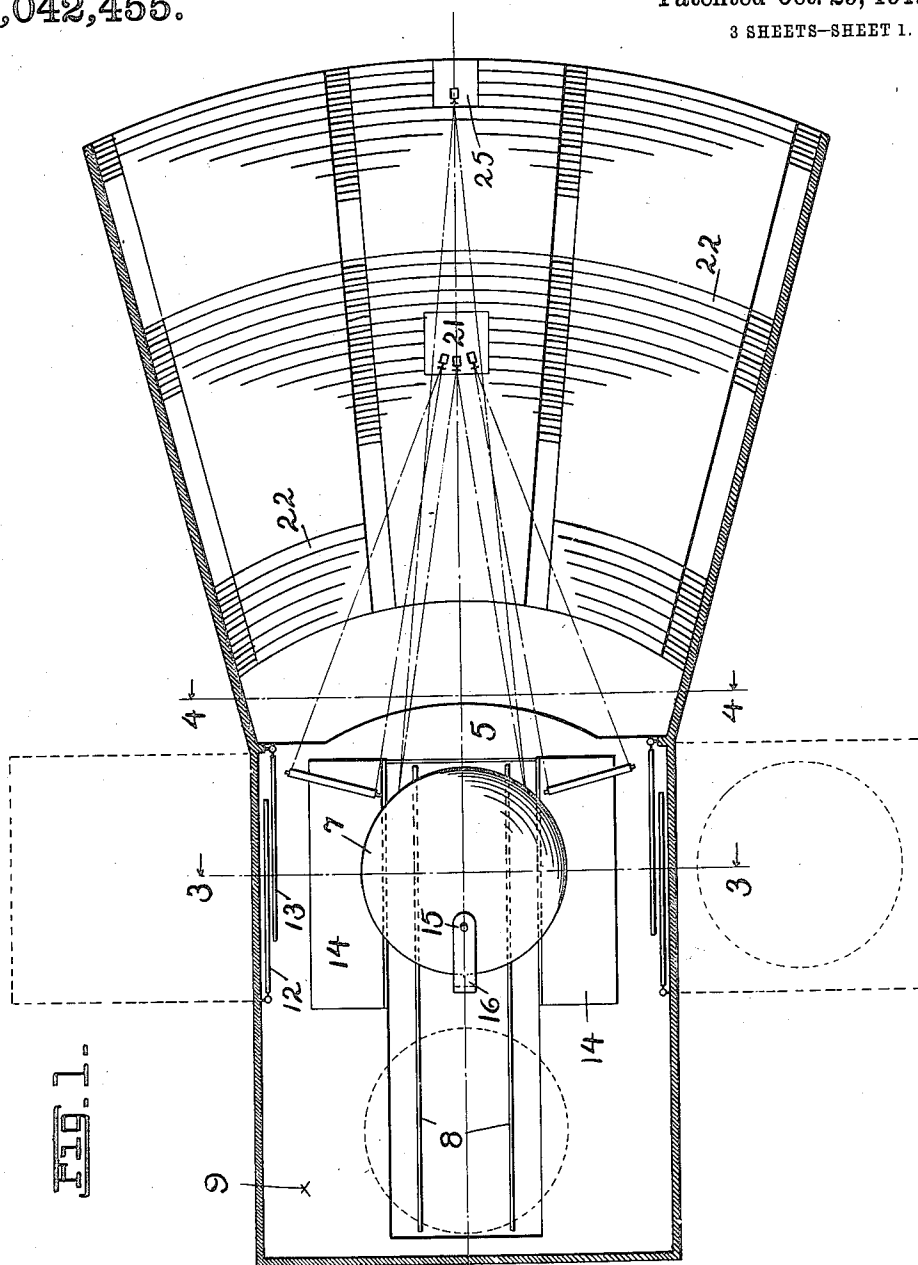


1,042,455.

