

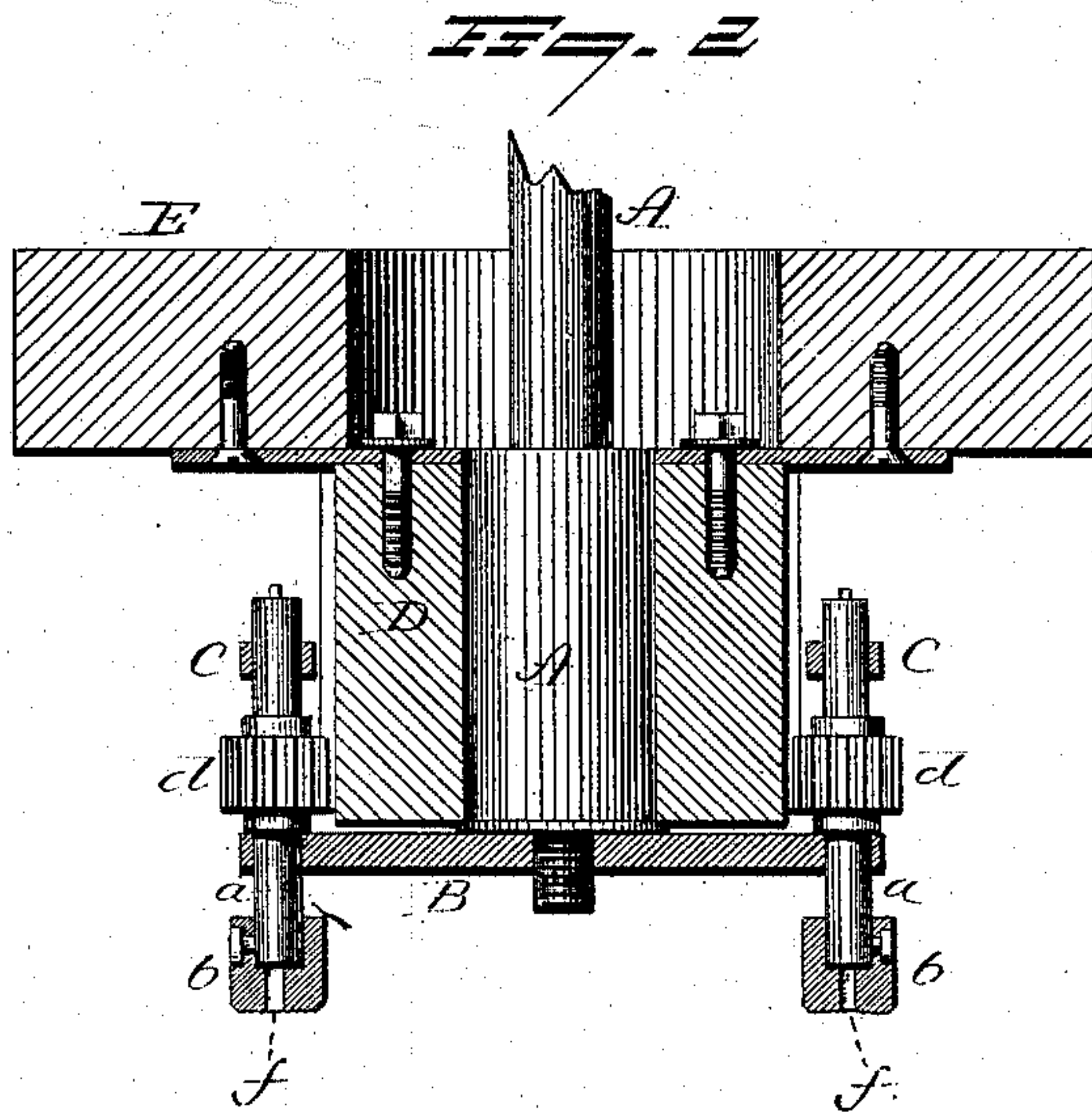
