

The price of the Woolwich gun is not known. Each shot, including powder and shell, will cost about 1000 frs. (241 13s. 1).

"We (*Spectateur Militaire*) must now repeat what we have often said with regard to the Krupp steel. If our establishments of Creuzot, Ruelle, &c., cannot produce as good a metal as Krupp's we must procure Krupp's at any price, and by any means—honorable or otherwise. Prince Blomark has taught us that able politicians cannot be scrupulous! We must purchase the process of manufacture of Krupp's metal, or, if that be impossible, we must *steal* (voler) it. The end justifies the means, when brute force tends to supersede right and justice.

"It has been objected to Krupp's guns that during the war of 1870-71 a number of siege-guns of 24lb. and field guns of 4lb. became unserviceable in the German Army. The fact is, however, that not one of the unserviceable guns were of Krupp's system, but were Krainer breechloaders, with double wedge and copper obturator. The Saxon artillery was the only one which had guns of Krupp's system of breechloading and not one of these became, even temporarily, useless. It was only after the war that Krupp's breechclosing system, with cylindro-prismatic wedge, was adopted by Germany, and afterwards by Italy, for field guns. The siege guns which became unserviceable had been made in 1864 for charges of two kilogrammes, but the exigencies of the siege of Paris necessitated their being used with *four*; to make room for this, the front circle, which should primarily determine the forcing of the projectile had to be removed, and the second wedge, consequently, in many cases was unable to resist the doubled charge.

"The Krupp factory is said to be now undertaking a gun of 40 cent. calibre (15 6 inches), 10 metres long, weighing 124,000 kil. (121½ tons); price, 840,000 francs (£35,000); weight of projectile, 1030 Kil. (2269lbs.). This seems fabulous, but the improbable is not always the impossible. The rôle France should play in this battle of guns is to hold herself superior to all controversy, and to adopt what is found best."

We give the following account of the launch of the *Inflexible* from *Broad Arrow* of 29th April, and on another page an article from the same Journal of the date of 22nd April, on this formidable vessel. Our contemporary says:—

"A curious confusion of ideas appears to exist in the minds of many of the correspondents who have lately supplied to our daily contemporaries more or less detailed accounts of the ironclad launched at Portsmouth on Thursday. For instance, in the description of the *Inflexible* to which we refer, the armour of the new turret-ship is described as being composed of "laminated" plates. It is quite true that the iron with which the ship is clothed is not in one thickness, but it certainly is erroneous to speak of it as laminated, since, both in its technical meaning and ordinary acceptance, the term implies that a substance is composed of thin plates. The armour of the *Inflexible* is, in fact, made up throughout of two plates. Where it is 24 inches thick, as at the water line belt, each of these plates is 12 inches thick; where it is 18 inches thick, as over the citadel, the one plate is 12 inches, the other 6 inches thick—the 12-inch plate being the outer one. Between the plates is placed 8 inches of teak, which serves as a backing for the outer layer of armour; while inside the inner plate another teak backing,

varying from 9 to 15 inches in thickness, is fitted. Within this inner backing, again, comes the skin of the ship composed of two ½ inch plates of iron, and to this skin alone, therefore, can the term "laminated" be considered in any way applicable. Laminated shields have, in fact, been experimented upon at various times, and have proved to possess comparatively little resisting power. On the other hand, it is held by English constructors, although other nations do not share in the belief, that a given thickness of armour built up on the plate upon plate system, offers many advantages over the same thickness of iron in one solid slab. Only the individual plates must not be too thin, they must have a thickness of at least five inches. It is admitted that the solid plate gives slightly better resistance as regards a single blow, but it is asserted, and, indeed, numerous carefully conducted experiments have proved, that repeated blows will break up the single plate much sooner than the combined structure. Moreover, the thicker the plates the more frequent must the joints be; for there is a limit in practice to the mass of an armour plate, and consequently the greater thickness the less must be the area. Hence in a solid plate wall, not only must the joints be through joints, but they must be frequent; whereas in a structure composed of several thicknesses of armour, the plates can be so arranged that no joint shall go all the way through the wall, and the plates being of greater area, the extent of joint will be less. The result of all this is that, as was shown during experiments carried out for the Admiralty at Shoeburyness, the effect of projectiles on the skin of a double plate target is unmistakably less than on a single plate shield; and, therefore, we have every reason to believe that even the lighter armour on the citadel of the *Inflexible* will prove as efficient a protection as the 22-inch solid plates with which the new Italian ironclads are to be clothed."

