

Wizards of the Basement

By MILTON LEHMAN

IN THIS nation of inventors, nobody is surprised if father, ordinarily a calm and placid man, drops his evening paper and streaks for his basement workshop. Most of us expect him to emerge, half an hour later, with a broad smile and a wonderful gadget worth exactly \$1,000,000. It all seems so easy. To patent his invention, father must merely prove that it is novel, useful and workable. The Patent Office, representing his grateful countrymen, will then award him

HAVE YOU AN IDEA for a gadget that is going to sell like hot cakes and make a million? Chances are good that many people have tried to patent it before



17 years of protection against those who would kidnap his brain-child. After that, father will simply collect his royalty checks.

But that's not the way I heard it in the search room of the United States Patent Office, where inventors in shabby clothes and patent attorneys with fat briefcases come daily in hope of not finding an invention like their own. The search room, a high-domed, cavernous hall in Washington, is our nation's shrine to ingenuity. It is also a proving ground for our basement wizards, whose search for a new idea usually ends in the appalling discovery that somebody else thought of it first.

Few visitors to Washington find their way to the search room and those who do aren't much impressed. While I was there, a party of tourists wandered in, stared at the rows of church-like pews, where attorneys and inventors were flipping patent cards and muttering to themselves. They studied an aging engineer in threadbare clothes, his shirt-sleeves ringed by perspiration, examining patents through fogged bifocals. After a few moments, the visitors' eyes got glassy and one of them yawned in the face of a passing inventor.

"Sir," the offended inventor exclaimed, "if it weren't for this room, you'd all be running naked, chasing each other with clubs!"

Perhaps the inventor exaggerated, but, as the world's great repository of human invention, the search room concerns every Ameri-

E. H. Brown, patent search room chief, confers with lawyers

PHOTOS BY GEORGE LOHR

can with the possible exception of Nature Boy. In mammoth stacks flanking the room are more than 2,500,000 U. S. patents, the legacy of the few celebrated and the many unknown inventors who put us ahead of the world in industry and comfort. Here are the epic inventions of Elias Howe's sewing machine and Cyrus McCormick's reaper, of Whitney's cotton gin, Morse's telegraph, Bell's telephone, Mergenthaler's linotype and the thousand devices of Thomas Edison. Here are inventions from the cradle to the grave: an infant's crib, a schoolboy's bicycle, an old man's cane and a coffin with bell attached, which allows a person accidentally buried alive to sound the alarm.

But the search room is far more than a storehouse of invention. It is here that the modern basement inventor learns the odds against his \$1,000,000 idea. It's about time, now, that his strange, depressing and sometimes heroic story is told.

Today, the odds against father's \$1,000,000, or any modest part of it, would make the most hard-hearted race track bookie wince. Last year, inventors and their lawyers brought a third of a million ideas to the search room for study. They quickly abandoned three fourths of them as having been thought of before. Of the 70,000 remaining, about half were rejected as useless, unworkable or

old. Of the patents granted, less than 20 per cent brought father enough money to trouble him when he paid his income tax.

As if these odds were not enough, the inventor's own nature compounds them. On his first trip to the search room, he is usually suspicious and refuses to say what he's invented, even to Elton H. Brown, the plump, white-haired chief of the room. After 27 years in charge, Brown knows that most ideas are old and can prove it, but he never says: "Oh, I've heard that one before." Instead, he puts on a look of rapt interest whenever a novice comes to his desk. But for all his amiability, Brown is suspected at least once a day of stealing a \$1,000,000 idea and is sometimes accused of downright theft.

Recently, a woman inventor rushed up to Brown, her pocketbook crammed with papers. She had been making a search on a bold device to pare and slice potatoes in one operation. "Where is my drawing?" she cried. "What have you done with it?" Then she burst into tears. Brown finally succeeded in calming her, helped her look through her pocketbook and turned up the missing sketch.

Whenever Brown sights a new inventor, he takes a firm grip on his swivel chair and leans forward expectantly. The other day, an elderly newcomer came to his desk, peered sharply about and whis-

pered: "I want to make a search."

"What is your invention?" Brown inquired cautiously, his pencil poised over his scratch pad.

"Oh," gasped the novice, "I can't tell you that!"

The newcomer went outside, smoked nervously for a while and then came back. Waiting his turn in line, he listened to a veteran inventor inquire: "Where do I find a double-headed knife for opening oysters?" He heard a patent attorney declare: "Brownie, I'm looking for a varilength, tandem, self-aligning gauge." The novice edged in closer, still hesitant. "My invention," he said softly, "has something to do with automobiles."

Brown finally worked the secret out of him, getting him to specify what part of the automobile his invention concerned and showed him where to look. "To help the new inventor, you've got to gain his confidence, or make him mad, or jar his idea loose," Brown told me later. "It goes against his nature to say what he's got. Of course, he has nothing to fear in the search room."

