

## CHAPTER VI.

### *MECHANISMS NOT LINKWORK.*

#### § 17. SPUR-WHEEL TRAINS.

THERE are comparatively few mechanisms in general use in which the *surface* contact of such pairs of elements as the pin and eye is replaced by the *line* contact<sup>1</sup> of higher pairs. In toothed-wheel gearing, however, we have one type of mechanism with higher pairs which is very familiar, and which is important enough to require some detailed consideration. There are many forms of toothed gearing, but here we shall consider only those which have plane motion, and which are usually distinguished by the name of **spur gearing**, or spur-wheel trains. It will be found that the methods already employed in the examination of linkworks can be employed here also with equal ease and with equally practical results.

The commonest example of a spur-wheel train is shown in Fig. 58. It is a chain containing three links only, of which one, *a*, is a frame, while the others, *b* and *c*, are wheels. Between *a* and *b* and between *a* and *c* are ordinary turning pairs; between *b* and *c* the connection is by means of the wheel-teeth, which form a *higher* pair, having line-contact only.

<sup>1</sup> See § 10, p. 57.

