

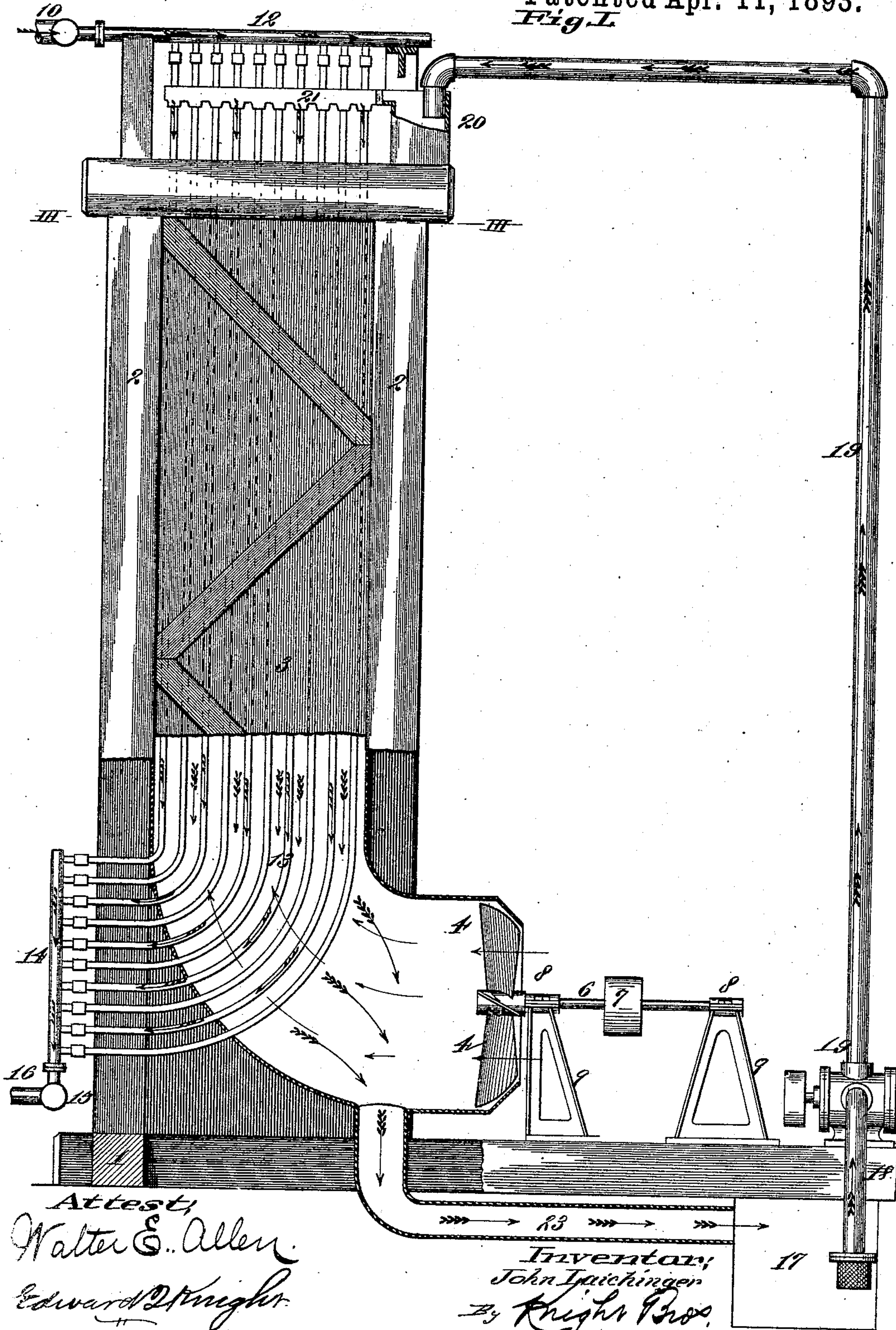
(No Model.)