Patent attorneys offer would-be inventors some Dutch uncle advice. "Specialize and master your field," one of them says. "Be sure there's room for improvement and that you're solving a problem that needs solving." Another attorney warns: "The great day of the basement
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Eugene Irasek, Washington inventor, may have a useful gearless transmission

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Wizards of the Basement Workshop

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inventor is past, so don't start spending your million bucks. If you want to play safe, you'd better get a job in industry."

In the past century, the private inventor was our public glory. Working independently he produced the great basic devices of modern times. On his basic patents, corporations were built and the lucky inventor sometimes made his millions.

But today, most big-time inventions are produced by corporations and their staffs of trained engineers. The growth and complexity of technology has called on specialists, teamwork and capital to solve big problems. The inventor-hero has been replaced by the skilled technician who seldom is known to the public. Television is the work of several corporations, all highly capitalized. Talking pictures were developed by research teams at Warner Brothers.

Today, attorneys say, it's not quite enough to have a new idea. You must also have the funds to patent, develop and exploit it. As a result, most young inventors join corporation research teams, exchanging their long-shot chance as an independent wizard for adequate funds and equipment to carry out their projects.

This teamwork approach is distressing to the old-style, free-lance inventor. "They're choking us off!" exclaims August Liebman of St. Louis, who still makes periodic trips to Washington and has more than 100 patents to his name. An elderly professional inventor, Liebman is a rumped man with an impressive paunch and jutting gray eyebrows.

"The old-time inventor," Liebman said, "was the salt of the earth, a plain, independent cuss you couldn't stop. Take Morse—he was one step ahead of the sheriff until he hit the jackpot. Or take Lee de Forest, who invented the audion tube. One week he'd be at the Waldorf, the next in a flop-house.

"Why, in those days, you could walk into a millionaire's office and say: 'John, I've got a little idea I think's worth plenty,' and John

would write out a check for \$75,000.

"But it's not like that today," Liebman concluded gloomily. "Look around and what do you see? Patent attorneys and corporation searchers. A handful of inventors starving for capital. You couldn't get up a decent stud poker session with the lot of them!"

As Liebman points out, most of the stand-bys in the search room are attorneys, who make it their place of business, and patent searchers, who are hired by the corporations. General Motors, General Electric, Westinghouse, du Pont and many other large companies maintain staffs of searchers in Washington to explore the patent files and report on new inventions. Most of these young searchers plan to be patent lawyers, although some of them started out to be inventors. "I had plenty of ideas," a blond youth told me.



"The least you can do is to compute these deductions! I help with your homework!"

"Trouble was, they were all old."

Now, as a searcher, he spends his days determining whether new devices of his firm—one of the largest in the country—are patentable, and whether the corporation would infringe on existing patents in pursuing a certain line of research. "Lots of people think corporations go around stealing ideas from little inventors," he declared. "They don't dare to. And that's the reason they keep us here—because they can't afford to be sued."

The patent attorneys, who represent private inventors around

the country, are usually more prosperous than their clients. One morning, I heard several of them gathered outside the search room for a smoke. "What a day!" grunted a bald-headed lawyer. "My clients insist I search up a dozen ideas I know are old stuff. Even have one of those automobile periscope ideas that let you see ahead in traffic."

"Got one myself just last week," his colleague observed. "Now I'm chasing down a rotary engine for a customer. Poor guy won't believe it was invented many years ago."

On an average day, the attorneys grapple with thousands of ideas, some for their own clients, others for out-of-town lawyers who send them inventions to search. Most attorneys find that 75 per cent of these ideas are unprofitable.

But for all the odds against him, the private inventor still comes to the search room with his new ideas. Worried, bedeviled and outrageously hopeful, he reports to Elton Brown for help. As master of the labyrinthine patent files, Brown knows, for example, that ball point pens come under "Brushing, Scrubbing and General Cleaning Instruments" and that a hangman's gallows is filed under "Surgery" as a "Neck-Stretching Device."

"I have a little scheme for installing jacks under each wheel of an automobile," a man from New Jersey told him recently. A few weeks before, the inventor declared, he had a blowout at midnight on a muddy road to Passaic. He was obliged to crawl under his car to change tires. When he emerged, he conceived of his self-jacking car, operated by push buttons on the dashboard.

Brown promptly referred him to "Pushing and Pulling Instruments" in the patent files, where the inventor discovered 115 similar devices. They had all been turned down by automotive manufacturers because of the cost.

After spending half his lifetime in the search room, Brown is no longer dismayed by any idea, no matter how fantastic. Not long ago, he listened solemnly to an inventor who proposed to make Washington an aerial city, supported 3,000 feet above the Potomac River by balloons.

