

No. 650,830.

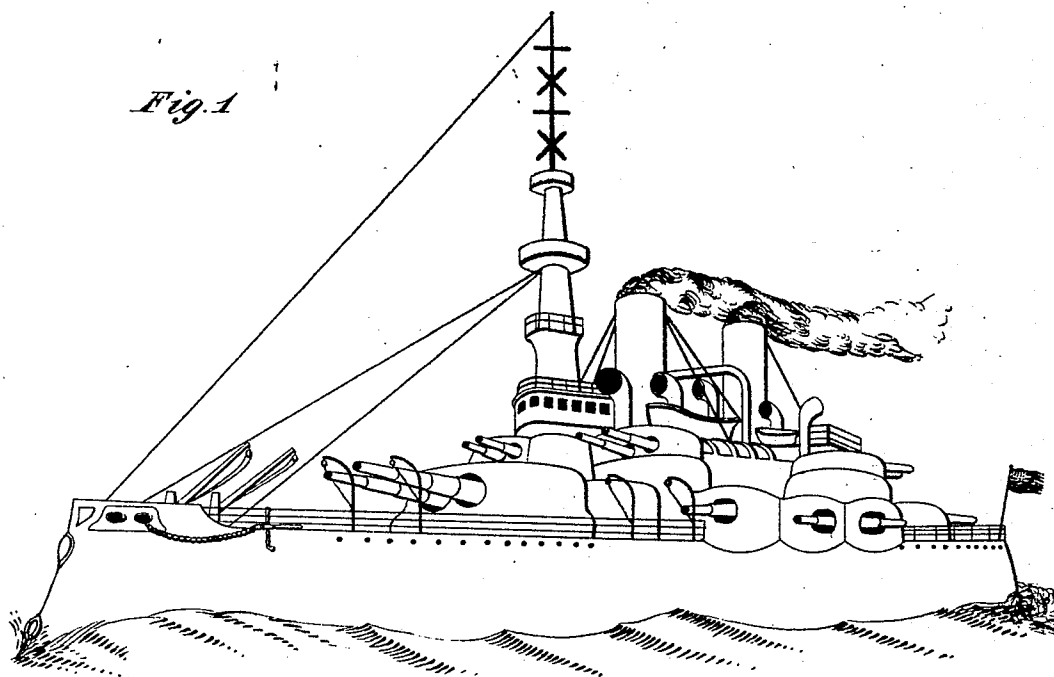
Patented June 5, 1900.

B. A. FISKE.
DAY SIGNALING APPARATUS.

(Application filed Mar. 16, 1898.)

(No Model.)

3 Sheets—Sheet 1.



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3 Sheets—Sheet 2.

