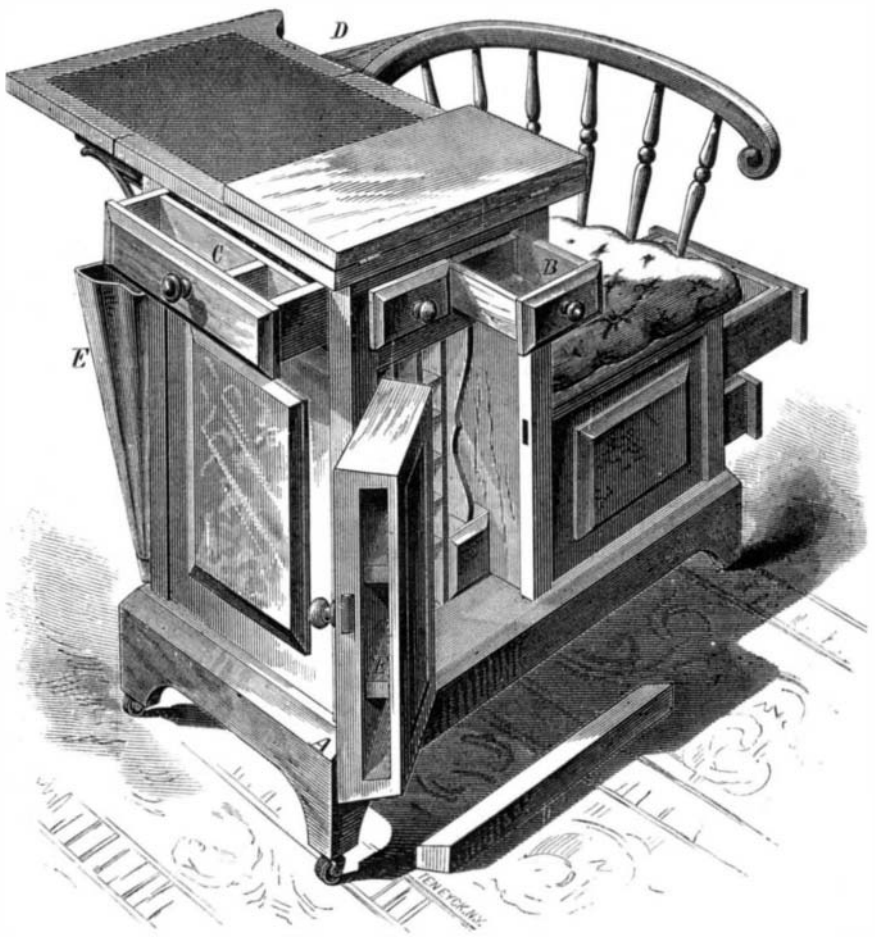
COMBINATION CHAIR AND SECRETARY.

We illustrate herewith an ingeniously constructed piece of furniture, which combines the conveniences of an arm-chair, secretary, writing table, drawers, etc., with those of a work table, scrap bag, needle and thread repository, and other appliances of the sewing room. The whole is portable, occupies but little space, and may be moved as easily as any simple household article of corresponding size.

The arm-chair, together with the case or secretary, is supported on a rectangular base frame, A. The legs of the chair rest directly upon the floor so as to ensure steadiness. Casters are provided on the legs beneath the table, so that, by lifting the chair end, the whole piece of furniture may be easily rolled about, even when the secretary is loaded with books, as the weight comes immediately above the casters. Drawers are placed, as shown, beneath the seat of the chair, and open sidewise. The inside of the secretary is arranged with movable pigeon holes for papers etc., which can be taken out, so that this space can be used as a lady's work receptacle.

The front drawer, B, serves, when open, as a support for a front folding leaf. The side drawer, C, holds pen and ink. An extension, D, on top of the secretary, is attached to the back of the arm-chair to strengthen the same, and is bracketed to support the rear folding leaf of the table. An extension bellows-shaped portfolio, E, is placed in rear of the case, and may used as a newspaper receptacle or scrap bag The arrangement of the folding leaves of table, D, is optional, as they may be hinged at the front, back, or end edge of the top,and may be used for various purposes, as may be desired. The door of the case is made double, and divided by horizontal strips, F, into secret compartments for money or valuable papers, and is closed by a tightly fitting piece which locks into the side of the door.

The device may be appropriately finished and decorated so as to constitute an attractive and ornamental piece of furniture. Patented through the Scientific American Patent Agency, September 2, 1873. For further particulars relative to sale of patent or royalties, address the inventor, Mr. George C. Taylor, Thibodeaux, La Fourche Parish, La.



TAYLOR'S COMBINATION CHAIR AND SECRETARY.

A Mouse Plague.

