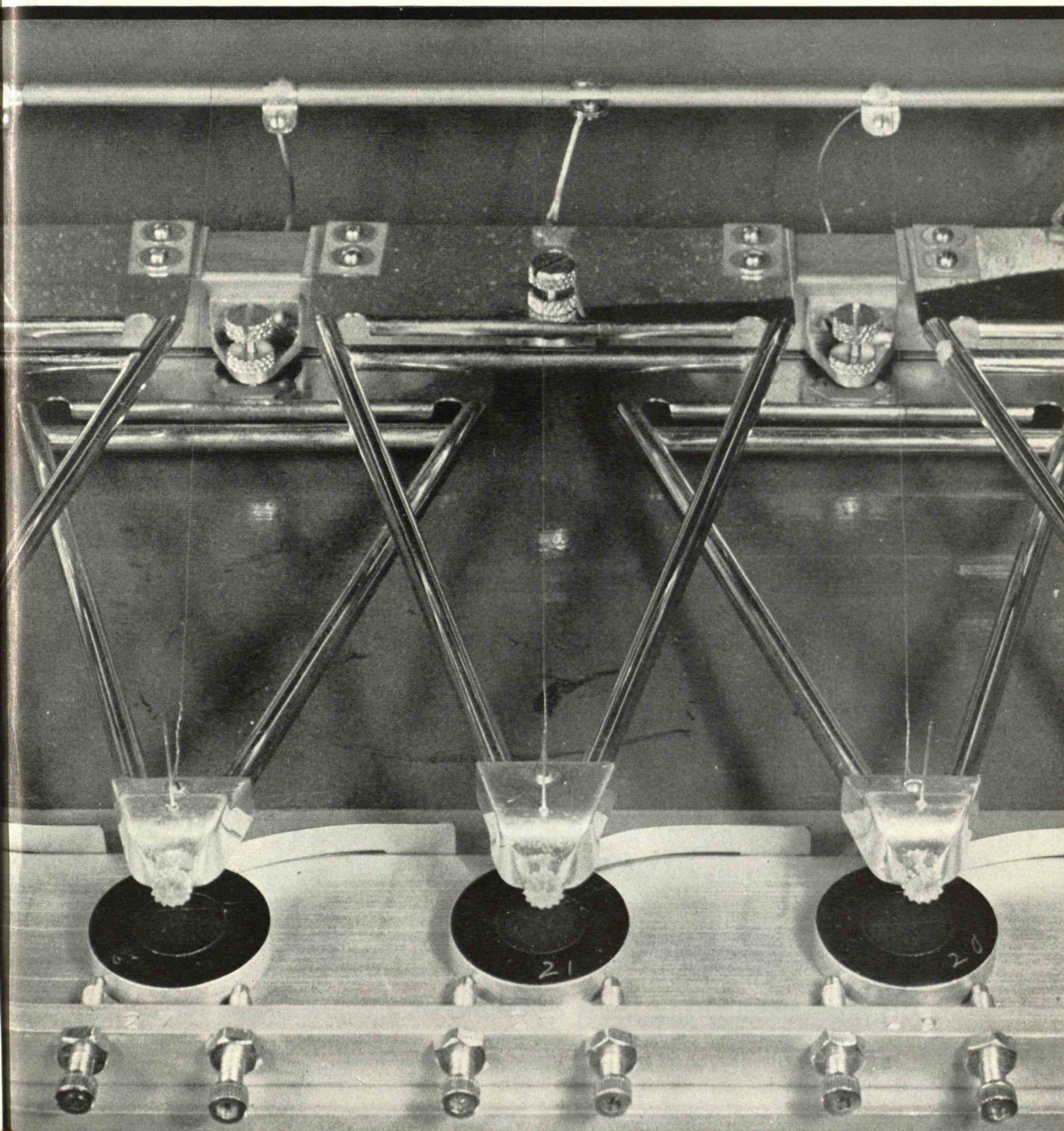
December 1944

TECHNOLOGY REVIEW

Title Reg. in U. S. Pat. Office



EVOLUTION

OF A *Machined* ALUMINUM FORGING

THE

HARVEY

METAL CORPORATION

HAROLD B. HARVEY '05 • *Engineers & Manufacturers* • SHERRY O'BRIEN '17

74th STREET and ASHLAND AVENUE • CHICAGO 36, ILLINOIS

FORGINGS IN ALUMINUM • BRASS • BRONZE • COPPER • MAGNESIUM • MONEL • ALLOYS

MACHINING FACILITIES

A Small Purchase That May Cost You $1000

WHEN one of your workers suddenly claps a hand over an injured eye, it frequently means a lifetime handicap for him . . . and *always* increases your cost of production.

For the glass eye you may have to buy him is only a small part of your total expenditure . . . which can easily amount to $1000 or more before you are through.

