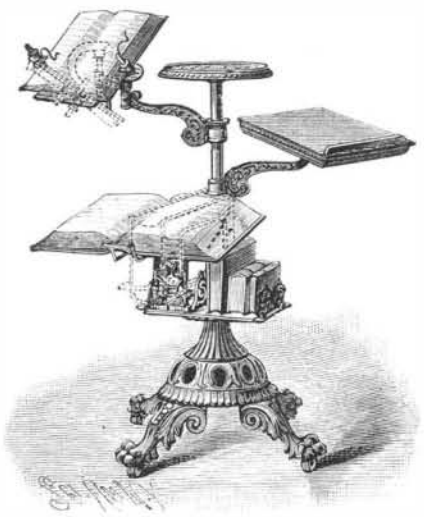
A CONVENIENT READING STAND.

The improved stand shown in the illustration has been patented by Messrs. Francis J. Anderson and William M. Irick, of Gainesville, Texas. It has preferably two reading desks, the top one readily adjust-

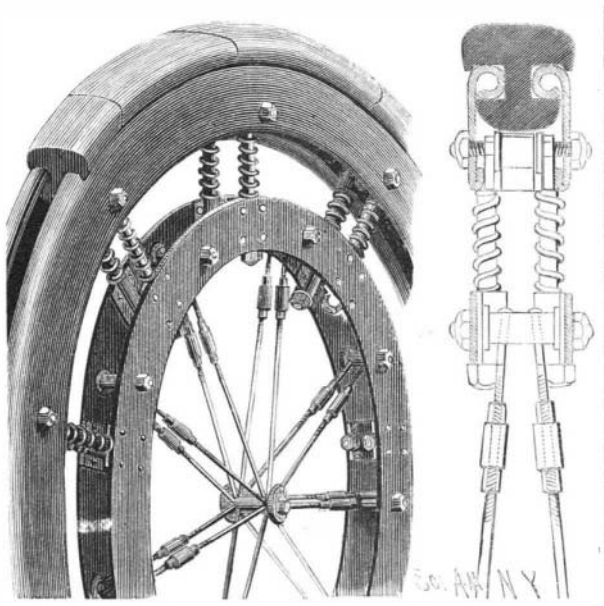


ANDERSON & IRICK'S READING STAND.

able to hold a book inclined in any desired direction, either upward or downward, to accommodate one reclining on a sofa or sitting upright, while the other desk may be used to hold a reference volume, or for writing, as may be convenient when a consultation is being held. The stand also supports, lower down upon its standard, a case or rack for the reception of books and magazines, and a novel form of dictionary holder, the dotted lines in the illustration representing the dictionary in closed position in the holder. By pulling up on a handle of the holder it rises and opens out to hold the dictionary in position for reference, as shown in full lines, the book being closed and returned to its place at the side of the standard with equal facility. At the upper end of the standard is a table which may be used to support a lamp, and the two reading desks are supported by brackets sliding upon the standard and readily adjustable at any desired height thereon. Upon an extension of the upper bracket is a special construction of clamping and adjusting mechanism whereby a book may be readily held open, in the most convenient position for perusal, whether one is standing, sitting, or lying down. Either one of the desks may be adjusted independently of the other.

AN IMPROVED WHEEL FOR VELOCIPEDES, ETC.

The illustration represents, in perspective and cross section, a wheel designed to be strong and durable while also well adapted to promote smooth riding. The improvement has been patented by Mr. Jules Roussat, of Paris, France. The rim of the wheel consists of two side plates held a proper distance apart by short bolts or rods, and inclosing between their outer edges a band or tire of double T shape, which may be of either the cushion or pneumatic type. This tire is preferably formed in sections to facilitate repairs and the substitution of new sections. Rods surrounded by spiral springs and having a sliding connection with the outer rim are also connected with the plates of an internal concentric rim through sleeves riveted upon



ROUSSAT'S CYCLE WHEEL.

the inside of the latter, to allow for a limited degree of bending or compression upon the external rim. The metal spokes are each formed of a pair of rods secured at their inner ends to the hub in the ordinary manner, but their connection with the inner rim is through oppositely threaded sleeves or nuts, operating as turnbuckles, in the opposite ends of which are screwed short rods or stems connected with the rim, whereby the spokes may be readily tightened by turning the sleeve. Further information relative to this improvement may be obtained of Mr. A. Bourgeat, No. 163 West Houston Street, New York City.

