

A NOVEL AUTOMOBILE LAWN MOWER.

BY WALDON FAWCETT.

One of the most powerful as well as one of the most interesting automobile lawn mowers which have been placed in service in the United States is that which has lately been constructed for the national government for use on the grounds of the United States Capitol at Washington, one of the largest lawns in the world. The new motor not only exerts a time-saving and labor-saving influence, but is proving an important factor in the work of beautifying the grounds, inasmuch as it has afforded a solution for several heretofore perplexing problems in the proper maintenance of so great an expanse.

The new power lawn mower is a 15 horse power gasoline machine weighing approximately 2,000 pounds. It cuts a swath of 30 inches, but such is the speed at which it may be operated and the facility with which it may be handled that the new mower is capable of doing the work of the two horse machines which it displaced, and this despite the fact that the latter cut a swath of 36 inches. As will readily be appreciated, the cutting blades of the motor mower may be brought, in action, much closer to walls and trees than was possible in the case of the horse machines, and some idea of the saving of work thus effected may be gained from the fact that whereas more than a dozen men with hand machines were formerly required to "clean up" after the large machines, less than half that force is now necessary.

Perhaps the greatest advantage of the new mower is found, however, in that it does not in its operation inflict the slightest injury upon the beautiful lawns, the preservation of which is an important consideration in grass-cutting operations on the Capitol grounds. When the old-fashioned machines were in use the hoofs of the horses tore up the turf, in many instances to a serious extent, particularly on the sides of the rather steep slopes approaching the Capitol building. With the horseless mowing machine not only is this eliminated but the condition of the turf is actually improved, since the new machine is a combination mower and roller, the rollers being so placed with reference to the cutting blades that the lawn is rolled both preliminary to and following the passage of the knives.

The use of the new mower has enabled the maintenance of a uniformity of appearance in the Capitol lawns which was previously unknown. The Capitol grounds comprise fifty-two acres, of which about thirty acres are in lawn. Under the old plan it was necessary for the machines to be kept in operation almost constantly, and even then the grass in different sections of the expanse was of such uneven height as, in many instances, to present a rather poor appearance. The new motor mower covers the entire lawn in less than a week, with reasonable allowance for inclement weather, and in consequence the grass on all portions of the grounds is apparently of uniform height.

The automobile machine which displaces, in addition to the hand machines previously mentioned, two drivers and four horses, cost \$1,500, and when operated eight hours per day it consumes about one-quarter barrel of gasoline per day, thus making the fuel bill approximately \$2 per day. It is claimed that by reason of the exceptional staunchness of construction which characterizes the new machine the expense for repairs will be less than in the case of the horse machines.

The Anthony Pollok Prize.

No doubt many inventors are wondering what disposition has been made of the Anthony Pollok prize. Communications which have been received by the editor from Paris state that, owing to the unsatisfactory results of the former competitions, the founders of the prize were undecided as to what should be done. Before taking any steps it was thought advisable to make an investigation. The Inter-maritime Association in Paris sent out letters to the leading maritime associations, chambers of com-

merce and boards of trade of the principal maritime cities of the world, asking for advice as to the best methods to be pursued in order to obtain more satisfactory results in a possible future competition. Many replies were received and many suggestions made. A report containing the various recommendations and suggested changes was submitted by the Inter-maritime

ploye is concerned, is that of brass pouring and casting. The noxious fumes—zinc oxide—exuded from the molten brass exercise a most prejudicial effect upon the constitution of the operators. Consumption, asthma, and ague are the most common maladies attributable to this poisoning, while the mortality among the workmen is also very high. In Birmingham, the center of the brass casting and founding industry of Great Britain, brass casters seldom survive 55 years of age. Among the 2,000 men employed in this trade, there are not more than five alive to-day whose age exceeds 60 years. As a general rule, a brass caster is totally unfit for work by the time he is 50, since when he has attained that age, owing to the prolonged inhalation of the poisonous fumes, his system is so undermined that he has the appearance of a man ten years older.