Yet all this can usually be avoided for as little as $1.50 per man—75c an eye—the price of scientific AO eye protection. For these AO Safety Goggles protect each worker on his particular job . . . help him to *concentrate.*

Your Safety Director would welcome *your* help in establishing an adequate goggle program. Why not discuss this with him, and call in an AO Safety Engineer to make an eye-hazard survey of your plant? You'll find it's a short cut to lower production costs.

American Optical
COMPANY
SOUTHBRIDGE, MASSACHUSETTS

THE TECHNOLOGY REVIEW, December, 1944. Vol. XLVII, No. 2. Published monthly from November to July inclusive at 10 Ferry Street, Concord, N. H. Publication date: twenty-seventh of the month preceding date of issue. Annual subscription, $3.50; Canadian and foreign subscription, $4.00. Entered as second-class matter at the Post Office at Concord, N. H., under the Act of March 3, 1879.

Constant Hair-splitting to give you Constant Performance

The great part that close tolerances play is one of the reasons why Busch-Sulzer Diesels are noted for their ability to give year after year of reliable and economical service.

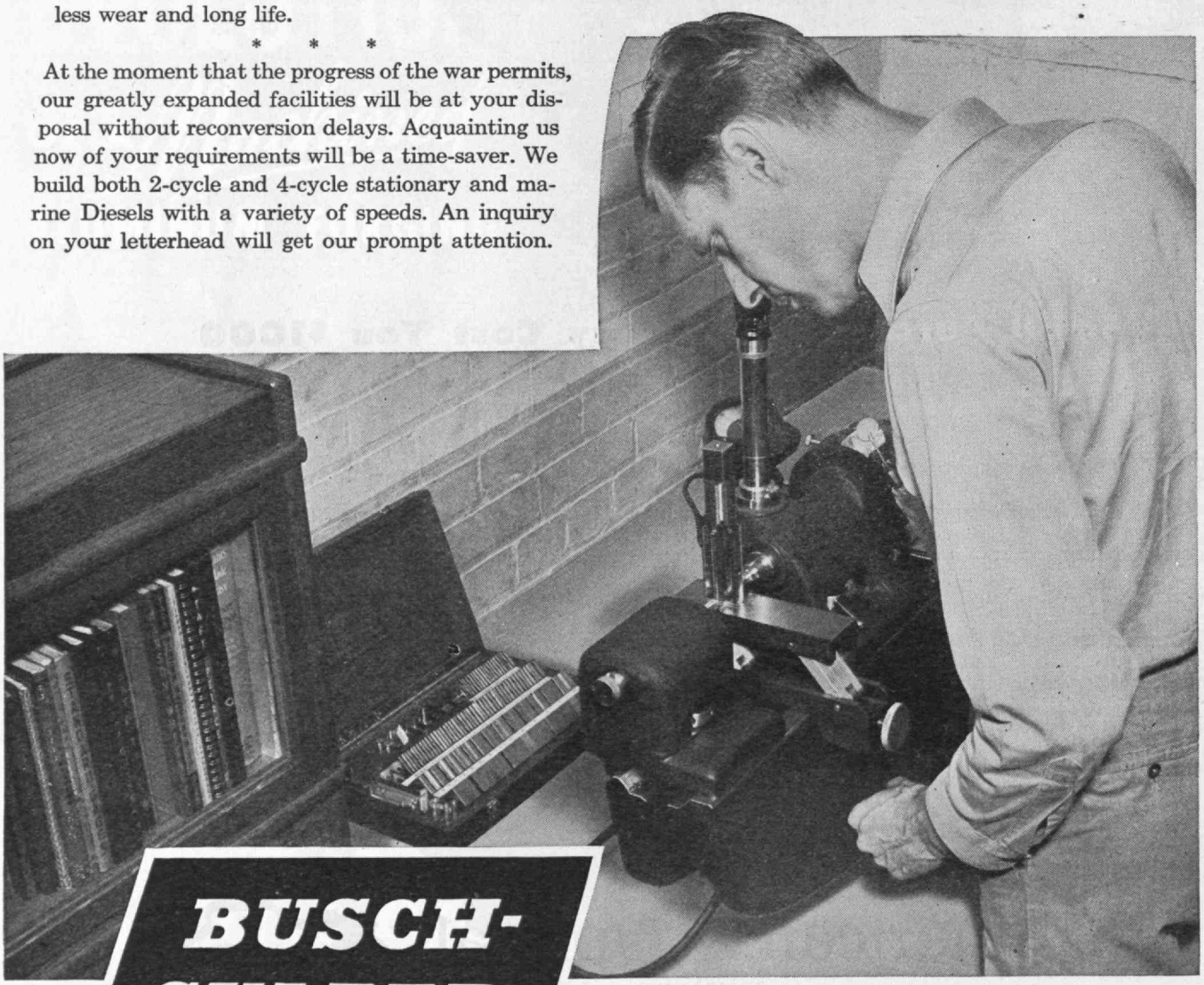
For example, every eight hours, when a new shift reports, all gages are given a microscopic examination capable of disclosing errors in millionths of an inch. Only when a cross-hair exactly splits two other cross-hairs is the gage under examination up to Bureau of Standards specifications and ready for work.

