

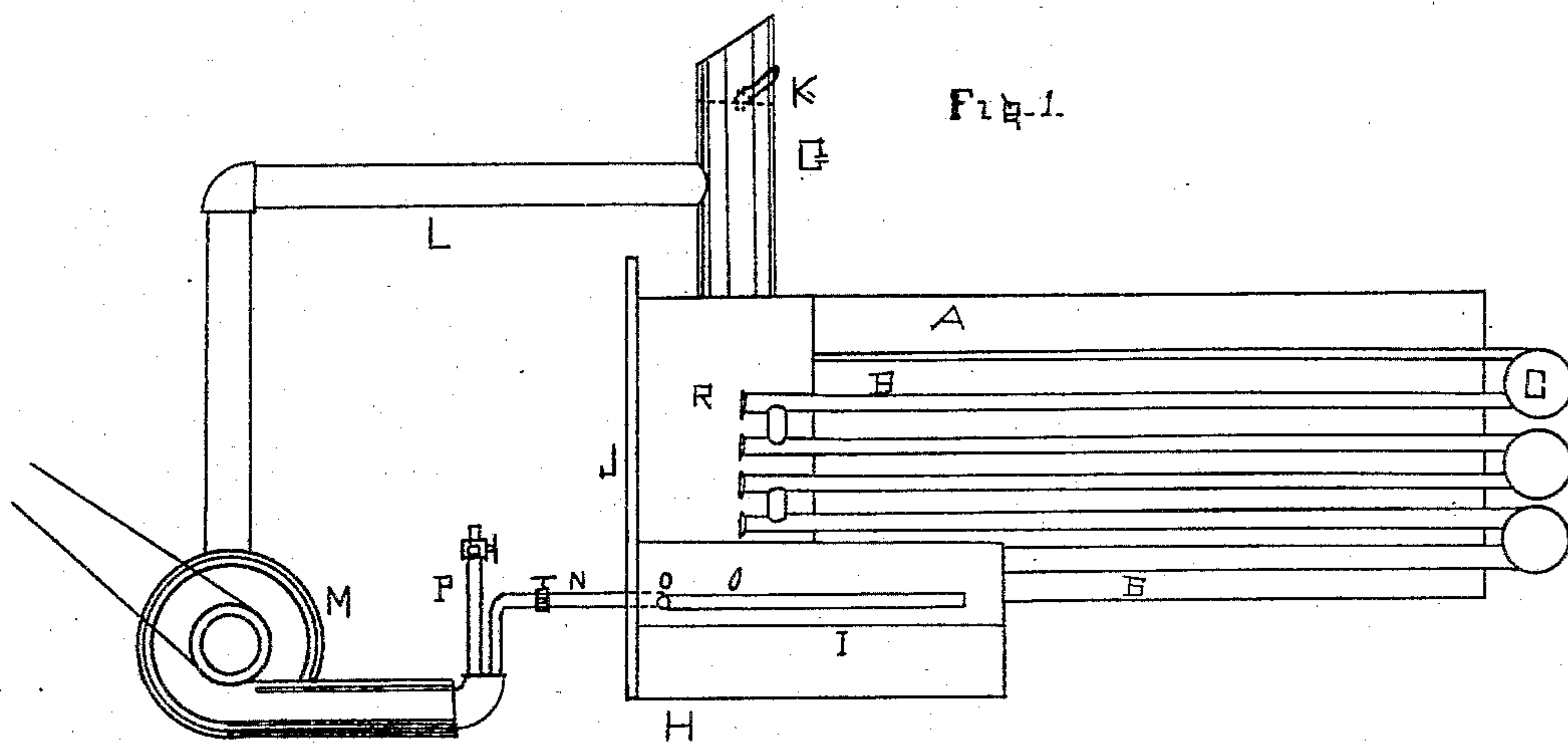