Legislation has considerably improved the unhealthy conditions under which the operator works, by insisting upon more extensive ventilation and appliances for washing; but little good effect has thereby resulted in the minimizing of the injurious effects exercised upon the constitutions of the mechanics.

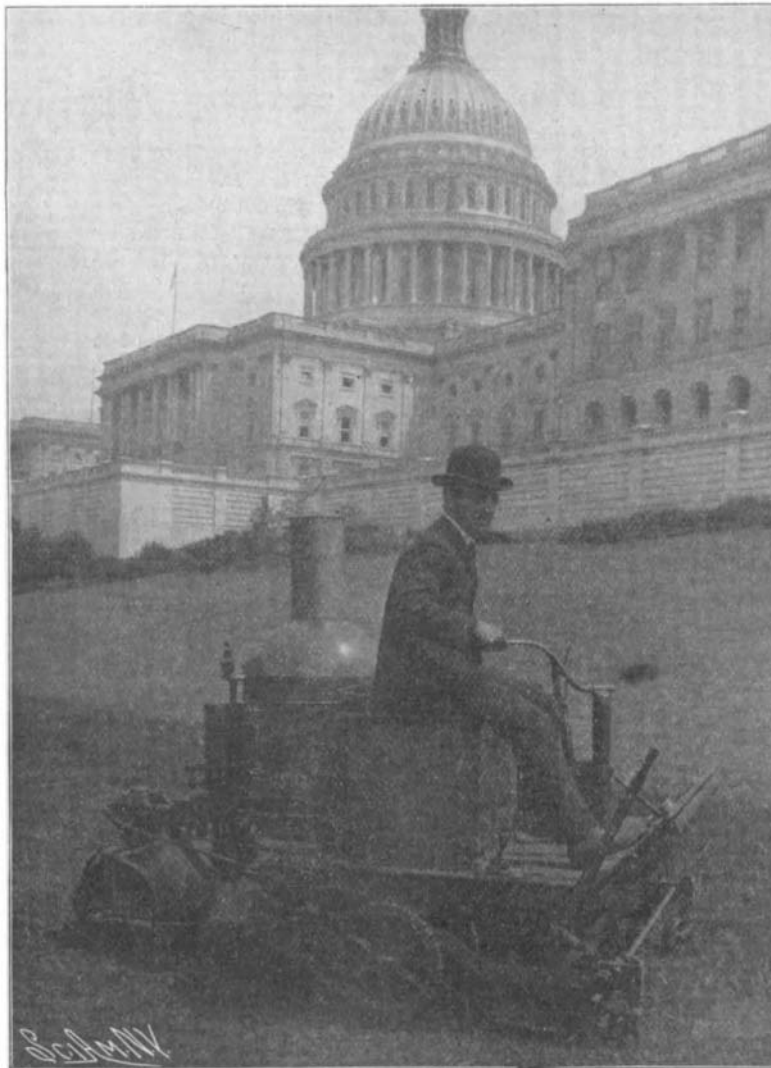
Brass casting consists in the main of four operations, viz., melting, molding, coring, and pouring. It is the last-mentioned process which is attended with the greatest danger. When the metal has been melted to the requisite point, the molds into which it is to be poured are ranged against a settle in a slightly leaning position. The caster lifts the pot with its liquid contents from the furnace by means of a pair of tongs, and rests it for a moment upon the ground to remove the dross from its surface by skimming, previous to pouring it into the mold. This accomplished, the pot is then placed on the settle, tilted forward, and the contents are thus poured slowly into the orifices of the mold. While this work is in progress, the molten brass gives off thick copious clouds of zinc oxide fumes, with the result that the caster is soon enveloped in an impenetrable haze, and only escapes asphyxiation by keeping his nose and mouth closely muffled, running into the pure atmosphere outside the foundry as soon as possible, which in itself is a dangerous expedient. A very comprehensive idea of the

extent to which air in the shop becomes vitiated is afforded by our illustration, showing the operation in progress. The men are scarcely discernible.