More recently, a young married couple came to Brown's desk, carrying their baby neatly strapped to a padded board. Calmly, Brown listened to the father explain: "It's

a little invention we worked out. Now we can take Junior with us wherever we go. He seems to like it and all our friends want one. They say we should take out a patent."

Brown nodded sympathetically and advised the inventors to search under "Package and Article Carriers." While the parents slid Junior under a search table and went to work on the files, Brown shrugged his shoulders. "I'm a little afraid of that one," he said. "It looks mighty close to an Indian papoose carrier."

For Brown and the attorneys, it's a happy moment when an inventor turns up with a potentially valuable device. Today, most successful inventions are produced by men who aim for useful, rather than earth-shaking, ideas in their own field.

Trent B. Terry, a man who sticks to his last, has spent most of his life working in textile mills. He recently patented a new method for cutting men's underdrawers. By cutting the material on the bias, he has managed to produce 13 pairs of shorts from stock that once yielded only 12. Terry is now making a modest living on his royalties.

A more heroic inventor is Eugene H. Irasek, a thin, tense young man with crew-cut hair, who works for the Navy Ordnance Department. Irasek lives with his wife and two children in a trailer camp near Washington, where he spends his evenings and week ends working on an automatic transmission. Neither Irasek nor his attorney, Arnold Christen, has found anything like it in the patent files and have applied for a patent. Skilled in mechanics, Irasek believes his transmission is a long-awaited answer for the automobile industry. Christen, however, advises his client to be calm and patient; he reminds him that the industry has millions of dollars to spend on new ideas and may possibly have a scheme like his already underway.

"I don't want to think how big this can be," Irasek told me. "For years, the industry has talked about a mechanical gearless transmission system, but nobody ever worked it out. When I think about it, I've got to take myself by the collar and say: 'Look here, Gene. Remember what happened to free wheeling.' But still, this looks good, and I'm putting my chips on it."

Even Elton Brown must think back to recall truly independent inventors who achieved fame or a jackpot. He remembers young Glenn Martin, coming to check on his first tentative ideas on the air-

plane, and tall, nervous Charles E. Duryea, inventor of the automobile, who came in when an old man and died poor. He remembers mild-mannered O. U. Zerk, who came here to study automotive lubrication. After that first visit, Brown didn't see Zerk for several years, not until his lubrication fittings were sensationally successful. When the inventor reappeared, he announced himself in full as Oscar Ulysses Zerk.

But of all private inventors who've come in, none made as strong an impression as William S. Gubelmann of Convent Station, N. J. An 86 year old free-lance inventor, Gubelmann is still collecting \$1,000,000 a year in royalties on the calculating machine he invented. Patent attorneys remember him as a little man with a sparse beard. His patent was on file for 20 years before it was granted and attorneys for the companies who fought Gubelmann still hash over the endless litigation.

Gubelmann was the first inventor to conceive of a common printing mechanism in calculating machines and no inventor who followed was able to by-pass him. While his application was on file, there were numerous "interferences," which occur whenever two inventions conflict. Gubelmann won almost every interference and added the claims of rival inventors to his own patent, like an Indian collecting scalps.

Ever since 1790, when America's patent system was signed into law by George Washington, there have been gloomy predictions that inventive genius was dying out, that everything to be invented was already invented.

But for all the gloomy prophets, the most durable verdict on the patent system was given in 1812, when the British seized and threatened to destroy Washington. The British guns were already trained on the Patent Office when the Barbara Fritchie of the patent system rose to repel them. He was Dr. W. M. Thornton, then superintendent of patents. Dr. Thornton, according to legend, came out of his office, faced down the imperial cannon and declaimed: "This is the United States Patent Office, a depository of the ingenuity of the American nation in which the whole of the civilized world is interested. Would you destroy it? If so, fire away and let the charge pass through my body!"

The British left the building and its brave superintendent unblemished. Since then, the Patent Office has moved several times, always to

larger quarters, and now fills the entire north wing of the Department of Commerce Building.

Until the Patent Office developed its code of ethical regulations, attorneys ran lurid advertisements in farm and popular science journals, promising huge royalties for useful inventions. Some attorneys even specified what to invent; others ran contests for the best ideas of the month.

While inventors began hiring attorneys, the Government employed patent examiners to pass on the growing flood of invention. Today there are more than 1,000 examiners, most of them lawyers trained in the mechanical or scientific arts which they examine. They work in small cubicles, protected from eager inventors who need appointments to see them. A few weeks ago, a hopeful inventor went up to the examiner of photographic instruments.

"I was sure I had a hot idea for three-dimensional photography," he reported later. "Before I could finish explaining, the examiner reached over his head without looking, slid open a drawer and pulled out a patent. It looked like I'd drawn it myself."

