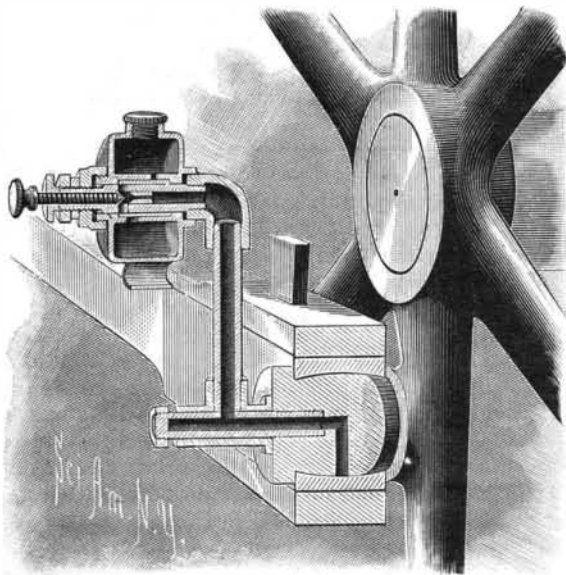


AUTOMATIC OILER FOR CRANK PINS.

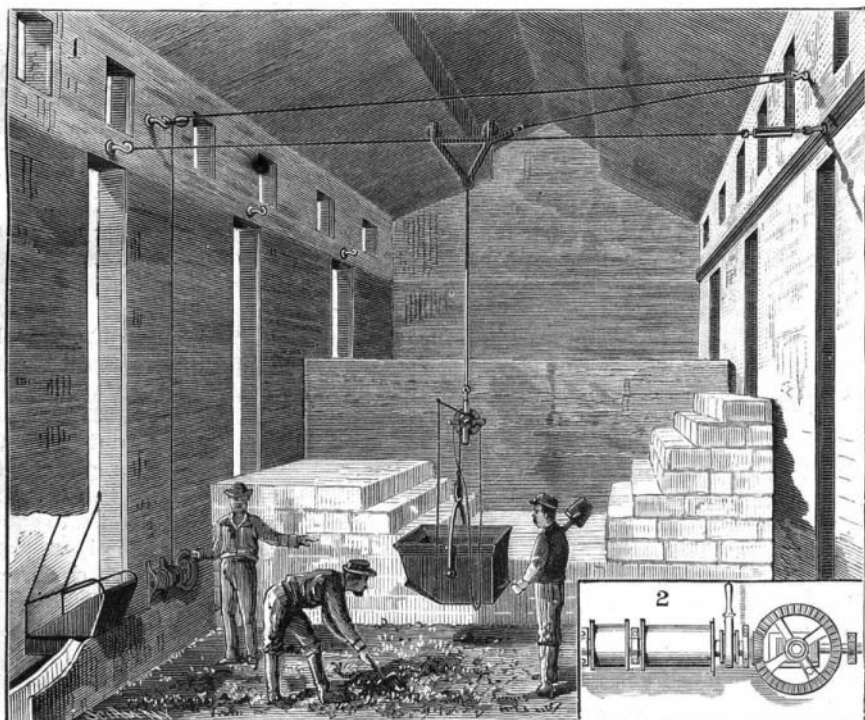
The crank pin is formed with an aperture upon the axial line extending inward from the face, and thence at a right angle to the outer bearing surface. Screwed into the aperture is a hollow plug, to which a tube is attached at a right angle. On the outer end of the tube is a quarter bend that carries the oil cup and its parts. The oil cup is of cylindrical form, and is pro-



HARTNETT'S AUTOMATIC OILER FOR CRANK PINS.

vided with a feeding cap at one side. At its center it is formed with a transverse tube forming a sleeve around a fixed tube screwed into the end of the quarter bend. The sleeve and tube are provided with apertures to allow the oil to pass through the tubes to the plug, so that a continuous passage is formed for the oil from the cup to the crank pin. The cup has an annular flange fitting over the quarter bend, and at its outer side is a similar flange that is threaded and receives a packing gland whereby the ends of the tube are made tight.