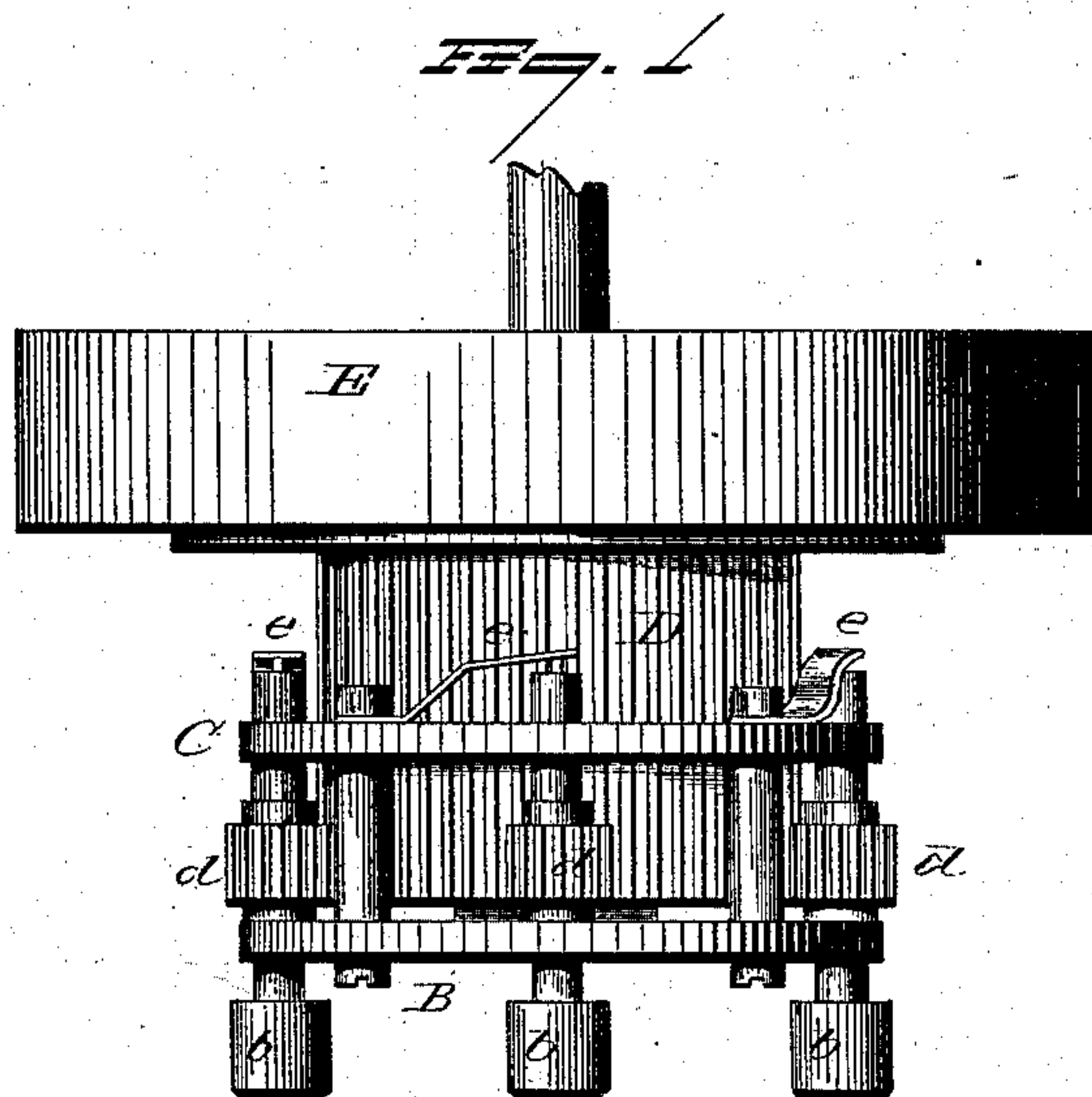
(No Model.)