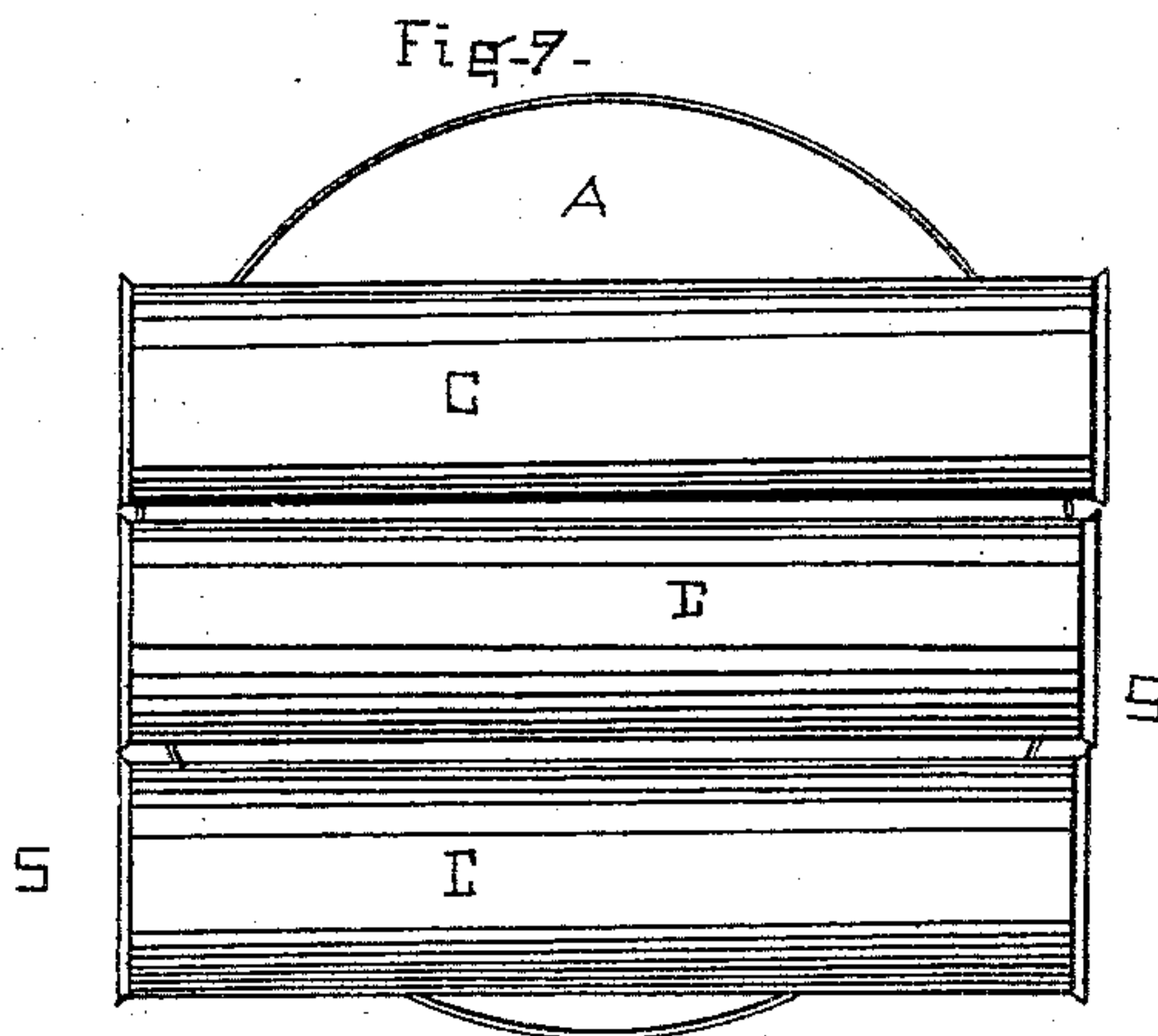
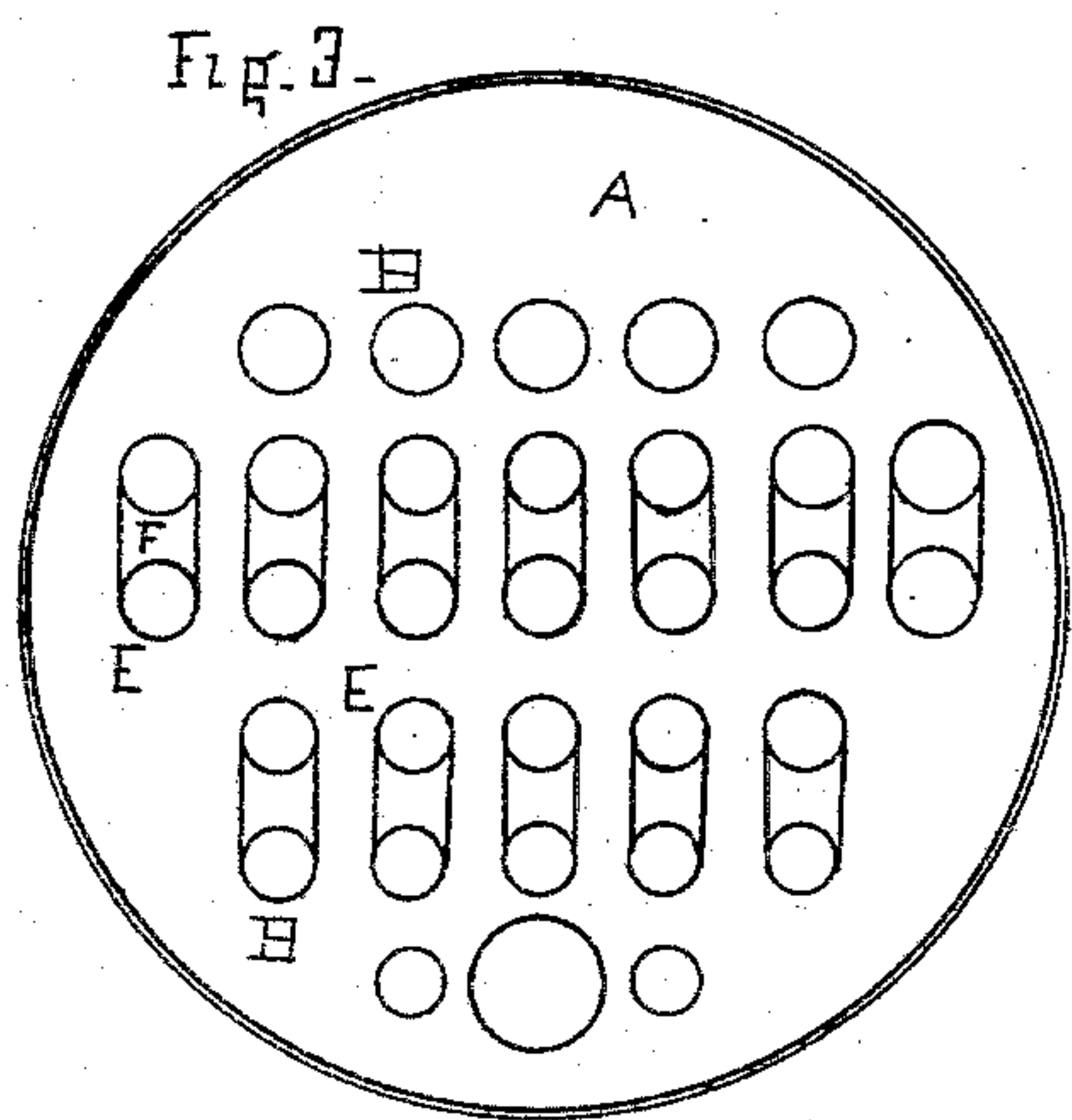
