This Invention relates to a posture inducing device adapted to be worn in the neighborhood of the abdomen and to advise the wearer when the abdominal muscles have relaxed and an improper posture has been assumed so that the wearer will tense the muscles and resume the proper posture. This application is a continuation-in-part of my copending application Serial No. 185,539; filed January 18, 1938. The primary object of this invention is to provide a device adapted to be worn at the abdomen and which, whenever the abdominal muscles are relaxed, will act in one way or another to serve as a signal to the wearer that such relaxing has taken place so that the wearer will instantly and almost involuntarily tense these muscles and thereby assume the proper posture. Such a device, which may take any one of several forms, is adapted to be worn in the neighborhood of the abdomen, usually but not necessarily out of contact therewith, being supported in any desired manner, i.e., by a separate belt or girdle, by the underwear, or other article of clothing, and is so constructed that, when the abdominal muscles are relaxed, the wall of the abdomen will come into contact with or increase its contact with the device, thereby establishing an abnormal condition to which the wearer will respond or react and tense the abdominal muscles so that such abnormal condition no longer exists. This abnormal condition may be of any type which will attract the attention of the wearer of this device. For example, a vibration may be set up, or a quickly appreciated noise, e.g., a whistle or squeak may be created or an irritation may be produced by localized pressure. Various forms of devices embodying this invention are set forth in the following description and shown in the accompanying drawing, in which:

Figs. 1 and 2 illustrate a human figure wearing a belt or girdle upon which devices embodying this invention may be carried. Fig. 1 shows the figure in a normal posture with the abdominal muscles tensed and Fig. 2 a paunchy figure due to the relaxation of the abdominal muscles;

Fig. 3 is a perspective view of such a girdle which carries a device embodying one form of this invention;

Fig. 4 is an enlarged perspective view of the device shown in Fig. 3;

Fig. 5 is a view similar to Fig. 3, showing a device embodying another form of this invention;

Figs. 6 and 7 illustrate devices embodying other forms of this invention; and

Fig. 8 illustrates a modification of the device shown in Figs. 3 and 4.

As a matter of convenience in supporting the device a belt or girdle 10 is usually employed but, as pointed out above, the use of such belt or girdle is not essential and other means may be employed to support the device. The device may be secured directly to the belt but preferably the belt is equipped with straps 11 to which the devices are secured. The straps 11 may be shifted along the belt so that the devices will coact with those portions of the abdomen preferred by the wearer.

The device 15 shown in Figs. 3 and 4 comprises a back plate 16 and a pair of arms 17 fixed at the ends to the ends of the plate. The free ends of the arms overlap one another carrying a grooved block 18 and the other arm carrying a pin 19. The pin 19 extends parallel to the grooves 20 of the block 18 and the arms are of spring material so related to each other that the pin 19 rests in one of such grooves 20. When pressure is applied against the outer face of the outer arm 17, the free ends of the arm are swung about the fixed ends thereof. The pin 19 thereupon moves from one groove to another, creating a vibration which is communicated through the abdominal wall to the wearer as a signal that the abdominal muscles have been relaxed and should be tensed. Under some conditions the relative movement of the block 18 and pin 19 causes, in addition to the vibration, a noise which will serve as a further signal to the wearer. As shown in Figs. 3 and 4, the device 15 is mounted upon the girdle by a cross-plate 21 fixed to the back plate 16 and attached to the belt or girdle through holes 22 in the ends thereof.

Fig. 5 shows a device 25 carried by a belt or girdle 10 which acts when the abdominal muscles are relaxed to establish a localized irritating pressure which obviously signals the wearer that such relaxation has been permitted. As shown in the drawing, the device 25 includes bars 26 arranged in the form of a cross. Obviously other arrangements might be employed.