This hair-splitting precision plus the skill of America's oldest builder of Diesels has resulted in engines famous for their simplicity of design, which makes for fewer moving parts, better lubrication, less wear and long life.

* * *

At the moment that the progress of the war permits, our greatly expanded facilities will be at your disposal without reconversion delays. Acquainting us now of your requirements will be a time-saver. We build both 2-cycle and 4-cycle stationary and marine Diesels with a variety of speeds. An inquiry on your letterhead will get our prompt attention.

By actually splitting two tiny cross-hairs with a third cross-hair, this microscopic inspecting instrument puts the O. K. for accuracy on the many gages used in Busch-Sulzer's close tolerance work.



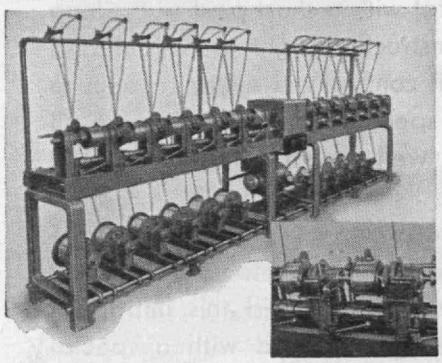
BUSCH-SULZER
ST. LOUIS

BUSCH-SULZER BROS.– DIESEL ENGINE COMPANY
SAINT LOUIS

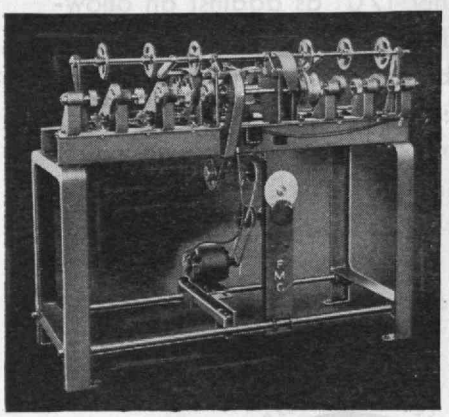
America's Oldest Builder of DIESEL ENGINES

BONDS—Buy them now to bring the boys down the home stretch

FIDELITY
WIRE SPOOLING MACHINES



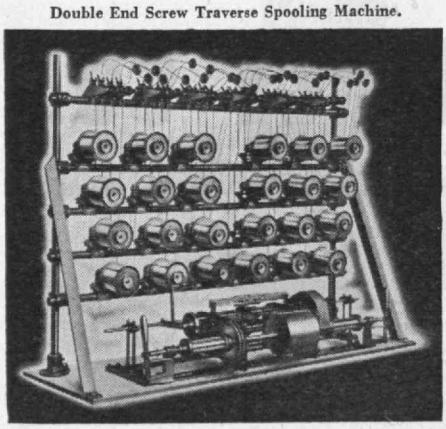
Every winding head equipped with large-figure footage counters, conveniently located for inspection and control by operator.

