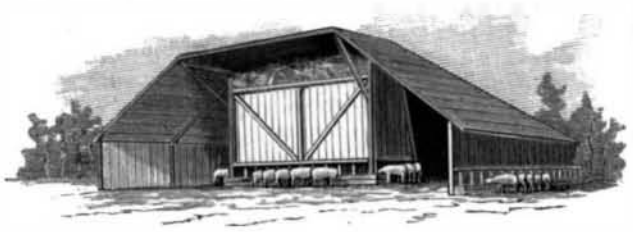
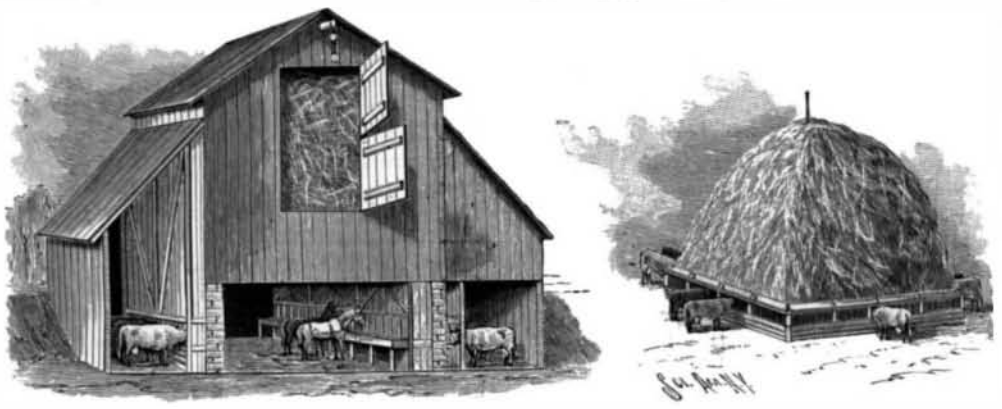
AN IMPROVED FEED RACK, BARN, ETC.

The illustration represents an improved construction of feed racks and sheds, applicable also in connection with a barn, in which a self-regulating feed receiver operates in conjunction with a protected feed-saving manger, with a regulating slide in the rack, the shed affording an economical and efficient protection for the stock against storms. This improvement has been patented by Mr. Samuel H. Warren, of Keosauqua, Iowa. The rack has a self-regulating feed receiver in its upper part, by which the feed is conveyed to the manger beneath, the receiver working automatically, while facilities are afforded for the self-regulating and keeping back of feed as desired.

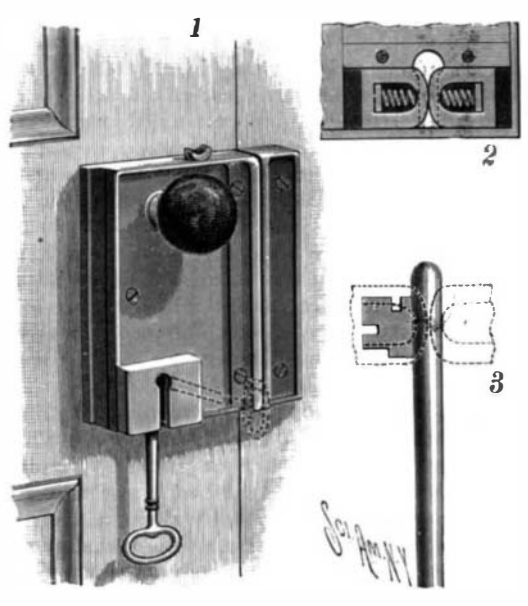




WARREN'S FEED RACK, CATTLE SHED, AND STOCK BARN.

