THE TACHOCYCLE.

For a full-grown man or woman to roll a hoop would seem very puerile, and yet a glance at the accompanying reproductions of photographs taken at Dieppe last summer might make a person think that the sport therein represented, which is now much in favor, and which, although less primitive than hoop rolling, is just as useful for restoring one's impaired health, was carrying him back to the days of his childhood. It is a question of an apparatus designed, through the pull that it exerts in moving forward, to increase the speed of a person walking or running a foot race. It consists essentially of two wheels of any sort of material utilizable for the purpose, and to which any desired dimensions may be given. These wheels revolve freely around an axle that serves as a support, and upon which a person bears through the intermedium of handles. In the apparatus shown in Fig. 3, the axle is straight and is provided with two handles, but in Fig. 4 it is cranked so as to permit of the foot resting upon it. The wheels, too, might be made fast to the axle and the handles be rendered loose upon the latter. The inventor even proposes to add small intermediate wheels, if need be, to give more stability to the entire system. As may be seen, the mechanism is not very complicated. In this respect, the apparatus seems to have a great advantage over ordinary cycling machines, which are so quick to deteriorate; and, although the speed at which it carries a person along is not so great as that of such machines, it nevertheless seems as if its utility were greater, from a hygienic standpoint, since walking or foot racing will always remain the kind of locomotion best adapted to our physical nature, without speaking of the accidents that are less to be feared with this apparatus, which one can let go of at any moment, if occasion requires it. Figs. 1 and 2 are some models of the apparatus put in service last summer at Dieppe, where the bathers gave them a most favorable reception.

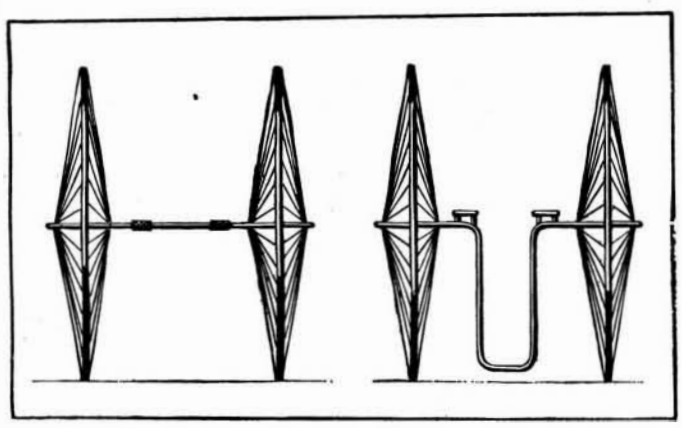


Fig. 3.—Tachocycle with a Straight Axle.

Fig. 4.—The same with a Cranked Axle to serve as a Foot Rest.

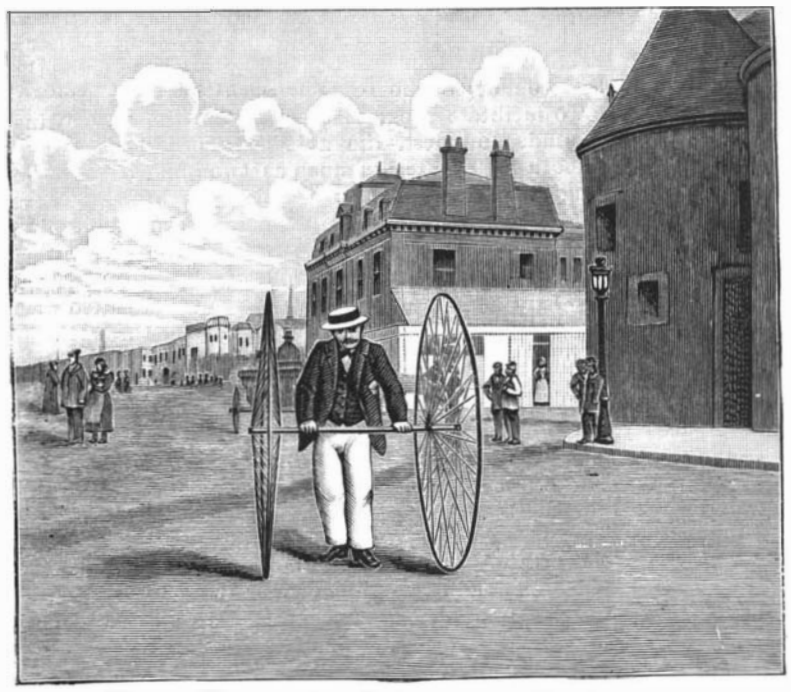


Fig. 1. THE TACHOCYCLE ON THE BEACH AT DIEPPE.