Fig. 2

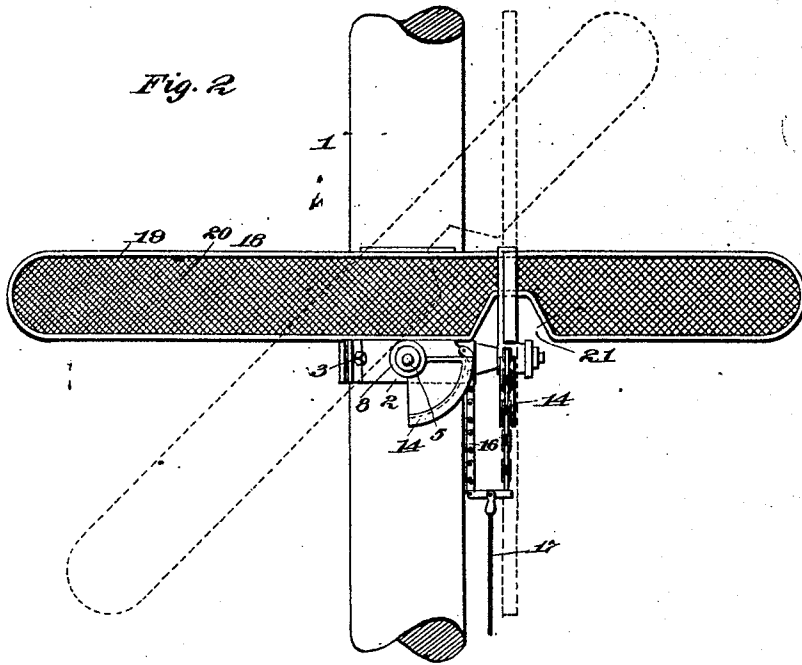


Fig. 6

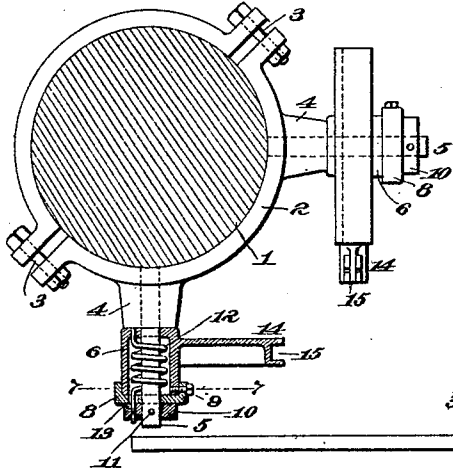


Fig. 3

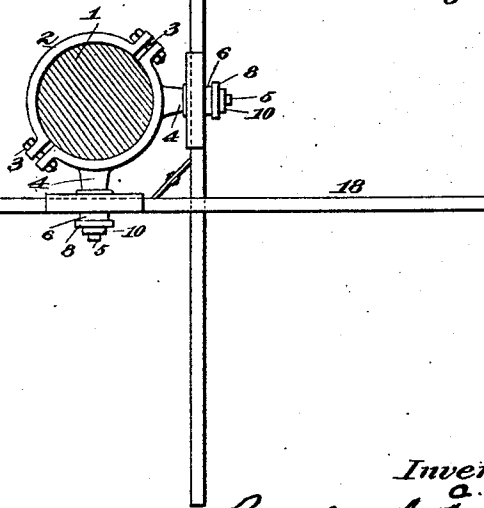
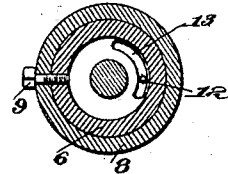