The lower girts, guards and supports of the feed rack are fastened by bolts to vertical supports, upper girts and braces being also secured thereto, while slats nailed to the upper and lower girts constitute the feed receiver. The rack is made smaller at the top than at the bottom, permitting the feed to spread and become somewhat loosened, so as to be more easily drawn out. Retaining stakes are secured at their tops at the upper portion of the manger, and extend obliquely downward toward the center of the rack below the receiver, the stakes keeping the material back from the manger while permitting the animal to draw the hay out, and the hay accumulating in the bottom of the manger is thus protected from being trampled upon by the cattle. Horizontal slides are kept in place by cleats nailed to the top of the manger, and by guards. In the rack and shed combined the roof of the shed is centrally supported by the vertical posts of the rack, the slats of which run up to the roof of the shed, while the walls of the shed extend sufficiently beyond the rack to protect cattle feeding thereat, afford room for cleaning and bedding, and also a convenient driveway.

With such a shed and feed rack, it is designed that sufficient feed will always be kept in place to last for several days, without wasting, preventing the necessity of having to look after the stock during the prevalence of storms. With such a construction adapted to a barn, as shown, the capacity of the barn is greatly increased, in the matter of sheltering and caring for stock as well as for the storage of feed. The cattle can also be cared for with great facility, instead of, as is often the case, it being more trouble to get the hay to them than it was to get the hay into the barn in the first place. The feed rack and manger for horses is a modification of the cattle rack, intended to prevent waste of the hay, and a double portable rack of this kind is designed to be well adapted for the outdoor feeding of horses and colts, either combined with the model shed or independently thereof. A portable pen rack is made in sections like the barn rack, but without the feed receiver. It is designed to be set up around a stack or rick of hay, and can be readily secured in position, without much regard to the condition of the ground. A large sheep feed rack, intended to be combined with the model shed, is designed to hold a large supply of hay where the feed can be reserved for emergencies, the rack holding enough, if desired, to last for several weeks. All these racks, except the pen rack, are designed to be self-regulating, and their construction is comparatively simple and inexpensive.



DOOR LOCK.

Copper Sulphate as a Fungicide.

"The various compounds of copper offer efficient protection to many cultivated crops against the exceedingly destructive ravages of fungous parasites. Without treatment, these rots, rusts, mildews, and blights frequently destroy a large proportion of, or even the entire, products of fields and fruit plantations. The applications, in the shape of watery sprays, are made so readily, and with so little expense in money and labor, that every one interested should at once undertake the work. The practical results already attained constitute the greatest advance made in recent times in the application of science to horticulture. A little well directed effort may be confidently expected to return a hundred or a thousand times its cost. Still there is need for much vigilance and careful attention to every detail. Mistakes may be made even then, and sometimes failures may occur, for which existing knowledge may offer no explanation. But we should persevere, gain all possible information upon the subject, and watch well the effects in every test. In this way, every one may hope to conquer, practically, these insidious and, heretofore, invincible foes." Such are the conclusions after numerous experiments made by Dr. Burrill, of the Illinois Agricultural Station.

A LOCK WITH KEY HELD PENDENT.

A lock in which the key is held so that it cannot fall out when the door is slammed, while preventing also the introduction of a skeleton key, is shown in the accompanying illustration. Furthermore, when the door is opened against the wall it does not injure the plaster. It has been patented by Mrs. Virginia M. Hollyday, Baltimore, Md. The case, bolt, and tumbler of the lock are of the usual construction, except that the case has an external chamber around the keyhole, as shown in Fig. 1. On the inner side of this chamber, as shown in Fig. 2, is a key clamp composed of two spring jaws which press toward each other upon opposite sides of the keyhole. These jaws slide in guides on the case, and are placed far enough from the plane of rotation of the key bit so as not to be in the way of the bit in revolving to throw or withdraw the bolt. The keyhole is also continued through the bottom of the case, to permit the key to be swung down into a vertically pendent position, Fig. 3 showing how the shank of the key is then held by the spring jaws. After the bolt is thrown, the key is turned so that its bit is in a horizontal plane, when it is partly pulled out and swung down, the clamping jaws then closing behind its shank, and the keyhole being obstructed so that another key cannot be introduced.

