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A CENTENNIAL COTTON EXHIBITION. having such exhibition next year. But the idea has since grown into a world's fair project, on a larger scale than was even the Philadelphia exhibition of 1876. The main building, as determined upon by the Directors, will cover an area of one million square feet, or 15 per cent. more than was occupied by the principal structure at Philadelphia, and, although it is yet too early to say definitely whether the project will be generally popular enough to insure a brilliant success, on the elaborate plan contemplated, it is certain that, in the Crescent City and throughout the south, as well as in many of our manufacturing centers, the idea is received with much enthusiasm, and warm promises of hearty support are made.

ADULTERATIONS -- WHAT THE WHOLESALE DRUGGISTS SAY.

country.

place of pure is equated only by the life and health of the¹ community which it seeks to guard."

A delegate was also present from the American Pharmaceutical Association, and in his remarks indorsed the statement that it was "dishonorable and criminal knowingly to buy or sell adulterated articles that are used as medicinal agents upon which human suffering and life depends." Not the least of the benefits, therefore, to be realized by this association of the druggists, is the great influence which its declarations against adulterations must exert in shaping future legislation.

BEARINGS AND FRICTION.

A bright and well-known mechanic insists that on his swiftest moving journals he obtains the best results with cast says that for exceptionally high speeds, as 4,000 revolutions he employs untempered steel and hard Babbitt metal well hammered into the box and then bored out. He tried the spindle as well as the boxes. For heavy weights and Cast iron boxes with wrought iron or steel spindles have. All soft metal bearings, as Babbitt or composition, ought to be protected from the grinding influences of dust, but cast those which are turned direct from the bar. iron, if kept well oiled, soon forms a glaze that is almost indestructible. In all cases the journal should give space enough for a film of oil, especially for high speeds under journals and boxes are injured by binding, the consequence of a too finical fit.

has fallen from 65 to 45 cents a gallon, and the crushers are About a year ago the Cotton Planters' Association of complaining that the business is unprofitable and largely America began to agitate the question of holding a grand overdone, although they have not been crushing one-half Centennial Cotton Celebration, at New Orleans, in Decem- of the amount of seed actually available. One part of Mr. ber, 1884. The first bale of American cotton ever exported Atkinson'sprogramme, however, contemplated a large inwas shipped to England in 1784, hence the significance in , crease in the number of cattle raised in the South, to be fed with the oil cake. This could come about only gradually, of course, but crushers are not likely to furnish oil cake unless they can profitably market the oil, and the probabilities seem to be that it will be some time yet before there will be enough call for cotton seed oil in the world's markets to result in the utilization of all the cotton seed. The demand for the oil has been steadily growing, but its properties, and the uses to which it can be put in our industries, are now pretty generally understood, so that nobody looks for a " boom " in this line.

PRESENT STEAM ENGINE PRACTICE.

It is generally believed that the improvement in steam engine economy that has been made within the last fifteen or twenty years has been owing mainly to the introduction of high speed practice-that all, or most of the increase of Nearly every special line of business of any prominence power for diameter and stroke of cylinder and piston. now has its trade association or organization, for the pur- and most of the economy in fuel, are due to the increased pose of discussing matters of common interestand endeavor- piston speed. To some extent this is true; but it is also true ing to secure united action therein, and also for friendly so- that engines are built on better plans and under the guidcial intercourse in their more or less frequent gatherings. The ance of better mechanical judgment than was formally pos-National Wholesale Druggists' Association is one of the sible. Much of this improvement is to be attributed to the most considerable of these organizations, and, at its annual increasing use of the indicator, which not only points out convention, held in New York October 17-19, nearly two; the faults of the engine, but designates the reason and therehundred delegates were present, all sections of the country by suggests the remedy. The head of a large engine buildbeing represented. This association is now in the seventh ing establishment recently pointed out a discarded engine year of its existence, and represents a department of trade in the setting-up department which was in perfect order, and amounting to more than \$100,000,000 in the commerce of the which eighteen years ago was a type of the best style of horizontal stationary engines then in use. When running This association has always taken advanced ground in its it had a piston speed of 450 feet, and developed, by the treatment of the matter of adulterations and sophistications, indicator, about 100 H. P. Another engine of the same in food as well as in medicines, and has been urgent in its diameter of piston and same length of stroke, of the appeals to Congress for such legislation as shall be most modern style, was running at a speed of 490 feet per minute effective for their prevention. Their committee on this and yet was developing nearly 200 H. P.-twice as much subject reported to the meeting its belief that the reason as the other. The reasons for this difference were several, why the laws heretofore to prevent the adulteration of food that of 40 additional feet of piston speed per minute being and medicine had generally been failures was that too much only one. The modern engine had generous ports, both of had been attempted, but the spirit of the members on this ingress and egress; the friction was, by careful balancing question was better expressed by the President, who in his and exact workmanship, reduced to a minimum; all the report said: "The commercial honesty which instinctively thrusts were exactly in line, with no canting leverage; and recoils from all profit made by selling adulterated goods in the journals, crank pin, weight and length of connecting rod were all adapted $\bullet \mathrm{ne}$ to the other and made for the work they were to do. Not a pound of superfluous metal, not a suggestion of a makeshift, nor a fancy of a draughtsman could be found on the modern machine.

