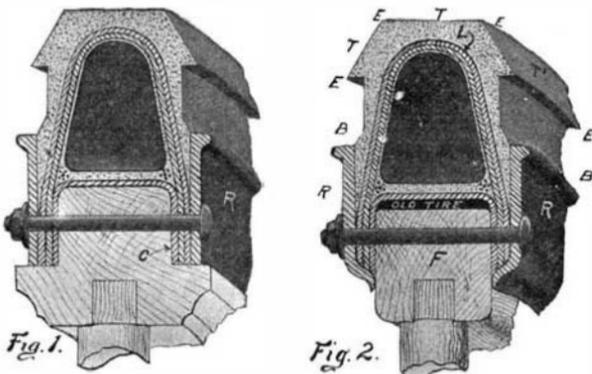


hinged together. In use the bars are passed over the ridge of the roof, with the sections resting against opposite sides, as shown by Fig. II. in the accompanying engraving. The sections, it will be noticed, are provided with under-cut or T-shaped notches, which are adapted for engaging links or loops used in supporting brackets. The upper or horizontal member of each bracket consists of a bar with perforations in its under side, and the vertical member of the bracket carries a pin at its upper end, which is adapted to engage one or other of these perforations, according to the pitch of the roof. The method of linking the bracket bars to the notched bars is clearly illustrated in Fig. III. When the brackets are in position, a scaffolding plank is supported on them. In some instances it may be necessary to use the bars at their full length on one side of a roof; that is, to reach from the peak of the roof to the gutter. In such a case hooks are used, which are connected to the bar by a loop, and these hooks are adapted to engage the peak of the roof, as indicated in Fig. I. As the notches in the bars are of T-form, it is obvious that the bars may be used either end up. Mr. John Emberson, 43 North Lexington Avenue, White Plains, N. Y., is the inventor of this improved scaffolding.

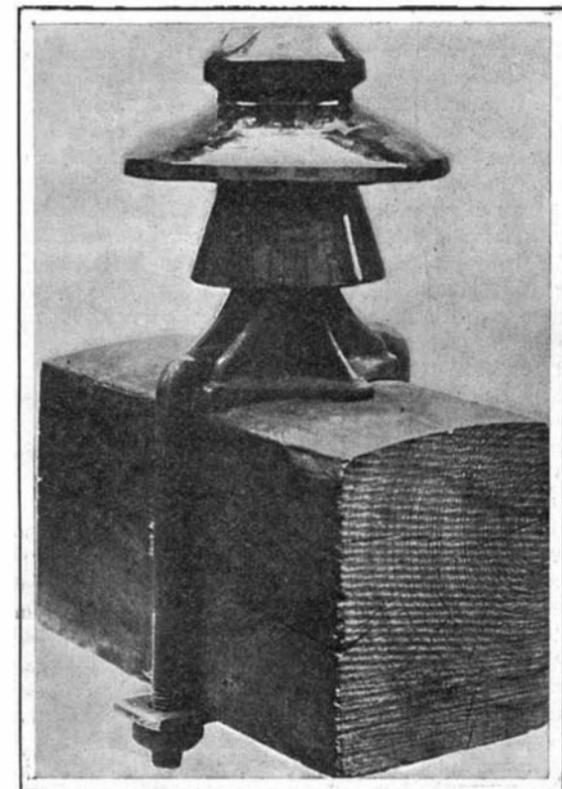
AN IMPROVED NON-SKIDDING TIRE.

Motorists all know that the greater percentage of automobile accidents are due to side slipping or



AN IMPROVED NON-SKIDDING TIRE.

skidding. It is to eliminate as far as possible this dangerous feature that the tire herewith illustrated is designed. The tire depends for its action on the fact that a square-edged piece of rubber cannot be made to slip on a smooth or wet surface. Fig. 2 shows a tire as fitted to an ordinary wagon wheel, it being necessary only to bore a few holes through the felloe for the bolts which serve to hold the rings. The illustration shows the original iron tire still in place, which allows of using the vehicle with or without rubber tires as desired. This type of tire is particularly adaptable to ambulances, undertakers' wagons, and delivery vehicles. The surface *T* represents the normal tread surface. Upon rounding a curve the tendency would be to bring the secondary tread surface *T'* in contact with the roadbed. This interposes the edge *E*, which under ordinary conditions is calculated to prevent skidding. Should the speed be unusually great, or the curve very short, there is still a secondary edge *E'* to be called into play. The foundation layers of supporting fabric are designated by *L*. They serve to resist the force exerted at *E* when said edge is brought into commission. The rubber buttresses reinforce the walls and protect the tube from