2 Sheets—Sheet 1.

J. LAICHINGER.  
CONDENSER.

No. 495,417.

Patented Apr. 11, 1893.  
*Fig. I*



Attest,  
Walter E. Allen.  
Edward D. Knight.

Inventor,  
John Laichinger  
By Knight Bros.  
attys

(No Model.)

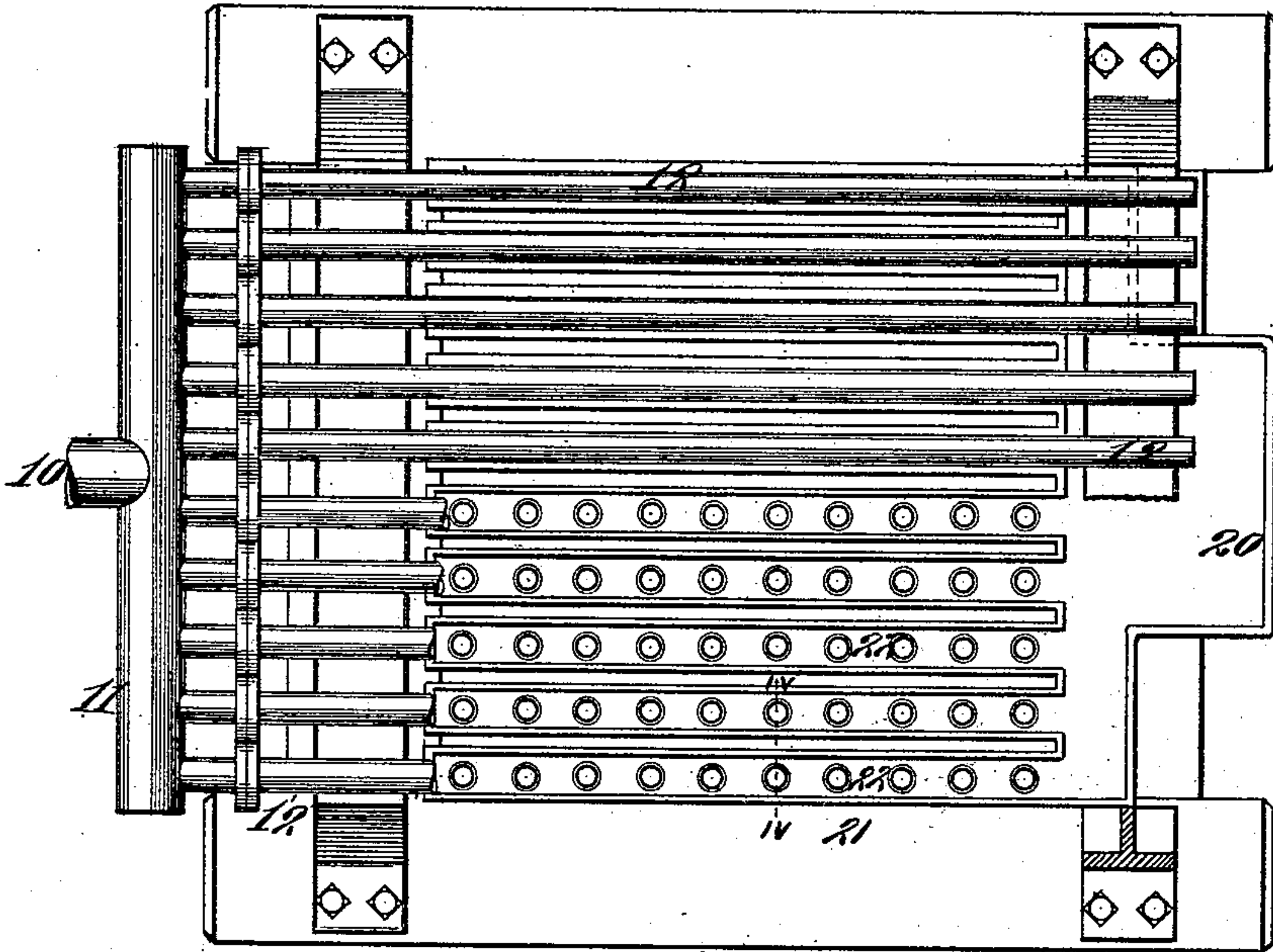
2 Sheets—Sheet 2.

