The resemblance of this sponge to *Scleritoderma packardi* is very close, the characters of the pores and oscules are similar, and the same kinds of spicules are present in both; the specific distinction is well marked, resting not only on the difference in external form, though this is considerable, but more particularly on the dimensions of the microstrongyle, which is twice the length in *Scleritoderma packardi* of that in *Scleritoderma flabelliformis.*

Family II. Cladopeltidæ.

Rhabdosa in which the ectosomal spicule is a desma highly branched in a plane parallel to the surface. Microscleres are absent.

Genus 1. *Siphonidium*, O. Schmidt.

The oscules are the simple terminations of narrow external tubular processes.

Siphonidium capitatum, n. sp. (Pl. XXXVII.).

Sponge (Pl. XXXVII. fig. 1).—Small, growing from an attached incrusting base into variously shaped lobes, from the sides and ends of which slender, straight or crooked tubes with a terminal aperture or oscule are produced. The axial canal of the tubes is continued without any apparent change of dimensions a considerable distance into the lobes, within which it terminates by breaking up into branches.

The surface is covered by a smooth, thin, imperforate, wrinkled skin, the wrinkles of which are accurately reproduced by the surface of the skeleton below. Pores (?).

Spicules.—I. Megascleres. 1. *Ectosomal desma* (Pl. XXXVII. fig. 2), a broad undulating epirabd, giving off branches from the convex sides of the curves, and bifurcating at the ends; the cladi subdivide and give off lateral branches, and all the branches finally terminate in twig-like processes. The desma is depressed and ramified in a plane parallel to the surface, and the angles between the branches are mostly well rounded off; the twig-like endings of one desma are overlapped by those of its neighbours, and thus a close-meshed superficial network is produced without actual zygosis.

2. *Choanosomal desmas* (Pl. XXXVII. figs. 3–8), the characters of these are best conveyed by the illustrations. Forms like figs. 4–8 are richly developed in the tubular processes. Forms like fig. 3 occur beneath the ectosomal desmas, or immediately beneath the skin where these are absent. They present a straight epirabd, from the outer surface of which spined processes are given off, which end at the general surface of the sponge; from the inner face proceed a number of cladi (sometimes as many as seven), which