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### Improvement in Starch Gum and Grape Sugar Manufacture.

Mr. Hoffmann, a chemist in Beardstown, Ill., has invented an improved method of converting starch, corn or other grain into dextrin gum or grape sugar. He uses steam, diluted acid and water, at a much higher temperature than the boiling point of water in an enclosed and steam tight mash tub. To every bushel of grain about twelve gallons of boiling water are used, and an additional quantity in proportion to the pressure of the steam; one or two per cent of the weight of corn, of weak sulphuric acid is also employed. These are gradually added together, and mashed under steam pressure for two or three hours, the starch of the corn is converted into dextrin, and by the addition of chalk or marble dust to neutralize the acid while at the atmospheric pressure, and when all the acid has been neutralized and the whole has stood for an hour or so, the starch gum can be obtained by evaporation; by continuing the steaming process for a longer period grape sugar is obtained. This process considerably cheapens the manufacture of alcohol, and for the benefit of such as may be interested, we give the claim of the patent:—

"What I claim as my improvement is the combination of steam and acids for converting starch, corn or other cereals into dextrin, gum, or sugar, when said grain is subjected to the action of diluted acids and the temperature of the mass is elevated to 225° or 300°.

### Fishes Traveling by Land.

Dr. Hancock, in the "Zoological Journal," gives a description of a fish called the "flat head hassar," that travels to pools of water when that in which it has resided dries up. Bose also describes another variety, which is found in South Carolina, and, if our memory serves us well, in Texas, which, like the "flat head," leaves the drying pools in search of others. These fishes, filled with water, travel by night, one with a lizard-like motion, and the other by leaps. The South Carolina and Texas varieties are furnished with a membrane over the mouth, by which they are enabled to carry with them a supply of water, to keep their gills moist during their travel. Guided by some peculiar sense, they always travel in a straight line to the nearest water. This they do without the aid of memory, for it has been found that if a tub filled with water is sunk in the ground near one of the pools which they inhabit, they will, when the pool dries up, move directly toward the tub. Surely this is a wonderful and merciful provision for the preservation of these kind of fish; for, inhabiting as they do, only stagnant pools, and that too, in countries subject to long and periodical droughts, their races would, but for this provision, become extinct.

## MEYER'S REVERSIBLE CAR SEAT AND COUCH.

Fig 1

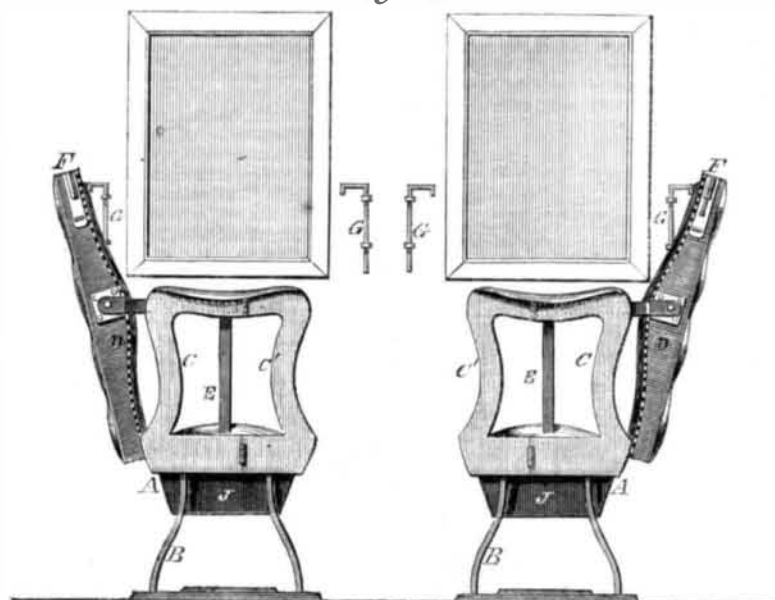
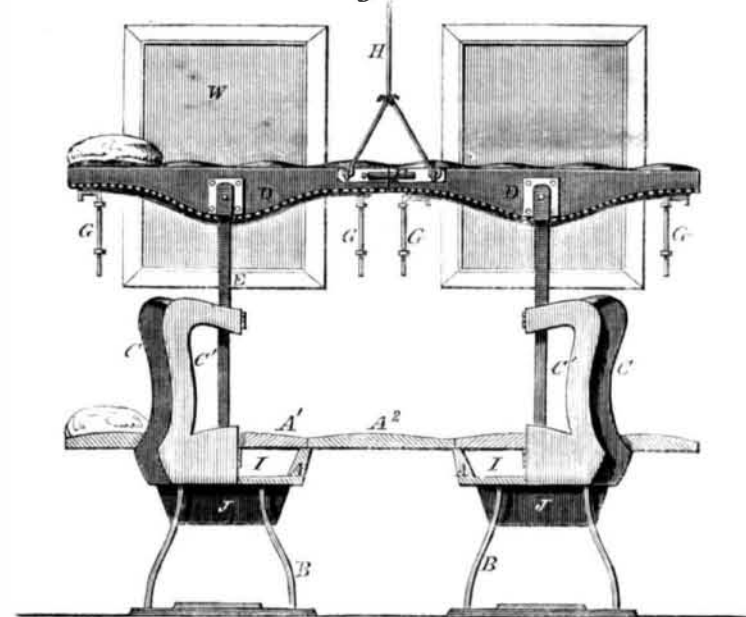


Fig 2



Since the trial of car seats capable of being converted into sleeping couches, on the Michigan Central, and other railroads in the West, numerous plans have been devised with a view of remedying the defects which experience has made manifest attending those in use.

