

New Inventions.

Car Seats and Sleeping Couches.

A patent was issued to Eli Wheeler, of Union, N. Y., on the 3d of last month, for an improvement in railroad car seats, capable of being readily converted into comfortable sleeping couches, which, while it insures to passengers a comfortable seat, enables them, with the least possible trouble, to enjoy the eagerly-sought-for repose of sleep, on horizontal couches so enclosed as to somewhat resemble state-rooms.

The sides of the car, on each side of the longitudinal passage way through its center, are divided by partitions six feet apart, one half of which partitions may be let down, or slid into the other parts so as to give a more open appearance in the day time, and which may be restored to their former position when desired at night. Along the sides of these partitions are arranged the seats, facing each other, each apartment furnishing seats for four persons, capable of being converted in a moment's time into comfortable berths and couches for the same number, each with its complement of blankets, pillows and mattresses, which are contained in convenient receptacles. A free circulation of air is permitted, both above and below the berths, as well as on each side, and it is intended to place the car in charge of some suitable person whose sole business will be to wait upon passengers, and see that it is kept scrupulously clean, well warmed and ventilated. What commends this improvement more particularly to favor is its extreme simplicity, there not being a hinge or sliding bolt about it, or in fact any part liable to get out of order, and any passenger can as readily convert the seats into couches, and *vice versa*, as to turn over the backs of the present seats, and by a similar process.

As an evidence of the great favor with which it has already been received among the best qualified to judge, we are informed that arrangements have already been entered into with some of the principal railroad managers to introduce these cars as soon as possible on their roads. Among other testimonials, we have seen a very flattering certificate commendatory of the simplicity, efficiency and adaptability to the purpose of the design, of this arrangement of convertible car seats and couches, from Eaton, Gilbert & Co., the celebrated car builders of Troy, who, we understand are now engaged in completing four cars upon this plan for the New York Central Railroad Co.

Improved Wet Fuel Furnace.

In the use of waste and refuse carbonaceous matter for fuel, it is quite a new idea to produce such a heat in the furnace or fire chamber as shall decompose the water and make its gases also available as heating material, and for the first time a furnace has been constructed on these principles by Gideon Bantz, of Frederick City, Md. Our engravings fully illustrate the invention, Fig. 1 being a longitudinal vertical section of the furnace, showing its application to a steam boiler, and Fig. 2 being a transverse vertical section through the fire chambers.

A A are two arched fire chambers arranged side by side and furnished with bars, *a a*, beneath which are the ashpits, B B. These fire chambers are not placed below the boiler, H, but directly in front and parallel with it. They may, however, be placed at one side of the boiler, and at any angle to it. Each is provided with a door, *b*, but these are only used for lighting the fires, and the ashpits, B, have doors, *c*, to regulate the supply of air through the grates, and permit of the removal of the ashes. On the top of each chamber are feeders, *d d*, for supplying the fuel. The chambers, A, are covered with a flat floor built over the arches that the fuel may be wheeled to the feeders. At the rear end of each fire chamber, there is a throat-like aper-

ture, *e*, communicating with a reservoir, C, that is built of brick lined with firebrick under the front of the boiler, and which has a concave bottom, *m*, and a convex back, *n*. By having the throat this shape, it is not partially closed up as it would be if the plate was straight and set inclined and, beside this the heated products of combustion are made to hug the bottom of the boiler, and as the draft is at this point, the perfect combustion of partially ignited gases is insured. The convex back of the reservoir terminates in and

serves as a bridge wall, *f*, and has a concave top so formed as to leave a space, *o*, of but three or four inches between it and the boiler. In the rear of *f* are a series of reverberatory chambers, D, separated by walls, *g*, each chamber being provided with one or more doors, *h*, in either or both sides, for the purpose of admitting air in sufficient quantities either to complete the combustion of the gases from the fire chambers or to check the draft. The reservoir is furnished with a door, *h'*, for a similar purpose. At the rear

end of the last chamber, D, there is a wall, *g'*, behind which is a drop flue, E, leading to the chimney.

The operation is as follows:—The gaseous products of combustion in the fire chambers, A, escape by the throats, *e*, into C, where they mingle together, and the combustible portion becomes ignited, and where their heat acts upon the boiler, and from thence they pass into the chambers, D, gradually, giving up their heat to the boiler, and finally descend the flue, E, to the chimney. The effect of

BANTZ'S WET FUEL FURNACE.

Fig. 1.

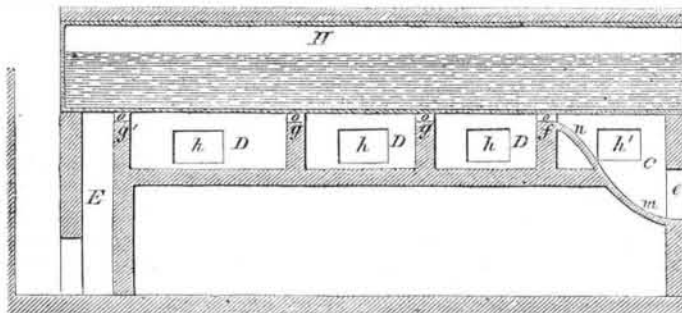
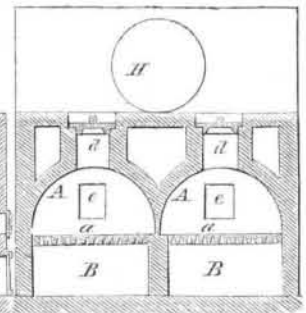


Fig. 2.



the principal portion of the improvement, which consists in the employment of the reservoir, C, connected with the fire chamber by the throats, *e e*, of much smaller transverse area than the fire chambers, is that the products of combustion and heat are prevented leaving the fire chambers too rapidly, and the said chambers are consequently caused to be heated to an intense degree, and a very nearly perfect combustion of the fuel is obtained there, and when the gaseous products of combustion leave the chambers by the throats

and arrive in C, the side walls and bottom being at a white heat, the still combustible portion of the gaseous products is ignited under the boiler. In the management of the furnace, care should be taken to supply the charges of fuel to the two fire chambers alternately as near as possible at regular intervals, so that in one there may be always a bright fire.

