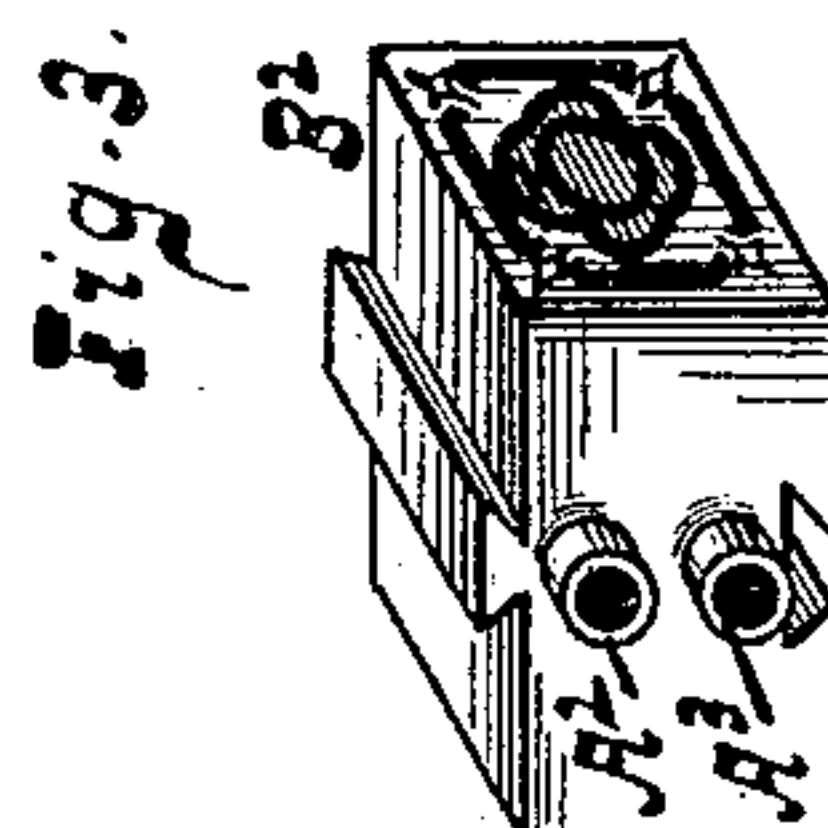
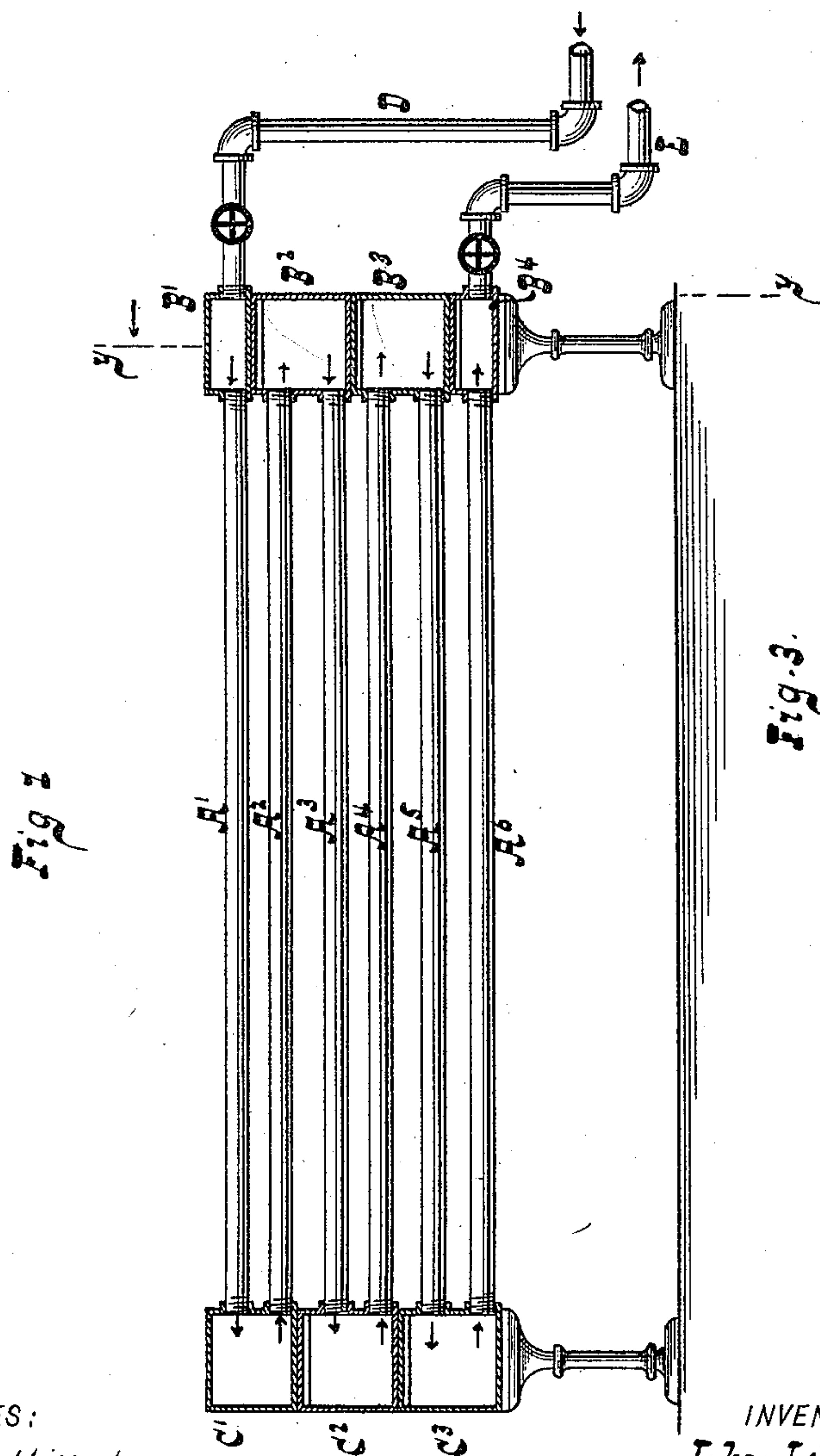
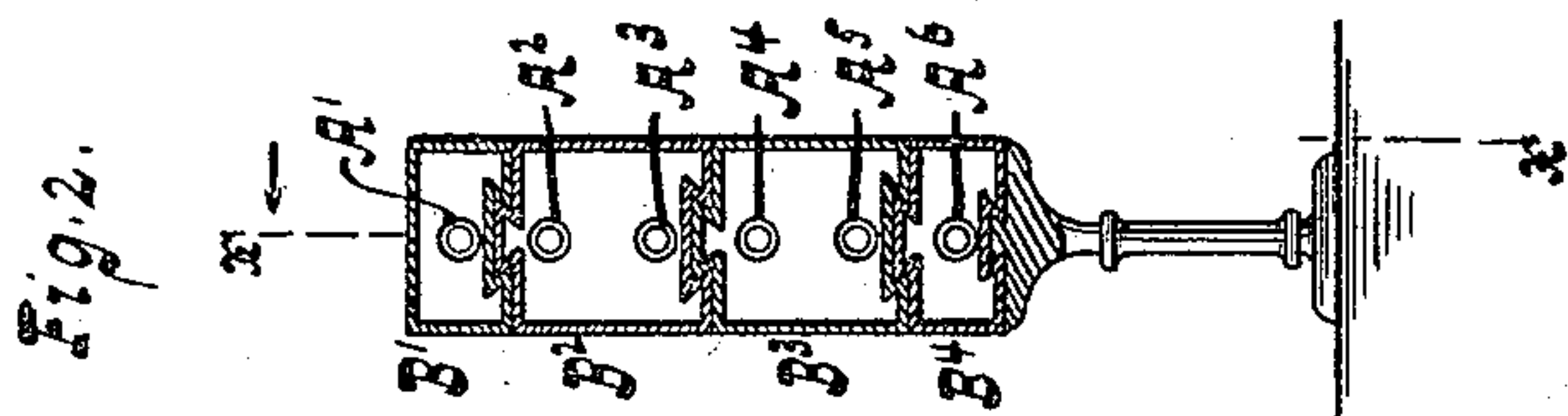