The outer end of the inner tube is screw-threaded and furnished with a set nut taking against the gland, so as to hold the cup up to place; and in the outer end of the tube is a screw plug that can be screwed in to more or less close the aperture, and thus regulate the escape of the oil. The tube holding the oil cup projects from the center line of the shaft, so that in the rotation of the crank pin the oil cup simply rotates with the shaft, while the plug in the crank pin, moving with the latter, a centrifugal movement of the oil is set up from the cup through the tubes to the crank pin, thereby keeping up a constant and uniform supply of oil that can be regulated according to the amount desired. In order to fill the cup while the engine is running, it is only necessary to take hold of it to prevent its rotation with the tube, when the cap can be removed. A loop



CONGER'S HAND POWER APPARATUS FOR HOISTING AND CONVEYING BROKEN ICE, ETC.

on the under side of the cup is for convenience in taking hold of it to stop its rotation. In the space between tube and sleeve is a wire cloth, which, while allowing the oil to pass freely, prevents any sediment from finding its way to the bearing.

Additional particulars regarding this patent may be obtained from the inventor, Mr. John M. Hartnett, of Lyons, Kansas.

HAND POWER APPARATUS FOR HOISTING AND CONVEYING BROKEN ICE, ETC.

The invention herewith illustrated shows an improved arrangement for hoisting and conveying purposes, which has been recently patented by Mr. Henry B. Conger, of Burlington, Vt. It is more especially designed for conveniently and rapidly removing valueless pieces or clippings of ice, as they accumulate in ice houses, to a point where they can be readily carried away, a work heretofore generally performed by hand barrows and dump sleds, slowly and expensively.

According to this invention, an inclined wire cable or rope is suspended from any point within a building to a point above or near the dumping spout on the other side, the cable supporting a traveling carriage, from which a bucket is so suspended that it can be easily raised or lowered and dumped automatically at the spout. The lower end of the cable is attached to a stationary hook over the dumping chute, but the other and higher end is connected to one extremity of a turn buckle, attached to an adjustable hook, whereby the cable is kept taut, and this hook is adapted to slide in a grooved bracket, extending longitudinally along the opposite side of a room or building. The invention covers special details whereby this hook may be easily located, and then securely fixed at any desired point in the sliding bracket. Suspended from the carriage which travels on this cable is an iron rod, on the lower end of which is a differential pulley supporting a bucket by means of a chain and bail, the latter so adjusted as to hold the bucket upright while it is being filled and moved, until the bucket is tilted and its contents dumped into the spout by its toe coming in contact with the nose of the spout, from the rapid movement of the carriage with its suspended bucket down the inclined cable. To haul the carriage up the cable, the hauling rope passes over the larger of the two drums shown in Fig. 2, the shaft carrying these drums being attached to the side of the building. The smaller drum carries a special cable for use in tilting the bucket when this apparatus is to be put to some different employment; the length of the dumping cable is then regulated according to where the load is to be deposited, and it can be so adjusted that the contents of the bucket may be distributed over a greater or less space as desired. The carriage with its bucket is drawn up the inclined plane by a crank on the gear wheel shown in Fig. 2, and is held while being filled by a friction brake on the larger drum, the bucket being lowered and raised by means of a differential pulley; the brake being loosened, the weight upon the hoisting rope rapidly reverses the movement of the drum, when the bucket runs down the cable and dumps itself. This apparatus, as will be readily conceived, can be used in the building of railroads by extending the wire cable over tripods at each end and made fast to the ground, conveying the earth for cuts and filling of ravines, doing away with horses and carts; also for building trenches for sewers and water pipes, first by opening the trench and commencing laying of pipe, and then extending cable as before, taking out the earth and dumping back on pipe, thus handling the earth but once; also for conveying from one building to another, and, in fact, in connection with nearly all kinds of excavation, being especially advantageous where it is desirable to lift and remove earth to a distance, it being claimed that it is thus practically applicable up to 600 or 700 feet.

