American Agriculture vs. English.

Mr. Fowler, M. P. for Cambridge, recently gave to a Chicago *Tribune* reporter his impressions of the agricultural resources of the West, where he has spent some time in making observations. "What has interested me most," said he, "is the matter of transportation to England, in connection with the cost of production there, and the question is whether we can continue much longer to compete with America in the raising of wheat, or even to raise it at all and make it pay. The natural protection to English production, by reason of the cost of carriage, must be—nay, is—rapidly diminishing, and I rather expect, if we were to have a good harvest in Europe and America at the same time, you would have prices such as we have never expected." "The American farmer is producing and transporting wheat and corn so cheaply, then, that his English brother cannot compete with him?" "It is a good deal as a gentleman expressed it to me the other day, when he said: 'A man out here in Iowa is competing with the English farmer just as if he lived in Yorkshire.' That may be a strong way of putting it, but you must observe the great advantages which the American farmer has over the farmer on the other side Iowa land, for instance, costs $10 an acre, while in England it costs £50, £70, or £80 an acre, so that the Englishman is terribly handicapped at the start, for he has to pay interest on £50 to £70, while the Iowa man pays interest only on £2. Then, in addition to all that, the Iowa man has a better soil and a better climate. In short, with these advantages in favor of the American farmer, with the cost of transportation minimized as it is, so that our natural protection from that cause is rapidly diminishing, I have great doubts whether the cultivation of wheat will pay in England at all. I speak not so much of the present as of the future, for our crop this year has been a good one, while yours seems to have been just the other way. Your deficiency this year, as I have seen it stated, is 80,000,000 bushels—nearly as large as England's entire production in an ordinary season. But here is your vast expanse of territory developing every year. Then, again, you virtually raise wheat in this country by machinery. The extent of your wheat raising territory is simply astounding, but your population, while large in the aggregate, is spread over these vast expanses, and your real market is elsewhere—across the water, over in England, where we find a contrary state of affairs—a comparatively small wheat raising area, with millions of people to be fed. And I don't begrudge you your good fortune in the least. Your prosperity is ours, for, unless our people be cheaply fed, they cannot afford to work for reasonable wages, and unless we can manufacture at reasonable cost, we can no longer hope to supply the world with our manufactured products."

IMPROVED CAR COUPLING.

The engraving shows an improved coupling for the class of railroad cars employing the ordinary link. The design of the coupler is to furnish a means of coupling and detaching cars without the necessity of going between them.

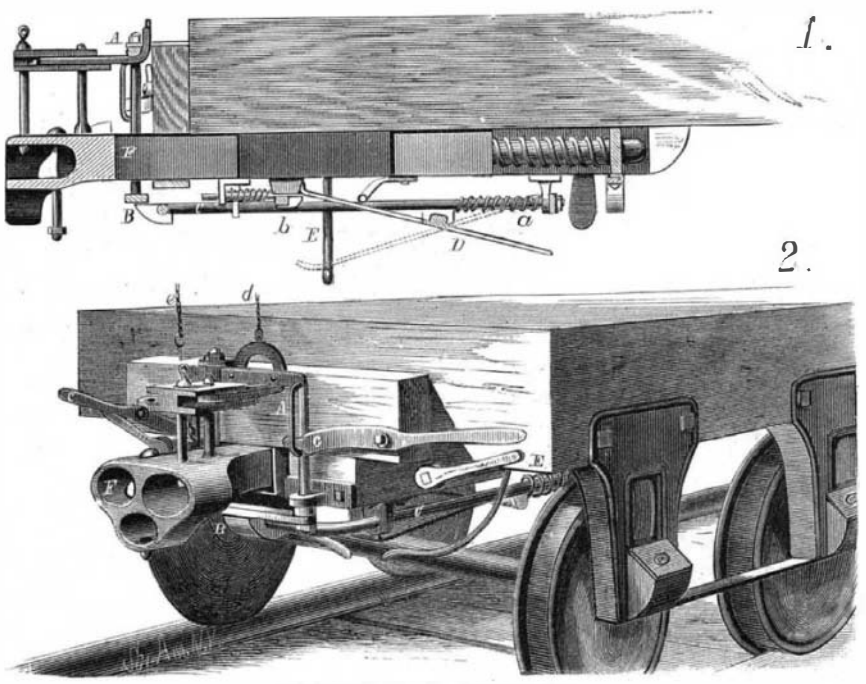
In this device the coupling pin is held in an elevated position, ready for coupling the cars, by an ingenious device, which will be readily understood by reference to the engraving, in which Fig. 1 is a sectional view, and Fig. 2 a perspective view.

