

(No Model.)

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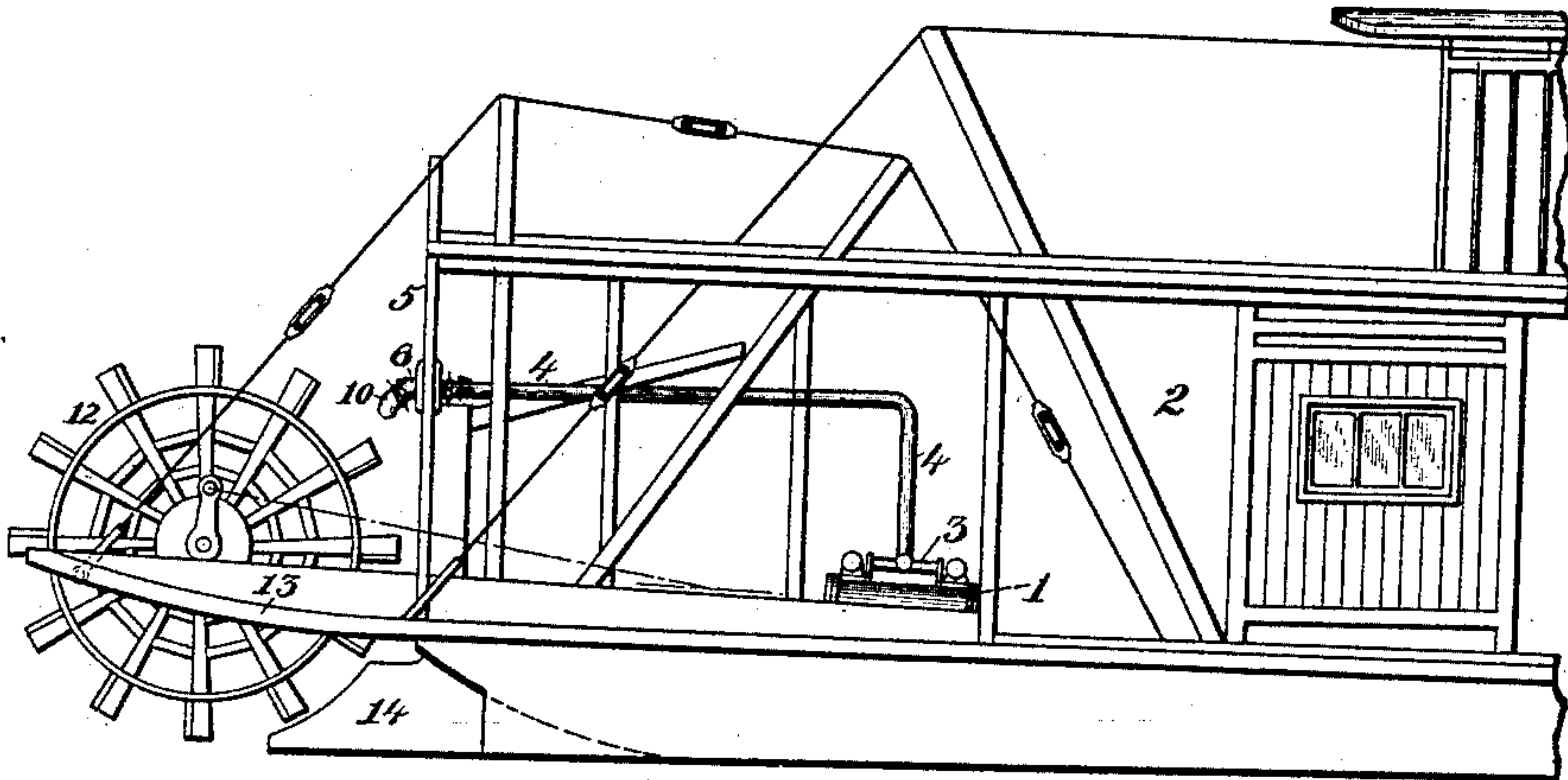
G. S. KING.

DEVICE FOR KEEPING ICE OFF THE STERNS OF VESSELS.