Fig. 7



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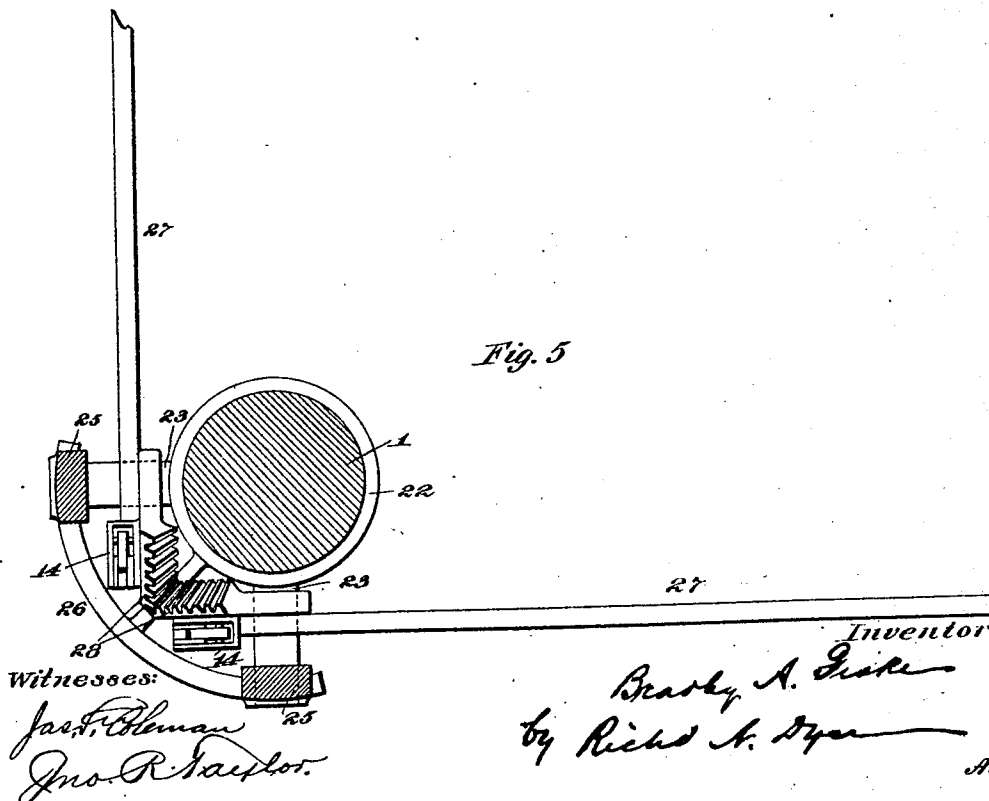
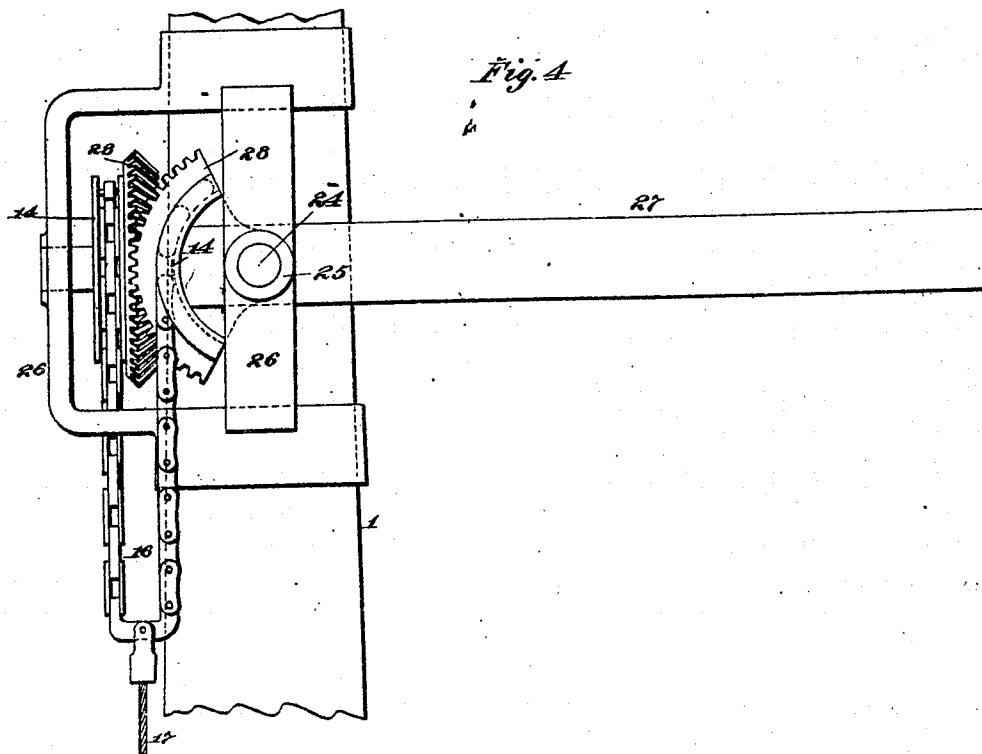
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

BRADLEY A. FISKE, OF THE UNITED STATES NAVY, ASSIGNOR TO THE
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DAY SIGNALING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 650,830, dated June 5, 1900.

Application filed March 18, 1898. Serial No. 674,024. (No model.)

