

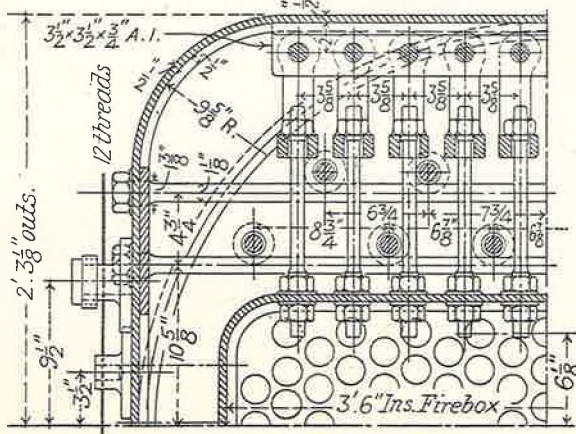
Belpaire Boilers: Great Central Railway.

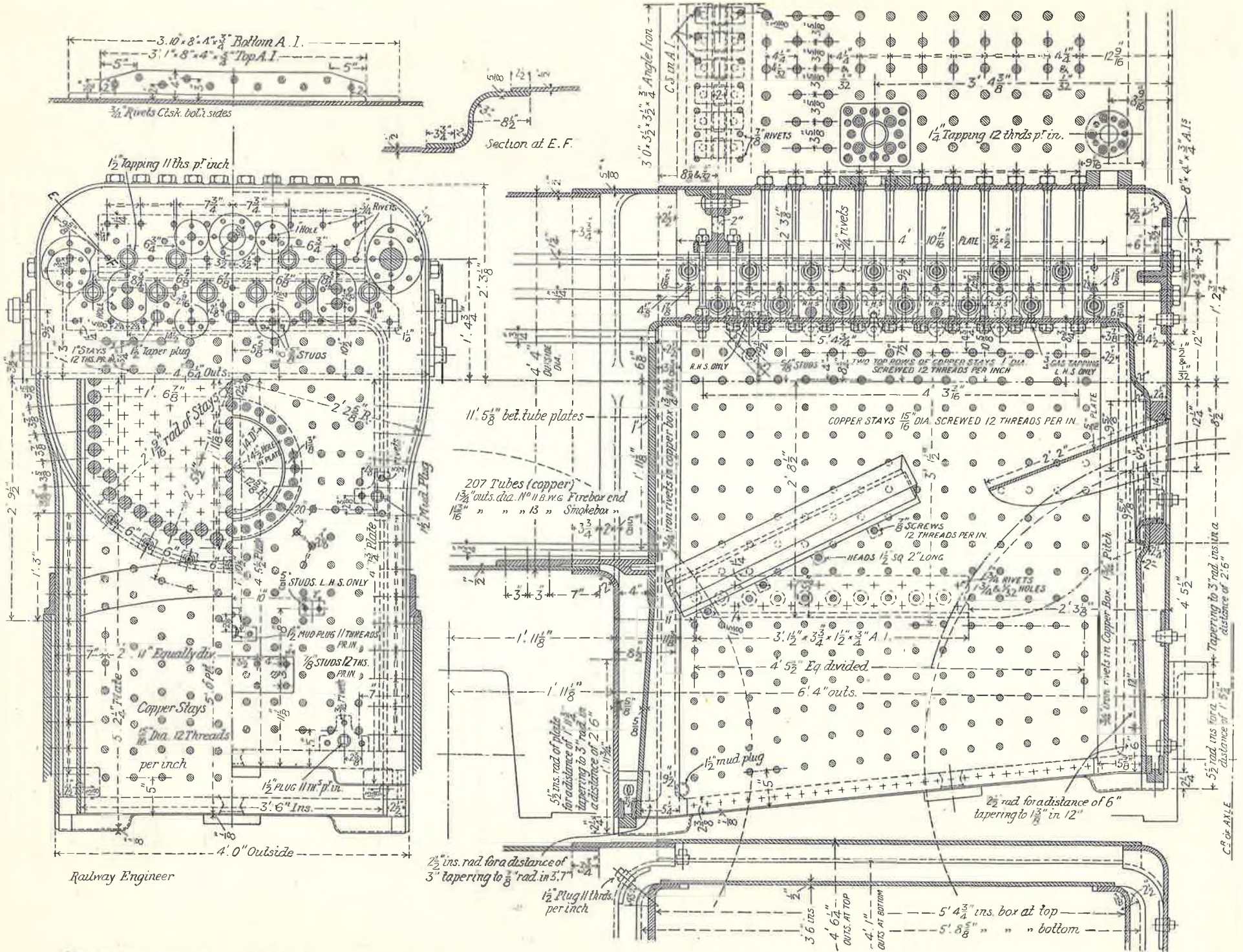
THE annexed drawings illustrate in full detail the Belpaire boilers which Mr. Harry Pollitt, M.Inst.C.E., designed for the new engines which he built and put to work on the Great Central R., shortly before he resigned his position as locomotive engineer of the company. Several of the im-

portant details of these engines we illustrated in our issue for December last. We also gave a brief description of the engines, and therefore it will suffice now to state that the cylinders of these engines are $18\frac{1}{2} \times 26$ "; the coupled wheels 7 ft. in diam.; the total heating surface 131.8 sq. ft.; the grate area 20 sq. ft., and that the tender carries 4,000 gallons of water.