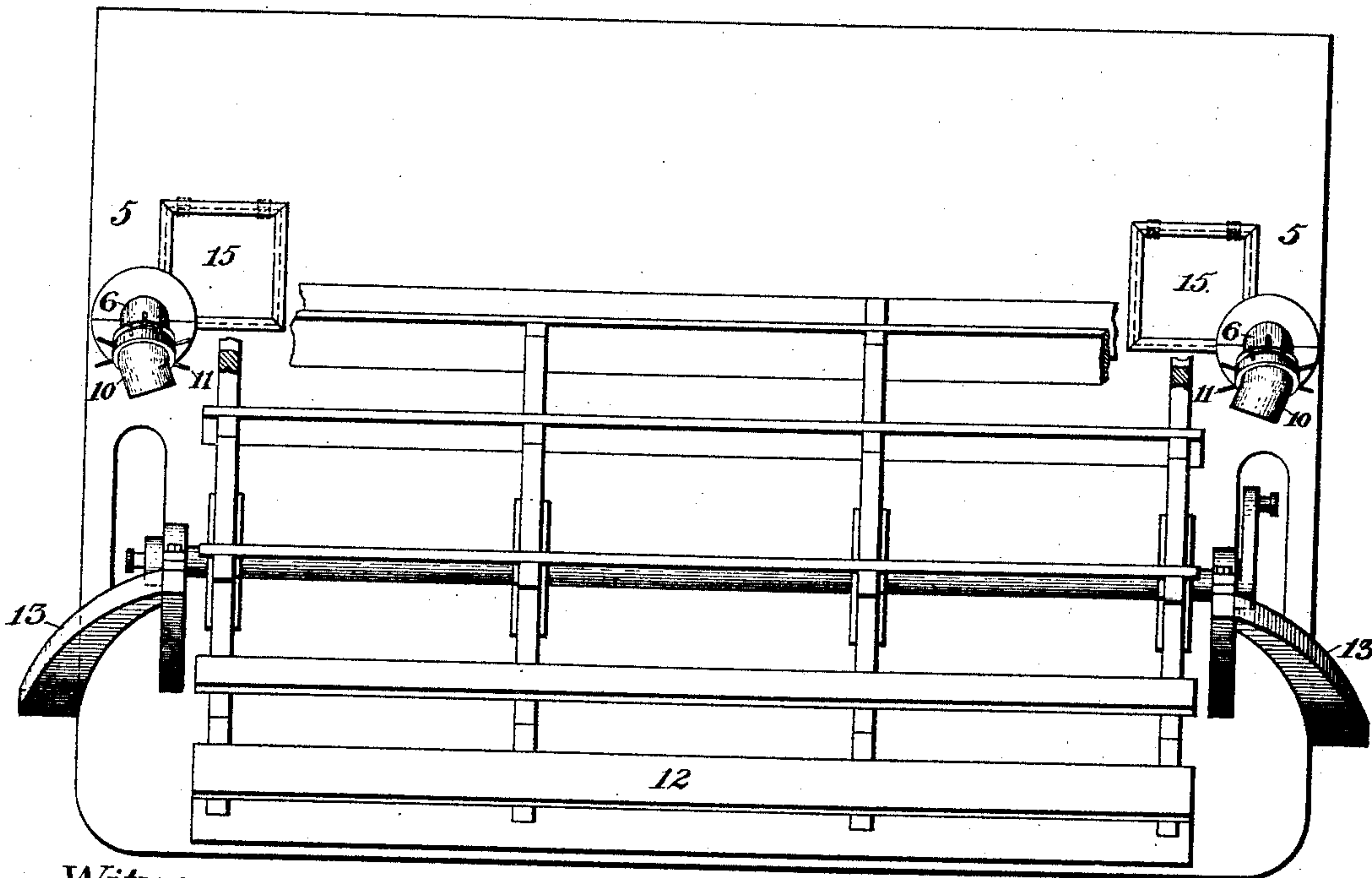
No. 328,229.

Patented Oct. 13, 1885.

*Fig. 1.*



*Fig. 2.*



Witnesses.

*W. B. Conner*  
*N. L. Gill*

Inventor.

*George S. King*  
*by his attys.*  
*Bakerwell Kern*

(No Model.)

