

Improved Mold for Casting Tires.

The accompanying engravings represent a mold for casting tires for locomotive and car wheels. It is substantially self-acting, and is so arranged and constructed as to permit of contraction, automatically, as required, to compensate for the natural shrinkage of the metal poured in to form the tire. It also consists in constructing the gates for pouring and the vents for the escape of the gases, so that they are open to the core, or so that the side of the gate is formed by the core; in which case the gate does not interfere with the shrinkage. The overflow, or waste metal is allowed to escape at a lower level than the vents; by this means the metal in the gates cannot cut into the core, or prevent the cope from being withdrawn easily. The following description will enable the reader to understand the construction of this mold; reference being had to the engravings. The cast-iron plate, A, is the bottom of the mold, and has the ring, B, laid upon it, which forms the side of the same; the ring, C, being the cope or cover which surmounts the whole. The cope is divided through the center, and hinged at *a*, so that it can be easily opened; and the lugs, *b*, have a pin, *c*, through them, by which the ring is secured when closed. The holes may be made oval, if required, so that by turning the pin, *a*, slight contraction and expansion will be produced in the ring. The ring, B, is fitted to an annular shoulder, *d*, on the part, A, and the cope to a similar shoulder, *e*, on the ring, B; in this way the rings are kept concentric, and the shape of the mold is preserved; the rings being also fitted with steady pins to prevent them from turning on each other.

The contracting core is formed of a number of cast-iron segments, D, and a corresponding number of wedges, E, interposed between the joints, as shown in Fig. 2; these are fitted with a base plate, F, and a cap plate, G, secured together by the bolts, *f*, at such distances apart as to permit the wedges to work freely to and from the core. The inner faces of the base and cap plates are recessed, as shown at *h*, in Fig. 2, to receive projections, *i*, on the bottom and top of the segments and wedges, and prevent them from falling out of the core, or expanding more than is necessary. The shaft, H, passes through the cap and base plates, and has two crossheads, *j*, fastened on it, which are connected with the wedges, by means of the links, I, arranged so as to act like toggles, and thus force out the wedges from the center by the upward or downward motion of the shaft, H. The shackles, K, are fitted to the shaft for the purpose of attaching weights at the top or bottom, to produce the expansion of the core. The core thus constructed is fitted into a shallow seat in the bottom plate, A, of the mold, and its upper part fits into the cope, C, above the cavity of the mold, in which the casting, L, may be seen. When the core is suspended by the shackle, it slides down the shaft and forces the wedges into the center of the crossheads, and thus leaves the segments free to move inward also. When the core is in the mold

over a pit, weights are attached to the lower shackle, this proceeding forces the wedges out and expands the core to its full size. The contraction of the metal poured into the mold is sufficient to overcome the weights and to allow the core to contract within the castings; the resistance is therefore proportioned to the weight, which should be sufficient to maintain a uniform shrinkage. The pouring gates are marked

had by addressing Mrs. Jane Brooke, 133 Railroad avenue, Jersey City, N. J., or at room 22, Harlem Depot, corner White and Center streets, New York.

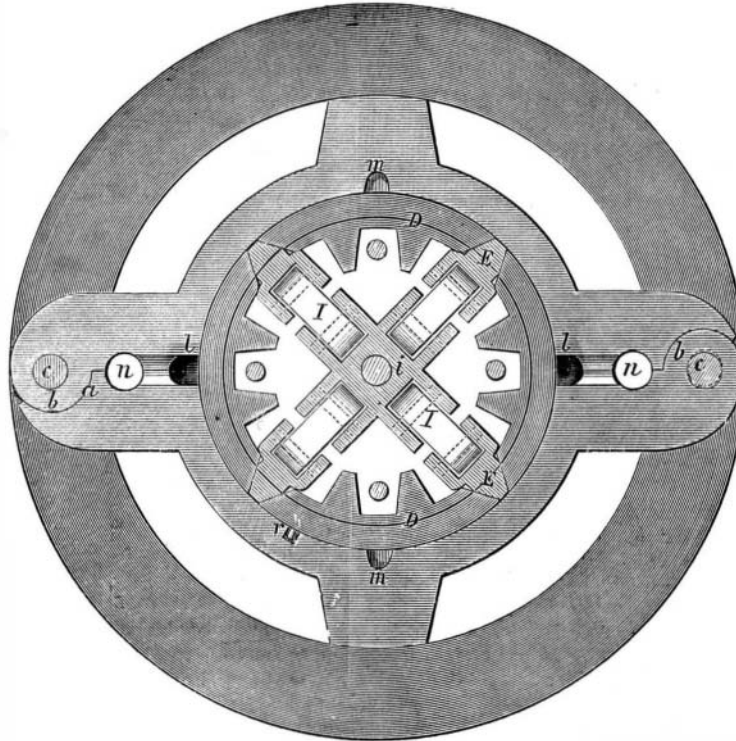
CATARACT CURED WITHOUT INSTRUMENTAL OPERATION.

