intersecting the support  $S_s$ , M represents the bending moment at support  $S_s$  due to the loaded span  $L_4$ . The rest of the instrumental lines are drawn in the same manner, with the exception of the end spans, as shown. It will be noticed, from an inspection of the instrumental lines, that those to the left of the loaded span pass through L inflection points, while those to the right utilize the Rinflection points.

The foregoing principles will now be applied to the case of a continuous beam with three spans, the supports being all of the same level. It is upon this assumption, namely, that the supports are all on the same level, the calculations are based, since a slight subsidence of one or another of the supports, considerably changes the bending moment at any section of the beam.

By a course of investigation similar to that indicated in Fig. 1, the inflection points are located, through the aid of which the effects of the different conditions of dead and live loading are obtained, these effects being investigated separately. Each step taken is shown in its consecutive order, the final diagram representing the bending



Fig. 5.—Moments in Continuous Beam Resulting from a Concentrated Load.

moment as a whole, being the outcome of superposing the various other diagrams.

**Explanation of Fig. 6.**—A continuous beam of three <sup>spans</sup>, the end spans being equal and the beams subjected <sup>to</sup> both dead and live, concentrated or superimposed loads.

- (a) Inflection points established.
- (b) Concentrated dead load on span  $L_1$  considered.
- (c) Concentrated dead load on span  $L_2$  considered.
- (d) Effect of combined concentrated dead loading of the three spans.
- (e) Concentrated live load on outer spans taken into consideration.
   (f) Concentrated in the spans taken into
- (y) Concentrated live load on centre span taken into consideration.
   (g) Dimensional (consideration)
- (k) Diagrams (e) and (f) combined.
  (k) TL
- (i) The positive areas of (g) combined with diagram (d) upturned.
  (i) The positive areas of (g) combined with diagram (d)
- (i) The negative areas of (g) combined with diagram (d)
  (j) The negative areas of (g) combined with diagram (d)
- The final diagram resulting from the combination of (h) and (i).



Fig. 6.—Analysis of Stress in Continuous Beam of Three Spans with End Spans Equal.