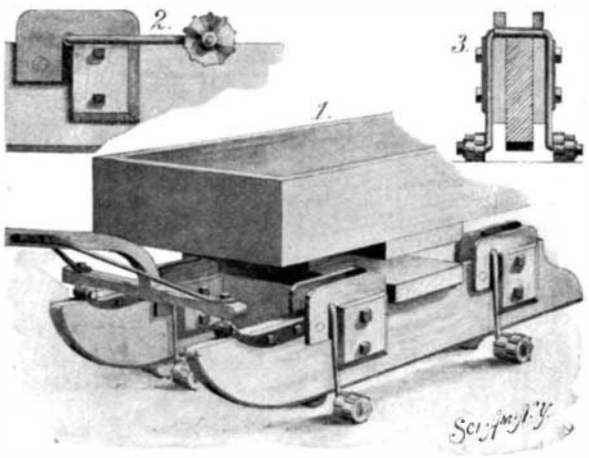
A WHEELED ATTACHMENT FOR SLEDS.

In order to provide a device by means of which a sled can be readily mounted on wheels, when running over cleared portions of roads, John D. Wilson, of Heron Lake, Minn., has devised a novel attachment by means of which the desired end is attained.

Of the annexed illustrations, Fig. 1 is a perspective view of a sled with the attachment in operative position; Fig. 2 is a side elevation showing the attachment in inactive position; and Fig. 3 is a transverse section of a runner with the attachment applied.

The attachment consists of a U-shaped axle mounted in a bearing on each end of a runner, and bent down



WILSON'S ATTACHMENT FOR SLEDS.

over the sides of the runner, the ends of the axle being formed with outwardly extending spindles on which ribbed wheels are journaled. In order to hold each axle in proper position, the inventor employs cleats bolted to the sides of the runners. The top edges of these cleats are arranged in alinement with the bottom portion of the axle bearings. When swung into the inoperative position shown in Fig. 2, the side portions of each axle will rest upon the top edge of a cleat. At their forward ends the cleats are provided with ledges, by means of which the side portions of the axles, when in operative position, may be held vertically, as shown in Fig. 1.

When the sled is running over snow or ice and a cleared portion of the road is reached, the driver throws the axles forward so as to bring the wheels on the ground. The sled upon being pulled onward will rise upon the wheels and swing the axles against the forward ledges of the cleats. The sled is now mounted upon wheels and can be readily moved over the cleared portion of the road. When snow or ice is again reached, the sled is backed, thus causing the wheels to move forward and enabling the driver to swing them into the inoperative position shown in Fig. 2.

FOUR-COUPLED EXPRESS ENGINE FOR THE GREAT NORTHERN RAILWAY, ENGLAND.

In another column we have referred to causes which have led the English locomotive engineers to design engines of much greater weight and power and larger boiler capacity than those which were standard practice less than a decade ago. We have been favored by Mr. H. A. Ivatt, locomotive superintendent of the Great Northern Railway, England, with a photograph of a powerful express engine which he has lately designed for that road. At first glance our American readers will notice that the arrangement of the driving wheels is similar to that of a class of Baldwin engines which are just now doing excellent work on the fast express trains running from Philadelphia to Atlantic City, the likeness consisting in the fact that the cylinders are connected to the rear pair of drivers, to which the forward pair are coupled up with the customary side rods. The likeness does not extend beyond this feature, however, the Baldwin engines being four-cylinder compounds of the Vauclain type and possessing other distinctive features peculiar to the type.

The engine illustrated has been built for the fast and heavy express service from London to the North, and it is of exceptional weight and power to enable it to cope with the necessities of a very trying service. Hitherto the express trains have been hauled chiefly by Mr. Sterling's well-known single-driver engines, with 19 × 28 inch cylinders and 8-foot driving wheels, and a heating surface of from 1,000 to 1,200 square feet.

The new engine is the largest and heaviest express engine in Great Britain, its weight being 65 tons, and the weight of the tender 45¾ tons, the total weight of the engine and tender in working order being therefore 110¾ tons. The drivers, four in number, are 6 feet 6 inches in diameter, and they are placed about the middle of the boiler. The cylinders are 19 inches in diameter by 2-foot stroke, and are outside connected after the American fashion. The boiler is 4 feet 8 inches in diameter and 14 feet 8 inches long in the barrel. By placing the driving wheels well forward, it is possible to provide an unusually large firebox between the rear driver and the pair of trailing wheels, with the result that there is a total heating surface of 140 square feet in the firebox and a grate area of 26·75 square feet, both of which figures are unusually large for an English locomotive.

