

and these are placed to break joint, the butt ends being generally at the shallower end. Timber pegs are then driven through the mats in horizontal rows, about 3 feet apart fore and aft and 1 foot transversely. A hurdle is then twined round the holding-down pegs for a height of 6 or 8 inches, and such hurdles are frequently held in position by timber pegs. Mattresses of this character can be ballasted with stone up to 1 cwt. per square foot. For more exposed work wiepen are used. These consist of long faggots or fascines, 4 to 6 inches in diameter, bound with osier twigs every 12 inches. The mattress so formed may be of any length, as the faggots are arranged to break joint,

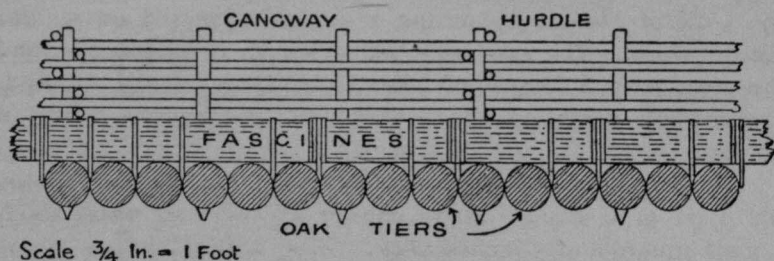


Fig. 31.—Fascine Mattresses

and the spinning of such wiepen is brought to a high art by Dutch foreshore workers. They have to be sufficiently strong not to disintegrate, and yet sufficiently pliant to accommodate themselves to the unevenness of the bed of the channel. Such wiepen may be ballasted 8 or 9 inches thick, and will carry 3 feet of stone above the ballast. They are pegged down to prevent their slipping down the slope on which they lie.

As a protection against falls, huge mattresses¹ (zinkstukken) are employed, and such rafts, formed mostly of osier boughs interwoven, are floated to the site to be protected (fig. 31). They consist of successive tiers of hurdles, preferably of oak, the lower tier running transversely and the second tier longitudinally, and these are bound together with osier twigs and at the corners lashed with tarred rope. Sometimes they have a

¹ "Sea-coast Defence Works in the Netherlands" (H. T. H. Siccama), *Proc. Inst. C. E.*, Vol. CLXIV, p. 378.