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## IMPROVED COMPOUND STEAM BOILER.

In spite of the economy in fuel and in the space occupied by multitubular boilers, the crowding the interior with tubes, and so diminishing the steam space, is by many engineers looked upon as a serious disadvantage; and a method of combining ample steam room and large heating surface has long been a desideratum, especially in cases where the boiler is liable to be suddenly called upon for a large supply of steam. In such cases, the multitubular boiler (which must, of necessity, carry a high water level) is very likely to commence priming; and damage to the engine is almost certain to ensue.

Mr. R. Wolff (of Buckau, Magdeburg, Germany) has succeeded in constructing a triple boiler, in which the two side boilers are multitubular; while the central one is plain, affording ample space for steam and water. Moreover, the tubes of the two outer boiler can be removed to allow them to be easily cleaned out. All three boilers are connected, by vertical tubes, with a feed water heater placed laterally below them; and communication between the three is maintained by compensating tubes, so arranged that live steam is taken from the central boiler only. The hot gases pass from the front to the rear of the boilers, then forward through the tubes, and back at the outside of the boilers, and lastly downward, around the feed water heater, and to the chimney, thus utilizing a large proportion of the heat, there being no conduction by walls of flues, etc.

The inventor states that experiments have substantiated his claims as to the efficacy of this heat generator, which deserves attention for its novelty and simplicity.

## DRIVING ON TYRES BY HYDRAULIC PRESSURE.

A correspondent of the *Engineer* has designed the hydraulic tyre press which we herewith illustrate. We cannot do

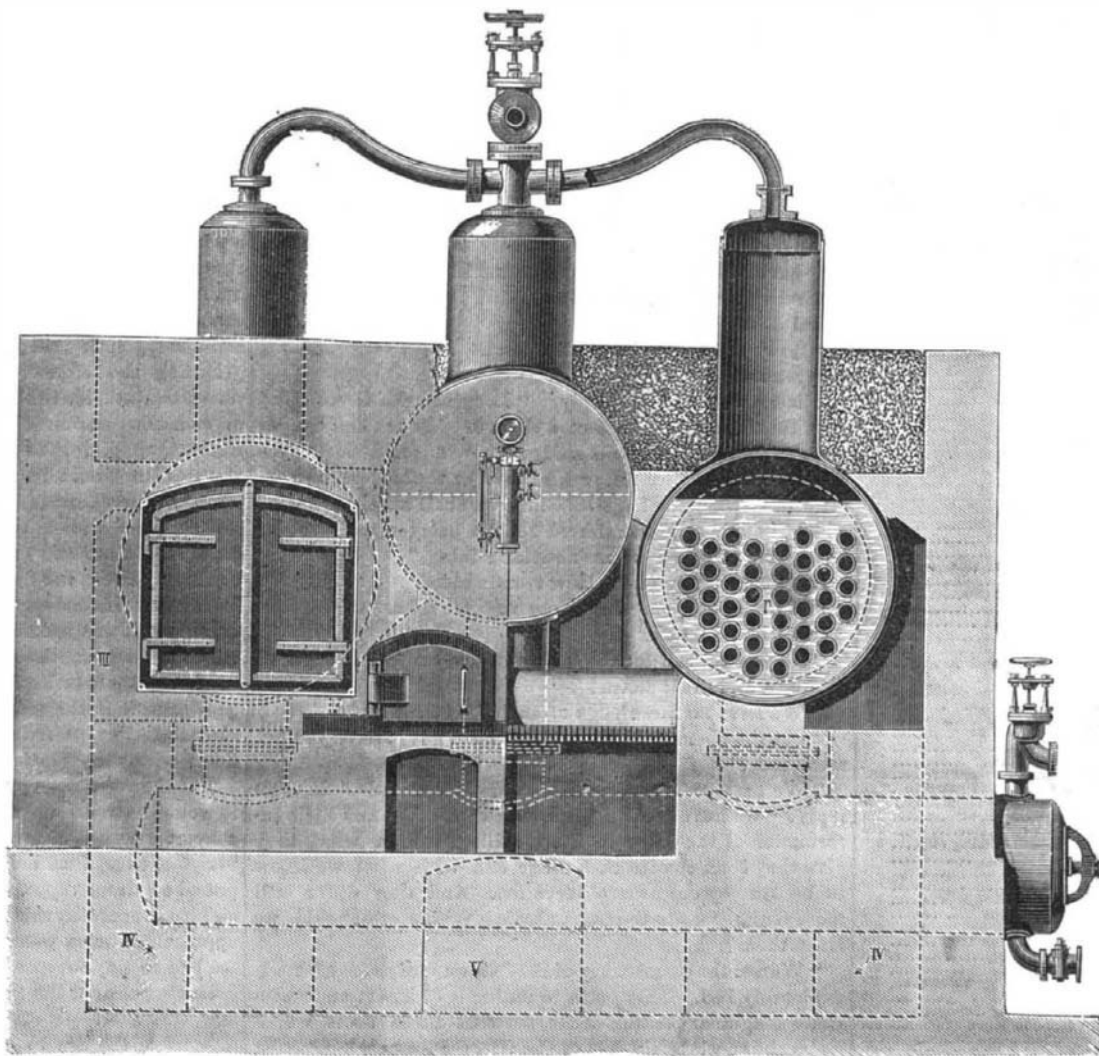
better than permit him to speak for himself, only adding that the press appears to us to be well designed and likely to perform its work very satisfactorily. "Much," he writes, "has been said with reference to the breaking of tyres, and of the different modes of fastening them to the wheels. As

