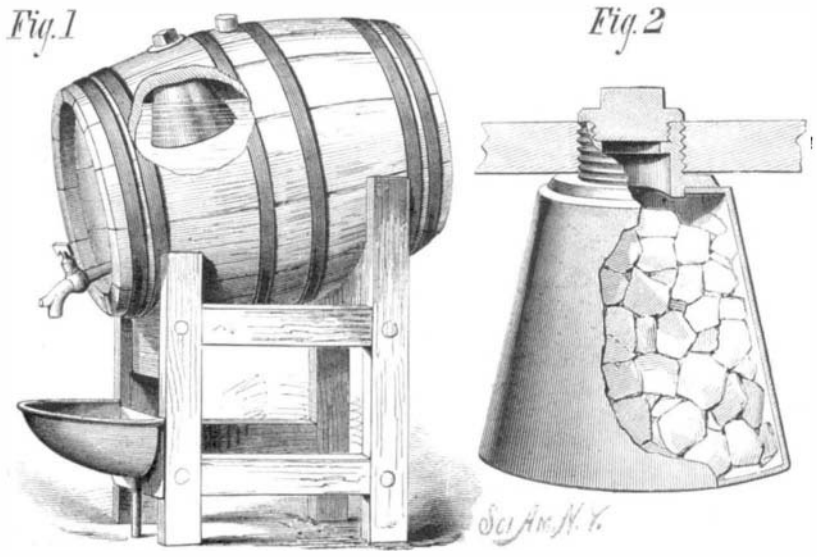
### A NOVEL COOLER.

Brewers and dealers in beer, ale, and similar liquors well know the difficulty experienced in the transportation of barrels and kegs of such liquors in warm weather. To avoid the use of refrigerators, either in transporting or retailing the liquors, Mr. John Hoerr, of Denison, Texas, has devised and patented a cooling attachment for barrels, kegs, etc., by which, with a small amount of ice, the contents may be kept cool for a considerable length of time.

The invention consists of a vessel of galvanized or enameled iron secured to a cast metal neck, which is screwed permanently into one of the staves or heads of the barrel. This vessel is filled with ice and salt, and closed by a screw plug. As the ice vessel has no connection with the interior of the barrel, the ice and salt can be replenished as required without disturbing the contents of the barrel.

The inventor states that the device may be used to prevent freezing as well as to maintain a low temperature, and sends us the particulars of an experiment tried by him to test the efficiency of the cooler:

"On October 23d I had one keg of beer shipped to me by express from St. Louis, Mo. the keg being provided with one of my cooling attachments. On November 3d I tapped the keg at 8 o'clock A.M., at 80° in the shade, and found the beer to stand 63°. I poured one quart of boiling water into the cooler, turning the keg upside down; in fifteen minutes it had reached the temperature of 74°. I then emptied the cooler and charged it with 2 pounds of ice and a small handful of salt, bringing the temperature of the beer to 66° in thirty minutes, and five hours after it stood at 65°, the external temperature being 82° in the shade. I then recharged the cooler with ice and salt as before, and thirty-eight minutes after the beer stood at 58°."




HOERR'S COOLING ATTACHMENT FOR BARRELS.

### THE CASSON-DORMOY FURNACE.

The accompanying engraving represents a highly successful gas puddling and mechanical stoking furnace, known as the Casson-Dormoy furnace.

This furnace has a gas producer in lieu of the ordinary grate. The puddling chamber is perfectly circular, the sides and bottom plates being so arranged as to expand and contract with the variations in the temperature of the furnace.

The gas producer, B, is constructed similar in form to the "Siemens," but instead of the air being heated in a "regenerator," it is drawn or blown down the sides of the furnace chimney or flue, and under the bottom crown and walls of the producer, the gases being fired at the bridge; by this means a temperature of about 800° is obtained. The condition of the furnace is completely under the control of the puddler, who, by arranging the blast valves, obtains either an oxidizing or reducing flame, as the condition of the iron may require. The producer is fed from a large hopper, A, filled with slack. At the lower end of the hopper there are 2 revolving drums driven by a ½ H. P. engine, thus dispensing entirely with manual feeding. The feeding mechanism is shown in detail in Fig. 2. By means of dampers fixed in the gas flues, C, the producer can at any time be disconnected from the puddling chambers; this is done every Saturday, or holiday times, and causes the necessity of relighting the producers. At Round Oak Works the producers have remained three weeks without any feeding, and have been nine months without being put out.