J. LAICHINGER.  
CONDENSER.

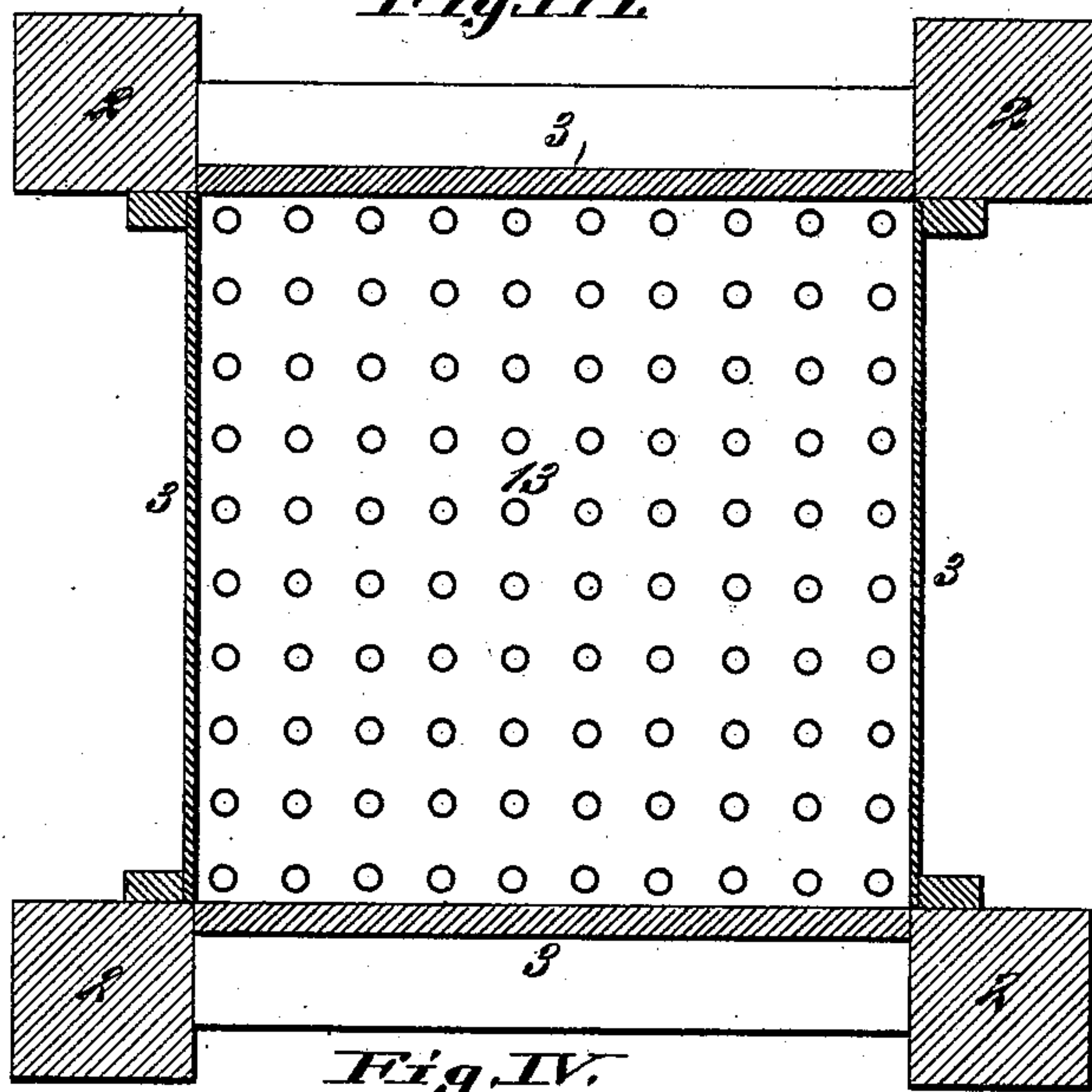
No. 495,417.

