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## For the Week ending November 17, 1883.

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## a centennial cotton exhibition

About a year ago the Cotton Planters' Association of America began to agitate the question of holding a grand Centennial Cotton Celebration, at New Orleans, in December, 1884. The first bale of American cotton ever exported was shipped to England in 1784, bence the significance in 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 cf 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 bearty support are made.

## adUlterations what the wholesale DRUGGISTS SAY.

Nearly every special line of business of any prominence now bas its trade association or organization, for the puripose of discussing matters of common interestand endeavor-
ing to secure united action therein, and also for friendly social intercourse in their more or less frequent gatherings. The National Wholesale Druggists' Association is one of the most considerable of these organizations, and, at its annual convention, held in New York October 17-19, nearly two hundred delegates were present, all sections of the country
being represented. This association is now in the seventh year of its existence, and represents a department of trade amounting to more than $\$ 100,000,000$ in the commerce of the country.
This association has always taken advanced ground in its treatment of the matter of adulterations and sophistications, in food as well as in medicines, and has been urgent in its appeals to Congress for such legislation as shall be most effective for their prevention. Their committee on this subject reported to the meeting its belief that the reason why the laws heretofore to prevent the adulteration of f(ood
and medicine had generally been íailures was that too much had been attempted, but the spirit of the members on this question was better expressed by the President, who in bis report said: "The commercial honesty which instinctively recoils from all profit made by selling adulterated goods in place of pure is equated only by the life and health of the community which it seeks to guard."
A delegate was also present from the American Pharma-
ceutical Association, and in his remarks indorsed the stateceutical Association, and in his remarks indorsed the statr
ment 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 bis swiftest moving journals be obtains the best results with cast iron on cast iron, and be is willing also to depend on an emery-ground fit. Another, perbaps equally authoritative, says that for exceptionally high speeds, as 4,000 revolutions per minute, cast iron and cast iron are inadmissible, but he employs untempered steel and hard Babbitt metal well hammered into the box and then bored out. He tried hardened steel boxes and soft steel spindle for that speed, and found that the boxes cut so rapidly as soon to destroy the spindle as well as the boxes. For heavy weights and large journals there appears to be nothing that gives better satisfaction than good Babbitt boxes hammered solidly.
Cast iron boxes with wrought iron or steel spindles have Cast iron boxes with wrought iron or steel spindles have
done well where the weight and speed are not excessive. All soft metal bearings, as Babbitt or composition, ought to be protected from the grinding influences of dust, but cast 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
whichit may become heated and slightly expanded. Many journals and boxes are injured by binding, the consequence of a too finical fit.

## COTTON SEED OIL.

When Mr. Edward Atkinson, at the time of the Atlanta Cotton Exbibition, made a most able argument to sbow the great wealth certain to come to the Cotton States when been principally a waste product, many people were really surprised that resources for such prosperity already to hand bad not previously been employed. This was two years oil marketed and the oil colke sold to planters for feed and for fertilizing purposes. There has since been a large increase in the manufacture of cotton seed oil, with a proportionate amount of oil cake offered to the planters, with whom the past two years have been the most prosperous probably ever known in the South. But it seems that the users
of the oil and the oil cake are not yet sufficiently numerous to call for the crushing of anything like the whole amoun of seed grown. The last year's production of oil has been not far from 500,000 barrels, with the result that the price
has fallen from 65 to 45 cents a gallon, and the crushers are complaining that the business is unprofitable and largely overdone, allbough they have not been crushing one-balf of the amount of seed actually available. ©ne part of Mr. Atkinson'sprogramme, however, contemplated a large 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 re sult 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 nobndy iooks for is " boom" in this line.

## present steam engine practice.

It is generally believed that the improvement in steant 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 power for diameter and stroke of cylinder and piston. and most of the economy in fuel, are due to the increased piston speed. To some extent this is true; but it is also true that engines are built on better plans and under the guidance of better mechanical judgment than was formally possible. Much of this improvement is to be attributed to the increasing use of the indicator, which not only points out the faults of the engine, but designates the reason and thereby suggests the remedy. The head of a large engine building establishment recently pointed out al discarded engine in the setting-up department which was in perfect order, and which eighteen years ago was a type of the best style of horizontal stationary engines then in use. When running it had a piston speed of 450 feet, and developed, by the indicator, about $100 \mathrm{H} . \mathrm{P}$. Annther engine of the same diameter of piston and same length of stroke, of the modern style, was running at a speed of 490 feet per minute and yet was developing nearly 200 H. P.-twice as much as the other. The reasons for this difference were several, that of 40 additional feet of piston speed per minute being only one. The modern engine had generous ports, both of ingress and egress; the friction was, by careful balancing and exact workmanship, reduced to a minimum; all the thrusts were exactly in line, with no canting leverage; and the journals, crank pin, weight and length of connecting od were all adapted ene 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 beet 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 heen done until recently by an engine 18 inches by 36 nches that, was huilt about seventeen years ago, and yet was not requiriug 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 of four-inch steel, each cut to a pitch of three to the inch, each scored, heated, hardened, and drawn to temper at the same time. Six hours after the tempering one of them "explodea," 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 on other evidence of previous fracture. At the same establishment where this breaking occurred, one of its most important departments is the production of taps, reamers, dies, and similar tools. It bas been abundantly proved that forged taps and reamers are inferior to those made direct from the sized commercial bar, not only in their resistance to torsion, but in the retention of their integrity under the exactions of bardening and tempering; the best taps are those which are turned direct from the bar.
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 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 tie original condensed square form. A singular example was noticed recently. A plug gauge two and five eighths inches wide and one and three-sixteenths inches thick was forged from a square bar, finisbed, and hardened. After hardening it was to be ground to exact size by a corundum wheel, when the ground side immediately swelled in the center almost enoug $h$ to be seen by the unaided eye, hot was quite apparent with the straight edge. The other face, from which the skin of bardening had not been removed, remained straight, but as soon as that had been ground it acted just as the other did and both the side faces were swelled, and so much so that the increase in thickness by the micrometer gauge was more than onehundredth of an inch. On treating the edges a contrary result was produced; each edge face became concave, so that when the grinding was completed the plng had two pposite convex sides and two opposite concave edges. The plug was then annealed and redressed to trinth; then rebardened and reground with the same results as at first. A second time it was annealed, trued, and then case-hardeneri,

