

(No Model.)

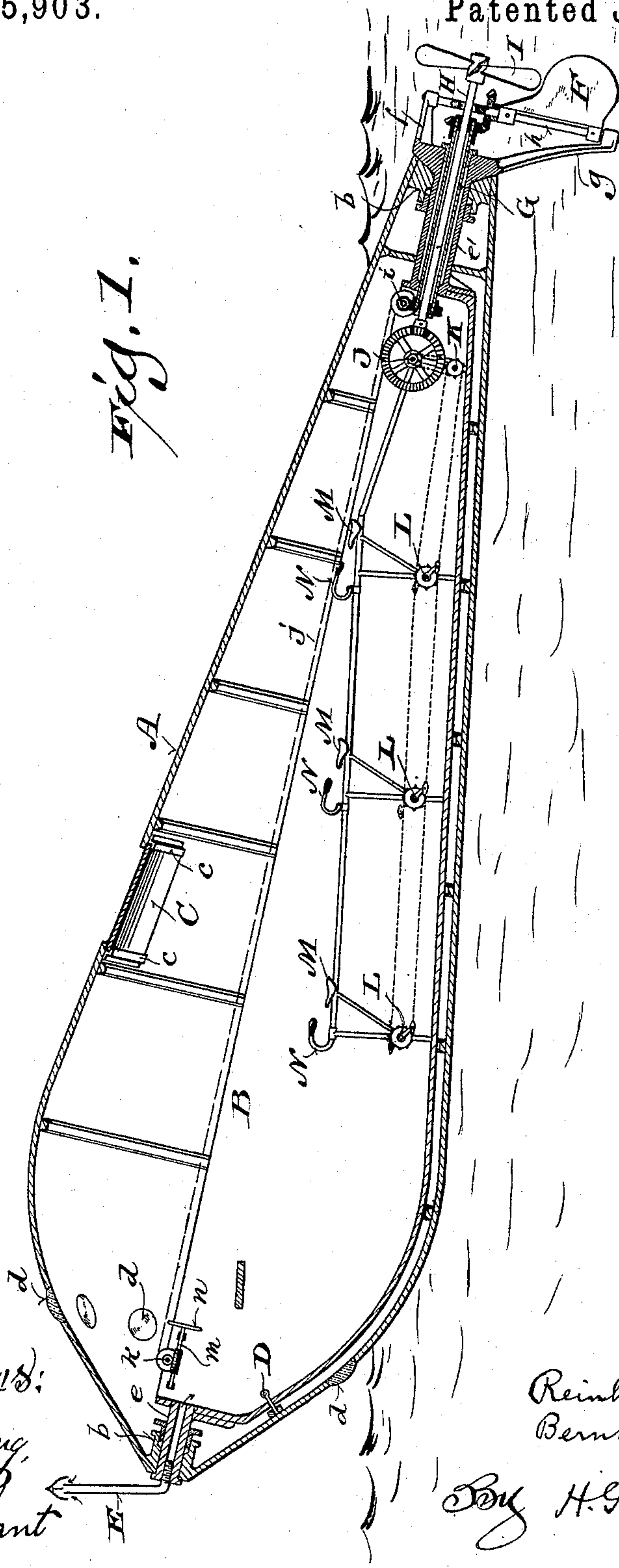
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R. & B. BETHKE.  
LIFE BOAT.

No. 585,903.

Patented July 6, 1897.

*Fig. 1.*



*Witnesses:*  
*Geo W Young*  
*N.E. Oliphant*

*Inventors*  
*Reinhold Bethke.*  
*Bernhard Bethke.*  
*By H.G. Underwood.*  
*Attorney*

