

(No Model.)

F. I. PALMER.
TIDE AND CURRENT STATION.

No. 362,175.

Patented May 3, 1887.

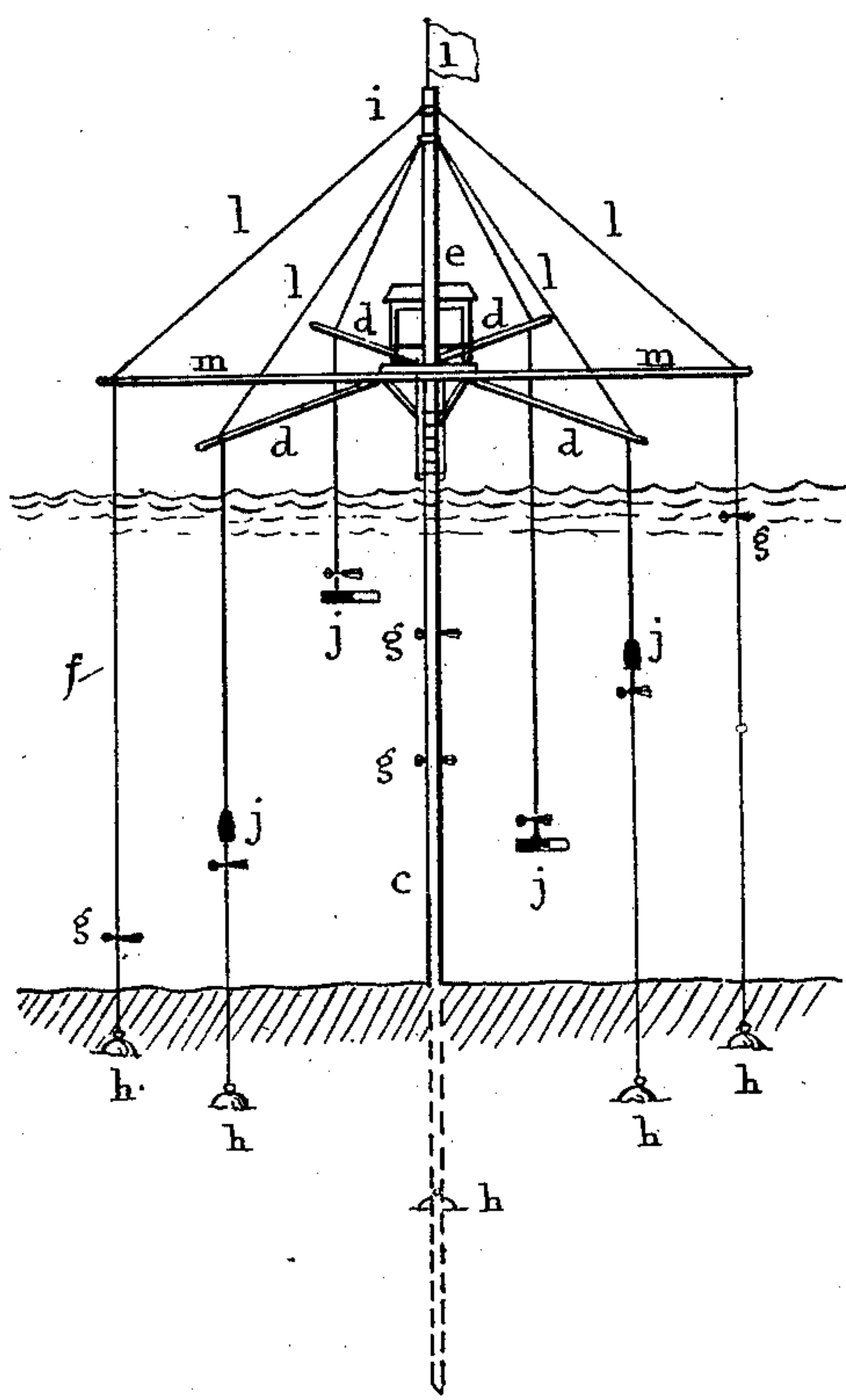


Fig 1

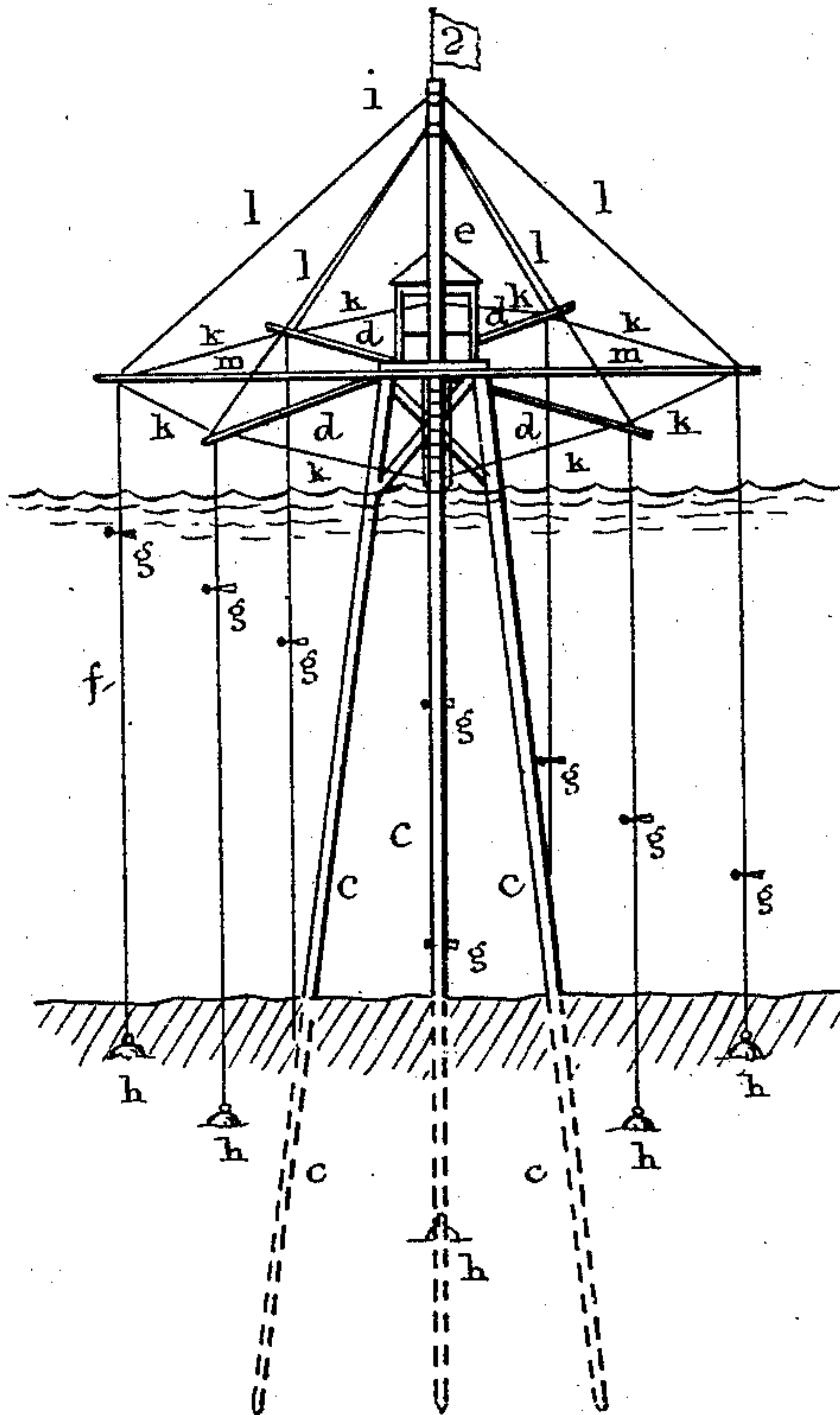


Fig 2

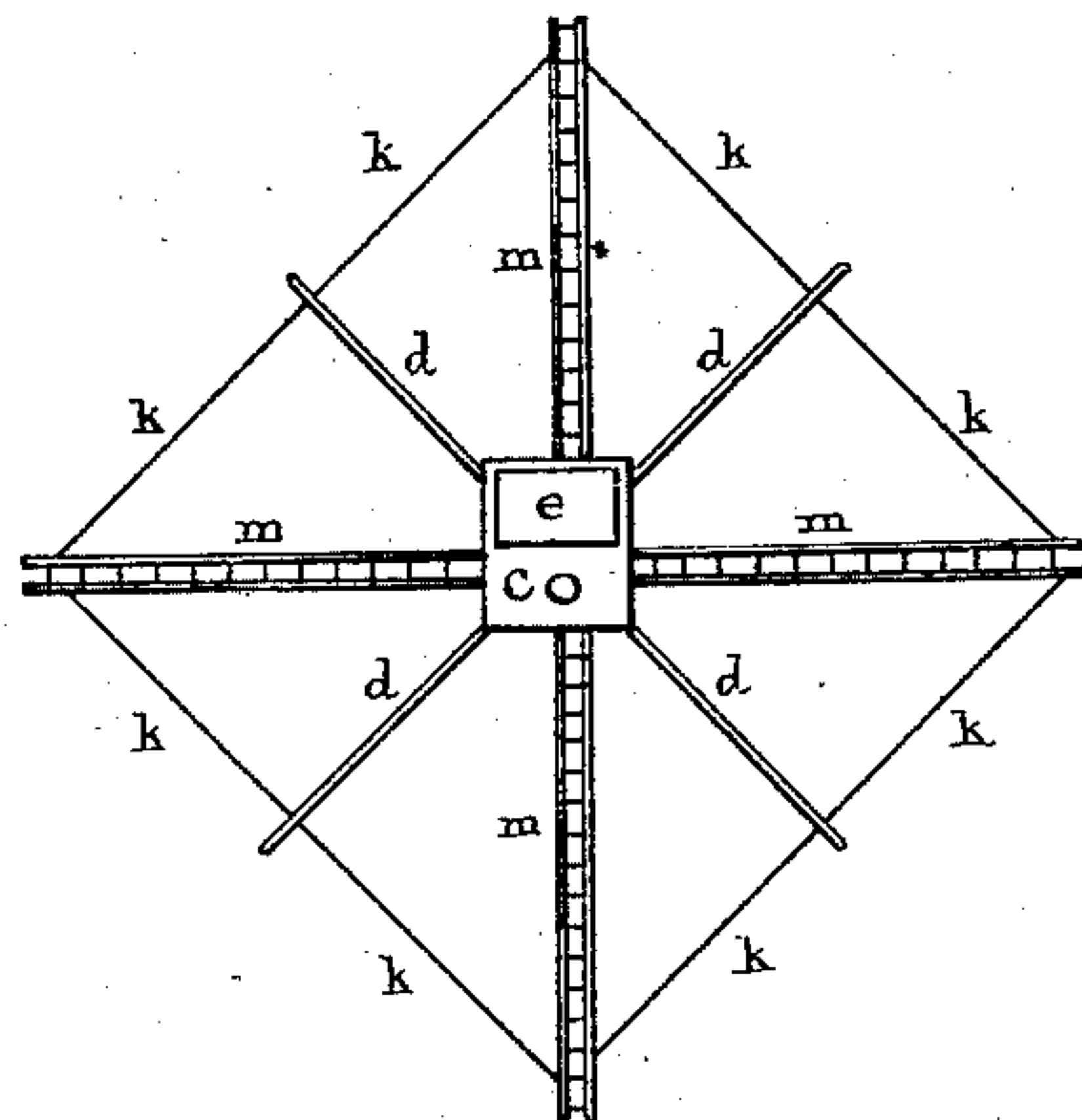


Fig 3

WITNESSES:

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TIDE AND CURRENT STATION.