The puddling basin, G, rests on a brick pillar 1 foot 4 inches from the ground. On this is set a wrought iron circular open dish, with sides about 4 inches deep; within this dish eight or more friction balls, 5 inches diameter, are placed at equal distances from each other. On these spheres two cast iron semicircular plates are laid; on these plates again four side or segment plates are bolted together externally by means of wrought iron pins, and forming a complete circle. Upon these are placed loosely the shelf or table plates which rest upon brackets fixed to the rail. Buckstaves, K, support the walls of the furnace. All the plates forming the basin are thus free to expand and contract with the variations in the temperature. The dish below being kept full of water, the evaporation produced from the above efficiently cools the bottom and sides and consequently the fettling. By the absence of inequalities and corners its shape does away with the difficulties usually attending the working of a mechanical rabble, at the same time effecting a considerable saving in fettling.

The circular form of basin easily enables the rabbling to be worked by machinery, as there are no jambs that the rabbles cannot reach in their courses from right to left and back again.

The pig-heating chamber, I, is fixed between the puddling basin and the chimney or boiler, and besides serving as a neck to the furnace, heats the pigs preparatory to their being passed over the bridge into the furnace.

When the iron is ready to ball the heating chamber, I, is charged a few pigs at a time; when all the balls are drawn out of the puddling basin, G, these pigs are passed over the bridge, and as soon as they are melted, the rabbles, which are so set that they cannot catch into each other in crossing, are fixed to the machine and worked at a slow motion for about five minutes; the speed is then quickened until the iron boils, when the slower speed is put on till the iron drops. The heating chamber, I, is then charged. The rabbles are then removed, and the real work of the puddler begins by his balling up the iron in the usual manner. The balls, which are of the ordinary size, are drawn from each door and the cinder tapped. A few shovelfuls of hammer slag are thrown on the bed, and the pigs, which have meanwhile been supplied into the preparatory chamber, are again passed over. These generally melt on the bed in ten minutes or a quarter of an hour. The charges of about 13 cwt. usually take from an hour and twenty to an hour and thirty minutes.

### New Mechanical Inventions.

Mr. John F. Cameron, of New York city, is the inventor of an improved Air Ship or vessel, which is claimed to be so constructed that it may be propelled and guided through the air horizontally, or at any desired angle up or down, while carrying passengers and freight.

Mr. Floyd Heavener, of Laramie City, Wyoming Territory, has patented an improvement in Clothes Line Reels, designed to wind up the clothes line when it is to be taken into the house, and to stretch the same taut when disposed for use.

Mr. Patrick H. Childress, of Waynesborough, Va., has patented an improved Millstone Driver. This invention relates to an improvement upon the millstone driver for which letters patent were granted the same inventor August 13, 1878, in which the driver was made in two pivoted sections, and their inner ends jointed together by forks formed upon the said inner ends of the driver sections and an interposed ring which encircled the spindle.

Mr. Eugene Vicaire, of Paris, France, has invented an improved Device for Transmitting Motion, which is designed to destroy the effect of the inertia of the moving parts. It consists in a peculiar form of compound beam or lever provided with a counter weight.

Mr. Henry Pollock, of Fredericton, New Brunswick, Canada, has patented an improved Thread Cutting Attachment for Sewing Machines, by which the thread may be cut quickly. The cutter may be instantly lowered below the table when not required for use.

Mr. John F. Seymour, of New York city, has devised a novel Machine for Drying Sheets of Postage Stamps and other gummed paper or material, which saves the time, labor, and space required when the gummed sheets are dried in the usual way.

An improved Automatic Car Coupling, that may be coupled without going in between the cars, the coupling link being held in the exact position for entering the connecting draw head, and adapted to couple with draw heads of cars of different heights, has been patented by Mr. Charles W. Cornell, of Wauseon, Ohio.

Mr. Henry Staib, of Blossburg, Pa., has patented a Machine for Finishing or Rolling Leather, which will permit the operator to control the pressure and apply the most power when it is needed—that is, at the time of greatest pressure. It will let off and free the leather from the operating rollers instantaneously.

Mr. William H. G. Savage, of Kingston, Ontario, Canada, has devised an improved Permutation Lock, in which the adaptability of the face plate in connection with the set screw furnishes a very simple means of setting the lock to any desired combination, and changing the combination to a new one whenever necessary.

