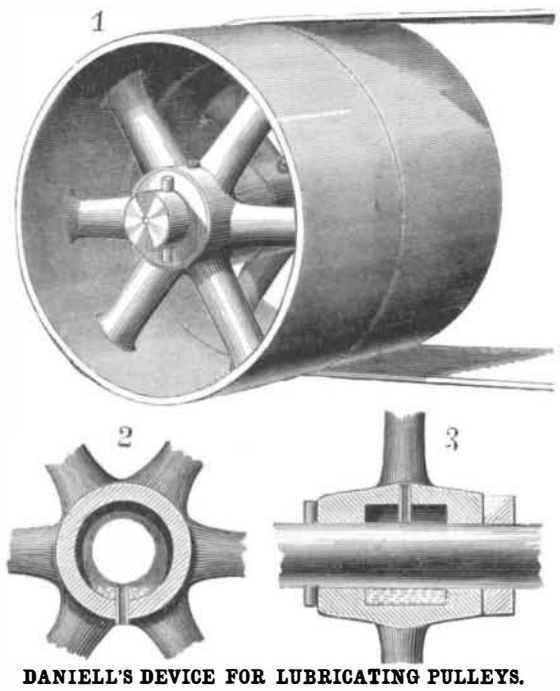
DEVICE FOR LUBRICATING WHEELS AND PULLEYS.

The lubricating hub herewith illustrated is designed for loose wheels and pulleys of different kinds, including car, wagon, or carriage wheels running loosely upon their axles. The hub portion of the pulley, shown in cross section in Fig. 2 and in longitudinal section in Fig. 3, is made with the usual oil receptacle or chamber extending around the interior of the hub and in open communication with the bore. Ordinarily the oil is introduced through a simple radial hole in the hub, so that when the wheel is rotated or left standing with the hole in a downward position much oil escapes. In the case of loose running wheels of cars used in mines it is seldom that the hole in each hub will be in such a position that oil can be poured in, and consequently the car has to be moved in order to bring the holes into proper position.



DANIELL'S DEVICE FOR LUBRICATING PULLEYS.

The waste thus caused is, to a large extent, at least, avoided by inserting or casting in the hub a tube, in open communication with the exterior of the hub and arranged to project within the chamber to the full extent of its depth, so that its inner end is in line with the walls of the bore. By means of this tubular feeding projection within the chamber the oil, when once put in, is prevented from escaping by any way except that which serves to lubricate the axle. Made in accordance with this plan it does not matter in what position the wheel is allowed to stand, since the oil cannot find a passage to the inner opening of the tube. This is shown clearly in Fig. 2, in which the tube is directly beneath the axle.

This invention has been patented by Mr. William P. Daniell, of Girardville, Penn.

High Buildings in Cities.

Old fashioned people, as well as some who cannot claim that designation, are not generally disposed to look with approval on the increasing number of high office buildings and residence flats in all our large cities. Perhaps most of the dangers from fire, in nine, ten, and eleven story structures, are removed by the exclusive use of brick, stone, and iron, not only for walls and staircases, but for ceilings and partitions. But, even if this be so, there is yet room for the conviction that many apartments are so filled with furniture and other combustibles that it would require no strange occurrence of circumstances to convert one of these great structures into a vast smoke house, where suffocation might be as fatal to many as the flames have frequently been in other cases. Besides, there are many who doubt that all of these said-to-be fireproof structures would really be so if put to a severe test.

Of much greater importance, probably, than the above considerations are the hygienic questions involved in the building of so many of these great apartment houses. Dr. S. Oakley Vanderpoel, in a recent paper read before the Medical Society of New York, says that in them it would be impossible to properly isolate the sick in the case of a general epidemic; that either through necessary attendance, contaminated clothing, or currents of air, the epidemic poison would be carried to all occupants. The air shafts from the bottom to the top, into which open windows from each floor, make facile means of distributing poisoned air, which any defect in plumbing or accident in the water or soil pipes might give rise to. It is also pointed out that such structures have a baneful effect in shutting out sunshine from the streets and from surrounding houses, so that private dwellings before cheerful and healthy become gloomy and unhealthy.

In striking contrast with these conditions in house building here, we note the subject of a paper recently read by Mr. John Honeyman, before the Sanitary Institute, Glasgow, Scotland. There, it seems, it is proposed, in a police bill draughted by the Corporation of Glasgow, that on land bounded by a new street forty feet wide, dwellings shall not be more than two stories high. In this case it is supposed the tenements will be in stories of ten feet high each, but the writer argues, with a detail which seems quite superfluous to us here, in favor of allowing the buildings on a street of that width to be four stories high, each story of eight feet, claiming that such a building is not too high where land is valuable, and that rooms eight feet high will ordinarily be as well ventilated as those ten feet high. This, indeed, seems like flying from one extreme to the other.

