This invention relates to light signals for railway signalling purposes, and more particularly to adjustable supporting means for such signals. Color light signals in their typical form comprise a number of light projecting units with different colored lenses, as red, green, yellow or the like, and the different signal indications are given by lighting the electric lamps of these units one at a time as desired so as to project a beam of colored light. Signals of this kind because they must be visible at a distance during the daytime as well as at night are required to emit a rather intense beam of light, and in order to keep the energy consumption within practical limits it is necessary to make this beam of rather narrow spread.

In view of the fact that the beam of light emitted from the signal unit is to be supported by a support embodying the present invention is rather narrow, it is important to have the signal properly positioned so that it will throw its beam of colored light along the track in the proper direction and at the proper angle so as to be visible to the best advantage by the engineers of approaching trains. The signal support embodying the present invention is constructed so that the signal may be easily swung or tilted with respect to its support to any desired position, and a simple sighting arrangement is provided to facilitate such adjustment without the need of a distant observer.

In the practical application of light signals to the varying conditions of railway signalling, it is found that various aspects and different applications and the like of support for the signal are required. For example, at one time one may want a signal capable of giving two different indications comprising a "two-position" signal, and at another time a three-position signal, and sometimes one may want the signal mounted on the top of a post or pole, and at other times on a bracket. In order to get these requirements in the simplest manner, and more particularly to obviate necessity of manufacturing and keeping in stock a large number of parts to make up the various combinations required, it is proposed to design the light signal casing and other parts so that they are symmetrical and interchangeable and any one of the component parts may be combined together directly and without affecting previous adjustments to make up a large variety of combinations or assemblages.

Other features and advantages of the invention will appear as the description progresses.

In describing the invention in detail, reference will be made to the accompanying drawings in which:

Fig. 1 shows a front elevation of a two unit signal assemblage supported by a supporting structure embodying the present invention; and Fig. 2 is a view of the bracket shown in Fig. 1 taken on the line 2-2 as viewed in the direction of the arrows.

This application is a division of the application of Salisbury M. Day for color light signals filed Oct. 17, 1921, Ser. No. 508,194.

According to the preferred embodiment of the invention, the signal is made up in its various combinations of identical light projecting units, with casings and various adapters such that these units may be assembled together to provide signals giving any desired number and arrangement of indications, and mounted on top of a pole, on a bracket, or the like.

Referring particularly to Fig. 1, each signal unit comprises in general a box-like casing C, which is preferably made of cast iron so as to have the necessary strength and rigidity. This casing C is formed with a large circular opening in its front wall, and is provided with an open back closed by a movable door 1. This door 1 may be connected to the casing C in any suitable manner, but in the construction shown the door is formed with integral lugs at one side which are hinged on cotter pins or the like supported by pairs of lugs integral with one side wall of the casing C, so that the door may be swung back and expose the entire inside of the casing. The door 1 is also preferably provided with a suitable spring hasp fastener 2 for pressing the door inward with a gasket.

The top and bottom walls of the casing C are constructed identically, and have a raised ridge 3 around the edge which is accurately
machined in manufacture, a central beveled or cup shaped opening 6, and four holes 7 (only two of which have been shown). By reason of this construction, two casings C may be fastened together by bolts 8, as shown in Fig. 1, with their machined ridges 5 contacting and lining up these casings.

A light projecting unit comprising, a lens barrel 9 having an outer lens 11 secured thereto by a bezel ring 12 and bolts 13, is fastened in the large opening in the front wall of the casing C. This light projecting unit also includes a suitable incandescent electric lamp which for convenience has not been shown in the drawings. Reference should be made to the parent application for further details as to the construction of this light unit. The bezel ring 12 is provided with a projecting semi-circular ridge upon which is secured a hood or sun shade 15.

In order that the signal may be visible at the desired distance and through the desired angle of spread, it is obvious that the signal should be pointed accurately in the right direction; and on account of variations in conditions, it is ordinarily necessary to adjust and sight each signal. The usual practice of having a workman at the signal to adjust it, and an observer at a distance to check up the adjustment, is cumbersome and inefficient. Not only are experienced observers required for this purpose, but also great difficulty is encountered in providing a simple and effective way of communicating the necessary information from the observer to the signal. To facilitate such adjustment a simple and effective sighting device including a glass disc 26 is fitted in a small circular opening in the signal casing C near one upper corner, this disc being held in place by a suitable bezel ring fastened to the casing. At the rear end of the casing C, back of the disc 26, a small peep hole 27 is bored in a small web integral with the casing. The glass disc 26 is preferably provided with a ring sand blasted thereon, painted or otherwise made opaque or nearly so. While one pair of these sighting apertures is sufficient for any one signal, regardless of the number of units making up that signal, for simplicity and convenience in manufacture, it is preferred to provide each unit with these sighting apertures.

Upon looking through the small peep hole 27, the clear glass of the disc 26 outside of the ring 26 affords a relatively large field for spotting objects and determining a coarse adjustment, while the small hole inside of the ring 26 forms a small field for accurate sighting. If desired, the large field may be proportioned to correspond approximately with the area of the beam of light from the signal, so that an observer can determine roughly, at least, how to point the signal so as to be visible from the desired points along the track.

