

Geol Survey

S  
14.GS:  
CIR 134  
c. 3

STATE OF ILLINOIS  
DWIGHT H. GREEN, *Governor*  
DEPARTMENT OF REGISTRATION AND EDUCATION  
FRANK G. THOMPSON, *Director*

DIVISION OF THE  
**STATE GEOLOGICAL SURVEY**  
M. M. LEIGHTON, *Chief*  
URBANA

CIRCULAR NO. 134

ILLINOIS GEOLOGICAL  
SURVEY LIBRARY  
APR 16 1986

# Rustless Coupling for Asbestos-Cement Pipe

By  
FREDERICK SQUIRES

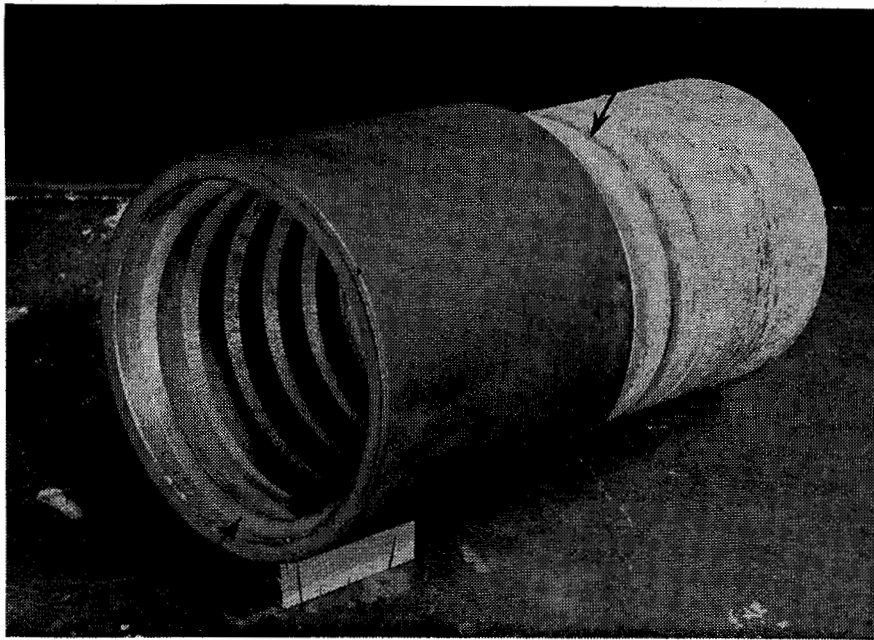
Reprinted from THE PETROLEUM ENGINEER, August 1947



PRINTED BY AUTHORITY OF THE STATE OF ILLINOIS

URBANA, ILLINOIS  
1947

NARROW INCISIONS  
WIDELY SPACED



NARROW PROJECTIONS  
WIDELY SPACED

FIG. 1. The coupling that suggested use of a metal spiral thread to join the sections of asbestos-cement pipe and rustless coupling.

## Rustless coupling for asbestos-cement pipe

By FREDERICK SQUIRES<sup>1</sup>

**A** STUDY of rustless pipe was made in 1945 by the Illinois State Geological Survey in an effort to find a successful means of combating oil-field corrosion in lead lines and casing for salt water disposal wells. The work described in Circular 120<sup>2</sup> was continued

### EXCLUSIVE

<sup>1</sup>Petroleum Engineer, Illinois State Geological Survey.

<sup>2</sup>Squires, Frederick, "Rustless Pipe for War and Peace," *Oil and Gas Journal*, Vol. 44, August 4, 1945; Illinois Geological Survey Circular 120, 1945.

and culminated in the improved design of the coupling herein described.

