

# POPULAR SCIENCE

OCTOBER • 35¢ *Monthly*

How to buy and use

## Snow and Mud Tires



**Bonus Booklet in This Issue:**

**Saving Dollars on TV Service Calls**

# Gus Turns a Knock

*James Selden (nobody called him Jim) was a shrewd man with a*

**By Martin Bunn**

**J**UST opening up shop for the day, Mr. Wilson?"

Gus swung around, the key to the Model Garage in his hand. It was young Tommy Brown, who worked nights at the creamery garage.

"Hello, Tommy," Gus said. "Aren't you up pretty early for a Saturday?"

"Couldn't sleep when I got through

work," Tommy said. "Too worried about Mr. Selden's car."

Gus shook his head. "Shouldn't take your worries to bed, Tommy. Come in and tell me about it."

Tommy followed Gus into the office.

"You know how Mr. Selden talks about economy and efficiency all the time," Tommy began. "Since he came we've had to do things differently."

Gus nodded. Only last night George



# into a Boost

*buck . . . which didn't stop Gus from giving him a lesson in economy*

Macabee, the salesman, had come to the Model Garage for antifreeze.

"When Selden came last spring," George had said, "he ordered all the old antifreeze drained out of our trucks and saved. Now he's ordered it put back. But this is my own car, and if the firm won't pay for fresh stuff, I will."

Gus had drained the system, flushed it with the thermostat removed, checked the hoses, pump and fan belt before putting

in new permanent-type antifreeze—and wondered what kind of man would risk a fleet of vehicles to save so little money.

"I can picture Mr. Selden," Gus said. "But what's this got to do with you?"

The young fellow squirmed. "He brought his own car in last night. Told me to check the timing because it knocked. The timing was just right."

"And did it knock?"

"I don't know," Tommy said. "Mr.

*"I believe timing is adjusted at the distributor," remarked Selden.*

*"So it is," said Gus. "Will you please start the engine?"*



Selden said I was not to road-test the car—guess he thinks anybody my age would wreck it. He told me not to do any other work on it.”

“What else would you have done?”

“Cleaned the plugs, anyway. Flushed the radiator—the water was pretty dirty.”

“You did all you could, Tom,” Gus said. “Forget it and enjoy your weekend.”

“How can I, Mr. Wilson? Mr. Selden is driving to the city this morning on the new throughway—to go to a big corporation meeting, he said. What if he doesn’t get there and it’s my fault?”

The telephone shrilled. Gus lifted the receiver. Soon he put it back soberly.

“That was Mr. Selden,” he said. “He was stopped at the toll gates 15 miles from here for impeding traffic. He’s asked me to come. Here comes Stan now, so I’m free to leave. Got your car, Tommy?”

White-faced, the boy nodded.

“Get in it and follow me,” Gus said. “I’ll take the wrecker. If Mr. Selden has to make that meeting, it may have to be in your jalopy.”

It was the kind of blue-and-gold fall day Gus enjoyed most. The new dual road let his sturdy wrecker kick up its heels. He soon left Tommy behind.

THE slight, thin-lipped man arguing with Trooper Jerry Corcoran at the parking strip across from the toll gate had to be James Selden—Gus would have laid odds nobody called him Jim. Crossing the throughway, Gus parked and walked over.

“You’re Wilson?” Selden asked at once. “This officer ordered me off the road. I have an urgent appointment in the city. Please see to my car.”

“What’s it done?” asked Gus.

“Knocked so badly the last five miles I didn’t dare go over 40 for fear it would break down altogether. My fault for letting an incompetent kid monkey with the timing. He advanced it too much.”

“But it only started to knock after you had driven awhile at high speed?” Gus asked thoughtfully.

“Yes. I noticed a slight ping earlier, but finally it got so bad I knew I couldn’t risk keeping on at 60. Just set the timing back so that I can go fast enough to satisfy this man.” He jerked a thumb at Jerry, who reddened.

“I’ll have a look at the car,” said Gus.

As they walked toward it, he spotted Tom’s battered roadster pulling up to the toll gate.

RAISING the hood of Selden’s car, a popular six-cylinder model about three years old, Gus took off the radiator cap and ran a finger around inside. It scooped up thin brown scum.

“I believe timing is adjusted at the distributor,” remarked Selden.

“So it is,” said Gus. “Will you please start the engine?”

Selden did. A thin stream of bubbles rose from the brownish fluid in the radiator. Gus peered at the water pump. On the suction side, the block was slightly moist, but no water was leaking out now. He replaced the radiator cap and listened to the engine.

