

(No Model.)

P. HOLTZMANN & R. MAYER.

PORTABLE STEAM BOILER.

No. 336,113.

Patented Feb. 16, 1886.

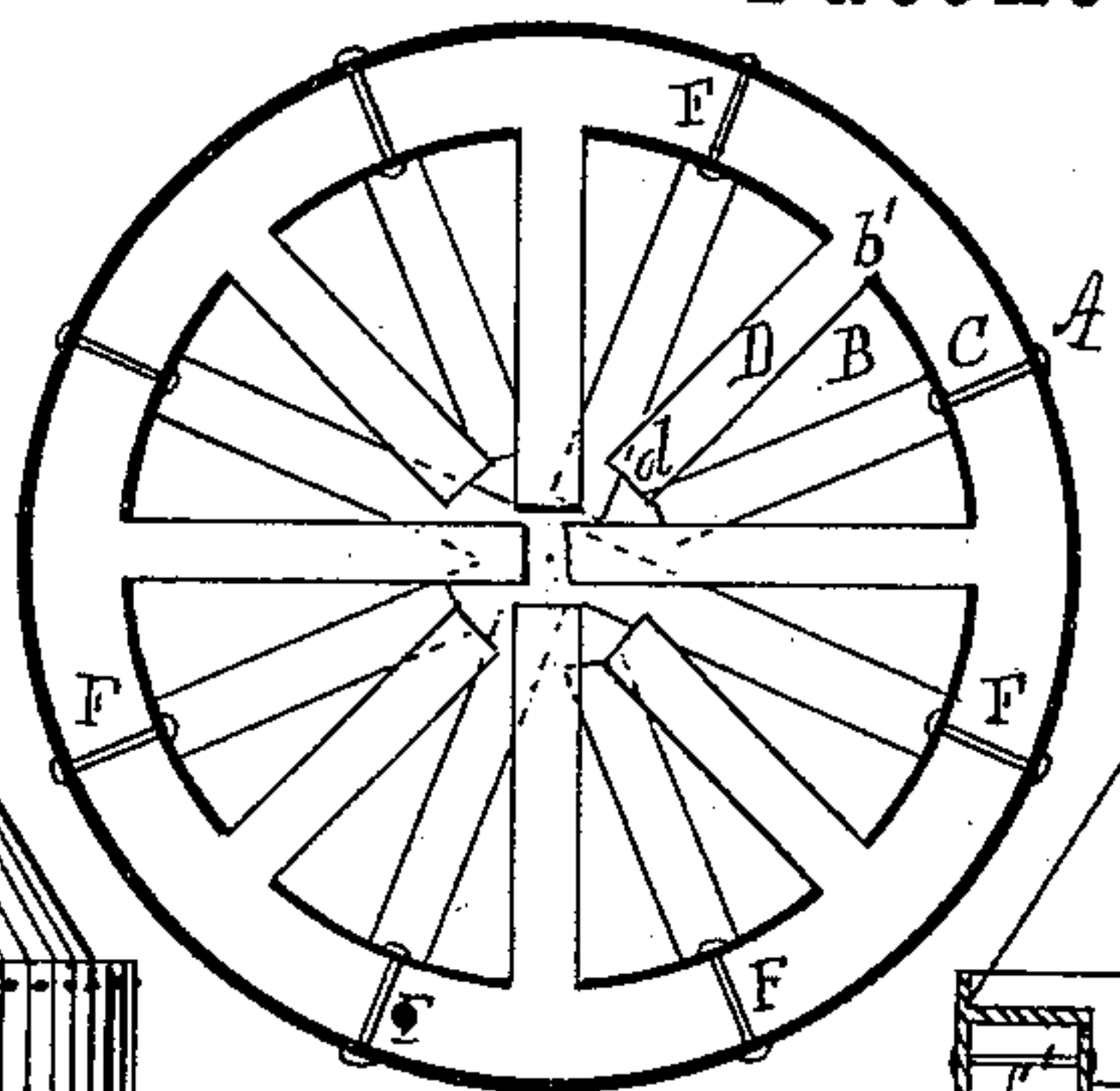
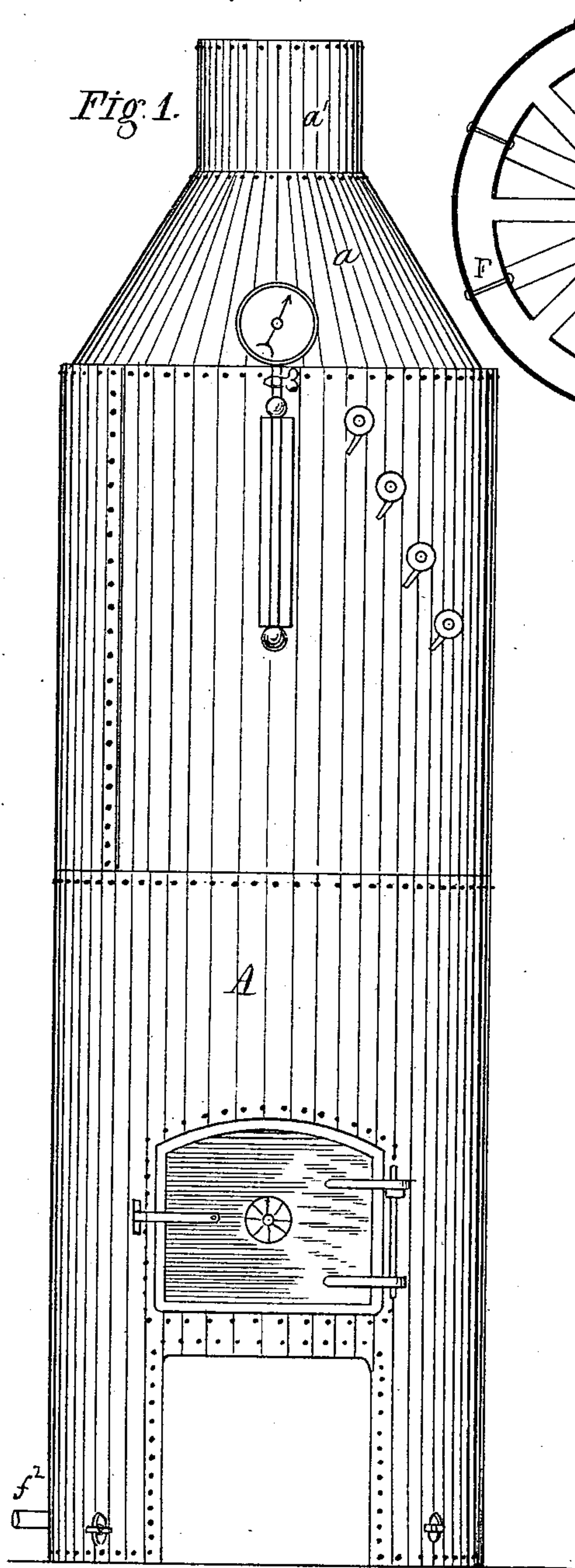


