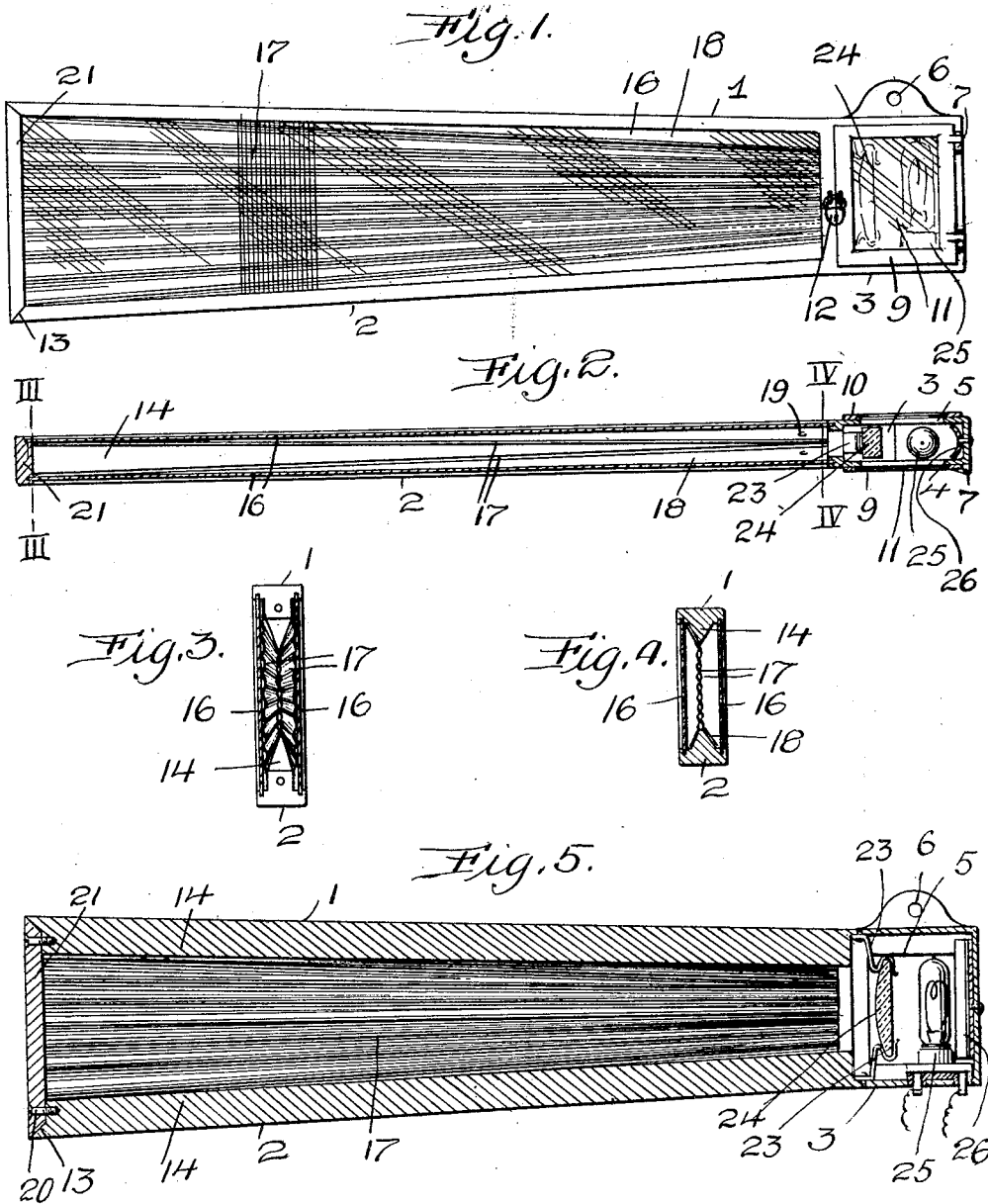


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SEMAPHORE ARM.  
APPLICATION FILED FEB. 17, 1913.

1,114,684.

Patented Oct. 20, 1914.  
2 SHEETS—SHEET 1.



