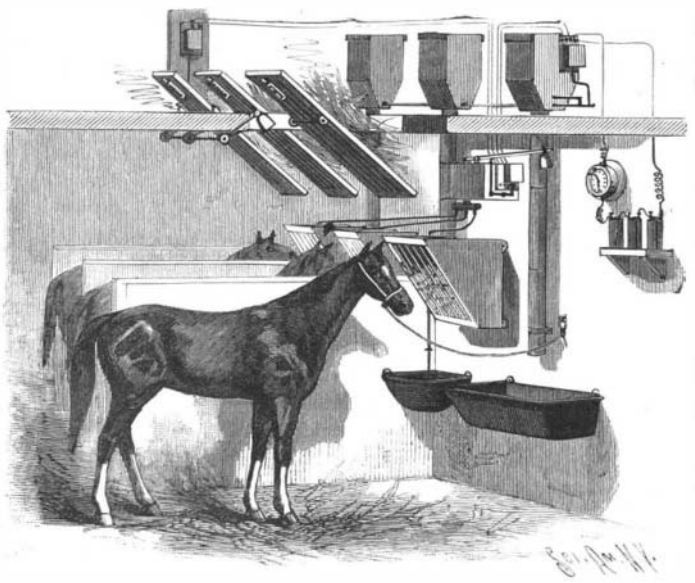
FEEDING AND WATERING LIVE STOCK.

The illustration represents some novel electrically operated devices, adapted to work automatically with a time mechanism, for feeding and watering live stock, or a manually operated circuit closer may be utilized in connection with the improvement if desired. A patent has been granted for this invention to Mr. Arthur C. Winch, of Saxonville, Mass. For feeding hay a pivoted rack is employed, journaled at a convenient point above the manger, the rack being tilted to discharge its load by the release of a catch on a weighted oscillating shaft which has a crank extending into the



WINCH'S ELECTRICALLY OPERATED MECHANISM FOR FEEDING AND WATERING LIVE STOCK.

path of a releasing and locking bar held in a case operated by the electric mechanism, a number of racks being preferably arranged in series and operated by one locking box and bar. The grain is fed to the manger in a similar way from compartments each adapted to contain grain enough for one animal, any number of such compartments being provided. Leading from the bottom of each compartment is a discharge pipe, the slide covering the opening to which is connected with a shaft actuated by a bar from a locking and releasing box. The water is also similarly supplied from a tank arranged at a suitable elevation, the valve being controlled by a lever actuated by the locking and releasing mechanism. Each locking and releasing box has a similar mechanism, and each locking box has an automatic switch adapted to shunt or switch the current from one locking box to the next, so that the hay, grain, and water supplying mechanisms may be operated in succession. Any form of circuit-closing clock may be used in connection with the apparatus.

THE LONDON GIGANTIC WHEEL.

