TWO WIRE/TWO WAY BELL SYSTEM

IN the home the use of an intercom is seldom necessary as the most usual "calls" are to come in for meals, to answer the door/telephone or even to watch a particular television programme. I think that it is also fair to say that a bell is louder than an intercom so if communication with a shed, garage or workshop is required a bell is the best bet to be heard above the noise of the drilling, filing, sawing and hammering that can often be present.

Having decided to use a bell system for two way communication, there are two existing ways. The first (Fig. 1a) uses one battery/transformer with three connecting wires. The second (Fig. 1b) uses two batteries/transformers and only two connecting wires. Batteries are very expensive and decay with time, even without use, so a transformer is cheaper in the long-run.

This leaves the choice of using an extra transformer or an extra core in the connecting cable. These can easily work out at the same cost, so how about using neither?

This is the object of my circuit in Fig. 1c. Here the direction of the current determines which bell rings, the direction being set by the push switches. Since each bell runs on alternate mains half cycles, it is run

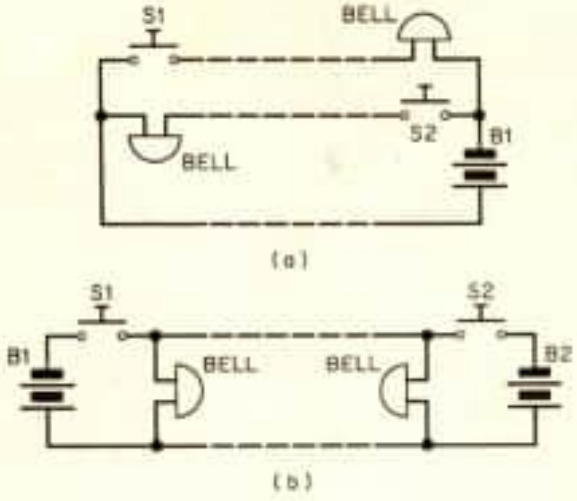
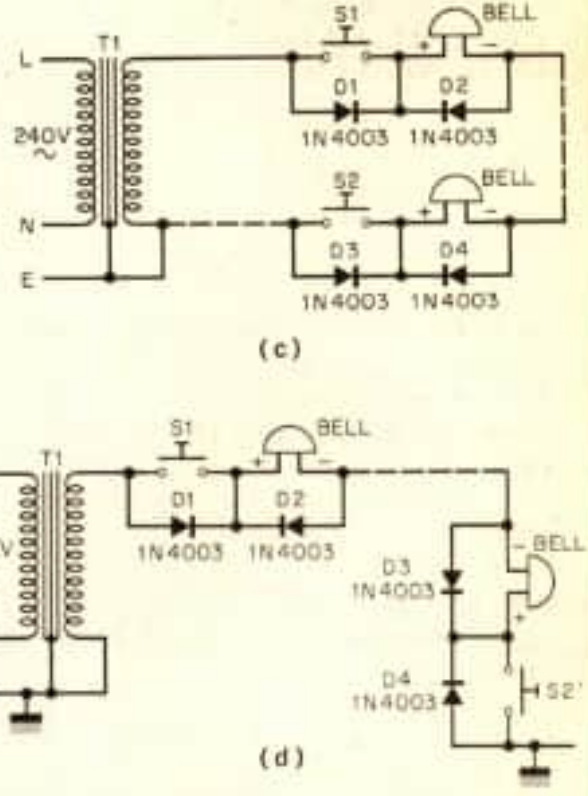


Fig. 1

on d.c. so if your bell has terminals marked positive and negative, connect it up as shown. When both switches are pushed at the same time both bells will ring without damage to anything.

If you have to run a long length of cable it will be much cheaper to use one conductor with the earth as the common. This is shown in Fig. 1d.

No details about the bells/buzzers or transformer have been given as they do not have to be matched precisely at all. Transformers which could not supply the necessary current continuously, because of the heating effect of the current, can be used as the bells will only be on for a very short time. In the same way the transformer voltage can be in excess of the rated value for the bells. In fact it is desirable to run the bells from a higher voltage transformer than recommended by the manufacturers as it is being run from a half wave rectified supply.



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