# A. D. Rollings.

## Steering Apparatus.

No. 28,813. Patented Jun. 19. 1860.

Fig: 1.

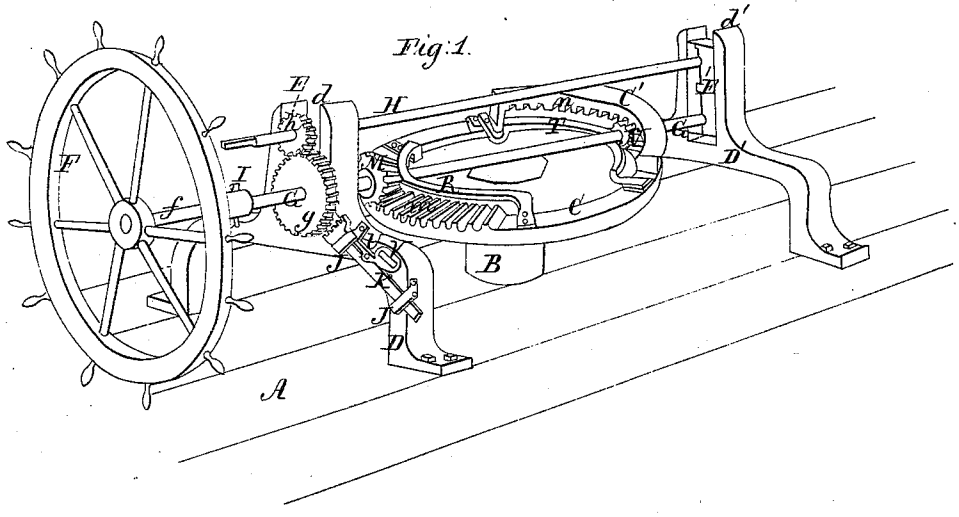



Fig: 2.

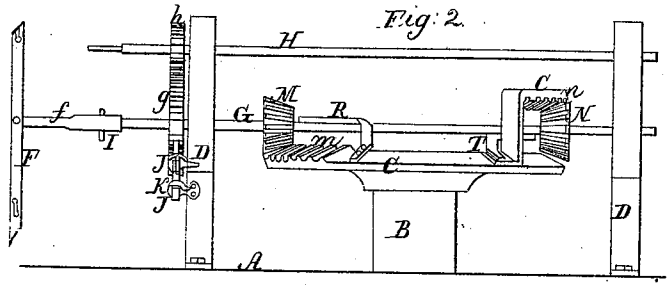
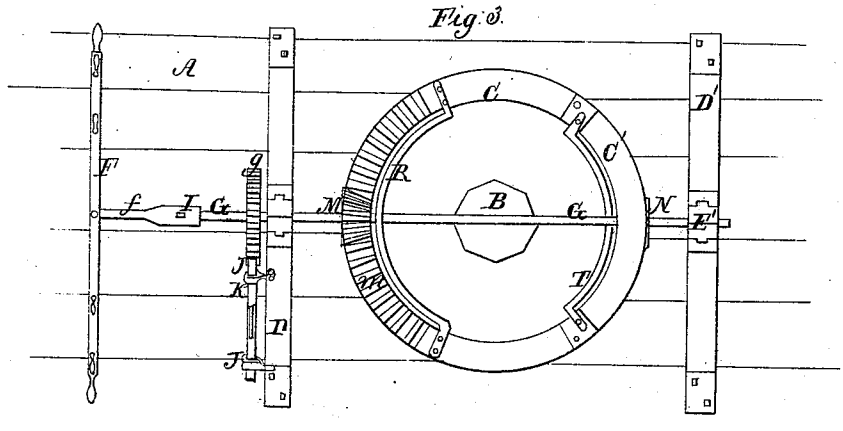



Fig: 3.




Witnesses
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## STEERING APPARATUS.

Specification of Letters Patent No. 28,813, dated June 19, 1860.

*To all whom it may concern:*

Be it known that I, ALPHEUS D. ROLLINGS, of Green Point, in the county of Kings and State of New York, have invented a certain new and Improved Steering Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1, is a perspective view. Fig. 2, is a side elevation. Fig. 3, is a plan view of the lower parts with a portion of the upper work removed.