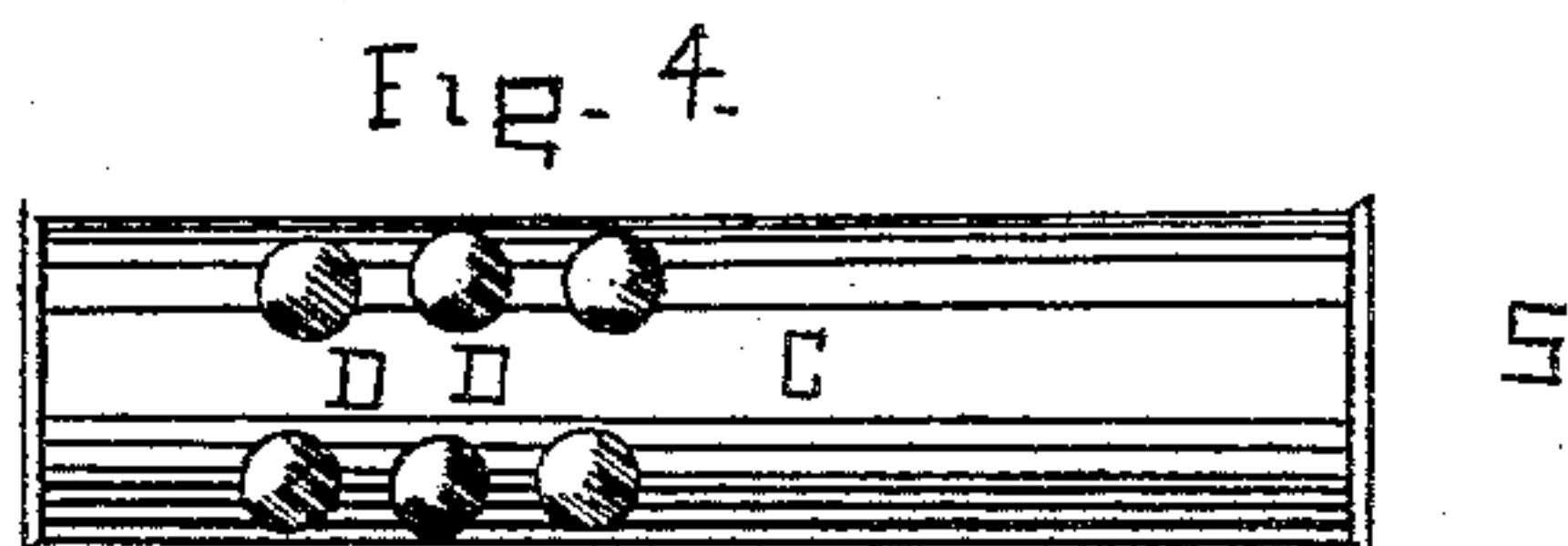