3 SHEETS—SHEET 1.



H. G. Frost.
J. A. Wiersema.

MARSDEN MANSON.
By Miller & White
his ATTORNEYS

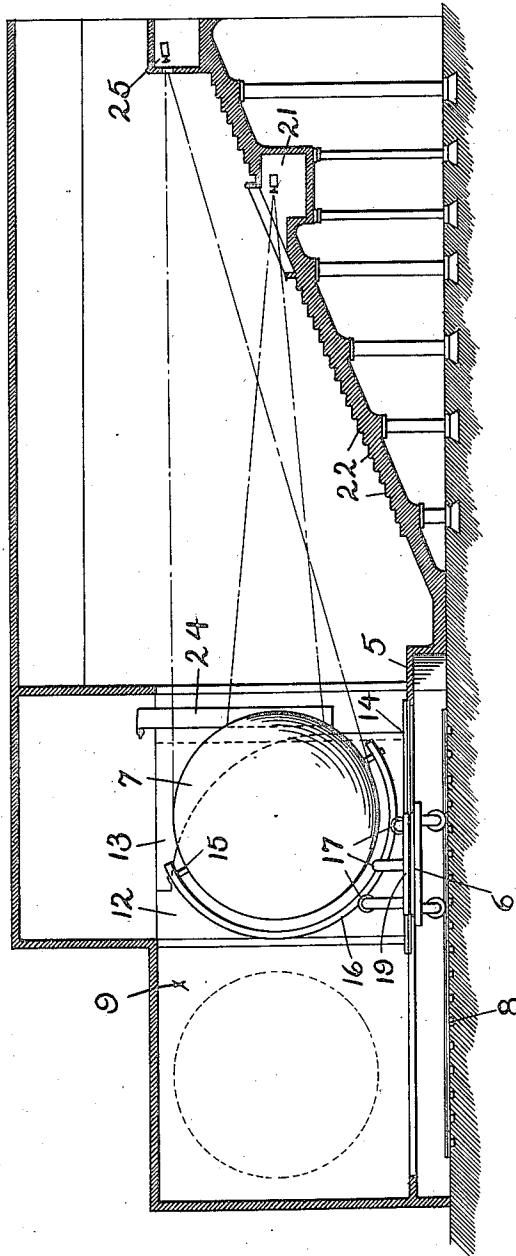
M. MANSON.
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Patented Oct. 29, 1912.

8 SHEETS—SHEET 2.

FIG. 2.



WITNESSES

H. J. Post
A. A. Hierssen.

INVENTOR

MARSDEN MANSON
By Miller & White
his ATTORNEYS.

M. MANSON.
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3 SHEETS—SHEET 3.

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FIG. 4.

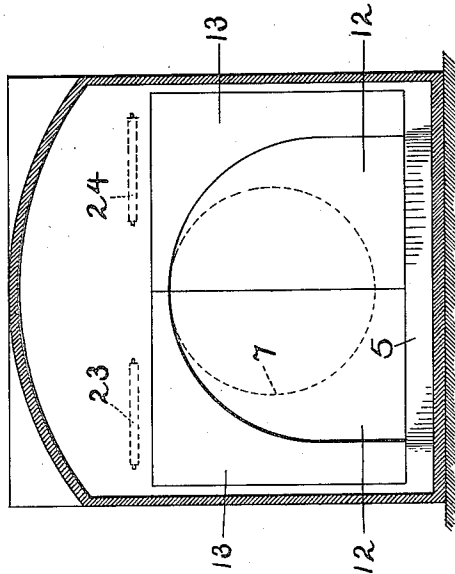
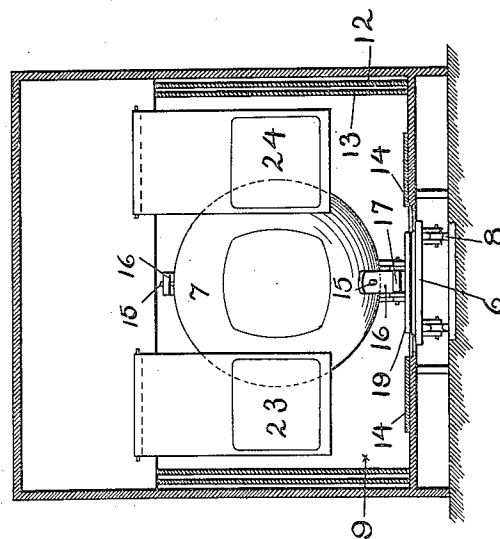


