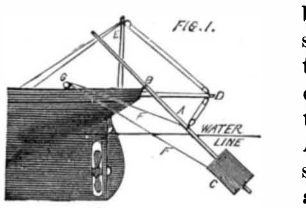
THE RUDDER OF THE ALASKA.

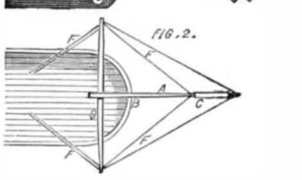
We have received the following additional contributions upon this subject:

To the Editor of the Scientific American:

Seeing in your last issue several plans for steering such a steamer as the Alaska, and assuming that she has among her equipments a spar, say fore yard or fore topsail yard, 65 to 75 feet long, and some smaller spars, say 25 feet long, and two of 12 or 14 feet, and a number of hatches about 10 or 12 by 3 or 4 feet, I would try the plan of which I give you a rough illustration.

The important parts of this method obviously are: the arrangement at the taffrail which must permit of movement of the spar, A, so that the part, C, can be lowered and hoisted as well as moved sideways to an angle of 10 or 15 degrees by the guys, F. If means can be found, it would be well to have B made of a clamped iron swivel or universal joint pivoted to the rail; but a wooden chock with an oval hole to permit of the 10 or 15 degrees of movement sideways will answer, if wood enough can be found to construct it of sufficient strength. The bumkin, D, must be a very strong piece of timber, in order to give support to A, and it must have a tackle topping-lift by to support it, and a stout tackle running to the short sheers, E. In order to have spread enough to get a sufficient power on A, and its paddle, C, a spar should be placed across the stern at or near to the point, G.





Sketch 2 shows the stern, the coop spar, G, the guys, F, running to a capstan or worked by what may be termed "relieving tackle," coming inboard at any convenient place on deck. It will be seen at a glance that the effectiveness of this plan depends mainly on the ability to get the paddle, C, sufficiently immersed. My impression is that an angle of about 35 degrees with the water line would be about right.

As the amount of surface in C, or both A and C, would be of timber, it would be necessary to load one or the other; perhaps C, being made of hatches, it may be well to fill in the vacant spaces between the carlines and the planking of the hatches with iron scraps or even coal, or by bolting on some iron plates or pieces of the cast iron floor of the fire room.

It will also be seen that there must be a long spar, and it may be necessary to use a lower yard; if the ship has two square rigged masts, one of them can be stripped to serve the purpose of A and G, as well as D and E, as it may be impossible, on account of having only one square rig mast, to spare the fore yard.

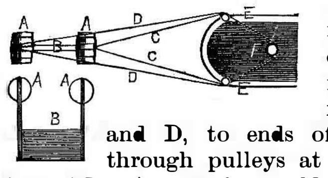
R. B. FORBES.

Milton, Mass., March 23.

To the Editor of the Scientific American:

I send you a sketch of a makeshift that I think ought to steer a steamer as well as could be done with a ship in tow, and on the same principle, except that it would be done from her own deck.

Take two or more casks, marked A, and attach to makeshift rudder, B, near edge; weight the other edge nearly as much as the casks will float, attach ropes, C and D, to ends of rudder, and pass D through pulleys at E, and around a capstan at B. Any strain would bring the rudder to an angle with the ship, and retard the side the strain came from. The towlines, C, would take the strain, leaving D very little work to do. If the rudder was sunk say ten feet, the wind would have very little effect in driving it against the ship, if she had to stop, and it would be so light as to do little harm if it did strike. It would also be more stable if deep in the water.



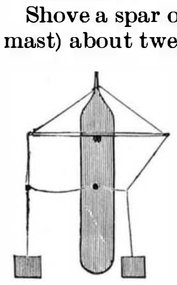
J. W. D.

Newark, N. J.

To the Editor of the Scientific American:

Here is the plan of a landsman, who "sniffed the briny" for six months in 1850, trying to get to San Francisco.

Shove a spar out on each side (say abreast of the foremast) about twenty feet, stay from outer end to bow and above to head of foremast, drag of proper size, loaded so as to always be submerged, suspended by cable of sufficient strength from end of each spar, length of cable sufficient to allow drag to be always under water, and, when vessel is in motion, trail about abreast of rudder, but not so long as at any time to come in contact with the propeller; attach line to each cable, start ahead, and if you want to go to port, haul on your starboard line (as in diagram), and thereby shortening distance of starboard drag, permit port drag to haul her head around.