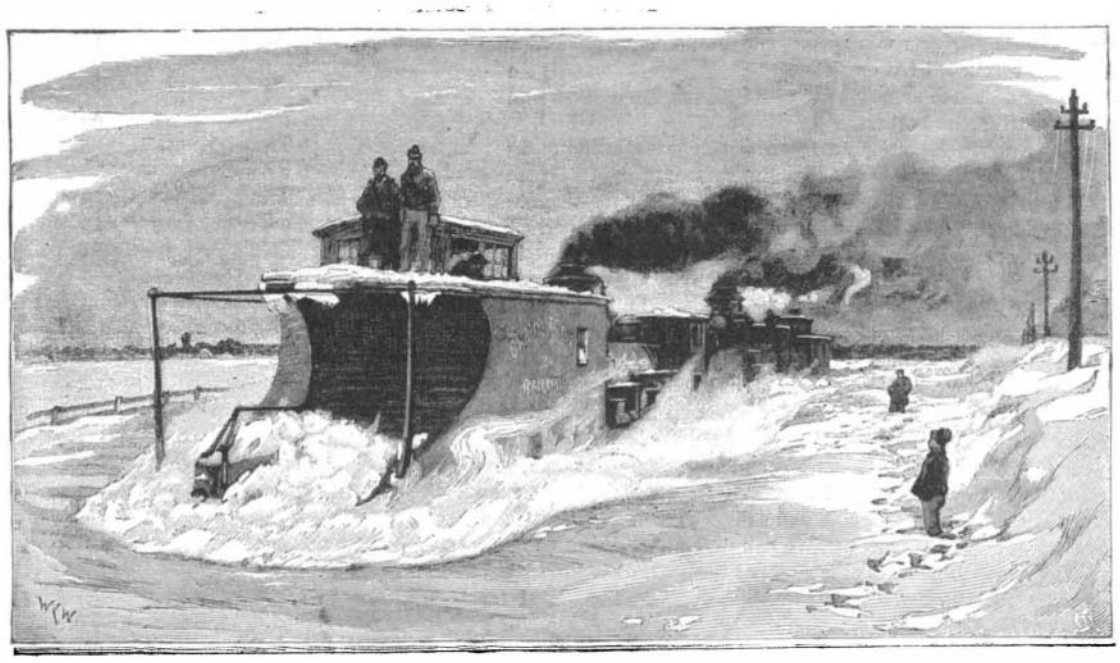
Bellows for Insect Powder and Liquids.

It is now well known that emulsions of kerosene are our best insect exterminators. Persian insect powder (the ground leaves of certain Pyrethrums), hellebore, sulphur, etc., are also valuable. But their application has hitherto been laborious and uncertain. Two years ago we began to use several kinds of bellows known as the Woodaston bellows, for sale by most seedsmen. They are made in different sizes, costing from one dollar upward—one set for the use of powders, the other for liquids. The latter are constructed on the plan of the little "evaporizers" sold by druggists, except that instead of pressing a little rubber bag to induce the spray, we use the handles of the bellows, the same as if "blowing the fire."

Previous to their use we had poured kerosene upon the perches, in the cracks and nests of our hen houses to rid them of vermin. Now we use the bellows, and the spray reaches every crevice and hole, while one-tenth the quantity serves and the operation is performed far more effectually in one-tenth the time. These bellows will project a fine spray for six feet, so that vines, small trees, or plants infested with aphides, bark lice, or insects of any kind may readily be reached. The powder bellows serve just as well for sulphur, hellebore, Paris green, and the like, as the spray bellows do for liquids, and we commend their use to all of our readers who are obliged to fight insect foes, whether in the hennery, kitchen, conservatory, garden, or field.—*Rural New-Yorker.*

A CANADIAN SNOW PLOW.

