

POPULAR SCIENCE

MONTHLY

Mechanics & Handicraft

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**'Chutes Trap
War Planes**

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GUS TELLS:

Why Car Fires Start

BIG Ez Zacharias pushed his weather-faded postman's cap farther back on his shaggy head and expertly lobbed a mouthful of tobacco juice fifteen feet into the waste box which stands under Gus Wilson's workbench.

"High-angle fire," remarked Gus, "You ought to join the Army, Ez. They could use you for a howitzer."

Ez grinned. "I got used in the last war," he said. "I got used so much they darned near used me up. If the U. S. A. ever does any more fightin' over there in Europe, I'm a-goin' to pass up the A. E. F. and stick to the old R. F. D.—give some young feller a chance to be a hero. Harry, here, for example."

Harry, the Model Garage's grease monkey and budding mechanic, stuck his chest out an extra inch. "I'm in the National Guard," he said. "Anti-aircraft artillery."

The postman bit a conservative half-inch chew off a stick of black plug. "Now ain't that somethin'," he said, unimpressed. "Well, I hope they learn you to shoot airplanes better'n you shoot trouble on my bus. You checked my wirin' day before yesterday, didn't you? And you told me it was O. K., didn't you?"

"Sure I did. And your wiring *was* O.K.," Harry maintained stoutly.

"O.K., hey?" Ez grunted. "Last night I got on that dirt road back of Pleasanton, and what happened? Same darned thing that happened before you checked my wirin'. I hit a bump pretty hard, an' all my lights went out. Fuse blowed—same as before. It happened three times more, young feller!"

Harry looked so crestfallen that Gus spoke up in his defense. "Quit riding Harry," he told Ez. "If there is something wrong with your wiring that he didn't find, the chances are that neither I nor anyone else would have found it first crack out of the box. Maybe we can find it now. Open her up, Harry."

He glanced over the wiring up front,

and shook his head.

"Looks all right, and as Harry tested everything, it must be all right." He walked around to the rear of the car. "Let's have a look at the tail-light wiring." The tail light was mounted on the trunk door. He raised the door and examined the wires. "Looks all—wait a minute! Here's a bare spot on one of the wires—the insulation is worn right off."

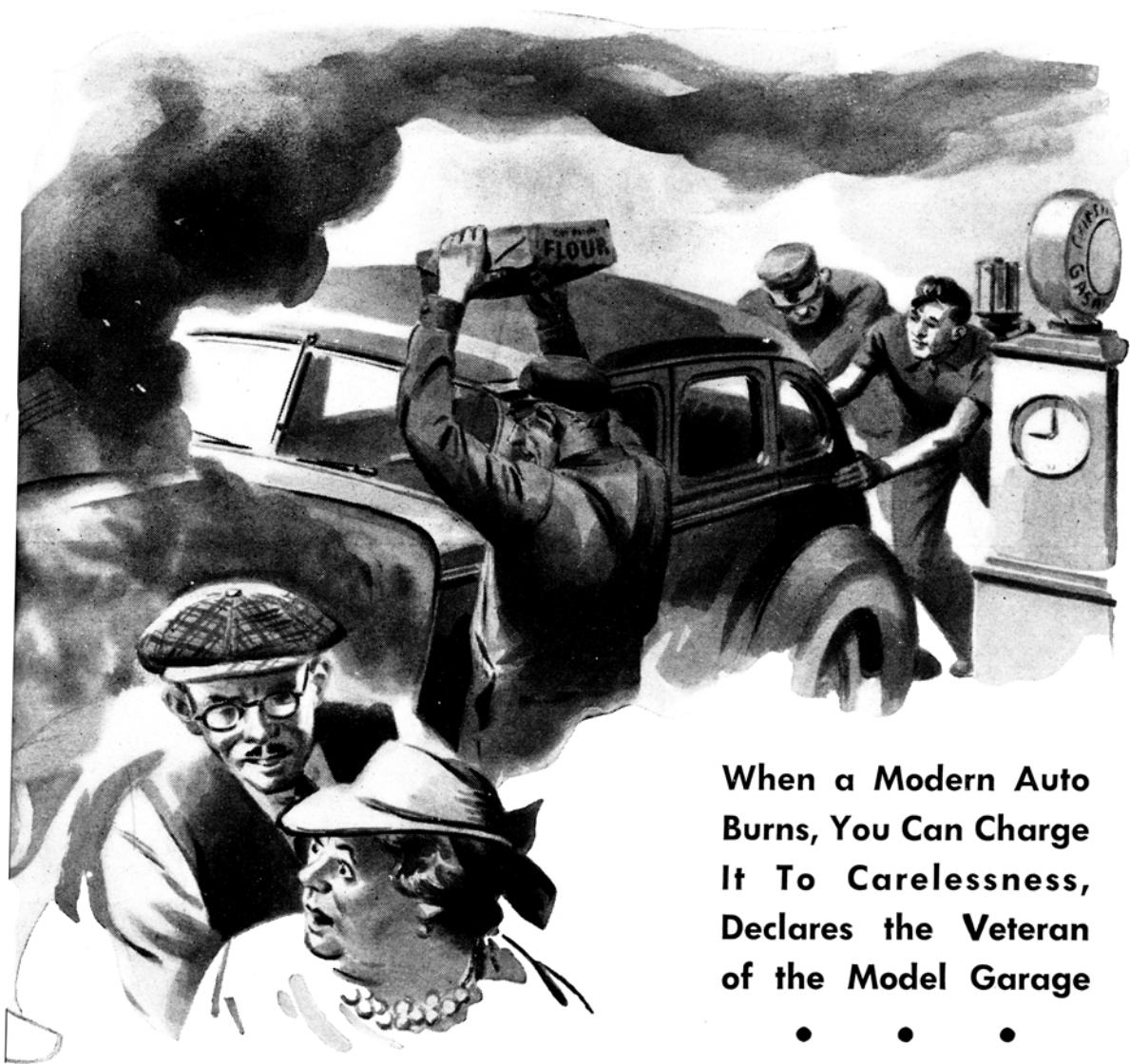
"Shucks," Ez said, "I know all about that, and even Harry spotted it. That there wire ain't been doin' any harm. It's been that way since way back last fall, months before I began having any trouble. That new bird dog of mine done it. The darn-fool pup gnawed the insulation right off while I was eatin' my lunch one day I was out gunnin'. The bare place ain't near any metal, so it can't make any difference."

