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## ABSTRACTS

### IMPRISONING THE MOLECULE

In experimenting with electric refrigerators it was found that the cooling gas escaped from the containers regardless of the care taken in welding. It was then concluded that the molecules of gas were leaking through the metal direct, and not through the seams. To remedy this it was necessary to make use of an experiment performed by Dr. Coolidge a number of years ago.

Dr. Coolidge found that copper melted in hydrogen was absorbed by another in much the same manner that water is absorbed by a cloth. A metal treated in this way thus becomes gas proof, and is therefore suitable for use as a gas container.

The new two billion candle power beacon in Chicago is estimated at having the same brilliance as a half-inch section of the sun. The new beacon could be seen as far as 500 miles away if the curvature of the earth did not affect it.

### LOCOMOTIVE CONSTRUCTION

Recently a railroad company ordered several new locomotives of a size which were comparable with some they had bought twelve years before. Although the new locomotives had the same theoretical tractive force and wheel loading, they carried seventeen per cent greater loads, decreased fuel consumption thirty-two per cent and increased the speed between terminals by thirty-four per cent.

Locomotives of the future will probably have much higher boiler pressures than those of today. Several have been constructed abroad with boiler pressure of seventeen hundred pounds per square inch and one has been built which has a boiler pressure of seventeen hundred pounds per inch. Although these locomotives give great returns in fuel cost reductions, the maintenance is not excessive. Of course, the initial cost of such a locomotive is somewhat greater than the present type. High pressure boilers, when properly constructed, are no more dangerous than the low pressure ones.

The high pressure locomotive must effect a saving in fuel costs great enough to offset the greater cost of construction and maintenance before they will be used extensively. In view of late improvements they will probably be in regular service before many months have passed.

—*Railway Age.*

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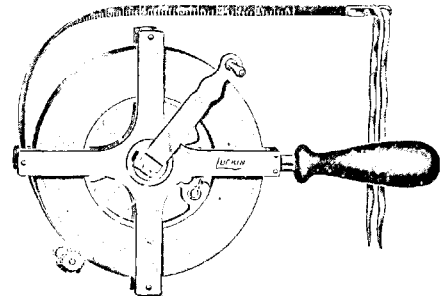
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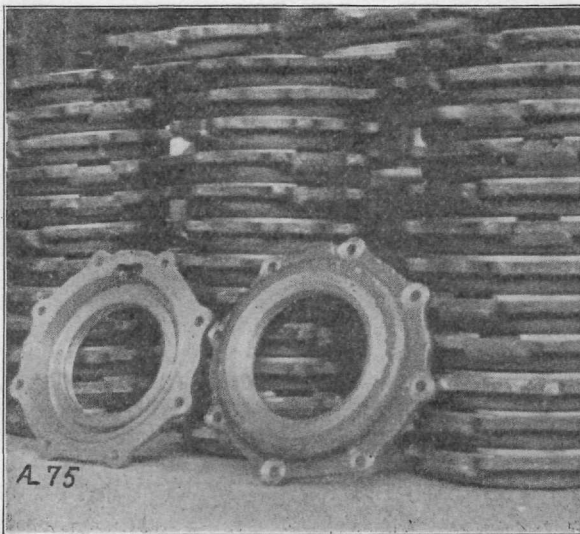
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