



**LARGEST SPOT WELDER**—Battery of welding electrodes on this new multiple electric spot welder can make up to 48 welds at a single stroke. It is used in making streamlined railway passenger cars in the Chicago plant of the Pullman-Standard Car Manufacturing Co. Table under the electrodes moves forward carrying the metal sheets to the correct position for the electric strokes that "sew" bracers or stiffeners to them. A unique electric eye arrangement makes the operation automatic.

#### AGRICULTURE

## Research in Agriculture

Scientific research by Federal agencies and in cooperation with states on a greatly expanded scale is aim of Agricultural Research Act.

➤ SCIENTIFIC research in agriculture will undergo an enormous expansion under the provisions of the new Agricultural Research Act recently signed by President Truman. The \$9,000,000 authorized in the bill is for beginnings only; expenditures are to be increased until at the end of five years they will total \$61,000,000 annually.

Of this sum, \$20,000,000 will be turned over annually to the state experiment stations, to be added to the present yearly grants under the Bankhead act of approximately \$7,000,000. Another \$15,000,000 a year is to be expended by the Department of Agriculture itself on research looking toward wider and more efficient uses of agricultural products. At present the four Regional Research Laboratories get \$1,000,000 each, and additional sums are spent on utilization research in other

places such as the Forest Products Laboratory at Madison, Wis.

Something new has been added to the type of research to be supported by the Department of Agriculture in a third category, in which an eventual annual outlay up to \$6,000,000 is authorized by the new bill. The Secretary of Agriculture, cooperating with the states, may contract with outside institutions or individuals for special research projects, following the pattern set during the war by the Office of Scientific Research and Development. Similar peacetime research programs involving the cooperation of non-governmental laboratories and scientists have already been undertaken by the Army and Navy.

Finally, \$20,000,000 a year is authorized for research in the broad field of marketing. Investigations may range all the way from a study of fungi that spoil

fruits and vegetables in transit or storage to compilation of statistics to aid economists in cutting down the price spread between producer and consumer.

The initial \$9,000,000 contemplated in the bill is only authorized, not appropriated. Before the work can ever begin, the next Congress will have to make some money actually available. In the meantime, however, research heads in the Department are making surveys and preparing preliminary budgetary estimates.

One of the biggest headaches for the planners is the question of finding the trained personnel to carry on the research. Even for the relatively modest program which the initial overall total of \$9,000,000 will support, it will be difficult to find researchers. The young men who should have been in college and graduate-school work during the past five years have been in the armed forces and have not received the training they should have for the efficient use of the money.

The corps of research workers who will be needed to make the full \$61,000,000 really useful to the country when it becomes available five years hence are now seniors in high school. They can hardly be ready for the money when it is ready for them if in the meantime they are compelled to lose time as draftees sweeping barracks or digging foxholes on summer maneuvers.

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#### ELECTRONICS

### Phosphor in Lead Makes Infra-Red Rays Visible

➤ A TINY bit of lead added to zinc sulfide, a phosphor material that glows after exposure to light, makes invisible infra-red rays visible, a scientist of the General Electric laboratory has found. The discovery may eliminate electronic methods now used.

This easy way to change invisible rays into visible ones may be used to simplify the famous Army sniper scope and snooper scope used by soldiers during the war to see in the dark, themselves unseen. It may also simplify the receivers used on Navy vessels to read infra-red signals from other ships.

Dr. Gorton R. Fonda, responsible for the discovery, explained that waves of infra-red radiation are too long to affect the eye, while those of ultraviolet are too short. However, the ultraviolet is easily made visible by the phenomenon of