LATEST NEWS OF THE AUTOMOBILE TRADE AND INDUSTRY

Agents and Dealers Wanted.
AMERICAN DISTRIBUTING & NOVELTY CO.
P. O. Box 603, Ogden, Utah.

LENTIL AND ONION CROQUETTES.

Soak overnight one large cup of dried lentils (or dried peas if preferred). In the morning drain, adding two cups of water, a stalk of celery, a small carrot sliced and two or three sprigs of chopped parsley. Cook until soft, then remove the seasoning and rub through a sieve, stirring in a cup of thick onion puree, one cup of soft bread crumbs, salt and pepper to taste. An egg will help in the molding of the croquettes. Form with floured hands into small pyramids, placing in the ice chest for at least an hour before serving, then dip in egg and bread crumbs, cooking in deep fat to a golden brown. Serve garnished with bunches of crisp cress.

THE RELINING OF BRAKES REQUIRES VERY CAREFUL ATTENTION TO DETAIL

Expert Gives Advice for the Motorist Who Wishes to Undertake His Own Work.

[By Special Permission from Motor Age.]

THERE comes a time when the material used as a brake lining has lost its usefulness, due to long service, and it then is necessary to reline the brakes with new fabric. This is a job that most persons prefer to place in the hands of a repair man, but for those who enjoy doing their own work the method will be explained here.

It is best to purchase the new lining in one piece, cutting the necessary lengths after the wheels and brakes have been removed.

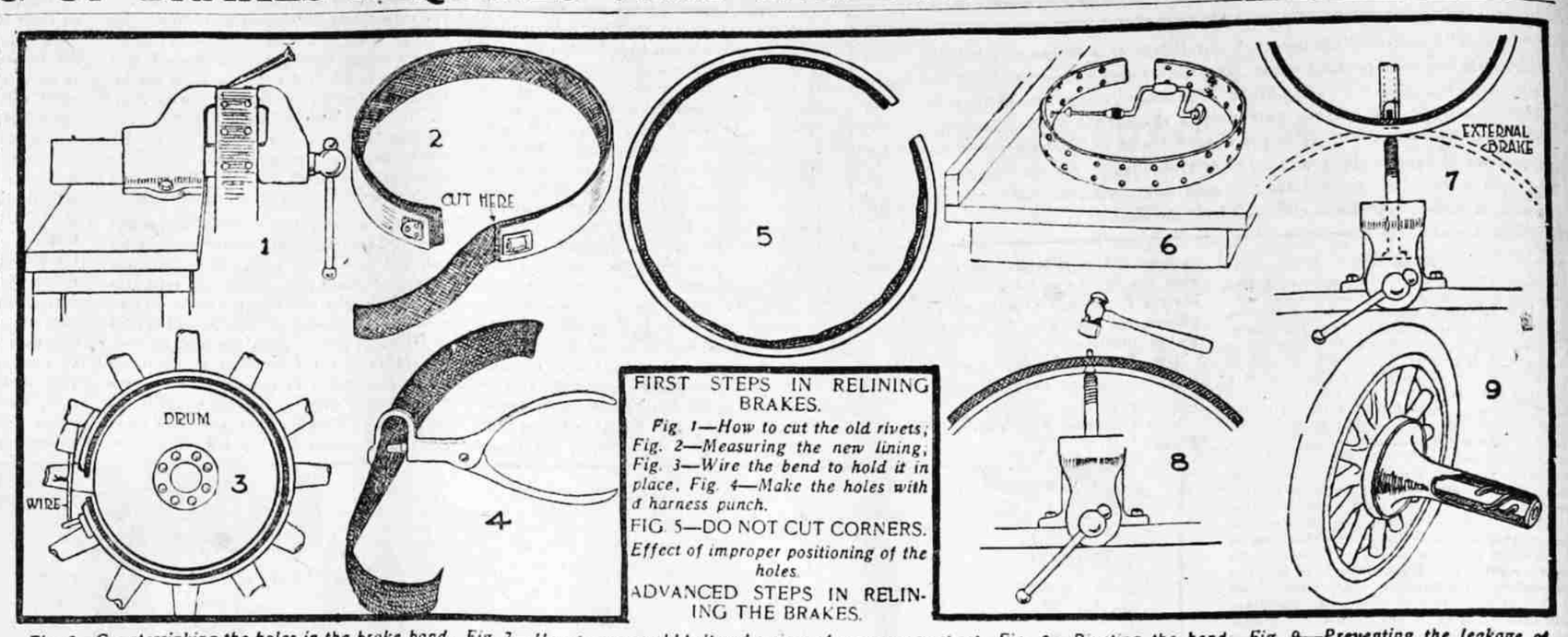
To obtain the correct length of material, lay a tape measure around the outside of the external brake band, allowing for an overlapping of about one-half inch at the edges of the band opening. This will give the proper length for one external brake. Deduct from this one and one-half inches, which will be the length for the internal brake.