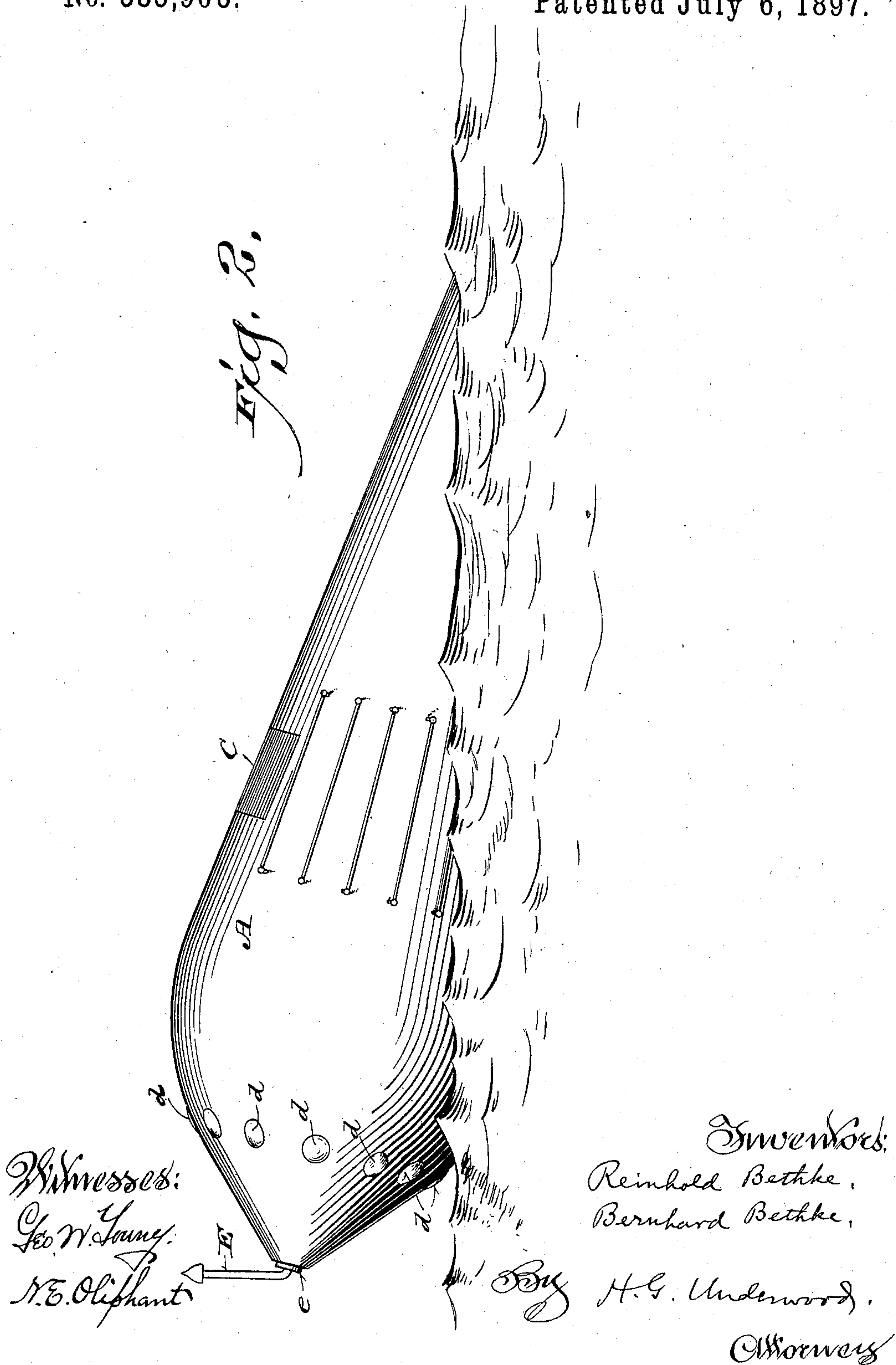
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# UNITED STATES PATENT OFFICE.

REINHOLD BETHKE AND BERNHARD BETHKE, OF MILWAUKEE, WISCONSIN.

## LIFE-BOAT.

SPECIFICATION forming part of Letters Patent No. 585,903, dated July 6, 1897.

Application filed January 28, 1897. Serial No. 621,013. (No model.)

*To all whom it may concern:*

Be it known that we, REINHOLD BETHKE and BERNHARD BETHKE, citizens of the United States, and residents of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Life-Boats; and we do hereby declare that the following is a full, clear, and exact description thereof.

