

of their mines, a mining locomotive of 3,000 pounds draw bar pull. This is the third locomotive the Duncan works have constructed for the coal companies.

The first two were small, weighing 2,000 pounds, with a drum and rope attachment which enabled them to draw loaded cars from rooms running to the dip in a pitching vein. The locomotive remains in the entry while the cars are hauled from the room face by the rope. By the use of clutches, the motor is thrown into gear with the driving axle or drum, or both, as desired.

The locomotive just shipped to Arkansas has an electric equipment furnished by the General Electric Co., consisting of 2-GE-61 motors, operated on a 250-volt line at a speed of 8 miles per hour. The locomotive exerts a draw bar pull of 3,000 pounds at full speed, and was designed by Mr. S. W. Farnham, mechanical engineer of the coal companies, to meet requirements in the coal companies' mines. Two similar machines are being constructed at Alton.

The entries in the southwestern mines are often low and narrow, requiring specially designed locomotives to operate in them to advantage. For gauges of 35 inches and upwards, the main frame of the locomotive is placed inside the wheels, the width of a 36-inch gauge locomotive over all being about 46 inches; the length, exclusive of bumpers, is 12 feet; the height above rail, exclusive of trolley, 42 inches. Motors with gear take up only 22 inches space along the axle. This enables a locomotive with frame outside the wheels to be constructed for track gauges as narrow as 24 inches.

The locomotive can be controlled from either end with equal facility, having a commutating switch, by means of which the motors can be used in parallel or series, as it suits the wish of the motorman to run at either full or half speed. In mine work, a series or parallel controller has often proved unsatisfactory, as on a bad track one pair of wheels frequently slip on the rails, and the motor without exerting any attractive effort produces a counter electro-motive force which prevents the other motor from doing work. It is generally necessary, therefore, to start the motors in multiple, and if half speed is required, the current can be cut off momentarily after the locomotive attains moderate speed and the motors thrown into series. Compactness has been the main object in view in designing these machines.

Prospective Mines.—The Madison Coal Co., of St. Louis, is putting down a hoisting and escapement shaft at Divernon, Sangamon county, on the line of the St. L., P. & N. R. R. Both shafts are being sunk at one time. This, when completed, will be one of the best plants in our State. A steel tower will be erected and all of the buildings used at the plant will be made fire-proof. The coal seam is on an average about 8 feet thick, having been proved by boring at a depth of 380 feet. Both shafts are made 9x18 feet in the clear. Iron stairways and platforms will be used for escapement in one compartment of the air or escapement shaft. The coal will be mined by electric coal cutting machines; the hauling done by electric motors. The mine will be opened out on the most approved principle for haulage and ventilation. The coal will be worked on the panel system. Everything is designed for a large daily output.

Fatal Accidents.—Arthur Jones, a single man, aged 19 years, died July 11, 1898, from an injury received in the Litchfield Mining and Power Company's mine, Litchfield. On July 8, 1898, Arthur Jones was taken into the mine by James and Louis Ramsey, for the purpose of seeing the mine, and see the miners work. James and Louis Ramsey, both being miners working in the mine, asked the mine manager to allow them to take Jones into the mine as they said they would look after him and see that he would come to no harm. The mine manager then allowed Jones to go into the mine. It appears that James Ramsey was setting props, and his son, Louis Ramsey, was sawing a prop and the boy, Jones, was sitting on a prop. A small piece of slate fell, striking Jones on the right side of his face. He did not seem to be seriously injured at first. James Ramsey and son took the boy out of the shaft and took him home. He died, however, July 11, 1898. The doctor stated that he died of hemorrhage of the brain.

Amos Howett, a miner aged 42 years, was killed July 16, 1898, in the Riverton Coal Company's No. 2 mine; his death was caused by the running away of a mule with an empty trip of cars. The cars jumped the track and striking Howett hurting him internally, from which he died in two days.

Thos. Price, a miner aged 47 years, was fatally injured July 18, 1898, in Spaulding Coal Company's mine, by a premature blast. The squib went off as soon as the light was put to it, which fired the shot. Price was struck by flying coal, from which he died in two days.

John Davis, a driver, aged 19 years, was killed September 2, 1898, in the Litchfield Mining & Power Company's mine at Litchfield by being crushed between a car and a prop. He was driving through the pass-way from the fourth north entry to the third north entry. There was a slight grade. From some cause he had failed to sprag the car. At the foot of the grade the car jumped the track, crushing him between the car and a prop.

James Rafferty, aged 32 years, and Joseph Mayfield, aged 23 years, were found dead September 2, 1898, in the Capitol Coal Company's mine, Springfield. Rafferty and Mayfield were sent by the mine manager to clean out a portion of the air course on the main east entry. The air having become charged with black damp where they were working, which caused their lights to go out. The men were trying to get to the main intake entry, where there was fresh air. They made a mistake and turned into an abandoned entry which was densely full of black damp. The damp struck them down. They were found dead at a point about twenty feet within the mouth of the old entry, and about one hundred and fifty feet from the main intake air course.

Fritz Hubert, miner, aged about 50 years, was killed September 19, 1898, in the Consolidated Coal Company's No. 10 mine at Mount Olive. Hubert was riding in the cars to his work in the morning. In passing along the south entry, some top coal had fallen in the entry; the cars run up against the top coal lying on the track. The driver unhooked the mule. Hubert and two other miners got out of the cars and passed over the fallen coal. From some cause Hubert turned back and was in the act of sounding the slate above where the coal had fallen. The slate came away very suddenly and caught him.