Removing the Brake Bands.

Jack up the rear wheels and, if possible, place the axle on good strong horses or blocks, so as to guard against any accidental slipping of a jack. If the horses are not available block the front wheels securely to prevent the car from rolling ahead or back off the jacks. Consult the instruction book on your particular car as to the proper way to remove the wheels, and follow these instructions carefully. The toggle connections of the brakes usually are held in place by a large clevis pin, on the back of which is first a washer and then a cotter pin.

Disconnect the toggles from the brake shoes and remove the adjustment screw from the guide that acts upon the anchor bar. Remove the various coil springs that are attached to the shoe or band and the brake is now ready to be taken off. Before removing it be careful to notice which is the top and bottom of the assembly and also observe just how the spring is inserted between the guide and the anchor bar. In fact, it is well to be exceedingly careful in removing any part of either brake so no mistakes will be made when the brake is ready to be replaced. Clean all of the parts thoroughly with gasolene and remove all of the old grease that may be around the dust guard and axle stub.

By putting the band in a vise, as in Fig. 1, and using a cold chisel and hammer the copper rivets that hold the lining to the band may be chipped off; then drive out the old rivet ends with a small punch or drift.



FIRST STEPS IN RELINING BRAKES.

Fig. 1—How to cut the old rivets; Fig. 2—Measuring the new lining; Fig. 3—Wire the bend to hold it in place, Fig. 4—Make the holes with a harness punch.

FIG. 5—DO NOT CUT CORNERS.

Effect of improper positioning of the holes.

ADVANCED STEPS IN RELINING THE BRAKES.

Fig. 6—Countersinking the holes in the brake band, Fig. 7—How to use an old bolt and a piece of pipe as a rivet set, Fig. 8—Riveting the band. Fig. 9—Preventing the leakage of grease with a felt strip around the axle.

Cutting the Lining.

In cutting the new lining allow for the overlapping, as has already been explained. This is necessary because the rivet holes at this point are very close to the edge, and to leave the lining short here would allow it to tear when the holes were drilled. See Fig 2 for the method of determining the correct length. If the old lining is in such condition that it can be removed intact the new measurement can be obtained by using this as a guide.

As the average private garage is not equipped with a complement of the necessary tools to enable one to do this work as it is done in a service station, simpler means will have to be used.

In marking the lining for the holes lay the wheel on a bench or the floor, hub side down, and, putting the lining and band in place on the drum, as shown in Fig. 3, wire the band so as to hold it in place correctly. With a pencil or soapstone stick, and using the holes or soapstone, a template, mark the lining. The holes can be made by using a harness leather punch, as in Fig. 4.

With the aid of a few small bolts and nuts placed at intervals secure the lining to the band in its proper position. The next step is to countersink the holes so the rivet heads will be below the surface of the lining. To do this properly one should use a countersinking tool made for such purposes, but as these are usually a scarce article one can get good results with a wood screw countersinking tool and a brace. If the latter is used it should be sharp or the lining will tear.