SPECIFICATION forming part of Letters Patent No. 362,175, dated May 3, 1887.

Application filed August 31, 1886. Serial No. 212,345. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS I. PALMER, of the city, county, and State of New York, have invented a new and Improved Tide and Current Station, of which the following is a full, clear, and exact description.

My invention relates to a tide and current station or stations which may be located at any point or number of points in an estuary, bay, river, or other body of water, and from which suitable apparatus for recording the velocity and direction of the current may be supported.

My invention consists of a structure built of one or more wooden or iron piles, pillars, or columns driven or set into the bottom of any estuary, bay, river, or other area of water, and from which project one or more outriggers, poles, booms, or ladders, which serve to carry wire or hempen ropes, iron rods, or pipes descending into the water. These ropes, rods, or pipes serve as guides upon which travel suitable instruments for registering the velocity and direction of the current or tide. By this means the registering-instruments may be conveniently placed at any desired depth below the surface of the water, and as each station may be constructed with eight or ten outriggers, from each of which one or more registering-instruments may be suspended, a large number of observations upon the velocity and direction of the current may be made at a single station. A platform to carry a small house is secured to the said pile or piles a few feet above high-water level, whereon an observer can be stationed to care for and superintend the reading of the several instruments, and to measure the run of the surface tides.

Reference is to be had to the accompanying drawings, which form part of this specification, and in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is an elevation of one of my tide and current stations in which only one pile is used. Fig. 2 is an elevation of one of my tide and current stations, in which three piles are used. Fig. 3 is a plan view of Fig. 1.

The pile *c* is sunk to a suitable depth in the bed of the bay or river, and at a point near its upper end is secured a platform and lookout-house of any suitable construction. Ra-

diating from the pile at about the level of the floor of the lookout-house are a number of outrigger-spars, *d*, and ladders *m*, from or near the ends of which depend ropes, rods, or pipes *f*, which serve as guides, along which any desired form of current-meter, *g*, may be raised, lowered, or held at any point. To the lower ends of these ropes, rods, or pipes are attached the anchors *h*; or I may use a heavy weight, held suspended by the ropes, rods, or pipes situated either above or below the current-meter, as shown at *j*, Fig. 1. The outer ends of the outriggers are supported by guys or topping-lifts *l*, extending from the ends to the top of the pile, and they are also connected by side ropes or stays, *k*, which stiffen the structure. When the station is composed of three piles, as shown in Fig. 2, two of the piles *c* may terminate at the floor of the lookout-house, and the third pile is extended sufficiently high to afford support to the outrigger-booms, and to its top the guy-ropes or topping-lifts *l* are led and made to receive either through fair-leaders there, or be permanently secured, as found most convenient. The principal advantage obtained by employing three piles is that the heads of the piles can be tied together by bracing, thereby forming a stronger structure.

The advantages derived from this method of construction are the extreme economy of cost for the large number of observations that can be made simultaneously, and the certainty of producing the most accurate measurements of both the direction and velocity of the currents at any level from the surface to the bottom at all stages of the tide, from a station whose position can be trigonometrically determined.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A tide and current station constructed of one or more piles set into the bed of a river or other body of water and supporting above the surface of the water outrigger-spars, from which depend ropes, rods, or pipes, which serve as guides for suitable current-recording machines, as herein shown and described.

2. A tide and current station whose posi-

tion can be trigonometrically determined, consisting of uprights *c*, outrigger-spars *d*, ladders *m*, platform and lookout-house *e*, carried above the water-level, topping-lifts *l*, side
5 stays *k*, ground-anchors *h*, and connecting ropes, rods, or pipes *f*, as herein shown and described.

3. In a tide and current station, the combination of one or more piles set into the bottom
10 of a river or other body of water with one or

more suitably-stayed outrigger-spars, to which one or more current-recording machines can be attached for measuring the velocity and direction of the run of any tide or current, as herein shown and described.

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Witnesses:

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