The Sorghum Sugar Industry.

In a recent report to the Secretary of Agriculture, Dr. H. W. Wiley, chemist of the department, stated, since 1888 there had been $20,723 expended at the Sugar Experiment Station at Sterling, Kan., and $40,024 at Medicine Lodge, Kan., since July 1, 1890.

Secretary Morton is said to be considering how these expenditures can be reduced, and it becomes the duty of every friend of the American sugar industry to plead the cause of sorghum, that member of the trinity of American sugar-producing plants which, while thus far least successful, is far more promising than was the beet fifty years ago, and which to-day stands as the theoretical rival of tropical cane, and which only such investigations as Dr. Wiley has been carrying on at Sterling and Medicine Lodge, supplemented and enlarged, we may say, by those carried on by our own distinguished and public-spirited citizen and planter, Mr. Daniel Thompson, at Calumet, can make a practical success.

Sorghum cane can and will produce sugar in large quantities. This has been demonstrated in Kansas. There are practical difficulties in the way that, under the enlightened system undertaken by the Department of Agriculture, are being removed one by one. Kansas is an immense State, and a State of *farms*. Agriculture is the dominant industry there, and the limited rainfall and absence of irrigating streams leads to the selection of such crops as need the least rain of all, and the best adapted to the dry climate. Alfalfa and sorghum became staple crops because of their capacity to flourish in the dry land of Kansas. Of these of course sorghum would become the great money crop if its conversion into sugar were made a practical as well as a theoretical success. To reach this end the Department of Agriculture has been experimenting a number of years, and while the goal has not been reached, the expected 200 or 300 grand sugar houses have not been erected in Kansas, and Kansas is not furnishing hundreds of thousands of tons of sugar to her sister States, yet the possibility of all this exists; we shall go further and say that the probability of it exists, and that sorghum has less to contend with to-day than had the beet fifty years ago, and now more than half the sugar of the world is made from the beet, the suspected, discredited, ill-flavored sugar plant that struggled into industrial recognition during the first half of this century. Give sorghum a chance, let the government investigate with it and experiment with it as European governments did with the beet, and we shall finally conquer this refractory plant that tantalizes us with 16 to 18 sugar per cent in analysis while yielding but 4 or 5 per cent in the factory, and Kansas will gain the best crop her vast areas of land can be devoted to.—*La. Planter.*

On the Chicago Flier.

The Chicago flier is not driven by one but by many engineers, says a writer in *McClure's Magazine.* In order to cover the 964 miles between the two cities in twenty hours, including nine stops, there are required seven huge engines in relays, driven by seven grimy heroes. A run of less than one hundred and fifty miles is the limit per day for each engine, while three hours of the plunging rush wears out the strongest engineer. Sixty, seventy, eighty miles an hour—what does that mean for the man at the throttle? It means that the six and a half feet drivers turn five times every second and advance 100 feet. The engineer turns his head five seconds to look at the gauges, and in that time the terrible iron creature, putting forth the strength of a thousand horses, may have shot past a red signal with its danger warning 500 feet away. Ten seconds, and 1,000 feet are left behind—one fifth of a mile. Who knows what horror may lie within that 1,000 feet! There may be death lurking round a curve, death spreading its arms in a tunnel, and the engineer must see and be responsible for everything. Not only must he note instantly all that is before him, the signals, switches, bridges, the passing trains and the condition of the rails, but he must act at the same moment, working throttle, air brakes or reversing lever, not as quick as thought, but quicker, for there is no time to think. His muscles must do the right thing automatically under circumstances where a second is an age. In the three hours of his vigil there are 10,800 seconds, during each one of which he must watch with the mental alertness of an athlete springing for a flying trapeze from the roof of an amphitheater, with the courageous self-possession of a matador awaiting the deadly rush of a maddened bull; and far more depends upon the engineer's watching well, because if he fails by a hair's breadth in coolness or precision of judgment, there may come destruction, not only to himself, but to hundreds of passengers, who, while he stands guard, are perhaps grumbling at the waiters in the dining car or telling funny stories in the smoker.

