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Iron Wire Rope.

This material has now had sufficient time for a thorough testing, and for all purposes to which it has been applied, it has been found to answer much better than hemp. Its applicability for ships' rigging has been put to a careful test at Liverpool, when the following results were obtained:—3¾ inch galvanized wire rope broke at 20 tuns 15 cwt.; 3¾ inch Manilla hemp, do., 5 tuns 17 cwt.; 3¾ inch Russian hemp, do., 4 tuns 15 cwt.; 3¼ inch galvanized wire rope, do,, 16 tuns 10 cwt.; 2½ inch galvanized wire rope, do., 8 tuns 10 cwt.

How far these results may be counterbalanced in the matter of convenience, it belongs to experience only to decide. The *Liverpool Post* says, in reference to the superior strength of iron as shown in the above experiment:—

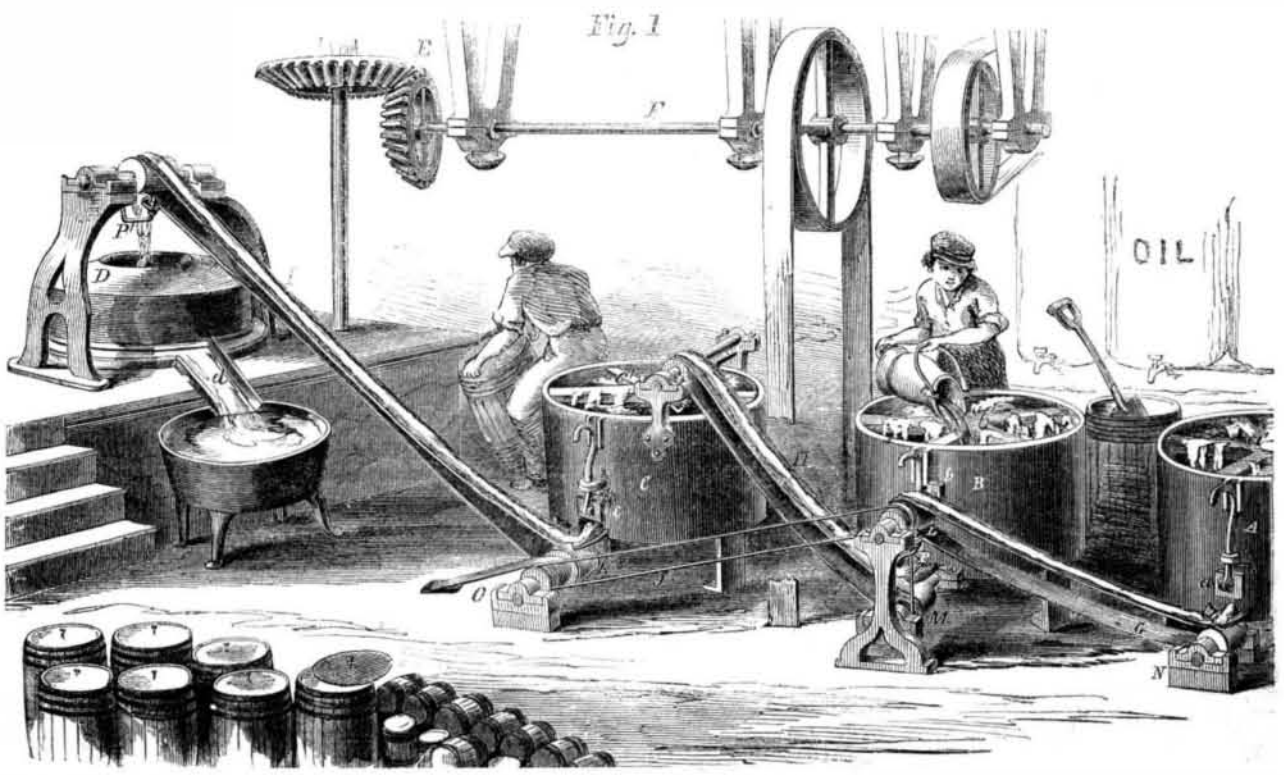
"But from a table handed to us we perceive that this is not the sole, or indeed we might almost say the greatest, of the advantages it presents. For instance, we observe that wire rope is a fourth less in weight, and not one-half the bulk of that made of the hemp of the relative strength and enduring capacity. The advantage of this, especially in beating to windward, needs no comment. Moreover, we are assured the cost is 25 per cent in favor of wire rope over hemp, estimating weight and saving. Again, wire-rigging is much less susceptible of atmospheric changes, the latter continually stretching. And when, in addition to all these advantages, it is remembered that wire rigging needs no stripping or refitting, as hemp rigging must have every few years, we cannot but come to the conclusion that wire rope seems destined ere many years to surpass, if it shall not entirely supersede, hemp rope in ships' standing rigging. Already, indeed, we see that for years it has been creeping into more general use; and if the approval of experience can add, as it must, to the value of scientific tests, the use of it will be even more than proportionately rapid, for those who have used it invariably prefer it over hemp."

Rifled Cannon Ball.

This projectile, about which so much has been said, is of elongated form, and by a simple and ingenious combination of cast and wrought iron, secures all the advantages of the Minie ball. Being entirely of iron, it has a great superiority in an economical point of view over the various forms of leaded cannon balls that have been proposed, and possesses the important advantage of being used red hot when desired. The only change necessary to adapt it to the ordinary form of cannon, is the cutting of two or three grooves in the gun. The invention insures an increase of range and accuracy in the fire of artillery, also an increased efficiency in direct shell firing.