A simple and efficient apparatus, however, has now been devised by a Birmingham brass-founding engineer, Mr. W. Lynes, whereby the work may be carried out with absolute safety, and without any injurious effects upon the health of the workers. In this device the caster places a hood or lid upon the mouth of the pot as he withdraws it from the furnace. It is then placed on a ring, so as to get the correct position, and he then attaches an exhaust trunk, consisting of a long length of flexible tubing, to the hood of the pot. This tube terminates in a galvanized-iron pipe, which extends throughout the length of the workshop and serves to carry off all the noxious and poisonous fumes from the molten metal and discharges them into the outer atmosphere without coming into contact with the operator at all.

Even the skimming process may be carried out successfully without the fumes escaping into the factory. For this purpose a special skimming trough is hung on the pot in front of the pouring hole in the hood. One half of this trough is fitted with a shield made of wire gauze, and the fumes escaping from the metal are deflected during the skimming process by means of this shield into the exhaust pipe. After the skimming a plain cover is placed upon

the pot, fitting tightly, and the pot is thus taken to the molds for the brass to be poured out, which operation is accomplished without the fumes escaping meanwhile. By this means pouring the metal may be carried out with the same ease as under the older and more exposed process, while it is far quicker. At one demonstration before the British government inspector



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THE AUTOMOBILE LAWN MOWER OF THE UNITED STATES CAPITOL.

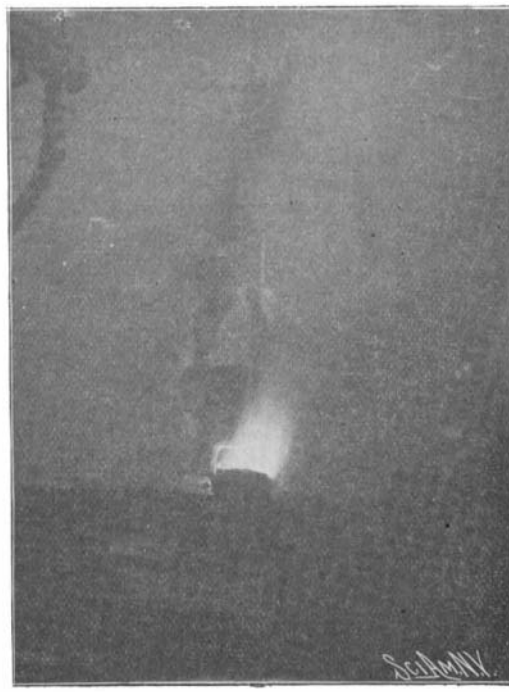
Association but a short time ago. The founders of the Anthony Pollok prize intend shortly to pass upon the report and adopt resolutions for the final disposition of the prize. Whatever decision will be reached will be duly announced in these columns.

A NEW AND SANITARY PROCESS OF POURING BRASS IN CASTING.

Owing to the dangerous conditions under which many industrial workers ply their trade, inimical to their health, any invention that may be devised to render such work less deleterious is not only a boon to



POURING BRASS BY THE LYNES METHOD
Atmosphere clean; fumes escaping through flexible exhaust pipe.



POURING IN THE OLD WAY.
Air charged with poisonous zinc oxide fumes.

the workmen engaged in such occupation, but is also of inestimable benefit to the welfare of the particular industry itself, since thereby its prosperity is considerably increased owing to the improvement in the physical condition, vigor, and activity of the workmen.

One of the most dangerous trades at present in existence, at any rate so far as the health of the em-

of factories, a workman using this apparatus poured a heat in a minute less time than the workman who was not supplied with the appliance. The apparatus does not offer the slightest obstacle to the man's operations, since he can clearly see what he is doing throughout the process. Our photograph showing the apparatus in operation affords a striking testimony of the purer atmospheric conditions under which the workmen labor with this appliance, since only five per cent maximum of the fumes escape into the air within the factory.

