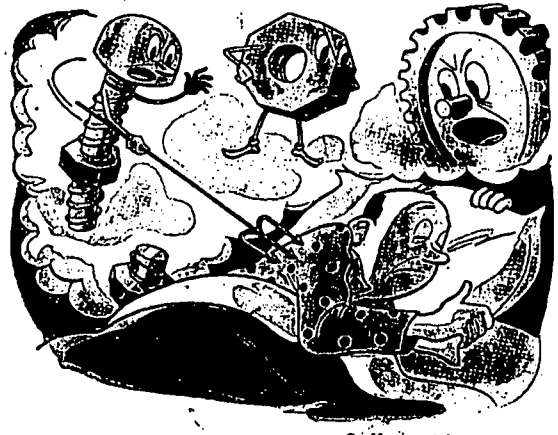
Here's how to harness that "shortage" nightmare



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than its required number, becom... negatively charged and attracts ... two positively charged hydrogen ... and so the three are bound together ... a natural combination to form a wat... molecule, H_2O, as explained in the ... ceding paragraph.

Sodium and chlorine have a strong affinity to form sodium chloride or com... mon salt (NaCl). Fig. 15 shows ... chlorine atom, Fig. 8, arranged as if ... had eight electrons in its outer orb... with one missing. The one electron ... the outer orbit of the sodium atom ... into the blank space in the outer orb... of the chlorine atom, as in Fig. 16. Th... arrangement makes the sodium ato... positive and the chlorine negative ... that they attract each other.

A third example is carbon dioxide, CO_2, familiar to every power-plant en... gineer. Let us see how the electrons of the atoms fit into this compound. Fig. 17 shows the oxygen atom ar... ranged with its six outer electrons grouped as if two were missing from ... eight, and the carbon atom with its four outer electrons grouped in pairs. This arrangement permits each group of two electrons of the carbon atom to fit into the vacant space in the outer orbit of two oxygen atoms, as in Fig. 18. Here the carbon atom becomes positive and attracts the two negatively charged oxygen atoms.

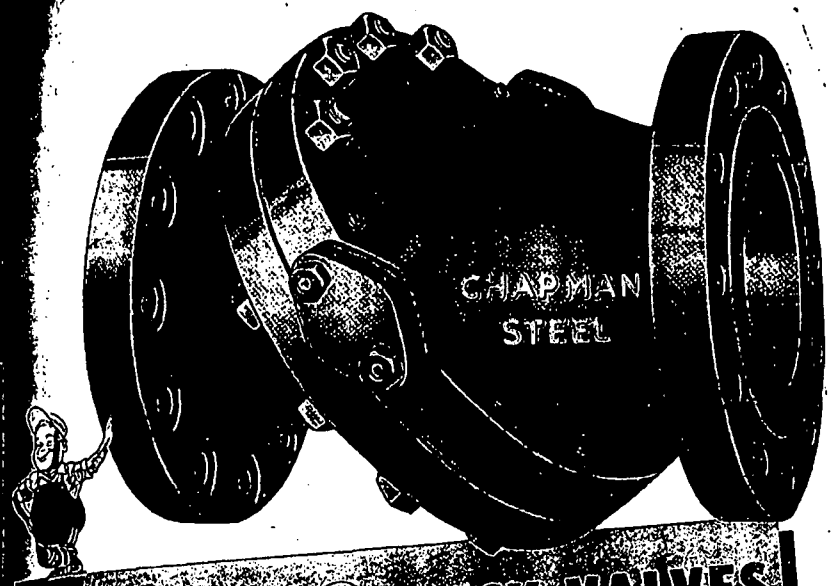
These simple combinations might be continued almost indefinitely, but the examples considered indicate that the electron is a useful little fellow in chemistry as well as in many other ways that we will study in the next article. Chemical changes are not really the simple operations indicated here, but these pictures help to understand in a practical way one of the most interesting mechanisms in nature, the atom.

Plant Problems

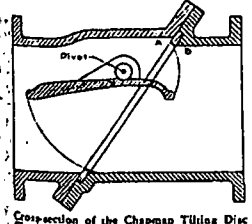
(*Continued from page 116*)

Previous tests indicated stator resistance was 0.65 and that of rotor 0.5... ohm.

Test A: Operate machine at full load with rotor short circuited, taking the following readings: input, 25,000 watts; stator current, 40 amp; rotor speed, 57... rpm. *Test B:* Operate motor with no load and rotor short circuited; then take the following readings: Motor input, 1500 watts; stator current, 15 amp; rotor speed, 588 rpm. *Test C:* Block the rotor, and apply a reduced voltage to the stator to give the same stator



CHAPMAN Tilting Disc CHECK VALVES are designed to PREVENT SLAMMING



Cross-section of the Chapman Tilting Disc Check Valve illustrating the way that the balanced disc is supported on the pivot, with arrows showing the travel of the disc. A feature of the design is that the disc pest lifts away from the body seat when opening, and drops into contact when closing, with no sliding or wearing of the seats.

Specially designed to prevent slamming and its consequent jarring of pipe lines, Chapman Tilting Disc Check Valves consistently cut maintenance costs. Because of the cushioning effect of the stream against the short flap of the balanced disc, they close quietly without setting up destructive pipe-line stresses.

Head losses are reduced as much as 65% to 80% over those experienced with conventional type check valves because of the design of the balanced disc. And when installed on pump discharge lines, they not only make possible increased pipe-line capacity but also effect substantial power savings.

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