

# Track Recording Trolley for British Railways

A SELF-PROPELLED trolley which is equipped for detecting and recording all physical faults in rail track has been placed in service on the Eastern Region of British Railways. This trolley, supplied by Matisa Equipment, Ltd., is stated to be the first of its kind in use on British Railways, and it can be seen in one of the illustrations on this page. It enables irregularities in the track to be pin-pointed to within three or four sleepers so that maintenance gangs

presses a button to indicate their position on the chart.

As the recording vehicle travels along the track the measurements of the high and low points on each rail are a dependent variable of the vertical displacement of the detector wheel of one of the axles of the car in relation to a reference plane formed by the two auxiliary trolleys. The radii of curves are shown by the continuous recording of the versines measured



Matisa track recording trolley with outrigger detector assemblies extended

can go straight to places requiring attention without searching for defects, as was necessary before.

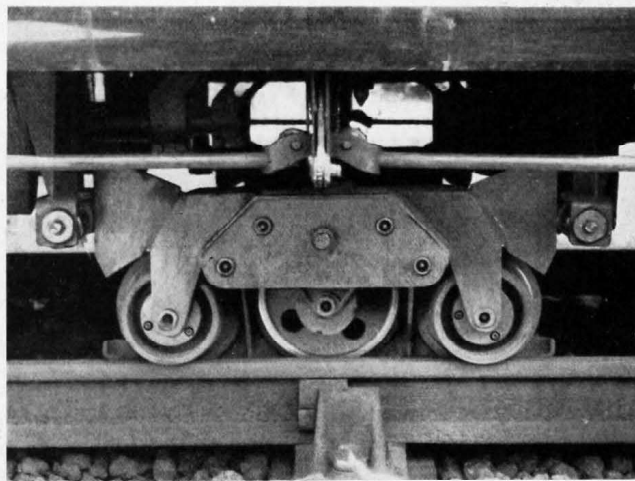
The vehicle itself is of simple construction, carried on two axles and propelled by a 65 h.p. petrol engine giving a maximum speed of about 30 m.p.h. in each direction of travel. As the vehicle runs along the track irregularities are detected by the combined movements of probes and wheel flanges carried on three sets of detector assemblies. One assembly is mounted between the axles of the vehicle, as shown in the second illustration, and one at each end on trolleys connected by outriggers. Normally, when surveying a track, the vehicle is driven at a speed of up to 15 m.p.h., and when travelling at higher speeds between working points, the outrigger assemblies are swung back and supported on the main body.

The detector assemblies are connected through wire cables and mechanical linkages to a series of pens on a recording instrument in the vehicle. This instrument continuously records the geometry of the track on a roll of paper, the speed of movement of which is related to the speed of the trolley. On this paper there are recorded the following:

high and low points on both rails, versines of both rails (this record of the curvature of each rail independently shows up poor alignment on straight track and irregular curvature on curved track); superelevation or cant of the track; twist or skew; gauge variations and recording speed. As the vehicle passes objects by the side of the line such as, for example, mile posts, bridges, and tunnels which can be used for identification purposes, the recorder operator

over a chord of 10m. This 10m is the distance between the feeler wheels of the outrigger trolleys at each end of the vehicle, and the versine is measured by the detector assembly in the centre of the recording car.

Rail cant is measured by displacement of a compensated pendulum, and to compensate for centrifugal force, which depends upon the speed of the vehicle, a correction table is provided for use with the value recorded on the chart. Skew is measured by the angle being produced between



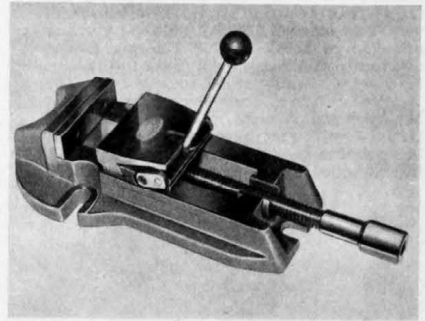
Tracing wheels of detector assembly between the trolley axes

the two axles of the vehicle and gauge variations by the two feeler wheels of the central assembly on the trolley.

Since the trolley has been in service detailed surveys have been carried out on a number of lines, and when a second vehicle is brought into use it is planned to survey all running lines on the Eastern Region at least once a year. Important main lines will be checked two or more times a year eventually.

## Cam-Operated Vice

A QUICK-ACTION cam vice with 4in wide jaws which can be opened up to a gap of 4½in is now being made by Associated Steels and Tools Company, Ltd., Sedgley Street Works, Wolverhampton. This vice, shown in the illustration below, has a moving jaw which is preset to the required gap by a screw operated in the normal way. Final locking of a workpiece between the jaws is effected by pressing a ball-ended lever at



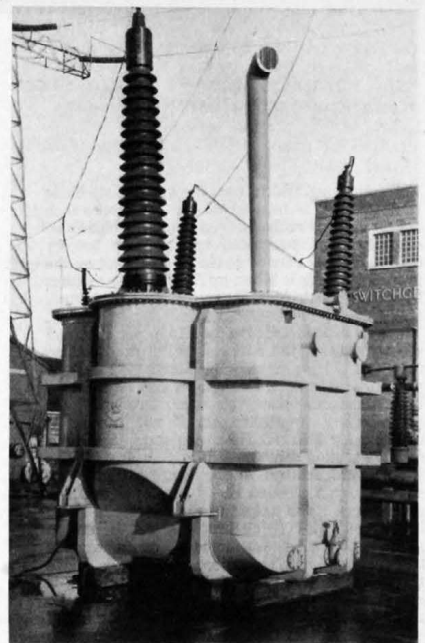
Quick-action cam-operated vice with a maximum jaw pressure of 1 ton

the back of the moving jaw down through 90 deg. This lever operates a cam pivoted at the rear of the jaw assembly, and the leading edge of the jaw moves into contact with and rigidly clamps the work with a preset load determined by the main screw setting.

Once the setting of the moving jaw has been determined workpieces are clamped and unclamped quickly and easily for repetition machining by operation of the cam lever. The clearance given between the jaws, when releasing the locking cam, is stated to be sufficient for the ready admission and removal of components. The maximum pressure which can be exerted on work by the cam-operated jaw is about 1 ton.

## 400kV Power Transformer

A NEW design of power transformer suitable for transmission voltages between 400kV and 500kV has been produced by the British Thomson-Houston Company, Ltd., Rugby. In the accompanying illustration this transformer is



Single-phase B.T.H. power transformer for 400kV undergoing short-circuit tests at the laboratory of the Switchgear Testing Company, Ltd., Trafford Park