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Radial Drilling Machine.

Every machinist employing the ordinary machines for drilling purposes must suffer from the inconveniences resulting from setting, resetting, and leveling his work, especially when it is of an unwieldy or cumbersome character, and a series of holes parallel with each other is required. Although it is essentially a simple operation to drill a hole, yet under circumstances it is one in which expense and annoyance enter very largely.

It is very difficult to meet a condition which brings the exact location of the proposed hole directly beneath the drill, and also has the position of the work correct in point of level; this is, in a greater degree, an embarrassing task when an irregular form of considerable weight is elevated on blocks, and has to be moved about on them; bars, rollers, blocks, and wedges are continually in requisition, and one or more laborers stand idly by surveying the performance preparatory to the next move.

The tool represented in the annexed engraving overcomes the necessity of moving the work, as it is capable of drilling a hole at any angle and at any height within its scope. It may be described as follows:

The whole machine swings around a stationary sleeve, bearing well up in the interior of the column; the nuts shown at the bottom are intended to secure it, but this provision is not needed in practice, as the fit is thorough and the bearing ample; the upright column is turned all over, and the arm is snugly fitted to it; the upright screw is employed for raising and lowering the arm by power, and is brought into action by the lever seen at the top of the column. As it is desirable that no belts should intervene to mar the complete revolving sweep of the machine, the driving is applied through the center direct, and transmitted to the upright shaft, whence the horizontal shaft carries it to the spindle by means of two pairs of miter gears. This arrangement also provides for the complete swiveling capacity of the drill spindle, so that it can be used horizontally, vertically, or at any angle with equal facility. The movement of the head, inward and outward on the arm, is accomplished by the horizontal screw. The table is for the convenience of the smaller class of work.

The countershaft supplies the requisite number of changes in speed.

We think it impossible to combine more excellent features with greater simplicity than is evidenced in this machine; an ordinary drill press is just as liable to get out of order, and one of the same dimensions would cost more money.

The Universal Radial Drilling Machine is designed and manufactured by the Niles Tool Works, of Cincinnati, Ohio, to whom all orders should be addressed.

Human Degeneracy.

A marked degeneration has been observed to have taken place of late years in the *physique* of the inhabitants of Paris. The true Parisian is stunted in growth and of muddy complexion; his children are under-sized, emaciated, and pale. He chiefly dies of *anemia*—at least if we are to believe one of the Paris *savants*, Dr. Raoul le Roy, who has made this subject a special study for many years. According to M. le Roy, for instance, in spite of the solicitude manifested by government towards the hygienic welfare of all classes, in spite of the new plantations, the new boulevards and open squares, the amount of carbonic acid produced by the pulmonary emanations of two millions of human beings, each of whom daily exhales 219 grammes of oxide of carbon, is something frightful. To this noxious vapor must be added that produced by the gas manufactories, etc. Another cause for the impoverished blood is the enormous increase of the use of tobacco and alcohol. The consumption of the latter has exactly doubled since the year 1825. As to tobacco, in 1832 it produced a tax of 28,000,000f.; while in 1862 the consumption of tobacco brought into the government a sum of 180,000,000f. In 1852, 200,000,000 cigars were smoked in Paris, whereas, in 1867, the number increased to 761,625,000.

Man, or the Living Machine.

The Right Rev. Thomas M. Clark, Bishop of Rhode Island, recently delivered a very interesting lecture on man, at Tremont Hall in the City Avenue—He began with alluding to the complicated machinery of an orrery, used in illustrating the motions of the heavenly bodies. The machinery of man is the same, but more complicated and more mysterious. There were one hundred perfect machines, with bolts, screws, rollers, and other appurtenances of machinery. There were also one hundred steam engines with valves, wheels revolving, and steam generating. There were also one hundred galvanic batteries with electrical currents in all

