

open cotton, which is delivered to the receptacle absolutely free from dirt of every description.

This machine, as will readily be perceived, is simple in construction, the parts are few and not liable to derangement, and it removes the cotton, whether from high or low plants, efficiently and rapidly, and leaves the plants in as uninjured a condition as possible.

Additional particulars regarding this cotton picker can be obtained by addressing the inventor, Mr. R. K. Charles, of Darlington, South Carolina.

The Temple of Baalbec.

Rev. Henry M. Field, D.D., after his return from an extended tour through Eastern countries, has published a book on India and the Holy Land which is both instructive and entertaining.

The ruins of the ancient city of Baalbec, situated on the plain forty-three miles northwest of Damascus, are the wonder of modern architects.

Everything is colossal. The area is larger than that of the temple at Jerusalem. We may begin with the walls, which are half a mile around, and of such height and depth as are rarely attained in the most tremendous fortress.

But even these are pygmies compared with the three giants of the western wall, 62 feet, 63 1/2 feet, 64 feet long. These are said to be the largest stones ever used in any construction.

Sir Charles Wilson, whom I met in Jerusalem, is at this moment in Baalbec. Standing in the grounds of the temple, he tells me that in the British Museum there is an ancient tablet which reveals the way such stones were moved.

There are battalions of men, hundreds to a single roller, with the taskmasters standing over them, lash in hand, which was freely applied to make them pull together, and the king sitting on high to give the signal for this putting forth of human strength en masse as if an army were moving to battle.

How Disease is Spread.

Every one knows that scarlet fever is infectious, but it is not often one is able to trace the progress of the disease through simple carelessness so easily as in a case which has just come under the notice of the Sanitary World.

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SQUARE COTTER PINS.

Split pins, or "cotter pins," although not strictly and rigidly mechanical, are useful in many places. They are usually made of half round wire or rod, and doubled together, the flat faces meeting so as to form a cylindrical cross section; and while the two ends are left slightly apart "for spring," the doubled middle that forms the upper or handle end is made into a loop that gives a head and imparts a slight elasticity to the blades.

Some machinists are like amateur gardeners, always trying some new plan. So, one has determined that a square cotter pin is better than a round one. He takes flat steel with a thickness as to diameter as one is to two, measures the desired length of shanks, and then forges the center of the piece to a thin blade like that of a pair of spring calipers, which he brings to a spring temper.

SPRING GAUGES.

In these times of absolute measurements, exact estimates, and precision tools, it is time for spring gauges to give place to those of absolute movement. There is no spring calipers nor spring dividers that are absolute in both movements; one is a compression and the other a release, but only the compression is absolute, and that only to a limited degree.

The spreading of the legs of a pair of spring dividers and the reach of the jaws of a pair of spring calipers depend wholly on the latent tension of the spring at the head of the instrument. This is a flat steel spring, between the legs or jaws, and is usually of a curvature representing nearly a circle. In not a single instance out of twenty-two tests has it been found that the almost circular curvature of the spring head has been of the slightest use.

But all this spring business should be taken out of our modern, exact, absolute mechanical work. If it is necessary to have temporarily adjustable gauges (which is doubtful), let them be made on the plan of the screw, which gives and takes exactly the same. Such adjustable measuring machines have been made, and readily usable hand appliances are not impossible.

CUT NAILS AND WIRE NAILS.

When a sliver is cut off the end of a section of thin iron plate, and is formed into a nail by upsetting the larger end for a head, no change in the quality of the iron takes place by the cutting and the upsetting; the fiber is the same, and the material remains of the same strength. If a piece of plate iron is cold short when in a flat plate of one or more inches area, it will not become strong, tough, and fibrous when divided into narrow widths.

There can be—there is—no question about the economic value of cut nails; their introduction has been of the greatest service possible to all who use nails. But there is a point where their usefulness is superseded by better nails. Cut nails, like pegs, hold together superincumbent substances, but they do not, like rivets, resist transverse strains.