

breakage. The material going over these shakers passes to the slate bank; that passing through them joins with the slushings from the jigs. This mixture then passes over the slush shakers *M*. The material passing over a  $\frac{3}{64}$ -in. (1.2 mm.) mesh goes into the main conveyor line *E* underneath the breaker. The material going through these slush shakers passes to the plant for the treatment of the slush.

Lip screenings from all the loading pockets, Fig. 42, go to the main conveyor line *L* under the breaker. The slush-treatment plant, which

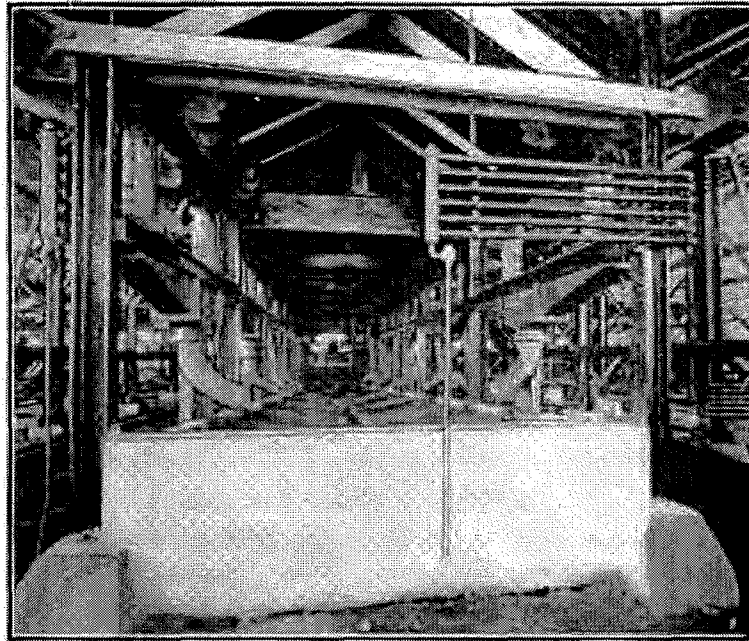


FIG. 42.—BOTTOM OF LOADING POCKETS OF MARVINE BREAKER.

receives all the slush from the breaker, consists of a Dorr thickener, in which the slush is settled out of the water; that which overflows contains only the smallest particles of the suspended solids. The thickened material from these machines is fed to eight concentrating tables and the coal from these passes to four Dorr separators where a large percentage of the water is removed. The coal is then conveyed to a stock pile or a loading pocket for shipment.

Pyrite from the concentrating tables may be recovered or discarded as desired. The water from the Dorr thickener and separator passes out of the plant.

#### *No. 1 Breaker, Pennsylvania Coal Co.*

At No. 1 colliery of the Pennsylvania Coal Co. at Dunmore, just outside of the city of Scranton, a new breaker is being constructed. This also is a steel and concrete structure; several details, however, vary

greatly from those in the Marvine breaker. Fig. 43 is a flow sheet of this breaker. When the coal leaves the conveyor, it will be dumped into a chute leading to the three-deck main shakers 4 in the top of the breaker. The lump coal, which includes the steamboat, will pass to a picking chute 5 and the grate, broken, and egg will go Elmore jigs 6 and 7. The rock from these jigs is to be hand-picked to remove the coal and bone, the

