

attached directly to the derrick, but to a rope which passed through an eye at the end of the spar, and was fixed to a 'bitt' on the deck. On a bight of this rope between the block and the 'bitt' the accumulator was lashed. This consists of thirty or forty or more of Hodge's vulcanized india-rubber springs fastened together at the two extremities, and kept free from one another by being passed through holes in two round wooden ends like the heads of churn-staves. The loop of the rope is made long enough to permit the accumulator to stretch to double or treble its length, but it is arrested far within its breaking point. The accumulator is valuable in the first place as indicating roughly the amount of strain upon the line; and in order that it may do so with some degree of accuracy it is so arranged as to play along the derrick, which is graduated from trial to the number of cwts. of strain indicated by the greater or less extension of the accumulator; but its more important function is to take off the suddenness of the strain on the line when the vessel is pitching. The friction of one or two miles of cord in the water is so great as to prevent its yielding freely to a sudden jerk such as that given to the attached end when the vessel rises to a sea, and the line is apt to snap. A letting-go frame like that used on board the 'Hydra,' a board with a slit through which the free end of the sounding machine passed, and which supported the weights while the instrument was being prepared, was fitted under the stern derrick. The sounding instrument was the 'Hydra,' weighted with 336 lbs. The sounding-line was wound amidships just abaft the donkey-engine on a large strong reel, its revolution