

# UNITED STATES PATENT OFFICE.

CHARLES HERSCHEL KOYL, OF EASTON, PENNSYLVANIA.

## REFLECTOR OR MIRROR.

SPECIFICATION forming part of Letters Patent No. 418,136, dated December 24, 1889.

Application filed October 17, 1889. Serial No. 327,390. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES HERSCHEL KOYL, a citizen of the United States, residing at Easton, in the county of Northampton and State of Pennsylvania, have invented certain new and useful Improvements in Reflectors or Mirrors; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention is directed to a new article of manufacture to be used as a substitute for the ordinary material—such as glass with a silvered back, &c.—which heretofore have been used for looking-glasses, mirrors, and the like.

This new article of manufacture consists of transparent celluloid in sheet form silvered on the back like the ordinary looking-glass or mirror. By “silvered,” I of course intend any of the usual known ways of coating or depositing a reflecting-film, whether of silver or other substance, upon the back of a transparent sheet, as now practiced in making looking-glasses, &c. The material “celluloid” is well known by that name and also as “zylonite.” An equivalent of this substance for my purposes is what is termed “tamodine” or “amorphous cellulose,” described in Letters Patent No. 264,987, which substance is one similar in a general way to celluloid, but less inflammable than the latter.

Celluloid can be prepared and rolled or otherwise formed so as to be a sheet but little less transparent than glass. When silvered on the back, it serves well as a reflector for any purpose. Being a tough material it will not break easily, as does glass, and when thin it is very pliable and can be bent into a variety of shapes. I thus obtain a tough, flexible, and pliable reflector or looking-glass, which can be made to assume almost any

shape. This new article was devised by me with a view to using it instead of a glass reflector in the parabolic semaphore patented by me June 5, 1888, No. 384,170, and it is for such use that I more particularly intend it. The smooth thin transparent sheet can have the double corrugated or wave surfaces of my patent, No. 410,598, imparted to it by passing it (before silvering it) between properly engraved or corrugated rolls. Unlike the glass reflector it does not require to be preliminarily cast or molded into the paraboloidal shape; but in the form of a thin pliable or flexible sheet with a silvered back it can be applied and secured to a semaphore arm or frame made with a backing of the proper form. The thin silvered celluloid sheet, when applied to this backing, can be fitted and made to conform to the shape of the latter with great ease. It furnishes an adequate reflecting-surface, and will not break by the shock to which it is subjected when the semaphore-arm is suddenly dropped, as is frequently the case.

It will be understood that my new article can be made use of in any connection where a reflecting-surface is required.

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

As a new article of manufacture, transparent celluloid in sheet form having a silvered back, as hereinbefore set forth.

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

C. HERSCHEL KOYL.

Witnesses:

EWELL A. DICK,  
M. BAILEY.