

**Trial of an English Broadside Iron-clad.**

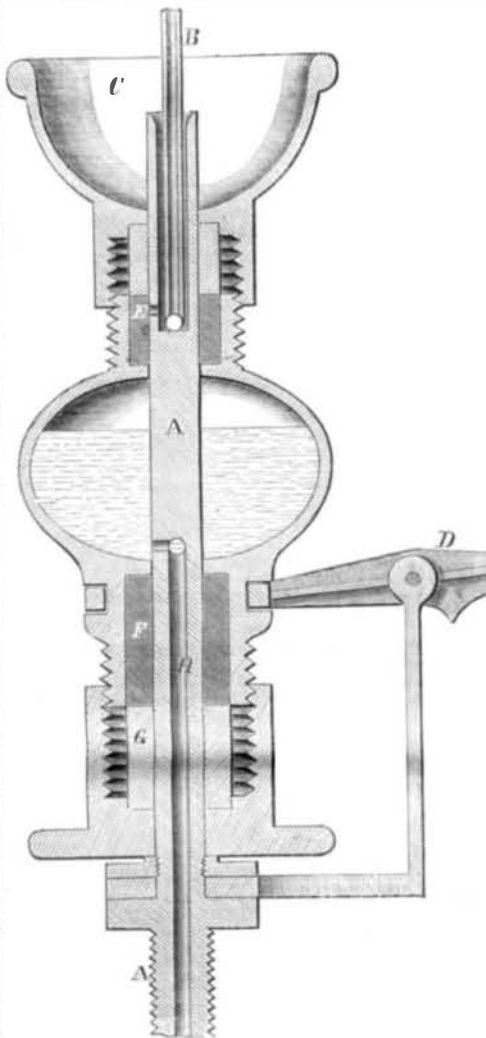
The *Achilles*, a formidable iron-clad ship, has recently been completed in England, and we here present an account of her trial at sea:—

"This was her first trip at sea, and being one of an entirely new class of ships of large dimensions, 6,121 tons, and carrying four masts, her performance was watched with considerable interest. The results of the trip were not entirely satisfactory, but this refers chiefly to the difference of speed at the contractor's trial and in the Channel. The officers speak well of her sea-going qualities, and all on board are hopeful that the cause of the loss of speed under steam will be found out and remedied. On the 21st, by plunging during a severe gale, the *Achilles* carried away her jibboom and her whiskers (two stout spars projecting at right angles from either bow). She also took in several heavy seas at the bow ports, and it was in consequence determined to run in for Torbay. Here she arrived on Saturday, the 22d, and dropped her starboard anchor, but having drifted with her full broadside to the wind, the chain, fifty fathoms of which were out, broke, and recourse was then had to the port anchor. The vessel, however, was kept under steam all the time she continued in the roadstead. On Monday the lost chain was fished up. On Tuesday morning, the 25th, in weighing the port anchor with the steam capstan, it snapped off near the junction of the shaft with the flues, both of which were left below. On Thursday the *Achilles* was placed in the south basin of Keyham steamyard, where the new 'hog' for scouring the bottoms of iron ships was tested, under the superintendence of Mr. Robinson, from the Admiralty, Whitehall, by the help of the ship's diver. This hog is an enormous brush of birchbroom, about five feet long by three feet broad. Its back consists of a frame of wood 16 inches thick, having round the edge a groove, into which is inserted a rope with iron thimbles attached to each of its four sides, to receive the guides by which the hog is moved under water. Some shellfish were brought up, but the hog could not detach those which were on and near the 'lands,' or projecting strokes of the *Achilles*. The ship measures 380 feet from stem to stern, or 392 feet over all. Her draught aft was 26 feet 3 inches; the depth of water in the dock was 28 feet. Her engines are of 1,250-horse power nominal, and at the contractor's trial were worked up to 5,067 horses; in the Channel 3,200 horse power only could be attained, the pressure of steam being occasionally 26 pound, and the revolutions 40 per minute, against 46 on the trial. The speed first attained, and which at the time gave great satisfaction, was 14½ knots, but during the passage to Plymouth, although an especial effort was used on one occasion, very little over ten knots was produced. Scotch and Welsh coals mixed were used. The trim of the ship, her greater immersion, and the foulness of the bottom may account for a loss of from two to three knots, but what remains puzzles all concerned. At the contractor's trial the ship was 15 inches by the stern; her immersion now is 2 feet more, and she has about 30,000 superficial feet under water. Soon after leaving the Nore it was discovered that she was too much by the head, some of her weights were moved aft, and the coal in the fore bunkers was reduced as speedily as possible. The armament on her main deck is 16 100-pounder smooth-bore Armstrongs, weighing 6½ tons each, and on the upper deck four 110-pounders. On the passage, when going ahead, the screw revolved 73,500 times; when backing and performing other evolutions not accounted for, it is calculated that the revolutions were 26,500, making a total of 100,000. The screw is considered very powerful. It was occasionally out of water to a small extent, but the 'rest' was not great, because the screw is provided with four blades. The *Achilles* dipped very quickly. In a fresh gale there is little motion; but she did not answer so well in a rolling sea. The crew of the *Achilles*, all told, would be about 755 men. Out of 75 men engaged in the engineer's department 64 only were effective in the stokehole. During the height of the gale, 27 stokers were unfit for work at one time, chiefly through sickness, occasioned by her liveliness."