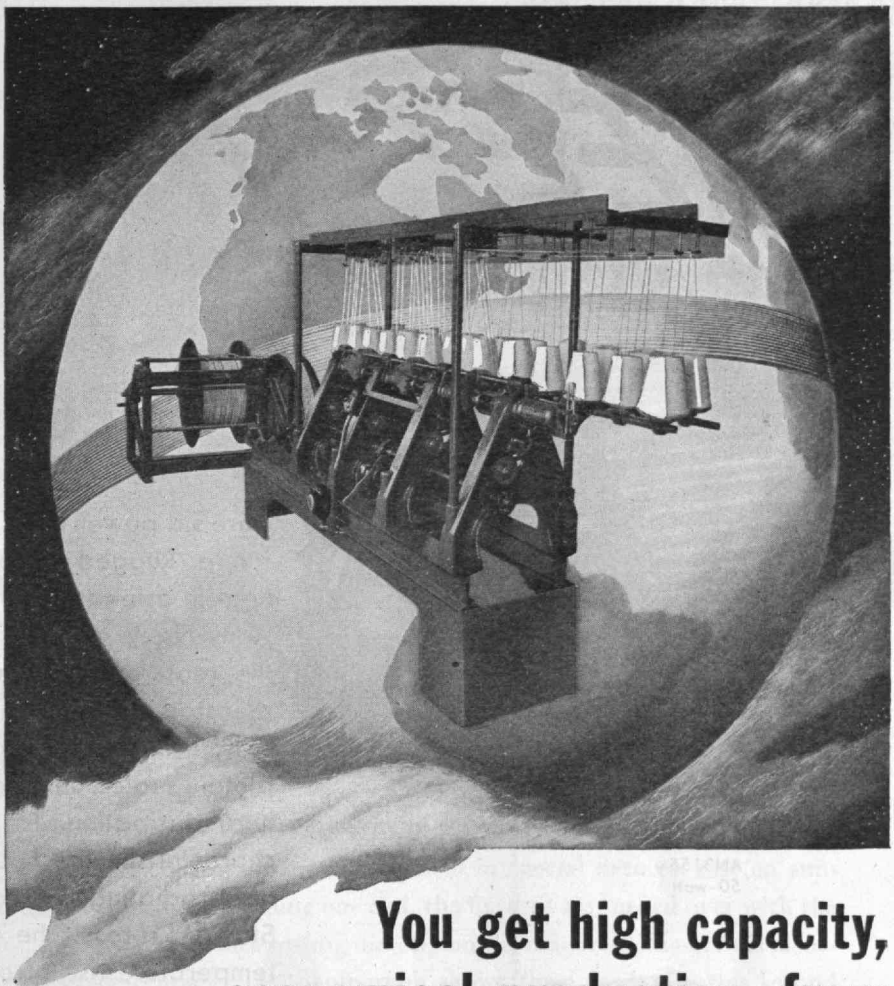


Screw-Type Wire Winding Machine.

★

Double End Screw Traverse Spooling Machine.





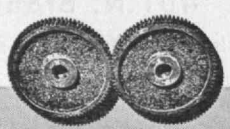
You get high capacity, economical production, from FIDELITY-SINFRA Wire Covering Machines

Already enough weatherproof wire has been covered on FIDELITY-Sinfra Wire Covering Machines since Pearl Harbor to circle the earth twenty or more times.

Three (or less) covers of cotton, linen or other fibres can be knitted on simultaneously at double and triple pre-war speeds. Round, square or rectangular wires and strip or cable of metal, plastic or other materials can be given one, two or three knitted covers ready for impregnation. Speeds 1200 to 1500 ft. per hour.

Wire up to No. 6 gauge or strip up to ¾" wide can be handled on these FIDELITY Machines. Interchangeable heads permit use of same machine for more than one size. This is but one of a number of FIDELITY Machines of special interest if you have wire insulating or wire winding operations in your plant — all high capacity, economical machines that provide close control of cost and reliable, uniform production.

Write for special bulletins on wire covering and wire winding machines.

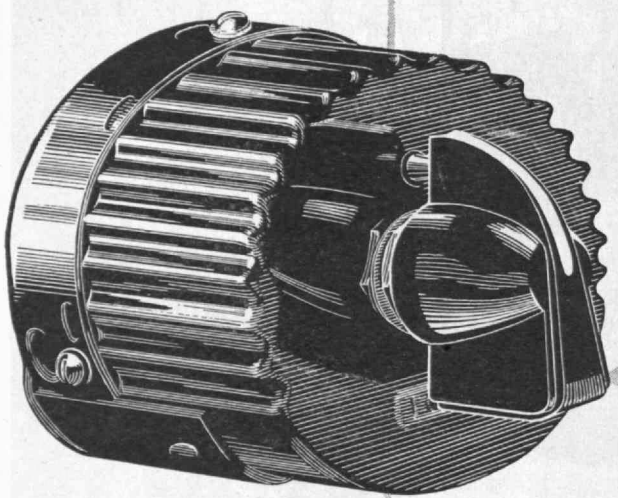
Intricate Automatic  *Precision Machines*

FIDELITY MACHINE COMPANY

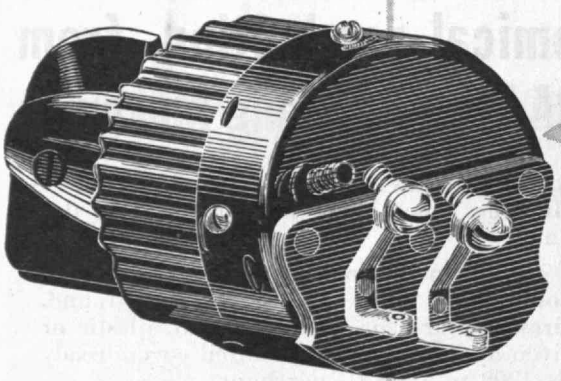
3908-18 FRANKFORD AVENUE, PHILADELPHIA 24, PA.

MEET IRC'S...

