H. JANTSCH.

MOTTLING TOOL.

APPLICATION FILED DEC. 18, 1918.

1,315,964.

Patented Sept. 16, 1919.

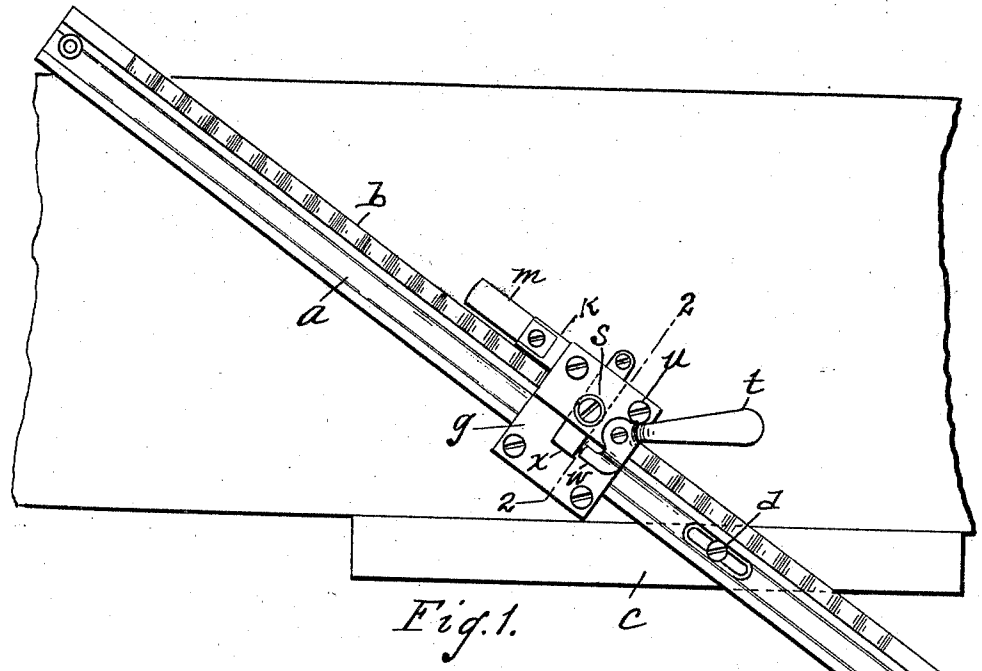

Fig. 1.

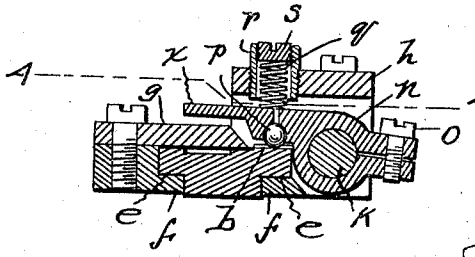

Fig. 2.

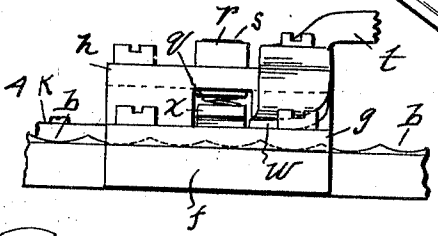

Fig. 3.

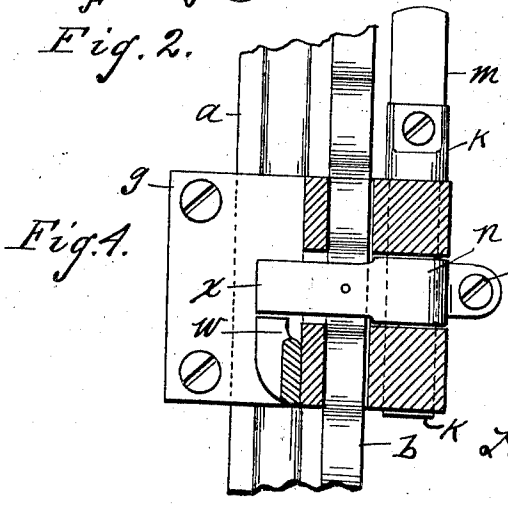

Fig. 4.

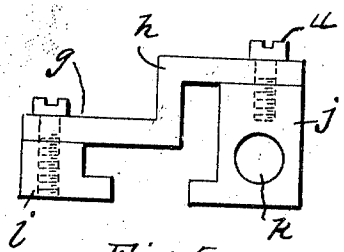

Fig. 5.

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MOTTLING-TOOL.

1,315,964. Specification of Letters Patent. Patented Sept. 16, 1919.

Application filed December 18, 1918. Serial No. 267,411.

To all whom it may concern:

Be it known that I, HUGO JANTSCH, a former subject of the former Emperor of Austria, and former resident of Bohemia, now residing at Detroit, county of Wayne, State of Michigan, have invented a new and useful Improvement in Mottling-Tools, of which the following is a specification.

This invention relates to a machine for mottling or lapping metal surfaces, especially for mottling steel surfaces, used in machine construction. This work has heretofore been done largely, if not entirely, by hand manipulation of a tool. It is the object of the present invention to provide a machine which is adapted to do this work with precision and what might be said almost automatically. The hand is used only to move the tool across the work, while the operation and guiding of the tool is accomplished by parts of the machine itself.

In the drawings,—

Figure 1 is a plan view of the tool.

Fig. 2 is a cross section on the line 2—2 of Fig. 1.