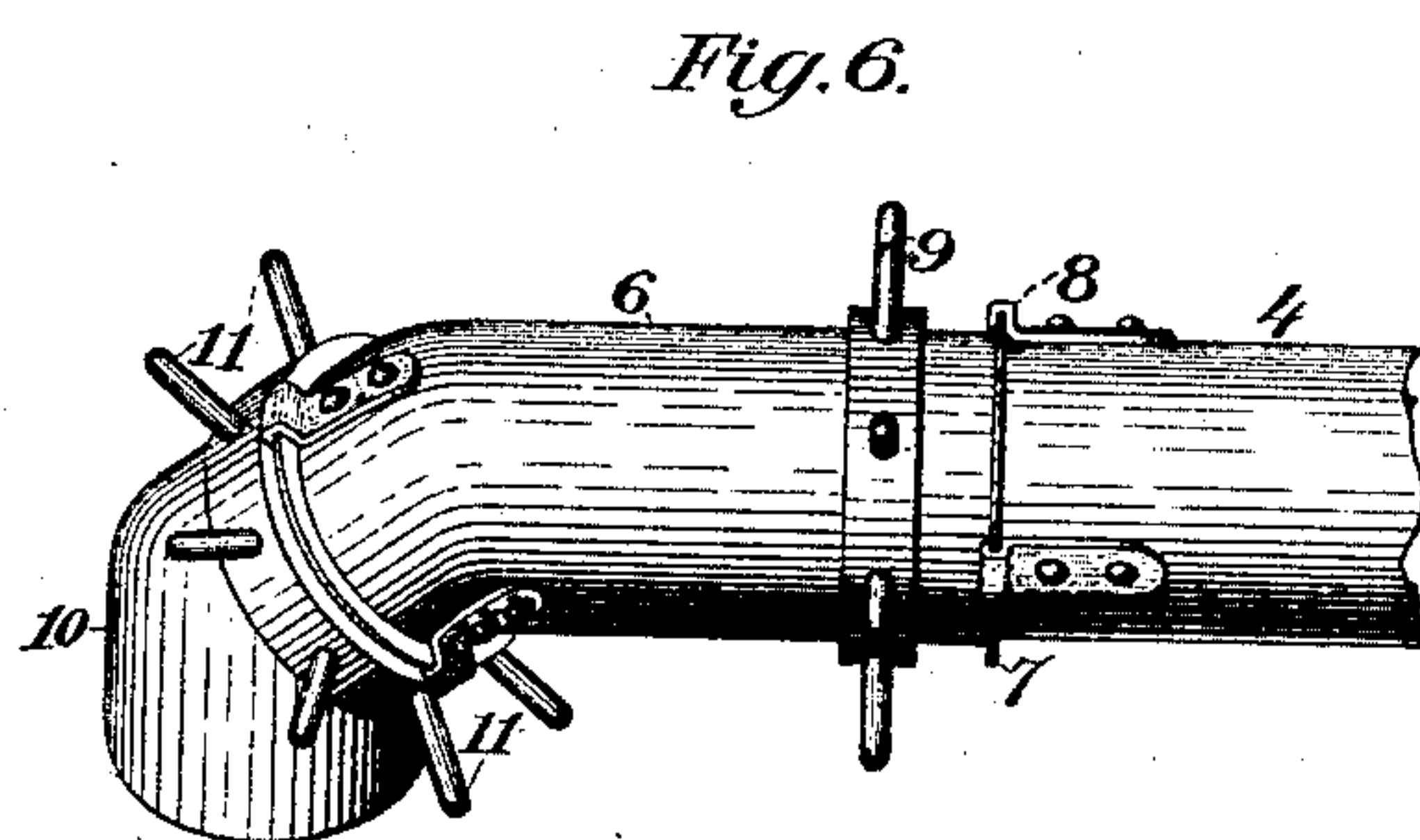
