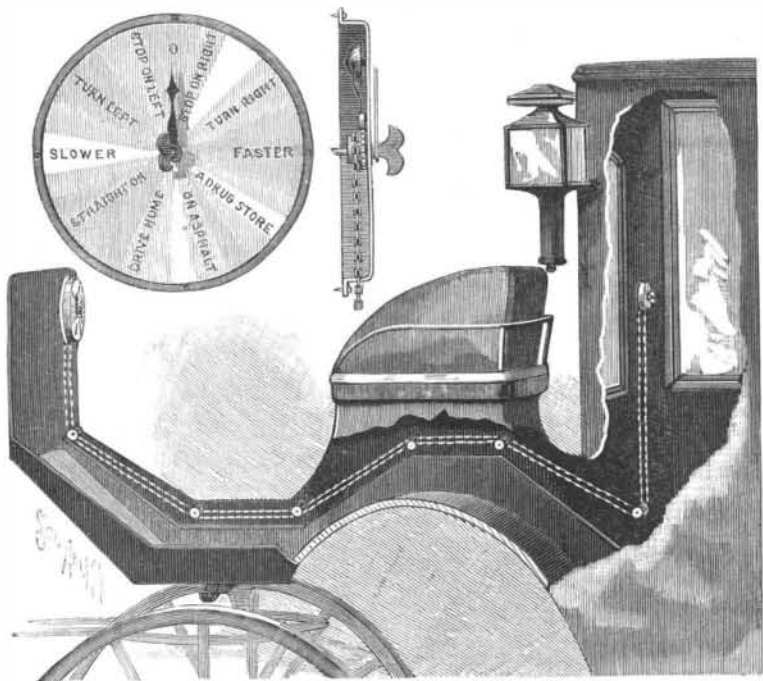


BLAKE'S CARRIAGE INDICATOR.

The difficulty of making the driver hear directions given from within a moving carriage when one is riding in a closed vehicle often causes no little inconvenience, to obviate which is the design of the improvement shown in the accompanying illustration. Attached to the dashboard, conspicuously in view of the



A CARRIAGE ATTACHMENT FOR SIGNALING THE DRIVER.

driver, is a dial on which is marked a variety of the most usual directions, such as "stop on right," "stop on left," "slower," "faster," etc., as shown in one of the views, there being also on the face of the dial an indicating hand adapted to be moved by the occupant of the carriage to either of the special directions. The shaft on which is the indicator hand is moved by a sprocket chain, which extends downward and beneath the seat (as shown in the broken-away portion of the large view) to the central shaft of a similar dial within the carriage, provided with a thumb screw, whereby the shaft and the indicating hand may be turned to any desired point, such movement simultaneously turning the indicator of the dial on the dashboard to direct the driver. As the indicator hand is turned, a toothed wheel on the shaft of the outside dial, as shown in the sectional view, engages and tilts a dog operating a hammer which strikes a gong to attract the attention of the driver. To facilitate the use of the improvement at night, electric lamps may, if desired, be arranged to illuminate the dials, such lamps being connected with a suitable battery carried in a convenient place in the carriage and arranged to be connected up to light the lamps by the movement of one of the dial hands. In applying the improvement to different kinds of carriages the positions of the dials may be changed as desired, the operative connections being correspondingly arranged.

Further information relative to this improvement may be obtained of the patentee, Mr. Arthur M. Blake, Washington building, No. 1 Broadway, New York City.

Family Relations in Japan.

A meeting of the Japan Society was held recently in London, Sir E. J. Reed, M.P., presiding, when Diayoro Goh, the Chancellor of the Imperial Japanese Consulate-General in London, read a paper on "The Family Relations in Japan." The lecturer dwelt in commencing his paper upon the peculiarities of the religions and family systems in Japan, which he described at some length, and remarked that the ethics of the Japanese people were kept up in a great measure by domestic instruction. The family system was founded on love and reverence, as, indeed, was the case in Great Britain, and