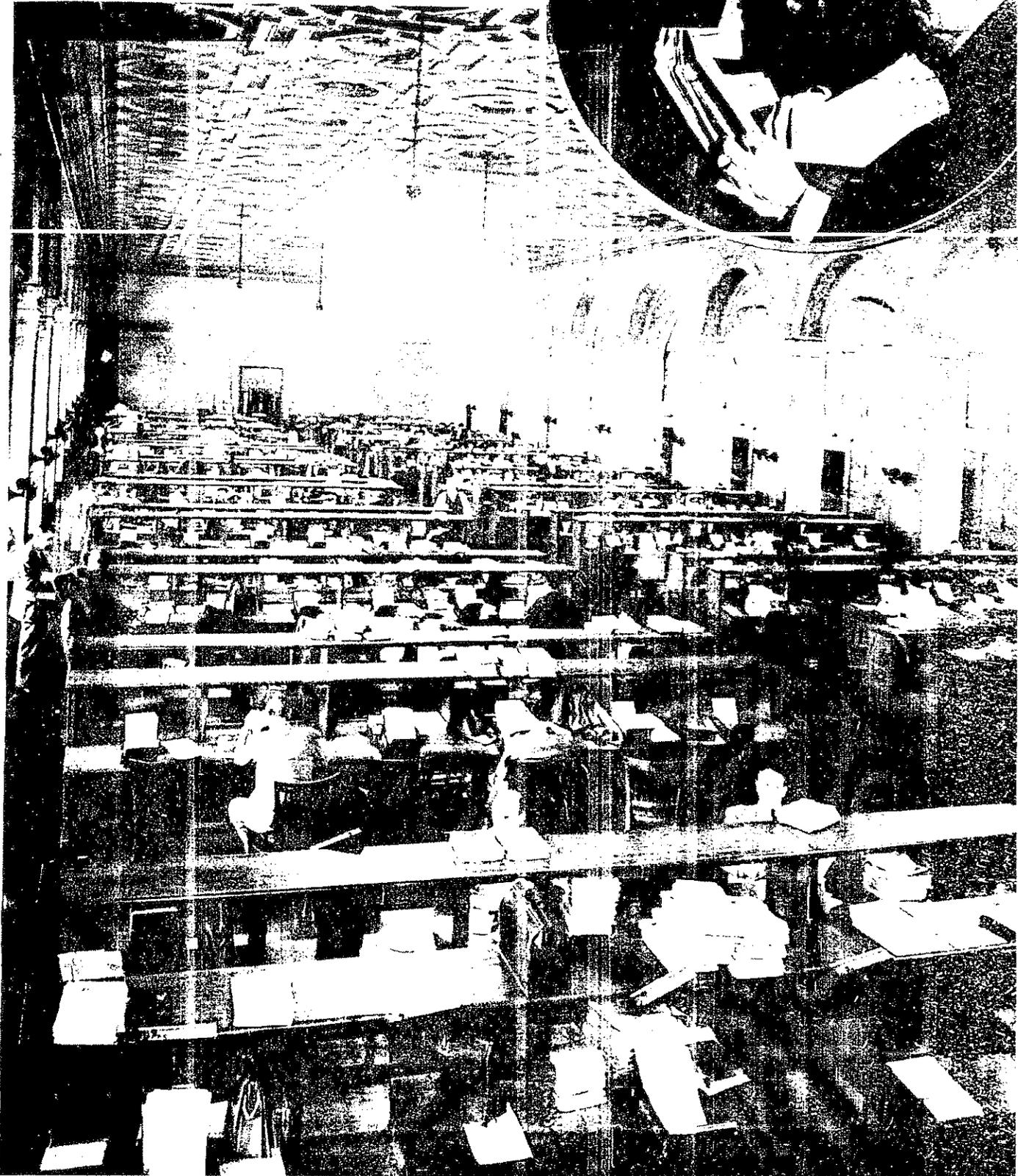
Another inventor reacted bitterly toward the examiner who turned down his jellied explosive as unworkable. He promptly mailed a batch of it to the examiner and urged him to examine it more closely. The Patent Office, accustomed to inventors, merely dispatched a note of warning and declined to prosecute.

For all the shift from private to corporate invention, there's no sign of flagging ideas as we go into the 1950's. Recently in the search room, I met Jacob Rabinow, a 40 year old inventor, who works daily in the National Bureau of Standards and at night in his own home workshop. On his government job, he devised and patented an electromagnetic clutch.

Rabinow was checking a new idea against the patent files. "There's no end to improvement in this country," he observed, looking up from his patent cards. He stared glumly at the massive patent file flanking the room. "Right here, for instance, we could stand some improvement. What we need here is a rapid automatic reader, with each patent recorded on microfilm. Then you'd just hit the right index number and the patents would flash on your table.

"It shouldn't be hard to work out," Rabinow said briskly, reaching for his notebook. "Look here, I'll sketch it out for you."

Workshop



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