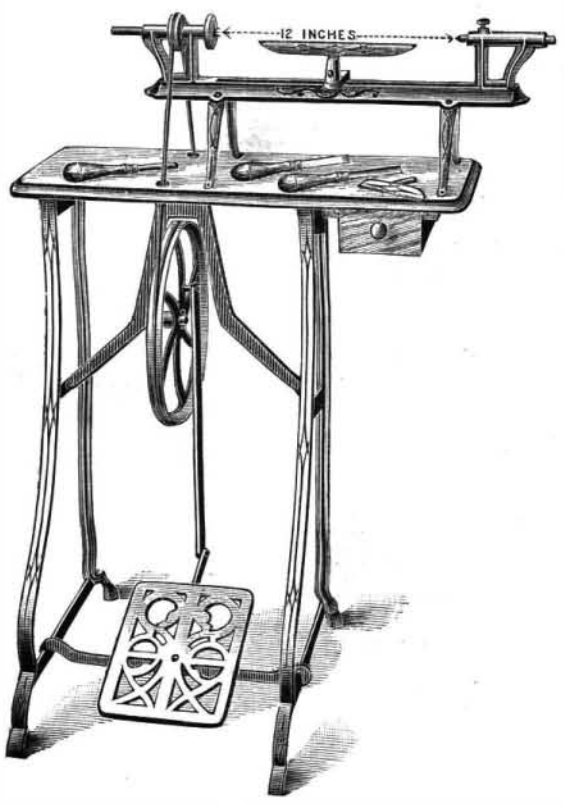
LATHE FOR AMATEURS AND LIGHT SHOP WORK.

The illustration herewith shows a practical form of lathe for a large variety of work. It is sold at a very low price, on account of the large demand that there is for such an article, from young beginners in mechanical work. The lathe has 4½ inches swing, is 12 inches between centers, and has a face plate for turning cups, a long and short tool rest, and three turning tools. A scroll saw is also furnished for use in connection with the lathe. The saw is attached to the table, so that it can be removed easily, and the lathe as



THE HOUSE LATHE.

easily attached. The saw swings nearly 16 inches in the clear, and, though not calculated for heavy work, saws inch walnut readily. The lathe rests on iron legs screwed to the table, the saw being operated independently of the lathe, thus avoiding the unsteadiness and noise which so often render one or the other of these appliances nearly useless.

This machine is made by A. H. Pomeroy, of Hartford, Conn., who furnishes an illustrated catalogue.

AN ELECTRICAL MUSIC BATON.

Those who frequent the opera must certainly have been struck with the regularity with which the choruses or orchestras of the side scenes follow the measure beaten by the leader of the orchestra. It is very rare that the arm of the one is in advance of or behind the voices or instruments of the others. How is such a result brought about? Up to the present, the means have been of the most elementary character. The leaders of the choruses in the side scenes have followed by eye the motions of the orchestra leader's arms. This was not always an easy thing to do, especially when the stage was entirely closed by scenery; and the musician who beat the measure in the side scenes was obliged to obtain a glimpse of the hall through an aperture or fissure, and get over the difficulty the best way he could.

This process has recently been discarded, and there is now being used for leading the music of the side scenes a metronome, which we herewith illustrate, and which is the invention of Mr. Carpentier. The operation of this is of the simplest character. At the representation of "Patrie," for example, in the fourth act the confederate Flemings perceive that they have been denounced, on hearing the music that precedes the Spanish troops, and the strains of which gradually mingle with those of the orchestra. In the side scenes, the measure is here marked by means of the Carpentier metronome placed upon the music stand of the side scenes leader, and connected with the orchestra leader's stand by two electric wires.

The apparatus is represented in Fig. 2. It consists of a blackboard, which, if it be desired, can be hung upon the scenery, and the principle of which is based upon a curious optical illusion. On the surface of the board the reader sees a white and a black line, the latter hardly visible. Each of these lines marks the position of a ruler mounted in a groove in the board in such a way that it can pivot a quarter of a revolution on its axis, and alternately show two surfaces, one of which is white and the other black like the board. In the figure, the upper ruler exhibits its white surface, and the lower its black one. As by a rapid and simultaneous pivoting the upper ruler becomes black and the lower one white, the spectator seems to see but a single ruler, which appears to move backward and forward. The illusion is perfect, even though the artifice be known.