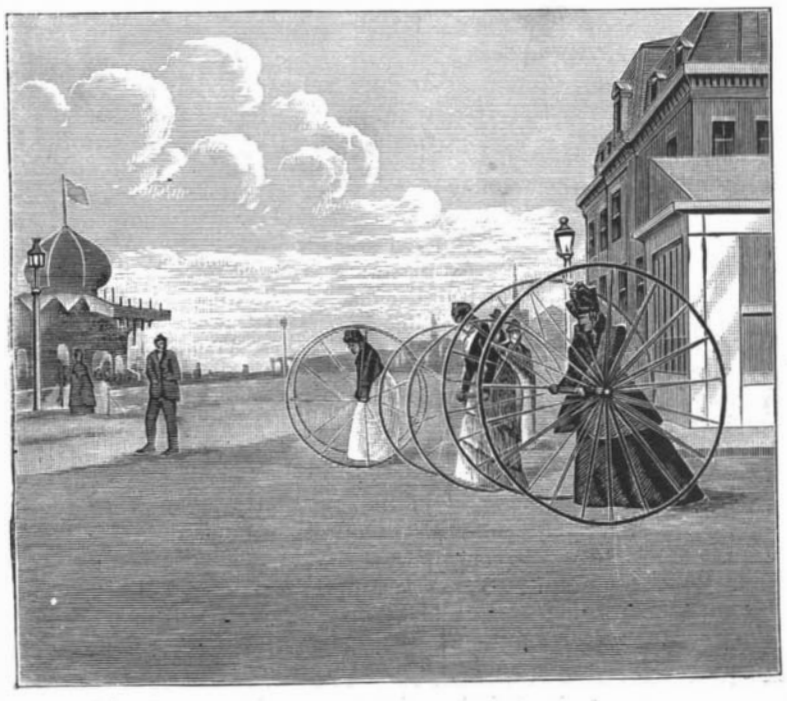


Fig. 2.—THE TACHOCYCLE ON THE BEACH AT DIEPPE.

HINTS ON COLORING LANTERN SLIDES.

BY GEO. M. HOPKINS.

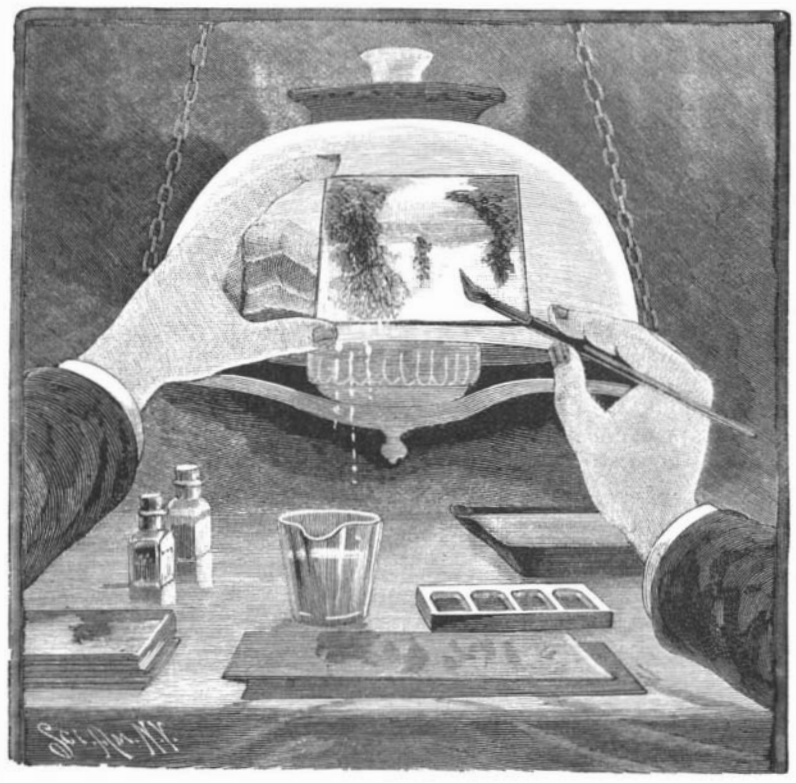
It frequently happens that one who is practiced in the art of coloring lantern slides desires to color a rare or valuable slide when the remotest chance of injury to the slide cannot be taken. In such cases the color must be applied either to the back or outer surface of the plate or to a plate that will answer the purpose of a cover glass. The latter method is certainly to be preferred, as it involves no risk whatever, and at the same time affords an opportunity of trying different color effects on the same picture; such, for example, as spring, summer and autumn tints in landscapes, and different combinations of color in architectural views, interiors or figures.