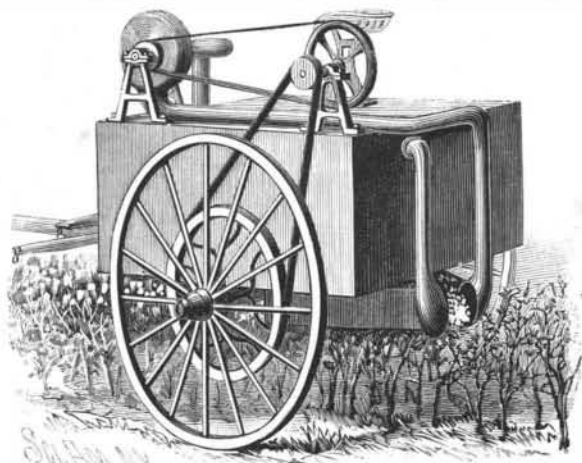
the only difference between the two countries in this respect was that it was carried out in different degrees. The Japanese revered their elders more than the English people did. Referring to the relations of the sexes, he stated that the inferior position of woman in Japan was due to the influence of the Chinese over a lengthened period. Dealing in detail with the relations between parents and children, he remarked upon the importance of the paternal powers and rights, and described the systems of child life and education, the arrangements in regard to marriage, and the laws relating to succession, divorce, and the settlement of family disputes. Amid much laughter, he stated that the mother-in-law in Japan was not the terror to the son-in-law as in this country, but the position was reversed, and the wife stood in extreme terror of her husband's mother. The most important duty of the parents was to find matrimonial companions for their sons and daughters, and the non-fulfillment of that duty was regarded as a disgrace both to the young people and to the parents. The Japanese children were brought up under a compound system of bitter and sweet, under which the father was supposed to be strict, while the mother was benevolent. In fact, according to the Japanese idea, one of the four terrible things in the world, three of which he described as earthquakes, thunderstorm, and conflagration, was the strict father. The lecturer finally alluded to the relations between brothers and sisters, husband and wife, and master and servant.

Diamonds at the Columbian Exposition.

A very complete diamond exhibit is made by Cape Colony, South Africa. The exhibit includes 10,000 carats of uncut stones, a large quantity of very fine cut and polished ones, together with all that is necessary to show the process of mining and washing. For this it has been necessary to transport to Chicago 100 tons of pulverized blue earth, 50 tons of unpulverized earth and a complete washing machine, which will be operated by natives. The exhibit will also include a unique collection of crocidolite and special diamondiferous products.

PNEUMATIC COTTON PICKER.

The illustration represents a machine designed to pick cotton by the simultaneous action of blast and suction pipes, whereby the bolls will be removed from the plants and conveyed through a tube to a cotton box on a vehicle. The improvement has been patented by Mr. Gustav A. Mauermann, of San Antonio, Texas. A blower driven by a belt from the vehicle axle draws the air from the interior of the cotton box, within which a partial vacuum is created, the mouth of the pipe leading from the box to the blower being protected by a screen to prevent the picked cotton from being drawn into the blower. A blastpipe from the blower extends rearward, terminating at a point about as high as the average cotton plant, and directly opposite the mouth of this pipe is a suction pipe leading into the rear end of the box, the space between the mouths of the two pipes being sufficient for the passage of the cotton plants. Suspended by hangers from the bottom of the box are rearwardly converging fenders, their ends reaching very close to the mouths of the pipes, and when the machine is drawn over the rows of cotton plants these fenders are designed to guide the plants so that the bolls will be brought



MAUERMAN'S COTTON PICKER.

within the powerful air current of the blast and suction pipes, whereby the cotton will be cleanly and rapidly picked and delivered into the box.

THE 100 TON STEAM HAMMER AND THE LARGE ROLLING MILL OF THE ETAINGS WORKS.

We have already had occasion at various times to

point out to our readers the continuous development and the incessant transformations that the *materiel* of large forges is undergoing in view of the preparation of military products. As well known, artillery is daily trying to increase the offensive power of its engines, the rapidity of fire of its guns and the penetration of its projectiles. On their side, military and naval engineering are improving the efficiency of defense by increasing the bulk and strength of the organs of protection that they are capable of opposing to an attack that is daily becoming more dangerous. In order to satisfy the exigencies of this ceaseless contest, the iron-working industry has had to make continuous modifications in its equipment, so as to put itself in shape to handle heavier and heavier ingots and the products of increasing dimensions that are now demanded of it.

