

*Sugar Notch Shaft.*—No. 1 carriage dropped, first trial, 6 inches; second trial, 4 inches; third trial, 5 inches. No. 2 carriage dropped, first trial, 7 inches; second trial, 5 inches; third trial,  $4\frac{1}{2}$  inches.

*Empire Shaft.*—No. 1 carriage dropped, first trial,  $1\frac{1}{4}$  inches; second trial,  $1\frac{1}{2}$  inches; third trial,  $1\frac{1}{4}$  inches. No. 2 carriage dropped, first trial,  $1\frac{1}{2}$  inches; second trial,  $1\frac{1}{4}$  inches; third trial,  $1\frac{1}{2}$  inches.

*Diamond Shaft.*—No. 1 carriage dropped, first trial, 1 inch; second trial,  $1\frac{1}{4}$  inches; third trial,  $1\frac{1}{2}$  inches. No. 2 carriage dropped, first trial,  $1\frac{1}{4}$  inches; second trial,  $1\frac{1}{4}$  inches; third trial,  $1\frac{1}{2}$  inches.

### IMPROVEMENTS.

Among other improvements of importance that have been made during the year, quite a number of ventilating fans have been built, all in the most suitable places, according to the views of the parties erecting the same. Some were erected on the surface, others were erected under ground.

*The Delaware and Hudson Canal Company* had one fan 20' 0" dia, built at the **Mill Creek** colliery. This fan exhausts about 72,000 cubic feet of air per minute. Of this amount, 38,000 are from the Pine Ridge shaft workings, and 34,000 are being circulated through the Mill Creek slope workings, in addition to 106,000 cubic feet exhausted by another fan, making an aggregate quantity of 140,000 cubic feet of air per minute circulated through the workings of the Mill Creek slope. The current exhausted from the Pine Ridge shaft ventilates the workings north of a large fault lying between the workings of the two collieries. Besides the amount of 38,000 cubic feet of air caused to be circulated by the aforementioned new fan, there is another current circulated and exhausted by another fan 20' dia, located at the Pine Ridge shaft, averaging about 70,000 cubic feet, giving a total of 108,000 cubic feet of air per minute for the workings in the Pine Ridge shaft.

*The Delaware, Lackawanna and Western Railroad Company* had a fan erected at Jersey colliery, near Plymouth. This fan is similar in dimensions and construction to that at Avondale, being a short iron casing revolving disk, 12' 8" dia, with open periphery. Much better ventilation is had in said mine since the fan has been started.

*The Wilkes Barre Coal and Iron Company* has had the following fans built during the year, to wit: At the Diamond shaft a fan 15' 0" dia was built inside the shaft workings for the purpose of ventilating the workings in the new slope. This fan receives its fresh air from the hoisting shaft, which is some few hundred feet east of the point where the fan is located, and it discharges its foul air into a large air-way, conveying it to the main upcast leading to the surface. The main air-ways, both in the upcast and intake, are of large areas. This fan, when being driven about 75 revolutions per minute, exhausts 40,000 cubic feet of air.

At the *Sugar Notch colliery* a fan 15' 0" dia has been built inside the shaft workings to ventilate the workings of the new slope. It is built under similar circumstance to that at the Diamond shaft. Other things not being quite ready, the fan has not yet been started.

*The Franklin Coal Company* has had one fan 15' 0" dia erected to ventilate their new tunnel workings on the Red Ash vein. This is comparatively a new mine, and the fan having but very recently been built, has not yet had much trial; but there can be no doubt of its being just what is required.

is continued, but another year, at least, will pass before it will reach its destination.

In the Red Ash seam of the Empire mine, a slope was made to hoist the coal from the lowest point in the mine to a point on a level with the bottom of shaft. It is one thousand one hundred and sixty feet in length, on a grade of about twenty-five degrees, and it facilitates the drawing of coal from a wide extent of territory which was hitherto out of their reach.

The old Hartford breaker took fire and burned down about eight o'clock in the evening, January 22, and the old Jersey, or No. 8 breaker, was remodeled to take its place. This, however, is not large enough to pass the coal of more than one opening—the new slope, the other two slopes remaining idle. The tunnel at the bottom of the new slope was extended from the Ross to the Red Ash seam, a distance of 380 feet, from which a large extent of coal can be mined. The slope was also extended to a further depth of 950 feet where it touched the synclinal of the basin and opened a wide field of the Baltimore seam.

In the Stanton mine a slope was driven towards the basin in line with the bottom of the new air-shaft, which opens a new lift of excellent coal. The hoisting-engine is located at the top of the air-shaft on the surface and the rope is passed down the shaft and to the slope over pulley-wheels. It works admirably, and the inconvenience of having steam pipes in the mine, and the detrimental effects of the heat radiating therefrom, is thus successfully avoided.

A tunnel is being driven from the Baltimore to the Hillman seam, the size of which is 16×8 feet on a rising grade of nineteen degrees. By the close of the year, it was driven a distance of 222 feet, and it is expected to cut the Hillman seam at a distance of about 775 feet.

In the No. 11, or Lance colliery, a slope was sunk reaching from the level of the shaft-bottom to a length of 1,350 feet, the average grade of the coal-seam being seven degrees. A new gravity plane was made also in the same mine to lower the coal from the highest point of the workings.

#### Delaware and Hudson Canal Company.

A new shaft was started by this company in April, 1884, and completed to the Baltimore seam before the end of the year. It is located about a quarter of a mile south-east of the Mill Creek colliery. The depth of the shaft is 132 feet, and its size 10ft.×22ft. 8 in. It was sunk for the purpose of working the coal from a small basin, which cannot be reached from the Mill Creek slope. The coal will be shipped from the **Mill Creek** breaker. Therefore, it is intended to maintain the present production of the colliery, although some portions of the slope are about being exhausted.

The Baltimore Red Ash shafts reported last year are still in progress of sinking. The depth of No. 1 was 304 feet at the end of the year, and of No. 2, 382 feet. Both these shafts are located in Wilkes-Barre township, and are intended to work the Red Ash seam. For dimensions see table in this report.