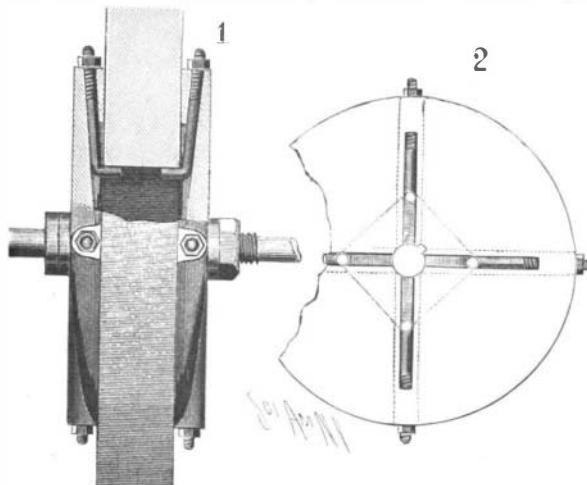


AN IMPROVED HANGER FOR GRINDSTONES.

The device which forms the subject of the annexed engravings is a simple form of flange for the hangers of grindstones, capable of being readily applied to sustain the stone in a true running position.

Fig. 1 is a partial vertical section showing the hangers applied to a grindstone. Fig. 2 is an inner face view of one of the flanges in position, the eye of the stone being shown in dotted lines to illustrate the position of the hanging devices relative to the eye.

The hanging device for the stone consists of two flanges or clamping heads provided with four radial offsets each having a longitudinal bore extending from its outer end to a recess in the inner face of the flange. In the bores hanging-arms are located having at their



BIRD'S GRINDSTONE-HANGER.

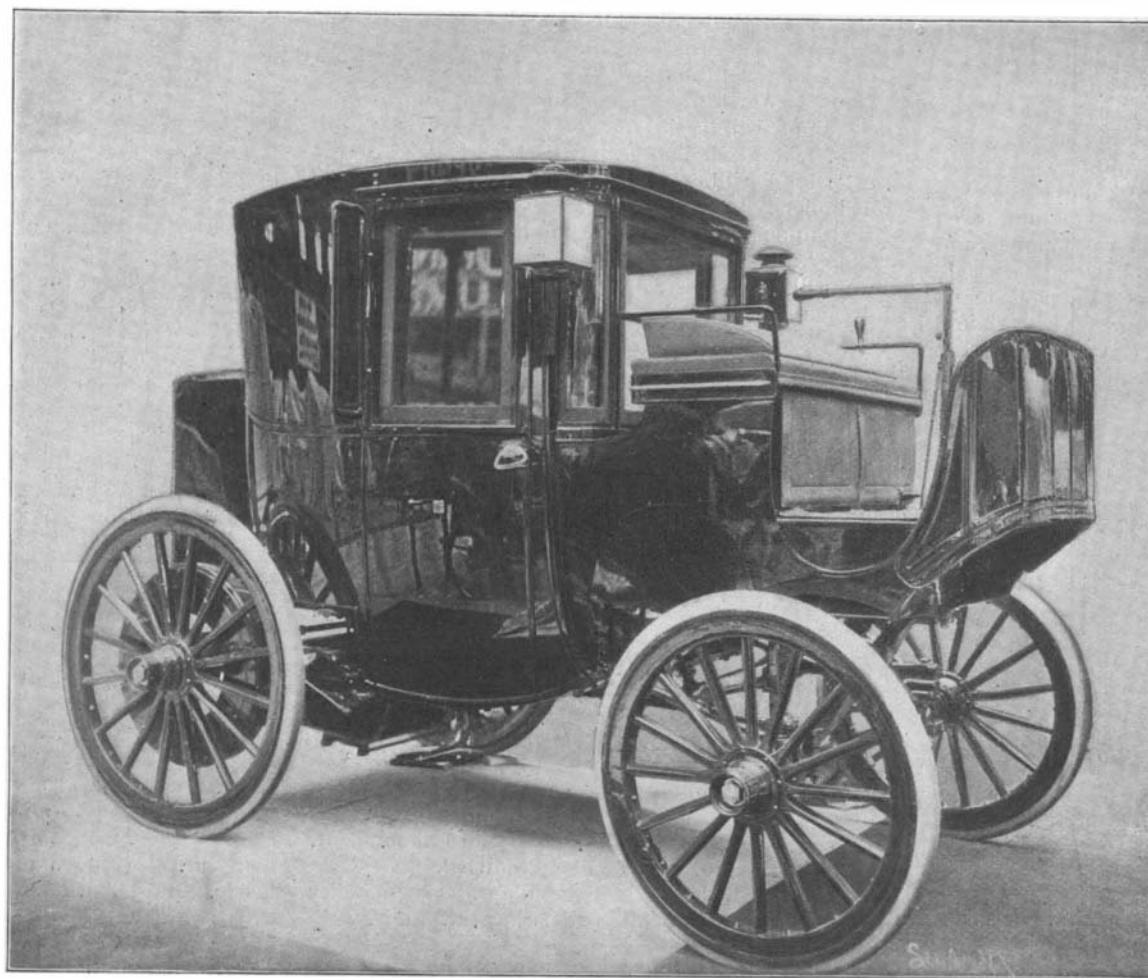
inner ends heads bent at right angles to the body-portions. At its outer end each hanging-arm is threaded to receive an adjusting-nut, by turning which the head-portion of the hanging-arms are raised or lowered.