The firebox is of copper and the tubes are of iron, the total heating surface of the latter being 1,302 square feet, making a total heating surface of the whole boiler of 1,442 square feet. The working pressure is 175 pounds per square inch. The weight on the drivers is 34¾ tons, giving a total tractive power of 14,303 pounds for every pound of effective pressure in the cylinders. The truck wheels and the pair of trailing wheels are 3 feet 7½ inches in diameter. The tender, whose capacity is 3,670 gallons of water and 5 tons of coal, is carried on six wheels 4 feet in diameter, and its total wheel base is 13 feet. Empty, the tender weighs 22¼ tons.

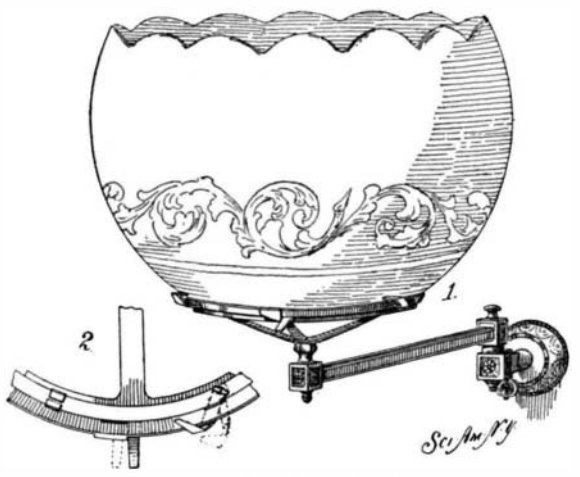
We are informed by Mr. Ivatt that the new engine has proved fully equal to the heavy demands of the express traffic. With a load of 295½ tons, it has easily maintained a speed of from 55 to 60 miles an hour over the more level stretches of the Great Northern Railway.

THE seeds of the Datura stramonium recently claimed their annual victim in Newark, N. J., in the person of a five-year old child. It is said that there has been in that city at least one death from this cause every year for the past twenty-five years. The practice prevailing in many of our large cities, as well as in the smaller ones, of allowing vacant lots to produce year after year crops of noxious and poisonous weeds cannot be too strongly condemned. It was by seeds procured from such sources that the recorded fatality was effected.

A CONVENIENT GLOBE-HOLDER.

In the globe-holder of which we give an illustration, the inventor, Charles Ayres, 165 West Ninety-eighth Street, New York city, provides a series of retainers for engaging the globe, and connects all the retainers to operate simultaneously.

On the usual base, a ring is mounted to have a limited rotatable movement. The movable ring may be held in place and guided by stamping up ears or tongues from the base, and bending them over the movable ring as shown at the left of Fig. 2. The globe retainers, of which one is shown clearly at the right of Fig. 2, are pivoted to the ring; they extend outward through the usual vertical flange on the base and their outer ends are bent upward to clear the base flange, and then diagonally inward to an engagement with the bottom of the globe. An operating arm seen at the center of Fig. 2, and also in Fig. 1, projects from the movable ring outward to a position to be grasped by the fingers. Adjacent to the operating arm, a catch device is secured for holding the arm against movement, and thus locking the globe-retainers in engagement with the globe. The dotted lines in Fig. 2 show the two