> Another instance of the improvements that have been made in engine building and engine practice was noticed at the same establishment, where an engine of the modern type, 11 inches by 21 inches, was performing all the work that had been done until recently by an engine 18 inches by 36 inches that was built about seventeen years ago, and yet was not requiring two-thirds of the fuel used to furnish steam for the old time engine running the same number of hours.

**** SOME CURIOSITIES OF STEEL.

Eight master taps, or hobs, were made from the same bar iron on cast iron, and he is willing also to depend on an of four-inch steel, each cut to a pitch of three to the inch, emery-ground fit. Another, perhaps equally authoritative, each scored, heated, hardened, and drawn to temper at the same time. Six hours after the tempering one of them per minute, cast iron and cast iron are inadmissible, but "exploded," or at least cracked into three pieces with a report. The fractures give to the trained mechanical eye the appearance of good steel, and show no water cracks or hardened steel boxes and soft steel spindle for that speed, other evidence of previous fracture. At the same establishand found that the boxes cut so rapidly as soon to destroy ment where this breaking occurred, one of its most important departments is the production of taps, reamers, dies, large journals there appears to be nothing that gives better and similar tools. It has been abundantly proved that satisfaction than good Babbitt boxes hammered solidly. forged taps and reamers are inferior to those made direct from the sized commercial bar, not only in their resistance done well where the weight and speed are not excessive. to torsion, but in the retention of their integrity under the exactions of bardening and tempering; the best taps are

There seems to be a tendency of forged steel, under certain forms, to return to the shape of the original bar. This is shown especially when the forging from a square bar which it may become heated and slightly expanded. Many is flattened. Sometimes a flattened piece will curve in the hardening as though its fibers had been stretched, and, when relaxed by the heat and again placed under tension by the cooling process, contracted toward the original condensed

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COTTON SEED OIL.

square form. A singular example was noticed recently. A When Mr. Edward Atkinson, at the time of the Atlanta plug gauge two and tive eighths inches wide and one and Cotton Exhibition, made a most able argument to show three-sixteenths inches thick was forged from a square bar, the great wealth certain to come to the Cotton States when finished, and hardened. After hardening it was to be ground they began to really utilize cotton seed, which had theretofore to exact size by a corundum wheel, when the ground side been principally a waste product, many people were really immediately swelled in the center almost enough to be seen surprised that resources for such prosperity already to hand by the unaided eye, but was quite apparent with the straight had not previously been employed. This was two years edge. The other face, from which the skin of hardening ago, when a good deal of cotton seed had been crushed, the had not been removed, remained straight, but as soon as that oil marketed, and the oil cake sold to planters for feed and had been ground it acted just as the other did and both the for fertilizing purposes. There has since been a large in- side faces were swelled, and so much so that the increase in crease in the manufacture of cotton seed oil, with a proport thickness by the micrometer gauge was more than onetionate amount of oil cake offered to the planters, with hundredth of an inch. On treating the edges a contrary whom the past two years have been the most prosperous result was produced; each edge face became concave, so probably ever known in the South. But it seems that the users that when the grinding was completed the plng had two opposite convex sides and two opposite concave edges. The of the oil and the oil cake are not yet sufficiently numerous to call for the crushing of anything like the whole amount plug was then annealed and redressed to truth; then reof seed grown. The last year's production of oil has been hardened and reground with the same results as at first. A not far from 500,000 barrels, with the result that the price second time it was annealed, trued, and then case-hardened,