Securing Band to Lining.

If a vise is not available place the band on the bench in such a way as to hold it from slipping away, as in Fig. 1, and with the countersink bit countersink each hole. Do not go too deep in this operation, only enough to permit the rivet heads to be well below the lining surface.

To do a good job of riveting it is almost necessary to have a vise, unless there are two people, one holding the band and rivet bar while the other is using the hammer. Fig. 6 shows a way of using an old bolt held in a vise with the head of the bolt resting on the arm of the vise to give a solid foundation.

Insert a rivet through the lining and band and with the whole in place, as in Fig. 7, the head of the rivet resting on the bolt, draw the rivet snug with a rivet set or a short piece of small gas pipe. Two or three blows with a hammer will be enough to draw the rivet head and lining tight and in place; too much pounding is very bad, as well as unnecessary, as it will only tend to draw the rivet deeper in the material and perhaps weaken it to the point of breaking through.

Use Light Blows.

It may be found that the rivets are too long or too short; not more than 3-16 of an inch should be protruding through the band. In riveting over these ends remember that quick, light blows are better than heavy ones. The light blow will spend its force on the desired point, while the heavy one will carry clear through and tend to draw the rivet head in the lining too tight.

This operation is performed with the brake in the same position as when using the rivet set. This is illustrated in Fig. 8. Do not remove the bolts that were used as temporary holdings until the holes not occupied by bolts have been filled with rivets.

This will complete the foot brake, and the same methods are used in relining the internal or hand brake.

The task of applying the lining to the internal shoe is much easier in one way because the material is being drawn over an outside surface instead of to the inside of the band. Fig. 5 shows the difficulty arising in the latter instance, which is, allowing the lining to "cut corners" from one point of attachment to another. Hence the method illustrated in Fig. 3 for obtaining an accurate marking of the holes.

The various methods just described are applicable to the internal brake with the exception of the marking for the holes. It is not necessary to put the shoe in place with the lining as with the external band. When the lining has been cut, making the same allowance at the ends as was given for the foot brake, mark and attach this end with bolts in its proper place on the shoe.

Now stretch the lining over the shoe and mark and punch the holes that are opposite the split in the band. Do the same with the last two holes and complete the temporary attachment. Proceed with the riveting the same as with the foot brake.

Replace the brakes, being careful to secure every part in its proper position. It will be necessary to make a complete readjustment.

Before putting on the wheels it would be well to clean the bearings and pack them in fresh grease.

A great deal of brake trouble is due to grease leaking from the differential housing through the axle tube and thence into the brake mechanism. Although practically all axles are provided with some means to prevent this leaking of grease, a certain amount will get through.

In Fig. 9 is shown a simple means of remedying this difficulty for a time at least. Cut from a thick pad of felt a strip that is long enough to be wrapped around the axle bar three or four times. This felt should be thick enough, so as to fit snugly between the bar and the housing, and wrap it around the shaft as shown.

1917?

By EDWIN BALMER.

(Continued from preceding page.)

tleships extended; as Bob Wendell gazed back along the line of American ships when the Arizona turned after the Idaho only the tops of the Missouri, the Georgia, and the Connecticut marked the end of the American line. The Connecticut was eight miles back, almost as far away as the Trajan. Now the American column was slowing a little to let the weaker ships at the rear close up, so that two of the Connecticut class could engage each of the Zeus and the Thors.

For a moment, therefore, Bob was on the deck breathing the glorious cool air, seeing the sweep of the sea, the mighty panoply of ships, and hearing the sound of the water rushing at the vessel's side. Would his veins tingle again at breath from such a breeze? The alarm bells were sounding; the bugles were blowing:

"Battle stations!"