The launch is thus described:—

"The *Inflexible* was successfully launched on Thursday, the 27th April. Great preparations had for some time been making at Portsmouth, under the personal superintendence of Rear Admiral Sir Leopold McClintock and the Chief Constructor, M. W. B. Robinson, and his assistants, that the launch should be a success, and they were well rewarded by the results. A number of substantially built stands had been erected, covered over, carpeted, and decorated sufficient to accommodate more than 8000 persons, and all were well filled. There were special compartments for the members of the Royal family, the members of the Houses of Lords and Commons, the Lords of the Admiralty, the officers of the Navy and Army, the Mayor and Corporation, the Clergy, and a large portion of space was allotted to the dockyard officials and general public; whilst agreeable accommodation had been provided for the Press. Between twelve and a quarter to one was the time fixed for the launch, but long before that time the seats were rapidly being filled, and the different officials were indefatigable in seeing to the completion of the arrangements. Her Royal Highness Princess Louise (Marchioness of Lorne) arrived about twelve o'clock, accompanied by the Marquis of Lorne, when the royal standard was hoisted, and royal salutes were fired from the *Duke of Wellington* and other ships in commission, as well as the garrison battery. The bands of the Royal Marine Artillery and 52nd Regiment played the National anthem, and, amid the enthusiastic cheers of the assembled thousand, her Royal High-

ness proceeded to the Dockyard, the route being lined by troops by order of Lieutenant General Sir Hastings Doyle.

"The Princess was received by Admiral George Elliot, commander-in-chief, R. N.; Admiral Superintendent Sir L. McClintock, Lieutenant General Sir Hastings Doyle, &c., and conducted to a raised dais on a platform especially set apart for her, on which was placed an elegant chair and table. Amongst the company were the First Lord of the Admiralty and other members, the Duke of Edinburgh, a large number of naval and military officers and ladies, the Mayor of Portsmouth, &c.

"The Princess having taken her position in the chair on the dais in front of the table, and all the preliminaries having been arranged, shortly after twelve o'clock the customary religious service used at the launching of ships was read by the Rev. J. Cawston, chaplain of the dockyard. On the centre of the table placed on the platform in front of the Princess was fixed a projecting knob, similar to those in use in houses having electric bells, and on the word being passed that all was ready, the knob was pressed by the Princess, and a galvanic current was set up from a battery placed under the table, by which a fine wire which held the ornamental crutch in which the bottle was suspended was fused, and the bottle fell, and at the same time the Princess named the ship the *Inflexible*. This having been accomplished, after a short space of time, during which the officials having ascertained that all was in readiness, the knob was again pressed and a connection made with a powerful battery, which had the effect of freeing the apparatus that had the control of the weights for knocking away the dogshores; and, this being done, at 12.40 the *Inflexible* glided gently and majestically into the water amidst the cheers of those assembled and the enlivening and appropriate music of the different bands. To assist the ship in launching several powerful hydraulic rams had been fitted to the bows. Too much praise cannot be given to the chief-constructor (Mr. W. B. Robinson) and his assistants for the excellent arrangements made, and by which this fine ship was so successfully launched.

"After the launch the Princess visited the new tidal basin and the extension works, which were now declared to be formally open, and afterwards her royal highness returned to the Admiralty House in the admiral's carriage, and partook of luncheon with the Lords of the Admiralty, a small and distinguished party of guests having received invitations to meet her royal highness.

"The dockyard, especially the approaches to the *Inflexible* and the Admiralty House, were very gaily decorated with flags and arches of evergreen, as were also the ships in commission. It is computed that there could not be less than 30,000 persons in the dockyard and on board the ships alongside to witness the launch, and there does not appear to have been a single casualty or hitch in all the proceedings.

"The *Inflexible*, after the launch, was towed to alongside the north wall, ready to be taken into the tidal basin."

BELOW will be found an account from the *Chicago Tribune* of what it calls the "Hazel-green Tornado," which must prove highly amusing to our readers. We remember when old British tars used to spin yarns about hurricanes in the West Indies—how 32 pounder guns used to be blown out of batteries, and "young niggers whirled through the air