Our invention has for its object to provide a simple, economical, and durable life-boat in which the occupants may be undisturbed by broadside wave motion; and it consists in certain peculiarities of construction and combination of parts hereinafter set forth with reference to the accompanying drawings and subsequently claimed.

Figure 1 of the drawings represents a vertical longitudinal section of a life-boat constructed according to our invention, and Fig. 2 an elevation of the same as it appears afloat.

Referring by letter to the drawings, A represents a conoidal shell braced at intervals and provided at its ends with glands *b*, that turn on end trunnions of an inclosed cradle B, entrance to this cradle being had through a hatchway in the shell. The hatchway is provided with a cover C, movable in suitable guides *c* inside the shell, and the latter is exteriorly provided with bars offset therefrom at suitable intervals to form side ladders leading to said hatchway.

By means of one or more pins D, extending through the cradle B into sockets within the shell A, the latter and said cradle may be rigidly united. Otherwise said shell is free to turn on the cradle-trunnions incidental to wave motion when the vessel herein set forth is afloat.

The forward large end of the shell is provided with a series of glazed ports *d*, through which a steersman in the cradle B may take observations.

The forward cradle-trunnion *e* is hollow, and a ventilator-pipe E is joined thereto, this pipe being bent to have the major portion thereof vertical.

The rear trunnion *e'* of cradle B is also hollow and has the rear end thereof provided with arms *f g*, in which the post *h* of a rudder F has its bearings. A sleeve G has its bearings in the rear cradle-trunnion, and this

sleeve has bevel-gear connection with the rudder-post and worm-gear connection with a transverse spindle *i*, that carries drums for steering-chains *j*, also in connection with other drums on a forward transverse spindle *k*, that is worm-gear to a fore-and-aft shaft *m* in the cradle, provided with a hand-wheel *n* for the convenience of the steersman. A shaft H, having its bearings in the sleeve G, extends out through an eye in the rudder-post and carries a propeller I, the inner end of this shaft being bevel-gear to another shaft J, mounted in the cradle and having sprocket and link-belt connection with a power-shaft K, that may derive its motion from a series of pedal-driven crank-shafts L in sprocket and link-belt connection therewith, these crank-shafts being herein shown as mounted in a frame that is set in the cradle and provided with seats M and hand-bars N for the operators.

From the foregoing it will be readily understood that when the shell A is free to turn on the trunnions of the inclosed cradle it will yield to broadside wave motion; but this cradle and its occupants will be undisturbed by such motion, while at the same time the rudder and propeller are kept immersed, the tendency of said shell to fore-and-aft pitch being modified in a great measure by its peculiar shape.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A life-boat comprising a ventilated outer shell of conoidal form having glazed ports and a hatchway that is provided with a suitable closure, a cradle trunnioned in the shell, a rudder having its post hung in arm extensions of the rear cradle-trunnion, a sleeve rotative in said trunnion and geared to the rudder-post, a steering mechanism in gear with the sleeve, a propeller having its shaft rotative in said sleeve, a power-shaft in gear with the propeller-shaft, and suitable mechanism for driving said power-shaft.

2. A life-boat comprising a ventilated outer shell of conoidal form having glazed ports and a hatchway provided with a suitable closure, a cradle trunnioned in the shell, a rudder having its post hung in arm extensions of the cradle-trunnion, a sleeve rota-

tive in said trunnion and geared to the rudder-post, a steering mechanism in gear with the sleeve, a propeller having its shaft rotative in said sleeve, a power-shaft in gear  
5 with the propeller-shaft, a frame set in the cradle, pedal-driven crank-shafts mounted in the frame, seats and hand-bars on said frame, and link belt and sprocket-gear connecting the cranks with the power-shaft.

In testimony that we claim the foregoing to we have hereunto set our hands, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

REINHOLD BETHKE.  
BERNHARD BETHKE.

Witnesses:

N. E. OLIPHANT,  
B. C. ROLOFF.