

E. F. KITTOE.

Spud for Dredging-Machines.

No. 159,685.

Patented Feb. 9, 1875.

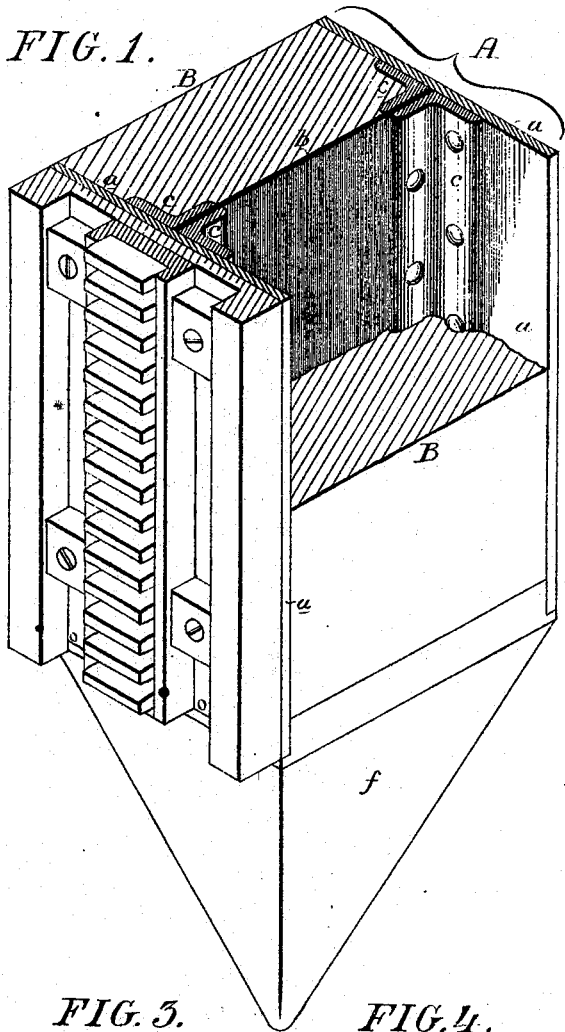


FIG. 2.

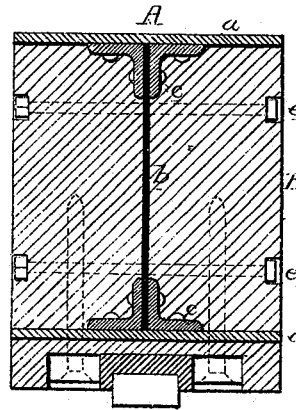


FIG. 3.

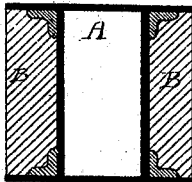


FIG. 4.

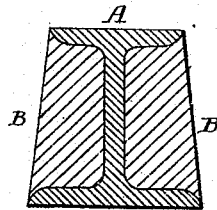
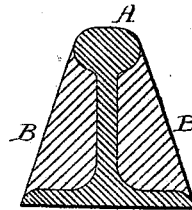


FIG. 5.



Witnesses:
James S. Kidmore
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UNITED STATES PATENT OFFICE.

EDMUND FREDERICK KITTOE, OF CHARLESTON, SOUTH CAROLINA.

IMPROVEMENT IN SPUDS FOR DREDGING-MACHINES.

Specification forming part of Letters Patent No. 159,685, dated February 9, 1875; application filed January 19, 1875.

To all whom it may concern:

Be it known that I, EDMUND FREDERICK KITTOE, of Charleston, Charleston county, South Carolina, have invented an Improved Spud, of which the following is a specification:

The object of my invention is a spud or anchor for dredging-machines, stationary batteries, &c., the said spud consisting of a metallic beam combined with wood filling-pieces, and provided at its lower end with a pointed shoe, as shown in the accompanying drawing, in which—

Figure 1 is a perspective view, partly in section, of sufficient of the improved spud to illustrate its construction; Fig. 2, a sectional plan; and Figs. 3 to 5, sectional plans, illustrating modifications.

Heretofore the spuds used for anchoring dredging-machines, &c., have been made of wooden beams, about fifteen inches square, and from forty to sixty feet in length, the spuds passing between guides at the sides of the machine, and, when the latter is in operation, extending downward and penetrating the bed of the stream.

Owing to the force applied to the dredge tending to displace the machine, and the increased leverage through which this force acts upon the spuds, the latter are subjected to enormous strains, which, continually repeated, soon fracture the spuds, the replacing of which is one of the most serious expenses connected with dredging operations.

Spuds consisting of cast-metal sections riveted together have been proposed, but, owing to the expense of construction, their weight, and their liability to break, are not of a character to replace the cheaper and more easily repaired wooden spuds.

In my improved spud I employ wooden beams, as heretofore, but merely as a filling for a central metallic beam or girder, A, consisting, preferably, of plates *a a*, which constitute the opposite faces of the spud, united to a web, *b*, by angle-irons *c*, to which both

the plates and webs are riveted, as shown in Figs. 1 and 2.

The filling-beams B B, which are requisite to give body to the spud, and afford bearing-faces for the guides, &c., are inserted on both sides the web between the plates, with the outer faces flush with the edges of said plates, and are secured in their position by transverse bolts *e e* passing through the filling-pieces and through the web, the shoe *f* being secured at the lower end of the spud by rivets *n n*.

As the timber for the filling-pieces may be much inferior, both in dimensions and quality, to that required to make a solid spud, a saving is thus effected, which partly compensates for the increased cost resulting from the use of the central metal beam, A.

The main advantage of the improved spud, however, lies in its great strength, enabling it to resist any strain to which it may be subjected, and imparting such durability as renders its employment, notwithstanding the greater first cost, far less expensive than that of a wooden or cast-metal beam, requiring frequent repairs or to be often replaced.

Two or more webs, as shown in Fig. 3, may be substituted for the single web *b*, this modification being serviceable when it is desired to reduce the size of the filling-pieces; and in place of a compound metal beam, A, the latter may consist of a single H or T beam, as shown in Figs. 4 and 5, or of an ordinary "fitch," with the wooden beams bolted to the metal.

I claim as my invention—

A spud in which an iron beam, A, is combined with wooden pieces B B, and with a pointed shoe, *f*, as set forth.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

EDMUND FREDERICK KITTOE.

Witnesses:

CHARLES E. FOSTER,
CHAS. H. MOULTON.