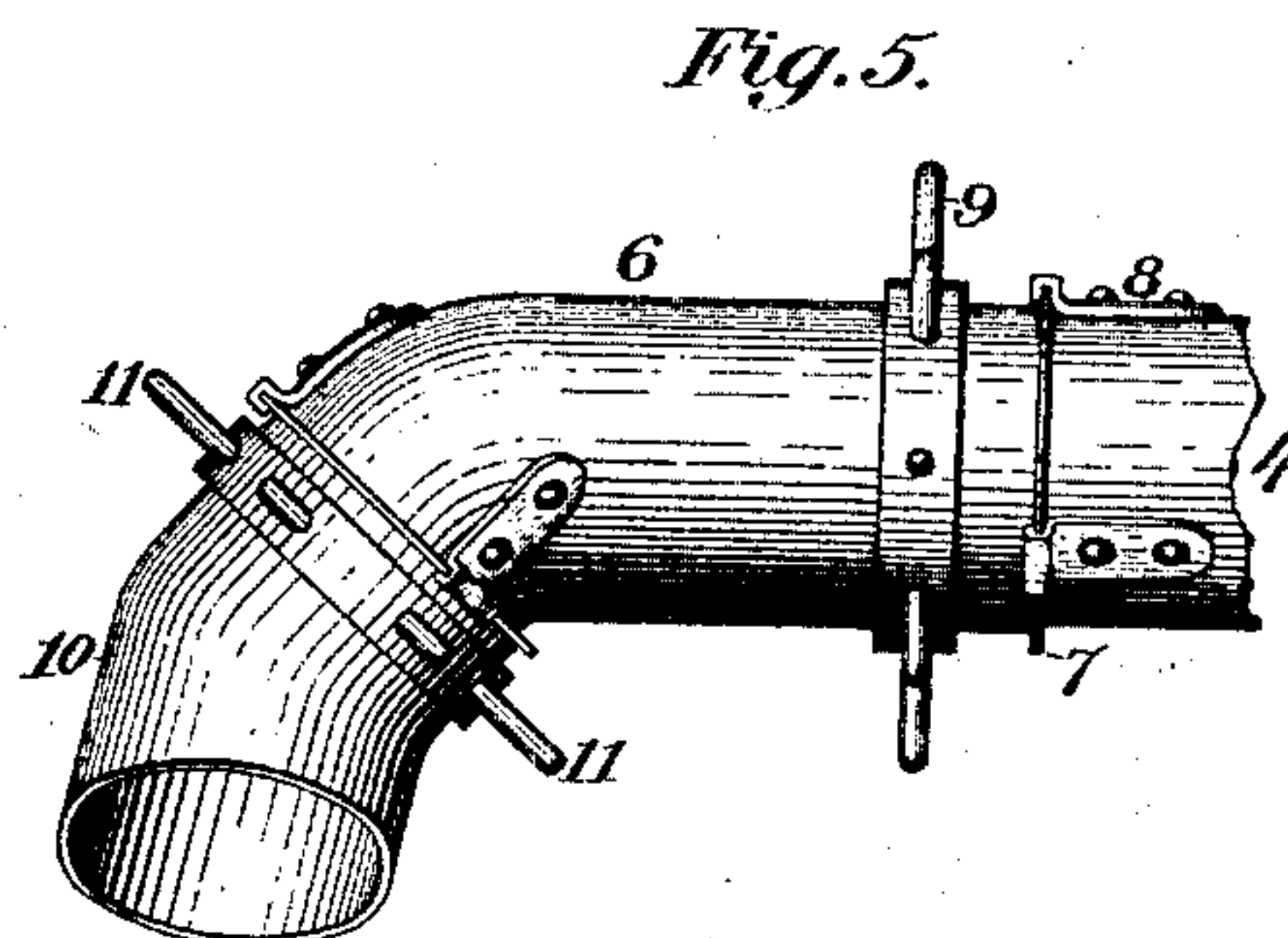
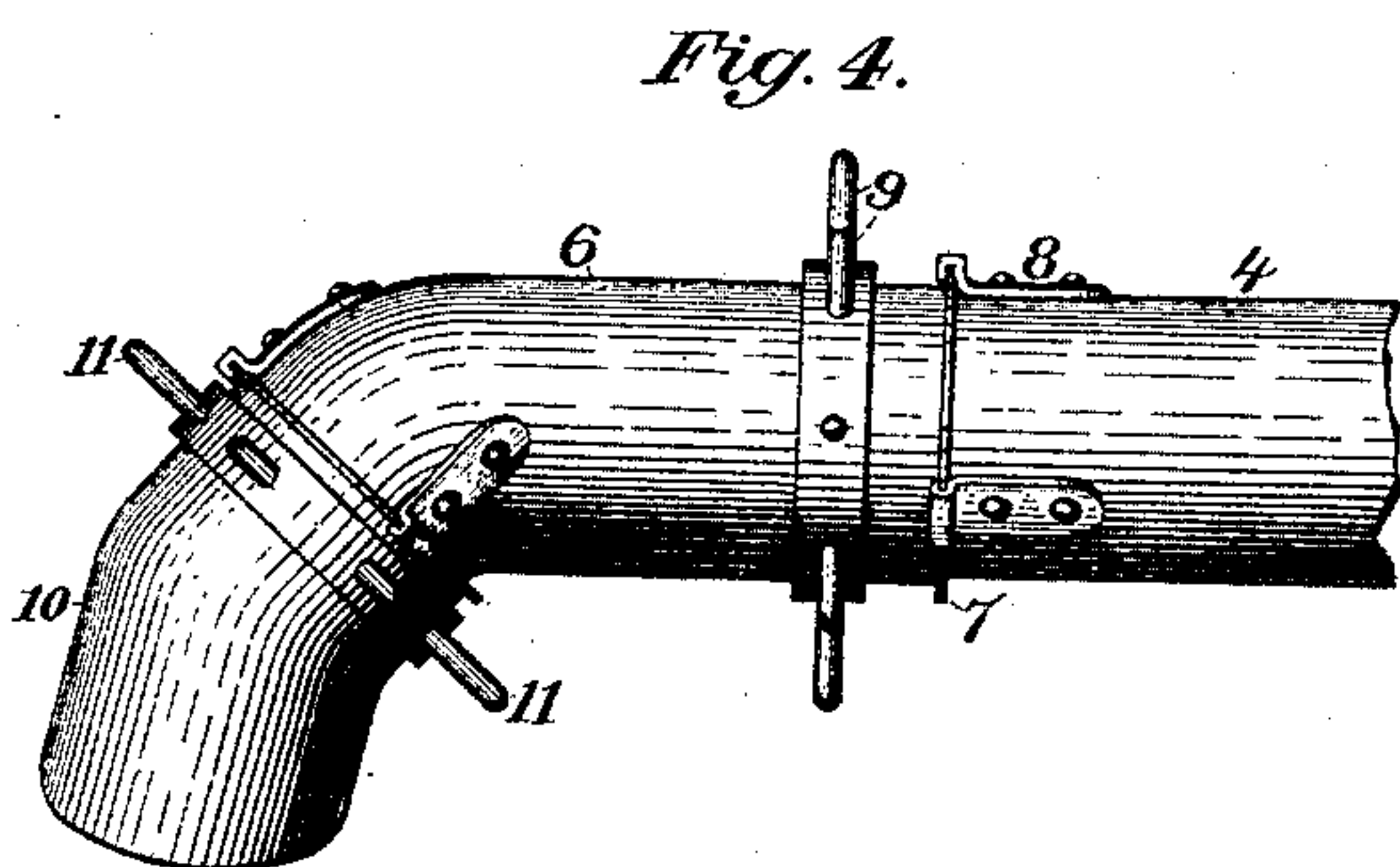