To all whom it may concern:

Be it known that I, BRADLEY A. FISKE, of the United States Navy, have invented a certain new and useful Improvement in Day Signaling Apparatus, of which the following is a specification.

My invention relates to a day signaling apparatus.

The invention is particularly adapted for use on ships for the reason that the signals will be observable from all points of the horizon and will be readable from any point on the horizon irrespective of the ship's position. My improved signals are, however, adapted for effective use as land-signals or for signaling between the shore and ships. Preferably I employ a plurality of the signals arranged in a vertical line and with a sufficient clearance-space between them to prevent the possibility of confusion in the reading, and when so arranged the signals will be capable of manipulation in accordance with a preconcerted code, whereby intelligible messages may be rapidly and effectively transmitted.

Broadly stated, my improved signaling apparatus consists of two or more semaphores arranged at an angle to each other and operated simultaneously or with such substantial unison as to prevent confusion. Hence when in operation at least one of said semaphores will be seen, irrespective of the position which may be occupied by the observer relatively to the same. When used particularly as ship-signals, it is desirable that a plurality of these sets or pairs of semaphores should be employed, carried in the case of a man-of-war on the military mast, and the semaphores of each set being operated simultaneously or in substantial unison in accordance with the terms of a preconcerted code. When thus used, experience has demonstrated that the semaphores should be as light as possible, that they should be capable of rapid movement without shock or jar, that they should offer as little resistance as possible to wind-pressure, and that they should be of such a form as to be seen from great distances. It is furthermore desirable, especially in ship-signals, owing to the limited height of the available supports, and hence to reduce the number of signaling elements as

much as possible, that the signaling devices should each be capable of more than one signaling position. In order to realize these practical requirements, I prefer to make the semaphores with a light wooden or metal frame, essentially rectangular in form, and to extend between the said frame a backing which will offer but little wind resistance. Such backing may consist of cloth, thin wood, or sheet metal suitably perforated; but I prefer to employ for the purpose ordinary caning, such as is used for the seats and backs of chairs. Such material is very light and from a distance will give to the eye the impression of a solid opaque body. By thus making the semaphore-arms so that they will be very light and will offer but little wind resistance, and, further, by pivoting them at their centers so that they will be practically counterbalanced they may be operated rapidly and with very little force, and they may be returned to any normal position desired by means of a light spring, whereby in the operation of the signals the semaphores will be moved rapidly toward or from their signaling position or positions without shock or vibration.

In order that my invention may be better understood, attention is directed to the accompanying drawings, forming part of this specification, and in which—

Figure 1 represents a perspective view of a battle-ship the military mast of which is equipped with signals in accordance with my present invention; Fig. 2, a view in elevation, partly in section, of the preferred form of signaling apparatus; Fig. 3, a plan view of the same, partly in section; Fig. 4, a side elevation of a suitable supporting-mast equipped with a modified construction of semaphore; Fig. 5, a horizontal section of the same; Fig. 6, an enlarged sectional view of the clamping-ring, operating-segment, and bearing thereof illustrated in Fig. 3; and Fig. 7, a section on line 7 7 of Fig. 6.

In all of the above views corresponding parts are represented by the same numerals of reference.

In Fig. 1 the military mast of a battle-ship is illustrated as being provided with four signaling elements or semaphore sets, the

semaphores of the first and third sets, counting from the top, being represented in a horizontal position, and the semaphores of the second and fourth sets being shown in an inclined or oblique position. When the semaphore-arms extend parallel to and are concealed by the mast, they are out of the signaling position. By properly manipulating the semaphores of the several sets and by moving the semaphores from the concealed or hidden position to the first or second signaling position various combinations may be made to accord with a preconcerted code, and intelligible messages may in this way be transmitted from one vessel to another or from one station to another. The semaphores are operated in any suitable way, preferably from the deck of the vessel or from the fighting-top of the mast or from the ground in the case of land-signals.

