C. HOPE.

MACHINE FOR TIGHTENING METAL CAP-LINING.

No. 185,637. Patented Dec. 26, 1876.

Fig. 1.

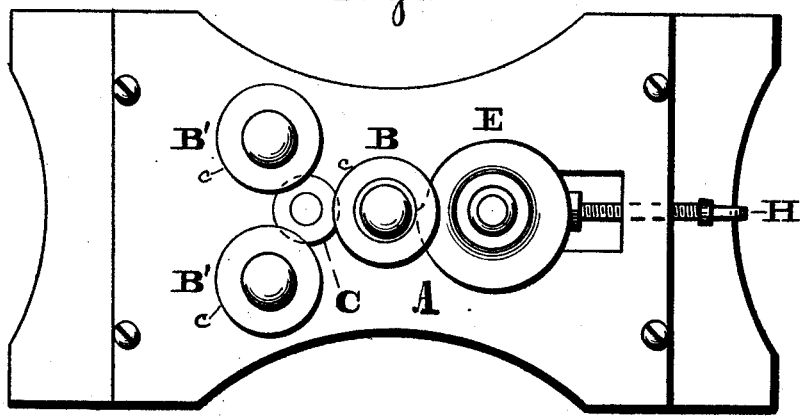

Fig. 2.

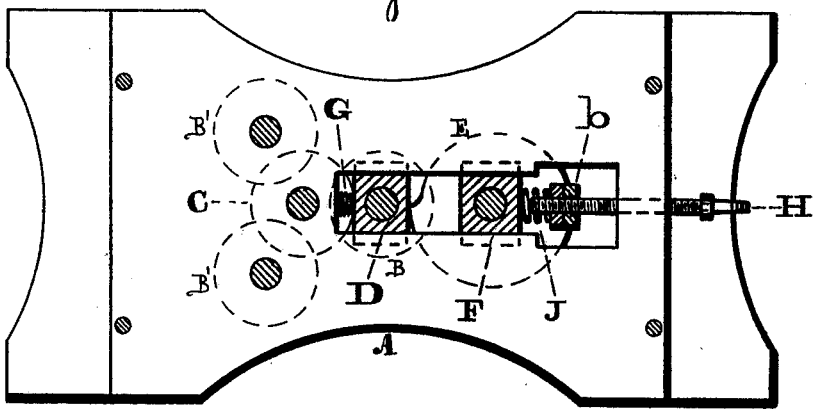

Fig. 3.

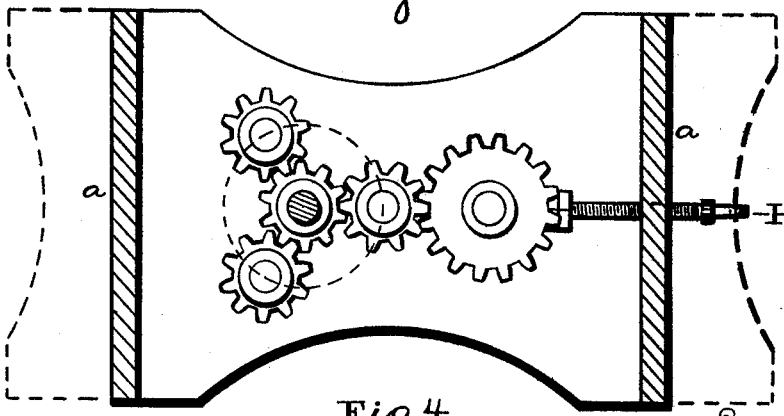

Fig. 4.

Witnesses:

Lewis H. Brous,

A. P. Grant.

Inventor:

Charles Hope,

by John A. Wiedersheim

Attorney.

UNITED STATES PATENT OFFICE.

CHARLES HOPE, OF CAMDEN, NEW JERSEY, ASSIGNOR TO JOHN L. MASON, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR TIGHTENING METAL-CAP LININGS.