WITNESSES  
*Samuel Payne*  
*Karl H. Butler*

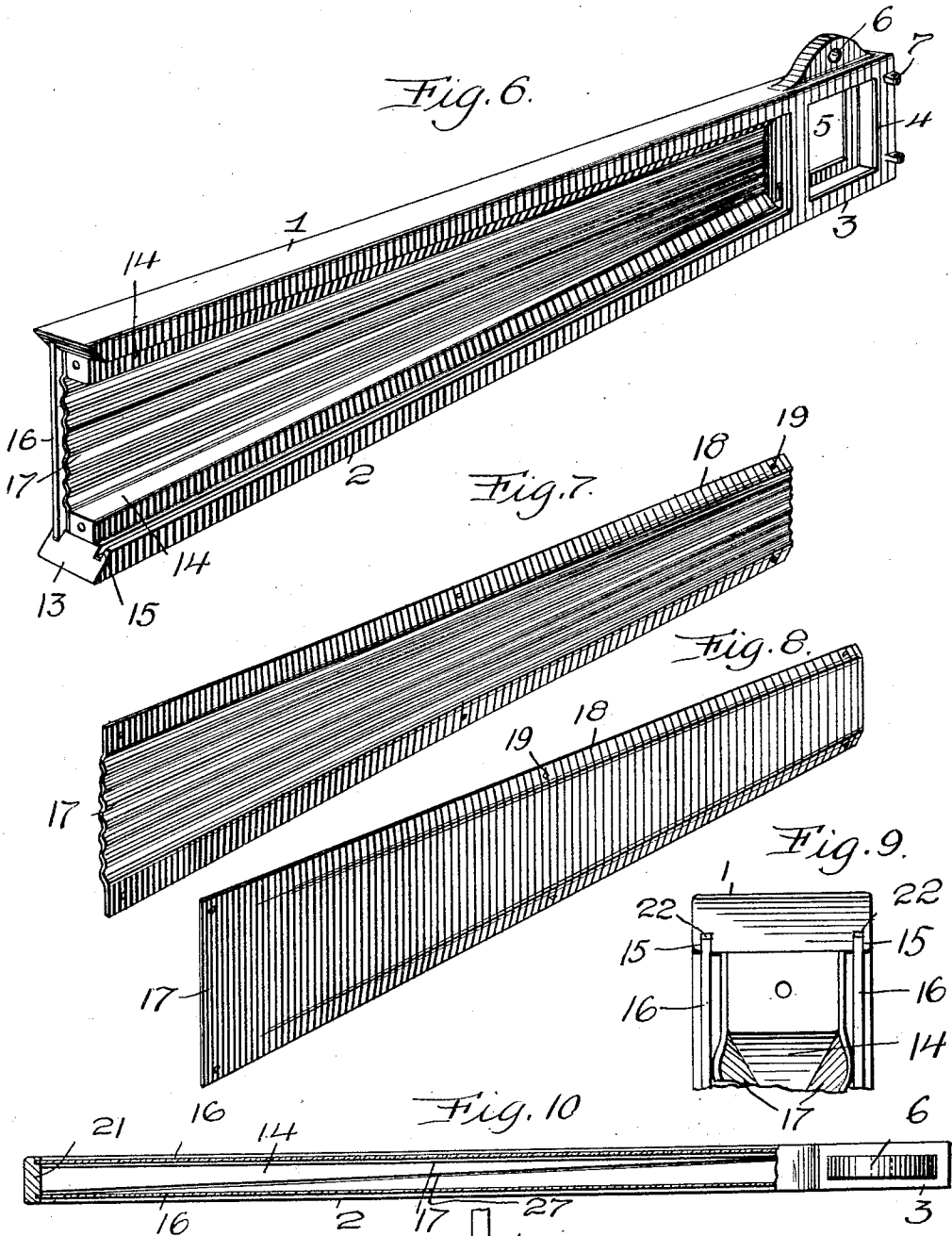
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WITNESSES  
*Samuel Payne.*  
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# UNITED STATES PATENT OFFICE.

JOHN W. FENTON, OF MILLERSBURG, OHIO, ASSIGNOR TO SAM'L F. SPENCER, OF DRESDEN, OHIO.

## SEMAPHORE-ARM.

1,114,684.

Specification of Letters Patent.

Patented Oct. 20, 1914.

Application filed February 17, 1913. Serial No. 748,903.

*To all whom it may concern:*

Be it known that I, JOHN W. FENTON, a citizen of the United States of America, residing at Millersburg, in the county of Holmes and State of Ohio, have invented certain new and useful Improvements in Semaphore-Arms, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to semaphore arms, and the objects of my invention are to provide a luminous arm of novel construction capable of withstanding the forces of nature, and to provide an electrically illuminated semaphore arm that can be easily observed at night without any danger of an engineer or trainman being mistaken as to the position of said arm.

