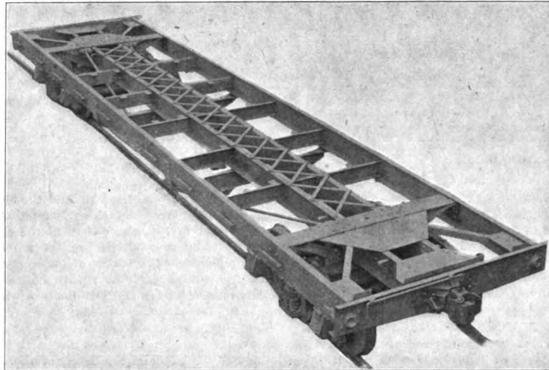


25.5-lb. I-beams tied together with double top and bottom cover plates 1/2 in. thick. There are no complicated parts in the truck or underframe construction, all of the members being made of standard shapes which may be obtained from any structural shop, making any repairs to the car, if needed, a comparatively simple matter.

We are indebted to Mr. George I. King, who designed



Perspective View of Completed Underframe.

the car, for the drawings and information. Mr. King was also the designer of a steel frame box car illustrated and described in the *Railroad Gazette*, Dec. 19, 1902, p. 907, which is similar in many respects to the one shown here, this latest design being largely developed from the earlier one.

Application of Air Motors to Jib Cranes.

A cheap and effective means of changing jib cranes from hand to power operation is shown in the accompanying illustrations. Fig. 1 shows an unloading jib crane in a railroad yard, formerly operated with cranks by two men. To change it to a power crane, the cranks were removed and a Dake air motor was bolted to the side of the mast without changing the gearing. In designing new jib cranes the arrangement shown in Fig. 2 is used. The motor can be bolted to the mast of any jib crane, and will raise and lower the load. The single drum hoist is only for raising and lowering the loads. If it is desired to rack the load

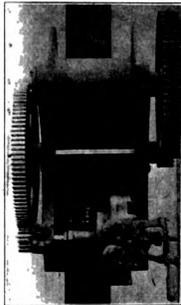


Fig. 1.

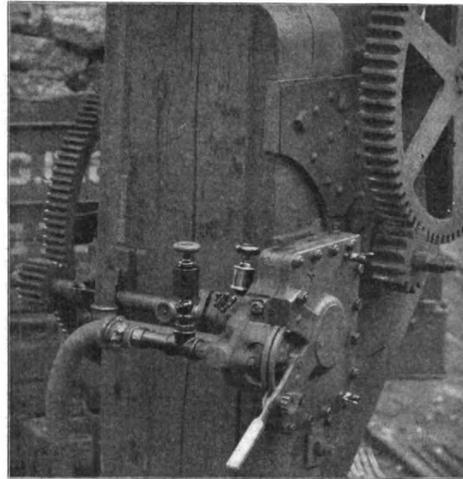


Fig. 2.

Dake Motor Applied to Jib Crane.

on the boom or raise and lower the boom, in addition to raising and lowering the load, a double drum hoist is used. Blue prints or any desired information regarding this arrangement can be obtained from the Holland Company, Chicago.

Compulsory Block Signaling.

The Interstate Commerce Commission submits with its report the following draft of a proposed law:

That the Interstate Commerce Commission, hereinafter referred to as the Commission, may order any common carrier engaged in interstate commerce by railroad, or owning or operating a railroad in any territory or in the District of Columbia, to adopt the block system on one-fourth part (in length) of its passenger lines, within a time specified; the order to be issued and published two years at least before the date specified for its fulfillment.

Sec. 2. That the Commission, as aforesaid, may order such carrier to adopt the block system on one-half part of its passenger lines within a time specified, the date for fulfillment to be at least one year later than the date for fulfillment of the order to the same carrier authorized by the preceding section; and the order to be issued at least 18 months before the date specified for its fulfillment.

Sec. 3. That the Commission, as aforesaid, may order such carrier to adopt the block system on three-fourths

of its passenger lines; and subsequently on the whole of such lines, within reasonable times; the intent of this section being (1) to require the gradual adoption of the block system and (2) to require its adoption throughout all passenger lines by the first day of January, nineteen hundred and nine.

Sec. 4. That in respect of any passenger line, whether it be the whole or a part of a company's line or lines, on which the receipts from carriage of passengers, express traffic and United States mails shall for two years have aggregated \$1,500 per mile per annum, or more, as shown by the records of the carrier, the Commission as aforesaid may order and require the adoption and use of the block system throughout the line by Jan. 1, 1907, due regard being had to the principle of gradual introduction, as embodied in Sections 1, 2 and 3.

Sec. 5. That in respect of passenger lines on which the receipts from all traffic, passenger, express, United States mails, and freight, shall for two years have aggregated \$3,000 per mile per annum, or more, as aforesaid, the Commission may order and require the adoption and use of the block system as in the preceding section.

