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## The Tactual Analog of Stroboscopy

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## THE TACTUAL ANALOG OF STROBOSCOPY.

L. E. DODD

The subject of coincidences has application in stroboscopy, or the stroboscopic effect, in vision, and in the phenomenon of musical beats in audition. By means of a suitable mechanical device it applies also to the tactual sense. There may thus be produced tactual, as well as musical and optical beats.

A tactual sensation is aroused by simple pressure of a blunt point on the pad of a finger. This sensation may be given a uniformly intermittent character through periodic change in the pressure. Such a periodic change is produced by, say, periodic complete removal of the point from all contact with the skin. If the frequency of contact is sufficiently high, the sensation itself may be expected not to have an intermittent character. This condition would correspond to the rapid flashing of a light before the eyes, where the frequency of the flashes is high enough, sixteen or more per second, so that the retinal after-image bridges over the time interval between flashes. It would involve a tactual after-image.

Instead of the same blunt point pressing the finger-tip at each contact, there may be a succession of similar points having the successive contacts with the skin. The subject interprets the contacts as being due to the same point, just as in stroboscopy the eye interprets the successive similar flashes as due to the same source, whether this is true or not, as it usually is not. This is a fundamental illusion in the stroboscopic effect. The illusion is present whether or not the frequency is high enough to impart a continuous rather than an intermittent character to the sensation.

If, in the case under discussion, the successive blunt points have contact at slightly different places along a line proceeding in a definite direction, the subject will interpret the sensation as due to the same point moving in that direction.

A mechanical device producing this tactual analog must furnish the series of blunt points,—corresponding to stroboscopic “figures” (as distinct from the “images”),—and a means for bringing these into contact with the finger end, in the simplest case one at a time. The two characteristic frequencies will thus be found in that of the points, where points successively displace others, and in that

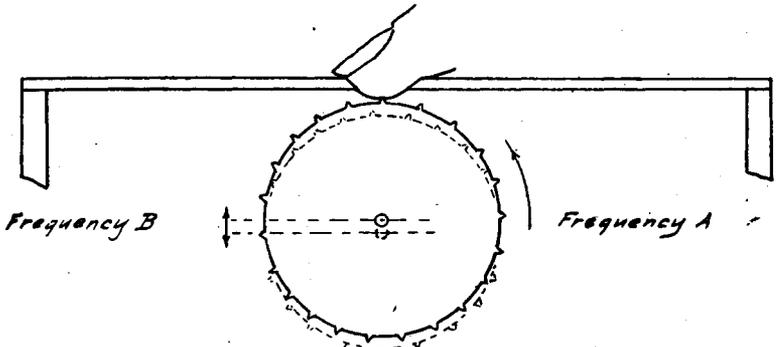


Fig. 26

of the part of the mechanism causing tactual contact. The accompanying sketch gives one scheme for such a device, (Fig. 26), which may be called a tactostrobe.

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