



AERONAUTICS—ENGINEERING

Retractable Wing Pontoons For Giant Flying Boats

Patents Are Also Granted on Improved Machine Gun, Radio Beacons, Alloys, Warm Sheets, Vulcanized Carpet

HIGHER flying speeds and greater flying range are promised by a new method of retracting the huge wing pontoons of great seaplanes into the wings, described in Patent No. 2,187,040 granted by the U. S. Patent Office to I. M. Laddon, W. A. Ring and H. I. Mandolf of San Diego, Calif., and assigned to the Consolidated Aircraft Corporation. The patent shows how the landing pontoons fold up beneath the wing tips, become part of the airfoil section and decrease air resistance greatly.

An improved type of machine gun which is claimed to provide more accurate firing is described in patent No. 2,186,969 of Samuel G. Green of Gray, Ga. The invention times the firing position of the gun so that it comes always at the proper period of the recoil and counter recoil cycle. According to the patent, other machine guns fire when the breech block is near the closed position regardless of the position of the gun in its recoil cycle.

A new kind of vulcanized, sponge rubber carpet is the invention of H. P. Faris, Philadelphia, and D. W. Yochum and R. B. Logan of Trenton, N. J., granted patent No. 2,187,140. The car-

pet fabric is cemented onto a base of soft rubber which is simultaneously vulcanized and blown with air to form a sponge rubber base.

Two new types of radio beacon systems were among the patents of the week, No. 2,187,097 to Francis Pope of Glendale, Calif., improves the present quadrant signals which are now used extensively in aviation to mark airports. Signals A and N are sent in code by this device. They blend into an "on course" signal in the pilot's earphones.

The new invention overcomes a prior trouble of these systems; that the pilot—when receiving the on course signal, could not tell by the signal alone along which line he was approaching.

Another new radio beacon is that of Ernst Gerhard of Berlin (No. 2,187,618) which employs a parabolic type of reflector to project—in searchlight fashion—two nearly parallel short wave radio signals into space. As these signals diverge, a line of equal intensity is provided which can be used to mark a given position or a line of descent for an airplane.

From Germany also came patent No. 2,187,094 granted to J. Pink of Weiss-

wasser in Lausitz for an improved means of spinning glass filaments and fibers from molten glass.

Two new metal alloys received patents. No. 2,187,379 went to F. R. Hensel and K. L. Emmert of Indianapolis, Ind., for a new silver base alloy of high tensile strength that is useful for electrical make-and-break contacts and switches.

Charles J. Schafer of Baltimore, Md., was awarded patent No. 2,187,630 for a superior quality alloy metal for machine cutting tools. Among the elements used in the alloy are iron, zirconium, molybdenum, yttrium and combined columbium-tantalum.

For sleepers who dread cold sheets on a chilly night is patent No. 2,186,965 of Annette Fridolph, New York City, for a sheet woven in two ways. The middle part is the standard weave with its relatively smooth, cold feel, while the ends are woven with a napped surface forming a relatively soft, warmer surface.

To the well-known facsimile expert W. G. H. Finch, Spuyten Duyvil, N. Y., was awarded patent No. 2,187,374 for an improved method of transmitting colored and black-white pictures over telegraph lines.

Science News Letter, February 3, 1940

EUGENICS

Four to Six Children Urged At Birth Control Meeting

DEMANDS for large families, with four to six children the rule, not the exception, were made, paradoxical as that may seem, at the meeting of the Birth Control Federation of America. At the same time, the support of the birth control movement by labor unions was hinted.

The demand for large families by proponents of birth control is not surprising to those who have followed the movement. Except in cases where medical or health conditions show that childbirth would be dangerous for mother or child, small families or childless marriages have not been advocated by the Birth Control Federation.

Planned parenthood is the objective of this group: Planned parenthood for large families among the rich, the poor and the college-educated, alike, but planned so that the children are no closer than two years.

"Births should be spaced two to four years apart," declared Dr. Roy Norton, of the University of North Carolina. North Carolina was the first state in the nation to have a birth control program

sponsored by the state health department.

"Indiscriminate pregnancies are dangerous to mother and baby and therefore harmful to the race," Dr. Norton continued, urging that three to six children in every family should be encouraged and that "the very best" birth control information should be available to every young married couple.