The plate used for receiving the color is an old unused gelatin lantern slide plate, from the film of which the silver has been removed by hypo; or a gelatin plate from which a discarded view has been removed from the film by means of a reducing solution; the plate in either case being washed long enough to remove all hypo.

The film on the unused plate will need toughening by soaking it for two or three minutes in a solution of alum of the strength commonly used for preventing frilling, the plate being afterward thoroughly washed. This plate takes color better than one which has been subjected to the reducing process. A plate may also be prepared by flowing a solution of gelatin over a clean cover glass, allowing it to dry, and then treating it to an alum bath and subsequent washing.

The slide to be colored, which is, of course, unmounted, is placed with its glass side against the glass side of the transparent film-bearing plate, which is dry, and the transparent film is wet all over by means of a very soft brush carrying clean water. Some caution is required to prevent the film side of the slide from becoming wet. A small quantity of water absorbed between the contacting glass surfaces is an advantage, as it binds the plates together and prevents them from moving easily one on the other.

The coloring is done upon the transparent film, following the outlines and every feature of the picture as closely as possible. It will, of course, be impossible to follow every leaf and blade of grass, or every twig and flower, with perfect accuracy, on account of two thicknesses of glass intervening between the color film and the picture film, yet the results secured by this method are astonishing. The writer has colored slides in this way which were not distinguishable, even by experts, from slides colored on the picture-bearing film. The following description of a method of coloring prints on gelatin-coated lantern slide plates is taken from the writer's article in the SCIENTIFIC AMERICAN of March 11, 1893, it being applicable in the present case:



LANTERN SLIDE COLORING.

The first operation in coloring is to go over the entire surface of the film while it is wet with a thin wash of warm color, which may be either yellow or pink, depending upon the subject. This kills the chalky whiteness of the high lights, and gives the entire picture a warm and desirable tone, even though the wash is not sufficiently strong to be detected when the picture is thrown upon the screen.

The colors used for this purpose are transparent aniline colors prepared for coloring photographs. They are labeled brown, blue, violet, flesh, orange, green, and so on. The ordinary aniline dyes may be used instead of the prepared colors, as they are practically the same. The manipulation of the colors is the same as in water color painting. The film is kept wet continually from the beginning to the end of the operation, but after the broad washes of the first warm tint and the final sky color, the water lying on the surface of the film is allowed to dry off, leaving the film still swelled and wet, but without the surface water.

The prepared colors can rarely be applied to the slide without being reduced with water. Sometimes the best effects are produced by mixing different colors before applying them, while in other cases the effects are secured by separate washes of different colors, superposed. Each wash of color sinks into the film and is not removed by a subsequent wash.

Although an easel or support something like a retouching frame may be useful, the writer prefers to hold the slide in the hand, as shown in the engraving. The wet plate is held in a slightly inclined position in front of a lamp provided with a plain opal or ground glass shade. The writer prefers artificial light for coloring, as the pictures are to be shown generally by artificial light, which is yellow. If the pictures are designed for projection by sunlight, it is undoubtedly better to color them in daylight.

The first wash is preferably put on while the slide is held in an inverted position, and while it is still flowing the blue is added for the sky, at first very light near the horizon, increasing in intensity toward the top of the slide. After this wash is set and superfluous water has evaporated, the water accumulating along the lower edge of the plate is removed with the fingers, and the slide is turned right side up, when the extreme distance, whether it be mountain or foliage, is covered with a light wash of blue, and this wash is brought well down toward the foreground. If the blue appears cold, it can be toned down by a very light wash of yellow or red. Trees in the middle distance can now be gone over with a light wash of orange or orange with a little of the flesh color or pink added. When near the foreground a very light wash of green is applied to the foliage, but the raw green of the color set cannot be used for this; it must be modified by the addition of orange or of brown. If when applied the green appears too cold, it may be toned down by a light wash of brown, of orange or flesh color. It is desirable to produce variety in the foliage.

Rocks in the distance are washed with blue and the color is subsequently modified by washes of red or brown. Trunks of distant trees and some rocks may be left nearly the original color of the photo., but near rocks and tree trunks may be tinted with brown, blue,

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