

holes is by the "churn" drill, by which it is practically impossible to drill a round hole. Generally a three cornered hole is made, which is very objectionable, because if the hole is perfectly round it will present a uniform surface to the pressure, retaining the blast until its force is fully developed. With a three cornered hole the pressure on the sides is concentrated at the corners, which, being required to resist more than their share of the pressure, give way, permitting the explosive gases to escape before the force is fully developed, and thus produce only a large amount of smoke.

By the introduction of hand-drilling machines a cheaper and better hole has been secured. The hole being perfectly round requires less powder, as it retains the explosive gases until their power is fully developed.

### NEW MINES.

New mines have been opened and put in operation during the year, as follows: Brandenberger Bros., Belleville; Oakland Mining Co., Belleville; Daniel Marsh & Son, Belleville; Lill & Schinider, Belleville; Dickson & Jones, Belleville; Crown Coal Co. No. 1, near Belleville; Madox & Son, Belleville; Tilden Mining Co., Tilden; New Enterprise Coal Co., Marissa; Consumers Coal Co., Caseyville; New Athens Coal Co., New Athens; James Lemont, Centerville Station; Robert Brennan, Caseyville; St. Louis Ore & Steel Co. No. 5, shaft, machine mine, Murphysboro; Future Mining Co., Breese; Griffin & Nickles, Carterville; A. Burgan, Stoneford; Dean & Hopper, Percy; Big Muddy Coal & Coke Co., shaft No. 2, DeSoto; Miller, French & Ranch, Lenzburg; J. L. Weir & Son, Sparta; Roseborough & Moffat, shaft No. 2, Percy.

All the above mines, with the the exception of those of A. Burgan, Stoneford, and Roseborough & Moffat, Percy, are working a seam of coal varying from 7 to 9 feet in thickness.

The following new mines have been opened and are preparing to hoist coal: Jupiter Mining Co., DuQuoin; Superior Mining Co., DuQuoin; Henry Horn, Esq., DuQuoin; G. W. Brown, Esq., Pinckneyville.

Elkville Coal Co.'s mine, owned by Halliday Bros., and located at Elkville, Jackson county, will be operated entirely with the Legg mining machine, workmen being paid by the day.

New shafts for hoisting purposes are being sunk as follows: Joseph Taylor, Ridge Prairie; Charles Donow & Bros., O'Fallon; John Yock, Belleville; Edward Aband, Belleville; Crown Coal Co. No. 2, Belleville; Harry Taylor, Belleville; Isaac Jonston, Marissa; Thomas Davis, French Village; **Fred Murphy, Belleville**; Bruggerman & Hortman, Belleville; A. C. Wiley, Sparta.

The following abandoned mines have been reopened during the year: Freeburgh Coal Co.'s mine, Freeburgh; Union Mines, Caseyville; Winning & McMath, Carterville.