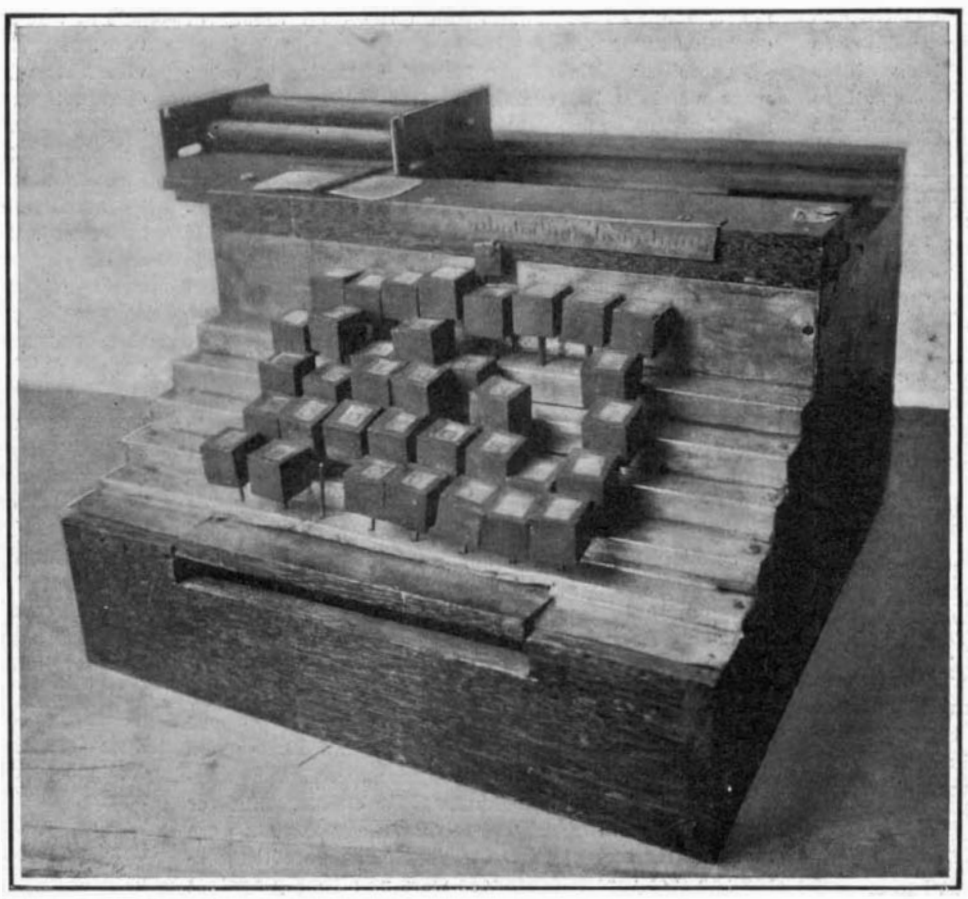
AN EARLY TYPEWRITER.

So widespread and general is the use of the typewriter in nearly every phase of the world's activity to-day, that it is difficult for us to realize that it is strictly a modern invention and that the first practical commercial writing-machine was placed upon the market little over a quarter of a century ago. Notwithstanding that the main elements of the mechanism had been invented by the early sixties, they were not practically embodied in one machine till the first Sholes typewriter, the forerunner of the modern Remington, appeared in 1873. Curiously enough, Mr. Sholes collaborating later with Glidden and Soulé, was induced to attempt the construction of a typewriter, by an article in the SCIENTIFIC AMERICAN, describing an invention of John Pratt, called the "pterotype," a curious but rather useless form of writing machine. The accompanying engraving is of one of the earlier forms of typewriter, broadly a predecessor of the present-day machine. It was constructed by R. T. P. Allen, who was granted a patent covering the invention, in 1876, only three years after the appearance of the first Remington typewriter.



A TYPEWRITER OF 1876.