FIG. 3.



WITNESSES

H. G. Post.
R. P. Hierssen

INVENTOR

MARSDEN MANSON.
By *Miller & White*
his ATTORNEYS.

UNITED STATES PATENT OFFICE.

MARSDEN MANSON, OF SAN FRANCISCO, CALIFORNIA.

METHOD OF TEACHING GEOGRAPHY.

1,042,455.

Specification of Letters Patent.

Patented Oct. 29, 1912.

Application filed January 5, 1912. Serial No. 669,673.

To all whom it may concern:

Be it known that I, MARSDEN MANSON, a citizen of the United States, and a resident of the city and county of San Francisco and State of California, have invented certain new and useful Improvements in the Method of Teaching Geography, of which the following is a specification.

The invention relates to an improved method of and appliances for the teaching of geography in all its branches, natural history and all kindred subjects relating to the earth, its inhabitants and its various conditions.

The object of the invention is to provide an improved method of instructing persons in the various sciences relating directly or indirectly to the earth.

A further object of the invention is to provide means and appliances for carrying out such improved method.

In the drawings I have shown the preferred form of apparatus and appliances for carrying out my method, but it is to be understood that various changes and modifications can be made therein and in the method without departing from the spirit of my invention.

Referring to the drawings:—Figure 1 is a plan view of an auditorium constructed for and supplied with the appliances for carrying out the improved method of my invention. Fig. 2 is a vertical section through the auditorium showing the arrangement of the various appliances. Fig. 3 is a cross section through the stage of the auditorium taken on the line 3—3 Fig. 1. Fig. 4 is a cross section through the auditorium taken on the line 4—4 Fig. 1 showing the stage when the globe has been removed from view.

Arranged upon the stage 5 of the auditorium is a carriage 6 supporting a globe 7. The carriage is mounted upon a track 8 arranged preferably below the level of the stage, so that it will not be elevated to an extreme height above the spectators in the auditorium. The carriage is movable on the track 8 so that the globe 7 may be moved backward into the compartment 9 when it is not to be used, and hidden from view by the doors 12 closing the front of the compartment. When the size of the building site is such that it is not possible to move the globe backward it may be moved sideways into a compartment formed to one side of the stage,

or when this is not possible the carriage may remain stationary, although this latter method is not the preferable one. When the globe is in this position the arches 13 may be swung to the front of the stage to form the proscenium arch and the trap-doors 14 on the stage floor, which are opened to allow the carriage to pass, may be closed to form a continuous stage floor which may be used for other purposes.

The globe 7 is mounted upon an axis 15 which is revoluble in the semicircular frame piece 16, which is concentric with the globe. This frame piece is movable over the rollers 17 supported by the standards 18 rising from the base 19, so that the axis of the globe may be moved to any desired angle. The base 19 is rotatably mounted on the carriage 6, so that it may be revolved about a vertical pivot with respect thereto. The mounting of the globe is such therefore, that it may be placed in any desired position to present a certain portion thereof to the audience, and it may be revolved and moved under the same conditions that effect the earth. The globe is preferably made one-millionth the size of the earth or approximately forty-two feet in diameter and is provided on its surface with a relief map of the earth's surface. This map or representation of the earth shows only natural geography and not political geography. The cities are located upon the surface, but no printing or legends of any kind are delineated on the globe. In fact, the globe is intended to be an exact duplication of the earth on a small scale and appears exactly as the earth would appear if viewed from a great distance.

