(No Model.)

J. B. HIGBEE.

Mechanism for Grinding Bands upon the Surfaces of Wine Glasses.

No. 236,432. **Patented Jan. 11, 1881.**

Fig. 1.

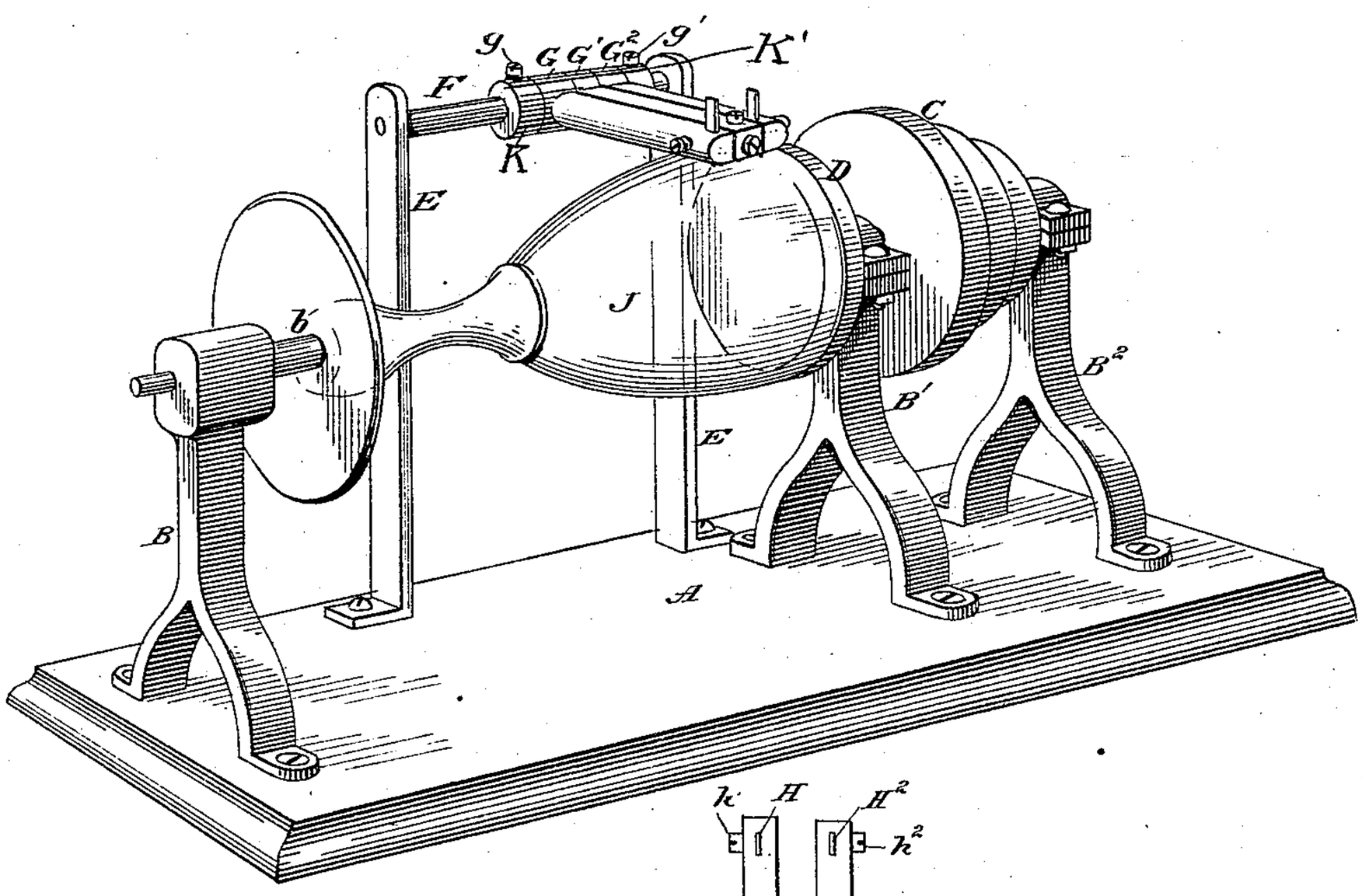
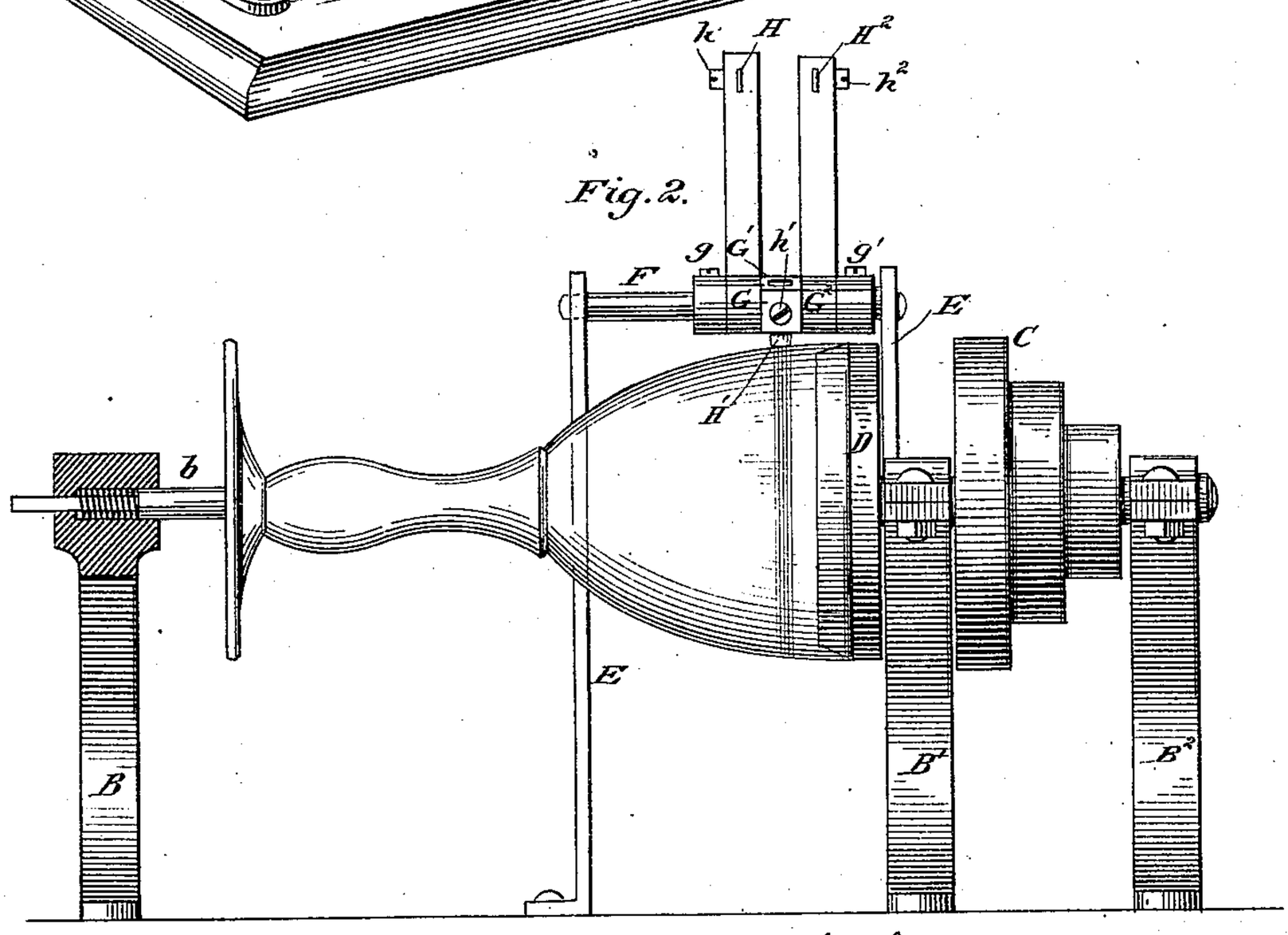