In Allen's machine, the carriage is moved back for a new line, by means of a cord, pulley, and weight, the last named sliding in a suitable casing at the inside of the frame, and in the other direction, by a cord and button, the weight serving in connection with a double pawl to move the paper laterally, with each marking of a type, while the button serves to bring the carriage and paper back to admit the forward feeding of the latter for the next line. The types are arranged in a circular "basket" so as to strike a common center, and are connected by curved type-rods and levers with keys disposed in a manner similar to the arrangement in the ordinary typewriter of to-day. The movable carriage and paper-feeding mechanism is arranged at the upper or top part of the framework, while in front of the same the keys are disposed in the step-shaped manner shown. The keys, arranged according to frequency and convenience of use, are connected by downward descending wire rods with a corresponding number of parallel levers that are fulcrumed to cross pivots of the frame and extended backward, carrying at their rear ends the type-rods, which are curved in an upward and inward direction toward a common center, being guided by suitable guide plates.

As the type-operating levers are arranged to pass below a vibrating pawl-operating bar, the depression of each key produces the action of the double pawl. The spaces between the words are formed by the depression of a space-bar. The paper is fed forward for the space required between the lines by means of two feed rollers, of which one is placed above the other, journaled to suitable supports of the carriage, and which act automatically with the same. The shaft of the lower roller is provided with a ratchet wheel and check pawl to prevent backward motion. The shaft of the lower roller is provided with a spur wheel whose radially extending and equidistant teeth are engaged by the free end of a band-spring that is affixed at one end to the frame of the machine, and so twisted or shaped that it presses against one of the spokes when the carriage is drawn back, turning thereby the spur wheel and the feed rollers to the distance required between the lines. This spring may be further arranged to strike a bell when releasing the adjoining spur of the wheel, in order to indicate the approaching end of the travel of the carriage. The carriage is also provided with an indicating pointer running along a graduated scale at the front part of the casing, to enable the operator to see at any time the distance to which the line is printed and when it is completed.

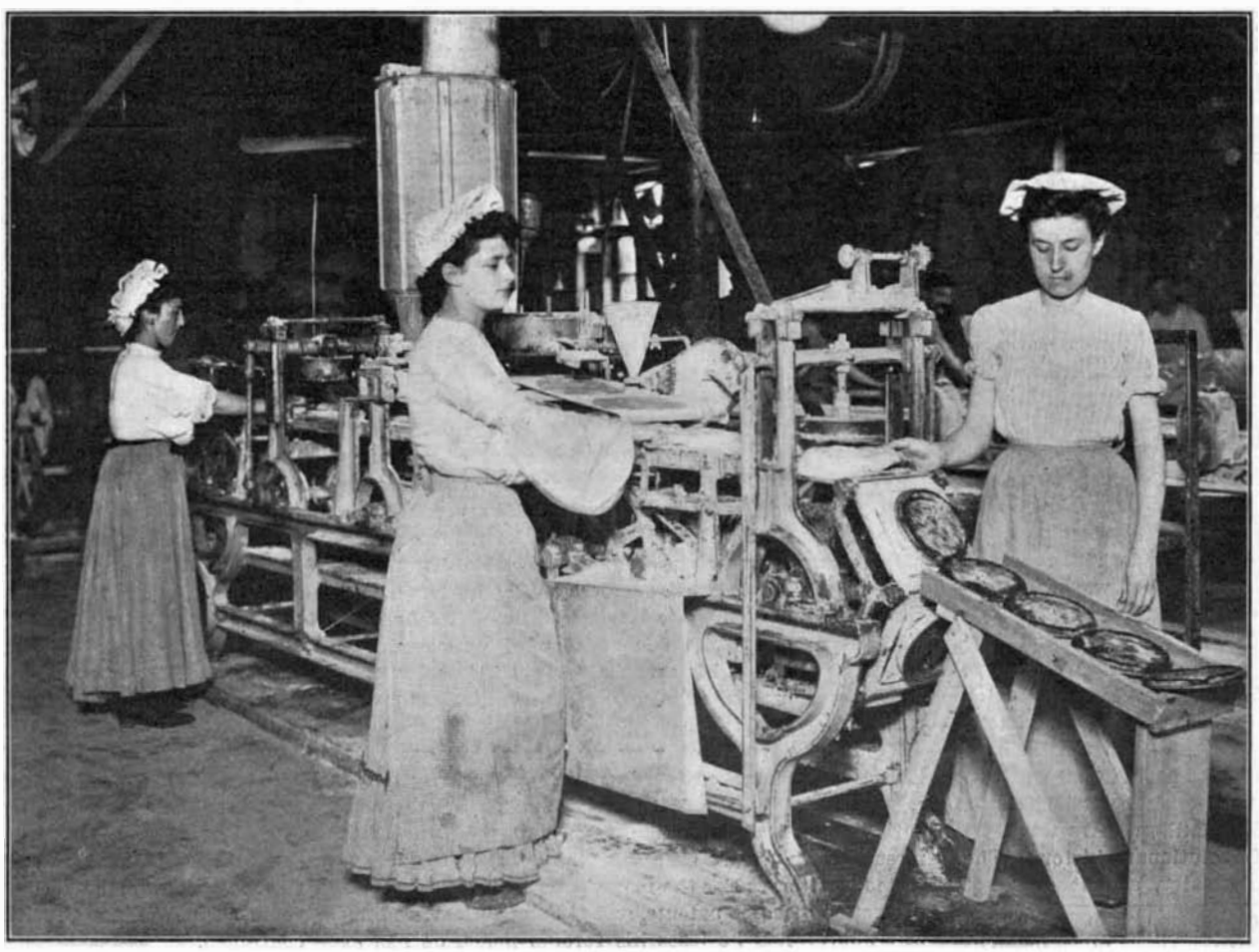
PIE-MAKING BY MACHINERY.

