

**“The Application of Mechanical Devices  
to the Riveting and Caulking of Ships;  
also the Material of Ship Rivets.”<sup>1</sup>**

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(*Abstract.*)

Riveting machines used for shipbuilding were here stated to close the rivets either by pressure or by percussion. For those acting by pressure, whether hydraulic or pneumatic, no separate holder-up was possible; hence their use was limited by the depth of the gap, and as the gap increased, the weight increased in greater ratio. While successful from the outset in riveting up work brought to it, the hydraulic riveter had not always effected a saving in cost and time when applied on board ships upon the stocks; and this application had not become general in shipbuilding. Percussive riveters approached handwork in their action; they were driven by electric motors or by compressed air, and required a separate holder-up. Though more adopted in America, they were as yet only on their trial here; if found capable of doing satisfactory work, they had the advantage of convenience, simplicity, and lightness, but the disadvantage of noise. Countersunk rivets closed by machines were left with their points more or less cupped; and the points must either remain so, or must be chipped off if required to be flush with the plating. Caulking machines driven by compressed air or by electricity had done good work, where not debarred by refusal of men to use them; their success in America might yet be followed by their more general adoption here.

While rivets of good iron and good steel were alike accepted by some authorities, others recommended the latter material; and where prescribing quadruple riveting for iron rivets, they required only treble riveting for steel. Yet from various tests it would appear that iron rivets had shown an advantage over steel; and for smithy purposes Siemens-Martin steel was not so satisfactory as iron made by puddling.

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<sup>1</sup> *The Engineer*, vol. lxxxvii. p. 641; *Engineering*, vol. lxxvii. pp. 806 and 831.