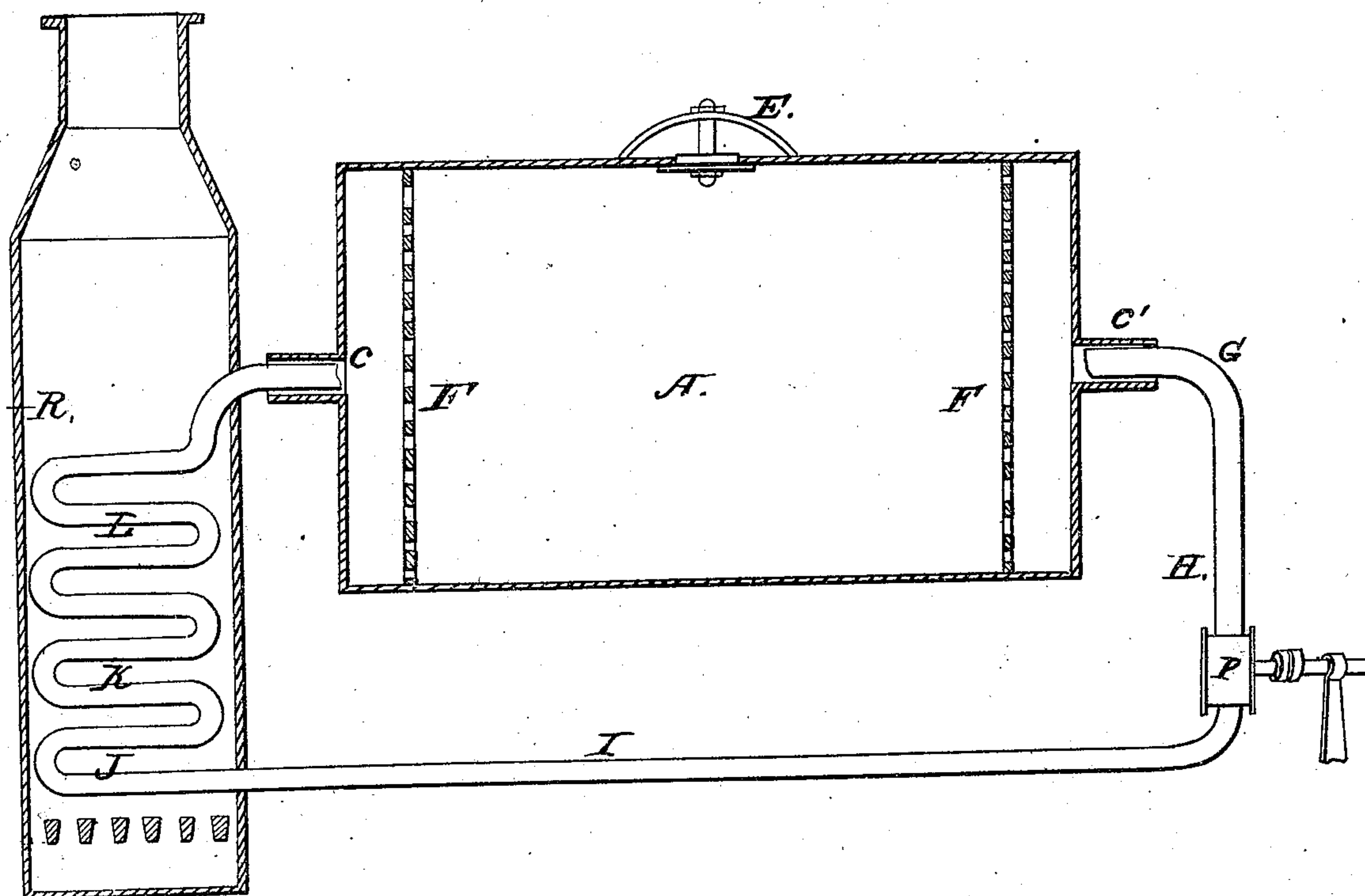


*J. W. Dixon*  
*Pulp Digester*  
*N<sup>o</sup> 52,543. Patented Feb. 13, 1866.*



*Witnesses.*  
*Geo Buckley*  
*Senr M<sup>ch</sup> John Dr.*

*Inventor.*  
*John W. Dixon*

# UNITED STATES PATENT OFFICE.

JOHN W. DIXON, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVED APPARATUS FOR MAKING PAPER-PULP.

Specification forming part of Letters Patent No. **52,543**, dated February 13, 1866.

*To all whom it may concern:*

Be it known that I, JOHN W. DIXON, of the city of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Apparatus for Making Paper-Pulp; and I do hereby declare the following to be a full and exact description of the same, reference being had to the annexed drawing, making a part of this specification, which represents a vertical longitudinal section of my improved apparatus.

My improvement has for its object the digesting wood, straw, or other vegetable fibrous material for making paper-pulp, and may be used for boiling rags or bleaching and preparing flax or similar matters.

A is a horizontal rotary boiler turning on hollow trunnions *c c'*, and made of iron strong enough to resist considerable pressure. I would advise at least one hundred and fifty pounds. At E is a covered man-hole for introducing the material.

F and F' are two perforated diaphragms. A pipe, G H I J R L, extends from one trunnion to the other. At J R S this pipe is coiled in a furnace, R. At P is a rotary or other pump.

The operation of this apparatus is as follows: The material and digesting-liquor being introduced at E, the pump P is started and the fire

made in R, which causes a rapid circulation up through the coil, in through the trunnion *c*, and through the perforated diaphragm, and through the material, and out through the trunnion *c'* into the pump, and thence through the coil. The pump P compels a constant circulation. The rotation of the boiler A facilitates the agitation and mixing of the material and of the digesting-liquor, which may be either highly-heated water alone or a solution of alkali or other digesting-liquor. Any other heating apparatus besides the coil—such as a fire below the boiler—may be used, and the pump and tube will then be used only for producing a circulation.

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

1. The combination of the circulating-pump and revolving boiler.
2. The combination of circulating-pump, heating-coil, and revolving boiler.
3. The combination of one or both perforated diaphragms and a revolving boiler and pump, P.

JOHN W. DIXON.

Witnesses:

GEO. BUCKLEY,  
BENJN. McMAKIN, Jr.