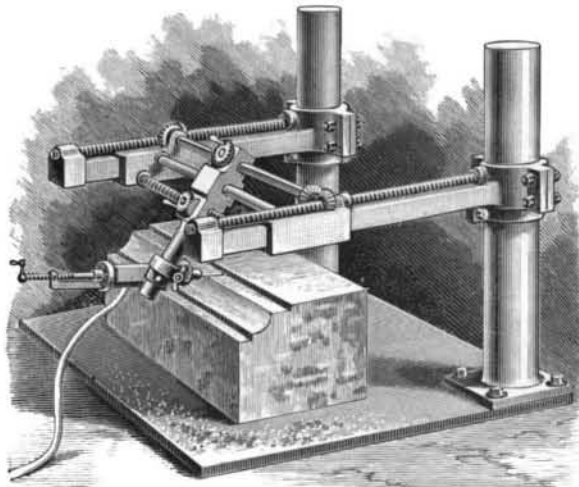


AN IMPROVED STONE DRESSER.

For quickly and accurately dressing stones to any desired configuration, the machine shown in the accompanying illustration has been invented and patented by Richard Aronstein, Mogollon, New Mexico. Adjustable clamps upon suitable columns support two horizontal arms upon which are fitted to move two slides rigidly connected with each other by a rod and a screw shaft, and in the slides turns a shaft which, with the other shaft and rod, forms a support for a longitudinally sliding crosshead on the lower end of which is clamped a stone-striking machine, preferably in the shape of a rock drill. The crosshead, with its striking machine, is moved longitudinally by a beveled gear wheel nut on the screw shaft, in mesh with a beveled gear wheel turning on a stud on the crosshead, the wheel having a handle to be taken hold of by the operator. The upper shaft has a longitudinal keyway engaged by a key on a gear wheel in mesh with a wheel turning on a stud on the crosshead, the latter wheel having a handle, by turning which gear wheels at the ends of the shaft actuate bevel gear wheel nuts on screw shafts secured to the horizontal arms. The nuts turn in bearings in the slides, so that by turning the handle the operator feeds the crosshead to and from the work.

2. Whip Tops.—I know of but two characteristic types of these—the common one (Fig. 6), whose conical form is one of the oldest known, and the “mushroom” (Fig. 7).

3. Peg Tops.—These are the tops of collections: the “short point” top (Fig. 8), the “long point” top



ARONSTEIN'S STONE DRESSER.

(Fig. 9) and the “flat” top (Fig. 10). Fig. 11 shows a variant of Fig. 8. The cord, instead of being free, remains fixed to the top while, at the same time, allowing it to spin.

These varieties do not differ in form only, but are thrown differently. The short point top is held in

the hand, the point downward and the forefinger resting upon the stem, and is thrown by a downward motion of the arm (Fig. 8A); the long point top is held inverted, the point in the air, and, in throwing it, the arm describes a semicircle, from back to front, like the hammer of the blacksmith (Fig. B). The flat top is held with the arm lowered, and is thrown with a horizontal motion, analogous to that of the ricochet, in drawing the cord toward the body (Fig. C).

4. Humming Tops.—In this category the rotary motion is given by the cord drawn rapidly with one hand, while the top is held in place. The “Dutch” top is held in a handle provided with an aperture with which either engages the upper part of the prolonged axis (Fig. 13) or its point (Fig. 14), and from which it is disengaged after it has been set in action by the cord. These tops are generally of wood and are hollow. They are often called “humming” tops. A top of an analogous system (Fig. 15), but of metal and provided with a movable cover, is sold as a sugar plum box. The axis is held by a piece in the form of an elongated C provided with two apertures.

In other systems the bearing point is taken upon the top itself, or else the top around which the cord is wound and its axis are interdependent. The prolongation of the axis enters a sort of sheath or handle in which it revolves freely, and which is held in the hand while the cord is unwound. Sometimes, again, the top is loose upon the axis, the extremity of the latter being held for throwing, and, when the top is freed, the axis being carried along in the revolution. The “Eiffel Tower” top (Fig. 16) belongs to the first type. The penny top of the shops (Fig. 17) and many other analogous ones have the axis independent. To this second type belongs also the “acrobat” top (Fig. 18), save that the axis, arrested in its revolution by a notch, takes on a rectilinear motion upon the cord or sword blade that carries it.

In the “Protean” top (Fig. 19) the glass cone that forms the top is held at the moment at which the cord is drawn by a movable axis independent of it.

Finally, in the “gyroscope” top (Fig. 20), the rotary motion is given to the interior flywheel in holding the external ring in hand.

5. Tops of Various Systems.—The top having a to and fro motion (Fig. 21) is very ingenious. With one hand is held the small frame beneath, in which the axis turns freely, and, with the other, the cord whose extremity is fixed to the axis, and alternating rotary motions are then given the top. After the top has been set spinning, it is left to itself, when the cord winds up in the little cage, and the top revolves freely.

The “Flora” top (Fig. 22) is likewise set in motion in a peculiar way. It is mounted upon a screw thread, and takes on the motion of the upper axis, which revolves in a curved piece held in the hand. After the cord is unwound the axis is arrested, and the top unscrews and continues to spin. The petals of the fanciful flower that it represents open under the action of centrifugal force, and then gradually closes under the action of small springs when the motion begins to slacken.

I have two air tops, one of which, called the “Æolian,” is shown in Fig. 23 and the other in Fig. 24.

The spring top (Fig. 25) merits special mention on account of the simplicity of its operation. It is too well known to need a description. In a variant of it (Fig. 26) the spring is applied beneath, at the

CURIOUS TOPS.