It was rough on one or two cylinders, with a faint metallic knock. Gus signaled Selden to cut the ignition.

Gus closed the hood and came around to the driver’s side of the car.

“Sorry, Mr. Selden. It’s not bad timing that stopped you, but overheating.”

Selden glared at him. “Rubbish. I watch my gauges. The temperature was only a bit higher than usual.”

“The gauge tells how hot your coolant is,” Gus pointed out. “Not how hot the engine is. Yours is overheating locally. After looking into your radiator I can guess why. The car can’t be fixed here, and if you keep running, you may break an exhaust valve or even crack a piston.”

“I must get to the city somehow.”

“You’re in luck, Mr. Selden,” said Gus, pretending to look past the wrecker. “A young fellow I know just stopped behind my truck. It’s Tommy Brown. He’ll give you a lift, while I tow your car back.”

Selden’s thin lips drew even tighter. “Brown works in our shop. I’ll pay him to get me to town, but it isn’t going to change my opinion of his work.”

He got out, taking his briefcase.

“Mr. Selden,” said Gus. “When is it not efficient to save money?”

The manager looked at him hard. “When it costs you more in the long run.”

“If you’ll come to my shop Monday morning,” said Gus, “I’ll prove to you that you saved money unwisely on your car—and that Brown had nothing to do with your breakdown today.”

“I’ll be there,” said Selden crisply.

**M**ONDAY morning Gus had Stan Hicks remove the radiator and cylinder head of Selden's car. Tommy watched glumly.

"How did it go Saturday?" asked Gus. Tommy shrugged. "Awful. Oh, my old crate ran okay. But how do you think Mr. Selden felt riding in my old clunker?"

Tom fell silent as Selden came in briskly and eyed his car.

"Was it necessary to do this, Mr. Wilson?" he asked, pointing to the engine.

Gus switched on a trouble light. "It was, Mr. Selden, to show you three things. First the exhaust valves of the last two cylinders. Both are warped."

Selden nodded. "So I see. Are you saying these caused the knock I heard?"

"No," Gus said. "This valve damage and the pinging were both caused by hot spots inside the two cylinders."

"Or by faulty timing," Selden insisted.

"The second thing is this," Gus went on, pointing to a spot on the water pump. "Water oozes out here when the engine is off.

When it runs, the leak stops—because the pump sucks in air and feeds it into your coolant. That causes foaming and boosts corrosive action in the system."

"But that couldn't burn the valves."

"We'll see," said Gus. "Do you drain your antifreeze and put it back in fall?"

"Why, yes. It still has antifreeze protection, you know."

"Sure," Gus agreed. "But did you know its rust inhibitors wear out in a season? That leaves your cooling system unprotected, wide open for hot water, air and leaking gases to cause rust and corrosion."

Selden was silent for a moment. "I see," he said. "Hereafter I'll add extra inhibitor when I put back the antifreeze."

"I wouldn't," said Gus. "The new inhibitor may not mix well with what's left of the old, or you might use the wrong amount. It would take a lab analysis to be sure—and that would cost more than new antifreeze."

"Maybe so. But you still haven't proved that corrosion is the trouble."

**S**ILENTLY Gus picked up a wrench and took the water pump off the block. Behind it was a water passage. Inserting a wire with a hooked end in this, Gus probed and drew out a long metal tube, roughly oval in section, with slots along the top and ragged holes in the sides.

"Just what is that?" asked Selden.

"Suppose we ask Brown," Gus said. "That's the water-distribution tube."



"It must've rained awful hard last night."

Tommy said. "It's supposed to carry incoming cool water evenly the whole length of the block. But corroded like that it couldn't, so the last two cylinders got too hot."

Gus laid the damaged tube aside. "If you want to take your car to the plant for repairs, Mr. Selden, I'll charge you only for the throughway tow."

"No, Mr. Wilson," Selden said slowly. "I'd like you to finish repairing my car. And put in new permanent antifreeze."

He swung around to Tom. "That goes for all plant vehicles, too, Brown. And you'll find some overtime in your next pay envelope for getting me to town."

"You mean I stay on?" gulped Tommy.

"Of course. As Mr. Wilson promised, he's shown me three things. One, that it isn't always smart to save money. Two, that you know more than I thought." The thin lips smiled for the first time. "And three, that I know somewhat less."

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**NEXT MONTH: Gus goes out on a limb.**