Patented Apr. 11, 1893.

*Fig. II*

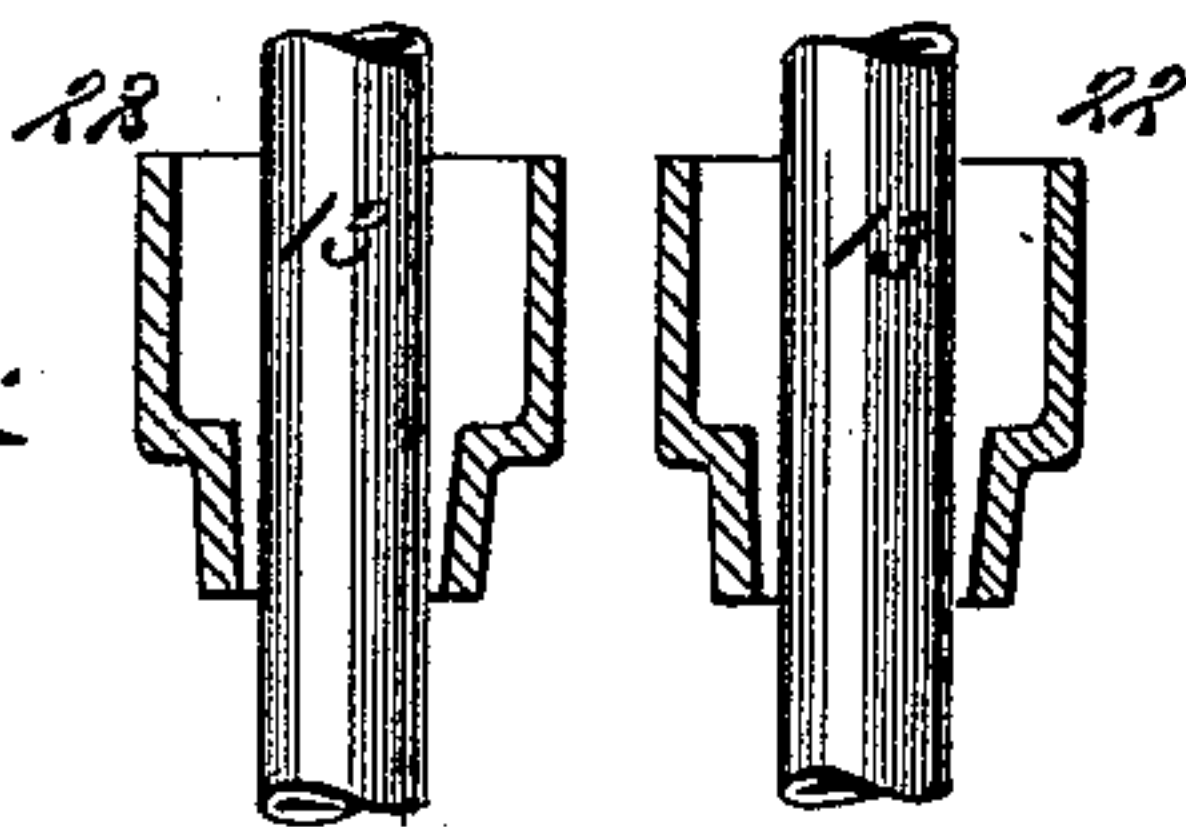


*Fig. III*



*Fig. IV*

Attest:  
Walter E. Allen.  
Edward D. Knight.



Inventor:  
John Laichinger  
By *Knight Bros*  
attys



# UNITED STATES PATENT OFFICE.

JOHN LAICHINGER, OF ST. LOUIS, MISSOURI.