The breeze brought the notes of the bugle back from the Idaho, as the wind was bearing the call of the Arizona's trumpets to the Pennsylvania, and so all down the line. Bob Wendell was no longer himself—no longer the all important figure in a girl's vision, the desired one of a dream whose life must be spared. He was at his post in No. 2 turret of the second battleship in the American column about to fight for the victory of the western world. In the telescope through which he gazed he saw reflected the image of the tops of the Xerxes—the second ship in the regent's line—which the Arizona was to engage and which was to engage the Arizona in the battle, which now was begun. A great geyser of spray, 500 yards short and astern the Idaho, told that the Trajan had opened; almost simultaneously the Xerxes tested the range.

"Commence firing!"

Constrainedly, automatically at first, as the range came to him from the chief fire control station, Bob saw that the sight setters adjusted the sights; he witnessed that promptly, at the signal on the buzzer upon Louden's naked breast, the first ranging shots were fired. Now, at the signal for the salvo, all three of his guns were firing together with the three of No. 1 turret, further forward, and with the six of the two turrets astern. The first shell which struck the Arizona stirred in him only contempt. It struck and burst during the wait between salvos and shook the ship far less than the firing guns; its shock did not affect the men behind the heavy turret armor and the noise was nothing.

Then more shells came.

No. 1 turret was not firing. It missed a salvo; Bob was sure of it. Now it missed another. No, it was not firing; it was out of action. Well, if the Arizona was getting it now, by God, the Xerxes was getting it, too! Bob's blood raced hot through him, and he was dizzy with exultation as he saw the foremast of the Xerxes totter and fall.

"The foremast is gone! Now we'll give it to them again, and harder!"

Louden, the firing pointer, stooping at his telescope, had seen it also, and he cried out as the loaders cheered. They cheered, gasping and choking with the heat, the sweat running in streams down their bodies, as they rammed in more great shells, hurled in the monster bags of powder; and, closing the breech of each gun, they stood back ready, at the instant the guns recoiled, to do it all again. The salvo went; and now one turret—at least one turret—of the Xerxes failed to make reply.

Bob cried that to his crew; as they stood back from the loaded guns they slapped each other's backs in triumph. They gave it to the Xerxes again—there was no doubt about that. Now, again and again! But slowly, gradually, as the turret trainer kept the guns on the Xerxes, the turret was turning further and further forward. The Xerxes was no longer on the Arizona's broadside; she was going on ahead. And now Bob knew that the Xerxes was engaging the Arizona no longer; the Xerxes was abreast the Idaho and engaging the flagship. Another superdreadnaught had steamed up to take the Xerxes' previous position opposite the Arizona. It was the third ship of the regent's line, the Varon, which was sending the shells which detonated and disrupted somewhere astern on the Arizona.

The order, coming in clear, calm tones on the telephone, confirmed the situation: "We shift fire to No. 3 in the line." The new range and deflection followed.

As the turret turned, bringing the guns to bear on the Varon, Bob studied the new target. She had been engaged, till the moment before, with the Pennsylvania; but now the Floron had moved up opposite the Pennsylvania, and so on down the line every ship of the enemy was engaging one vessel further forward in the American column. It meant, of course, that the old second line ships at the end already were beaten. The Zeus dreadnoughts and the Thors, which had opposed the rear of the American line, must be satisfied with their work there—they had left the beaten ships to the battle cruisers, probably, and to the destroyers to finish off, and they were pushing forward now to concentrate on the stronger ships of the American line. So, already, the Idaho was fighting the Trajan and the Xerxes together.

"That's their superior speed!" Bob Wendell's subconsciousness recorded, as he observed that. "Having the speed lets them do that, of course."

He realized no bitterness, no reproach, to any one in recording that to himself; it was quite subconscious. All his conscious self was taken, absorbed, entirely intent upon firing his guns, getting them reloaded as rapidly as possible and ready for the firing signal, firing and correcting the aim, and firing again. As she came abreast the Arizona all the upper works of the Varon seemed to be standing and all her turrets appeared to be firing. The Pennsylvania might have hit the Varon hard; but, if the Pennsylvania had scored, it was not evident. Bob felt no blame against the Pennsylvania—hadn't the department sent her to Mexico when she should have been at battle practice?—yet it was hard luck to have to begin again to knock a ship to pieces when you had only three turrets left—or was it only two now? Were both of the after turrets in that last salvo? The Arizona had put out one turret on the Xerxes and knocked down one mast before passing her on to the Idaho. Well, the flagship needed all the help she could get—the Trajan and the Xerxes were both pounding her. But how the Idaho was fighting back!