Gas Properties not Injured by Electricity.

In a circular recently issued to the shareholders of the Standard Gas Light Company, of this city, we find it stated that President Andrews, at the last annual meeting asserted, that statistics proved that the growth of gas consumption in New York City, for forty years prior to the introduction of electricity for lighting purposes, averaged about ten per cent per annum. That is, the gas output doubled every ten years, and that the city had doubled in population every seventeen years. Since the first introduction of the electric light, however, the increase in New York of the consumption of gas has been much more rapid. It almost immediately jumped up to twelve per cent per annum, and in 1887 showed a growth equal to about fourteen per cent per annum, a ratio of growth that was still further exceeded in the years 1888–89–90. In fact, he was willing to stand by the statement that the gas output of New York was doubling itself now in a period of six and one-half years, instead of ten years, as before. He thought one reason for this very rapid increase was due to the fact that the electric light had educated the human eye "in the aggregate" for a demand for more light, and that people are not at all satisfied with the volume of light that formerly satisfied them. Again, a more luxurious mode of living is constantly prevailing in the city, as in all great cities, which is shown in the great increase in the use of gas for cooking and heating purposes. In conclusion, President Andrews thought it was safe to say that at no time in the history of the gas industry, from its beginning in this country some sixty odd years ago to the present time, has the outlook been more promising. Indeed, at no time has it been so inviting for the investment of capital as at present, and it may be stated as a settled fact that the electric light, at least in New York City, is not at all a competitor with gas to the injury of the latter.—*The American Gas Light Journal.*

AN EXTENSIBLE BARREL TRUCK.

The illustration represents an extension frame and combination platform truck, especially adapted to move heavy goods, and barrels of liquid which may be open or covered, there being no danger of spilling the contents of open barrels. The frame of this truck is adjustable, the axle being made in sections that interlock by means of a bolt and nut arrangement, whereby the wheel base may be widened to accommodate barrels of different size. A swiveled caster wheel is used in front, the frame being hung just high enough to clear thresholds and similar obstructions. This truck is made with a strong oak platform that can be readily removed when desired, there being on the bottom of the platform a strong iron button which clutches into the V-shaped frame of the truck, holding the platform securely in position. To remove the platform, it is raised by the rear end and pulled backward, being thus detached from the frame, the truck then being better suited for some forms of factory and store use. These trucks are manufactured in various sizes, with iron and with rubber-tired wheels, by George P. Clark, Windsor Locks, Conn.

CLARK'S BARREL TRUCK.

Steel Pipes.

The Steel Pipe Company, of Kirkaldy, have done something toward showing the advantages possessed by steel over wrought iron pipes. It is stated by Mr. D. J. Russell Duncan, Assoc. M. Inst. C. E., that wrought iron or steel pipes can be produced at a less cost per unit of length than cast iron pipes. A pipe built of steel can be made at a less cost of labor than one of wrought iron, on account of the reduction in the number of plates and rivets, and, therefore, of calking and punching. Being less liable to corrosion than pipes of wrought or cast iron, the durability of steel is insured. It is stated by one authority that the best precaution is to have the pipes galvanized, then coated with natural asphaltum or with a composition of pitch, tar, petroleum, linseed oil, and chalk. This solution is heated in a bath to a temperature of 250°, and the pipes immersed till they acquire the same temperature as the composition. The pipes should also be coated as they are laid in the trench. As regards strength, the steel pipe is much superior to glazed stoneware or cast iron, or about three and a half times stronger than the latter. Mr. Duncan says: "As steel is on an average 1·3 times stronger than wrought iron, it is clear that for pipes of equal strength of plate, and allowing that the riveted or welded seams are of equal strength on both, the thickness of mild steel need only be about 0·77 of the thickness of wrought iron." This economy of material can be effected by using open hearth mill steel of the highest possible tensile strength.