Having reference to Figs. 2, 3, 6, and 7, the construction of the preferred form of semaphore will be understood. 1 represents a suitable support, which may be the mast of a vessel or a suitable staff mounted at an appropriate locality on the land. 2 is a split collar, the parts being secured together by bolts 3, so that the collar will be firmly clamped to the support 1. Preferably cast with one part of the collar 2 are two bosses 4, 4, which in this instance are arranged ninety degrees apart. 5 represents a shaft or a spindle rigidly secured to each of said bosses. Mounted upon this shaft or spindle is a sleeve 6, having a bearing for the shaft or spindle at its rear end, which bearing works against the boss 4. The sleeve 6 is provided with a cap 8, secured in place by a set-screw or pin 9, preferably the former, which cap constitutes a front bearing for said sleeve upon the shaft or spindle 5. 10 is a collar rigidly secured to the shaft or spindle at its forward end, such as by means of a set-screw or pin 11, which collar works against the front face of the cap 8, so as to prevent lateral play of the sleeve 6 on the shaft or spindle 5. 12 is a coil-spring surrounding the shaft or spindle 5 within the sleeve 6. The inner end of said spring engages an opening in said sleeve, and the forward end of said spring passes through the collar 10, as shown particularly in Fig. 6. The cap 8 is provided with a curved slot 13 therein, through which the front portion of the spring 12 passes. The spring 12 will be placed under tension by rotating the collar 10 on the shaft or spindle 5 and by then clamping the said collar in place, after which the cap 8 is so adjusted as to allow for partial rotary movement of the sleeve 6 on said shaft or spindle. If desired, the slot 13 in the cap 8 may constitute a limiting-stop for arresting movement of the sleeve 6 in either of its extreme positions, although in practice I prefer in bringing the semaphore-arms to their horizontal position to engage them together, so that it will be desirable to make the slot 13 so long as not to engage with the front portion

of the spring 12 when the semaphore-arms are moved to that position. Cast with the sleeve 6 is a quadrant 14, having a grooved outer face 15, in which works a small chain 16. I illustrate a light wire rope 17, connected to this chain and by means of which the semaphore-arms will be moved from their concealed or hidden position to a horizontal or to an inclined position, as will be understood. The chains, ropes, or other operating elements of the two semaphore-arms of each pair may be connected together, as shown in dotted lines, or they may be connected to the same controlling device, or they may be actuated by separate controlling devices either simultaneously or in such substantial unison as to avoid confusion. Carried on the segment 14 is a semaphore-arm 18, so arranged relatively to the shaft or spindle 5 as to be practically counterbalanced, as illustrated. This semaphore-arm preferably comprises an outer frame 19, made of light wood or sheet metal, and an interior portion or backing 20, supported by said frame and composed, preferably, of ordinary caning, such as is used for the seats and backs of chairs. If desired, however, this portion 20 may be composed of cloth, light wood, or sheet metal having perforations therein, so as to offer as little resistance to the wind as possible. I consider caning preferable, since it is very light, possesses but little wind resistance, and from a short distance will give the impression to the eye of a solid opaque body. Each semaphore-arm is provided with a cut-away portion 21, which coincides with a similar portion in the adjacent arm of the same set and by reason of which the two semaphore-arms of each set may be brought to a horizontal position in the same plane. The concealed or hidden position of two semaphore-arms such as I have described will be when the arms are parallel to the mast 1. The first signaling position is that in which the arms will occupy the position shown in dotted lines, Fig. 2, said arms extending obliquely with regard to the support 1, as shown in the second and fourth sets in the perspective view. The second signaling position is that in which the arms occupy a horizontal position, as shown in full lines, Fig. 2, and correspond to the representation of the first and third sets in the perspective view. When the semaphore-arms are in the horizontal position, I prefer to allow the cut-away portion 21 of each to engage together; but this engagement owing to the extreme lightness of the arms and to the fact that they are nearly counterbalanced will result without shock or jar. By counterbalancing the semaphore-arms, as explained, a very light spring 12 will be necessary to return them to their concealed or hidden position; so that the arms may be rapidly moved into one position or the other with the expenditure of but slight energy.

