ENGINE HOUSE PRACTICE.*

Or the Handling of Locomotives at Terminals to Secure Continuous Operation.

By F. H. Clark, Chicago.
Member of the Society.

The topic assigned me is so comprehensive as to embrace nearly all features of engine house practice. In order to get the matter clearly before the meeting, therefore, it may be desirable to describe briefly such features of design and equipment as are considered good practice in the United States.

Arrangement of Locomotive Terminals.

2. The engine house and its appurtenances should be located, when possible, at a point near the yard or station where the engines are released or required, though the plan must usually be adjusted to meet existing conditions of topography or space. In Fig. 1 is shown a plan which may serve as a basis of the paper. It has no unusual features, but it may be considered a fair example of engine house practice. Some space might be saved by the use of a different design of cinder pit, and considerable space by a different coaling station. Other modifications would naturally suggest themselves in considering the application of the plan to any specific case.

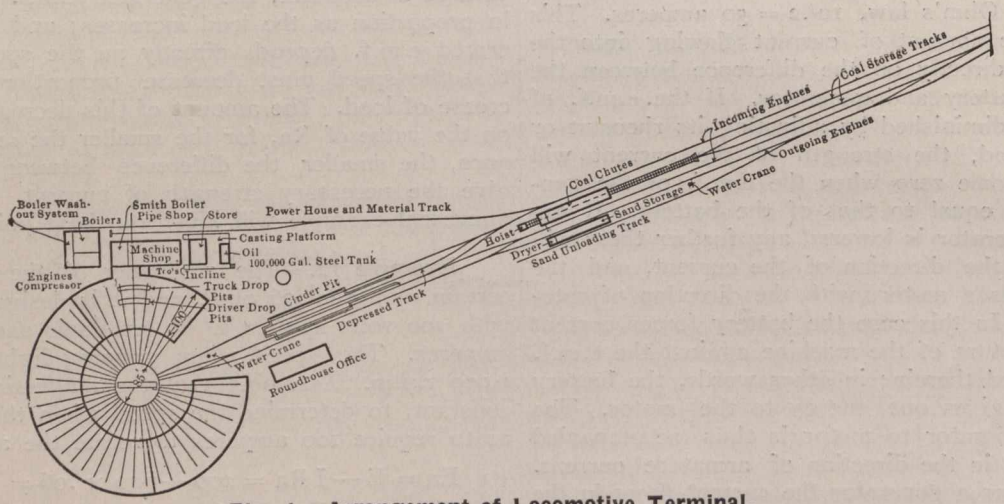

Fig. 1.—Arrangement of Locomotive Terminal.

3. The approach to the engine house provides two tracks for incoming engines, one on either side of the coaling station, and one track for outgoing engines; though connections are provided by which the movement may be varied if necessary.

4. The coaling station indicated on the plan is of a design frequently employed in locations where space permits. Fig. 2 shows its general construction, but with the tracks at right angles with the entire line of the structure, instead of parallel to it, as in Fig. 1. The coaling station illustrated is of 700 tons capacity. The coal is elevated in cars by means of a hoist which pulls the loaded cars up a 20 per cent. incline at a rate of about forty feet per minute. The coal is shoveled or dumped out of the car directly into bins or pockets, if breaking is unnecessary; or on a grating of breaker bars spaced four to six inches apart, through which the coal drops when broken. The station delivers coal to six tracks, five underneath and one at the end. The hoist may be operated by steam or gasoline engines, or by electric motors, motors being usually considered preferable where electric current is available.

5. Another type of coaling station is shown in Fig. 3. This station has an overhead storage capacity of 1,200 tons, and the construction is entirely of steel and concrete. The coal is hoisted in a pair of Hunnen counterbalanced buckets, and distributed in the bin by means of a special automatic tram car. The coal is received at one side of the bin and is delivered to five coaling tracks, four underneath the pocket and one adjacent. To facilitate the handling of cars of coal during the winter, three additional receiving hoppers are provided, so that coal frozen in the bottom of the cars may be removed without interrupting the main hoist. The coal is then transferred from the three hoppers to the main hoist for elevation to the overhead pocket. This plant is operated by electricity.

6. Various other types of coaling plants are in successful use, the coal being elevated by belt conveyers or small bucket conveyors, or handled by cranes of various types, with clam shell or similar buckets. The cost of operation ranges from two to ten cents per ton, depending upon various factors.

7. The sand-drying apparatus shown in Fig. 1 is placed opposite the coaling station, though frequently a part of the coaling plant is used for that purpose. One of the most common methods of drying sand is by coal stoves, which differ considerably in design. The moist sand is delivered from a hopper to a casing surrounding the stove, from which it escapes as it becomes dry. Some of the more modern sand-drying houses use exhaust or high pressure steam from the power house. After drying, the sand is usually hoisted, by means of compressed air or by some form of conveyer, to a storage bin, from which it is drawn by locomotives when needed. Rotary sand-dryers, in which sand is fed into an inclined tube through which a current of hot air passes, are not commonly used, but could no doubt be used to advantage if a considerable amount of sand were required.

8. The water supply for locomotive use is usually stored in overhead tanks of various capacities. Fig. 4 shows two steel tanks of 100,000-gal. capacity recently erected. The body of the tanks is unprotected from the cold, but the connection between tank and water mains is usually enclosed, as shown, in places where freezing is likely to occur. Standpipes, or water cranes, are so placed that water may be taken without backward movement. Ten-inch cranes are frequently found in modern installations. These will deliver 2,000 to 3,000 gal. of water per min. under usual conditions.

*Paper to be read before the American Society of Mechanical Engineers, held in London, Eng., July 25-30, 1910.