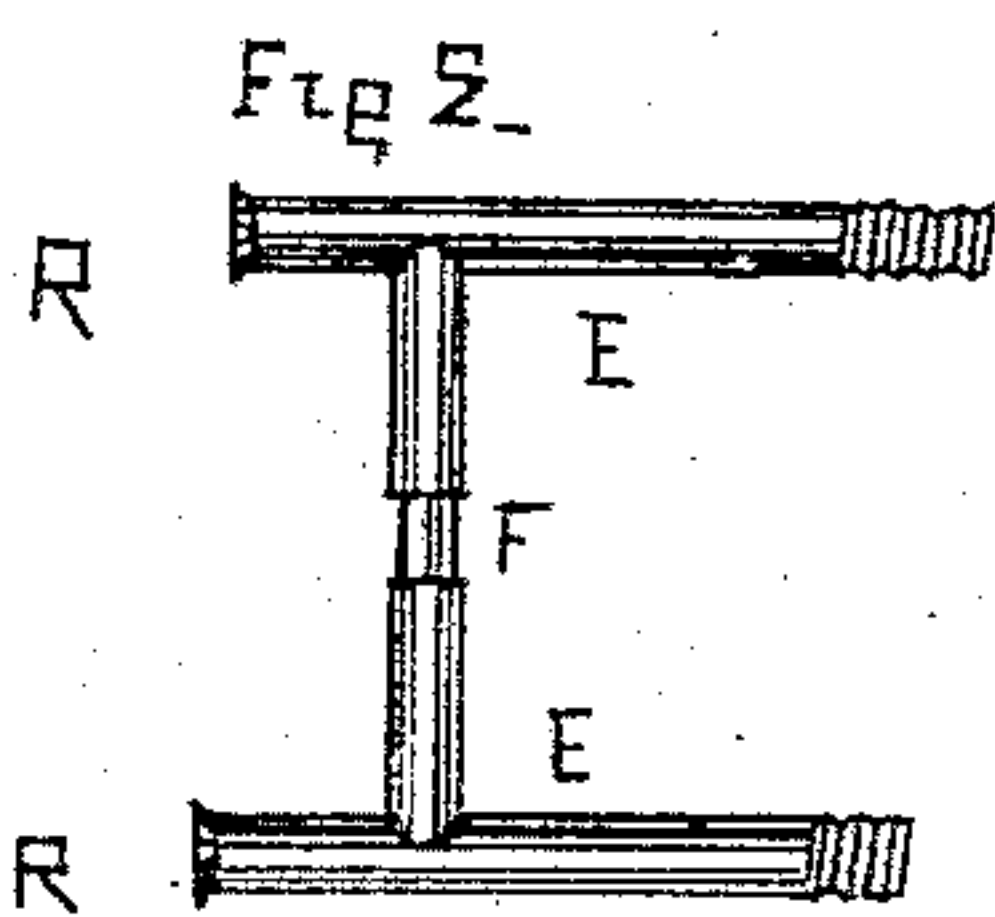
(No Model.)