"I was going to tape it over, but I forgot it," Harry confessed to Gus in some embarrassment.

Gus didn't say anything. He lowered the door carefully, stooping so that he could keep his eyes on the wires, which looped down to within a couple of inches of the top of an open tool box when it was closed. He raised the door again, and stood looking at the tool box, which was empty except for a folding jack. Then he went over to his bench and brought back a small wooden box, which he pushed under one end of the jack. "Switch on the lights," he told Harry.

Harry switched on the lights. Gus lowered the door again. As it closed, the car's lights went out. Gus laughed. "Better put in a new tail-lamp wire, Harry," he said. "And a new





**When a Modern Auto
Burns, You Can Charge
It To Carelessness,
Declares the Veteran
of the Model Garage**

• • •

By MARTIN BUNN

As Harry and Ez pushed the car away from the pump, Gus threw the flour sack at the flames

fuse." He turned to Zacharias. "There's your trouble," he said. "That jack was lying in exactly the right position to bounce up and come into contact with that bare place on the wire. Whenever you hit a bump hard, that's what happened—the jack bounced up, hit the wire, short-circuited your lighting circuit, and blew out your fuse."

"I'll be derved!" said the postman. "Well, now, I call that pretty smart, dopin' that out. If you hadn't—"

Ez never finished that remark. It was interrupted by the frantic squawking of an automobile horn outside the shop doors, and by Joe Clark's voice, from the office, shouting urgently for Gus.

Gus got into the office just in time to see his usually calm partner sprint out through the front door. He ran over to the window and looked out. A sedan he recognized as Henry Miller's had been stopped close to the gas pump. Thick blue-black smoke was pouring out from under its hood. Mrs. Miller was crouching in the driver's seat, alternately punching the horn button and emitting heart-stopping shrieks of "Fire! Help! Fire!" Joe Clark was clawing at the shop doors, trying to get them open from the outside, and shouting something about an extinguisher.

Gus was out of the office and across the driveway to the car in two jumps. He pulled open the door. Mrs. Miller stared at him with panicky eyes, and let out another

screech of "Fire!" at the top of her voice.

"Take it easy, Mrs. Miller—take it easy," Gus said soothingly. "Nothing's going to hurt you. Just you hop out."

Mrs. Miller was too badly frightened to understand what he said, but when he reached in over an assortment of packages from the neighborhood chain grocery piled on the front seat, and grasped her arm, she slid out from under the steering wheel and stumbled out, still yelling shrilly.

Harry and Ez Zacharias came running over just then and together they pushed the burning car well away from the gasoline pump.

Harry got the hood up. Through the cloud of blue-black smoke that billowed out they saw that a greasy mess on the pan at one side of the motor was burning fiercely. "I'll get the extinguisher!" Harry yelled, and sprinted for the shop. Suddenly Gus remembered one of the grocery packages he had noticed on the car's front seat—a big paper bag. He reached in, found it raised it high above his head, and smashed it down onto the hottest part of the blaze.

The bag broke. A white cloud rose and mingled with the black smoke. The flames were blotted out as if a wet blanket had been slapped over them.

HARRY came running out with a fire extinguisher. "Never mind that," Gus said. "We won't need it."

Harry's mouth sagged open. "What—what didja put it out with?" he sputtered.