AN3155
POWER RHEOSTAT



AN3155
50-watt



AN3155
25-watt;
showing terminal
positions

Here's a power rheostat with a *short* past but a *long* future. Rugged in construction, light in weight and neat in appearance, it conforms in every respect to Army-Navy AN3155 specifications. It embraces all the features of IRC's well-known PR25 and PR50 rheostats.

Both the winding core and housing, of this completely sealed unit, are of aluminum to effect greater heat dissipation. To still further aid this important characteristic the housing is coated with a special heat-radiating finish developed by the IRC Research Staff. As a result the AN3155 generates a maximum temperature rise of only 170° as against an allowable 300°. Another feature of interest is the fact that the AN3155 can be operated at full power load in as low as 25% rotation.

Available in 25 or 50 watt models with either linear or tapered windings, the IRC AN3155 should find many useful post-war applications in the aviation industry.

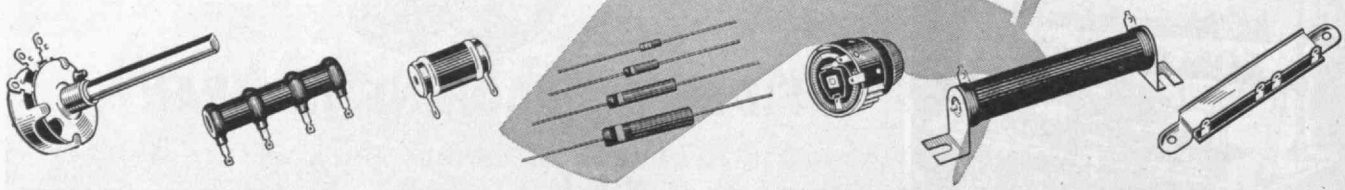
Technical data and further information will be sent on request.

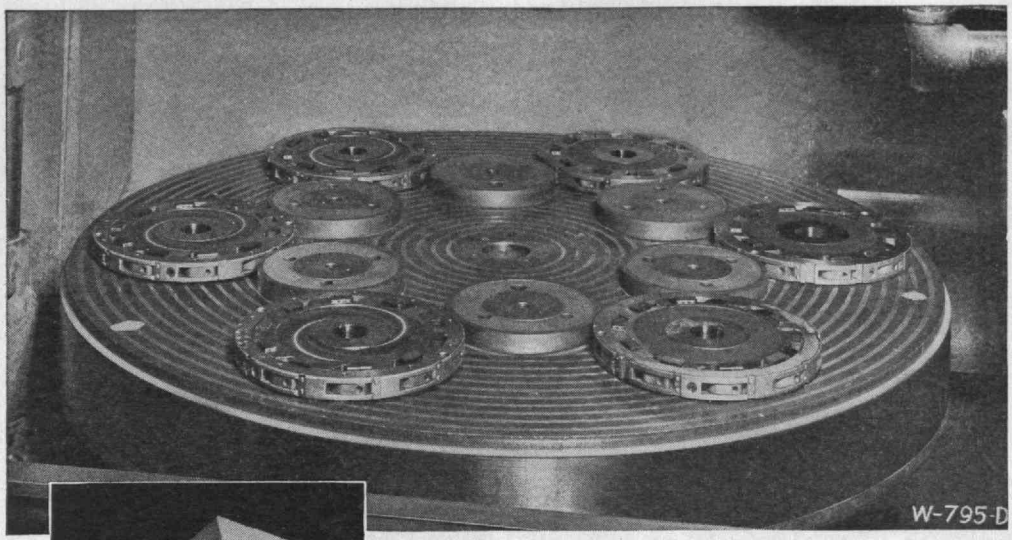
PREFERRED FOR PERFORMANCE · IRC · FIXED & VARIABLE RESISTORS

INTERNATIONAL RESISTANCE CO.

401 N. Broad St., Philadelphia 8, Pa.

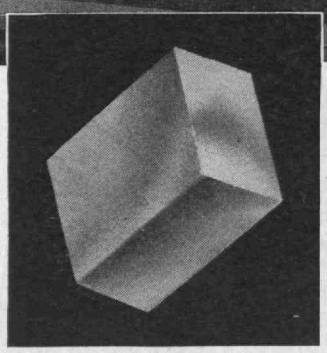
IRC makes more types of resistance units, in more shapes, for more applications than any other manufacturer in the world.





The advantages of BLANCHARD *grinding*

Production
Adaptability
Fixture Saving
Operation Saving
Material Saving
★Fine Finish
★Close Limits
★Flatness



Actual Size of Blade

★*Fine Finish* ★*Close Limits* ★*Flatness*

Grinding Hardened Steel Refrigerator Blades

These refrigerator blades are ground square to .0001″ on each end.