Other objects of my invention are to provide a semaphore arm with novel illuminated reflectors that are positioned within the arm whereby both sides of the arm can be used at night for signaling purposes, and to furnish a semaphore arm with an incandescent lamp, reflector and lens for casting a ray of light throughout the length of the semaphore arm.

Further objects of my invention are to provide a luminous semaphore arm that can be readily installed in connection with the present type of signaling apparatus to be used in lieu of the ordinary wooden and metal semaphore arm, and to accomplish the above results by a semaphore arm that is simple in construction, durable, light in weight and highly efficient for the purposes for which it is intended.

With the above and other objects in view the invention resides in the novel construction, combination and arrangement of parts to be hereinafter specifically described and then claimed.

Reference will now be had to the drawings, wherein:—

Figure 1 is a front elevation of a semaphore arm in accordance with this invention, Fig. 2 is a horizontal sectional view of the same, Fig. 3 is a cross sectional view, taken on the line III—III of Fig. 2, Fig. 4 is a similar view taken on the line IV—IV of Fig. 2, Fig. 5 is a longitudinal vertical sectional view of the semaphore arm, Fig. 6 is a perspective view of the arm illustrating principally the frame thereof, Fig. 7 is a perspective view of a detached corrugated

reflector, Fig. 8 is a similar view of a flat reflector, Fig. 9 is an enlarged end view of a portion of the arm, Fig. 10 is a plan of an arm partly broken away and partly in section, and Fig. 11 is a plan of the semaphore arm illustrating the manner in which it is connected to a signaling apparatus.

A semaphore arm in accordance with this invention conforms in size, and shape, as much as possible to the ordinary semaphore arm, that is, said arm is comparatively flat and tapers from the outer end thereof to the inner end. The arm comprises an oblong frame having top and bottom rails 1 and 2 connected at their inner ends by a housing 3 having openings 4 and 5. The top of the housing has an apertured ear 6 and the front of the housing has apertured lugs 7, said ear and said lugs being formed integral with the housing and it is in this connection that it is preferable to cast the rails 1 and 2, housing 3, the ear 6 and the lugs 7 of aluminum or a similar light and durable material. The apertured ear 6 accommodates a connection 8 of a signaling apparatus (see Fig. 11). The apertured lugs 7 permit of a hinged door 9 closing the front side of the housing 3, while the opening 5 at the rear side of the housing is closed by a transparent plate 10. The door 9 has a transparent panel 11 and said door 9 can be retained in a closed position by a lock 12 or other fastening means. The outer end of the rails 1 and 2 are beveled, as at 13 and the confronting sides of said rails are provided with central longitudinal ribs 14, said ribs having the sides thereof beveled and tapering from the outer ends thereof to the inner ends, whereby the outer ends of the ribs are substantially rectangular in cross section and the inner ends thereof inverted V-shape in cross section, as best shown in Figs. 3, 4 and 6.

The confronting sides of the rails 1 and 2, adjacent to the longitudinal edges thereof, are provided with longitudinal grooves 15 extending through the outer ends of the rails to the housing 3 and slidably mounted in said grooves are transparent plates 16, preferably made of glass. Mounted between the transparent plates 16 and the ribs 14 are reflectors 17 and said reflectors have the longitudinal edges thereof bent, as at 18 and as best shown in Figs. 7 and 8 to conform to the beveled sides of the ribs. The longitudi-

nal edges of the reflectors have openings 19 whereby said reflectors can be secured to the ribs by screws or other fastening means. The inner ends of the reflectors meet at the inner ends of the ribs 14, as shown in Figs. 3 and 4, said reflectors diverging from the housing 3 to the outer end of the semaphore arm, whereby there will be a gradually converging space between said reflectors and the plates 16, the space converging from the inner ends of the reflectors to the outer ends thereof, the object of which will presently appear.

Secured to the outer beveled ends of the rails 1 and 2 by screws 20 or other fastening means is an end plate 21 that retains the reflectors and the transparent plates in position, and to prevent the transparent plates from being broken or injured by a movement of the semaphore arm, resilient gaskets or cushions 22 are placed in the grooves 15 to provide yieldable seats for the edges of the transparent plates.