Coming now to the feature of the invention to which the present application is more particularly directed which relates to the provision of an adjustable support for the signal by means of which it may be mounted upon the top of the usual tubular pole, or on a suitable bracket, and turned or tilted in any desired direction. Referring to Fig. 1, this support or adapter 30 comprises a tubular portion tapered at the upper end and on the inside so as to receive poles or other round supports varying in diameter, the ends of these poles seating tightly against this tapered surface. A plurality of adjusting screws 31, two being shown, are threaded in the tubular portion of the support 30 and are provided with the usual lock nuts. When these screws 31 are loosened, the whole support 30 may be turned around the pole, and by adjusting these screws, the support may be tilted at any desired angle in any vertical plane. When these screws are tightened, the support 30 is rigidly fastened to the pole.

The upper end of the support 30 is formed with a shelf or table in the middle of which is a raised rounded boss 32, having a hole therein through which wires may pass. This table of the support 30 is provided with four holes to receive bolts 8 for securing the casing C thereto. This boss 32 is shaped to fit in the socket formed by the beveled opening 6 in the casing C, and provides in effect a ball and socket connection; and by tightening and loosening the bolts 8, the casing C may be tilted with respect to the support 30, thus providing a fine adjustment. Thus, there is provided a coarse and a fine adjustment for setting the signal at any desired angle to throw the beam along the track for short or long range, up or down grade, and the like. Any signal casing C, either end up, may be attached to the support 30; and by reversing the light projecting unit, including the lens barrel 9, bezel ring 12, lamp receptacle and the hood 15, the same parts may be used to make up a signal in which the doors swing either right or left handed.

Although a large number of signal assemblages may be made up out of the inter changeable elements described and with any desired number of signal units, the specific arrangement shown in Fig. 1 illustrates a two position signal mounted on a bracket. In this specific assembly, a bracket 33 is clamped to the signal pole or other round support, and the whole signal is carried by this bracket. The bracket 33, in the particular form shown, comprises a tapered arm of I beam construction having an integral upstanding tubular extension 35 at one end, and a V-shaped saddle 39 at 12.
the other end. The saddle 33 is clamped to the pole by two U-bolts 34 which pass through perforated lugs integral with the bracket. The V-shaped saddle 33 permits the bracket to be clamped securely to poles of different diameters; and it is obvious that this clamping arrangement permits the bracket, and the signals carried thereby, to be set at any desired height on the pole or swung horizontally to any desired angle. The tubular extension 33° of the bracket is adapted to receive the support 30.

Two of the light projecting units hereinbefore described are bolted together, one above the other, to form a two position signal. The wires are carried through a flexible conduit 35 from the pole, through the tubular extension 33°, through holes in the boss 39 of the support 30, and beveled hole 6 into the lower signal casing, and thence to the upper signal casings through the hole 6 in their adjacent walls, bushings 36 of wood or similar insulating material being preferably inserted in these holes, as shown. The top of the uppermost signal casing C is finished with a simple cover plate 33.

Various other combinations of signals, capable of giving any desired number or arrangements of indications, can be made up out of the unitary signal embodying this invention. Two, three, or more of these signal units may be fastened together one above the other, and the whole signal may be mounted upon the upper end of a pole, or upon a bracket, or on a suitable flat supporting member, or on top of another signal, adjustment for every direction being provided. Two groups of signals, if desired, may be placed back to back and supported on two brackets 33 clamped to the same pole; or a signal made up of any desired number of units may be suspended from a bridge by bolting the top directly to the bridge, or by using the adapter 30 and a short piece of pipe, and so on. In short, by providing interchangeable parts, and by employing a unitary construction, a large variety of signals may be assembled out of a relatively small number of parts, so that little stock is required to meet demands for repairs or installations. Also, signals already installed may be added to, or otherwise modified as changing conditions may require.

It should also be noted that the bracket 33 constitutes a support whereby the distance between pole and the signal transverse to the trackway can be conveniently changed.

The particular construction of light signal supporting structure shown and described is susceptible of considerable modification and adaptation in practice, and I desire to have it understood that my invention is not limited to the specific embodiments herein disclosed except as indicated by the claims.

What I claim is:

1. An adjustable mounting for light signal casings, comprising, a socket member having an upwardly tapering conical internal surface, a substantially cylindrical perforated support of smaller diameter than the largest internal diameter of said socket member universally adjustable therein, bolts threaded into the walls of said socket member for clamping said member to said support, a central perforated ball member on the upper surface of said socket member, a signal casing having a matching perforated socket member, and adjusting and fixing means for, and spaced from, said ball and socket members.

2. A light signal for railway signalling purposes, comprising, a casing having a perforated opening in its bottom wall, a supporting member for said casing having a substantially flat upper surface, a central ball member on said upper surface of said member receivable into said perforated openings in said casing and having an opening therein, and bolts for adjustable securing said casing to said supporting member and passing through said flat upper surface of said supporting member at points remote from said opening therein.

3. A mounting for light signals, comprising, a hollow cylindrical post, a support, an upwardly tapering conical socket in the lower face of said support for universally adjustably receiving the said post, means for fixing the support to the post in adjusted position, a base member on the upper face of said support, a matching socket member on a light casing, matching perforations in the ball and socket members, adjusting and clamping means connected between said casing and support and positioned and spaced from said ball and socket members.

In testimony whereof I affix my signature.

SALISBURY M. DAY.