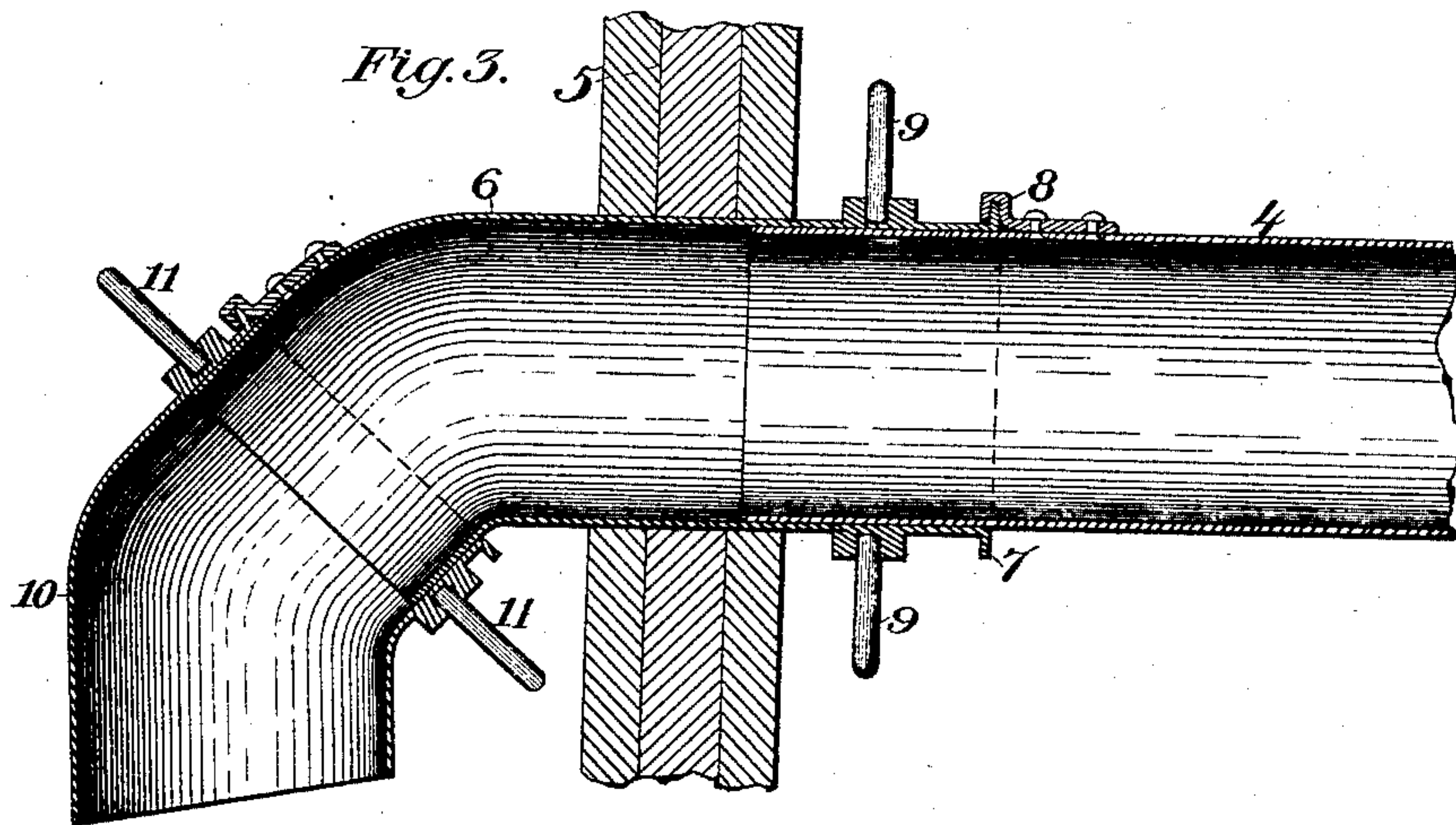
2 Sheets—Sheet 2.