Sec. 6. That for the purposes of Sections 4 and 5 the Commission may require from any carrier a report, annually, of its receipts from the carriage of passengers, from express traffic, from United States mails, and from freight, in which the sums pertaining to the different divisions of the railroad, as defined by the Commission, shall be shown separately; such report or reports to be made and filed in accordance with the rules and requirements governing the making and filing of carriers' annual reports. The Commission shall not make arbitrary and unreasonable divisions of a railroad; and may require,

sketch of the line or lines affected by such order, with a statement of the means and methods intended to be used in carrying out the order. Such statement of means and methods shall include the rules under which the carrier intends to order and regulate the movement of all trains, on such line, under the block system; and said rules, when approved by the Commission, shall be the lawful regulations for the movement of trains on the line or lines affected by such order; and it shall be unlawful to move any car or engine on such line except in accordance with such rules.

An order may be issued specifying "one-fourth" or "one-half" or "three-fourths" of a line, in accordance with this act; and in such case it shall be the duty of the railroad company to decide what part or parts of its line or lines shall be taken to make up such fraction, and to embody such decision in its plan and statement to be sent to the Commission. In default of such decision and statement it shall be the duty of the Commission to decide what line or lines or parts thereof shall be subject to its order; and an order specifying lines approximating, in length, the fractions named in this act shall be lawful. An order may allow exceptions and modifications; and may be revised and reissued.

Sec. 9. That whenever and wherever there shall exist, on a railroad line where the block system is in use, or is to be adopted in accordance with this act, any switch, drawbridge, railroad crossing, or street railroad crossing, which is not provided with an adequate interlocked signal, suitably fixed and maintained and regularly attended, the Commission may require the carrier to submit for approval a rule or code of rules limiting and regulating the speed of all trains passing or approaching such drawbridge, switch or crossing; and it shall be unlawful, after a date fixed by the Commission, to move a train, car or engine on or across such drawbridge, switch or crossing, except in conformity to such rule or rules, approved by the Commission.

Sec. 10. For the purposes of this act a passenger line shall be deemed to be any railroad or part of a railroad on which one or more trains for conveyance of passengers are regularly run in each direction each week day; *Provided*, that this act shall not apply to any railroad, or section of a railroad, on which, by a suitable regulation, approved by the Commission, only one engine under steam, or one electric engine or motor car, or two or more such engines or motor cars coupled together, are or will be permitted to be at any given time; and provided further that for the purposes of this act an engine or a car, running by itself, shall be deemed a train.

Sec. 11. That the Commission, before issuing any order under either of the first five sections of this act, shall give full and due hearing to all persons and carriers interested.

Sec. 12. That the Commission be and hereby is empowered and directed to enforce this act; and said Commission, by suitable agents and inspectors, shall keep itself informed concerning the action of the carriers in the matters to which the act applies.

Any circuit court of the United States shall have jurisdiction to issue a writ or writs of mandamus against any carrier subject to this act, commanding obedience by such carrier to any lawful order made by the Commission under this act; and the Commission may apply to any such court for such writ against any carrier which shall wilfully neglect or refuse to obey any such order. It shall be the duty of the district attorney, under the direction of the Attorney-General of the United States, to prosecute all necessary proceedings for the enforcement of this act, and the cost and expenses of such prosecutions shall be paid out of the appropriation for the courts of the United States.

Sec. 13. That every carrier subject to this act shall file with the Commission, twice each year, in January and in July, beginning in July, 1904, a report, on a form to be prescribed by the Commission, setting forth the number of miles of its railroad on which the block system was in use on the last days of December and June, respectively, preceding the filing of the report; specifying the kind of block system in use on each division or section. The first report made by any carrier under this section shall be accompanied by a copy of the regulations which are followed in the management of the block system; and each subsequent report shall be accompanied by a statement of changes (if any) which have been made in such regulations since the last preceding report was made.

Sec. 14. That for the purposes of this act the term "block system" shall be taken to mean the methods and rules by means of which the movement of railroad trains (cars or engines) may be regulated in such manner that an interval of space, of absolute length, may at all times be maintained between the rear end of a train and the forward end of the train next following. The term shall be taken to include automatic block-signaling, so-called; but no order shall specify the kind of block system, or make or cause any discrimination between automatic, so-called, and non-automatic.

Note.—Section 14 above may be amplified as follows: The term "block system" is used to designate the method whereby, by the use of the telegraph, telephone, or electric bells, or by automatic apparatus, each train is prevented from leaving a certain point until the last preceding train has passed beyond a certain point farther on. On single-track railroads the system is also a preventive of collisions between trains moving in opposite directions toward each other, as the men or apparatus at each end of each block section, whose duty it is to protect following trains, are equally available for the protection of opposing trains.