I am in the habit of bringing home from my travels a few playthings, which, put away in a drawer, afford pleasure to my little nephews. Being desirous one day of getting a little order into this collection, I found therein a number and variety of tops that surprised me, and I set them aside. The idea occurred to me to examine them in detail and to compare them, and, in doing so, I was struck no less by the ingenuity of the manufacturers in introducing an element of novelty into a plaything so ancient and so simple in its primitive form than by the scientific interest of certain of the combinations realized.

I have adhered to the strict definition of the top, that is, a revolving body held in equilibrium upon its vertical axis through the rotary motion that is given it, and have thus had to exclude several very curious playthings, and especially the “air turbine” and the “magic box,” as well as various others in which the object set in revolution is not a top, properly so called, but a flywheel whose axis is held by supports.

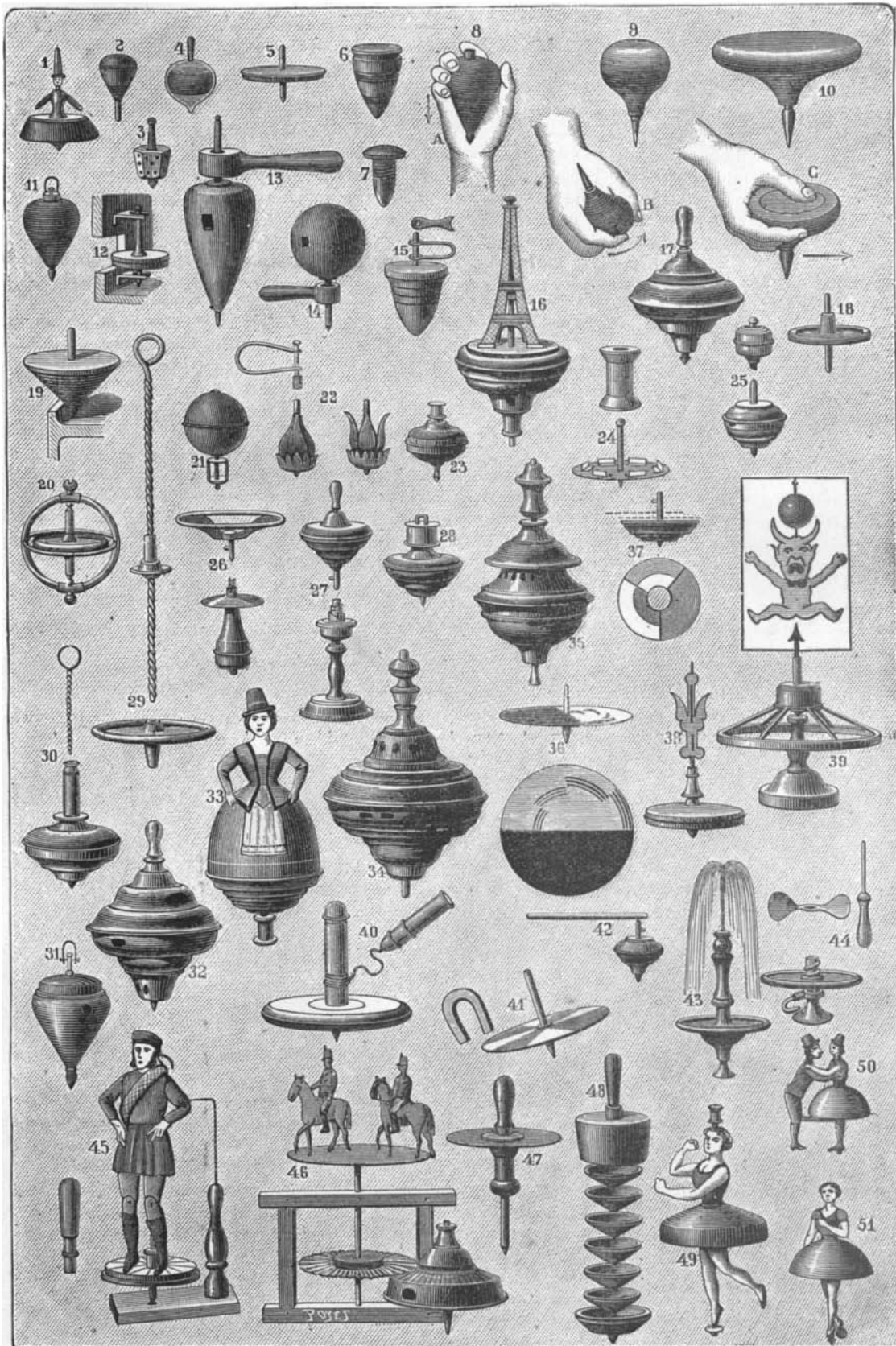
I have divided my tops into two great classes:

I. Those which revolve, as I may say, simply in order to revolve, or, in other words, those in which one has had in view merely the rotary motion and the momentary equilibrium resulting therefrom. I have divided them into different categories according to the way in which the rotary motion is given them.

II. Those in which the rotary motion is applied in order to produce another effect—optical, acoustic, mechanical or otherwise.

I. SIMPLE TOPS.

1. Tops Set in Motion by Hand.—This category comprises the teetotums. I have, in the first place, the ordinary teetotum, set in revolution through the upper part of the axis. That of Fig. 1 has the pretension, I think, to represent a dancing dervish with arms swinging. The “top” teetotum (Fig. 2) differs from the preceding, in that the fingers grasp it by the point. The “domino” or “die” teetotum (Fig. 3) may be used for different plays. The “centrifugal” teetotum (Fig. 4) and the “cyclone” teetotum end the list of these forms of the top.



CURIOUS TOPS.