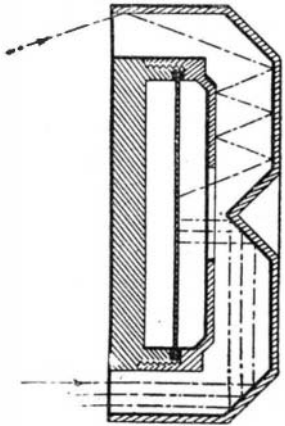
But the invention possesses another valuable feature. The zinc-oxide fumes emitted from the molten brass, as is well known, are a commercial commodity. This chemical is deposited upon the inside of the flexible tubing and gal-

vanized pipe, whence it can be easily recovered. About ninety per cent of this scale is zinc oxide, so that the process of recovering the chemical from the deposits is neither expensive nor protracted, owing to its abundance. The main galvanized-iron trunk, in which the flexible exhaust pipes connected to the hoods fitted to the pots terminate, are provided with dampers, so that they may be shut off as desired. The zinc oxide deposit within the exhausts is removed by means of a brush; and so quickly and thickly does it collect, that cleaning has to be done at least once a week to insure a clear passage for the fumes through the pipes.

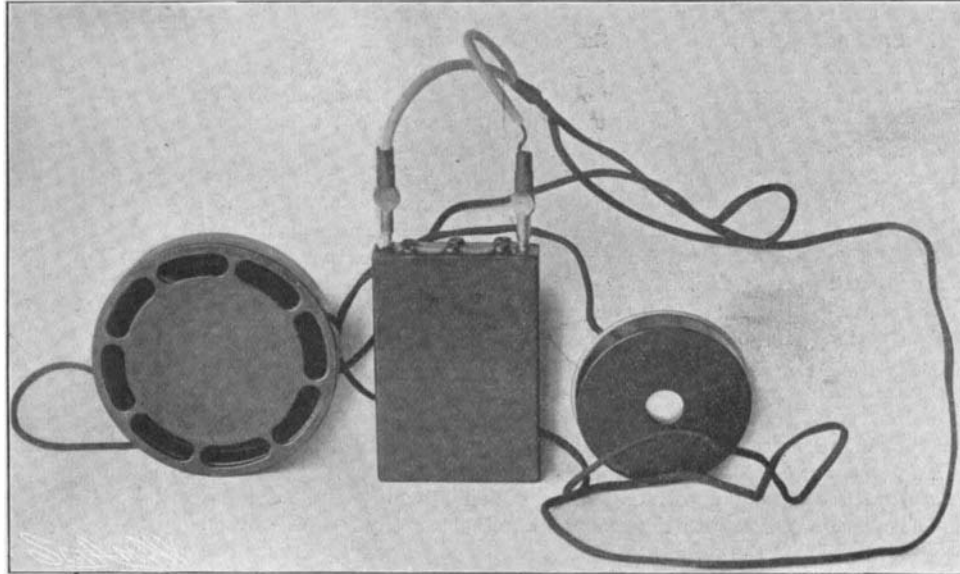
So successful has the apparatus proved itself, that its more extensive utilization is being strongly recommended by the inspector of factories as an efficient solution of the problem of rendering the brass-casting industry less dangerous to the health of the workmen employed therein.

NEW INSTRUMENTS FOR ENABLING THE DEAF TO HEAR.

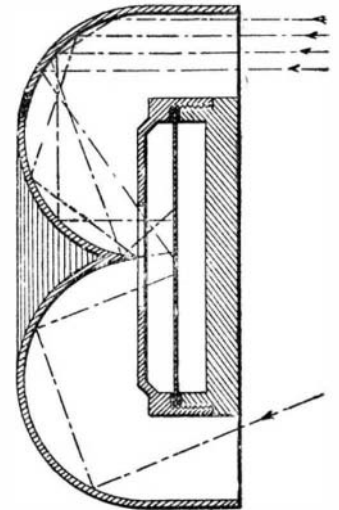
About a hundred men and women recently gathered in the laboratory of Mr. Miller R. Hutchison, in New York city, for the purpose of witnessing tests of certain instruments which he has devised to enable deaf mutes to hear. The results attained were



Section Showing the Principle of Deflection of the Acousticon.