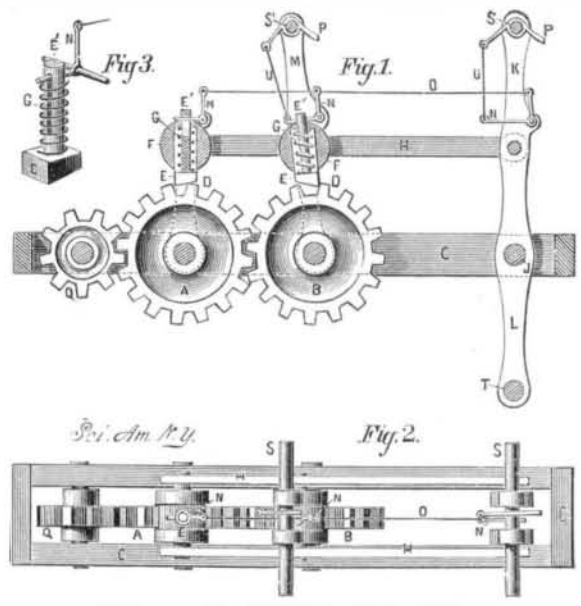
We in England know comparatively little of the inconveniences of winter, and although we hear occasionally of a train being snowed up in the North, the occurrence is so rare that it is chronicled in the journals as an instance of unduly severe weather. Across the Atlantic, however, in the northern portion of the United States and in Canada, the winter is so long and severe—this week the thermometer marked 48 degrees below zero in Dakota—that the railway authorities have to make great preparations for the safety of their traffic. Not only are bridges roofed over to prevent the accumulation of a mass of snow which might eventually break down the structure, but large steam plows are constructed, which, propelled by several locomotives, are capable of penetrating and clearing away huge quantities of snow from the line, through which no locomotive unaided could possibly force its way by itself. Many of the locomotives are fitted, in event of emergency, with small snow plows of sheet iron, sharp edged and backed with stout timbers. These, however, frequently prove insufficient, and passengers have to turn out of the carriages to assist in shoveling the snow off the line. The plow in our engraving, however, is a far more serviceable apparatus, and with good steam power behind it can clear away a great depth of snow off the track.—*London Graphic.*



A SNOW PLOW ON THE GRAND TRUNK RAILWAY, CANADA.

MECHANICAL MOVEMENT.

The device herewith illustrated consists of a pair of toothed wheels geared together, and so arranged that continuous rotary motion is communicated to the wheels, one pawl acting on one of them when the lever moves in one direction and another pawl acting on the other wheel when the lever moves the other way, the wheels thus driving in the same direction, but turning in opposite directions. On a suitable frame, C, are geared two spur-toothed wheels, A B. Pawl levers, D, are set so as to act on the teeth of the wheels for driving them in opposite directions. The pawls are formed on the ends of short rods, E_1, that are fitted to the sockets, F, of the pawl levers for being worked by them, and they rise and fall in the sockets in order to pass over and drop into the teeth for working the wheels, the springs, G, forcing them down. The pawl levers, D, are connected to a working bar, H, which is to be reciprocated by power applied



KUBEC'S MECHANICAL MOVEMENT.

to it in any approved way. A lever, L, may be pivoted to the frame, C, and have one arm, K, worked by hand, and the other by the feet. One or both of the pawl levers may have an arm, M, by which the power may be applied by hand, the lever, L, being dispensed with. The pawls are connected to trip levers, N, by which they may be raised out of contact with the wheels, when it may be required, to permit the working lever to be shifted to a more favorable point for starting the machine. The trip levers are connected to a rod, O, worked by a hand lever, P, on the power lever, when it may be worked at the same time that the hands are employed on the power lever, the hand lever being connected to any one of the trip levers by a rod, U. The power may be transmitted from the wheels, A B, by a pinion, Q.

An important feature of the device is that power may be applied by long or short strokes which may be varied within a considerable range, according to the number of teeth the pawls may be made to take at each operation. The leverage of the transmitting gear may thereby be varied, according as the work is light or heavy.

This invention has been patented by Mr. Frederick Kubec, of Riverside, Iowa.

Church Fires.

The *Chronicle* states that nearly eight hundred churches—an average of about eight per month—have been destroyed by fire in the United States in the past nine years. According to the fire tables of the above named journal, there were one hundred and nineteen churches destroyed during the year 1882, at a loss of $672,170, and a loss to insurance companies of $312,280. Among the principal causes ascribed for these fires are defective flues and heating apparatus and incendiarism. The incendiary is no respecter of buildings, and not only bears his flaming torch through the thoroughfares of our large cities, but also appears at intervals in our smaller cities and obscure country towns. Churches, and particularly those located in country towns, are too often built of the cheapest and weakest material, and present strong temptations to the inherent lovers of fires and easy prey to the fire fiend. Church societies owe it to themselves to pay more attention to the building of their edifices as well as to the prevention of fire.

THE will of the late Sir William Siemens covered personal estate of the value of £382,000. The testator makes provision by his will for the carrying on, under the same management as during his lifetime, of his civil engineering business, including his patented inventions.