For the first operation the blades, held in special fixtures, rest on supporting plates. After grinding one end, the fixtures are turned over with the ground end of the blades resting directly on the magnetic chuck, thus insuring greater accuracy. The photograph shows them ready for this second operation.

Sixty blades are on the chuck at one time, .006″ of stock is removed from each end and production is at the rate of 200 pieces (400 surfaces) per hour.

The ***"Put it on the Blanchard"***

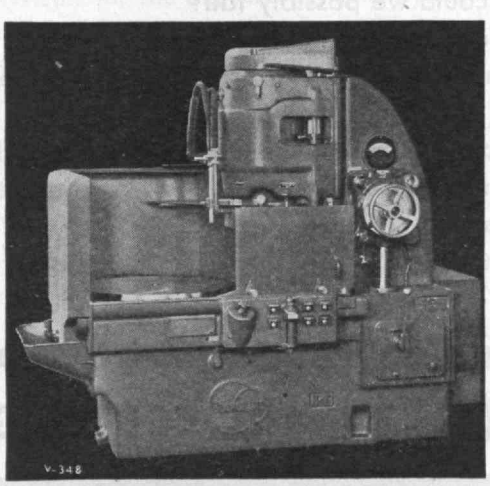
BLANCHARD MACHINE COMPANY

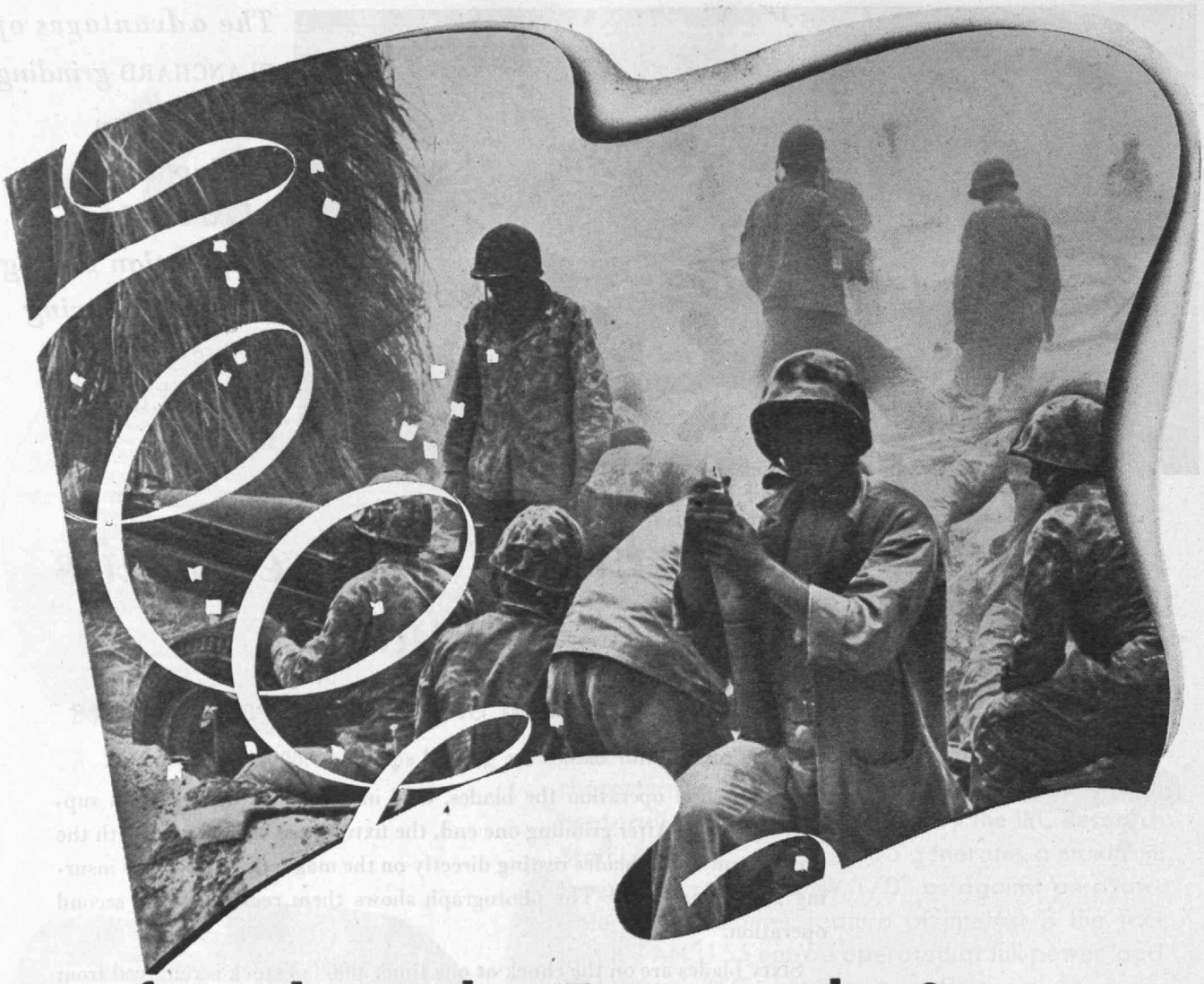
64 State St., Cambridge 39, Mass.

