not make much appreciable difference distant reception from overseas sta- mended. Nevertheless, some sort of a to the strength of reception, always assuming, of course, that a reasonably good set is employed. It is when the aerial system is situated a distance beyond six or seven miles from the station that these directional influences of an aerial come most into play.

More especially is this directional TAKE, for instance, a case in which effect a feature with crystal and single station with a weak receiver some distance from the transmitting station, every precaution to obtain maximum strength should be employed. It is then that the direction of the aerial is of most importance.

Thus it is that the amateur who is selection of position.

The directional properties of an overhead aerial become really more important in those cases, in which it is de-

an efficiently erected aerial system does sired to obtain constant and reliable so conveniently, as has been recomstrength of the distant station be aug-directional to the local station, and dimented considerably by a judicious se-rectional to a required distant station, lection or re-selection of an overhead can generally be made. aerial's position, but the nearby station can also be more easily tuned out ing efficiency of an aerial system should by such means.

an aerial runs north to south, the valve sets. On establishing a receiving local station being situated northwards, and the distant overseas stations being located in an easterly and westerly direction. In such a case, if the aerial were taken down and reerected so that it ran east and west. the lead-in being taken from the end nearest the stations desired, say the erecting a new aerial, or who has cause west, the distant stations would be refeel dissatisfied with his present ceived more favourably, whilst, at the one, should take into consideration the same time, the local station could be eliminated with least difficulty.

> NATURALLY, it is not always possible to redesign an aerial system

tions. For not only can the reception compromise between having an aerial

At the same time, the actual collectnot be sacrificed for its directional qualities.

A table is appended, suggesting directions of aerials for the different stations received in New Zealand.

n. New Zealand stations-

Where these four are chiefly required, a T aerial running from N.E. to

b. Australian stations.

from an inverted L aerial running mast.

from N.W. to S.E. with the lead-in at the N.W. end.

c. American stations—

An inverted L, running N.E. to S.W., with lead-in in N.E. end.

d. Japanese stations—

An inverted L, running N. to L. Lead in N.

WHERE a powerful receiver is used and the Australian and New Zealand stations can be brought in without having to study directional effect, it would be advisable to build the aerial to bring in the Americans or the Japs.

A compromise is often made by running the aerial in two directions by the use of a third mast. In this case, the The best results will be obtained lead-in should come from the centre

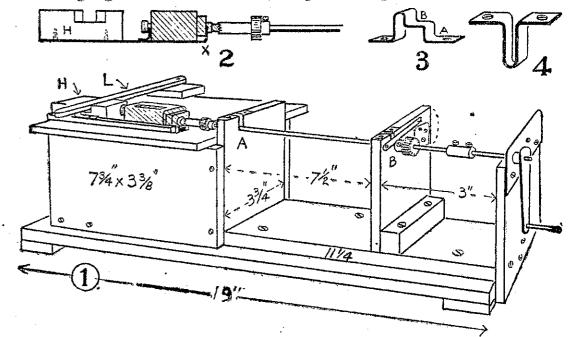
A Coil Winding Jig with Revolution Counter

Useful Accessory

for transformers, chokes, resistances, end pieces are secured outside the end construct a winding jig that may quick as shown. ly be adapted to do any required wind. Meccano parts are used for the metal ing. It goes without saying that such working parts—the spindles, a winder must be fitted with a reliable wheels, spindle coupler, and any brass revolution-counter capable of being collars that may be required to keep thrown out of action at any time when the spindle in place endways. required. Such a winder has been in alter to suit their own fancy.

CONSTRUCTORS, who frequently dle, which is moved to the opposite have to wind coils of various kinds three uprights are secured. The two etc., soon find that it will pay them to of this and the centre piece by a block,

At A and B are bearings made from use by the writer for some years, and a 3-8in. strip of 22's soft brass, bent as was recently improved in details, and shown at 4, and let into a slot in the a better class of counter added than wood. In order to prevent the spindle was previously in use. A short descrip-rising in these bearings a strip of 18's tion of the winder will now be given brass is pivoted on a screw as shown with approximate dimensions as a at B, and at the other end is secured guide, though many constructors will by a pin. Below the pinned end is a plate of 18's brass to serve as a bear-The winder in question is arranged ing for the large gear wheel $(1\frac{1}{2}in. di$ to run 1 to 1 ratio for careful winding ameter), which is fitted with a short of medium guage wire to about 30's, or piece of spindle to connect to the han-



thinner, where even winding is desired. hole. The large wheel then gears with When the wire is thin and run in irreg- the pinion at B. ularly, as on small chokes or telephone thus be attained.

front, built so that it may be clamped of $2\frac{1}{2}$ to $2\frac{3}{4}$ in. is convenient. to the bench in some way.

The Diagrams.

NO. 1 shows a general view, giving

The spindle should not be less than magnets, a 4 to 1 gearing is quickly 31in. from the board holding the upbrought into use, and a high speed may rights, and is 12in, long, joining up to a 2in, piece to which a handle crank The baseboard should be 1in. thick, of 18's hard brass is soldered, with a about 19in, long, and about 8in, back to piece of spindle for a handle. A throw bearings by the handle are two holes drilled in a plate of 18's brass about 2 x 1in., screwed to top of upright.

The Revolution Counter.

a few essential dimensions. The A VERY useful type of counter is wood used is mostly 3-8in. thick, extended the "Irivo," which is obtainable cepting the inch piece to which the from John Chambers and Son, Ltd.,

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