This substitute for a rudder could be made and put in use by a brisk officer and competent crew in an hour after its necessity is felt.

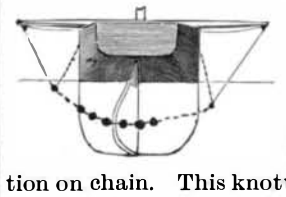
If the company to which the Alaska belongs wish to send me $200,000 for giving them instructions for the care of their property, you can reveal my name to them otherwise I prefer to blush unseen.

S. A.

Cincinnati, O., March 22, 1885.

To the Editor of the Scientific American:

I inclose sketch of plan by which I believe the steamship Alaska might have been worked into port with her broken rudder. Briefly, a strong chain long enough to reach well round her stern, with hawser attached, or a continuation of the same chain carried well forward along the sides of ship to the deck. This chain to be tied in knots for several feet of its central section, knots to be far enough apart for space to allow the outside rim of broken rudder to pass between, and knots to be big enough by repeated turns to make considerable projection on chain. This knotted chain to be lowered over her stern from spreader booms with tackle projecting at each side of her stern for a little distance to clear the sides of ship, and held in suspension at proper height to catch the rim of broken rudder rather below the center of curve. Thus, upon drawing in each end of the knotted chain passed along each side of the ship, this knotted section of chain would have been drawn in against the rim of the broken and loose swinging rudder, which would have been pretty sure to pass between some of the knots, and if the chain was drawn taut and pulled round from side to side, the rudder would have to go with it. The swing, of course, would have been limited, but probably enough to have kept the ship in her course. I suppose the chains could have been held taut, and worked by tackle attached to each end and fastened to projections on deck, or perhaps by the hoisting engines.

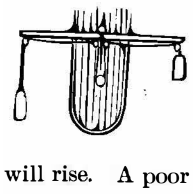


W. F. NILES.

Jersey City, March 23.

To the Editor of Scientific American.

Lower the main yard to the deck, lash it to the mast and rail, put four blocks on it, one at each end and two at the mast, then sew up two sacks of canvas, fill them with coal, hang them in the water from each end of the yard, and bring the ropes through the blocks, and then to the steam winch; fix them so that when one sack is lowered the other will rise. A poor remedy certainly, but a quick one.

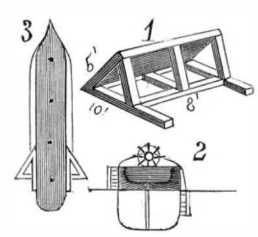


A RIVETER.

Buffalo, N. Y., March 19.

To the Editor of the Scientific American:

In the last number of the SCIENTIFIC AMERICAN I see several attempts to solve your question about the broken rudder of the steamer Alaska. I think on such a heavy vessel like the Alaska, in rough weather, it would be impossible to do anything with the old rudder. My plan to bring the vessel under steering control is the following: Build two boxes of angular shape (Fig. 1), angle about 60°; hang one of them on side of the ship at the rear end. The cable on which the device is hung runs across the deck and round a shaft to alternately hoist and lower in and out of the water (as indicated in Fig. 2), according to the course of the vessel, The principle of the device is: The forward motion of the vessel will cause the water to strike against the inclined surfaces of the boxes, and exert a pressure to move the stern sidewise.

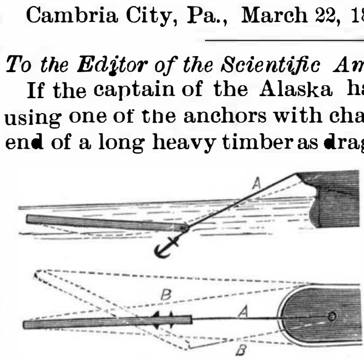


REINHOLD BETTERMANN.

Cambria City, Pa., March 22, 1885.

To the Editor of the Scientific American.

If the captain of the Alaska had taken the risk of using one of the anchors with chain, A, fastened to one end of a long heavy timber as drag (as shown on sketch) and two smaller chains, B, one on each side of ship, with ends fastened to stern-end of drag, he would have been able to steer the ship, because the weight would have kept the drag *under* the surface of the water, and the side chains could easily be shortened or lengthened, as shown by dotted lines.