A NEW INSULATOR PIN.

the rings. The tire is bolted to the felloe *F* by means of metal rings *R*. These rings also give support to the walls of the tire. In Fig. 1 the tire is shown as adapted to a specially-designed rim for automobile use. A metal cap *C* may be fitted over the felloe, so as to permit riding home on the rim without injury to the same in the event of serious accident to the tire. The positive mode of attaching the tires is an important feature of the invention. Owing to the unusually heavy construction about the air space, the tire is less liable to be punctured. The flat tread is an ideal one, because it presents a maximum friction surface for the roadbed. As a matter of fact, the so-called round tread is really flattened out as it bears the weight of the car, and this constant bending soon tells on the tire. The improved tire may be as easily repaired in case of puncture as other types; for the rings may be removed without jacking up the axle. Dr. John K. Broderick, of 805 North Main Street, St. Louis, Mo., is the inventor of this improved tire.

A NEW INSULATOR PIN.

In the description of the transmission line and third-rail system of the Long Island Railroad published in our issue of June 9, mention was made of a new type of iron insulator pin employed. This pin, which is a radical departure from previous practice in pin design, is the invention of Mr. W. N. Smith, of Westinghouse, Church, Kerr & Co., who has applied for a patent on the device. The new pin combines several important advantages, as follows: It does away with the necessity of boring holes in the crossarms, thereby conserving the whole strength of the arm and lengthening its life; the metal composing it is distributed in the most effective manner possible, as its cross section is greatest next to the arm where the greatest resistance to bending is required; and finally, the shrinkage of the arm can more effectively be taken care of by the U-bolt and strap than by any of the other forms of pin fastening in common use, as there is no tendency to distort the bolt, and consequently, there is no possibility of the pin standing crooked upon the arm after the shrinkage has been taken up. Furthermore, it is practically indestructible, and instead of being one of the weakest factors in line construction, this pin is expected to be the strongest.

More than 8,000 of the pins, as originally designed and shown in the accompanying illustration, were used in the transmission line construction of the Long Island Railroad, carrying 250,000 circular mil cables in spans averaging 150 feet in length, and no failures have yet been reported after over a year of service. A dozen or more standard sizes of the improved design are being worked up to fit several sizes of crossarms and pole tops, and to carry insulators of varying sizes up to the highest voltages in practical use. The pins will be made of either cast or malleable iron to suit different conditions, and will it is believed fill a long-felt want for a pin which combines at a reasonable cost the maximum of strength and durability both in itself and in the crossarm to which it is fastened. While it is designed particularly for use with wooden crossarms, it can readily be adapted to steel crossarms, and to such special fixtures as are often necessary in heavy transmission line construction. On account of its superior mechanical design, it will also without doubt find a place in heavy catenary trolley construction, which is now being actively developed for the electrification of railways by the single-phase system.

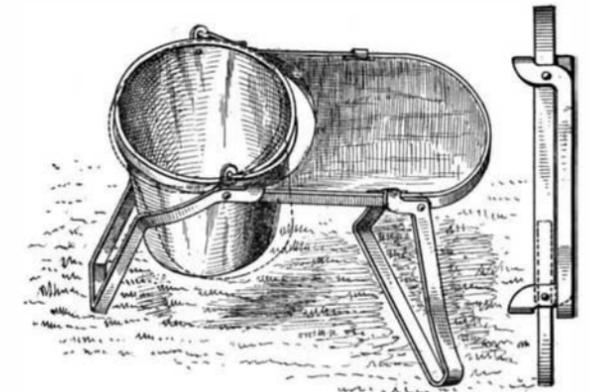
A New Trolley Car Headlight.

Ora E. Mitchell, the conductor of a Los Angeles street car, has devised a very successful headlight for trolley cars, which is under entire control of the motorman. There has been a demand for a light of this kind for use on suburban lines and those which have many curves. The headlight of the ordinary type, which is rigidly fixed to the dashboard, projects its light off at an angle when rounding a curve, and the track in front of the car is without any illumination whatever. The light invented by Mr. Mitchell is mounted in such a manner that it may easily swing from one side to the other, and is controlled by pneumatic pressure. The means of control is under the motorman's foot, and by a mere pressure of the toe he can direct the beam just where it is desired. The apparatus has been given a severe test in practice, and has been found to be a great improvement on the old form of light. This headlight will be adapted for use on automobiles as well as street cars.