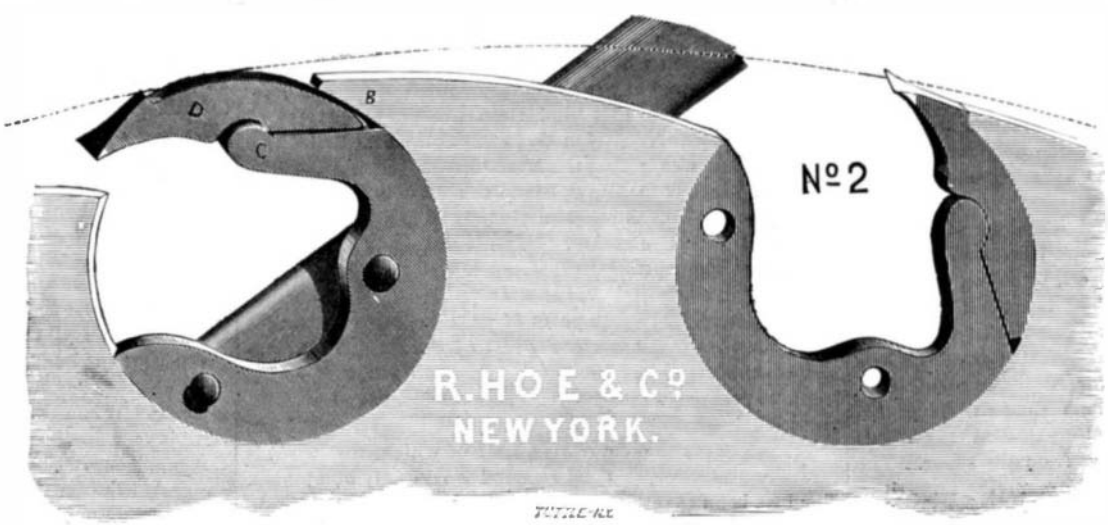
The Scotch farmers appear to be at their wits' ends for means of ridding themselves of the vast armies of mice which are threatening to overrun the border country. The land is represented as resembling the ground in the neighborhood of targets for rifle practice, being literally riddled with holes. All the vegetation is destroyed in certain localities in Teviotdale, not merely the blades of grass, but the roots also,having beeu consumed. The farmers are encouraging the increase of hawks, owls, weasels, and other carnivorous birds and beasts.

R. HOE & CO.'S IMPROVED INSERTED SAW TEETH.

Since the introduction of inserted teeth for circular saws, their employment has steadily increased, and promises still to do so. In a plain or solid circular saw, the destruction of one or two teeth necessitates the filing down of all the others to the size and radius of the broken ones, and a continuous reduction in diameter accompanies the wear of the saw. It is necessary, in order to maintain the circumferential speed of the saw, to alter the sizes of the driving pulleys, which in turn involves a change in the length of the driving belt; and it is to these defects and inconveniences that the success of inserted teeth is mainly due. In the forms at first adopted for inserted teeth, the sockets in the saw blade are found to become gradually enlarged from the pressure, notwithstanding the spring of the blade, which for some time takes up the wear, and the teeth consequently get loose. Another and very serious objection to the ordinary form of inserted teeth, as compared with the new system illustrated in our engraving, lies in the fact that when, from the breakage of a few teeth, it is necessary to reduce the remainder, to make the saw run true and all the teeth perform cutting duty, the clearance of the teeth becomes so greatly reduced that it is necessary in some way to restore it. To accomplish this result, special swages were invented; but the action of these swages is to spread the front of the teeth by upsetting the metal at the cutting edge; and a fatal objection to this is that, as every machinist knows, by this disturbance of the grain of the steel, its strength is greatly reduced and its cutting qualities impaired. The practical result of course is that the corners of the teeth break off when in use, especially upon coming in contact with knots. If new teeth are inserted, instead of the damaged ones, the process becomes expensive; and the new teeth still require filing down to run true with the remainder, so that the swaging process, with all its imperfections, is generally applied.

In the present form of the inserted teeth, which is an improvement of the form shown on page 322, volume XXXII, the cost of insertion is reduced to a minimum, because the most expensive part, that is the socket, is not subject, except in exceptional cases,to wear or breakage; and the form of the cutting point or chisel bit is so simple that its cost is trifling. As a consequence, in case of breakage it is simply necessary to insert new bits, and not to file down and swage the whole of the teeth to accommodate the defects of a few damaged ones: thus not only is time saved, but the life of of the teeth is greatly prolonged. In our engraving, one tooth is shown in the process of being inserted, and another in its proper position; and it will be observed that they are firmly locked in the saw without the use of either rivets or keys. The wrench used for this purpose has two projecting pins, which fit into corresponding holes in the shank as shown in our engraving, and the operation is easily effected by any one. The chisel bits are forged at one blow under a drop hammer, and every part of tooth shank and chisel bit, is made to a standardgage, so as to be entirely interchangeable. The grinding of the cutting edges isdone by adjustable machinery, so that uniformity is secured in the keenness of rake, as well as in the width and clearance. The cutting bits, being short, are exceedingly stiff, and they are tempered as hard as a carpenter's chisel. They may be ground three times, which makes four runs for the teeth, before being worn out; and each tooth in the saw will, it is claimed, cut from one to two thousand feet of lumber, depending upon the quality of the logs and the amount of feed carried.