In this improved plan the objectionable feature of transverse partitions is avoided, and reversible seats having all the conveniences and comforts of the usual form of car seat are provided, which can in a few moments, and with little labor, be converted into double sleeping couches, capable of accommodating all the passengers in the car.

In our illustrations, Fig. 1 represents a side elevation of two of the car seats in a position to be occupied by the passengers in a sitting posture, and Fig. 2 is a side elevation of the same seats converted into double sleeping couches.

A represents the frames on which the bottoms, A', of the seat's rest, being supported on legs, B. C are the arm rests at the end of the seats, one half of which, C, is made permanent, and the other half, C', hinged to the same, to admit the swinging half to be

opened and brought parallel to the permanent part. D are the backs, cushioned on both sides, and attached to the arm rests, C, by pivoted bars, E, so as to enable them to be reversed at pleasure. F are bolts, secured to the upper corners of the backs, D, and parallel with the ends of the same, so as to admit of them being forced into corresponding hasps on the ends of the backs of the next seat, and in the same relation thereto as the bolts to their back corners, in such a manner as to enable the upper edges of the backs, when brought together in the position represented in Fig. 2, to be secured on line, and by the assistance of dowel pins, projecting from the edge of one seat, and entering corresponding openings in the edge of the other, and a suspension rod or cord, H, having hooks at its end, which are attached to staples at the ends of the backs, to be sustained in a sufficiently firm manner at their ends next the passage way through the car, to prevent them giving way when employed as a double couch.

When it is desired to convert the bottoms and backs of the car seats, as represented in Fig. 1, into the sleeping couches represented in Fig. 2, the swinging portions, C', of the

arm rests are opened, and the cushioned backs, D, are turned upward, and brought to a horizontal position, with their edges in contact, and being secured and sustained by the bolts, F, dowel pins, and suspension hooks attached to the wire or cord, H, at their inner ends, are further sustained at their ends next the sides of the car by swinging hooks or bars, G, which can be turned parallel with the sides of the car when not employed for this purpose. This system of arrangement forms the upper tier of couches, the edge of each back pressing against the next in succession, and thus forming a brace for them all. The additional cushioned frames, A<sup>2</sup>, on top of the bottoms, A', of the seats, are then placed between the said bottoms, A', and on a line with the same, with their edges resting on the ribs or projections on the sides of the frames on which the bottoms rest, so as to form a continuous additional tier of double berths or couches at a proper distance apart, to enable a free ventilation of air from the window, W. The couches thus formed may be provided with longitudinal division bars or rails, and pillows and other articles of bedding, which, when not in use, can be stowed away in the spaces, I, J, below the bottoms of the seats; and if necessary, folding curtains may be attached to each set of berths, to ensure privacy where needed.

The advantages claimed for this plan of seats are, that it affords all the conveniences, including perfect ventilation, of the ordinary car seats, with the comforts of a sleeping car, and that the expense of rendering them susceptible of this change is but slight. It is, moreover, applicable to almost all railroad cars at present in use.

It was patented September 19, 1854, by H. B. Meyer, of Cleveland, Ohio. Any further information can be obtained by addressing the patentee, or Albert J. Meyer, M.D., No. 110 Grand street, New York.

### Cleansing Cotton Seed.

A competent correspondent, residing at Antwerp, writes to the Washington Union that a machine for cleansing cotton seed has lately been invented and operated in that city. From two to three tons of seed can be cleaned per day by a machine of four horse power, with the assistance of three persons. The cotton surrounding the seed is taken clean off, and can be sold to carpet manufacturers and paper makers at from thirty to fifty francs the one hundred kilogrammes—about \$10 the two hundred and twenty lbs. After the oil is extracted, the cakes remaining can be sold for the same price as other cakes of oleaginous seeds. The cost of the machinery is said not to be expensive. This is an important invention, and promises to be of great advantage to cotton growers.

### Kather Disgraceful.

A subscriber complains to us that he sent a gold pen to be re-pointed (with twenty-five cents) to L. H. Martin, of 253 West 25th st., New York, who advertised in our columns, and that he has not heard of pen, money, or Mr. Martin. This is rather disgraceful; and although we are in no way responsible for our advertisers, we wish that no person would use the SCIENTIFIC AMERICAN as a vehicle of publicity without they intend to fulfil their engagements. It is not the first complaint we have had of the same person, which we are sorry that we cannot help; but we have no intention of being innocently made a party to any humbug whatsoever.