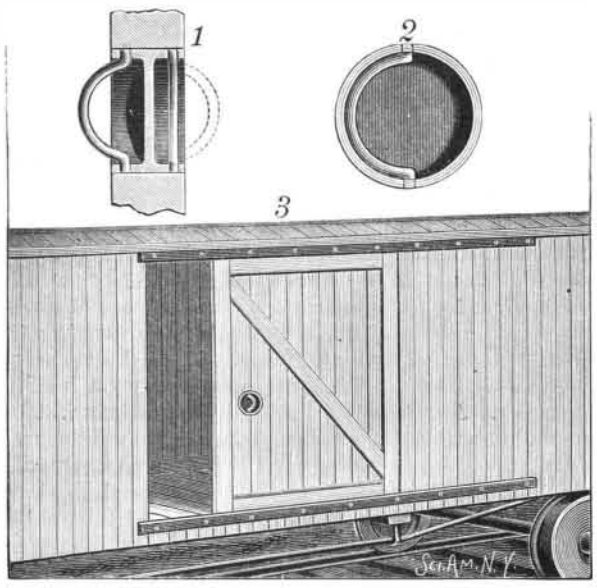
IMPROVED HANDLE FOR SLIDING DOORS.

A door handle constructed upon the general principle of drawer pulls, in which the handle is in the form of a hinged ring pivoted to a concave or recessed plate, so as to close inside of the same, is illustrated herewith, and has been patented by Messrs. Peter Scheer and John G. States, of Bliss, Neb. A circular band of the

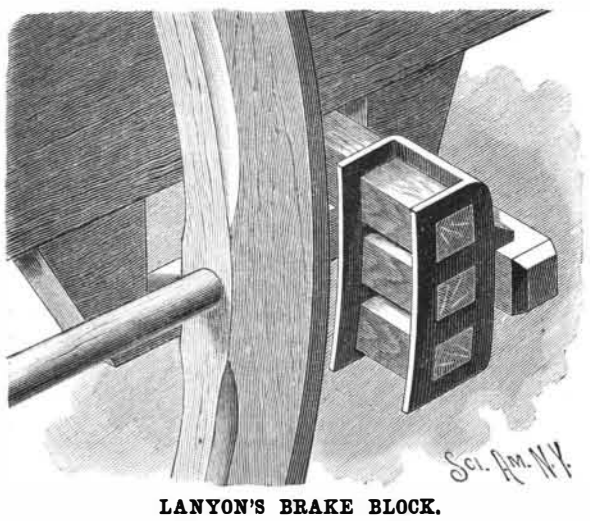


SCHEER & STATES' SLIDING-DOOR HANDLE.

thickness of the door, as shown in Fig. 1, forms a part of the handle, this band being divided by a transverse partition. Upon opposite sides of this partition the band is fitted with two hinged or pivoted loop-shaped independent handles, arranged so that they may be turned out for operating the door, or swung into the band, where they will not come in contact with the door casing, and so that if either handle should strike the casing it will readily swing into its recess out of the way. The band may be secured in the door by screws or otherwise, and its central partition may be cast integral with the band.

AN IMPROVED BRAKE BLOCK.

A brake block which combines separated wooden rubbing or bearing blocks with a metal frame by which they are carried is illustrated herewith, and has been patented by Mr. Robert H. Lanyon, of Carterville, Mo. The frame is of sufficient width to receive the tire portion of the wheel for any desired distance on



LANYON'S BRAKE BLOCK.

its periphery, to which the frame is curved to conform, and each side of the frame has a series of rectangular openings adapted to receive separated wooden blocks. The back of the frame has a slot in it for a bolt by which the brake block may be attached to the usual brake beam, the back also having a lug adapted to rest on top of the beam, serving to keep the brake block from turning upon the bolt. The separate wooden blocks can be readily placed in position and easily replaced when worn, the spaces between them serving to catch mud or grit from the wheel and thus cause the brake, when applied, to take a firm hold.

Kansas Salt.

In a recent interview with Prof. M. Swenson, the *Item* obtained information as to the Kansas salt mines which is interesting.

About eighteen months ago, while boring for natural gas at Hutchinson, the machine passed through a vein of salt about 400 feet thick. Oil was found some distance below this vein. Kansas went wild at the discovery of oil, but the excitement soon died away, as the supply was too insignificant for profitable working. Attention was then turned to the salt vein, situated 350 feet below the surface. Surveys and borings made over a large extent of country indicate that the vein is over 300 miles long, 25 miles wide, and 400 feet thick, and that it is composed of the purest quality of rock salt.