A vertically sliding frame, A, is supported by a nib, B, on the forward end of the frame, C. This frame is thrown forward by the springs, *a*, and carries a pawl, D. Upon opposite sides of the drawhead there are levers, E, for pushing the pawl, D, above the spring catch, *b*, and behind a lug on the drawhead, F. The vertical frame, A, may be raised by either one of the levers, *c*, or, from the top of the car, by the chain, *d*, and one of the levers, E, may be operated by the chain, *e*, from the top of the car, if desired.

The operation of the coupler is as follows: A link being in one of the openings of the drawhead of the approaching car, and entering one of the three openings in the drawhead, E, the contact of the two heads pushes the drawhead, E, back, carrying the frame, C, with it. The nib, B, being drawn from beneath the frame, A, allows the latter to drop, while the pin supported by it drops through the link.

To uncouple the car one of the levers, *c*, is pressed down, thereby elevating the frame, A, and withdrawing the pin from the link. The frame is retained in an elevated position by the nib, B.

All that is now required to put the coupling in condition for operation is to raise the pawl, D, by means of the levers, *c*. This improved coupler is the invention of Mr. F. W. Brooks, of Oak Grove, Dodge county, Wis.



BROOKS' CAR COUPLING.

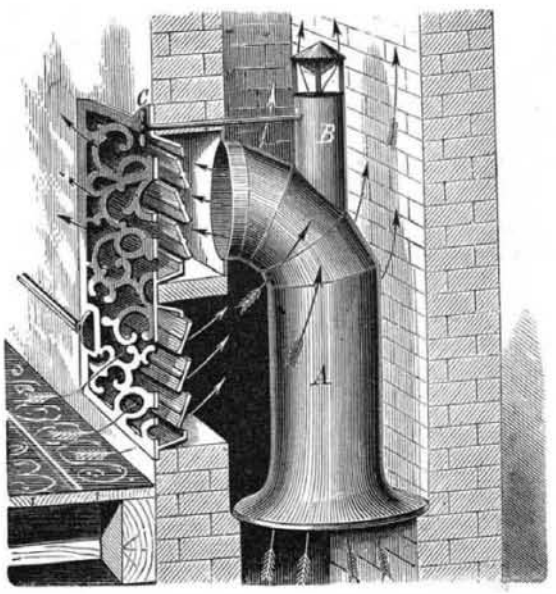
It is one of the most striking illustrations of the power of machinery that cotton can be brought from the far interior of India, on the backs of bullocks, to the sea, shipped around the Cape of Good Hope to England, manufactured, shipped back by the same route, paying repeated commissions and profits, and undersell the native manufacturer on the spot where the raw product is grown, and where labor is considered well paid at fifteen cents a day.—*Senator Bayard.*

BARKER'S HEATING AND VENTILATING APPARATUS.

The recent disclosures made concerning the very defective heating and ventilating arrangements in the public schools and court rooms of this city have, to a considerable degree, aroused the attention of the public, not only in this but in other localities, to the existing necessity of improved and simple means for securing constant supplies of pure fresh warm air in crowded apartments.

We herewith present a device which the inventor thinks is of timely importance, and hence worthy of the careful examination of health boards, architects, builders, and property owners generally.

A supplementary flue, A, flared at its lower end, surmounts the flue leading from the furnace.



BARKER'S HEATING AND VENTILATING APPARATUS.

Its upper extremity is curved to terminate in the upper half of a register, through which the hot air is delivered into the room. It will be observed that the register, though having a single grating of the usual size, is divided by a horizontal partition, and each portion is provided with a separate set of slats, either of which may be opened or closed at will. While the hot air from the flue, A, pours into the room in an ascending current, as indicated by the arrows, the cold and heavy vitiated air, which sinks to the floor, makes its exit into the lower half of the register, entering the main flue in the space between the supplementary pipe and the brick work, and thence passing up the chimney. By this means a constant circulation of fresh air is maintained in the room, a candle or handkerchief held before the two portions of the combined register indicating clearly the direction of the ingress and egress currents. By a simple modification the device is adapted for floor registers.

The invention is covered by five patents of recent date.

For further information address the owner, S. M. Barker, Washington, D. C.

A Substitute for Earthenware.