The Paris *Medical Gazette* states that a man of 70 has almost been cured of this eye disease, by the application of concentrated fumes of iodized ether. The liquid was put into a bottle, and one eye held over the mouth for a few seconds, five or ten times a day. After some months' use, the sight of one eye was entirely restored and the other much improved. Iodine has been applied in the same manner by some of our American oculists, for diseases of the eye, but we are not aware of it ever having been effectual in curing cataract. This afflicting disease consists of an opaque condition of the crystalline humor (transparent albumen) of the eye, or its capsule. When the opacity is seated in the lens, it is called "lenticular;" and when the membrane is opaque, "capsular cataract;" when both are combined, the cataract is called "capsule lenticular." There are also other varieties of cataract; so that the method applicable for treating one, may be entirely inapplicable to another form of the disease. The opacity is generally slow in its progress, requiring months and sometimes years for its full development. For lenticular cataract the iodine would have no effect, but for capsular cataract it may be beneficial. It requires much experience to decide upon the nature of cataract. At one period cataract was altogether treated by medicine, but this mode has been abandoned; and the remedy now consists in the removal of the opaque body by making a delicate incision with a fine instrument near the cornea and displacing the opacity of the humor, under the hope that by absorption, arising from a healthy condition of the body, it may disappear. All surgical operations for cataract are not successful in effecting a cure. The new matter to be supplied for that which has been removed, from a certain locality, may be opaque, and in all likelihood will be so if the body is not in a healthy condition. Oculists, therefore, are very particular not to operate for cataract unless the patient is in good health. Indeed most diseases of the eye are caused by ill health, and general debility of the body.

EUROPEAN SILK.—According to a circular of Messrs. Arles, Dufour & Co., of Lyons, the silk crop in Europe, which is now drawing to a close, is found to exhibit a decided improvement in comparison with the last, as regards quantity as well as the yield of the cocoons. Everywhere in France and Italy the price of cocoons has been moderate.

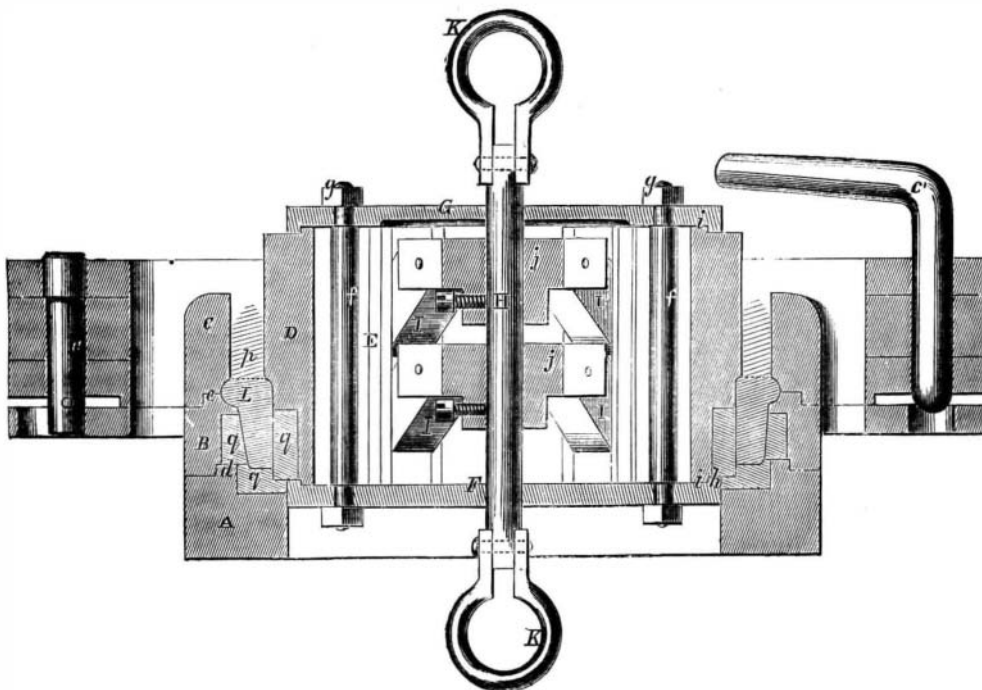
COMMISSIONER HOLLOWAY, of the Patent Office has five sons in the Union army. One of them is a colonel, another captain, another lieutenant. Some of these young men abandoned lucrative positions, in order to render patriotic service in the cause of their country. All honor to them.

Fig. 1



BROOKE'S IMPROVED MOLD FOR CASTING STEEL TIRES

Fig. 2



l, and the vents *m*; the overflow channels are seen at *n*; the core is made a little larger in the part marked *p*, so that the face of the casting will not be injured by breaking off the gates. Plumbago or soapstone is fitted into the part marked *q*, so that the casting will not stick; and in order to insure these pieces being opposite the pouring gates, a recess is cut in the cope and a steady pin, *r*, inserted. Springs may be used, if desired, in place of the toggles.

A patent for this invention was granted, through the Scientific American Patent Agency, on July 21, 1863, to Jane Brooke, administratrix of William Brooks, the inventor. Further information can be