Steps were at once taken to utilize some portion of this vast deposit, and there are now in operation eight large salt companies at Hutchinson, besides numerous others in Sterling, Anthony, and other Kansas towns.

The way of obtaining the salt is not by mining, as at Avery's Island, although preparations are being made to resort to that system. The present method is to bore a hole down into the salt bed. In this hole a double pipe is inserted. Through the inner tube water is pumped down into the salt, and in the form of concentrated brine is forced up through the space between the inner and outer tube. The brine is evaporated in open tanks of enormous size. One of these, built at Fort Scott recently, is 80 feet in length by 30 in width. Fire is applied under the tanks, but very little fuel is required, as the brine is already highly concentrated. As the water is evaporated the salt is raked up on the flaring sides of the pan, where it is dried and put up in barrels or other packages. Kansas salt now monopolizes the Kansas City market, where it is laid down, freights paid, at $4 a ton. The rapid development of the new salt industry has given great encouragement to the packing interests of the State, and some of the largest packing houses of the country have been established at Hutchinson, Wichita, and other points where cattle, hogs, and salt are all convenient to the packers.

Nitrogen.

There is a substance which is invisible, which has neither odor nor taste, and in fact possesses no qualities of matter except weight and bulk, says the *Journal of Chemistry*. This is the gas nitrogen, which constitutes four-fifths of the atmosphere which surrounds us. It is apparently a dead and inert form or manifestation of matter, and yet it is perhaps one of the most important and useful of the elements, and if it should vanish from the universe, life would cease to exist. This apparent paradox is explained by the fact that by its combination with other elements the remarkable characteristics of nitrogen are awakened into action. The gas is neither poisonous, corrosive, explosive, nutritious, nor medicinal; but combined with carbon and hydrogen it forms the deadly prussic acid; with oxygen and hydrogen, the strong corrosive nitric acid; with hydrogen alone, the strongly basic alkali ammonia; with carbon, hydrogen, and oxygen, the terrible explosive nitro-glycerine; and with the same elements in varying proportions, it forms the albuminoids, the gelatines, the glutens, and other strength-giving elements of our food, or the indispensable medicinal agents quinine, morphine, atropine, strychnine, veratrine, cocaine, and many others.

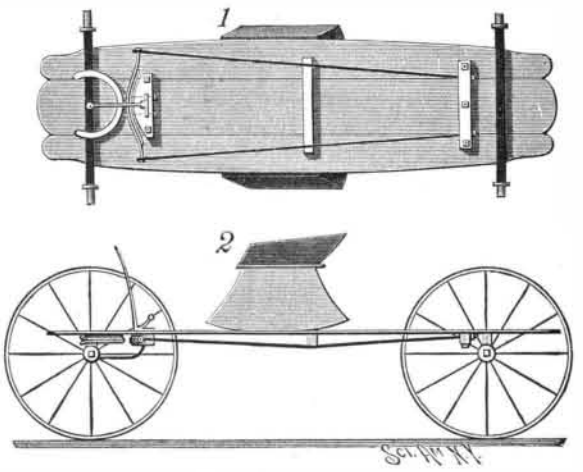
Although nitrogen is tasteless, it forms an indispensable part of the flavors of the peach, plum, apricot, and other delicious fruits, as well as coffee, tea, chocolate, and tobacco. Without smell, it is found in many of the most powerful and delicious perfumes, as well as in the nauseating odors of putrefaction. Present in immense quantities in the air, it furnishes little or no support to vegetation, but combined with other elements the amount present in the soil determines its fertility and the amount of crops that may be raised upon it. Colorless and invisible, nearly every dyestuff or coloring matter known contains it in a greater or less proportion. Harmless and powerless by itself, when combined with another non-explosive gas, chlorine, it forms the most powerful explosive known, of which a ray of sunlight is sufficient to arouse the terrible destructive power.

And yet, notwithstanding the pre-eminent importance of this element in the affairs of life, there are but few of its combinations which we can form directly. Millions of tons of nitrogen are all about us, but not a grain of morphine or theine, gelatine or albumen, aniline or naphthaline, can we make from it. Only the mysterious vital force working in the natural laboratory of the vegetable and animal organism can build up most of these molecules from their ultimate elements, and place the atoms of nitrogen in their proper position like the beams or stones of a building. Our wonder at the marvelous powers displayed by these organisms is none the less when we see what simple, common, and uncharacteristic elements are used by them in making up their wonderful products, and we can only say that it is a part of the great and unsoluble mystery of life.