A great improvement has been recently made in the machinery for making seamless hosiery. Under the old system, the rib or upper portion of the hosiery was made on one machine, the circular leg work on another, and finished on a third, but by the new machine the work is performed from start to finish in one operation. The new machine begins on the rib work, and automatically changes to the circular leg portion, then it makes the heel, foot, and toe, and starts on another piece without any intermission.

ODDITIES IN INVENTION.

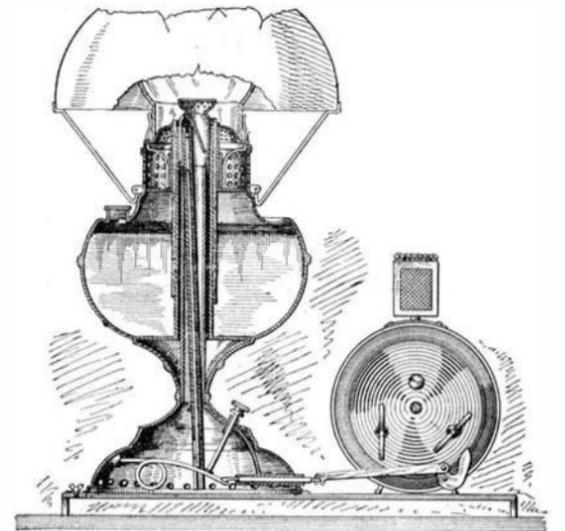
FOLDABLE MILKING STOOL AND PAIL HOLDER.—A very convenient device for the farm has recently been invented by a resident of Iowa. It consists of a milking stool which can be folded when not in use, and a pail holder attached to the stool, which can be adjusted to suit the convenience of the user. The frame for the



FOLDING MILKING STOOL AND SEAT HOLDER.

pail consists of a spring clasp, which permits the pail to be inclined toward the cow, if desired, or moved to an upright position to prevent spilling the milk. The pail is held in the position at which it is set by the frictional contact of the clasp.

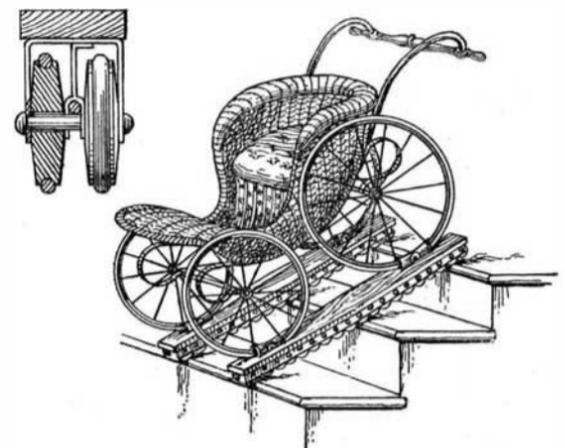
TIME-CONTROLLED LAMP.—A resident of Georgia has invented a combined lamp and alarm clock, which is so arranged that the lamp will be automatically lighted when the alarm goes off. The lamp is of the center-draft type, and in the central sleeve is a tube which carries a plunger with a match in its upper end. The plunger rests on a strong spring, which is held under tension by a trigger connected with the alarm mech-



TIME-CONTROLLED LAMP.

anism. When the alarm is sounded the trigger is sprung, and the match is forced up against the wick of the lamp. In its course the match is ignited by friction, and the lamp is thus lighted. The value of this device when the alarm is set for some hour of the night or early morning will be appreciated. It is often desirable in the sickroom that the attendant be awakened to administer medicine at certain hours of the night without disturbing the patient. In such case the bell of the alarm may be muffled, and the trained attendant can then depend on the sudden flash of light to awaken him at the proper hour.

ROLLER BRIDGE FOR PERAMBULATORS.—The long-felt need of something to assist in moving baby carriages



ROLLER BRIDGE FOR PERAMBULATORS.

up and down stairs or steps has at last been met by the roller bridge which we illustrate herewith. As the name implies, the device consists of two bars