Fig. 2.



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JOHN B. HIGBEE, OF PITTSBURG, PENNSYLVANIA.

MECHANISM FOR GRINDING BANDS UPON THE SURFACES OF WINE-GLASSES.

SPECIFICATION forming part of Letters Patent No. 236,432, dated January 11, 1881.

Application filed November 8, 1880. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. HIGBEE, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Mechanism for Grinding Bands upon the Surfaces of Wine-Glasses, Goblets, and other Articles of Glassware; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 indicates a perspective view of my improved apparatus, showing the grinding-pencils and pencil-arms adjusted to simultaneously produce a series of bands upon the surface of a wine-glass. Fig. 2 indicates a side elevation of the same with the center pencil and carrier or arm adjusted in position for grinding and the remaining pencils and arms thrown backward away from the surface of the article to be banded.

Like letters indicate like parts wherever they occur.

The object of my invention is to simultaneously produce series of bands upon the surfaces of goblets, wine-glasses, and other articles of glassware in a perfect state, and in an expeditious and economical manner.

To this end it consists in the combination, with a horizontally-rotating head-stock and tail-stock adapted to clamp and rotate the article to be operated upon, of a series of laterally-adjustable pencil-carriers, each carrier independently pivoted and adapted to rise and fall by its own gravity, so as to accommodate itself to any inequalities over which the pencil passes.

I shall now describe my invention more fully, so that others skilled in the art may make and use the same.

In the drawings, Figures 1 and 2 indicate the improved apparatus.

A indicates the bed-plate.

B indicates one of the standards, which is perforated transversely at its upper portion by an orifice which is of uniform diameter from the inner side of the standard to a point near its center, where the diameter of the orifice is suddenly reduced, forming a shoulder upon its interior. A spiral spring is inserted in this orifice, and rests against the shoulder, and its other end bears against a shoulder formed on the tail-stock *b*, (which is journaled in the smaller portion of the orifice of this housing,) in order to cause the tail-stock to exert a yielding but sufficient pressure against the article to be operated upon to hold it into position, all of which will be readily understood by the skilled mechanic, as it is embodied in mechanism now in use for banding.

B′ and B² indicate standards, having mounted therein a cone-pulley, C, and a head-stock, D. This head-stock has a slightly-conical periphery, and is of a suitable size to fit into the mouth of the glass or article to be operated upon.

E indicates a frame mounted upon the bed-plate at the front of the machine, and having a shaft, F, at its upper part, upon which shaft a series of pencil carriers or arms, G, G′, and G², are mounted. These arms or carriers are each capable of an independent movement upon the shaft, in order to admit of an independent movement of the pencils which they carry, to allow them to adjust themselves independently of each other to the inequalities of the surface of the article operated upon.

K K are adjustable collars, having set-screws for adjusting the pencil-carriers laterally upon any point of the shaft F which may be desired.

H, H′, and H² indicate the grinding-pencils, which are adjusted and secured in the pencil-carriers by means of the adjusting-screws *h*, *h′*, and *h²*.

J indicates a wine-glass, held in position between the head and tail stocks.

The operation of my improvement is as follows: A wine-glass or other article to be banded is inserted into position, as shown in Figs. 1 and 2, and power is applied, causing it to rotate. The adjustable pencil-carriers are lowered until the pencils press upon the surface of the glass, and water and sand or emery or other abradent are caused to drop upon its surface, when the action of the pencils upon the abradent causes it to abrade the surface, and a series of perfect bands are simultaneously produced.

If it be desired to regulate the distance of the bands from each other, it may be readily

done by inserting various-sized washers between the pencil-carriers upon the shaft F. The wider bands should be produced from the action of copper pencils upon the abradent, and for producing fine light bands steel pencils should be employed.

The advantages of my improvement are:

First, I produce simultaneously a series of perfect bands upon the surface of the article.

Secondly, the bands are produced at accurate and uniform distances apart upon the different articles, thus securing uniformity in the set.

Thirdly, as the pencils are adjustable independently of each other, each pencil exerts a uniform pressure upon all parts of the portion of the periphery it is designed to band, and consequently the banding operation is expedited and time and labor are saved.

I am aware that in similar machines a series of grinding or polishing tools have been employed, said tools laid in notched rests adjustable in a pivoted frame and held against the article operated upon by springs, and I do not herein claim such devices, for the reason that the tools are not free to adjust themselves to the surface operated upon with uniform pressure, so as to obtain uniform results. In such machines the depth of the grinding will depend on the tension of the spring, and, as a consequence, where inequalities occur on the surface of the glass, the tension of the springs will vary, and the grinding will be, according to the varying tension, either fainter or deeper, as the case may be. In my devices the arms or pencil-carriers act by gravity, and the band must be uniform. One or more of the pencil-carriers can be lifted out of the way or adjusted during the operation of the machine. The devices are simple, and can be operated by unskilled labor, and there are other points of advantage which will be apparent to one skilled in the art.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a machine for grinding bands upon glassware, the combination of a series of independently-pivoted laterally adjustable freely-gravitating pencil-carriers with mechanism, substantially as specified, for horizontally rotating the article to be operated upon and presenting it to the pencil-carriers, as and for the purpose specified.

2. In a machine for grinding bands upon glassware, the combination of the laterally-adjustable independently-pivoted freely-gravitating pencil-carriers with the tapering headstock and spring tail-stock, substantially as and for the purpose specified.

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Witnesses:

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