G. S. KING.

DEVICE FOR KEEPING ICE OFF THE STERNS OF VESSELS.

No. 328,229.

Patented Oct. 13, 1885.



Witnesses.

*W. B. Corwin*  
*A. L. Gill*

Inventor.

*George S. King*  
*by his attys.*  
*Bakewell & Kerr*



# UNITED STATES PATENT OFFICE.

GEORGE S. KING, OF PITTSBURG, PENNSYLVANIA.

## DEVICE FOR KEEPING ICE OFF THE STERNS OF VESSELS.

SPECIFICATION forming part of Letters Patent No. 328,229, dated October 13, 1885.

Application filed April 16, 1885. Serial No. 162,395. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE S. KING, of the city of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Devices for Keeping Ice Off the Sterns of Boats; and I do hereby declare the following to be a full, clear, and exact description thereof.

Great difficulty has heretofore been experienced by the formation of ice upon the paddle-wheels of steamboats, and particularly that class of boats navigating the Western rivers known as "stern-wheelers," in which the ice would form on the fan-tails, bulk-head, rudder, and in the middle of the wheel to such an extent in cold weather as to require the tying up of the boat and the chopping off or thawing off of the ice with hot water. This was not only an extremely slow and laborious but also a very inefficient method, and frequently when the rivers were falling and the boats had but a limited time in which they could safely get out their tows the time thus lost exposed the boat to the danger of losing its opportunity of getting out. My invention is designed to accomplish the easy and rapid freeing of these parts of the boat from the ice without the necessity of stopping or of hard labor.

To enable others skilled in the art to make and use my invention, I will now describe it by reference to the accompanying drawings, in which—

Figure 1 is a side elevation of the stern of a boat. Fig. 2 is an end elevation. Figs. 3, 4, 5, and 6 are views of the pipe by which the exhaust-steam is conveyed from the steam-cylinder to the stern of the boat and directed against any desired point.