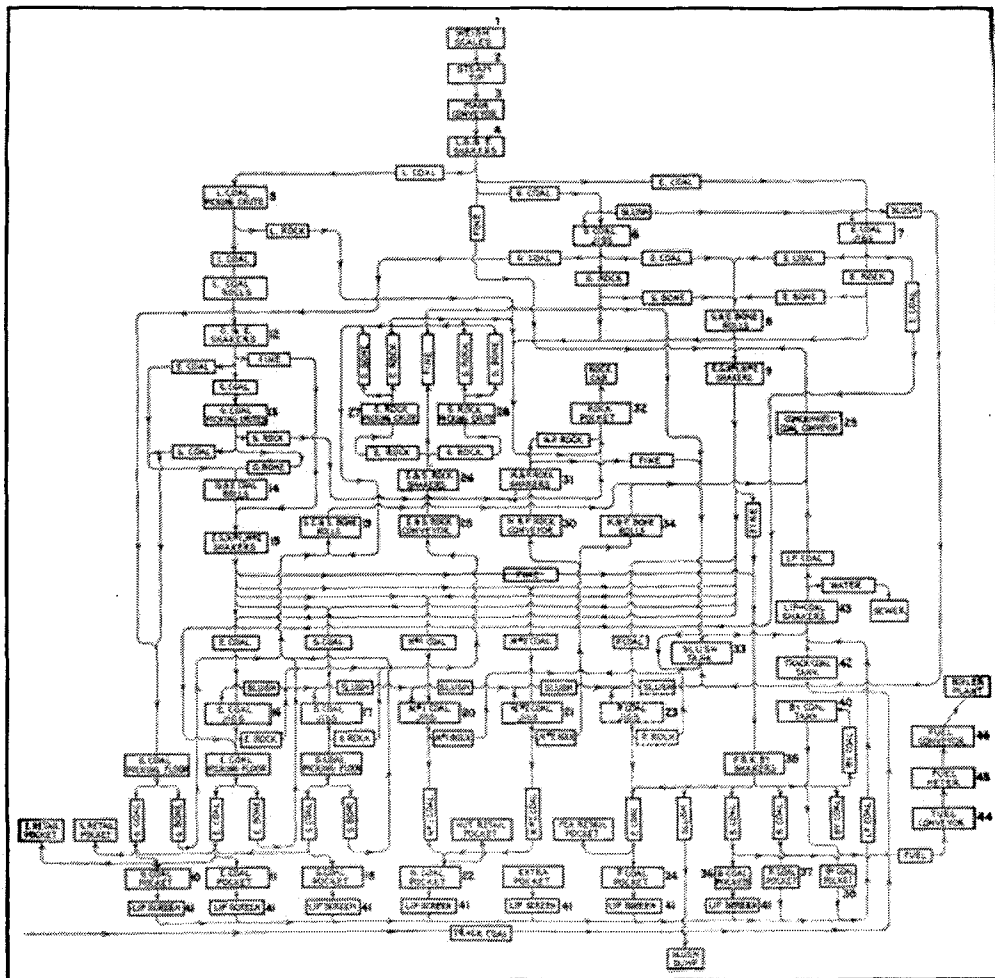


FIG. 43.—FLOW SHEET OF NO. 1 BREAKER OF PENNSYLVANIA COAL CO.

latter being sent to the bone rolls 8, from which the material will pass to a shaker 9, which makes egg, stove, and two sizes of chestnut coal. The coal from the jigs will then pass to the picking floor, where the bone left in the coal will be removed. The cleaned product goes to the pockets 10 and 11.

Cleaned lump coal from the picking chute 5 will go through the rolls, thence to a set of broken or grate-and-egg shakers 12. Grate coal will pass to a picking chute 13 and then unite with the egg coal and pass through rolls 14. Thence it will go to another set of shakers 15 on



which egg, stove, and two sizes of chestnut coal are made. The egg, stove, and nut from shakers will go to Wilmot jigs. After cleaning, coal from the egg jigs 16 and the stove jigs 17 is to be hand-picked, the product going to the proper pockets 11 and 18. Bone coal recovered in hand-picking the grate, egg, and stove coals will unite and go through rolls 19, the crushed product of which will be carried by the condemned-coal conveyor 29 to shaker 9.

Cleaned coals from jigs 20 and 21, which will treat the two nut sizes, unite and go to the nut pocket 22. Shaker 9 is so arranged that the bottom deck can be changed to produce pea coal; in that case this size will pass to the pea jigs 23 the cleaned product of which will go to the pocket 24.

Rock from the egg and stove jigs 16 and 17 unites and is to be taken by the egg-and-stove rock conveyor 25 to the egg-and-stove rock shakers 26. Here it is to be separated, after which the bone will be hand-picked (27 and 28) from the rock and sent to the grate-egg-and-stove bone rolls 19, thence to the condemned-coal conveyor 29. The rock from the nut and pea jigs 20, 21, and 23, will unite and go to the nut-and-pea rock conveyor 30, thence to a shaker 31 where the fines are to be removed. The rock will go to the rock pocket 32 and the fine to the slush tank 33. Instead, however, of sending this rock from the nut and pea jigs to the rock conveyor 30 it can be sent to the nut-and-pea rolls 34 from which the resulting product is sent to the condemned-coal conveyor 29.

All the fine coal from shakers 9 and 15 unites and passes to shaker 35; here pea, No. 1 buckwheat, rice, barley, and slush are separated. The sized coals will not be further treated but will pass directly to their respective pockets 37 and 38, the slush going to the slush dump 39. The barley coal can be sent from the shaker 35 to the barley tank 40 instead of to the pocket. From this tank it passes to the pocket 38. All the slush from the Elmore jigs near the top of the breaker and from the Wilmot jigs will pass to the slush tank 33.

In loading railroad cars, an appreciable amount of coal is spilled around the tracks. At many breakers, this is lost. At this breaker a concrete floor has been placed all around the car tracks and suitable drains made so that it will be possible to flush this whole area with water, thus washing the coal into drains that will conduct it to the track-coal tank 42. All the lip-screen coal 41 will be taken to a shaker 43 on which it is to be joined by the track-tank coal. Here the water will be separated from it. The coal is then to be delivered to the condemned-coal conveyor by which it is to be taken back into the breaker for retreatment.

The buckwheat, rice, and barley sizes, instead of going to their respective pockets after being screened on shaker 35, can be sent to a fuel conveyor 44, which will deliver its material to the fuel meter 45, after which it is taken by another conveyor 46 to the boiler plant.