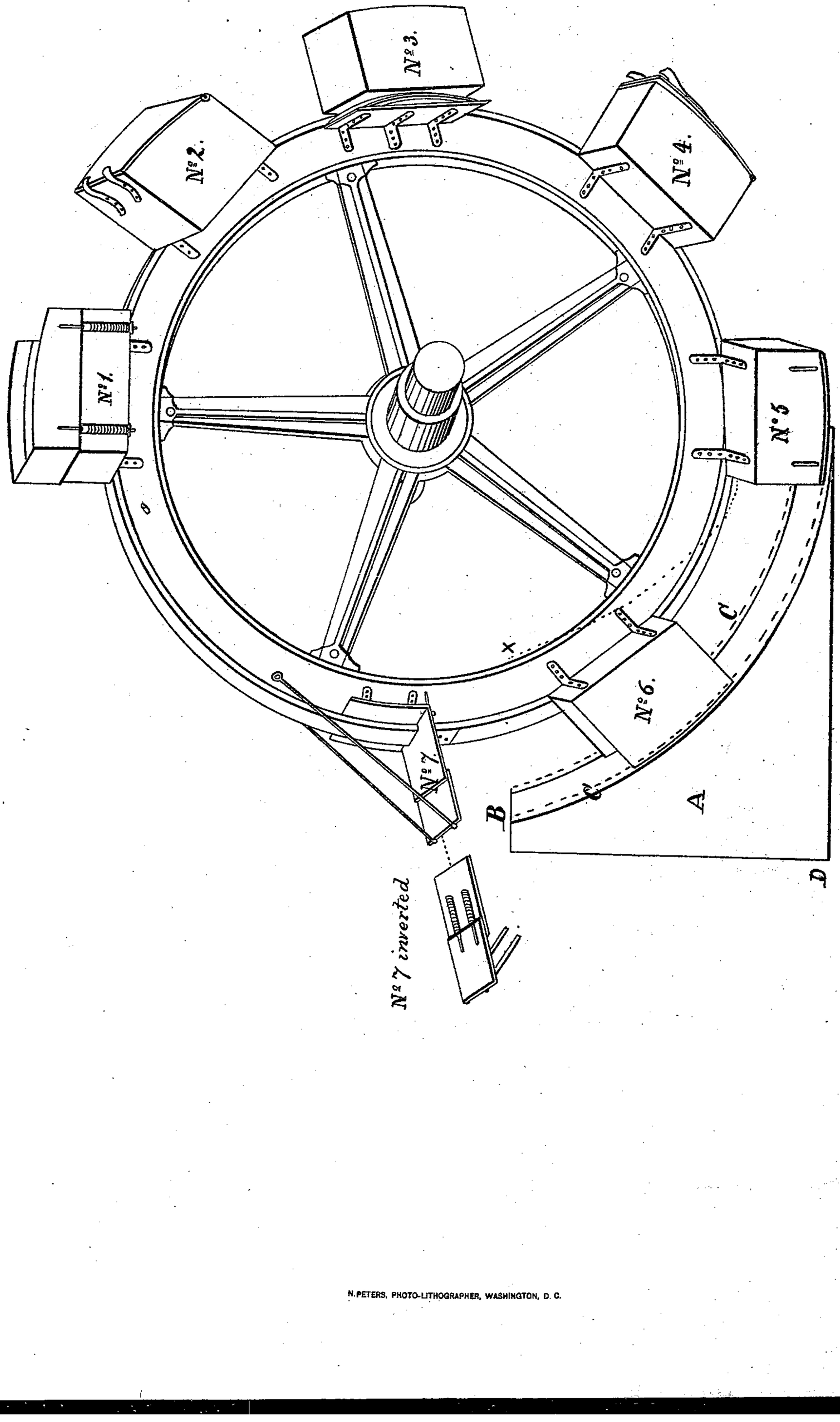
H. D. Forbes.

Bilge Water Discharging.

No. 3,107. Patented May 26, 1843.



UNITED STATES PATENT OFFICE.

HORACE D. FORBES, OF NEW YORK, N. Y.

IMPROVEMENT IN BAILING-WHEELS FOR RAISING WATER FROM THE HOLDS OF STEAMBOATS, &c.

Specification forming part of Letters Patent No. **3,107**, dated May 26, 1843.