The devices 30 and 35 shown in Figs. 6 and 7 respectively emit sounds which act as signals. The device 30 is a bellows, one wall 31 of which has a passage 32 therethrough, in which passage is mounted a reed or other element (not shown) which will emit a whistle when air is forced through the passage in one direction. The wall 31 is mounted upon a belt or girdle 33 and the other wall 34 normally rests lightly against or is near the wall of the abdomen. When the abdominal
muscles are relaxed, the wall 34 is advanced toward the wall 31, forcing air through the passage 32 and causing vibration of the reed. The device 35 comprises the combination of a bellows 36 mounted in a belt 32 and a ball 37 carried by the bellows. In the bell 31 is a passage 38 through which air is forced by the movement of the bellows when the abdominal muscles are relaxed. The bellows 36, like the bellows 32, normally rests lightly against or is near the abdominal wall.

Instead of mounting the device upon a separate belt or girdle, it may be suspended from a belt or waist band (see Fig. 8). The device 40 is similar in construction and operation to the device 15. Instead of the attaching cross-plate 31, however, the upper end of the back plate 41 is extended and bent over so that the device may be suspended from a belt or band 42.

The use of various types of abdominal supports is well known, but such supports do not embody the present invention. The purpose of such supports is to supplement or assist the muscles in holding the abdomen in the proper position; the purpose of the present invention is to ensure the independent use of such muscles and the invention acts only when the muscles are relaxed. In short, this invention acts not as a supplement or substitute for the abdominal muscles but as a spur or incentive so that the muscles are kept tense and function in the manner intended therefor. The use of this device will be required for a relatively short time, i. e., until the muscles assume their normal function, whereas the use of the usual abdominal support must be continued since the muscles themselves are not of necessity brought into action but tend on the contrary to relax so that the entire burden is assumed by the support.

The essence of this invention is the provision of a device which is inoperative when the abdominal muscles are tense and a proper posture assumed but which, when the abdominal muscles are relaxed, creates an abnormal condition which includes a signal of one sort or another whereby the wearer is made conscious of such relaxing and advised that the muscles should be tensed in order that a proper posture be assumed. While certain forms of devices embodying this invention have been shown and described, the invention is not limited thereto, since other forms might be made without departing from the spirit and scope of the invention as set forth in the following claims.

I claim:
1. A posture inducing device adapted to be worn in the neighborhood of the abdomen and normally inoperative, and with which, when the abdominal muscles are relaxed, the wall of the abdomen comes into contact, creating an abnormal condition including a signal which advises the wearer of the relaxation of such muscles and reminds the wearer to tense such muscles and assume a proper posture, said device comprising relatively movable elements which in response to the pressure of the abdominal wall create such a signal in the form of a local vibration which is transmitted to the wearer.

2. A posture inducing device adapted to be worn in the neighborhood of the abdomen and normally inoperative, and with which, when the abdominal muscles are relaxed, the wall of the abdomen comes into contact, creating an abnormal condition including a signal which advises the wearer of the relaxation of such muscles and reminds the wearer to tense such muscles and assume a proper posture, said device comprising a back plate, a pair of spring arms each fixed at one end to the ends of the back plate, the free ends of the arms overlapping, a grooved block on the free end of one arm and a pin on the free end of the other arm, said pin engaging said block and movable relative thereto by the abdominal wall when the abdominal muscles are relaxed to cause a vibration which serves as a signal to the wearer of the device.

3. A posture inducing device adapted to be worn in the neighborhood of the abdomen and being inoperative when the wearer assumes a proper posture, such device being so positioned that when the abdominal muscles are relaxed, the wall of the abdomen exerts pressure thereon, such device including a signal means set in operation in response to the pressure exerted by the wall of the abdomen thereupon, whereby the wearer is advised that the abdominal muscles are relaxed and remanded to tense such muscles and assume a proper posture.

4. A posture inducing device adapted to be worn in the neighborhood of the abdomen and being inoperative when the wearer assumes a proper posture, such device being so positioned that when the abdominal muscles are relaxed, the wall of the abdomen exerts pressure thereon, such device comprising relatively movable elements which, in response to the pressure exerted by the wall of the abdomen thereupon, are actuated to emit an audible signal.

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