P. Dodé in Paris manufactures tiles, pipes, architectural ornaments, pavements, mantels, etc., from a new material made as follows: Some difficultly fusible stuff like sand, or pulverized porcelain, is mixed with powdered glass and a little water. The mass is then made into balls or plates, and heated until the glass softens, when it is pressed into the desired shape and cooled. For the mixture 100 lb. of very finely pulverized glass is mixed with 500 lb. of sand, and some metallic oxide added to impart the desired color; it is very thoroughly incorporated with the aid of a little water to make it plastic. The slabs or balls formed from it are placed on plates of refractory clay, and run into a furnace provided with little trucks like the tempering furnaces of a glass house. When the glass is softened the balls are put into metallic moulds provided with a stamp or piston, which falls as often as the finished article is taken out and fresh material put in, which takes about five or six seconds. The quantity and quality of the glass employed is varied according to the fusibility of the other constituent employed in each case. If very finely pulverized porcelain is employed instead of sand, then the ware obtained will closely resemble porcelain. As the glass is only softened, not entirely melted, it will probably be found possible to combine several colors in a single object and to produce various other curious and novel effects. Nothing is said in regard, however, as to the possibility of decorating the articles before or after pressing, or as to the effect of etching and grinding.

LEAD POISONING IN FACTORIES.—Commenting on a recent fatal case of lead poisoning in an English factory, Dr. William Webb, of Werksworth, Derbyshire, tells the *Lancet* that twenty-five years ago poisoning by lead was of frequent occurrence at the lead smelting works in that part of Derbyshire, and that since that time it has seldom been heard of. He attributes this immunity from poisoning in men constantly exposed to the fumes of lead to the fact that they were advised to partake freely of fat bacon, butter, and other fatty substances, and to drink copiously of lemonade or dilute sulphuric acid in water. The hint was first obtained from Sir Thomas Watson's admirable lectures on the "Practice of Physic."

MISCELLANEOUS INVENTIONS.

Mr. Charles H. Gimingham, of Newcastle-upon-Tyne, County of Northumberland, England, has patented a method of cheaply and readily manufacturing incandescent lamps, and a novel method of mounting carbon filaments of electric lamps generally. The method of attaching carbon threads to a tubular holder consists in first dipping the thread ends in a paste formed of a carbonaceous compound and a platinum salt, and then slipping them into the tube, and then holding them in a Bunsen gas flame until the paste is carbonized and the platinum salt is reduced to metallic platinum.

An improvement in pantaloons has been patented by Mr. William Hyams, of New York city. The object of this invention is to make pants durable at the crotch and at the knees. The seat of the pants is made without a seam, and is thus made very strong and durable. It is connected directly with the fly by means of the tongue, so that in bending and stooping the strain will be altogether on the tongue, which is not apt to break off, as it is made integral with the seat—that is, cut out of one piece with the seat. The seams uniting the front and rear pieces at the crotch cannot be ripped or torn by the strain on the seat, as all this strain is taken up by the tongue. The pants are made with double thickness at the knees, and are very durable.

An improvement in bottle stoppers has been patented by Mr. John Q. Houts and Oscar Ericsson, of Sioux Falls, D. T. This invention is an improvement on the bottle stopper for which Letters Patent No. 234,035 were issued to John Q. Houts, November 2, 1880.

Mr. William C. Salmon, of Portland, Ore., has patented an improved mill for pulverizing ores, cements, bones, and other substances. The mill is constructed with a vessel having a central projection on its bottom, forming a ring chamber, a sectional ring die in the bottom of the ring chamber, and screen-covered openings in its sides for the escape of the pulp, and a ring-shaped pulverizer having radial dies upon its lower side, which work on the ring die. The driving mechanism connected with the pulverizer gives it a wabbling movement. Guide blocks attached to the central projection of the vessel insure the centering of the pulverizer.

An improved coiler for railway heads, carding machines, etc., has been patented by Mr. Roger Tatham, of Rochdale, County of Lancaster, England. This invention relates to that class of machines in which two cans are alternately presented to the carding machines to receive the sliver or other material as it is delivered therefrom, and when brought into proper position to receive such sliver are revolved. The invention consists in the construction of two trains of mechanism, one consisting of cog wheels and the other of cog, bevel, and worm wheels, worms, a tappet pin, and a stud, both trains actuated by the same driving shaft, whereby the cans attached to the coilers are simultaneously rotated and delivered.

Mr. Henry Hager, of Elizabeth, N. J., has patented an improved machine for drilling two holes simultaneously at variable distances from each other. The invention consists in a drilling machine constructed with a fixed drill shaft and with a circularly movable drill shaft.

THE London *Builder* attributes the marvelous durability of mortar in Italy to the fact that the lime remains in a pit covered with water for two years before it is used, whereas in England lime is slaked and used the same day. Most building specifications even require newly slaked lime.