To all whom it may concern:

Be it known that I, HORACE D. FORBES, of the city, county, and State of New York, have invented a new and improved mode principally appertaining to the safety of steamboats, but may be used in dry or floating docks to clear water therefrom; and I do hereby declare that the following is a full and exact description.

To enable others skilled in the art to make use of my invention, I will proceed to describe its operation and the construction of the necessary parts thereof.

I build a wheel of wood or of iron, or both, or of other metal, to be affixed to the main shaft of the steamboat or any other suitable part of the machinery, of such diameter that the outer part of its rim shall sweep near the bottom of the hold of the boat. I call this wheel "Forbes' Safety-Wheel," which wheel is an improvement on the iron, flash, or other wheel used for bailing water, such improvement being necessary that it be adapted to the use of steamboats for bailing out water in case of need. To this wheel or near the rim I affix with or without springs buckets of the capacity, shape, and number as desired, from one to fifteen or more and from one hundred gallons' capacity downward, depending on the size of the wheel and power of the engine. They may be so constructed as to put on and take off at pleasure. It is intended that the said wheel be driven by the same power that propels the boat and at the same time, if desired, and if the water should enter faster than it can be delivered when the paddle-wheels are in motion that they may be thrown out of gear and spare buckets be added and the whole power of the engine be applied to the safety-wheel.

It is well known that the bottoms of steamboats in consequence of collision frequently spring upward from five to six inches, in consequence of which I construct the aforesaid buckets so that they or their sides may rise and fall that much or more, and consequently in case of collison no damage be done to them, the boat, or the wheel on which they are. The said buckets referred to are Nos. 1, 7, and 5. (See full description of each in explanation of drawings hereinafter.) I form also of wood or metal, or both, what I term a "bulk-head," the design of which is for the buckets to press against or very near thereto in their revolutions. (See drawings and explanation.)

The aforesaid buckets may be affixed to the ends of the crank of a steam-engine, the said ends being extended or lengthened for the purpose, so they will pass nearer the bottom of the boat than they otherwise would.

Bucket No. 1. This bucket has side pieces which may be placed inside or out, has springs which keep the side pieces pressing against the bottom and bulk-head until it delivers at the top of the bulk-head, and is open at the mouth and bottom. One or more bolts is to be put through the side pieces to keep them up when not in use. It may be used without springs on the side pieces, if desired, the said side pieces keeping down by their specific gravity.

Bucket No. 5 is a bucket exactly like No. 1, except that the bucket itself rises and falls and not the side pieces. This has no springs, its own weight keeping it down; but springs may be applied inside or out, if desired.

Bucket No. 7 may be hung on one or both sides of the wheel or under it. It may be taken close up to the wheel when not in use by drawing the rods from the after part forward, the said rods to be secured by bolts and keys or by any other suitable method. This bucket may have sides, if desired. In such case it will not be necessary to have the rims of the bulk-head so high as otherwise. If made as represented in drawings, the bulk-head, or rather the sides or rim thereof, must be about as high as the dotted lines *x* in drawings of the bulk-head. The lower part of this bucket is kept down by springs against or nearly against the bottom and bulk-head; but it may be so constructed as to rise and fall without springs by the specific gravity of the lower part. If it be used by springs, they not only will keep the bottom down, but will permit it to rise when necessary. A bolt may be placed through the bucket to keep up the bottom when not in use.

Explanation regarding the bulk-head: This is built from the bottom of the boat as high as it be desired to raise the water, and may or may not have a rim on each side of one or more inches. If it has, it will serve to facilitate the retaining of water by the buckets until time of delivery. The said bulk-head serves as a bottom to the buckets, and is to be

somewhat wider than the buckets. The said bulk-head as well as the buckets may be constructed of wood or iron, or both, or other metal. In the drawings, A shows the bulk-head of a curve to suit the curve of the wheel, or rather of the buckets in their revolutions; B, the top of the bulk-head, where the water is delivered; C, a rim on each side, which serves as a guide to the buckets and facilitates raising the water; D, the bottom of the bulk-head; *x*, the dotted lines showing how high the rim of the bulk-head must be built when bucket No. 7 is used.

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

1. The employment of the bucket-wheel by which the water is raised, in combination with the bulk-head, against which the buckets act, as herein described.

2. Constructing the buckets in the manner described, so that they can move toward the center of the wheel to accommodate any change of position of the bulk-head arising from any change of form in the bottom of the vessel.

HORACE D. FORBES.

Witnesses:
J. J. GREENOUGH,
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