This job being done on the
No. 18 Blanchard Surface Grinder

Send for your free copy of "Work Done on the Blanchard." This book shows over 100 actual jobs where the Blanchard Principle is earning profits for Blanchard owners.

BLANCHARD





After the Ticker Tape . . . what?

The whistles will blow, the bells will toll—we'll shower them with ticker tape and tears of joy—then what?

Then the victory they've won and all the things they've fought for will be in *our* hands to hold . . . We have all the weapons we could want: Productive capacity, technical skills, buying power, and need. How, then, could we possibly fail?

Only by lack of planning now for total peace.

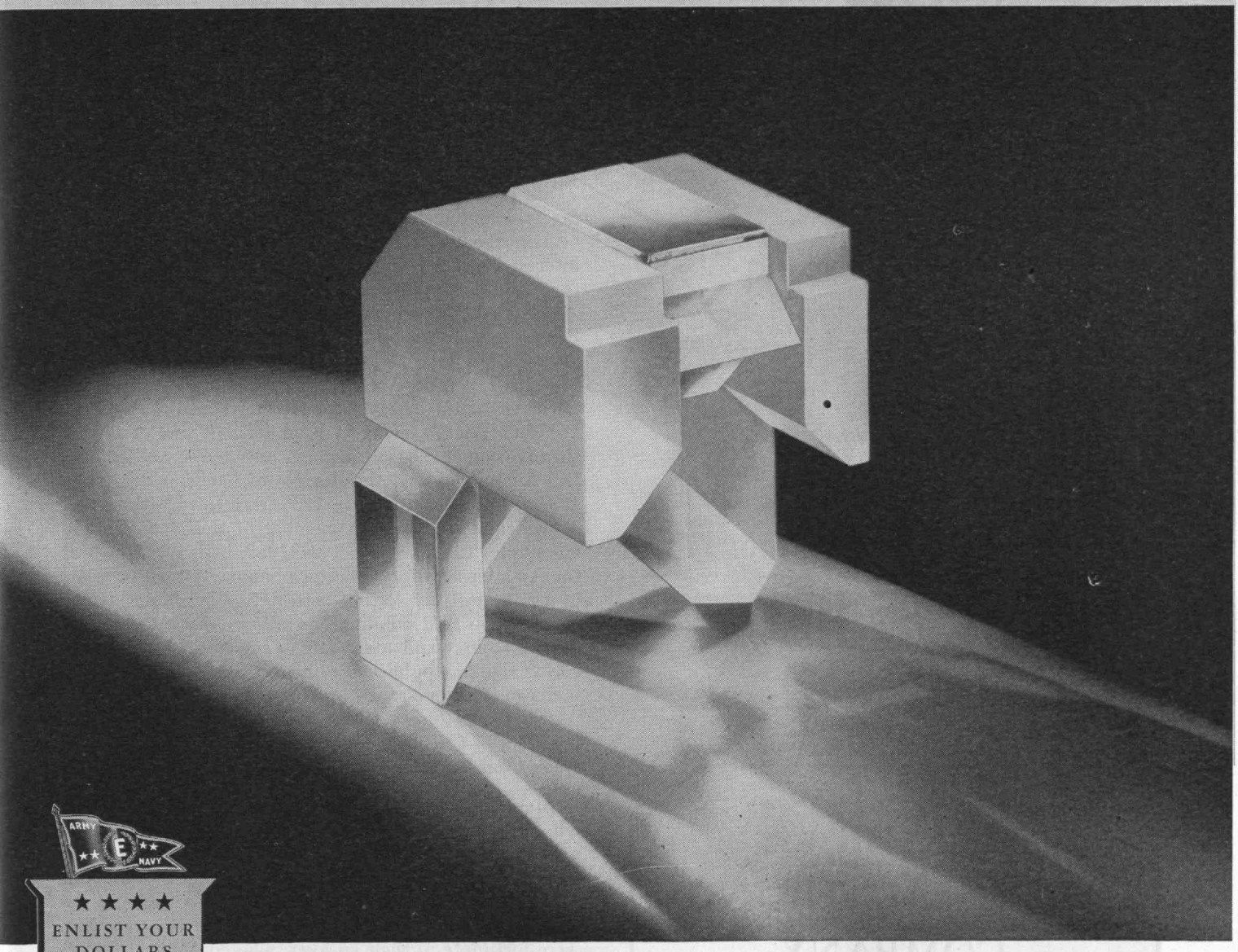
And in this critical hour of preparedness for peace, the engineers of the basic machine tool producers again have a strategic part to play.