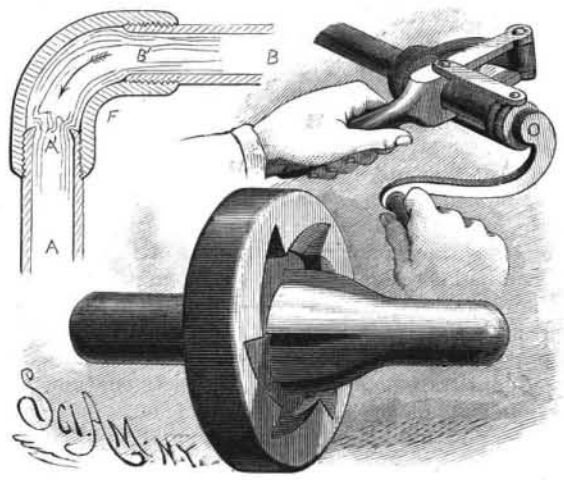
Such is the principle of the apparatus. As for its mechanism, that is very simple, and the details of it are shown in Fig. 3. Here may be clearly seen the two rulers, G, H, at the neighboring extremities of which may be distinguished two small rollers, over which run cords. Each of these cords is pulled at one end by a spring and at the other by the armature of an electro-magnet, F. As long as no current is traversing the electro, the springs hold the rulers in one of their two positions; but when the electro acts, the springs yield, and the rulers abruptly pivot.

As for the maneuvering of the apparatus, that devolves upon the leader of the orchestra. Fig. 1 shows the post of the leader, who stands upon a low platform among his musicians. Under his right foot he has an iron pedal, A, mounted upon two rods that extend beneath the platform, and at the least pressure set up an electric contact. The reader will see that if the leader presses the pedal, a current will pass, and the phantom baton will be observed in its lower position, and that if the pressure be removed the baton will rise, thus perfectly obeying the foot of him who controls it. While maneuvering the apparatus, the leader has his two hands free, the right one to hold his baton, and the left to turn the pages of his music. We must state, in addition, that he has under his eyes, and lying flat on his stand, an apparatus, D, which is a reproduction, on a small scale, of the one between the scenes. The two apparatus are connected by the wires, B, C, E, and make identical movements, the smaller one informing the leader of the effect of the motions of his foot, and guarding him against irregularities that might be followed by disagreeable consequences. The same small apparatus is shown at the bottom of Fig. 3.

This new electric baton operates with great precision, owing to the fact that the masses in motion are very small. It presents, moreover, the advantages of visibility that would be possessed by a baton held in the hand, since it has every appearance of such.—*L'Illustration.*

DEVICE FOR TRIMMING THE ENDS OF TUBES.

Tubes cut in two in the usual way have upon the outside a slightly roughed or burred edge and upon the inside a rough and ragged edge, that serves to most materially lessen the bore of the tube at each joint, as



DELGADO'S DEVICE FOR TRIMMING THE ENDS OF TUBES.

shown at A', and at the same time to form a well adapted lodging place for any sediment carried by the fluid passing through the pipe. The obstruction thus presented is gradually and surely increased by the lodging sediment, and the flow through the pipe thereby lessened, until finally the pipe is completely choked. To easily and quickly remove these rough edges, so that the end of the pipe will present an evenly rounded surface, as shown at B', that will offer no obstruction to the flow and form no recess for the sediment to lodge in, is the object of the simple and ingenious device here illustrated.

Pivoted in the forked end of the handle is a curved arm, having an aperture formed in its enlarged outer end, through which the pipe to be trimmed is passed. Upon the inner side of the end of the arm, and flush with the edge of the aperture, is a projection, the serrated edge of which rests against the tube to hold it firmly. To each shank of the fork is pivoted a link, between the outer ends of which is swiveled an apertured disk, through which the shaft of the cutting tool passes, the outer end of the shaft receiving a crank handle, by means of which the cutter may be turned to trim the end of the tube. The cutting tool, shown enlarged in the lower view, consists of a disk through which passes a shaft. One face of the disk is formed with cutting teeth, while the hub of the shaft upon the same side is slightly enlarged and also formed with