The working pressure of the boiler is 170 lbs. per sq. inch.

It will be noticed from the notes which are on the annexed illustrations, that the boilers have been manufactured on the most modern and approved lines. Special care was taken that all the rivets completely filled the holes which were drilled and slightly countersunk under the heads except where differently specified, as shewn on the drawings. All the holes in the plates and angle irons had the burrs filed off, and had to be perfectly fair with each other as no drifting was allowed under any consideration whatever, and any holes which did not come fair were carefully rhymered until they were fair. The plates were brought well together before the rivets were put in and closed. All the holes in the angle irons were marked from the plates and not punched.

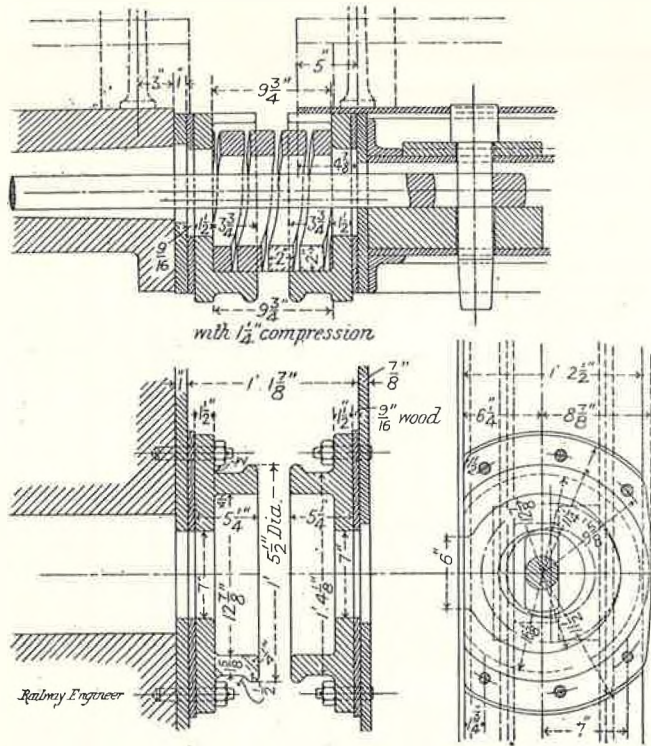




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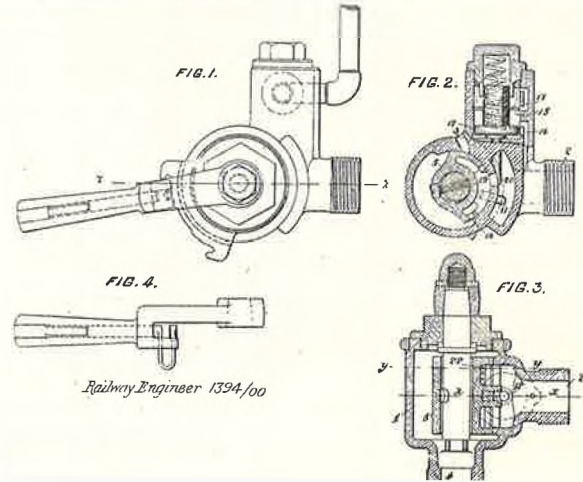
Belpaire Fire-Box : Great Central Railway.

Another interesting detail of these engines is the coupling between the engine and tender. Mr. Harry Pollitt found that



the air is purified before reaching the upper part of the casing, from whence it is drawn by the ventilating fan through a pipe and distributed in the car. The vitiated air is drawn from the car through an outlet pipe by an air current passing through a funnel shaped casing surrounding the outlet. (Accepted 28th April, 1900).

Air Brakes, Engineers Valves. 1394. 23rd January, 1900. J. E. Normand, 168, Broadway, New York, U.S.A. The valve comprises a casing 1, having an exhaust port 3, a train pipe connection 2, a main reservoir connection 4, and a valve proper 5. A graduation piston 12 operated by a pin 11, and regulated by a spring works in an expansive chamber 15. In the running position reservoir air is feeding through small holes 18, passage 19, and port 20 to the train pipe. When it is desired to make a graduation application, the engineer turns the hand valve to graduation position, cutting off reservoir communication and connecting train pipe with exhaust port 3, through passage 19, port 20, and small holes 22, and at the



the large central spring resting on castings, as illustrated, to be a great improvement upon the usual intermediate side buffers.

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