Similar letters of reference indicate like parts in all the figures.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation by the aid of the drawings.

A is the deck, B the rudder head, and C a stout wheel firmly fixed thereon. This is open in practice, but is represented as a close, or plate, wheel in order to simplify the drawings.

D and D′ are frames firmly secured to the deck. In the top of each is an open jaw, *d*, *d′*, the sides of which are parallel and embrace between them snugly fitting boxes E, E′.

F is the steering wheel and *f* a short socketed shaft affixed thereto.

G and H are shafts supported in the boxes E E′. They are geared together by the wheels *g*, and *h*, the wheel *g*, having twice as many teeth as *h*. The forward ends of each of the shafts G and H are adapted to the socket *f* so that the steering wheel F may be attached to either at pleasure and rigidly secured thereto by the key I.

On the shaft G are fixed two stout bevel gear wheels M, N. On the forward side of the wheel C is cast a segment of bevel gear *m*, which meshes into the under side of the wheel M. On the after side of the same wheel C is bolted the stout segmental top piece C′ having teeth *n*, cast on its under face which mesh into the wheel N. On the wheel C immediately within the segment *m*, is secured a stout piece R which stands over G and touches it. This I term a guard. It holds M in gear with *m*, under all circumstances. On the after side immediately within *n*, is a lip or rib T which stands under G and touches it. This I term a rider. It holds M in gear with *n* under all circumstances. The geared segments *m*, and *n*, are of sufficient length to allow the rudder to be turned to its full extent, and the jaws *d*, *d′* are of sufficient depth to allow the rudder to rise and sink to the greatest extent to which it ever moves in use.

On the front side of the frame D are two brackets, J, J. In these is mounted the stout sliding stop K, adapted to fit into the gear wheel *g*. On K is mounted a lever U and catch V. The catch is pressed outward by a spring not represented.

Operation: By turning the hand wheel F the gear wheels M and N work each to an equal extent in the respective segments *m* and *n* and turn the rudder without any side strain on the rudder head while the rudder in rising and sinking carries the boxes E, E′ and all the gearing with it. The arrangement of my apparatus effects this without thereby inducing any friction except between the boxes E, E′ and the jaws *d*, *d′*, which parts from their nature allow of being better protected and lubricated than the teeth of gear wheels. Whenever it is desired to confine the rudder temporarily or permanently the handle U is seized and the stop K slid up to lock into the wheel *g* where the stop is retained by the spring catch V until released by again operating the handle U.

When from any cause, as a rough sea or high wind, a greater leverage on the rudder is required, the parts are locked by K the key I is removed and the steering wheel and socket are mounted on the shaft H in lieu of G. On again depressing the stop K the leverage will be found to be increased;—the wheel must be turned in the reverse direction and to a greater extent than before to produce an equal movement of the rudder B, and any force exerted by the water upon the rudder is less felt by the steersman.

The advantage due to my arrangement of the shaft and wheels G, M, N, segments *m*, *n*, guard R, rider T, and the open jaws E, E′ is that the rudder head is held in equilibrium and allowed to rise and sink freely without any friction between the teeth of the wheels.

The advantage due to the employment of my geared shafts G and H and socket *f* adapted to either alike, is that the vessel

may be turned very quickly when required, as in beating or navigating a crooked channel, and may be controlled slowly with ease in circumstances which require an increased leverage.

The advantage due to the arrangement of my stop K relatively to the other parts is that it holds the rudder with a considerable leverage by the same wheel which serves to gear the shafts G and H.

Having now fully described my invention what I claim as new therein and desire to secure by Letters Patent is—

1. The shaft and wheels G, M, N reverse segments *m*, *n*, guard R rider T and open jaws E, E′ arranged to operate together substantially as and for the purpose herein set forth.

2. In steering gear substantially as above described the geared shafts G and H and socket *f* adapted to receive either G or H at pleasure, substantially as and for the purpose herein set forth.

3. In steering gear substantially as above described, the stop K arranged to operate in the gear wheel *g* substantially as herein described.

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Witnesses:
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