At night, or any time when no steam is required from the boiler, or when the generation of heat is not required, the two front feeders

should be filled up with fresh fuel, the ashpits doors closed up, and one or more of the doors, *h*, opened, to prevent more than a very limited supply of oxygen to the fire chambers, so that when the doors are closed and the ashpit opened, the fire will begin to burn briskly. Any number of fire chambers may be employed in this most excellent arrangement for burning wet tan, bagasse, and such like fuel.

It was patented June 22, 1858, and any further information can be obtained by addressing the inventor as above.

HARVEY & BECKER'S THRESHING MACHINE.

Fig. 1.

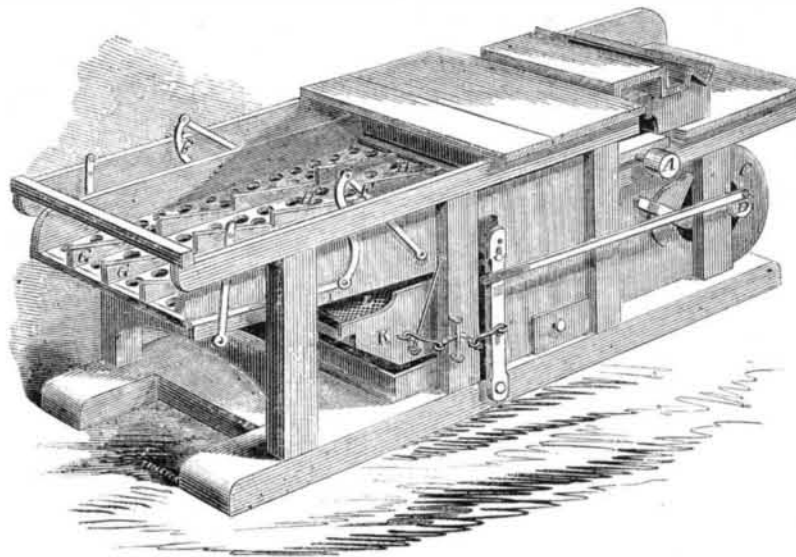
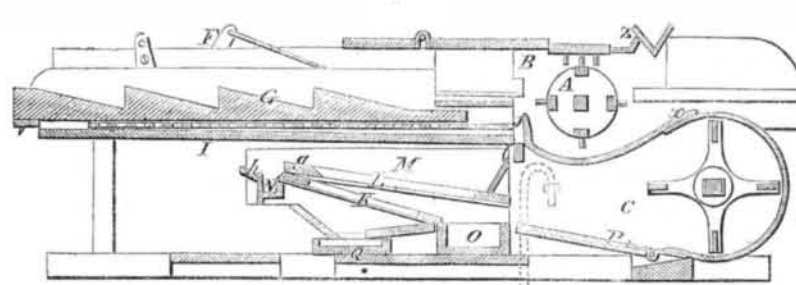


Fig. 2.



This machine is intended to separate the loose grain from the straw before it is threshed, and also to thresh it, carry away the straw, and thoroughly separate the grain which has been threshed from the ears. Our engravings fully illustrate the invention, and we will now proceed to describe them. Fig. 1 is a perspective view of the machine, and Fig. 2 is a longitudinal vertical section.

A represents the revolving threshing cylinder and the band wheel by which it is driven, B the stationary concave, and C the blast fan and box, D is a crank wheel, giving motion to the separators through the link work shown, the driving pulley not being seen in our illustration. F are a system of levers giving a reciprocating motion to the toothed bars, G, which move over and in an opposite

direction to the perforated bottom, H. I is an under inclined grain conducting board, G H I, forming the straw carrier. The bars, G, are to carry the straw to the thresher, and the perforated bed allows the corn that may be loose among it to fall down on to the conducting board, I, so that it does not pass through the threshing machine. J is a foot-board at the lower end of the inclined conducting board, I, for the grain to strike against it as it descends. L M N represents the separator, K, Fig. 1, being the shoe or box. The screens, K L, Fig. 2, are both attached to the same frame, M, and vibrate together, the screen, L, being so slightly inclined as to cause the grain to work to its forward end, *g*. This screen terminates over a spout or chute, N, which has a guard-board, *h*, and serves to receive and conduct off the tailings and other foreign substances which are too heavy to be blown through the forward end of the machine by the blast of the fan. The second screen, K, inclines to the box, O, into which the cleaned grain empties, and below K are inclined boards to conduct seed passing through K to a receiving box, Q. The wind board, P, of the fan is hinged at its lower back edge, and its other edge is supported by straps so that it can be moved to direct the blast toward any desired point on the shoe or sieves of the separator. *x* and *z*, are two dust passages or outlets, so that the dust is conveyed away from the thresher and from the separator without at all inconveniencing the operator.

The great advantage of this machine is, that in the one frame and in a compact form it combines two operations, which are both perfectly and efficiently performed. The inventors are J. M. Harvey and N. J. Becker, of Amsterdam, N. Y., and they obtained a patent August 10, 1858. Any further particulars may be obtained by addressing the inventors or the general agent, George Howe, Fort Hunter, N. Y.

Zinc was first mentioned by Paracelsus in the year 1541.