J. H. ROSSITER.

MACHINE FOR ORNAMENTING METAL SURFACES.

No. 282,377.

Patented July 31, 1883.



Witnesses
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MACHINE FOR ORNAMENTING METAL SURFACES.

SPECIFICATION forming part of Letters Patent No. 282,377, dated July 31, 1883.

Application filed May 31, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. ROSSITER, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Machines for Ornamenting Metal Surfaces; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a side view; Fig. 2, a vertical central section; Fig. 3, a face view of the mill.

This invention relates to an improvement in apparatus for ornamenting sheet metal—that is to say, to impart to the surface a clouded or wavy appearance. This appearance is given by means of a mill revolving upon an axis at right angles to the surface to be ornamented, so that the face of the mill dresses the surface of the metal, and the wavy appearance is given usually by imparting to the metal a movement in its own plane, oscillatory, vibrating, or otherwise, so that the cutter does not work in a direct straight line. This movement of the metal necessitates complication in the machinery, to avoid which is the object of my invention; and it consists in the tool composed of several revolving mills arranged around a common center, and to all of which a rotation is imparted on the said common center, combined with an independent rotation imparted to each of the mills, as more fully hereinafter described.

A represents a mandrel or spindle, which may be set in any of the many classes of machines which have a vertically-revolving spindle, and beneath which is a platen upon which the plate of metal to be ornamented may be secured, and which platen has means for imparting a longitudinal movement to it—say, for illustration, a common milling-machine with a vertical spindle—that is, a revolving spindle the axis of which is at right angles to the plane of the platen. This mandrel carries a head, B. In this head several spindles, *a*, are arranged, each carrying its mill *b*. These spindles are arranged in a circle, of which the center of the mandrel is the center, and are supported so that each may have a rotation on

its own axis independent of the spindle which carries the head. As here represented, a ring, C, is arranged above the head and connected with it, so that the head forms one bearing and the ring C a second bearing for the support of the spindles *a*.

Around the mandrel and concentric upon it is a gear-wheel, D. This gear-wheel is loose upon the mandrel, and in connection with a pulley, E, or other device by which a rotation may be imparted to the gear D independent of the mandrel A. This gear D works into a pinion, *d*, on each of the spindles *a*. The rotation of the gear will therefore impart to the spindles *a* a corresponding revolution independent of the mandrel which carries the said spindles. The rotation of the mills or cutters is necessarily rapid, in order to produce good and perfect work. This rapid revolution is imparted by means of the gear D. The rotation of the head B through the mandrel A may be very slow, but sufficient to constantly change the position of the mandrels on the plate on which they are working, and because of this constant change of position no direct path of the cutters will be left upon the work, but the work of one will be so intermingled with the work of another that a pleasing and highly ornamental effect is produced.

To make the cutters yielding, so as to bear upon the work only with a certain pressure and yield to any irregularities in the surface of the metal, a spring, *e*, is arranged upon the ring C, to bear upon the upper end of the respective spindles, the spring being of sufficient strength to hold them to their work and yet yield as occasion may require.

In this class of mills, working upon flat surfaces of metal, there is liability of a chip catching in the center, and which will, as the mill progresses, scratch the surface. To avoid this difficulty I make a recess, *f*, at the center of the mill, which will form a receptacle for any such chip or obstruction, which would otherwise lodge and be held at the center. The teeth or cutting-edges radiate from this recess, as seen in Fig. 3.

I do not illustrate the platen of the machine or the application of power to the mandrel, as that is too well known to require description; and this device may be introduced in any

of the many known machines which have a mandrel arranged to revolve on an axis at right angles to the plane of a movable platen.

I claim—

5 1. The combination of the mandrel A, carrying a revolving head, B, several spindles arranged on bearings in said head and in a circle concentric with the axis of the mandrel, each of said spindles carrying a pinion, *d*, and
10 a mill, *b*, a gear, D, concentric with the mandrel and arranged to work into the several pinions on the spindle, the said gear having rotation imparted to it independent of the rotation of the mandrel, and whereby revolution
15 is imparted to the spindle and mills which they carry upon their own axis, and independent of the rotation which is imparted to the head, whereby the several spindles revolve around the axis of the mandrel, substantially
20 as described.

2. The combination of the mandrel A, carrying a revolving head, B, several spindles arranged on bearings in said head and in a circle concentric with the axis of the mandrel, each of said spindles carrying a pinion, *d*, and 25 a mill, *b*, a gear, D, concentric with the mandrel and arranged to work into the several pinions on the spindle, the said gear having rotation imparted to it independent of the rotation of the mandrel, and whereby revolution 30 is imparted to the spindle and mills which they carry upon their own axis, and independent of the rotation which is imparted to the head, whereby the several spindles revolve around the axis of the mandrel, with the spring 35 *e*, substantially as described.

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Witnesses:

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