

S. G. MARTIN.
Steering Apparatus.

No. 216,874.

Patented June 24, 1879.

Fig. 1.

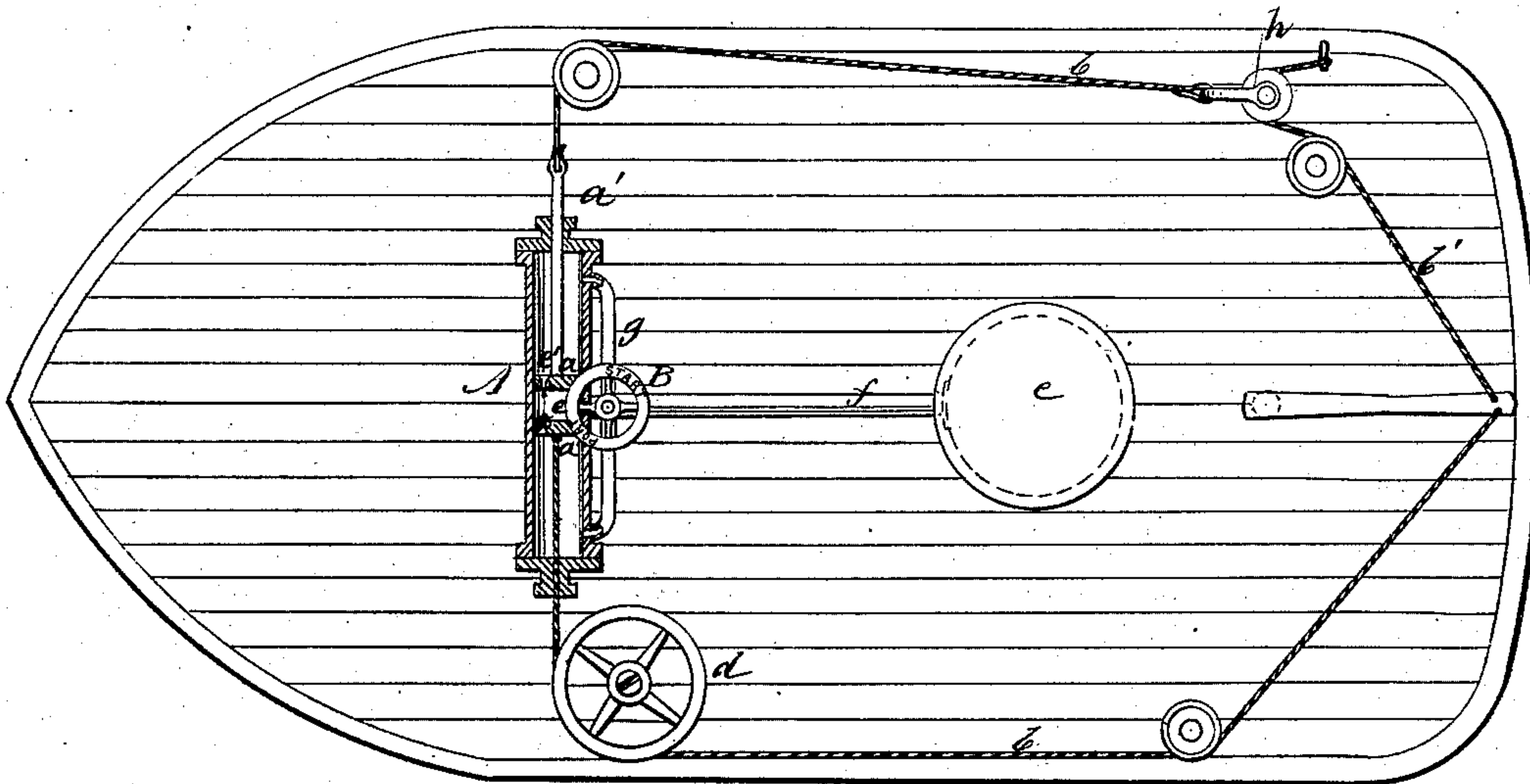


Fig. 3.