Fig. 3.

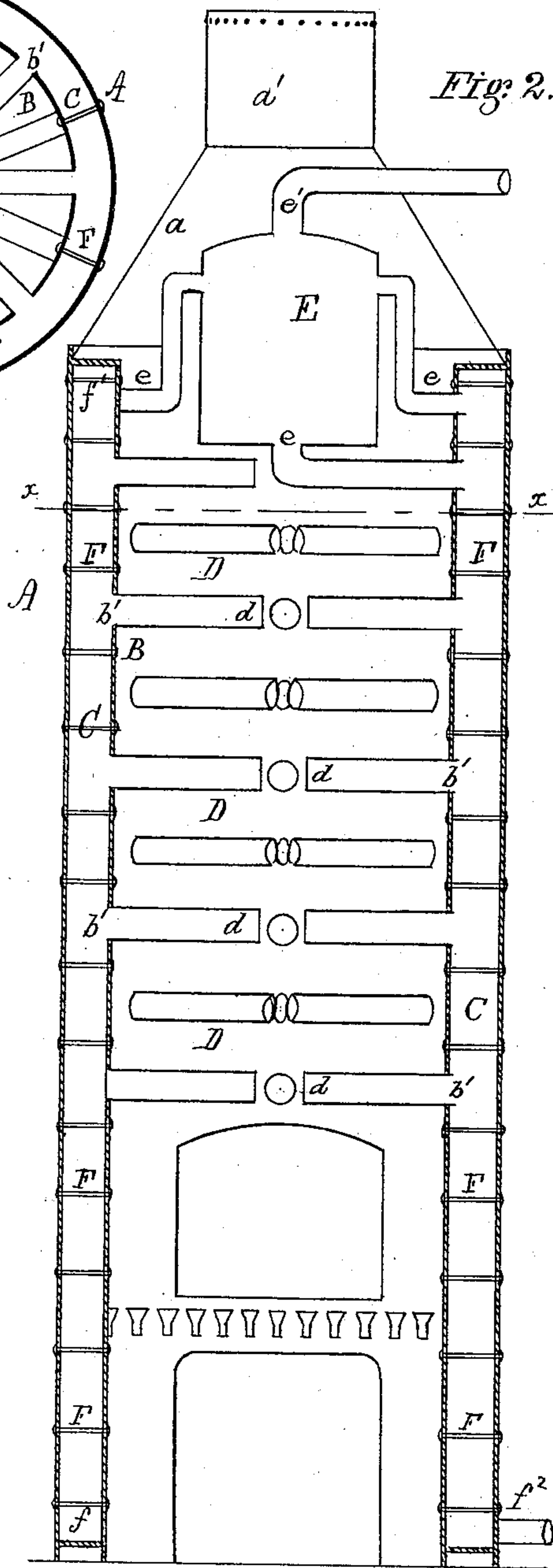


Fig. 2.

Witnesses
Edward F. Taylor
Jno. Cole

Inventors
Rudolph Mayer,
Phillip Holzmann
per W. H. Singleton,
att'y.

UNITED STATES PATENT OFFICE.

PHILLIP HOLTZMANN AND RUDOLPH MAYER, OF NEW YORK, N. Y.

PORTABLE STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 336,113, dated February 16, 1886.

Application filed June 23, 1885. Serial No. 169,523. (No model.)

To all whom it may concern:

Be it known that we, PHILLIP HOLTZMANN and RUDOLPH MAYER, citizens of the United States, residing at the city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Portable Steam-Boilers; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

Figure 1 is an elevation of the boiler. Fig. 2 is a vertical section; and Fig. 3 is a top view, looking down from a plane at line $x x$.

This invention relates to improvements in portable boilers more especially, though some of the features may be used in stationary boilers.

The invention consists in the construction hereinafter pointed out and claimed.

In the annexed drawings, the letter A indicates the outer shell of the boiler, such shell terminating in the top a and smoke jack a' . Within this shell is another shell, B, coextensive with shell A from the bottom to the lower part of the top a , such shells being concentric and having the continuous water-space C between them. These two shells are secured together at bottom and top by the plates $f f'$, thus forming a water-tight compartment in the space C, into which leads the water-supply pipe f^2 . The inner shell, B, is provided with sets of radial tubes D, projecting inwardly across the space with such shell. These tubes have their outer ends, b' , open, and their inner

ends, d , closed. Above this shell B is the steam-dome E, having the inducts e and educts e' .

When water is supplied to the boiler, it enters the chamber C and flows into the radial tubes D. Fire being made in the chamber F, the products of combustion pass with a direct draft up among the tubes D, thoroughly heating the water therein as well as in the main chamber C. This arrangement places in a small compact form a large heating-surface. The pressure is equalized inwardly as well as outwardly. The water-jacket keeps in the heat, diminishing the waste, and at the same time steam is amply generated in the tubes D.

To strengthen this boiler, we propose to use stay-bolts F. These bolts F pass from one shell to the other through the space or chamber C, and as many of them used as needed. They will brace and sustain the shells of the boiler.

Having described the invention, what we claim is—

The portable boiler consisting of the outer shell, A, the conical top a , and smoke-jack a' , the inner shell, B, the top and bottom annular plates $f f'$, and supply-pipe f^2 , the radial tubes D within the shell B, having their inner ends closed and their outer ends open and screwed into the shell B, and the steam-dome E, having an induct and educt, all substantially as and for the purpose described.

In testimony whereof we affix our signatures in presence of two witnesses.

PHILLIP HOLTZMANN.
RUDOLPH MAYER.

Witnesses:

D. D. TOMPKINS,
GEO. W. PALMER.