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RAIL-ROAD NEWS.

Railroad Accidents and Management.

A return was made, on the 10th of last May, to the House of Commons, England, by the Railway Department of the Board of Trade, showing the number and description of accidents which took place on all the railroads in Britain, during the last six months of the previous year. The number killed was 113, and the number injured 264. The whole number of passengers carried was 47,509,392; this includes the whole number of accidents by carelessness, self-destruction, collision, &c. Out of this number only eight passengers were killed, or only one person in every six millions carried. The rest who were injured and killed were persons in the employ of the several companies, trespassers, &c. The safety of such a system of travelling as that of the English railway, is a most wonderful triumph of good and skillful management. When we consider the high velocities of their trains, the thickly populated districts through which they run, and the great number of passengers carried, we look upon such a system of railroads, and their management, with wonder and admiration. The double tracks of these roads tend to promote safety, for it is certainly reasonable and obvious to any man who can reason, that they must be more safe than railroads of single tracks; and yet a correspondent—an engineer—in the American Railway Times, subscribed himself as a believer in the safety of single over double tracks; in other words, he believed that accidents were more frequent on double than single tracks. The safety of the English system of railroads is well worthy of the attention of our people. It is the duty of all Americans, as being the greatest utilitarians in the world, to adopt everything that is good and useful, without any reference to the source whence it is derived.

A French Railway Train Struck by Lightning.

The *Moniteur de Loiret* states that during a late thunder storm the electric fluid struck the luggage wagon of the train proceeding from Orleans to Paris, and after having made an irregular hole in it, passed through the articles of luggage without doing them any injury, and then ran along the iron chains which unite the wagons together. The conductor, who was seated on the luggage wagon, experienced a sharp electric shock, and all the passengers in the train one of slighter description.

The great tunnel on the Nashville and Chattanooga Railroad has been completed, and the opening of the railroad through was to be celebrated with a great festival, in which ten thousand persons were expected to participate, on the third inst.

Privileges have been granted by the Hawaiian government to run a line of steamships between the Sandwich Islands and San Francisco. Messrs. Glen, McLane, and Patterson are the owners of the line.

IMPROVEMENTS IN NAVIGATION,—THE BENDER.

Figure 1.

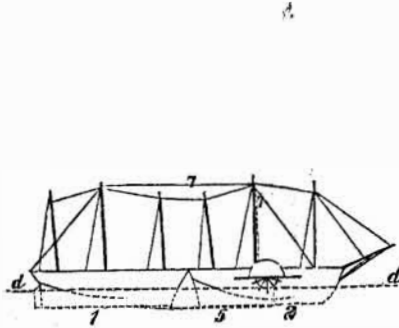
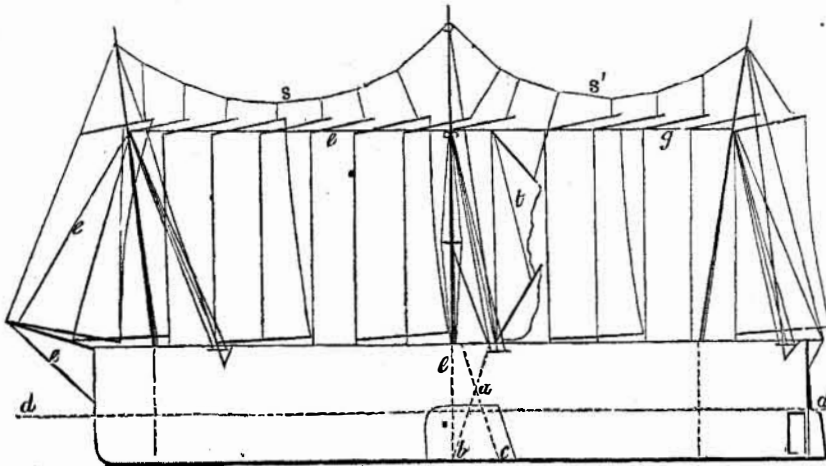


Figure 2.



Figure 3.



A general, although rude, idea of the design of this contribution to the art of navigation (for which letters patent are now being sought) may be obtained by supposing the following case:—

Let two ships (1, 2, fig. 1) be tied together, the stem of one to the stern of the other, in such a way that they cannot swing around. A strong chain passes from the mainmast-head of 1 over a pulley on the maintop of 2, and down into the hold, where it winds around a wheel on the shaft of the paddle-wheels. A similar chain passes from the foot of the cutwater of 1, along the keel of 2, and ascends through a well up to a second wheel or pulley on the shaft. Exposed to rising and falling waves, the motions of these ships would cause the chains to draw alternately upon their pul-

leys on the shaft. Figure 2 explains the mode of this action. At 3 is seen a section of the shaft and one of the pulleys (that worked by the keel-chain). The shaft carries a ratchet wheel, and the pulley has a catch, dropping into the teeth, so that when the rising of either ship causes the keel-chain to draw upon its pulley, the shaft must revolve in the direction of the arrow. When that pull is ended, and the reverse motion begins, the rope, 5, by means of the weight, 6, takes up the slack of the keel-chain, so that the pulley is ready for the next draw. The action of the mast chain, 7, is precisely similar, but the teeth of its ratchet-wheel point in the other direction. The fall of the head-ship causes the mast-chain to drive the shaft with the arrow, while its rising is attended with a pull from

Figure 4.