The Acousticon. A Portable Apparatus for the Deaf.



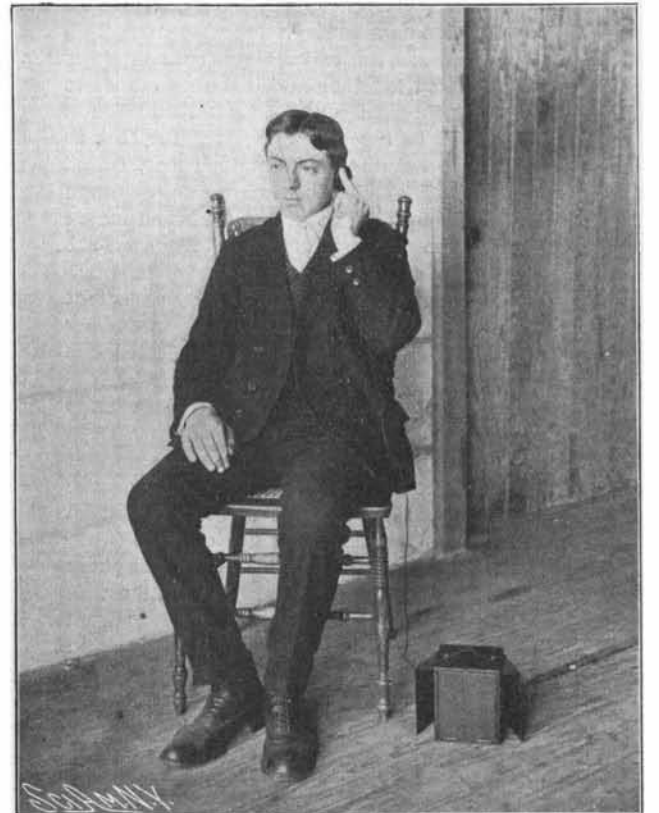
Another Form of Acousticon.



How the Acousticon is Carried, Showing the Compactness of the Apparatus.



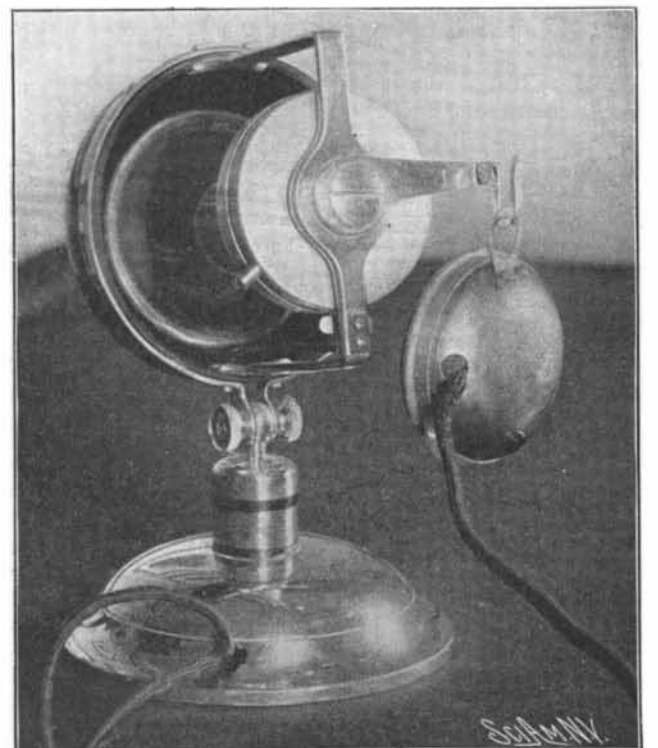
The Massacon. A Photo-Electric Ear-Massaging Device.



Listening to Music, Transmitted by the Opera Box.



Teaching a Deaf Mute How to Hear and Speak with the Instruction Outfit.



The Desk Outfit.

NEW INSTRUMENTS FOR ENABLING THE DEAF TO HEAR.