

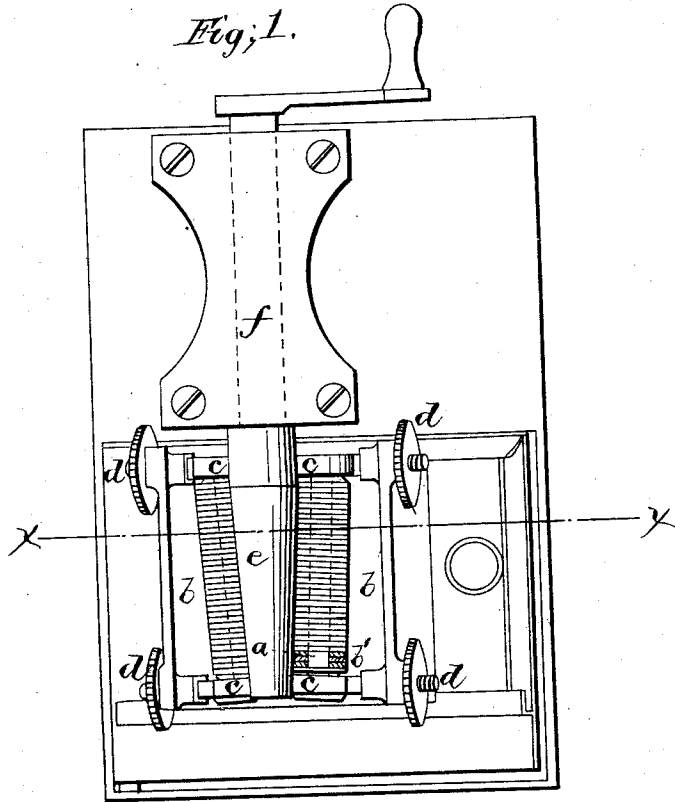
W. Ostrander.

Making Metal Tubing.

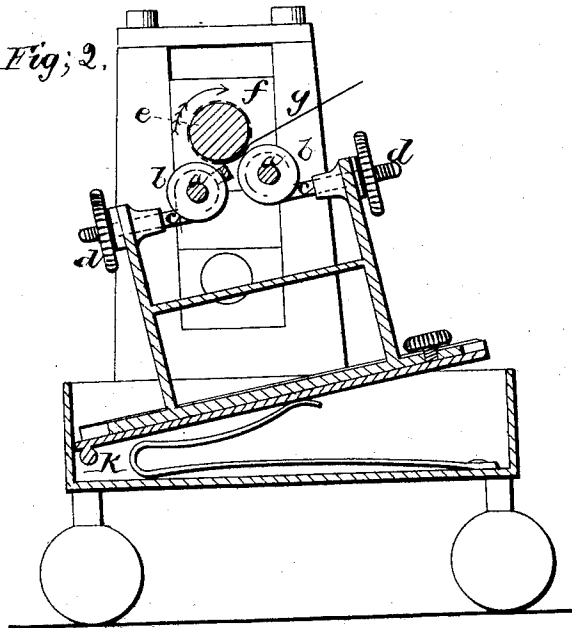
N^o 16,395.

Patented Jan. 13, 1857.

Fig; 1.



Fig; 2.



UNITED STATES PATENT OFFICE.

WILLIAM OSTRANDER, OF NEW YORK, N. Y.

IMPROVED MACHINE FOR ROLLING TAPERING TUBES.

Specification forming part of Letters Patent No. **16,395**, dated January 13, 1857.

To all whom it may concern:

Be it known that I, WILLIAM OSTRANDER, of New York, county of New York, and State of New York, have invented certain new and useful Improvements in Machinery for Rolling Taper Tubes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being made to the annexed drawings, making a part of this specification, in which—

Figure I is a top or plan view. Fig. II is a transverse vertical section on the line *xx* of Fig. I, and similar letters indicate similar parts throughout.

My invention consists in a peculiar construction of the cylindrical rollers employed, and in combining these with a tapering mandrel or "former" in such manner that one pair of the rollers will suffice for work of any diameter. I construct the rollers by placing a series of disks or plates of metal side by side upon a shaft, then screwing them up tightly together and turning off the surface into the form of a true cylinder. The screw is then to be so slackened that the disks shall be free to revolve independently of each other upon the shaft. This shaft is shown at *a* and the disks at *b*, a portion, *b'*, being exhibited in section. It has journals at its ends to allow of rotation in its bearings. Two rollers thus constructed are mounted in a frame, so as to stand at an angle to each other, in the manner shown in Fig. I, the bearings *c* being movable horizontally, and adjustable by set-screws *d*, in order that the rollers may be set at any desired angle. Immediately over these rollers a tapering mandrel, *e*, is placed, being of a size and form suitable for any one kind of work. This mandrel is firmly affixed to a shaft extending into an upright part, *f*, of the machine, giving it suitable support, and it has rotary motion imparted either by a crank or pulley.

The operation will be as follows: An appropriate mandrel for the desired work being put in—as, for instance, to make the body of a sugar-mold—the rollers are to be adjusted by means of the set-screws *c* into contact with it along their whole length. A sheet of metal which had previously been cut to the shape of an unrolled body of a sugar-mold is then

placed between the mandrel and the two rollers, as at *g*, Fig. II. The rollers being then pressed firmly against the mandrel, and rotary motion being given to that in the direction indicated by the arrow, the sheet will be rolled around the mandrel, in the usual manner of rolling cylindrical tubes. If the shorter curved side of the sheet had been placed toward the smaller end of the mandrel, the form when rolled up would be that of the desired body of a mold, for the rollers being composed of separate and independent disks or sections, each of those sections would have at its surface the speed imparted to it of that portion of the mandrel against which it was pressed, the sheet of course being between; while had the rollers been solid the speed of the surface at all parts of its length must necessarily be uniform, whereas that of the surface of the mandrel, in consequence of its conical shape, varying at its taper, there must be at some parts of the length a sliding of the one surface upon the other, which would throw the sheet constantly out of place.

In practice it will be found that a very convenient method of using the rollers will be to mount the pair in a frame which is hinged at its lower corner, as at *h*, Fig. II, and placing beneath it a strong spring, to keep the rollers up against the mandrel, as clearly shown. When, now, a sheet is to be introduced, pressing upon the unattached end of the frame will remove the rollers, when the sheet may be laid onto both rollers; then if the frame be released the force of the spring will bring the sheet against the mandrel, whereby the curve will be given to it as desired. For work of any other size or taper an appropriate mandrel is to be substituted and the angle of the rollers adjusted to lines of contact with it, as above described.

I claim—

The combination, with a tapering mandrel, of cylindrical rollers formed of disks or sections, as described, for the purpose of rolling a tapering tube, substantially as set forth.

WILLIAM OSTRANDER.

Witnesses:

S. H. MAYNARD,
THOMAS DUCEY.