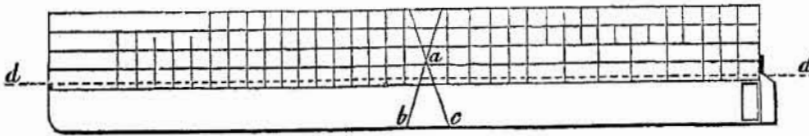


Figure 5.

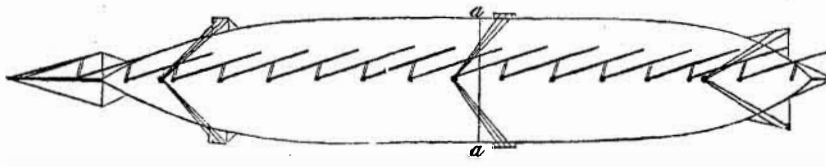


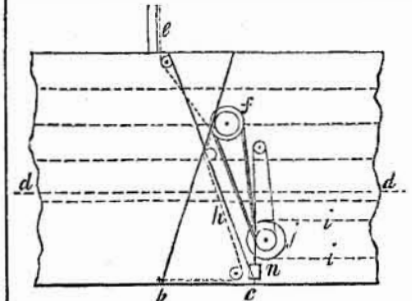
Figure 6.

the keel-chain, producing the same effect. The motive power is the weight of the ships, and its limit the strength of the chains. This mode of tying ships together is obviously absurd; but is it not possible to cut a very long ship in two, and so attach its sections that an effective use can be made of this magnificent wave-power?

In the engravings, similar parts are referred to by the same letters. The point of flexible juncture is seen at *a a*; at *a b, a c*, are strong bulkheads; the powerful iron hinges are in the sides, with a base of 50 feet for resisting lateral strains. The angle, *b a c*, shows the extent to which the fore-ship may drop below the line of the aft-ship.

The engravings suppose a length of 300 feet, with a breadth of 50; but, on the water-line, *d*, the breadth is only 40 feet, with a rapid decrease below that line; draft of water 20 feet, with a deep keel; ballast, as little as possible.

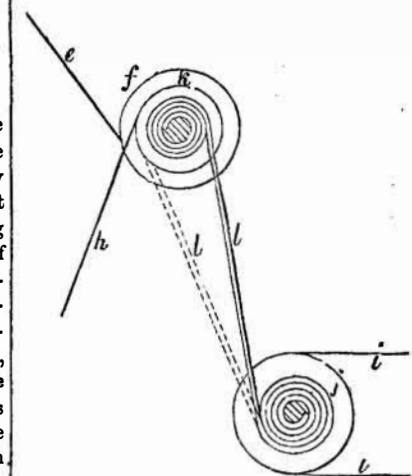
FIG. 7.



Whether bent at the middle, over the crest of a wave, or hanging with its stem and stern elevated upon two crests, the position of the Bender must, under all circumstances, be nearly upright. It will have great stability, even when its upper deck is thirty-feet above the water-level, as shown. Its sides may, therefore, safely swell out above the water-line, instead of "tumbling in," as it has no heavy spars aloft.

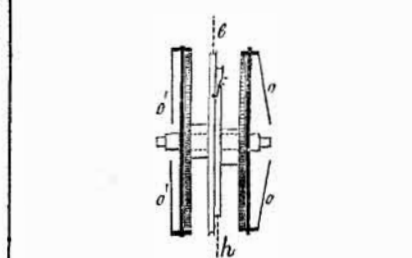
The foot of the mainmast is movable in a socket; it stands a few feet before the line of the hinge-joint, *a*, and its shrouds are as far abaft that line, so that however this vessel may bend, the top of the mainmast is always

FIG. 8.



equi-distant from the fore and mizzen masts. (If fast, the mainmast had better stand on the aft ship; unless the vessel is cut in two at two points, which would require four masts and various new arrangements). A strong wire-rope, *e*, starts out from the cutwater, passes over the bowsprit, over the top of the foremast, over a pulley at the mainmast-head, and from thence down along the mainmast into the hold, where its end is made fast to the double wheel or pulley, *f*, fig. 7. A similar wire-rope, *g*, passes horizontally from the head of the mizzenmast to and around another

FIG. 9.



pulley at the head of the mainmast, from which it goes down some thirty feet, and unites with *e*. A chain, *h*, passes out from the keel at *b*, goes around a pulley near *c*, and thence up to a smaller part of the double pulley, *f*, figs. 7, 8, and 9, (the two parts of the pulley being firmly fastened together). The fall of the fore-ship, on crossing a wave, causes the rope, *e*, to pull upon *f*, and its rising causes the keel-chain, *h*, to make a pull in the op-