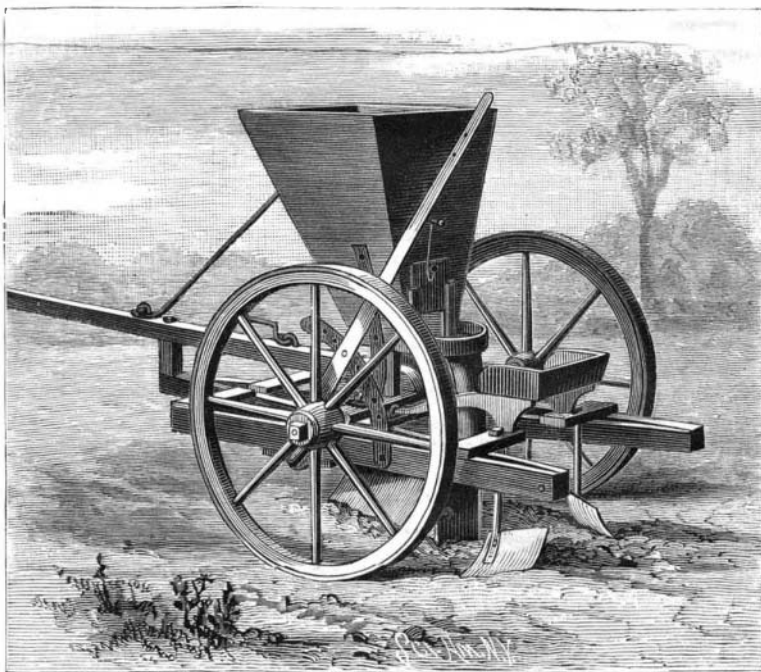
Solidification of Nitrogen and of Carbon Monoxide.

Nitrogen is solidified at a temperature of -214° and under a pressure of 60 atmospheres, its critical point being -146° under the pressure of 35 atmospheres. By carrying the rarefaction to 4 mm. of mercury, the author has succeeded in obtaining a temperature of -225° . The solidification point of carbon monoxide is -207° with a pressure of 100 m. of mercury. Oxygen still remains liquid at a temperature considerably below -211° .—*Olszewski*.

COMBINED POTATO AND TREE PLANTER.

The engraving shows a planter designed to facilitate the planting of potatoes and small trees and to promote accuracy in such planting. The axle is bent at the inner side of each wheel so as to form a crank, the straight middle part of which rocks in bearings attached to the side bars of the frame of the machine. To the inner sides of the rear ends of the side bars are secured the ends of two bars whose forward ends are secured to each other in the central line of the machine. The forward parts of the side bars are connected with the inclined bars by short cross bars, and the rear parts are connected with the inclined bars by short bars whose inner ends project to serve as supports for the standards of the covering plows. The end of the tongue is secured to long cross bars attached to the side and inclined bars a little in the rear of the middle part of the axle.

The upper end of the plow standard passes through the forward long cross bar and tongue, so that it serves as a bolt for securing the latter in place. The forward edge of the standard is made sharp to act as a colter, and formed upon its lower end is a plow. Suitably connected to the opposite sides of the rear part of the standard and to the frame are plates, the rear parts of which, by means of a right and left screw working in U-shaped keepers secured to the inner surfaces of the plates, may be moved further



HAMRE'S COMBINED POTATO AND TREE PLANTER.

apart or nearer together, according as a wider or narrower channel may be required. Secured by nuts to the inner ends of the short rear cross bars are standards; by adjusting the nuts the covering plows can be adjusted to work deeper or shallower in the ground. The covering plows are made in the form of mould boards arranged with forward ends inclined outward.

The seed hopper is made with inclined front and sides and vertical back, and the bottom is secured to the top of a pedestal, the lower end of which rests upon the forward cross bar and is recessed to receive the tongue. The hopper is so secured that it can be readily detached from the frame, together with its attachments. In the lower edge of the back of the hopper is the discharge opening, which is provided with a gate. Attached to the gate is a cord which may be wound around a pin to hold the gate at any height to regulate the discharge of seed. The bottom of the hopper extends rearward to form a feed platform, which is rounded and formed with a flange to prevent the potatoes from rolling off. In the outer part of the platform is an opening leading to a spout made of such a length that its lower end enters the space between the rear upper parts of the plates. The dropper's seat can be easily removed when necessary. To one of the crank arms of the axle is rigidly attached the end of a lever, by which the machine can be readily adjusted to open a channel of the required depth, and to raise the plows from the ground for convenience in turning round. The lever is locked in position by a pin passing through holes in the lever and in a curved catch bar. To the inner side of the outer part of the lever is secured a strap which engages with a headed pin on the side bar of the frame, to hold the lever in position when lowered to raise the plow from the ground. When the machine is to be used for planting trees, the hopper and its attachments and the seat are detached, and the young trees are placed upon the machine or in a box on the frame. As the machine is drawn forward an attendant places the seedlings singly and in the proper places in the furrow between the plates, and soil is thrown around them by the covering plows. This invention has been patented by Mr. E. J. Hamre, and particulars can be obtained from the Rev. J. G. Riheloffer, D.D., Minnesota State Reform School, St. Paul, Minn.