charge pipe of the pan. The pan is so constructed that its center surface is two or three inches higher than the surface at the periphery, and as it is fed at the periphery, the sand must necessarily work its way *up hill*, to the center to find a discharge. This the lighter portion readily does, by the aid of the peculiar vibrating motion given to the pan—the heavier portion, consisting of sulphurets, amalgam, or free gold, remains near the circumference.

A represents a frame of wood upon which the pan is built and supported.

B is the pan which consists of a corrugated surface, radiating from the center, as is shown in the engraving.

C is an amalgated disk, one half of which only is shown, with a bowl in the center, from which the water and ore is equally distributed over the disk, and passes down through the holes at the water edge, into the corrugated pan below.

D is the outlet, or discharge for the excess of the concentrated matter, such as slphurets, etc., while the machine is in motion. This discharge is regulated by a gate or slide, which can be adjusted to any required height, so as to allow the proper amount of concentrated matter to pass out from under the waste and lighter matter which finds its egress through the center discharge.

E is the hollow journal through which the waste matter is discharged.

F. the rods for supporting the pan and its contents.

G, the driving pully on the cam shaft.

H, cam for vibrating the pan. The form of this cam is an involute, whose evolute is a circle, the cam being of the proper length to give the pan a motion of about ten degrees vibration. This peculiar form gives the pan nearly an equal velocity in every part of its vibration, causing it to stop and start so suddenly as to prevent the sand from packing on the bottom of the pan.

R, the pipe for supplying the pan with water and ores.

L, a pipe for drawing off the excess of mercury as fast as it accumulates.

The working of the pan is substantially as follows:—The pulp is fed, as already described, into a bowl in the centre of the convex disk C, and flows out of this, evenly, over all parts of the said disk, and down through the holes in its periphery, into the corrugated pan below, where the quicksilver, amalgam and heavy matter is collected by means of inclined grooves near the outlet D; the quicksilver, as fast as it increases in excess, being constantly discharged through the bowl and pipe at L, into a dish by itself, while the sulphurets, as fast as they accomulate, are discharged into another vessel through the opening D; the waste matter passes out through the hollow journal in the center of the pan, and is discharged at E. It will thus be seen that the entire operation of this pan is automatic, both in principle and fact. Its great advantage over pans of similar construction consists in this perpetual discharge of quicksilver and amalgam into one vessel, and sulphurets into another, while the machine is in motion.