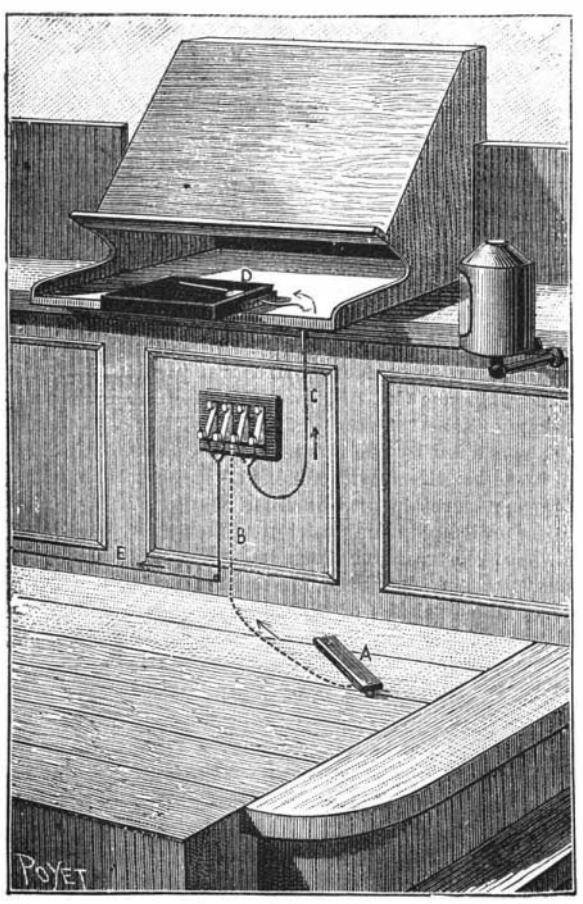


Fig. 1.—LEADER'S STAND.

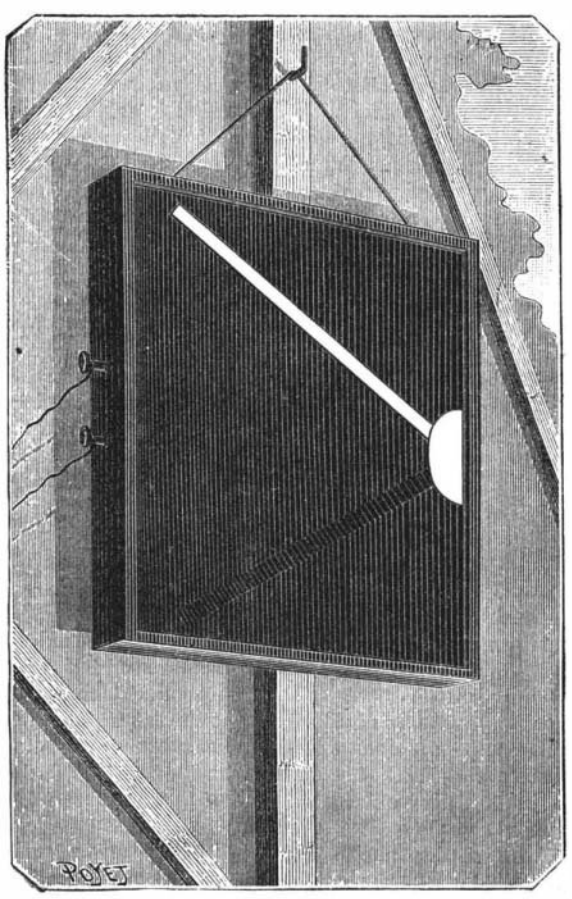


Fig. 2.—ELECTRIC MUSIC BATON.

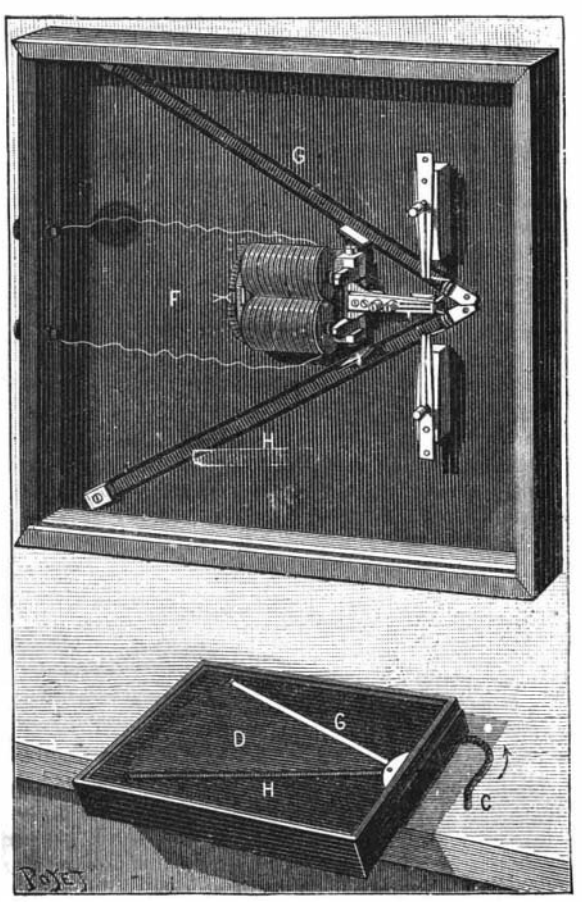


Fig. 3.—MECHANISM OF THE BATON.