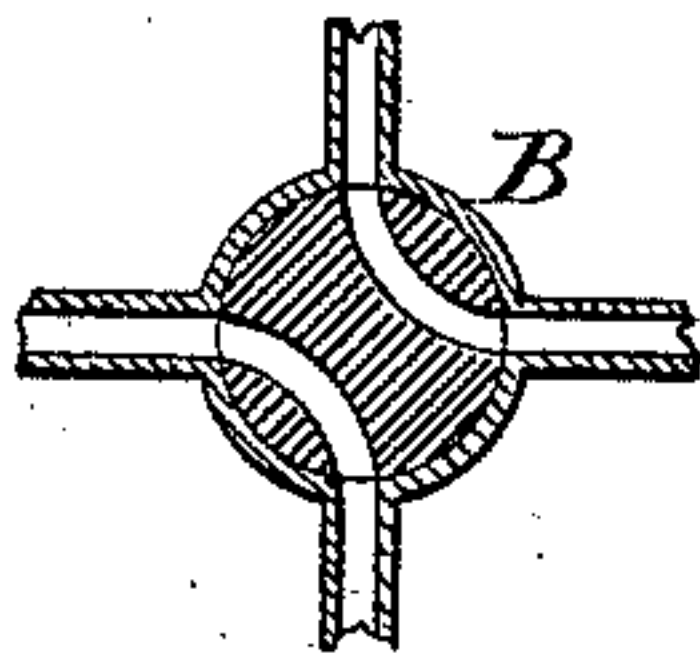
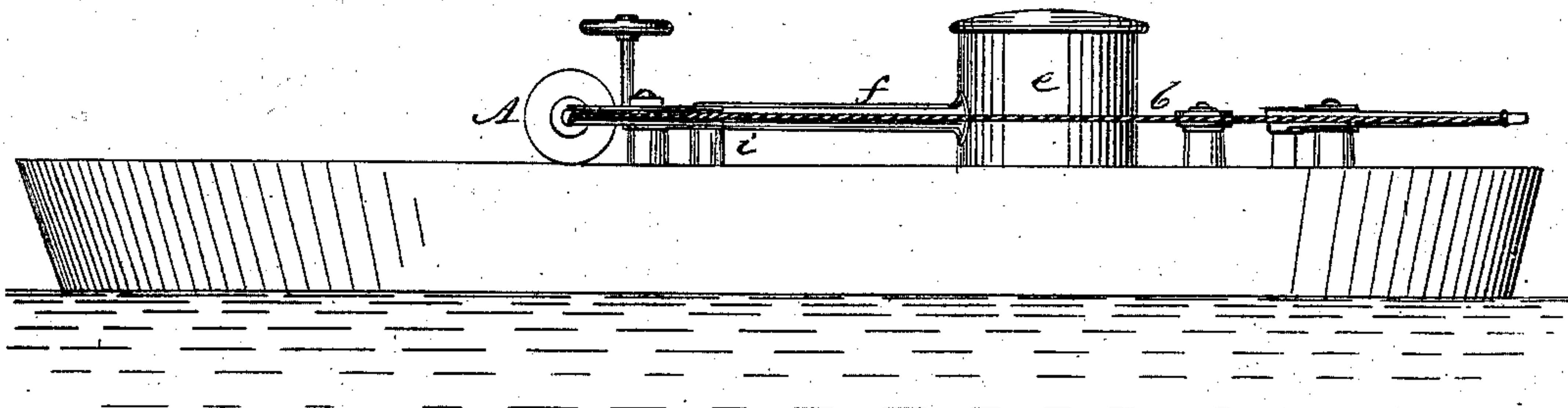


Fig. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

SAMUEL G. MARTIN, OF SOUTH AMBOY, NEW JERSEY.

IMPROVEMENT IN STEERING APPARATUS.

Specification forming part of Letters Patent No. **216,874**, dated June 24, 1879; application filed March 8, 1879.

To all whom it may concern:

Be it known that I, SAMUEL G. MARTIN, of South Amboy, in the county of Middlesex and State of New Jersey, have invented a new and Improved Steering Apparatus, of which the following is a specification.

My present invention is an improvement upon the steering apparatus shown in Letters Patent granted to me November 12, 1878; and the invention consists in certain novel features of construction and combination, whereby the apparatus is rendered more compact and adapted for smaller vessels.

The construction is shown in the accompanying drawings, wherein Figure 1 is a plan view and partial section of the apparatus as applied to the deck of a vessel. Fig. 2 is a side elevation. Fig. 3 is a sectional view of the four-way valve.

Similar letters of reference indicate corresponding parts.

I make use of a single cylinder, A, fitted with two piston-heads, *a a*, to which heads the wire ropes or chains *b b* from the tiller are separately connected.

The cylinder A is placed crosswise of the deck, and the ropes *b* pass at each side of the vessel over friction-rollers, as shown. One piston-head, *a*, is shown, connected with a rod, *a'*, that passes through the head of the cylinder for connection of rope *b*. The other piston-head has no rod; but the rope *b* extends within the cylinder and is attached to the head *a*. The last-named construction permits placing of the friction roller *d* nearer to the cylinder than when a rigid piston-rod is used; but the apparatus may be fitted in either manner.

The cylinder A is supplied with steam at either end from boiler *e*, through pipes *f* and *g*, according to the direction which the heads *a* are to be moved, by manipulation of four-way cock B, that operates a four-way cock in pipe *f*.

When steam is admitted to one end of the cylinder A, one head, *a*, is pressed forward,

while the other head is moved by its rope *b* in the same direction by the movement of the tiller.

Each head *a* is fitted with a valve, *e'*, that permits escape of steam from the space between the piston-heads. The cylinder exhausts by pipes *g* and *i*.

By the use of the two separate piston-heads the rudder can be held centrally or to either side by the steam-pressure. The former will be done by admitting steam to both ends of the cylinder at once, so that the pressure will be equal upon each head, and both tiller-ropes will be held taut, while the latter is accomplished by exhausting steam behind either of the pistons.

In some cases, where a short cylinder is preferred, the motion of the ropes *b* will be multiplied by the use of a block, *h*, that moves with rope *b* and draws upon the rope *b'*, which passes from the tiller to a fixed point, in the usual manner, for multiplying motion by pulleys.

The same arrangement will of necessity be used in connection with each rope *b*, but, when cylinders of sufficient length can be used, may be dispensed with.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with cylinder A, having pistons *a*, whose rods connect with the tiller-ropes, of the pipe *f*, leading from the boiler, the pipe *g*, connecting it with the ends of the cylinder, and the four-way cock B at the junction of said pipes, as and for the purpose specified.

2. The combination, with the tiller-ropes *b*, that are connected with the pistons of cylinder A, of the pulley *h*, arranged for multiplying the motion, as and for the purposes set forth.

S. G. MARTIN.

Witnesses:

C. SEDGWICK,
GEO. D. WALKER.