The sales of tobacco for the past year at Louisville, the largest tobacco mart in the world, were 63,322 hds., the proceeds of which amounted to \$20,000,000.

**FOGLE'S OIL CUP.**

This oil cup is constructed on an unusual and novel principle, and has no cocks or valves about it to become leaky. By the provision of two apertures, merely, the oil is let into the cylinder or valve chest. The following description will render it intelligible to every one. The whole cup, globe and all, slides up and down on the pipe, A. This pipe has the top chambered out to receive a smaller pipe, B, which lets the air or steam out of the interior of the globe. The cup, C, is filled with oil, and when in its present position, the oil runs into the tube, A. The handle of the lever, D, is then raised, the cup following it.



This brings the upper holes, E, into communication with the interior of the globe, while the lower apertures are shut off from the steam-chest by the interposition of the partition, F, and the stuffing box, G. When the globe is restored to its lowest position the oil in the globe runs into the cylinder through the hole, H, because there is as much pressure in one vessel as in the other. This is a very neat and useful cup, and was patented through the Scientific American Patent Agency on Sept. 20, 1864, by Jacob Fogle, of Putnam, Ohio; for further information address him as above.

**A "Tricky" Box.**

A war correspondent thus speaks of a novel box which was constructed by rebel prisoners confined at the North:—

"One piece of workmanship, of queer device, I shall have occasion to remember. It was a block of polished wood, carved to represent a book. Upon one edge was a small incision fitting the thumb nail, and indicating the existence of a slide and the hollow nature of the contrivance. But he who opened it was pretty certain to receive a surprise. As the slide was withdrawn, a serpent's head darted through the opening, and his forked tongue, in the form of two sharp needles, was violently inserted in the thumb of the operator, who generally hastened to let the curious and keen piercing contrivance fall to the ground as fast as the attraction of gravitation would take it there. It was a machine worthy of the ingenuity of a genuine Yankee, and as such it finally came into the possession of our first officer, who, as a representative of Cape Cod, would naturally look with favor upon such a mischief-making invention."

**Economy in the Use of Coal.**

With a view to obtain a clear bright fire with the utmost economy in a common stove, an improved fire invigorator has just been introduced by a Mr. Snook, and consists of an improved form of deflector, which is constructed of cast-iron, and occupies the space between the fire-bars. After lighting the fire, and permitting it to burn for about four minutes, with the apparatus closed, so as to form a blower, a large concave elliptical plate, immediately over the bars, and suspended on end pivots, was tilted over to form the deflector. Above this are the necessary shutters for regulating the draught. The heat thrown out is large in comparison to the fuel burned, and the fire has a warm red glow, without flame or smoke. The advantages claimed for the invention are—that fires are lighted without the slightest difficulty; that the whole heat from the fuel is thrown into the room instead of escaping up the chimney; that fifty per cent less fuel is consumed; that there is no smoke, and that nothing but mere ashes are left unburned.—*London Mining Journal*.

Put your horse in the center of his stall, or he will "drive" more on one rein than the other.

THE

**Scientific American,**

FOR 1864!

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