Specification forming part of Letters Patent No. **185,637**, dated December 26, 1876; application filed February 24, 1876.

To all whom it may concern:

Be it known that I, CHARLES HOPE, of the city and county of Camden and State of New Jersey, have invented a new and useful Improvement in Tightening Sheet-Metal Caps; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which my invention appertains to fully understand, make, and use the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a top or plan view of the apparatus embodying my invention. Fig. 2 is a similar view, partly sectional. Fig. 3 is a bottom view, partly sectional. Fig. 4 is a transverse section of a sheet-metal cap.

Similar letters of reference indicate corresponding parts in the several figures.

The inner faces of the upper end of some sheet-metal caps are lined with porcelain, glass, and other vitreous substances, as is well known.

The object of my invention is to secure the lining to the cap without liability of breaking the same. For this purpose I employ a number of tightening-rollers, and make provision for irregularities of the lining or increase in the diameter thereof. The rollers are geared to each other and to a cam; and said rollers open and close or advance and recede automatically.

Referring to the drawings, A represents a table or plate, which may be supported on legs or feet *a*. B B′ B′ represent a series of rollers, which are geared together and arranged angularly and relatively to each other, so that a space exists between their peripheries for the reception of a screw-cap, which is to be placed on a rotating bed, C, located centrally of the rollers, and geared thereto.

The roller B has its bearing D fitted to the table A, so as to slide longitudinally thereon in the direction to and from the bed C. E represents a rotating cam, which is fixed to a shaft, whose bearing F is fitted to the table A, so as to slide longitudinally thereon in the direction to and from the bearing D. The cam E is adapted to bear against the sliding bearing D, and, in order to hold the latter against the face of the former, a spring, G, is interposed between the bearing and adjacent portion of the table A, opposite to the cam.

H represents a screw-rod, which passes longitudinally through the leg *a*, or boss, lug, or otherwise, on the under side of the table, and near its inner end there is an adjusting-nut, *b*, (or nuts,) between which and the bearing F there is a spring, J, the nut *b* or screw-rod H, or both, to be so adjusted that the distance between the peripheries *c* of the rollers B B′ B′, when in their closest position, will be equal to the diameter of the cap when the lining is tightened therein.

The operation is as follows: Power will be applied to the several rotating parts, and when the narrowest part of the cam is in contact with the bearing D, said bearing moves from the bed C, and thus enlarges the space between the peripheries of the rollers, to permit the application of a cap, top downward, on the bed, the lining resting loosely on the inner face of said top. As the cap rotates, when the widest part of the cam reaches the bearing D, it forces the roller B toward the bed C, whereby the metal of the cap will be pressed against the inclosed lining, and the latter will be tightened, after which the roller B moves from the bed C, due to the action of the spring G and the position of the narrowest part of the cam. The metal cap may then be removed.

Should, however, there be points of irregularity or enlargement in the diameter of the lining, (or of the cap,) whereby the regulated pressure will be too great at the said points or places, and thus break the fragile lining, the action of the cap is to increase its pressure against the roller B, and, consequently, against the cam E, which, owing to its sliding bearing F and spring J, will give, and thus the danger will be averted, after which the previously-adjusted position of parts will be restored.

If desired, the bearings of the rollers B′ B′ may be made to slide and yield in a manner similar to the bearings of the roller B and cam E.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. The rollers B B′ B′, bed C, and cam E, geared to each other, and operating substantially as and for the purpose set forth.

2. The rollers B B B′, bed C, and spring G, in combination with the cam E and spring J, substantially as and for the purpose set forth.

3. The rollers B B B′, bed C, and cam E, in combination with the adjusting-screw H and nut *b*, and the spring J fitted on said screw H, substantially as and for the purpose set forth.

CHARLES HOPE.

Witnesses:
JOHN A. WIEDERSHEIM,
A. P. GRANT.