(No Model.)

J. L. WELLS.
RADIATOR.

No. 447,990.

Patented Mar. 10, 1891.



WITNESSES:
William Miller
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INVENTOR:
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ATTORNEYS

UNITED STATES PATENT OFFICE.

JOHN LELAND WELLS, OF NEW YORK, N. Y.

RADIATOR.

SPECIFICATION forming part of Letters Patent No. 447,990, dated March 10, 1891.

Application filed November 28, 1890. Serial No. 372,914. (No model.)

To all whom it may concern:

Be it known that I, JOHN LELAND WELLS, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Radiators, of which the following is a specification.

This invention has for its object to improve that type of radiators wherein a series of independent tubes have screw-threaded connections at their ends with return elbows or fittings, whereby the screw-threaded pipes can contract and expand without causing leakage.

To such end my invention consists in the features of construction and the combination or arrangement of parts hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a sectional elevation of a radiator embodying my invention. Fig. 2 is a vertical sectional view taken on the line *y y*, Fig. 1; and Fig. 3 is a detail perspective view of one of the return-boxes.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawings, wherein—

The letters A' A⁶, inclusive, indicate a series of independent tubes arranged one above the other, and provided at their extremities with screw-threads, by which they are screwed at one end into boxes B', B², B³, and B⁴ and at the opposite end into boxes C' C² C³. These boxes constitute return-connections for the pipes, and the uppermost box is connected with a supply-pipe D for the heating-fluid, while the lowermost box B⁴ is connected with the discharge-pipe E.

The return-boxes are arranged in tiers one above the other, and are connected together by a dovetailed tongue on one box engaging a dovetailed groove in the other box, such tongues and grooves being arranged coincident with the axes of the tubes in such manner that the boxes slide one upon the other for the purpose of permitting the tubes to expand or contract, thereby avoiding undue strain upon the several parts of the radiator.

By constructing the tubes with screw-threaded extremities and independent of the return-boxes it is possible to ship the tubes and boxes as detached sections and subsequently erect the radiator in the room it is to occupy. In this respect my invention is an improvement on those radiators wherein the tubes are cast integral with return boxes or bends having a sliding connection with each other at the ends of the radiator.

Having thus described my invention, what I claim is—

A radiator consisting of tiers of return-boxes, each one engaged with the other by a dovetailed tongue and groove, with a series of independent tubes having screw-threaded extremities which are screwed into the respective tiers of return-boxes, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

J. LELAND WELLS.

Witnesses:

WM. C. HAUFF,
E. F. KASTENHUBER.