Neither can we explain satisfactorily from a chemical standpoint the properties and reactions of this strange element. By itself it is nothing, but united with other elements, some almost equally inactive, the combinations thus produced manifest the most powerful and positive chemical and physical properties. It is like the springing into life of dead matter, but there is no system of chemical philosophy which can give a reason why it is so. It is the part of the chemist to observe and record the facts connected with the properties of different forms of matter, and in time we may from these facts construct a rational theory, but we are still a long way from a clear comprehension of the phenomena of the universe. There are about as many things in heaven and earth still undreamt of in our philosophy as there were in Shakespeare's time, and the further we advance toward the end, the more the field widens and appears to be of illimitable extent.

AN IMPROVED BUCKBOARD.

The construction of the vehicle herewith illustrated is designed to remedy the tendency in buckboards to become permanently deflected. It has been patented by Mr. James W. Lawrence, of No. 372 Broome Street, New York City. Attached to the under side of the board, near opposite ends, are two cleats, the cleat near the front axle having a convex forward surface, to which a semi-elliptical spring is secured by bolts. To the extremities of the spring are attached rearwardly extending rods, which pass through the cleat near the rear axle, the ends of the rods being threaded, and having nuts for regulating their tension. Near the center of the board, and secured to its under surface, is a bridge piece, arranged to rest upon and deflect the rods, which act as truss rods, and serve to support the center of the board with greater or less pressure, according to the tension upon the spring. The contact of the spring with the convex cleat varies with the load, an increase of load bringing more of the spring into contact, rendering less of the spring active, and making it stiffer in its action to support the heavier

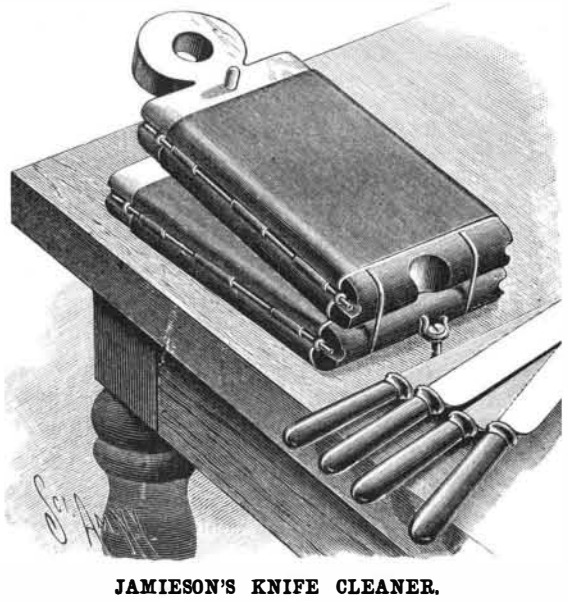


LAWRENCE'S BUCKBOARD.

load. Any deflection which should remain after overloading may be corrected by increasing the tension of the rods by turning the nuts upon their threaded ends.

AN IMPROVED KNIFE CLEANER.

A device to facilitate the cleaning and polishing of knives, by which the knife blades may be cleaned while wet and afterward be dry-polished, is illustrated herewith, and has been patented by Mr. Robert W. Jamieson, of Prince Albert, Saskatchewan, Northwest Territory, Canada. It is made with two blocks hinged together at one end to be turned and present differing opposing faces to each other, one face of each of the blocks having a woolen fabric covering, which will hold a knife-brick powder or similar material for the first cleaning of the knives, and the other face of each of the blocks having a leather or similar covering adapted to impart a bright finish to the knives. The cleaning fabric facings are preferably held to the blocks by pins passed through opposite edge portions, the pins being held in eyes within longitudinal grooves, so that the fabric may be readily removed when worn and replaced by new facings. One of the blocks has at its back end a hook adapted to engage a screw set into a table or other support, the other block having a recess at its back end to pass over this hook when the blocks are reversed. On one of the blocks is a projecting handle



JAMIESON'S KNIFE CLEANER.

by which to press the cleaning or polishing faces together on the knife blade passed between them, and near this handle is a dowel adapted to enter a hole in the other block to bring their facings into operative position and steady the two blocks.

INDIA rubber is being tried as a substitute for asphalt in pavements in Berlin, and the result is said to be good, but expensive.