

(No Model.)

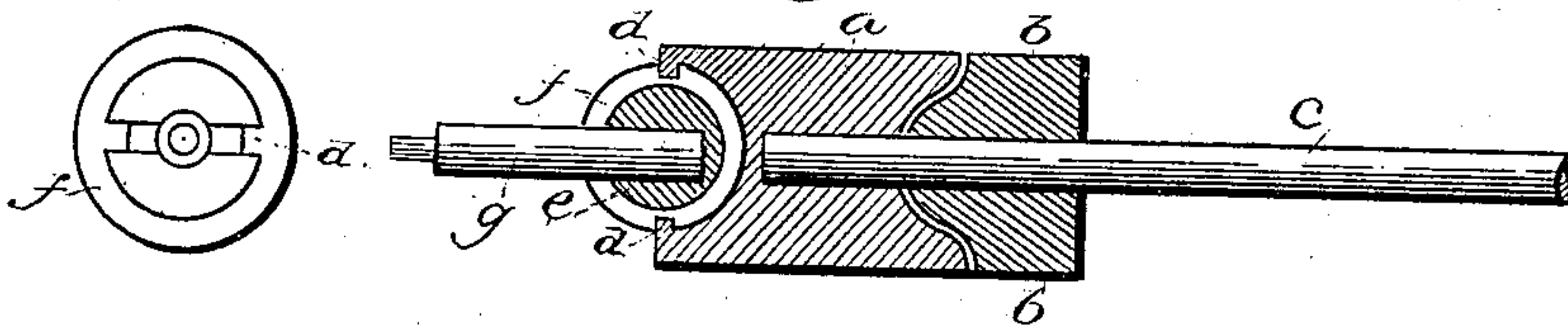
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COMBINATION RUDDER FOR VESSELS.

Patented Apr. 21, 1885.

[illegible]

Fig. 2.



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COMBINATION-RUDDER FOR VESSELS.

SPECIFICATION forming part of Letters Patent No. 316,099, dated April 21, 1885.

Application filed October 18, 1884. (No model.) Patented in England August 7, 1884, No. 11,020.

To all whom it may concern:

Be it known that we, JAMES WHITE, of 19 Swan Street Borough, WILLIAM ROSS, of 60 Trinity Square Borough, JOHN THOMAS CREASY, of 26 Warner Street Borough, in the county of Surrey, England, and WILLIAM HENRY GRITTON, Jr., of 7 Fenchurch Street, in the county of Middlesex, England, all the above-named petitioners subjects of the Queen of Great Britain, have invented a certain new and useful Improvement in Combined Rudders and Propellers for Vessels, (for which we have made application for Letters Patent in England, No. 11,020, dated August 7, 1884,) of which the following is a specification.

Figure 1 represents a side elevation of the stern of a vessel and my improved rudder and propeller attached thereto. Fig. 2 represents a horizontal section through my improved rudder and propeller, taken just above the shaft of the latter; and Fig. 3 represents a detail side view of the end of the shell and the grooved ball secured therein.

The object of this invention is to facilitate the turning of the rudder and propeller to any desired angle.

A designates the rudder, which is removably attached to the stern B of the ship by means of eyes and pintles in the usual manner. This rudder is provided with an opening, A', in which turns a screw-blade propeller, C, which is mounted on a spindle or arbor, g, having its outer end journaled in said rudder and its inner end provided with a terminal ball, e. This ball is provided with an annular groove, f, in the same plane with the central line of spindle g, which receives two studs, d, extending inwardly from the rim of a cup-shaped depression formed in the outer end of a block, a, which is set into the stern of the vessel, but allowed to turn therein on its axis. This axis coincides with the propeller-shaft c, Fig. 2, which is provided with a collar, b, having a convex face fitted into a concavity in the rear end of block a, so as to insure the turning of said block therewith. As this rotation

of the block a causes the studs d to come in contact with the walls of the groove f, the ball e, spindle g, and propeller C partake of said rotary motion, but the groove f will allow these latter parts, as well as the rudder, to be turned to any desired angle on either side of the central longitudinal line of the ship without impeding the continuous rotary movement.

The block a affords a sufficient bearing for the shaft c and a secure attachment for spindle g. The frictional connection between it and the collar b will suffice to insure rotation under normal circumstances, but allows yielding in case the spindle g becomes locked by any obstacle.

We are aware that it is not new to journal one end of a propeller spindle or shaft in a rudder and connect the other end by a ball-and-socket joint to the main rotary shaft, whereby the propeller-blades are driven. We are also aware that it is not new to construct a ball-and-socket joint like that which we have shown and described. We therefore do not claim the above devices, broadly; but,

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

The combination of the rotary propeller-shaft c and the collar b, which turns therewith and has a convex outer face, with block a, in which the end of said shaft turns, and which has a concave face corresponding to the convexity of said collar, the propeller, and its spindle, the latter being mounted at the outer end in the rudder, and having its inner end connected to said block by a universal joint, substantially as set forth.

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