They helped the men of government and of industry to plan the most desperate and gigantic production program of all time . . . and they can help those same men now to solve our post-war problems of reconversion.

One of these is a Bryant man. We offer his services to you.

BRYANT CHUCKING GRINDER COMPANY SPRINGFIELD VERMONT, U.S.A.

BRING YOUR OPTICAL PROBLEMS TO HEADQUARTERS. Bausch & Lomb offers: 1. America's largest precision optical facilities. 2. Ninety years of optical engineering. 3. An Optical Scientific Bureau. 4. Its own optical glass plant.



ARMY E NAVY

★★★★

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To Win a Battle or Build a Better Mousetrap

Here is a rangefinder prism . . . the glass heart of one of the most precise optical instruments that the ingenuity of man has produced . . . so accurate that the angular error amounts to no more than 1 inch in 6½ miles. Created by Bausch & Lomb, every step in its manufacture has been controlled by the world's finest optical glass technicians. From the selection of the ingredients from which the optical glass is made to the final polishing the objective has been to make America's gunfire the most accurate and deadly in the world.

This is the same care and these the same skills that are also producing the fine optical instruments used in the furtherance of our war effort. Tomorrow, many of those instruments will be available to help build better lawnmowers . . . razor blades . . . automobiles . . . vacuum cleaners, etc. . . . to hasten progress in scientific research, medicine and education.

In the days of peace to come, the skilled craftsmanship that is now devoted to the production of complex rangefinder prisms will turn to the creation of even finer optical systems for the instruments used by the many branches of science, education and industry. New and improved optical methods for material control and production control . . . new fields of usefulness for instruments, ranging from research microscopes and spectrographs to hand magnifiers . . . these are our promise to the future. We suggest that you discuss your postwar optical instrument requirements with us now.

BAUSCH & LOMB

OPTICAL CO., ROCHESTER, N.Y.

EST. B&L 1853

Makers of Optical Glass and a Complete Line of Optical Instruments for Military Use, Education, Research, Industry and Eyesight Correction and Conservation

THE TABULAR VIEW

Skies Scanned. — Of leading rank among the sciences which World War II has stimulated and developed apace is the science of meteorology, of critical importance in aviation, in naval combat, in gunnery. A measure of the significance of techniques of war is delay of any appreciable public discussion of them — a delay which has been markedly great as regards weather watching. Much interest hence attaches to discussion (page 92) of operations by the Army Air Forces weather service during the invasion of France in July. JAMES M. AUSTIN, Associate Professor of Meteorology at the Institute, speaks with authority in describing the forecasting for the bombing of Saint-Lô; from March to September, 1944, he was on leave to the Army as a civilian consultant to the Weather Wing, serving in England and France during the invasion of the Continent. A native of New Zealand, Dr. Austin received the degrees of bachelor of arts in 1935 and master of arts in 1936 from the University of New Zealand. He was a member of the New Zealand meteorological service in 1937–1939, being stationed at the Apia Observatory, Western Samoa. After two years of graduate study at the Institute, he became a doctor of science in 1941, joining the staff as assistant professor of meteorology and advancing to associate professor last spring. He has published numerous research articles in meteorological journals, and with Bernhard Haurwitz, Associate Professor of Meteorology at the Institute, is coauthor of *Climatology*, published by the McGraw-Hill Book Company this fall.

Counsel. — The commencement speaker in wartime, whose audience necessarily consists of men going from academic halls into uniform or into industry concentrating all effort on serving uniformed forces, faces a difficult problem. The Institute's Class of 10–44, receiving degrees in October under an accelerated wartime program, were fortunate in their speaker, who could draw on experience in both these aspects of war as it enters the lives of men trained in science and engineering. BRADLEY DEWEY, a graduate of the Institute in 1909, whose commencement address appears on page 94, served as colonel and chief of the gas defense division, Chemical Warfare Service, in the first World War, receiving the Distinguished Service Medal; in the second World War, he was named deputy rubber director in the fall of 1942 and became director a year later.

Farewell. — Evaluations and appraisals of what has been done and of what opportunity has been opened for fresh achievement are a proper part of commencement seasons, whether in the customary June or in any other month which the exigencies of a warring world may dictate. It is traditional at Technology for such summations to be prominent in commencement exercises, and notably so in the valedictory address of PRESIDENT KARL T. COMPTON to the recipients of degrees. In his address this fall (page 95), Dr. Compton restates the ideals and objectives of education as the Institute expresses them. He is concerned both with aspects that change in a changing world and with a philosophy which, unchanging, gives force and direction to those (*Concluded on page 82*)