J. A. TREACY.

FORMING A PERFECT COMBUSTION AND PREVENTING THE FORMATION
OF SMOKE.

No. 339,600.

Patented Apr. 6, 1886.



Witnesses.

A. C. Parker.

Chas. S. Burton

Inventor.

James A. Treacy

By J. W. Parker,

Atty.

UNITED STATES PATENT OFFICE.

JAMES A. TREACY, OF CHICAGO, ILLINOIS.

FORMING A PERFECT COMBUSTION AND PREVENTING THE FORMATION OF SMOKE.

SPECIFICATION forming part of Letters Patent No. 339,600, dated April 6, 1886.

Application filed August 28, 1884. Serial No. 141,657. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. TREACY, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Forming a Perfect Combustion and Preventing the Formation of Smoke, of which the following is a specification.

The object of my invention is to provide a steam-boiler with such appliances that the heat will be more evenly distributed and carried to the rear of the boiler, for the purposes of consuming the gases which usually pass through the flues as smoke and issue unburned, and for the further purpose of preventing the formation of scale. It is also a part of the object of my invention to dispose of a part of or all the products of combustion.

I have shown my invention as applied to a boiler of the structure usually employed for portable or marine engines.

Figure 1 is a sectional view of a tubular boiler with my attachments applied. Fig. 2 is a rear view, and Fig. 3 is a front view. Figs. 4 and 5 are details of the rear pipes and front T's.

Like parts are indicated by like letters in all figures.

A is the boiler; B B, the flues; C C, two large pieces of gas-pipe, having perforations D D opposite the ends of the flues when the pipes are in the position shown. E E are pieces of pipe in the shape of T's. F F are short nipples. G is the smoke-stack; H, the fire-box; I, the grate-bar; J, the front of the boiler; K, a damper in the smoke-stack; L, a pipe leading from a point below the damper to a fan, M; N, a pipe leading from the fan to the perforated pipe O, which opens into the front and sides of the grate-bar; P, a pipe discharging into the open air or elsewhere at will; R and S, caps on the T's and the rear pipes to cover the ends thereof.

It will be seen that great changes can be made

in the form, structure, and arrangement of these parts without departing from the spirit of my invention, which will be seen to be in the means for returning the gases successively back and forth through the boiler-flues and in combining such means with the fan.

The use and operation of my invention is as follows: The gases which are formed by and escape from the fire on the grate-bars pass backward through the lower flues. At the rear they pass into the lower transverse pipe, and thence into the next row of flues. The circuit is thus kept up through the flues, T's, nipples, and rear pipes until the stack is finally reached, when they pass out through the pipes into the open air or into the fan. By the fan they are discharged into the front of the fire, or into the open air or water, as may be desired. The fan controls and supplies the draft. When it is desired to clean the flues, the caps on the ends of the T's may be removed and the brush be inserted. In a similar manner the rear transverse pipes may be cleaned by removing the end caps. In this manner the products of combustion are consumed in the flues of the boiler by reason of passing through them successively, and the residue is disposed of by the fan.

It is plain that the T-pipes may be used at either end.

The fan may be run by a small engine.

What I claim, and desire to secure by Letters Patent, is—

In a boiler, the combination of the flues with rear transverse connecting-pipes and with front T's, whereby the flues are so connected that the gases pass back and forth through them in the manner shown.

In witness whereof I have hereunto set my hand this 18th day of August, A. D. 1884.

JAMES A. TREACY.

Witnesses:

FRANCIS W. PARKER,
A. C. PARKER.