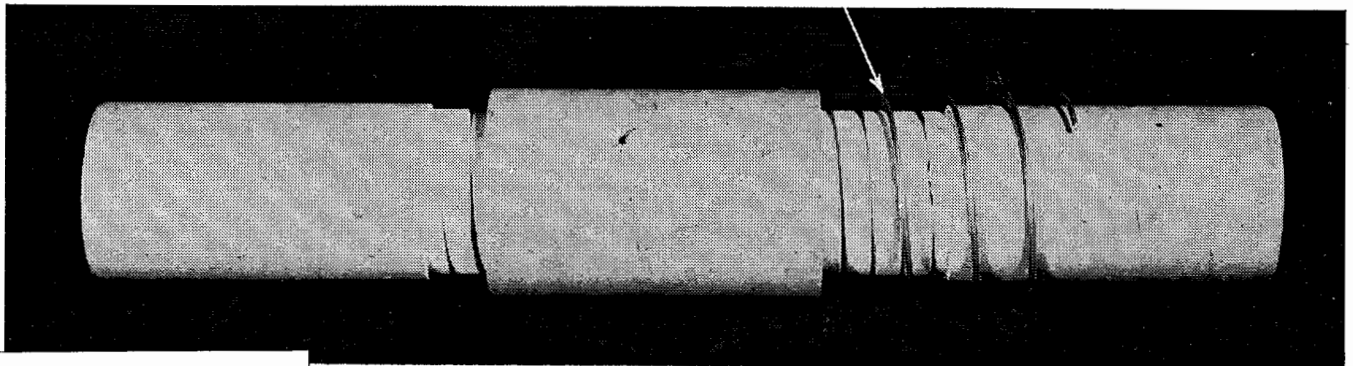
Fig. 1 is a photograph of a section of threaded asbestos-cement pipe connected by a threaded cast-iron coupling. In it the projecting threads on the coupling are narrow in section and widely spaced. On the asbestos-cement pipe, the incisions are narrow in section and widely spaced, to provide a great thickness of the asbestos cement material between incisions to resist stripping. The thin wide-

ly spaced projecting metal threads in the coupling have a greater shear resistance than the material between the incisions on the asbestos-cement pipe.

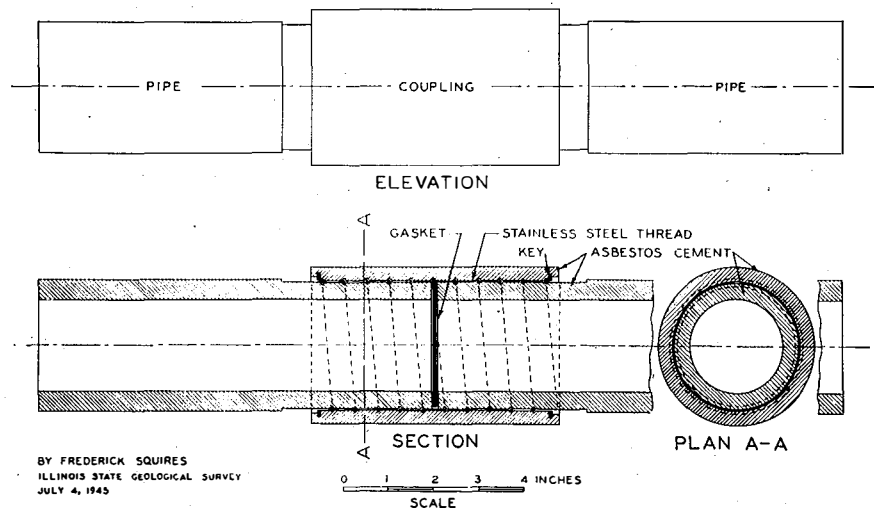
From this combination of metal coupling and asbestos-cement pipe came the idea of the incised all-asbestos-cement pipe and coupling with spiral metal projecting thread. This is shown in Fig. 2 and in the scale drawing, Fig. 3 and in x-ray photograph, Fig. 4. The thread is locked into the coupling at

FIG. 2. Asbestos-cement pipe and coupling assembly, and spiral metal thread is shown on outside of one section of pipe to illustrate the kind of thread in the coupling, which is invisible in the picture.

METAL THREAD IN COUPLING  
IS A COIL LIKE THIS



**COUPLING FOR RUSTLESS PIPE  
TO CONDUCT CORROSIVE OIL, GAS, AND SALT WATER  
IN LINES AND CASING**



**FIG. 3.** This is a scale drawing showing way in which the three materials, asbestos-cement for pipe and coupling, rubber gasket, and spiral metal thread are combined to produce a corrosionless assembly. Corrosive fluids cannot come in contact with corrodable material. This assembly solves the corrosion problem for lead lines and cemented-in casing for salt water disposal wells.

each end so that the thread cannot back out with the pipe when the joint is unscrewed. A gasket is provided between the pipe ends, which is compressed when the pipe is coupled up tight. Corrosive fluids traversing the pipe and coupling can never come in contact with any corrodable material. Such an assembly solves the corrosion problem for lead lines and cemented-in casing for salt-water disposal wells. ★ ★ ★

**FIG. 4.** This is an x-ray photograph of the pipe and coupling assembly. It shows the incised pipe and incised coupling, the stainless steel thread, and anti-back-out keys. The gasket material did not x-ray clearly.