The saws are made from 13 to 6 gage in the thickness, and from 12 to 72 inches in diameter, the smaller sizes being admirably adapted for edging and gang saws. For further particulars, address R. Hoe & Co., 504 Grand street, New York city.



R. HOE & CO.'S IMPROVED INSERTED SAW TEETH.

New Improvements in Aerated Bread Making.

Aerated bread derives its name from the fact that its manufacture is carried on by a process in part the same as that employed for making aerated water. In the case of aerated bread we have a mechanical process, and in the case of fermented bread a chemical process; so that perhaps machine bread would be a better name for the former product than the title now given to it. Some improvements in the manufacture have lately been introduced in England, which we are informed are of a very important character, since they admit of the production of whole meal or brown aerated bread. The improvements, which are described in the English *Miller*, consist in what is technically called the "wine process," and consists in forming a wine from malt by mashing, and afterwards setting up the vinous fermentation in closed vessels. Four gallons of the so-called wine is mixed with the necessary water for a sack of flour, drawn into a closed vessel, and aerated. It is then mixed with the flour (also in strong, closed vessels), and kneaded by arms driven by machinery. The dough formed is drawn off by machinery (thus dispensing with any intervention of the human hand) into the required loaf sizes, and at the same moment, as the carbonic acid gas passes out of it, the dough is raised and vesiculated, and ready for the oven, the whole time required for forming a sack of flour into loaves not being more than half an hour. The effect of the new wine process on the flour is, we understand, that the gluten cells of the starch are softened and broken up, and the dough is thus entirely altered in its character. Instead of being tough and harsh as formerly, the dough now becomes soft and elastic; it is easily kneaded, requiring only half the power to work the kneading arms, and the atmospheric pressure required in the vessels is only about 20 lbs. to the inch, instead of 90 lbs., as hitherto. The use of such low pressures, besides being a great pecuniary gain, is of considerable importance in giving to the bread a soft and beautiful pile-like texture.

The dough, when prepared by the new wine process, also soaks and bakes with the greatest ease, and at an oven heat of 100° less than the ovenheat hitherto required for aerated bread. The starch of the flour is now changed into dextrin, while the gluten is uninjured; and the bread has a sweet and agreeable flavor, free from that acidity and bitterness always more or less present in fermented bread.

The Attendance at the Centennial Exposition.

The attendance at the Centennial Exposition for the one hundred and thirty-six exhibition days, ending and including October 14, aggregates 5,772,448 paying visitors, and 1,362,629 non-paying ones, showing a grand total of 7,088,077 people who have entered the grounds. The Philadelphia *Ledger*, whence we take the above figures, makes a number of suggestive comparisons between them and those representing the attendance at prior world's fairs. It appears that the pay admissions to the Centennial for the 136 days exceed the whole number of pay admissions at the Vienna show of 1873 for 186 days by 2,229,826, and the proportion of non-paying to paying visitors is far less. At the London Exhibition of 1851, 6,039,195 persons, paying and non-paying, attended in 141 days. Our Exposition already exceeds this by more than a million. At Paris, in 1855, the aggregate admissions were 5,162,330 in 200 days; and in London, in 1862, the numbers admitted were 6.211,103 in 171 days—both of which aggregates we largely exceed. At the 1867 Exposition in Paris, 8,805,969 people entered in 217 days. Judging from the present ratio of attendance, there is every probability that a million and three quarters will be added to the aggregate of paying visitors to the Centennial above noted, and a quarter of a million to the others, thus making over nine millions in all for 158 days, Sundays excluded, against the 8,805,-969 for Paris in 217 days, Sundays included.

In its pecuniary results, the Centennial largely exceeds those of any exhibition yet held. The greatest return was at London, in 1851, namely, $2,121,610; the next at Paris, in 1867, when it was $2,103,677. The cash receipts for gate money during the 136 days of the Centennial were $2,686,603.75.

ANTS.—A certain way to keep ants from sugar barrels, lard cans, and preserve jars, says one who has tried it, is to tie a string wet with kerosene around the barrel, can, or jar. Repeat the wetting of the string with the kerosene oil every few days.