Like figures of reference indicate like parts. The steam-cylinders 1 of the boat 2 are placed in the usual position. Connecting with the exhaust-pipe 3 of the cylinder is a pipe, 4, which leads back to the stern bulk-head 5. At the rear end of the pipe 4 is a swiveled section, 6, which fits over the end of the pipe 4, and is provided with a flange, 7, being secured to the pipe 4 by straps 8, bent over the flange 7 in such a manner that the section 6 is capable of being rotated on the end of the pipe 4, the section 6 being provided with radial handles 9 for the purpose of turning it. The section 6 extends

through the bulk-head 5, and at its outer end is bent to an obtuse angle with the axis of the pipe 4. Secured in the same manner to the said outer end of the section 6 is a swiveling nozzle, 10, which nozzle is provided with handles 11 for the purpose of turning it in any desired direction. In Fig. 3 the section 6 and the nozzle 10 are turned so as to be bisected by a vertical plane passing through the axis of the pipe 4. In Fig. 4 the section 6 remains in the same position, but the nozzle 10 is inclined to the right. In Fig. 5 the nozzle is inclined to the left, and in Fig. 6 the section 6 and nozzle 10 keep the same relative position to each other, as is shown in Fig. 3; but the section 6 is turned to the right. These figures serve to indicate that the exhaust-steam from the pipe 4 may be directed by means of the swiveling section 6 and nozzle 10 in any desired direction, so as to play either upon the wheel 12, the fan-tails 13, the rudder 14, or the bulk-head 5, as may be desired. Adjacent to the nozzles 10 are openings, which are closed by doors 15, so that access may be had through the bulk-head to the nozzle-pieces for the purpose of turning them in any desired direction.

Thus constructed the operation of my improvement is as follows: When it is desired to free the wheel or any of the other parts mentioned from an accumulation of ice, the section 6 and nozzle 10 of one or both pipes 4 are turned so as to discharge the exhaust-steam against the required point, and the exhaust-steam is permitted to impinge thereon until the accumulated ice is melted from such part. The nozzles are then directed to the other parts named until the stern of the boat is entirely free from ice. It is apparent that this operation can be carried on without stopping the boat and without any labor on the part of the men, except such as is necessary in turning the sections 6 and nozzles 10 to the desired points.

The invention, while apparently simple in character, is one of great utility. It not only effects a saving of hard and often dangerous labor on the part of the men, but avoids the loss of time which usually occurs at a most critical moment. A very large proportion of the stern-wheelers in use are engaged in the business of transporting large tows of coal, ore, and other merchandise in flats and barges,



which are secured to the boat, and in many of the rivers these cargoes can be taken out only during the times of rises in the river, which occur at certain periods of the year, and are usually of short duration. Any delay in the passage is liable to lose the boat the opportunity of taking advantage of the requisite stage of water, so that it is not an unusual occurrence for such a boat to be tied up away from home at some point for many weeks. This necessarily prevents bringing the merchandise to its market, and involves the expense of maintaining the crew in idleness. The importance of any invention for preventing loss of time under such circumstances is apparent, and the chief merit of this improvement consists in the fact that it removes a very fruitful cause of delay.

It is apparent that the devices described may be adapted to convey the steam to the wheel wherever the same may be located, whether at the side or at the stern.

If desired, a valve may be arranged at the junction of the exhaust-pipe and the pipe 4, by which the steam may be shut off from the pipe 4 and exhausted in the usual manner.

The swiveling section 6 may be omitted and the nozzle be swiveled directly to the pipe 4.

The pipe 4 may receive its supply of steam or hot water from the boiler of the boat; but this is not desirable for obvious reasons when the

requisite supply can be obtained from the exhaust.

I do not desire to claim, broadly, a device for conducting steam to the paddle-wheels of steamboats.

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

1. In a steamboat, the combination of the pipe 4, leading from the steam-exhaust to the paddle-wheel, a swiveling section, 6, and a swiveling discharge-nozzle, 10, situate at the end of the pipe 4, substantially as and for the purposes specified.

2. In a steamboat, the combination of the pipe 4, leading from the exhaust to the paddle-wheel, with the swiveling section 6, provided with handles, and the swiveling nozzle 10, also provided with handles, substantially as and for the purposes described.

3. In a steamboat, the combination of the cylinder-exhaust with the pipe 4, leading to the stern of the boat, bulk-head 5, swiveling section 6, and swiveling nozzle 10, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 2d day of April, A. D. 1885.

GEORGE S. KING.

Witnesses:

W. B. CORWIN,

THOMAS B. KERR.