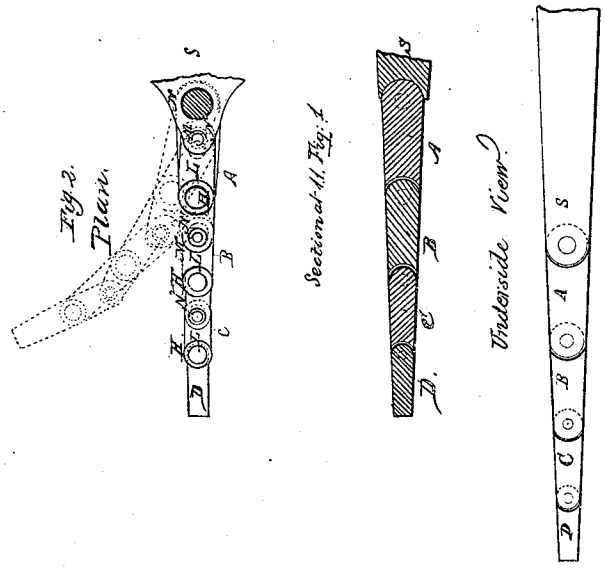
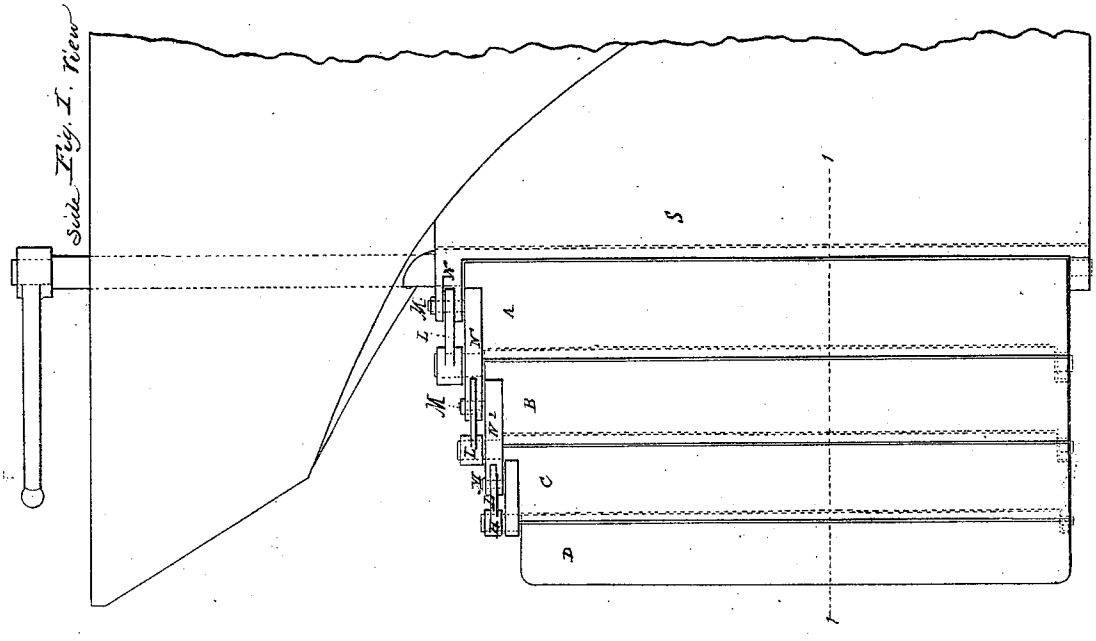
Sheet 1. 2 Sheets.

M. W. Ruthven.

Steering.

No 53,936. Patented Apr. 10, 1866.





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Sheet 2. 2 Sheets

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Steering.

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Fig: 3.

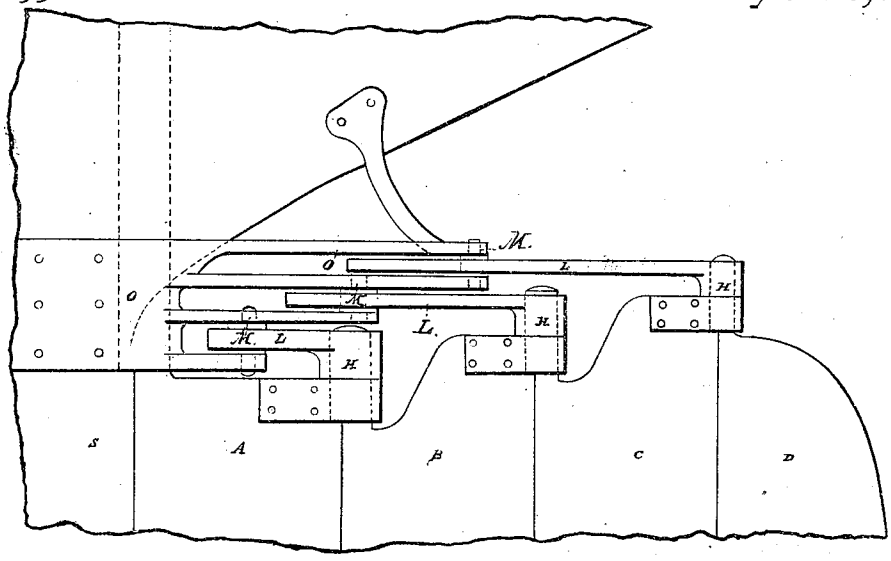
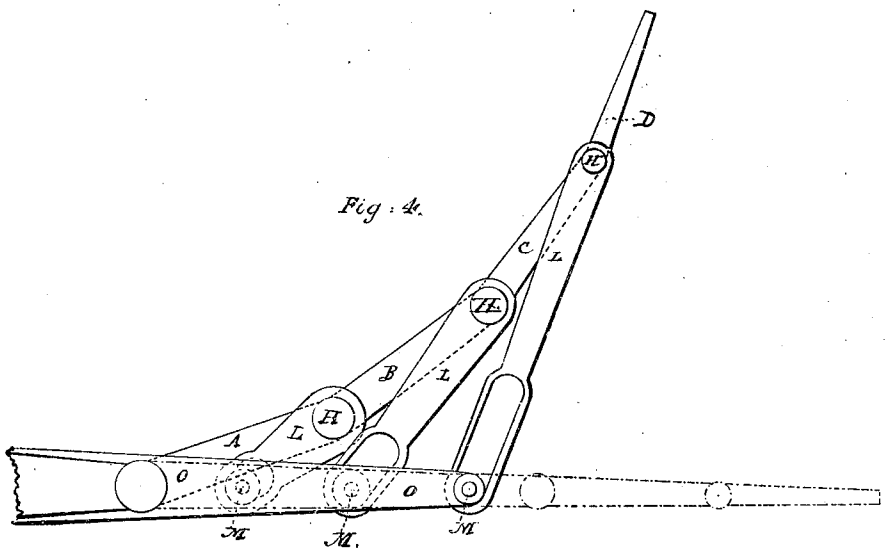