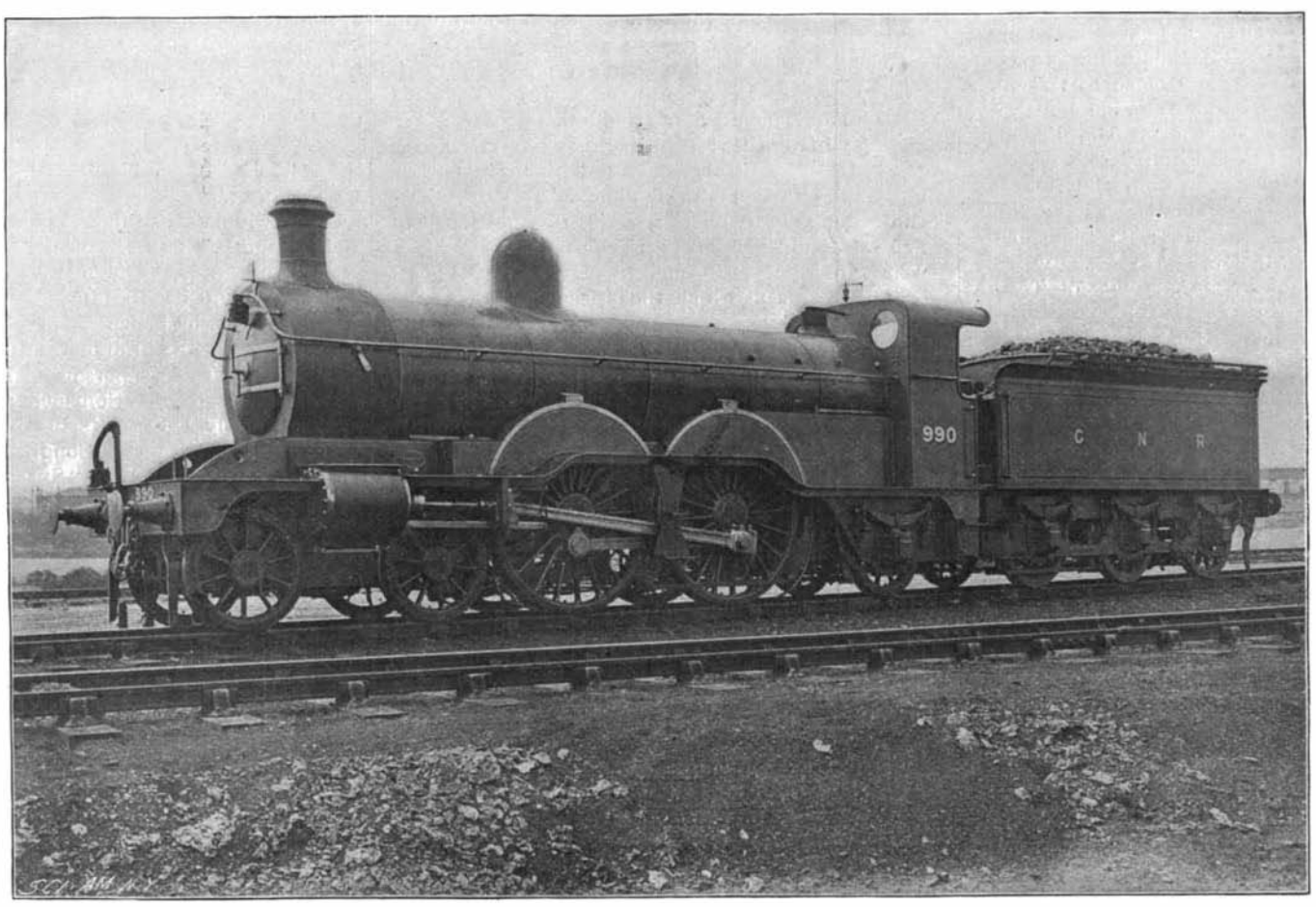


AYRES' IMPROVED GLOBE-HOLDER.

positions of the globe-retainers and operating arm when the arm is moved partly to rotate the ring and shift the fasteners in securing and releasing the globe.

FEW of us are aware of the virulence with which certain poisons act through the olfactory nerves, and it is important that those who have to do with chemicals should know the toxic effect of inhaling certain noxious odors. A few of the more dangerous smells are stated by The Boston Transcript. We are told that a single whiff of highly concentrated prussic acid will kill a man as quickly as a shot through the heart. The odor of a bad egg is due to the presence of sulphureted hydrogen, and the objectionable smells of sewers and bone factories are attributable chiefly to the same gas. Chemical laboratories are famous for bad smells. Berzelius, who discovered the element called selenium, once tried the experiment of permitting a bubble of pure hydrogen selenide gas to enter his nostrils. For days afterward he was not able to smell strong ammonia, the olfactory nerves being temporarily paralyzed. Selenium gas has the odor of putrid horseradish. Tellurium is even worse.

ON October 31, 50,000 bushels were loaded into the hold of the British steamship "Ormesby." The task was completed within a few hours of midnight, when the charter under which she was being loaded expired. The work of loading the grain began early in the morning of the 31st, and, with the aid of two elevators, steady streams of grain were sent into the vessel's hold until late in the evening.



NEW TEN-WHEEL EXPRESS ENGINE FOR THE GREAT NORTHERN RAILWAY, ENGLAND.

Cylinders, 19×24 inches; diameter of driving wheels, 6 feet 6 inches; heating surface, 1,442 square feet; steam pressure, 175 pounds; weight of engine and tender, 110¾ tons.