Metallurgical Comment

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Correspondence and Discussion Invited

FOUNDRY TROLLEY SYSTEMS.*

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Perhaps the earliest installations of the overhead trolley systems were made in provision houses and ice plants, where trucking is impracticable and industrial railway systems out of the question, and where traveling cranes covering more space than necessary in one room or building without offering practical means of connecting with another, are, therefore, out of place, besides being too expensive.

The advantage of having a track on which the load can be easily propelled, without the need of attention to keep it clean, and without monopolizing with floor space for a track, commends the overhead trolley system especially to the foundry where floor space is usually at a premium.

In fairness to the industrial railway system it must be stated, however, that unless trolleys used on the overhead system are operated either automatically, i.e., the load started at one place and automatically stopped at another, or unless the operator travels along in an attached cage, an aisle of some kind is necessary, because the operator cannot jump over flasks, molds, castings, in walking along under the trolley, etc. Provision is often made, however, so that the trolley can be operated from a disance and the aisle need not be directly under it.

As regards the cost of installation between the two systems the overhead system usually has a little advantage over the industrial railway, if the latter is properly constructed, the comparison including switches, turntables and similar accessories in both systems.

In some instances the industrial railway may be more cheaply installed, especially where an overhead system would require special bracing or trussing of the roof or other surfaces from which the track is to be suspended, and where heavy loads are to be handled.

In a foundry desigend for and equipped with overhead trolley systems a change in the arrangement of the floor space, to accommodate different classes of work, can be accomplished with greater ease and at less expense than in one equipped with an industrial railway, and the flexibility of the former system is simply astonishing, especially when used with electric power.

As a matter of economy the equipment of a foundry (or any other plant for that matter) should be used as nearly to its full capacity as possible. The overhead trolley system embodies superb possibilities for increasing the output of a plant, by bridging over some of the gaps left by installation of special cranes with limited spheres.

Take for instance a foundry for ordinary jobbing, catering to all classes of work: You will find a department, where all the heavy work is done, containing either a traveling crane of 15 to 50 tons capacity or several jib cranes, so arranged that two can be used together on the heaviest work which is likely to come into the shop, at the same time serving the cupola. If this foundry department has a span of 65 to 75 feet, the cost of a traveling crane is equal to the cost of several jib cranes of half its capacity and the service obtained is in favor of the latter, though for convenience, especially in transporting material, the former has no peer.

A monorail system here would be out of question, as it could not be made to cover enough space to handle all the molds, besides requiring an unusually massive roof construction or special structure for supporting the tramrail, which might be in the way, saying nothing of the impracticabliity of carrying heavy loads (over 10 tons) on the lower flange of a single beam.

However, in handling the iron from the cupola to the places where the light floor work and the bench work is done, the traveling crane can render service only to the end of its runway (taking for granted that it serves the cupola), from where the iron has to be handled by an overhead trolley system or an industrial railway, from which in turn it is either transferred to jib cranes, or light traveling cranes which serve the light floor work department, or else the iron is poured from the large crane ladle into bull and hand ladles, an operation not practical with industrial railway systems unless special ladle cars are used, or special attachments (to support the ladle shank) are secured to the regular cars. With the overhead system such special features are not required.

The trolley system can go further, even in this matter of handling molten metal. By means of switches the trolley with its load (in this case the ladle of iron) can be run on to a jib crane or on to a traveling crane or on to a gantry crane and serve the entire floor space covered by these, automatic provisions being made to prevent it from running off the track, at transfer points. Such a trolley on any of the various jib or traveling cranes, after handling the molds on its floor all day can be made to go to the cupola to get iron and after being used for "pouring off" and "shaking out," can be made to handle the flasks, taking them to and from the proper storage place, and can handle the sand in the same manner, where systems have been designed with all these possibilities in view. Thus, castings can be taken from one floor to the cleaning-room and a load of sand brought back if the bins be near the cleaning department, as they usually are, before the molders report for work, and the number of trips thus reduced to a minimum.

Working very harmoniously with this overhead track system is a scheme in which one end of an I-beam is suspended by a pivotal support, the other end being carried on wheels running on a circular suspended track, on to which the trolley can be run, allowing a large area to be covered without the annoyance of masts or columns breaking up the space.

We have mentioned various types of cranes, but only their functions as a means of conveying have thus far been considered, although the name implies ability to lift (weights) as well.

We see from the foregoing facts that as to flexibility and co-operation with other systems, with the least amount of handling of loads in transferring, the overhead trolley system certainly holds a unique place, and has some decided advantages over the industrial railway to which may be added that loads can be picked up from points outside of the perpendicular and also so lowered, especially where track is high above the ground.

Both systems can be made to run up inclines by proper application of power, although this is seldom necessary in the overhead trolley system because the track can usually be supported so as to be level, regardless of variations in the ground level.

Special attention should be given to the track, which can be constructed in various ways, the simplest form being that of a rectangular bar which is supported from the wall

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