A corollary to planned parenthood is the provision by the community of "economic and social conditions which will make it possible for thoughtful and responsible parents at any economic level to plan for families of at least three or four children with reasonable assurance that the basic needs of the children with respect to nutrition, housing, recreation, medical and dental care and education will be met," Dr. Frederick Osborn, of the American Museum of Natural His-

tory, pointed out. He urged the birth control leaders to extend their activities into these related fields so that parents desirous of having children and planning for their future will feel secure to do so.

The suggestion that labor unions may soon support the birth control movement came from Mark Starr, educational director of the International Ladies' Garment Workers' Union. He said, in part:

"I cannot pretend to speak officially for labor, but it does seem to me that, sooner or later, trade unions must join the increasing number of religious, educational and social-work organizations which sponsor adequate education concerning human biology and birth control information and the techniques obtainable from reputable clinics and physicians."

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ASTRONOMY

Turning Back Stars Gives Date Egyptians Launched Calendar

Scientists Run Buhl Planetarium Backwards Through 5,200 Years of Sky History to Find Exact Time

BY patiently running the Buhl Planetarium machine back through 5,200 years of sky history, until it flashed on the ceiling the star-picture seen by Egyptians the night of June 18, 3251 B.C., Dr. Jotham Johnson, University of Pittsburgh archaeologist, believes he has found the exact date when Egypt's famous calendar started.

Egyptians had no Leap Year provision, which explains why their calendar got out of step with the sun, and which also has given historians a clue to the date when their 365-day calendar must have been invented.

"Lacking a Leap Year, the Egyptian calendar fell back one day every four years," explains Dr. Johnson. "And in 1,456 years, their calendar slipped back an entire year. That 1,456 years of slipping back is called the Sothic Cycle. We know, by authenticated written records, that a Sothic Cycle ended in 139 A.D."

Counting back, historians have speculated that the Egyptian calendar might have started 4229 B.C. or 2773 B.C. Dr. Johnson considered one of these dates too early, because Egypt was too primitive then, and the other date too late in Egypt's civilization. He pinned his theory to 3251 B.C. and seized an opportunity

to check it when the Buhl Planetarium machine could be run backward for ten hours to reach such ancient sky patterns.

Historians, he says, are certain that Egyptians started their calendar when Sirius, the Dog Star, brightest star in the sky, appeared over the eastern horizon just before the sun came up. The natural time of year for the Egyptians to start their calendar, he adds, was when the Nile flood began, soon after the middle of June. Dr. Johnson sought, therefore, for Sirius to appear just before dawn in the mid-June sky picture of 3251 B.C., and to his delight the Planetarium confirmed his theory.

Additional evidence for his theory, he reports, is finding that a thin new moon appeared that night in the west just after sunset. Since the earlier Egyptian calendar had been a primitive one based on the moon, it would be natural, he explains, for them to want to change smoothly to a sun calendar, and this would mean choosing some night when a new-moon month was beginning.

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Hydroponics is a term for growing plants by water culture.

MEDICINE

New Serum Will Cure Spotted Fever, Is Hope

SERUM that may prove a cure for dangerous Rocky Mountain spotted fever, the tick-borne disease that every summer threatens ranchers in the far West and suburbanites on the Eastern seaboard, has been made by Dr. Norman H. Topping, National Institute of Health of the U. S. Public Health Service.

The serum, so far used only on guinea pigs and monkeys, is "the first definite hope of a specific treatment for Rocky Mountain spotted fever," officials of the National Institute of Health declared.

Guinea pigs and monkeys survived usually fatal doses of spotted fever virus when treated, after they became sick, with blood serum from rabbits that had been immunized to the virus. Details of the preparation of the serum are reported by Dr. Topping. (*Public Health Reports*, Jan. 12.)

Public health officials hope the serum will prove as useful in treating sick humans, but that cannot be determined until more of the serum has been made.

While this serum will, it is hoped, prove useful in treating sick humans, the federal health service has recently announced a new method of making a vaccine to protect against Rocky Mountain spotted fever. Advantage of this new vaccine over the old one is that it can be made on a large scale. The difficulty and danger of making the old vaccine limited the amount that could be made, and thus its usefulness.

Neither the vaccine nor the serum, however, is yet available for general use. Further tests must still be made with them, it was explained.

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MEDICINE

Sex Gland Disturbances May Cause Some Cancers

UPSET in the balance between male and female sex hormones in either men or women may be an important factor in the development of some types of cancer, Drs. V. Korenchevsky and K. Hall, of the Lister Institute of Preventive Medicine, London, England, suggest on the basis of their latest experiments. Details of the experiments, in which pre-cancerous changes occurred in rats when the male-female sex hormone balance was shifted, are reported in *Nature*.

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