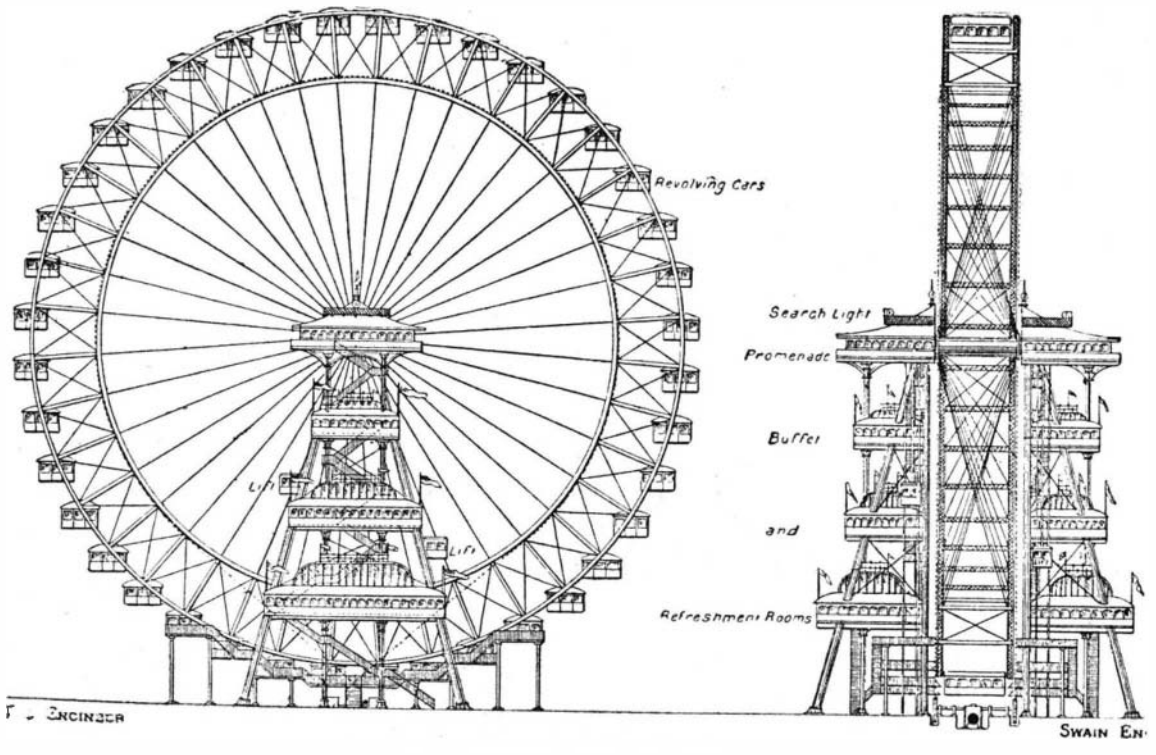
A company has been formed in London under the name of "The Gigantic Wheel and Recreation Towers Co., Limited," to construct and work a wheel somewhat similar to the celebrated Ferris wheel. It is to be erected at Earl's Court Exhibition, and the first length of one of the legs for the towers was recently placed in position. The *Engineer* says: The general design of the whole structure is by Lieutenant J. W. Graydon, and the contract has been taken by Mr. W. B. Basset, managing director of Messrs. Maudslay, Sons & Field, who is represented on the works by Mr. Efford. The wheel will be on the site occupied by the lighthouse last year, and the constructors hope to have it in working order by the end of June. It is to be 300 feet diameter, while the diameter of the Ferris wheel was 250 feet, and it will have accommodation for 1,600 people, instead of 1,368.

But it is not only in size that the Gigantic differs from the Ferris. The structures which carry the axle bearings are very different in appearance. The English wheel will be carried on two towers, 175 feet high, having on their tops, and at intermediate stages, saloons, surrounded on three sides by balconies. Communication with the tops of these towers will be by lifts as well as by staircases, and they will be connected by a passage running through the axle of the wheel. This is to be 7 feet diameter, and will be built up of mild steel bars and plates; while in the Ferris wheel the axle is a solid steel forging, 32 inches diameter and 30 inches at bearings.

Another great point of dissimilarity is in the manner of driving. On the Chicago wheel there was a circular cast iron spur rack, with teeth 24 inches pitch, actuated by a chain, which was driven from a steam engine. The new wheel is to be driven by a steel wire hawser 1⅞ inches diameter. There will be two of these, one on each side, passing round grooves on the sides of the wheel, at 195 feet diameter, but it is only intended to use one at a time. The motive power will be taken from two 50 horse power dynamos, and of these also it is calculated that one will be sufficient, and the other merely in reserve. The electric force for these dynamos will be supplied by Messrs. G. C. Fricker & Co., who, as in former years, have the contract for lighting the buildings and grounds; and the directors propose to introduce some novel effects in the way of lighting up the wheel by electricity.

The towers are being made and erected by the Arrol's Bridge and Roof Company, of Glasgow. Each tower stands on four concrete blocks, 15 feet deep, 15 feet square at top, and 18 feet by 19 feet at the bottom. The ground excavated is of firm, compact sand, mixed with shingle. Each leg will be held to its concrete base by eight steel bolts 2¼ inches diameter and 12 feet long. The shear legs, with which Messrs. Arrol have commenced to erect the towers, are themselves an interesting example of light girder work. Each leg is 94 feet long, 24 inches square in the middle, and tapering to 16 inches square at each end. They are formed of four 3½ inches by 3½ inches by ½ inch angles, joined by 2½ inches by ⅜ inch bars, stiffened by ⅜ inch plates at intervals. They stand 24 feet apart at the foot and 5 feet at the head, where they are joined by a cross piece. The first length of the tower leg which has just been erected is 5 feet 2 inches by 4 feet by 46 feet. It forms a box girder, with 6 inches by 6 inches by ½ inch angles and ½ inch plates, with a 5 inches by 2½ inches by ⅜ inch T stiffener on each side, and cross plates every four feet.