She must be turning again, Bob knew, to prevent being headed by the Trajan—yes, the flagship was turning and had signaled the others to follow, for the Arizona was sheering off, it was made plain by the degree which the turret had to turn to keep the guns on the Varon. That meant that the American column was being crumpled back into a semicircle, with the enemy's fleet circling outside and able to concentrate the fire of two dreadnaughts upon one, but that was better than letting the Trajan and the rest cross ahead. They had the speed and simply were taking advantage of it.

Again it was only subconsciously and without bitterness that Bob recorded this; he had too much which was terribly immediate for his attention. He had become aware that the telephone circuit, which brought the corrections from the chief fire control station, had been silent for several salvos; the sigh setters were taking off their helmets, which fastened the telephone receivers to their ears. They were moving in obedience to the visual signals, which still were working. Now, after those shells had struck again somewhere without the visuals remained unchanged while the voice tube commanded a correction of the range. So connections to the visuals also were cut—only the voice tube remained!

"Down one hundred; one left!" the voice in the tube was commanding clearly, loudly. "Down one hundred; one left!"

Bob saw to it, mechanically, that the corrections were made.

It was becoming more and more strange and uncanny to be shut up there in the turret, dispatching salvo after salvo of monstrous shells at a ship eight miles away and witnessing your fire destroy foremast and funnel and now mainmast on the enemy's ship; it was strange to recognize that only two turrets of the Varon now were firing and not know of your own ship even how many guns were in action, other than those you saw loaded. If the Arizona's foremast—the mast in the top of which Garry had his battle station—had fallen in a different direction Bob might not have known for some time that it was gone. It would have been impossible for him to distinguish the crash of its fall from the disruption which had become almost constant as the Varon's shells struck and struck again.

As it happened, the foremast fell forward, and the steel supports of its "cage" interfered with the guns; the turret could not turn to keep trained upon the Varon. Bob reported to the voice in the speaking tube why his turret did not fire, and he received orders to keep his crew behind the armor—other men would be sent to clear the wreckage away.

The fall of the mast meant that Garry was gone, of course. Bob's brain recorded that certainty without feeling and wondered at the lack of emotion at the same time. Bob guessed it was one of the natural things about fighting a turret; you killed a thousand men—a dreadnaught's crew, if you had luck—and on your own ship men were being killed by hundreds, but you never saw them. Only a main battery shell could possibly enter your turret, and then only if it struck very straight. If it got in it would kill all your men and you, too, probably, so it would be all over at once. So you did not see any one dying; you did not see the men who were blown to pieces at this instant only eighteen inches away from you, just the other side of the turret armor. You knew they were blown to bits, for a shell had just burst outside there, and the funny little tinkering and hammering with a sledge which you heard the minute before was quiet. So you knew the men were dead, but you could not possibly have any feeling about it. The voice in the speaking tube knew the men were dead; it was saying that another gang was being sent to clear away the wreckage.

That was the wreckage of the foremast they were still speaking about. Garry undoubtedly was killed when it became a wreck, but no one was saying anything about that. Bob wondered whether if he had seen Garry fall he would have felt anything or whether, now, he was ever going to feel anything again. Had Garry's wife seen Garry safe in a dream, too? Had she, too, been sure that God would keep Garry safe? What had God to do with guns and shells and ships which could stand what the Arizona now was getting? God!

As Bob had nothing to do, now that his guns were loaded again, he was listening to try to decide whether one turret or two were firing astern. It was only one, he decided; a shell must have wrecked the other, as well as have killed the gun crews, and the forward turret, No. 1, must be wrecked, also, otherwise Bob and his men would be sent to it to fight.