In applying the hanger, one of the flanges is slipped upon the spindle of the stone, until it engages a collar on the spindle. The stone is then placed upon the spindle and the heads of hanging-arms of the flange already in position are made to engage the corners of the rectangular eye. The second flange is next placed on the spindle; and the heads of its hanging-arms are likewise made to engage the corners of the eye. A lock-nut is finally screwed upon the spindle to force the flanges firmly against the stone. If the stone be not exactly true, the proper hanging-arms are adjusted through the medium of their nuts until the true position has been obtained. The inventor of this improved hanger is Fletcher M. Bird, of Wenatchee, Wash.

AUTOMOBILE BROUGHAM FOR A CITY PHYSICIAN.

We present an illustration of one of the most handsome automobiles that has hitherto come under our notice. It was recently completed at the works of the Pope Manufacturing Company, Hartford, Conn., for the use of a leading physician in New York city, and the instructions were that it should be given such lines and finish as would enable it to compare in appearance with the best horse-driven turn-outs. It was shown at the recent Electrical Exhibition in this city, and will, no doubt, be familiar to many of our readers. The body is given an easy riding motion upon heavy platform springs at the rear, and a compound Brewster spring at the front. The batteries are carried in two boxes placed under the driver's seat, and in two boxes which are carried at the rear. The interior, luxuriously upholstered in satin, broadcloth and leather, contains such conveniences as an electric reading lamp, hand mirror, pockets and shelves for parcels, and a small clock set in the upholstery. An electrical signal operated by a push-button on the inside of the brougham affords communication with the driver.

The vehicle is driven by a 40-ampere motor which is capable of giving 83 per cent efficiency at normal load and 78 per cent efficiency at 150 overload. It is spring-suspended and drives through the balance gear and a single reduction. The standard type of wheels used on the



AUTOMOBILE BROUGHAM FOR A CITY PHYSICIAN.

Columbia automobiles are a modification of the bicycle wheel, with heavy 3-inch pneumatic tires, the changes being in the direction of greater strength and size. In the present case, however, in accordance with the wishes of the owner, the wheels are of wood and the tires are solid rubber. The weight of the battery is 1,375 pounds and the complete carriage weighs 4,100 pounds. The coachman has the steering handle on his right and the controller handle at his left. The controller has four movements from "stop" to full "speed." The brake and reversing levers are operated by the left foot, the former consisting of a bronze band which is tightened over an iron drum on the rear driving-axle. The brougham is provided with a powerful electric bell which is rung by pressing a push button placed in the end of the controller handle. A meter is placed conveniently in sight of the coachman by which he may read at sight the condition of the batteries.

The average running speed is about eight miles an hour, but a maximum speed of eleven miles can be obtained if urgency renders it desirable. The vehicle is capable of covering twenty-five miles under ordinary conditions on a single charge of the batteries.

The "Life Plant" of Guadeloupe.

Consul Aymé, of Guadeloupe, has sent with a report dated December 24, 1898, some leaves of a plant growing wild on the island, which he calls the "life plant," on account of its peculiar properties. Mr. Aymé says:

"If any leaf be broken from the plant and pinned by the stem to the wall of a warm room, each of the angles between the undulations of the leaf margin soon throws out a number of very white thread-like roots. Next a tiny plant begins to sprout, which in the course of two or three weeks attains a height of two or more inches. When the original leaf begins to shrivel, which may take from six weeks to three months, the small plants may be cut out with scissors and planted, or the whole leaf buried, when the young plants will rapidly attain full size. When cultivated, the plant attains a height of four feet and produces graceful red and yellow flowers.