DOLSON'S FEED FOR PAINT MILLS.

Fig. 1



In the mixing of white lead and other paints, there are many difficulties to encounter, one of the greatest being in feeding the millstones regularly and constantly, so that an even and smooth paint may be obtained.

The process consists in first mixing the dry white lead with oil and then grinding this mixture into a smooth white mass. The invention we are about to describe relates to the conveying of the white lead from the mixers to the millstones, and so arranging them that there is always a continuous and regular supply given to the stones. It is as ingenious as simple and affords a better lead than has yet been made in America, being almost as stiff as the British and possessing a smoothness of tint that we have rarely seen equaled. Our large engraving gives a perspective view of the mixing and grinding room, which we will now describe.

A is an iron pan having in it a series of mixers, *a'*, rotating, which are turned by an engine in the story below. B is another mixing pan, having mixers, *b'*; and C, another with mixers, *c'*; each of these pans is provided with doors and shutters in their lower part indicated by *a*, *b*, *c*. D are the millstones and *d* the shoot from it, by which the ground lead is discharged. E is the the bevelgearing turning the millstones; and F, the shaft that receives the power from the engine. Let us suppose that the mixing tub, A, is full and thoroughly mixed, while the charge in B is being prepared; the shutter, *a*, is drawn up and a continuous stream of lead falls on the

Fig. 3

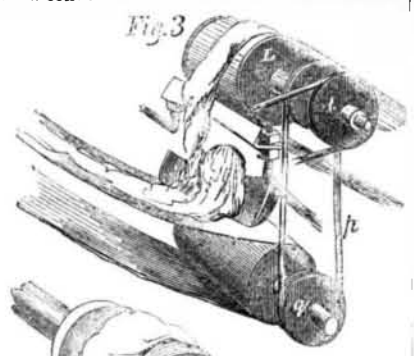
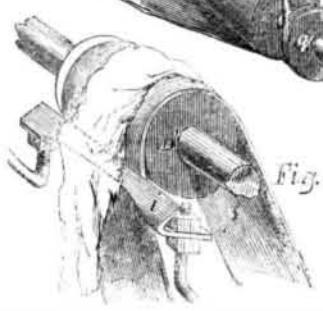


Fig. 2



endless belt, G, being by it conveyed over the roller, L, seen in Fig. 3, when the scraper cuts it off, and lets it fall onto the endless band, H, which again conveys it into the mixer, C, from which it is taken by the endless belt, I, to D', seen in Fig. 2, where the scraper, *i*, takes it off, thus allowing an even and regular stream to fall into the millstones. These endless belts are moved independently of the rest of the machinery by the belt, O, pulley, K, belt, J, which drives the pulley, L, the band, *p*, driving the pulley, *g*, and with it the endless belt, H. P is the shoot from the mixer B. The advantages gained by this arrangement are obvious: first by having the two mixers, A and B, in alternate action, the mixer, C, is always kept full of thoroughly mixed material, and supplies the millstones at an even rate; secondly, conveying the lead on the endless belts will only allow a given and definite quantity to be carried along, which must be regulated by the gates, *a*, *b*, or *c*, in accordance with the capability of the millstones, so that the process can never be hastened and an inferior quality turned out; and thirdly, there is great economy, as with 100 lbs. of lead, three quarters of a gallon of linseed oil are found sufficient to effect a thorough grinding, and no labor is required from the time the materials are put in the tubs to casking it up finished, thus adding to its value as a labor-saving apparatus.

This invention was patented the 3rd of November, 1857, and any information may be obtained by applying to the patentee, W. H. Dolson, 188 Avenue C, New York.

An American-built Russian Corvette Launched.

A steam corvette, to carry twelve guns, built for the Russian government by Wm. H. Webb, this city, was successfully launched on the 16th inst., with her propeller and a portion of the main shaft in place. It was feared that this heavy weight at the extreme end might spring her amidships; but not the least variation in her shear was perceptible after launching, thus demonstrating the great strength of her construction. Her extreme length is 214 feet; breadth of beam, 36 feet; depth of hold, 18 feet. Her engines, which are oscillators of 350 horse power, are now building at the Novelty Works, and they will be fitted up during the winter. She will be finished early in the spring, and proceed direct to the river Amoor.

This, we believe, is the second steam vessel of war which has been built for the Russian government in New York. Thus it is, the New World is leading the Old. American divers are engaged to raise the sunken vessels at Sevastopol, and Americans build Russian railroads and steam vessels of war.

Gunpowder.

Henry Hodges, of New York, has patented an improvement in the manufacture of this article in Great Britain, consisting in mixing the ingredients or component parts of gunpowder (namely, charcoal, saltpeter and sulphur) in their usual proportions in the ordinary way, and in then putting them into a suitable pot or vessel, made of any description of metal or earthenware, into which vessel sufficient steam is admitted by any suitable apparatus to damp the composition, dissolve the saltpeter, and soften the sulphur. By these means the saltpeter is more intimately blended with the other ingredients than by ordinary processes of manufacture. During this process the composition should be kept well stirred up, to expose it as much as possible to the action of the steam, and this may be continued until the whole of the saltpeter is dissolved, when it is taken out, and when sufficiently dry it is ground under the mill runners in the usual way, and packed in barrels for sale.