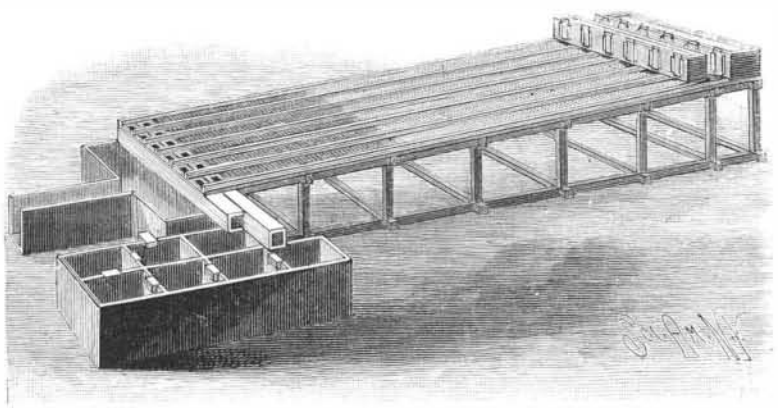
"What would you do in a collision?" I asked.

The engineer pushed back the little black skullcap from his iron-gray hair and said:

"It is pretty hard to say what a man should do when he hears the whistle of danger ahead or sees that a crash is coming. Even the best of us are liable to get confused at such a moment. What would you do if you woke up in the night and found a burglar holding a pistol at your head? There are no rules for such cases. What I would not do, though, is to reverse my engine, although many engineers are liable to lose their heads at a critical moment and make that mistake. It is a curious thing that reversing your engine suddenly when going at high speed makes the train go faster instead of slower. The reason is that the drivers slip and the locomotive shoots ahead as if she were on skates. The only thing to do is to put on the air brakes and pray hard."

AN IMPROVED CONCENTRATOR.

This is an apparatus of simple and durable construction, designed to save the precious metals and the floured quicksilver passing with the tailings discharged from the mill. It has been patented by Mr. D. W. Humphries, No. 115 Twenty-third Street, Portland, Oregon. At the upper end of a slightly inclined table of suitable length is a receiving tank or receptacle having in its front side gates through which the tailings are discharged into channels on the top of the table, each channel having its bottom covered in the upper part with a coarse mesh fabric, such as jute, a fabric of finer mesh, such as canvas, being used near the lower end of the table. At the lower end of each channel are two valved



HUMPHRIES' ORE CONCENTRATOR.

apertures leading into two transverse channels, the first one of which discharges into a tank connected by overflows with a series of tanks, the last one of which discharges into a waste chute. The second transverse channel discharges into a tank for receiving the lighter second-grade concentrates. At the lower end of the table is a tailing box, a chute from which carries off the refuse sand and water. In front of the receiving box, near the upper end of the table, is a water-distributing box, supplied from any suitable source, and having gates through which the water is permitted to flow as desired into the respective channels. In operation, the tailings are allowed to flow down the channels until they are well distributed over the table, when the gates of the water box are opened one at a time, and sufficient water passed through to carry off the sand only, the attendant sweeping the channel for a portion of its length with an ordinary mill broom. The valve of the lower transverse channel is then opened, the water supply increased, and the sweeping resumed, when the lighter or second-class concentrates are carried off to their tank, the finer fabric at the lower end of the table not detaining them. The valve communicating with this tank being closed, and the other one opened, the sweeping is continued, and the heavier concentrates are carried in the same way to the first of the series of overflow tanks, each channel being swept in a similar manner.

To Keep Ants Away.

Rub a light film-coat of balsam Peru around near the bottom of table or kitchen safe legs—just a narrow band will do—and renew the balsam every two or three weeks. This will keep ants away from tables, kitchen safes, etc., and what they hold or contain; provided there is no other ant-way than up the legs.

One drop balsam Peru spread around the upper part of a sirup bottle will keep the ants away for months.

Boil one ounce balsam Peru in one gallon rain water for half an hour, and sponge this water, while hot, over wooden floors and walls, and it will keep ants away for a long time.