We have at various times described the most important of these large tools, and we believe it of interest to return to the subject in calling attention to the recent setting in operation of two apparatus in the works of the Marrel Bros. at Etaings (near Rivede-Gier), iron masters whose names are justly honored in the industry. We find herein a new proof of the incessant efforts of our great forges and of the continuous sacrifices that they do not hesitate to make in order to ever remain in a position to respond to the needs of the national defense in the preparation of

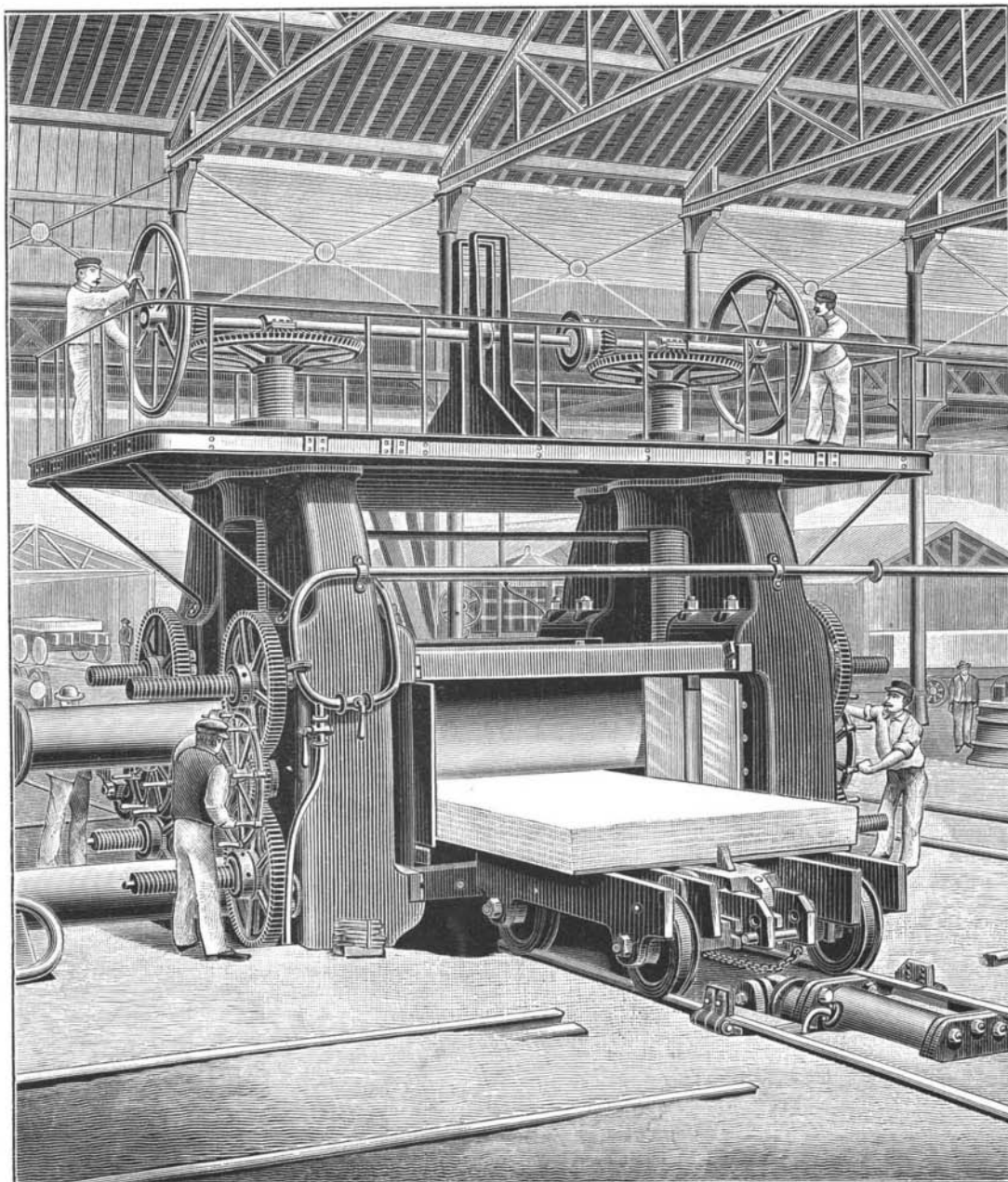


Fig. 1.—ROLLING MILL OF THE ETAINGS WORKS.