Practice has demonstrated that a signaling apparatus constructed as explained fulfils all

the practical requirements of the art, since the constituent elements are light, easily operated, capable of rapid changes in position, and offer but slight resistance to the wind.

5 While I prefer to construct the semaphore-arms as explained, it is nevertheless possible to employ semaphore-arms pivoted at one end and cooperating together, as illustrated in Figs. 4 and 5. In this modification the sup-
10 port 1 is provided with a collar 22 for each signaling element. Said collar carries two bosses 23 23, arranged, preferably, ninety degrees apart. In each of said bosses is mounted a rotatable shaft 24, having an outer
15 bearing in a block 25, the said blocks being carried in a suitable supporting-frame 26. Each shaft 24 carries a semaphore-arm 27, keyed to the shaft near its outer end. 28 28 are miter-quadrants carried by the shafts 24
20 or the semaphore-arms 27 and meshing together, whereby the semaphore-arms of each set will move simultaneously. Any suitable means—such, for example, as a quadrant corresponding to the quadrant 14—may be se-
25 cured to one or both of the shafts 24 for operating the semaphore-arms 27.

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

30 1. A day signaling apparatus, comprising in combination, a mast or support, a pair of semaphore-arms pivoted to said support at angles of approximately ninety degrees, and connections between said arms for moving them
35 simultaneously in the same direction, substantially as set forth.

2. A signaling element comprising a pair of semaphore-arms pivoted at their centers and working in planes perpendicular to each
40 other, and movable simultaneously or in substantial unison in the same direction, as and for the purposes set forth.

3. A signaling element comprising a pair of semaphore-arms pivoted at their centers and
45 working in planes perpendicular to each other, and movable simultaneously or in substantial unison in the same direction, said arms having cut-away portions which inter-
50 lock when the arms are moved to a horizontal position, substantially as set forth.

4. A signaling element comprising a pair of semaphore-arms pivoted at their centers and working in planes perpendicular to each other and movable simultaneously or in substantial
55 unison in the same direction, and a spring surrounding the pivot of and cooperating with each arm for normally moving the same in one direction, substantially as set forth.

5. An improved signaling element comprising a stationary shaft, a sleeve on said shaft,
60 a collar carried by said shaft, a spring mounted within said sleeve connected at one end to said collar and at the other end to said sleeve, and a semaphore-arm carried by said sleeve,
65 substantially as set forth.

6. An improved signaling element comprising a stationary shaft, a sleeve on said shaft, a collar adjustably mounted on said shaft, a
70 spring mounted within said sleeve connected at one end to said collar and at the other end to said sleeve, and a semaphore-arm carried by said sleeve, substantially as set forth.

7. An improved signaling element comprising a stationary shaft, a sleeve mounted on
75 said shaft, a cap at the forward end of said sleeve and bearing on said shaft, a collar secured to said shaft, a spring mounted within said sleeve, one end of which is connected to said collar passing through said cap, the other
80 end being connected to said sleeve, and a semaphore-arm carried by said sleeve, substantially as set forth.

8. An improved signaling element comprising a stationary shaft, a sleeve mounted on
85 said shaft, a cap for the forward end of said sleeve and bearing on said shaft, means for connecting said cap and said sleeve, a collar rigidly connected to said shaft, a spring mounted within said sleeve and connected at
90 one end to said collar and at the other end to the sleeve, the said spring passing through a slot in said cap, and a semaphore-arm connected to said sleeve, substantially as set forth.

This specification signed and witnessed this
28th day of January, 1898.

BRADLEY A. FISKE.

Witnesses:

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GEO. G. SEIBELS.