In the housing 3 there are arranged lens holders 23 for a lens 24 and located adjacent to said lens is an incandescent lamp 25 that is connected to a suitable source of electrical energy, preferably that used in connection with the signaling system. Adjacent to the incandescent lamp 25 is a reflector 26 that co-operates with the lens 24 in projecting rays of light along the outer sides of the reflectors 17. The rays of light are projected between the reflectors 17 and the transparent plates 16 and in some instances said reflectors can have a smooth and polished surface, as shown in Fig. 8, while in other instances, as illustrated in numerous views, the reflectors 17 can be provided with longitudinal corrugations which contribute to the luminosity of the semaphore arm.

In Fig. 10, there is illustrated an arm that simply has one side thereof illuminated, and in this instance a reflector 27 is diagonally disposed throughout the length of the arm whereby there is a large opening at the housing through which rays of light can be cast against the reflector.

From the foregoing it will be observed that I have devised a semaphore arm embodying detachable diverging reflectors upon which there are cast rays of light from a suitable illuminating device at the inner end of the arm. It is through the medium of the transparent plates that the reflectors are protected against the forces of nature and with the arm made of aluminum and proper electrical connections established, said arm will withstand rough usage and exposure to which the semaphore arms of signaling apparatus are subjected.

While in the drawings there are illustrated the preferred embodiments of my invention, it is to be understood that the structural elements are susceptible to such

changes, as in the size, shape and manner of assemblage as fall within the scope of the appended claims.

What I claim is:—

1. A semaphore arm comprising a stationary frame, a housing fixed to one end thereof, reflectors extending throughout the length of said frame and diverging from the housing to the other end of the frame, and means within said housing for casting rays of light against said reflectors.

2. A semaphore arm comprising a frame, a housing at one end thereof, reflectors extending throughout the length of said frame and diverging from the housing to the other end of the frame, transparent plates arranged in said frame at the outer sides of said reflectors, and means within said housing for casting rays of light against said reflectors.

3. A semaphore arm comprising a frame, a housing at one end thereof, reflectors extending throughout the length of said frame and having end engagement adjacent said housing, transparent plates arranged in said frame at the outer sides of said reflectors, and means within said housing for casting rays of light against said reflectors, said means including a lens, a reflector, and an incandescent lamp interposed between said lens and said reflector.

4. A semaphore arm comprising a frame, a housing carried by one end thereof, longitudinal corrugated reflectors arranged throughout the length of said frame and having end engagement adjacent said housing, transparent plates carried by said frame at the outer sides of said reflectors, and means within said housing for casting rays of light between said transparent plates and said reflectors.

5. A semaphore arm comprising a frame, a housing at one end thereof, a detachable end plate closing the other end of said frame, longitudinal ribs carried by the confronting sides of said frame and diverging from the housing to the other end of the frame, removable diverging reflectors arranged against said ribs and having end engagement adjacent the said housing, transparent plates carried by said frame at the outer sides of said reflectors, a lens within said housing, an incandescent lamp within said housing for projecting rays of light through said lens and along the outer sides of said reflectors, and means whereby easy access can be had to the interior of said housing.

6. A semaphore arm comprising a frame gradually increasing in width from one end toward the other and having a housing integral with the smaller end, said housing opening into said smaller end, a pair of removable reflectors arranged within said frame and extending from the housing open-

ing to the larger end thereof, said reflectors diverging from the housing to the larger end of the frame, and means within said housing for casting rays of light against said reflectors, said reflectors gradually increasing in width from the smaller to the larger end of the frame.

7. A semaphore arm comprising a frame gradually increasing in width from one end toward the other and having a housing integral with the smaller end, said housing opening into said smaller end, a pair of reflectors arranged within said frame and meeting at the smaller end thereof, said reflectors diverging from the housing to the larger end of the frame, means within said housing for casting rays of light against said reflectors, said reflectors gradually increasing in width from the smaller to the larger end of the frame, and protective means for said reflectors.

8. A semaphore arm comprising a frame having a housing integral with one end thereof, said housing opening into the

frame, a pair of reflectors secured within the frame and meeting at the housing opening and diverging from the housing to the other end of the frame, and means within said housing for casting rays of light against said reflectors.

9. A semaphore arm comprising a frame having a housing integral with one end thereof, said housing opening into the frame, a pair of reflectors secured within the frame and having end engagement adjacent the housing opening and diverging from the housing to the other end of the frame, means within said housing for casting rays of light against said reflectors, and a protective means secured to the frames for each of said reflectors.

In testimony whereof I affix my signature in the presence of two witnesses.

JOHN W. FENTON.

Witnesses:

MAX H. SROLOVITZ,  
KATHERINE ERRETT.