Arranged in the auditorium substantially on a level with the center of the globe and preferably in a room or compartment 21 below the seats 22 is a projecting camera or stereopticon for projecting legends and delineations upon the surface of the globe. The slides for the stereopticon are prepared from negatives taken by a camera arranged in the position which is to be occupied by the stereopticon when the slide is to be projected. By preparing the slide from a negative of the globe taken from the position occupied by the stereopticon it is evident that when projected the features on the slide will coincide exactly with the features on the globe. These slides, as prepared directly from the negatives show only natural

geography, but by printing and coloring the slides any points or features in political geography, natural history, statistics or similar subjects may be illustrated. In this manner the one globe may be used to illustrate the political divisions of the earth from the beginning of history to the present time and simultaneously cause the student to gain a greater insight and a better knowledge of the subject than would be possible with the use of a globe divided into political units or by the use of a multitude of flat maps. As an example, I will presume that it is desirable to instruct the student in the growth of the United States. The globe would be turned and tilted to present that section of the surface now occupied by the United States, to the camera, and a photograph of that portion of the surface would be taken. From this photograph, a plurality of slides will be made, the number depending upon the number of steps or periods desired to be illustrated. The various developments in political growth are then depicted successively on the slides, by means of colors, legends, boundary lines, etc., so that when the prepared slides are in turn projected upon the surface of the globe a series of maps are presented which illustrate the development and expansion of the country as a political unit.

Arranged on each side of the globe are drop curtains or screens 23—24 upon which are projected features and data relating to the features being depicted upon the globe. Within the compartment 21 I also arrange the projecting cameras which produce the legends or illustrations upon these screens and I prefer to have one of such cameras, a projecting machine for motion pictures. Upon one of these screens it is my intention to project data and statistics relating to the subject under discussion and upon the other, scenes illustrating various phases of the subject, either in motion or in still life. Presuming that instruction is being given relative to the cotton crop of the southern States, a photograph of that portion of the globe representing these States will be taken and slides made therefrom for use in the projecting stereopticon. These slides will, for instance, be treated to show the distribution of the crop for various years by means of colors and boundary lines and names of States and other information. Upon the

screen 23 may be projected data or statistics relating to the subject matter being shown on the globe and upon the screen 24 may be shown motion pictures of various scenes in the cotton industry. This method will present a comprehensive description and illustration of the subject to the student which will undoubtedly cause him to assimilate and retain much of the information in such form that it will be of value to him. The number of subjects which may be taught in this manner are almost unlimited so that great advantages must necessarily accrue therefrom.

Arranged substantially central in the auditorium and preferably in the rear thereof I propose to place a projecting camera which I propose to use principally to illustrate the seasonal and climatic changes on the earth, but which may be used for other purposes when desired. By placing the axis of the globe substantially normal to the projecting axis of the camera 25, a series of colored bands representing the zones may be projected upon the forward portion of the globe, and by revolving the globe on its axis, the various parts of the earth falling within these zones become readily apparent. By varying the position of the axis of the globe with relation to the axis of the camera the position of these zones may be shifted to illustrate the seasonal changes due to the position of the earth in its orbit around the sun. Many other features of physical geography may be illustrated by this means, which greatly aids in the understanding of these natural phenomena.

I claim:

A method of teaching geography, consisting in photographing a portion of the exterior of a globe fashioned to represent the earth, preparing slides from the photograph and depicting thereon subject matter to be illustrated, and exposing the slides to the action of a projecting apparatus so as to project the image of the matter depicted upon said slides upon the portion of the globe from which the slides were prepared.

In testimony whereof I have hereunto set my hand at San Francisco, Cal., this 27th day of December, 1911.

MARSDEN MANSON.

In presence of—

H. G. PROST,

R. HEFFERNAN.