"I believe that this plant could be successfully grown as a house plant, and certainly in any ordinary greenhouse. I find that old and new leaves sprout with about the same readiness."

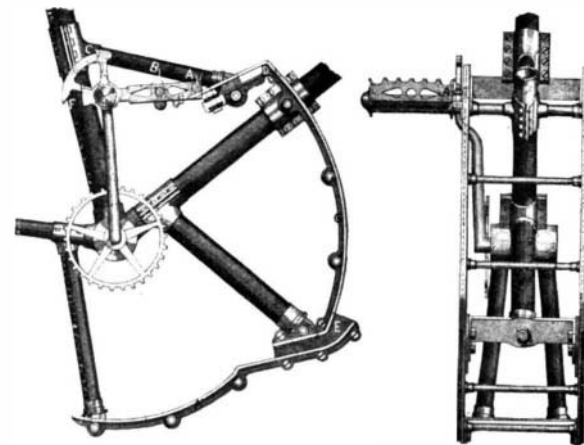
The Breaking of a Waterspout.

On June 15 a waterspout was seen sweeping toward the town of Hennessey, Oklahoma, and for the third time this year it has been saved from destruction by artificial means. One of the Rough Riders, John Rhoades by name, bought four old cannon, in Cuba, and the citizens of the town purchased them, and the city council employs a man to attend to them. When a waterspout or cyclone appears on the horizon, he mounts his horse and rides to one of the cannon, which are placed on the outskirts of the town, one on each side. The cannon was loaded with salt, and was fired on June 15, at forty rods range, into the whirling black mass that threatened the town with destruction. The city is protected by this means at a trifling expense, and so far it has always worked satisfactorily.

AN INGENIOUS BICYCLE GEAR.

The attention of many inventors has been engaged in devising a bicycle gear in which the relative positions of the pedal and crank constantly change during each revolution to keep the thrust exerted by the rider on the pedal approximately at right angles, so as to insure a full utilization of the power exerted. An ingenious gear of this character has recently been patented by Dr. Cephas Whitney and Mr. Alfred C. Lazarus, of 999½ Harbour Street, Kingston, Jamaica, B. W. I., and is shown in side and end elevation in our illustrations.

The gear is provided with the usual crank-shaft, sprocket, cranks, and pedals. Each pedal is pivoted at one end to the crank and is provided at its outer end with a roller, *A*, capable of engaging a cam-race, *G*,



THE WHITNEY-LAZARUS BICYCLE GEAR.

secured to the frame. The two cam-races for the two pedals are connected with each other by rods. At its upper end the cam-race, *G*, is provided with an inwardly and downwardly extending spring, adapted to be engaged by the roller, *A*, at the time the pedal is in an uppermost position, so that the pedal stands horizontally or nearly so. When the rider presses downwardly and forwardly on the pedal, the roller, *A*, rides up and cushions on the spring before mentioned, while the crank travels downwardly. When the roller, *A*, nears the uppermost end of the spring, then the pedal has swung relatively to the crank, and the pedal is now locked to the crank to form an extension. For this purpose the pedal is provided with a hook, *B*, capable of being spring-pressed into engagement with a lug, *C*, on an extension of the crank. During the further movement of the crank the roller, *A*, travels down the segmental part of the race, *G*, but not in contact because of the rising at its upper end. When the roller finally leaves the lower end of the segmental part of the race, it enters the race, *E*, thus causing the swinging of the pedal outwardly relatively to the crank so as to move the hook, *B*, into engagement with the lug, *F*, situated at right angles to the lug, *C*. The pedal now stands again at angles to the crank, and during the movement of the roller, *A*, in the last part of the cam-race remains in this position but not in

contact with the cam-race, until it comes again in contact with the spring, owing to the rise at the beginning of the last or lower part of the cam-race. When the crank finally swings up on the return stroke, then the pedal is pushed forward again to assume the position shown in the side elevation at the time the crank is on uppermost position.

Phosphorescent Strontium Sulphides.

According to Mourelle (Pharmaceutische Centralhalle) the property of phosphorescence is not attributable to pure strontium sulphide, but is caused by certain impurities in same, especially strontium sulphate, sodium chloride, as well as bismuth oxide and bismuth sulphide. Bismuth seems to be, pre-eminently, the really active substance, as experiments with artificial mixtures have shown. The best results were obtained with a compound of bismuth subnitrate, 2 grammes; strontium carbonate, 100 grammes; sodium carbonate, 2 grammes; and sodium chloride, 0.12 grm.