

around hills. To the upper ends of the rods, J J, are fastened (at one end) the levers, P P, which have their opposite ends connected by a bar, R; this bar being pivoted to one end of the lever, T, so that, by moving this lever horizontally, the directions of the scrapers may be varied at pleasure. As the machine moves along

astride of a row, with the two scrapers operating on both sides of the row, the four knives or hoes, *b b b b*, are carried around by the revolutions of the cutter-head, F, each knife as it comes around taking out plants to the extent of its own width in the line of the row. The cutter-head is caused to revolve by being connected by gearing with one of the driving wheels, B. It is fastened upon its shaft in such manner as to allow the shaft to turn in its center in case one of the knives strikes a stump or other rigid object, thus preventing the machine from being broken. This mode of fastening is illustrated in Fig. 2. A shoulder, K, is secured rigidly to the shaft, and the two collars or washers, *o o*, are slipped loosely on the shaft outside of the cutter-head, with the india-rubber spring, S, between them; the whole being held in place by the nut, *m*. The cutter-head

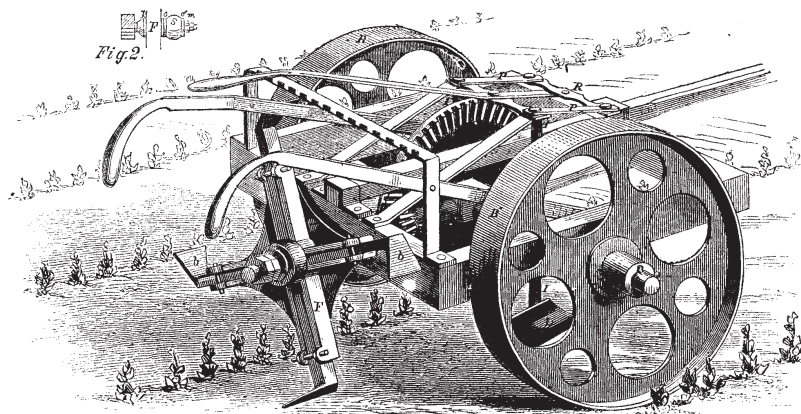
itself is loose on the shaft, and is carried by the pressure of the washer, *o*, against it, which pressure may be regulated at pleasure. Consequently, if sufficient resistance is encountered, the shaft will turn in its hole through the cutter-head, without turning the latter. This is a very important feature in this invention to prevent the implement from being broken by careless handling. The depth to which the knives cut is adjusted by slipping the rods to which they are fastened a greater or less distance inward or outward along the arms of the cutter-head; when they are held in place by two bolts, one of which is of wood, so that it may be broken in case the knife meets too great resistance for it to overcome.

When we consider the immense extent of the cotton culture in this country, and the large proportion of the labor which this machine is calculated to save, we may perhaps form some idea of its great value. It is the invention of a Southern man, a practical cotton grower, who has no doubt that it will accomplish its work in an entirely satisfactory manner.

The patent for this invention was granted July 3, 1860, and further information in relation to it may be obtained by addressing the inventor, R. J. Gatling, at Indianapolis, Ind.

IMPROVED COTTON CULTIVATOR.

In raising cotton, the seed is planted in rows the proper distance apart to enable the plants when they are grown to completely cover the ground, so that the better the land the farther apart must be the rows; they are made about three feet apart in the poorest land, and six or seven in that of the best quality. On the sides of hills it is the general practice to run the rows around the hill in order to keep them in horizontal lines, and prevent the soil from being washed away by the rains. As soon as the plants are up, the soil is scraped away from the rows towards the middle of the space between them, and the plants are thinned so as to leave a suitable number for the land to support. The scraping is done by a kind of plow (drawn by a horse or mule) which is passed on each side of the row, thus going twice between every two rows. The thinning is performed by a laborer with a hoe.



GATLING'S IMPROVED COTTON CULTIVATOR.

The machine which we here illustrate is designed to scrape both sides of the row at once, and to thin the plants at the same operation; thus enabling one hand to do the work of two in scraping, and of ten or twelve in thinning. The two moldboards or scrapers, L L, are fastened to the lower ends of the vertical rods, J J, so that by turning the rods the points of the scrapers may be varied to conform to the curves of rows in passing