an unsatisfactory way. If the tyre be much less than the diameter of the wheel, the strain in contraction would be very great. A tyre 10 feet in circumference and having a tensile strain of 11.5 tons per square inch, equal to about one half its ultimate tensile strength, would extend 0.1164 of an inch; so that in shrinking on tyres the greatest care is necessary, or else they may be strained almost to the point of rupture. I think the most satisfactory way would be to turn or bore the tyres to a tight fit and force them on by hydraulic pressure. If the circumference of the wheel be 10 feet and the circumference of the tyre be 0.0437 of an inch less, and it be pressed on, it will have a strain of 4.5 tons per square inch, which would be quite safe; the usual fastening could still be employed. The engraving shows an arrangement for putting on tyres; any slight modification could be made to suit local circumstances. The bars, A A, are fitted with slots or openings that they may be brought nearer or put further from the center, and the pieces, B B B B, can be changed for the larger wheels. There is an opening in the plate, C, to admit the axle, and by short temporary rails the wheels can be rolled into position."

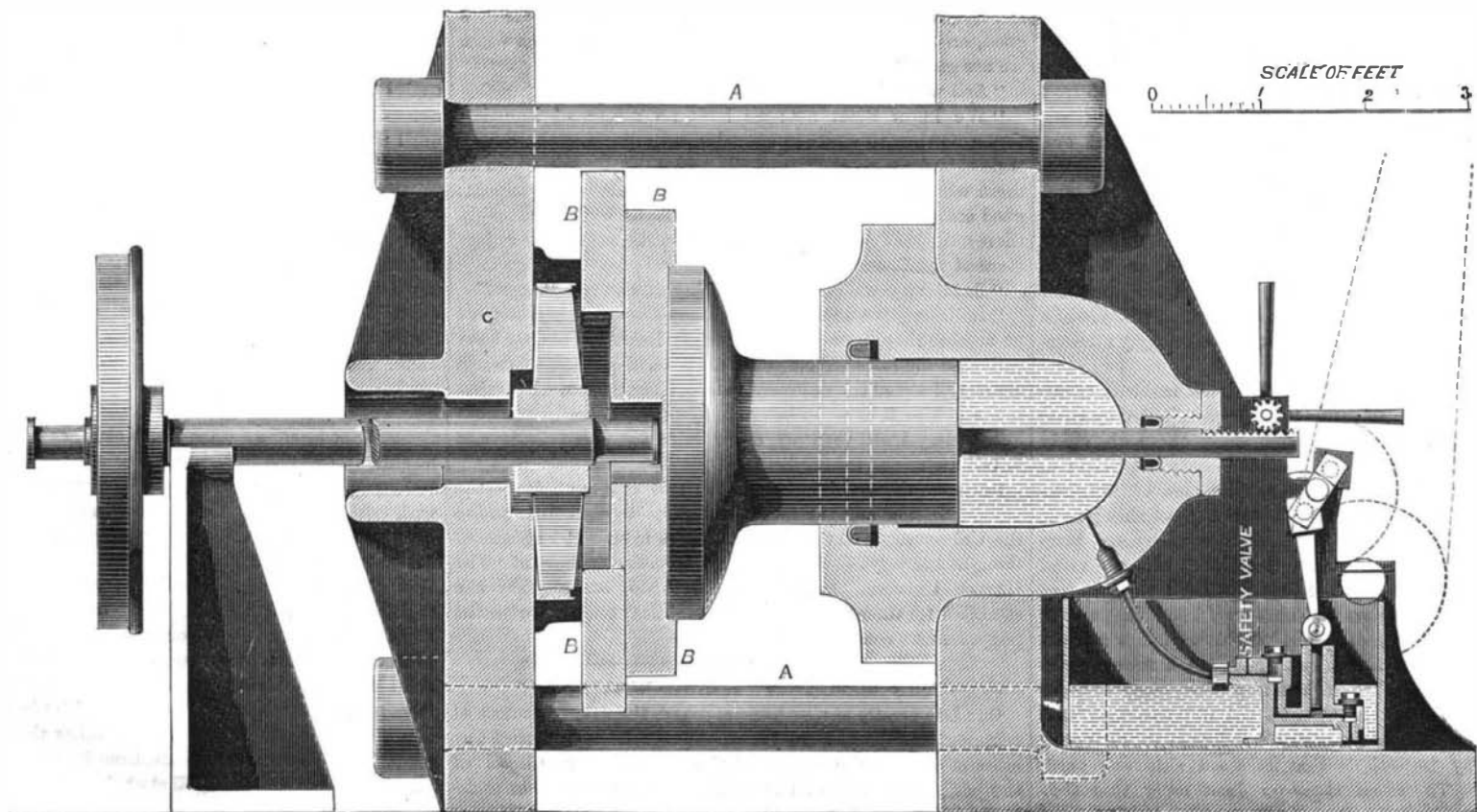
The action of the press will be understood at a glance; and although the common use of solid cast iron wheels, as practised in this country, will prevent a very extensive demand for such machines, there are many uses, apart from rolling stock construction, to which they could be put. For driving wheels of locomotives, of course they could be employed and other uses will doubtless suggest themselves to our mechanical readers.

The New York Board of Trade has a special committee of merchants and publishers, who have placed themselves in communication with all the large cities with reference to the objectionable law on the postage of small parcels and publications. It is intended to introduce a bill into the next Congress for its immediate repeal.

## WOLFF'S TRIPLE STEAM BOILER.



no cure is so good as prevention, it will be the best policy to adopt a system for putting on the tyres, the safety of which is to depend on the strength of the tyre more than on any particular fastening. At present the plan most generally adopted is that of shrinking them on, but this seems rather



HYDRAULIC TYRE PRESS.