Gus laughed. "A long time ago," he said, "I read some place that flour will smother a gasoline or oil fire just about as effectively as sand will. I remembered that when I noticed that Mrs. Miller had a ten-pound bag of flour on her front seat. And it worked!"

Excitement died down with the fire. Ez Zacharias drove away. Even Mrs. Miller recovered sufficiently to come out and make a survey of the damage. "You saved me, Mr. Wilson—definitely saved me!" she gushed. "But my poor, *poor* car! Whatever will Mr. Miller say? It's ruined—I'm sure it's ruined!"

"Oh, it's not that bad," Gus consoled her. "Not nearly that bad. You're going to need a new wiring job, but I guess that'll be about all. Better leave the car here—it won't run—and tell Henry to drop over and see me about it. Harry will carry your packages over to your house for you."

Gus and Joe watched Harry escort the still-talking Mrs. Miller down the street. Then they looked at each other. "What a dame!" Joe said bitterly. "Imagine! Parking a burning car right up against our gas pump!"



He lowered the door, stooping to watch the wires

Somehow news of the fire got around town, and along after five o'clock, quite a little crowd of the Model Garage's steady customers, who had dropped in to discuss Mrs. Miller's latest motoring misfortune, were gathered in the shop.

"You don't see, or hear about, nearly so many car fires as you used to," remarked George Knowles, who has been driving since the Maxwell was a headliner.

Gus nodded agreement. "You're right, George," he said. "And most of the fires we have don't do much damage. Well, it's easy to see why—automobiles are designed better and built better than they used to be."

"But," some one objected, "there still *are* car fires. What causes most of them, I wonder?"

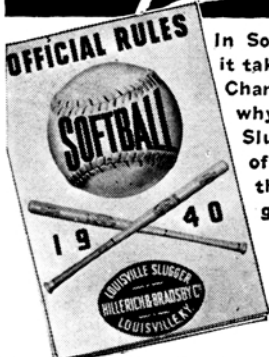
"I was talking to a fire-insurance claim man about that only a couple of weeks ago," Gus said. "He told me that about half the car fires are cigarette fires that don't burn anything but the upholstery, and that nearly all of the other half are caused by defective wiring. Either way, the underlying cause is the same—carelessness."

"How do you make that out?" Knowles wanted to know. "I'll admit that probably most cigarette fires are caused by carelessness, but I don't see how a fellow can guard against his wiring suddenly going wrong."

THAT'S just the point," Gus told him. "Wiring doesn't go wrong *suddenly* once in a hundred times. When you buy a new car its wiring practically always is all right. But after a few thousand miles of driving, things begin to happen to the wiring—if the driver of the car, or the mechanic who takes care of it, is careless.

"Trouble in a wiring system develops *gradually*—sort of sneaks up on you. A short circuit in the low-tension system isn't likely to cause a fire, although it always is a nuisance. But (Continued on page 234)

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Why Car Fires Start

(Continued from page 128)

there is enough juice in the starting-motor circuit, and in the high-tension circuits between the coil and the distributor and between the distributor and the spark plugs to start a fire if you get a short circuit anywhere where conditions are right for a fire to start. If your car is *clean under the hood*, the worst that is likely to happen is a bad smell of burning insulation and the replacing of a couple of lengths of wire. But if the pans around your engine are covered with a half-inch-thick mess of grease, old oil, and gasoline which has spilled out of the carburetor, with maybe a couple of handfuls of oily waste stuck in it, any spark from a short circuit or from a back fire is likely to start a blaze.

"To keep your wiring system from going haywire, you should check it every couple of months," Gus advised. "If Mrs. Miller had had that done, her car wouldn't have caught fire. The wiring is too burned to spot just what caused the trouble, but it's a cinch that it was a short circuit. If the insulation of a wire looks—or feels—as if it is pretty well baked out, replace the wire with a new one. Give special attention to the insulation of the wiring between the battery and the starting motor—it has to carry the heaviest load. See that no wires can come into contact with any moving part. If the insulation of any wire is broken, or even slightly chafed, either replace the wire or wrap the chafed place with tape. But remember never to use friction tape on a high-tension wire—it won't insulate ignition current, and it won't hold if it gets a little greasy. Use linen tape and shellac it. See that all the connections are tight—that they are properly soldered and taped. And be sure to take an extra-careful look at the end of every stranded wire. See that the strands are twisted together and soldered."

"We get you, Gus," Knowles said. "Just make certain that the current in every circuit is guarded against leaking out, and you won't have any short circuits."

"That's the big idea," Gus said, reaching for his coat and hat. "If you don't have any short circuits, it is reasonably certain that you won't have any car fires—unless, of course, you're dumb enough to drop a lighted cigarette on your upholstery. The way cars are built today, fires are unnecessary. Most of the few we have aren't very serious—unless they are the result of a collision that breaks a gas tank—but some of them are expensive. Ask Henry Miller—after Joe sends in the bill!"

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