Another severe blow for the arts and crafts has resulted from the arrival in Philadelphia of the pie-making machine. It has always been supposed that making pies was a work for human fingers. Despite the inroads of machinery on the crafts, the pie artisan has stood alone, untouched by modern inventiveness. It was thought that a pie was too complicated and individual a creation ever to be produced by brainless mixers and trimmers and stampers.

Now comes this pie-making machine, to standardize the pie and destroy its individuality and then to multiply and cheapen it. One man, three boys, and the machine turn out from sixteen to eighteen pies a minute in the Philadelphia bakery where the pioneer machine has been installed. The inventor describes his contrivance as a boon to the human race, about 10 feet long and 20 inches wide. An electric motor furnishes power and a gas jet keeps the forming dies warm. Over the machine is suspended a tank with "filling" for 400 pies and in it an agitator revolves to keep the material from blocking the outlet.

After the paste for crusts has been properly mixed it is weighed and cut into proper-sized pieces by a dough divider. A tray full of lumps of dough for bottom crusts is placed at one end of the machine and another tray, containing lumps for top crusts, at the other end. At the rear is a stack of plates automatically fed by a ratchet. A magnetized arm swings around, picks up a plate and places it on a die made to receive it. A piece of dough is placed on the plate and the next movement brings it under a die which forms the lower crust. Then the fruit is deposited from the tank and the plate moves forward. By this time another lump of dough has been flattened out and stamped with an initial—such as "L," for lemon—while an automatic bellows blows a puff of flour over the dough to keep it from sticking. The next movement brings the filled pie and this upper crust together, one operator being stationed here to adjust the top cover if necessary. Then the covered pie comes under the edging die, which cuts off all scraps and the pie passes forward on an apron which leads to the oven.

So the process goes on with all regularity until 400 pies are lined up. They are all perfect—too perfect, perhaps. They are machine-made, and no contaminating hand has touched them from their initial stage of doughiness until they are ready to be taken from the oven—and therein lies their chief virtue.



PIE-MAKING BY MACHINERY

A Poisonous Product Extracted from the Brain of Animals.

In the course of researches on inoculation of animals against rabies by means of filtrates from animal brains, Prof. A. Marie found the animals to be considerably weakened. Now in a paper recently presented to the French Academy of Sciences, the author shows that an extremely toxical product is extracted from such emulsions of brain substance.

The substance in question is quite insoluble in distilled water, but is partly soluble in weak alkaline solutions, having a neurotoxical action, as shown by inoculation in the brain of rabbits. During the first few hours after inoculation the animal remains in a quite normal condition; but a most violent crisis is observed one or two days afterward, and after several similar crises the animal dies. It is interesting to note that on opening the skull, no lesion can be noted, while the brain on being inoculated in another animal does not give rise to any trouble. In some cases, however, the rabbits thus treated recover.

Endeavors so far made to vaccinate or to prepare an active serum against this poison have failed to give any satisfactory results.

The author intends to investigate the toxicity of emulsions from the brain of man.

Artificial Camphor.

Herr Callenberg has produced pure artificial camphor in Germany, the product being designated scientifically under the name of chlorhydrate of turpentine. It is said to be soluble in nitro-glycerine, and to lower considerably the temperature of explosion of this substance, and at the same time its congelation point.