For the sake only of being able to head the heavy sea, let go both anchors with 50 or 60 fathoms of chain and let the ship drift; it will ride the waves nicely. Great Eastern lost her rudder once when on the Atlantic, and a rudder was then invented which proved to work successfully; account of this can be found in some English engineering paper.

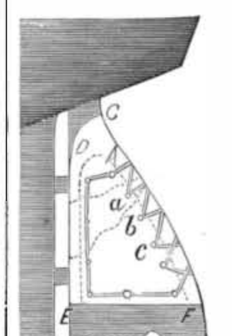
Brooklyn, N. Y., March 19. B.

[The Great Eastern rudder is described in vol. v., 1861, p. 263, of the SCIENTIFIC AMERICAN. She did not lose her rudder; the tiller, or handle, was broken, thereby losing control of the rudder, which was finally made useful by taking a "bight" of chain around the remaining *top* of rudder.—Ed. S. A.]

To the Editor of the Scientific American:

In your issue of March 7, you gave sketches showing the broken rudder of the Alaska, and ask for opinions as to what might have been done in the emergency.

Here is something that might have been done, provided the sea was not as rough as to prevent the men from working. Let a piece of heavy plate iron, CDEF, be bent, U-shape, to fit the rudder as nearly as possible. It should begin well up under the counter and run down as far as the water will allow the men to work. At A, and other points, *a*, *b*, *c*, etc., let holes be made in the plating as close to the rim as possible. Let a piece of about ¾" wire rope have the ends passed through A from opposite directions, and drawn taut. It should then be laced through the holes above the ends, in each case being carried across the outer edge of the rudder and passed through from the opposite sides. This method of lowering would make the pull on the rope the same whether the rudder be to starboard or port, and would prevent unlacing. When the lacing had been carried down as far as the water would allow, the rope should be carried across the face of the rudder and laced up the back to keep the plate from spreading. Finally one end should be passed around the outer edge of the rudder above the first turn, thus bringing both ends on the same side, where they could be secured. The plate iron is, of course, on every steamship, and the wire rope could have been taken from the rigging, where it could have been temporarily replaced by hemp rope.



W. S. SMITH.

San Francisco, Cal., March 14.

Chemistry as a Profession.

Chemists, as a rule, receive from one thousand to twelve hundred dollars a year. This seems small when we consider to what expense a young man has been put to obtain the necessary education. Sometimes, however, in a manufacturing house where he has made himself particularly useful, a chemist may receive eighteen hundred or two thousand dollars, and as superintendent of works he might get five thousand or ten thousand dollars; but such cases are very exceptional. One reason why salaries are smaller in our large cities is said to be found in the number of competent chemists who have come from Germany, and who are willing to work for lower wages than their American brethren demand.

When a chemist has, after years of study and long practice, thoroughly qualified himself in his profession, he can give what is called "an expert opinion." This, as Sam Weller might say, "is an opinion as is much more val'ble than an opinion as is not expert." In a lawsuit, for example, chemists would be employed by both sides, and an expert would receive from fifty dollars a day to twenty-five dollars an hour. If an expert examined a mine, made a report on the formation, and gave his views on the likelihood of its paying the people who intended to purchase it, he would be paid perhaps five or six hundred dollars and all expenses. But, remember, there are very few "experts," and that those who enjoy that reputation have paid the price of long continued study, of hard and enthusiastic labor, for the reputation they have made.—*George J. Manson, in St. Nicholas for April.*

Surgical Experimenting.

Surgeons frequently find it desirable to remove portions of bone quickly. A small electric motor of high speed was lately tried on a sheep, to exemplify how quickly and neatly it could be done.

A contemporary, in describing the process, says a sheep "was taken, etherized, the bone of his leg was laid bare, and then, by means of an instrument driven by the motor at the rate of 1,200 revolutions per minute, a portion of the bone was bored out, and in a very short time the operation was over—a tiny incandescent light was used for examining the cavity as the work progressed—the wound was dressed, and the sheep was restored to consciousness."

The question will naturally arise in the mind of the reader why the experiment might not as well have been tried on the bone of a dead animal as on a live sheep. What advantage could arise from etherizing and operating upon a poor live sheep, if "the wound was dressed and the sheep restored to consciousness," is beyond our comprehension.