The axle is being made at Messrs. Maudslay's works in Lambeth, and the order for the carriages has been given to Messrs. Brown, Marshall & Co., of Birmingham. Of these there are to be forty, each 25 feet long, 15 feet wide, and 10 feet high, accommodating forty passengers. There will be eight stages from which they can be entered, so that the wheel will stop five times during each revolution, which will take about twenty minutes.



THE LONDON GIGANTIC WHEEL.

ANAGLYPHS.

The word anaglyph (from Greek ἀνά, "up," and γλύφειν, "to carve," that is, to carve in relief) is somewhat too pretentious, perhaps, for what it represents. It concerns, in fact, neither a cameo nor a bass-relief, but a stereoscopic photograph or stereogram of a peculiar kind.

Stereoscopy, that interesting and unfortunately so forsaken branch of photography, reserves for us in anaglyphs (for it is necessary to call these new prints by their name) an application which is both interesting and curious, and for which we are indebted to Mr. Ducos du Hauron.

It has been known for a long time that the sensation of relief and of aerial perspective is due to binocular vision. Each one of our eyes, in fixing an object, does not see it at the same angle, and consequently not in

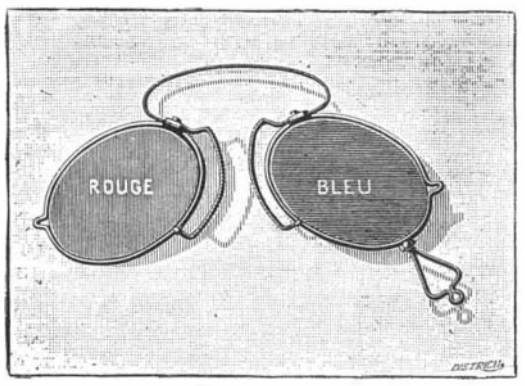


Fig. 1.—EYEGLASSES FOR EXPERIMENTING WITH ANAGLYPHS.

an identical manner, and it is from the sensorial superposition of the two images thus obtained that springs the notion of depth.

The general problem of stereoscopy consists, then, in showing to each eye the image of an object such as it would see it, and from the cerebral or subjective superposition of these two images will arise the impression of the real relief of the thing represented. But here supervenes a little difficulty. If we present

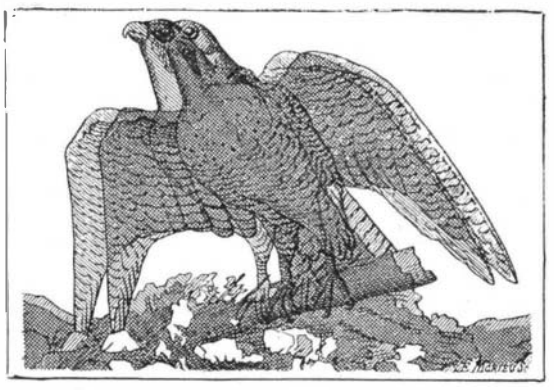


Fig. 2.—SPECIMEN OF AN ANAGLYPH FIGURE—SUPERPOSED RED AND BLUE COLORS REPLACED BY TINTS.

two slightly dissimilar images to our eyes (let us admit that it is a question of two photographs taken from two points distant from the space between the eyes), each eye will not see solely the image corresponding to that which it would receive of the reality, but rather the two at once, on account of the extent of the visual field.

Moreover, if the left eye desires to fix the center of the left image, the right eye will immediately converge toward the same point instead of directing itself toward the center of the right image. If we suppose, as is necessary, that the distance from the centers of the two photographs is equal to that of the separation of the eyes, it would be necessary, in order that each might regard corresponding points in each of the images, that the view should be directed at a point situated in infinity, for, in this case, the optical axes are parallel. Now, the eye contains an optical apparatus, the crystalline lens, which does not admit of a fixed focusing for all positions, but which, on the contrary, possesses the wonderful property (called accommodation) of furnishing an instantaneous and automatic focusing for any distance whatever, and such distance it calculates in a mathematical, trigonometric manner. It is precisely the convergence of the eyes that furnishes it to it.

Vision, consequently, is caught between two equally defective alternatives; either each eye is directed toward the center of each of the images, and then what we see is flat, because, the optical axes being parallel, distinctness exists only in very remote objects; or else we observe distinctness, but then the two eyes are directed upon a single one of the two photographs.

In order to obtain at once a clear vision of a single image by each eye, we are, therefore, obliged to employ an artifice. The ordinary apparatus known as the Brewster or refraction stereoscope permits us to solve this problem. In fact, upon interposing between the eyes and the photograph two prisms whose edges are turned toward each other, we shall succeed, upon pro-