## CONDENSER.

SPECIFICATION forming part of Letters Patent No. 495,417, dated April 11, 1893.

Application filed December 8, 1892. Serial No. 454,505. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN LAICHINGER, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Condensers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to a condensing apparatus for use in condensing steam, or ammonia, or other gases; and my invention consists in features of novelty hereinafter fully described and pointed out in the claims.

Figure I represents a side elevation, a portion of the lower end of the apparatus being shown in vertical section. Fig. II represents a top view or plan, part of the horizontal top pipes being broken away to show the water distributing gutters. Fig. III is a horizontal section through the apparatus, taken on line III—III, Fig. I. Fig. IV is an enlarged, detail section through the water gutters, taken on line IV—IV, Fig. II.

Referring to the drawings, 1 represents the base sills, and 2 the upright posts which support the four sides of the casing 3. The casing 3 terminates in a cylinder at its lower end, and is curved outward beyond the post 2, where it terminates in an open ended air receiving cone 4.

5 represents a fan mounted on a shaft 6, such shaft carrying a belt pulley 7, by which the shaft and fan may be propelled. The shaft 6 is mounted in suitable bearings 8 on standards 9. The purpose of the fan will be fully described farther on.

10 represents a supply or inlet pipe, through which the steam or gas enters the condenser, and 11 is a manifold, from which the steam or gas is distributed into distributing pipes 12, from whence it passes into a series of vertical pipes 13, that extend down through the casing 3 and to the outside of such casing to pipes 14, and from the pipes 14 into a manifold 15, and from the manifold to an outlet pipe 16.

17 represents a water tank from which leads a pump pipe 18 to a suitable pump 19. Water is pumped from the tank up through the pipe 18 and on through a pipe 19 connected

at its upper end to a trough 20 on top of the casing 3.

21 are water distributing gutters leading from the trough 20 and through which gutters the water flows, and from them downward around the pipes 13, such pipes 13 passing loosely through openings 22 in the gutters 21.

23 is a discharge pipe through which the water escapes from the casing 3, and flows back to the tank 17 from where it may be again pumped to pass through the condenser.

The operation of my improved condenser is as follows:—The steam or gas entering through the inlet pipe, manifold and distributing pipes, passes downward through the series of pipes 13, and out to the discharge pipe, as indicated by the half feathered arrows, in Fig. I. At the same time water is pumped into the trough 20 and flowing through the water gutters 21, flows down around the pipes 13, as indicated by full arrows, in Fig. I, and thereby cooling such pipes and condensing the steam or gas, and from the casing passes through the discharge 23 again to the tank, as described. Air is forced into the cylinder 4 by the fan 5, and is forced upward, as indicated by the featherless arrows against the flow of the water, thus further assisting in the cooling of the pipes 13.

I claim as my invention—

1. In a condenser, the combination of a casing, a series of vertical pipes, a water feed gutter located near the upper end of the casing, from which water flows downward around the vertical pipes, and a fan located at the lower end of the casing, whereby air is forced upward through the casing against the downward passage of the water; substantially as set forth.

2. In a condenser, the combination of a casing, a series of vertical pipes in said casing, a water supply cistern, a feed gutter located near the upper end of the casing, through which gutter the vertical pipes pass, a pipe leading from the cistern to the feed gutter, means for raising water through said pipe, and a discharge pipe leading from the lower end of the casing to the cistern; substantially as set forth.

3. In a condenser, the combination of a casing, a series of pipes within such casing, suitable inlet and discharge connections to said pipes, a water supply pipe, a trough into  
5 which the water supply pipe empties, water gutters leading from the trough, and surrounding the series of pipes, openings in the gutters through which the series of pipes pass, a fan, and an outlet for the discharge water; substantially as and for the purpose set forth. 10

JOHN LAICHINGER.

In presence of—

ED. S. KNIGHT,

ALBERT M. EBERSOLE.