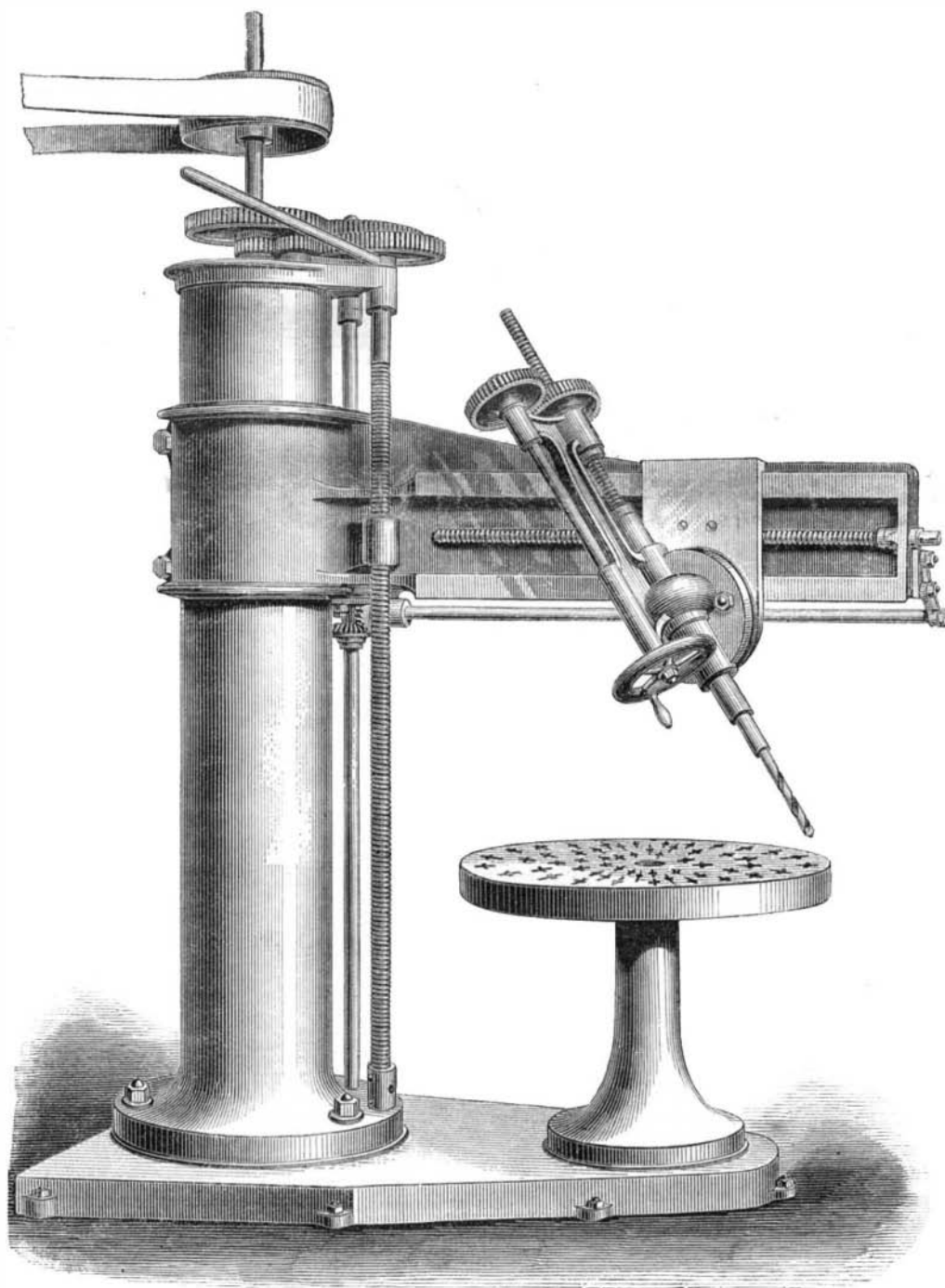
man; he was constantly improving and would continue to improve. Next he spoke of the transmission of certain characteristics both in the brute and the human creation. The young of a shepherd's dog would, for instance, take to guarding sheep instead of worrying them, the natural instinct of dogs. With man influences of a generic character often showed themselves through generations. The mystery of man had never been solved—never would be. No perfect automaton had ever been made, and yet a man would stand in health without effort, and almost unconsciously. He alluded to the delicate formations of the eye and the ear. What, give sight to the eye? What, give hearing to the ear? Here was mystery, and the only solution was that the soul was the center of the senses.

The body, he urged, was but a mass of sinews and gases, a mixture of solids and liquids. The soul was really the living man. A marvel transcending all others was the transmission of thought through the medium of speech. A thought possessed him; he gave motion to the complex machinery of his throat, opened his mouth, moved his tongue and lips, gave a vibratory motion to the air, and the thought, as a spoken utterance, reached the tympanum of another's ear, and the latter, by the same process, sent back his or her thought to him. From this topic he proceeded to speak of the effects of climate on man. No great man, he insisted, was ever born on the equator, and neither was the country of the Esquimaux favorable to the production of genius. The men of real power—the great leaders and shapers of the world's destiny, were born in the temperate zone. He urged in this connection that to the proper education of the soul through the body good air and good food were essential—a point that he forcibly illustrated at some length. Digressing from this point he gave his views upon the effect of spirituous liquors upon the body.

Liquor slammed all the doors of the soul and kicked up as much commotion as if so many evil spirits should commence playing upon all the organs in this city. After alluding next to the specific form of various anesthetic agents upon the human system, he spoke of the power of panics and cited several ludicrous instances bearing upon this point. He also referred to election excitements, speaking particularly of the Tippecanoe excitement in 1840, which, he said, caused the solid men of Boston to kick up antics in the street which they would whip their children for doing. His next topic was dreams, which he showed to be among the most inexplicable mysteries in connection with man. A most interesting digression was here indulged in on the subject of spiders. He instanced the sagacious capture of a snake by one, and also gave an experience of his own with one, that some years ago wove a web in his study. This spider he took under his charge and

helped, relied on him for his daily food. One day he threw a piece of sugar in the web. The spider made for it, thinking, doubtless it was food, but, discovering its nature, was intensely disgusted, and at once essayed its removal. He tugged on it awhile to loosen it from the web, but was unable to do this. Withdrawing for meditation, he soon returned, cut off one after another of the enveloping threads, and down fell the piece of sugar, and then repaired damages. Here he insisted, was thought, and he gave other equally curious and interesting illustrations, evincing in dumb creation the same capacity of thought. Reverting to man in conclusion he spoke of life here as a preparation for immortality, and the duties incumbent on man.

IMPROVED UNIVERSAL RADIAL DRILLING MACHINE.



operation. These machines were not over six feet long and often less, and, as it frequently happened, there was the largest power in the smaller machines; as for instance, in the first great Napoleon. A peculiarity about these machines was their regulating themselves as well as their power of reproduction. He referred to the use of the hand. Six thousand years ago it was used in collecting materials for clothing the human body, and in gathering sticks and rubbing them together to make a fire to warm the body. This hand had had worked wonders since. Speaking of man as one machine, it had subdued, he said, and replenished the earth. This man had cut down forests, had built cities; constructed ships, the steam engine, and the telegraph. He compared man to the animal creation—bees made most perfect cells, beavers built bridges, and other animals showed a diversity of mechanical skill. But none of these animals had improved. They were the same to day as thousands of years ago; no one race of animals improved on its predecessors. It was not so with