Fig. 3 is a fragmentary side elevation of the tool taken at the left of Fig. 1.

Fig. 4 is a section on the line 4—4 of Fig. 2.

Fig. 5 is an end elevation of the carriage.

In machine tool construction it is quite customary to give some of the surface a wavy appearance, which is often called mottling. This has been almost universally accomplished heretofore by manipulation of a hand tool, that is to say, a tool was run across the surface by hand and given the necessary rocking or to and fro twisting motion to produce this effect. Lapping of metal with emery spread on the surface and a copper tool has also been performed in this same way. It is the object of this invention to accomplish this mottling or lapping by eliminating this manipulation.

a is a track comprising simply a bar with a cam in the form of scallops *b*. This is connected with a bar *c* which performs much the same service as a bar of a T-square, namely, to engage one of the edges of the surface operated upon to hold the track at a predetermined angle with respect to such edge. This angle may be varied at will by loosening and again tightening the screw *d*. However, the angle ordinarily used would be that of about 45 degrees so as to cause the tool to operate on an oblique line across the work. The track is undercut at each side underneath, as shown at *e*, *e*, to provide rabbets for the tongues *f* of the carriage *g*. The carriage is made up of a Z-bar *h* (Fig. 5), to which is bolted a pair of blocks *i* and *j*, the latter serving as a journal for the rock shaft *k*. To one end of this is bolted the mottling or lapping tool *m*. Near the mid portion of this rock shaft an arm *n* is clamped on by the screw *o*. This arm has on its under side a ball bearing *p* which runs over the scalloped race *b*. The spiral spring *q* bears against the top of the arm and tends to keep the arm against the scalloped cam. This spring *q* is housed in a small hollow stud *r* screwed into the top of the Z-bar *h* and its pressure is adjustable with the nut *s*.

The carriage is moved forward over the track by the handle *t*, which is pivoted to the top of the Z-bar *h*. The handle will stop in the angular relation shown in Fig. 1 when a pushing effort is exerted against the carriage for it then encounters a stop in the form of the head of a bolt *u*. When the handle is grasped to pull the carriage toward the operator it moves the handle back into the line of draft, thereby causing the cam finger *w* to run in under the finger *x* on the end of the arm *n*. This holds the ball *p* out of contact with the cam on the return stroke.

It will be evident that a pushing movement away from the operator exerted upon the carriage will cause the ball *p* to travel over the scalloped cam, thereby exerting a rocking movement as well as a forward movement of the mottling or lapping tool *m*. This will cause a scraping of the surface which will be relatively uniform due to the uniformity of the action controlled by the cam. The operation is a very easy and a quick one, the track serving not only as a guide to cause the tool to travel in a straight line, but also serving to impart the rocking movement when the tool is pushed over the guide. When the carriage is pulled back the handle automatically causes the cam follower to rise out of the scallops of the cam so that no rocking movement is imparted to the tool on the return.

What I claim is:

1. A machine for the purpose specified, comprising a track, a carriage, a tool mounted on the carriage to rock in planes angularly related to the line of travel of the carriage, and means for automatically rock-

ing the tool as the carriage is moved over the track.

2. A machine for the purpose specified, having, in combination, a track provided with a cam surface, a carriage guided on the track, a tool journaled to rock in said carriage in planes angularly related to the line of travel of the carriage, and means between the tool and the cam for giving the tool a rocking movement as the carriage is moved over the track.

3. A machine for the purpose specified, having in combination, a track provided at one side with a scalloped cam, a carriage designed to ride on the track, a tool mounted in the carriage to rock in planes angularly related to the line of travel of the tool as it rides with the carriage, and an arm secured to the tool and adapted to ride over the scalloped cam to give the tool a rocking movement as the carriage is moved along the track.

4. A machine for the purpose specified, having in combination, a track, a cam having a scalloped surface, a carriage designed to travel on the track, a tool supported on the carriage to rock in planes angularly related to its line of travel, an arm secured to the tool and having a ball bearing adapted to ride on the scalloped cam, and a spring for holding the arm and the ball bearing against the cam.

5. A machine for the purpose specified, having in combination, a track, a cam surface therealong, a carriage adapted to ride on the track, a tool mounted on the carriage to rock in planes angularly related to its line of travel, an arm secured to the tool and adapted to ride over the cam surface, and a movable handle adapted on the return movement of the carriage to hold the arm out of engagement with the cam.

6. A machine for the purpose specified, having in combination, a track, a cam surface therealong, a carriage adapted to ride on said track, a tool rockingly supported in the carriage and provided with an arm having an extending finger, and a handle secured pivotally to the carriage and provided with a cam finger which upon the movement of the tool toward the operator swings with the handle under the finger of the said arm to keep the arm out of engagement with the cam.

7. A machine for the purpose specified, having in combination, a support to allow a tool to be reciprocated and guided over a surface, the said tool in the form of a scraping tool, and means for rocking the tool in planes angularly related to its line of travel coincident with its reciprocation over said surface.

8. A machine for the purpose specified, having in combination, a support for holding and guiding a tool that is reciprocated over a plane surface, a scalloped cam associated with said support, and a carriage bearing a scraping tool reciprocatable over said support, the said scalloped cam coincidentally causing the tool to rock in planes angularly related to its line of travel in reciprocating the same along the said support.

In witness whereof I have hereunto set my hand on the 13th day of December, 1918.

HUGO JANTSCH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."