Fig: 4.



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UNITED STATES PATENT OFFICE.

MORRIS WEST RUTHVEN, OF MIDDLESEX, ENGLAND.

IMPROVED RUDDER.

Specification forming part of Letters Patent No. **53,936**, dated April 10, 1866.

To all whom it may concern:

Be it known that I, MORRIS WEST RUTHVEN, of Harlow Villas, East India Road, in the county of Middlesex, England, engineer, a subject of the Queen of Great Britain, have invented or discovered new and useful Improvements in Rudders or Apparatus for Steering Vessels; and I, the said MORRIS WEST RUTHVEN, do hereby declare the nature of the said invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement thereof—that is to say:

My said invention relates to a peculiar construction and arrangement of rudder, whereby, on the usual movements being imparted to it by the ordinary or other steering apparatus, it will present an approximately-curved surface or a surface composed of a number of planes at increasing angles to the keel of the vessel.

According to one mode of carrying out this invention, the rudder is composed of three or more movable parts, like so many separate rudders hinged to each other. In order to cause these separate hinged parts to form an approximate curve when the rudder is put over to starboard or port a lever is attached to each part, and has a pin or slot in one end, which works in a slotted piece or pin secured to a preceding part, and this arrangement is carried out and repeated through the entire series, the lever of the second part working in a slotted piece or pin secured to the stern-post itself, or that following the part which is jointed directly to the stern-post. Other arrangements might obviously be employed for effecting the essential feature of the invention hereinbefore referred to.

In order that my said invention may be fully understood, I shall now proceed more particularly to describe the same, and for that purpose I shall refer to the several figures on the sheet of drawings hereunto annexed, the same letters of reference indicating corresponding parts in all the figures.

Figure 1 is an elevation, showing the side of the rudder constructed according to my invention. A, B, C, and D are the several parts composing the rudder, capable of forming an approximation to a curve. The means by which these parts are made to form the said curve on the movement of the ordinary or other steering-gear are the following: A, Fig. 1, is the part hung to the stern-post S, and to the head of which part A the steering-gear is applied. The second part, B, has fixed on its head H a lever or crank, L, the end of which is guided by a pin or anti-friction roller, M, fixed on the piece N, secured to the stern of the vessel. The third part, C, has a similar lever or crank, L, on its head, the end of which is guided by a pin or anti-friction roller, M, fixed on the piece N′, projecting from the first part, A. The fourth part, D, has a similar crank, L, on its head H, the end of which is guided by a pin or anti-friction roller, M, fixed on the piece N″, projecting from the second part, B. If more parts be used they are to be fixed and guided in a similar way to that above described.

Fig. 2 is a plan or top view of Fig. 1, and represents the position of the different parts when the first part, A, is moved to one side. The end of the crank or lever L, which is fixed on the head H of the part B, is retained in a central line with the vessel by the pin or anti-friction roller M, fixed on the stern of the vessel, and causes the part B to move farther round or to a still greater angle to the course of the vessel, while the end of the crank or lever L, fixed on the head H of the part C, being retained in a central line with the first part, A, by the pin or anti-friction roller M, fixed on A, is moved still farther round or to a still greater angle, and the end of the lever or crank L on the head H of the part D, being retained by the pin or anti-friction roller M, fixed on the part B, is moved to a still greater angle, thus producing the curve shown. Different degrees of curves are produced according to the distance which the pin or anti-friction roller M is from the head H of each part. The curves are produced on either side of the vessel, according as the part A is moved to the starboard or larboard side.

Fig. 3 represents on a larger scale the same view as Fig. 1, the method of moving the parts being slightly different. The pins or anti-friction rollers M are all fixed in a frame, O, secured to the stern somewhat as shown in the drawings, the slotted ends of the cranks L on the heads H being held in the central position by the pins or anti-friction rollers M.

Fig. 4 is a plan or top view of Fig. 3, and represents the action or position of the different parts when the first part, A, is moved to one side.

Having now described and particularly ascertained the nature of my said invention and

the manner in which the same is or may be used or carried into effect, I would observe in conclusion that what I consider to be novel and original, and therefore claim as my invention, is—

In combination with a rudder composed of a series of hinged sections, the connecting of said sections together at their upper ends by means of a slotted crank or lever on one part that receives in its slot a pin or anti-friction roll on the next adjacent part, and so on throughout the series, to cause the parts when moved by the rudder to assume an approximate curve, substantially as described.

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