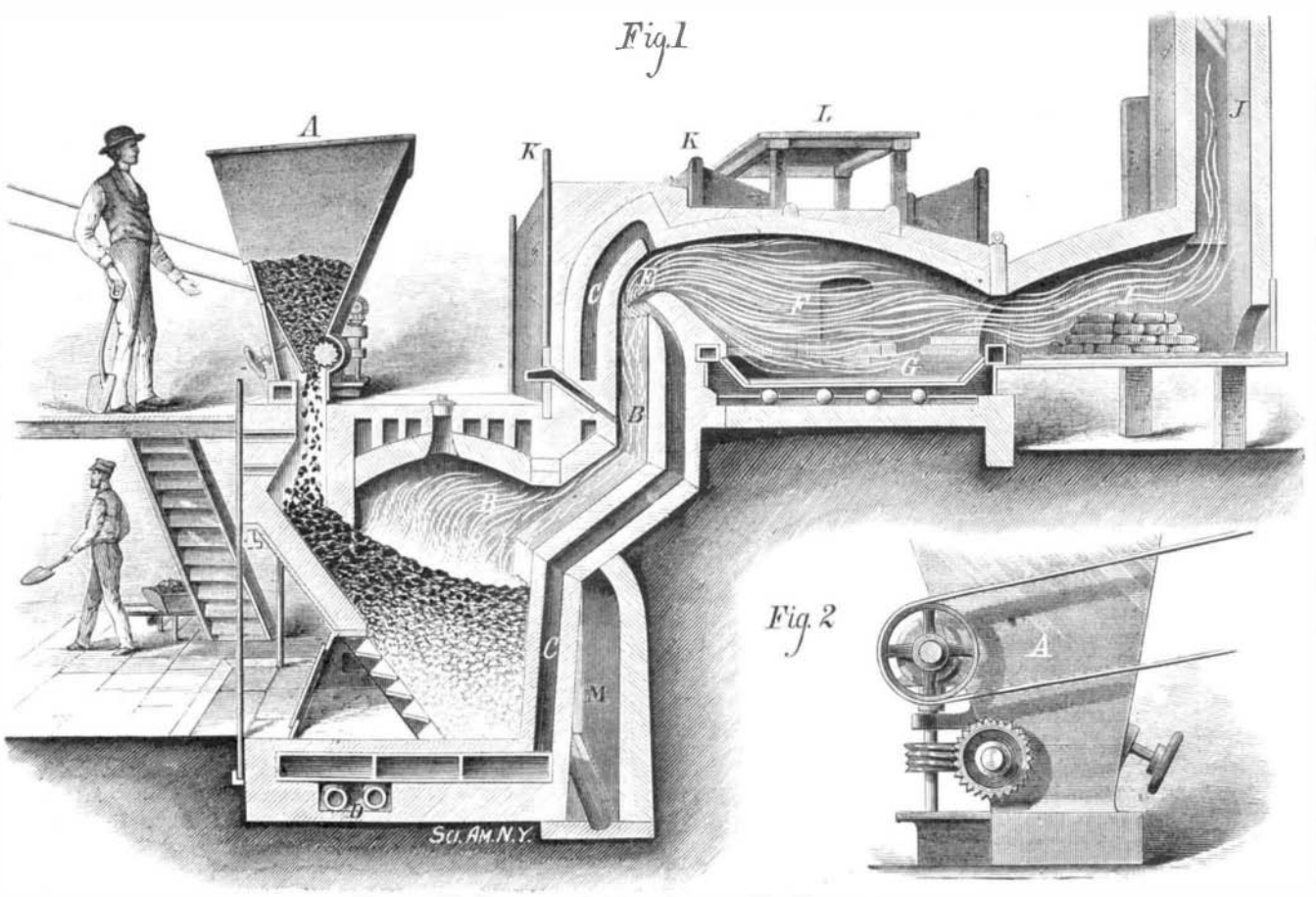
Mr. Ephraim R. Dingley, of New York city, has devised an improved Railroad Track, in which the rail is provided with a concaved rubber bearing block, extending around and over one side of the head of the rail, to destroy the side vibration of the rail and the ringing sound of the car wheels.

Mr. George W. Prescott, of Battle Creek, Mich., has invented an improved Cone and Fastenings for Smokestacks of Locomotive and Portable Engines. It is so constructed as to break up the cinders and prevent them from cutting the netting and smokestack without impeding the exhaust.

Mr. Asa E. Stratton, Jr., of Brazoria, Texas., has patented an improved Car Axle Bearing, which consists in a box having a chambered back for containing oil, and having grooves along the straight edges of its bearing surface for receiving a wick, the ends of which extend through holes in the box into the oil reservoir.

Mr. Edward Huber, of Marion, Ohio, has patented an improved Feed Water Heater, which consists in the peculiar construction and arrangement of a circular jacket, arranged about the smoke chamber of the boiler, having a supply pipe and a discharge pipe leading to the boiler, so that the water, in passing through said jacket to the boiler, is not only heated before being delivered into the boiler, but also serves to prevent the smoke chamber from being burned out.

Mr. Thomas Whitfield, of Chicago, Ill., has patented an improved Apparatus for Filling and Capping Capsules, by which capsules may be readily filled with a graduated amount of powder and securely capped at the same time.




THE CASSON-DORMOY GAS PUDDLING MACHINE.