

But human nature is human nature, and accidents do "occur in the best regulated families." If a sitting hen deserts her nest a dozen eggs are spoiled; if an incubator fails eight to twenty-five dozen are done for.

A fourth disadvantage is that there are among incubator chickens more deformed specimens than among those hatched by hens. We do not intend to convey the idea that many incubator chickens are "cripples" but we venture the assertion, without fear of successful contradiction, that there are more of such than among the same number hatched by hens. Just why this should be so we do not know, but it must be due to the failure to observe perfectly the conditions of development. Through some failure in these conditions the chickens become crooked-toed, hump-backed, wry-tailed and the like. Users of incubators quietly give them a quietus and rear only their better favored brethren and sisters.

A fifth disadvantage is the danger of fire. With a good incubator in a proper place this danger is infinitesimal. We have never known an incubator to get on fire. But with brooders, which must be employed if incubators are used, there is some such danger. Brooder houses, chickens and all have gone up in smoke, and broiled or roasted chicken thus prepared come high.

The above are some of the disadvantages resulting from the use of incubators, and need to be carefully considered before the answer can be given to the question we are discussing. Others, probably, will occur to the reader and he must weigh them all against the advantages before a wise decision can be reached.

#### HOW TO GET FERTILE EGGS AND HOW TO HATCH THEM.

BY C. F. WAGNER, TORONTO.

**B**EFORE attempting to hatch eggs we must first consider whether they are likely or not to be fertile. The fertility of eggs must obviously depend much upon the number of hens allowed to each male bird, which will vary according to the breed and other circumstances. As a rule when fowls are confined to winter quarters they are not so vigorous. In heavy breeds not more than four or five hens should be allowed to each male, while in the lighter varieties eight or ten females may be put with one male bird. If fowls have not been properly fed we cannot expect to get fertile eggs. To procure well fertilised eggs we must feed on plenty of vegetable food such as cabbage, turnips, lettuce,

dry cut clover steamed, potatoes, carrots, etc., these can be boiled or the former may be given raw. Hens must have plenty of exercise when they are confined in close quarters.

To make them work it is a good plan to throw the grain into a litter of straw, hay, or leaves, I find the latter to answer the best. Make fowls hunt for their living and they are sure not to be too fat. Another good way to make them take exercise is to hang a cabbage up about ten inches out of their reach, they will jump to get it, by so doing they flap their wings, in fact all of their muscles get into motion. Parboiled meat or green ground bones if given three or four times a week is a good egg producer and also strengthens the fertility. It is on good authority, I say, that milk if given fowls to drink instead of water will increase the egg production ten per cent. Fowls should always have plenty of grit before them such as mica crystal, broken oyster shells, etc. I have also seen finely broken earthenware used which took the place of the gravel, etc., the hens find when running at large. Fat hens seldom lay a fertile egg. A hen that lays irregularly, that is, if she skips two or three days at a time, is almost sure to lay unfertile eggs.

Having considered the way to get fertile eggs we must now select those most suitable for hatching. Double yolked and irregular shaped eggs, eggs with thin shells and those with transparent spots in them should never be used for incubation. Some people believe that the shape of the egg effects the sex, *i.e.*, that the long eggs produce cockerels and the short burly ones produce pullets, but this is an erroneous idea. The shape of the egg does not effect the bird so far as the sex is concerned, though sometimes an irregular shaped egg will produce a crippled chick.

The best eggs as they are collected should be kept in a cool place with a temperature of about 40° Fah. until ready to set under a hen. The eggs should be stood with the large end down, thus keeping the air bulb as small as possible. All being ready we must now prepare a nest. I have tried hay, straw, paper, sand, clay and green sods, the latter I found to produce the best results. The nest should be made out of a box or barrel with a hole in the side of it to admit the hen, the top should always be kept covered. Put a piece of carpet or an old bag in front of the hole to keep her in darkness which is advisable. Place some earth in the bottom of the barrel and pound down solid, and hollow out in the centre so that the eggs will roll in, then place a green sod in the hollow with the grass side up. Put some dummy eggs in for a day or so until you find biddy to be true to her nest, after which the dummies may be removed and the eggs placed on the grass. Thirteen is considered a sitting, they may not be too many for a good sized hen in summer,