How much more he wondered, could the Arizona endure? It was not only the Varon which was sending shells through the sides and ricochetting them up from the sea—the Floron was firing also at the Arizona. It was time that the prince would be concentrating all his dreadnaughts on the newer American ships; but he had only twenty-two first line ships against thirteen—that wasn't quite two to one. The Idaho was fighting two ships; now the Arizona was fighting two, and that was damned hard with only one turret and that commanded by Ross, probably, who hadn't ever been in such a turret before. What was the matter with the Pennsylvania? Wasn't she standing up to her work? Standing up to it! Good God—she had three against her; two Trajans, they must be, and one of the Pharaohs! And the Pennsylvania hadn't had her battle practice this year, for she had been detached to Mexico. But if three ships were against her, what was gone from our line? The Oklahoma? That must be it—there was a gap in the circle back there—and was the New York on fire? No; that must be the smoke of destroyers trying to screen a ship, but that meant the ship was beaten—it was no longer able to fight.

Some more shells disrupted on the other side of the armor. They killed all the men who were out there, but, at the same stroke, they did the men's work.

Holt, the turret captain, was speaking. "We can train the turret now, sir."

The voice tube which, hopefully, had been telling the range and corrections to No. 2 turret every time the after turret fired spoke again. The sight setters, who had changed the sights at each correction, once more made the adjustments. No. 2 turret fired. Corrections came; and then again—the sort of corrections which confessed that the guns were missing. Who was spotting the shots and making the corrections and from what point of observation? The foremast was gone, of course; the mainmast now also was down. They must be spotting the fall of the shells and correcting the range from the conning tower, only a few feet higher than the turret. That was why the guns were missing.

But the shells from the Varon and the Floron were not flying over or short! O, they were hitting the Arizona very hard! And the Varon had had no masts for fifteen minutes and, several salvos ago, the Floron had lost hers. But fire control officers were spotting their shells from somewhere where they could see.

Flashing specks flitted in the sky between the ships; Bob caught sight of them a couple of times, and he knew what they were—the enemy aeroplanes, which had driven the American planes away before the battle. The enemy's planes were hovering there for one purpose only now—to take up the work of the fire control tops for the regent's ships. Officers in the planes were watching the effect of the fire and, as it went over or fell short of the American ships, they were signaling the corrections. That was how the Varon and the Floron could spare their masts.

Bob recognized it. "Well, we knew they were practicing that; it's one of the things we were going to get around to—after a while."

For himself, he was incapable of bitterness at that; but impotent rage rose in him as he tried now to encourage his men when they fired and were told only that they had missed. "I was 'on'"! Louden, the firing pointer, was crying. "By God, sir, I was 'on'! And I fired when I was 'on', sir! Sir, I know that I was 'on'!"

"I know it, too, Louden," Bob said. "We'll try again."

"But they're hitting sir! They're hitting!" Louden was beside himself, as his mates begged him to be more careful—to be sure to "Give it to 'em" this time.

"We're firing over," Bob said, as calmly as he could. "Down one hundred!"

The floor of the turret was tipping; he had noticed it some time before, but now it told that the Arizona was listing badly. Bob saw that his men realized it and fought on the more madly for it. Their turret now was firing alone; the after turret has ceased entirely; and now even the voice in the speaking tube was silent. It had been their sole connection with the rest of the ship; its ceasing left them isolated in the battle, alone. But, as they fired at the range and deflection which Louden and Bob agreed between them, the doors to the handling room below continued to push up, and shells and ammunition came up on the cars. Young Wayne, the ensign, was working with his men in the handling room, and in the engine room some crews had stayed to keep power on the ship.

The Arizona was sinking; every one knew that, but—"By God, sir, if they'll stick in the handling room, if they stay at the engines, we'll stick here!"

(To be continued.)