2 Sheets—Sheet 1.

W. BROWN & J. D. HOWE.

GAGE LATHE.

No. 183,633. Patented Oct. 24, 1876.

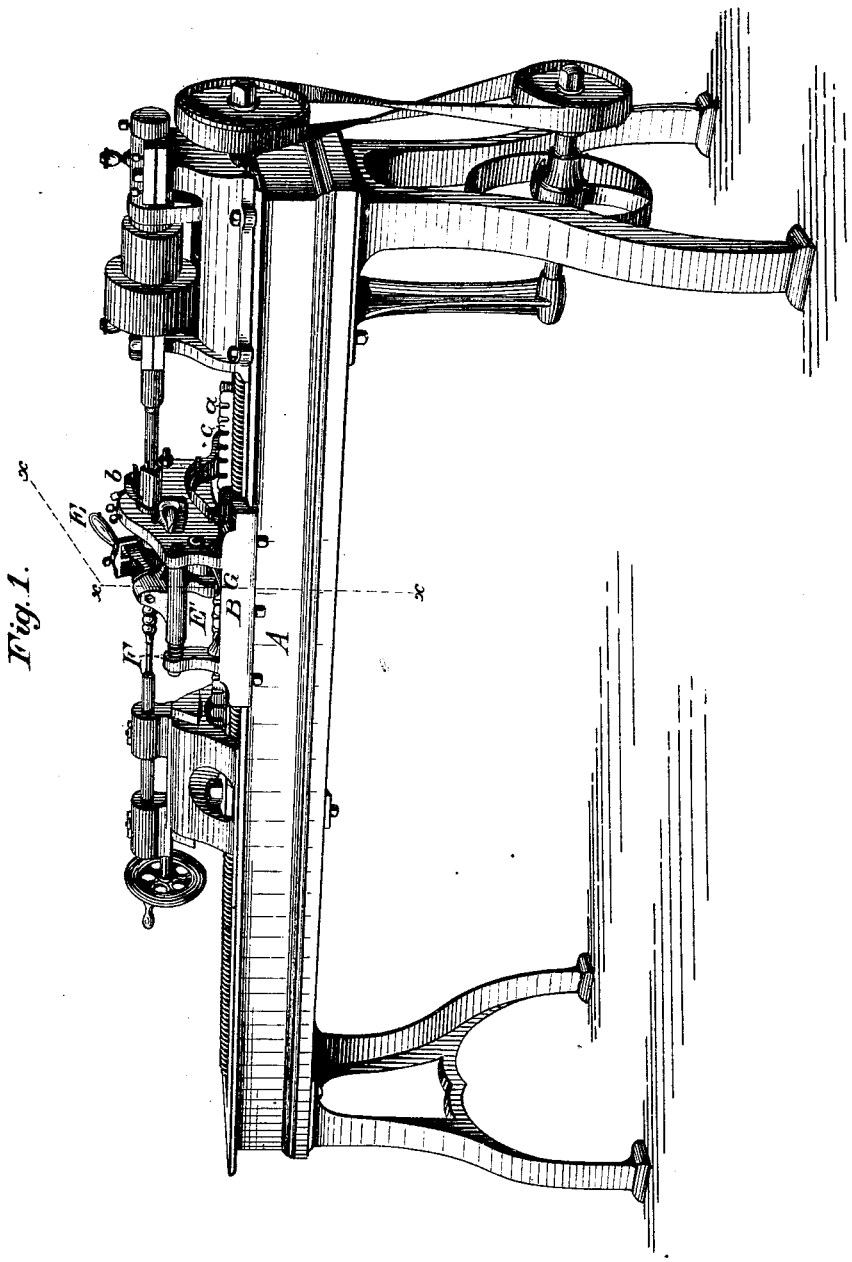

Fig. 1.

Attest:

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Inventors:

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by Louis Bagger & Co.

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2 Sheets—Sheet 2.

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Fig. 2.

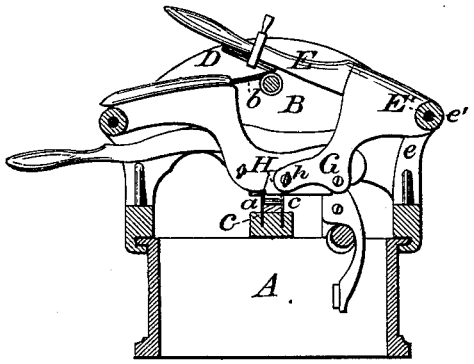


Fig. 3.

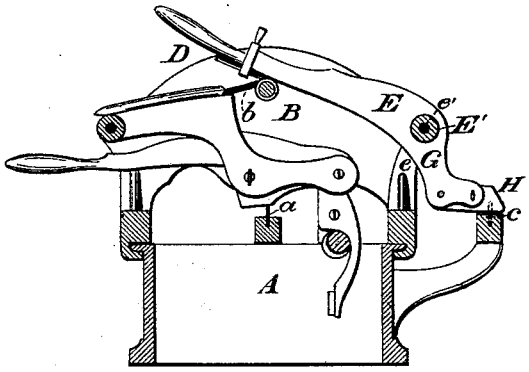
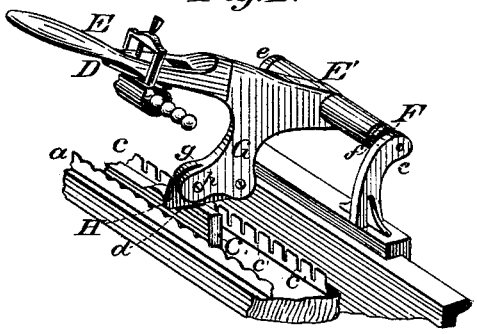


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM BROWN AND JOHN D. HOWE, OF ST. JOHN, NEW BRUNSWICK, CANADA.

IMPROVEMENT IN GAGE-LATHES.

Specification forming part of Letters Patent No. **183,633**, dated October 24, 1876; application filed July 29, 1876.

To all whom it may concern:

Be it known that we, WILLIAM BROWN and JOHN D. HOWE, both of St. John, in the Province of New Brunswick and Dominion of Canada, have invented certain new and useful Improvements in Gage-Lathes; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a perspective view of a gage-lathe having our improvement. Fig. 2 is a cross-section after the line indicated by *x x* in Fig. 1. Fig. 3 is a similar view, showing a modified form of the attachment which constitutes our improvement; and Fig. 4 is a perspective view of the attachment detached from the lathe.

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

This invention consists in the construction and arrangement of an auxiliary cutter, and in its combination with an ordinary gage-lathe; the object of our invention being to finish beaded or "ball-and-hollow" work in such a manner that there shall be no mark of knife, but that the work shall present a smooth and finished appearance, thereby obviating the necessity of sandpapering or rubbing the stock as it comes from the lathe.

In the drawing, A represents the frame or body of an ordinary gage-lathe, and B is the traveling carriage, having the cutter *b*. *a* is the gage, and *c* is a notched strip of metal, arranged parallel to the gage *a*, and having equidistant notches *c'*. This strip of metal we call the "guide." C is a shaped piece of iron, affixed upon the carriage B so as to travel parallel to and alongside of the notched strip or guide *c*, and having a V-shaped notch, *d*, of a depth corresponding to the depth of the notches *c'*. Affixed upon the traveling carriage B are uprights or supports *e e* for the auxiliary cutter attachment, which we will now proceed to describe. This consists of a knife or cutter, D, of any required shape, which is suitably set or mounted in such a manner that it may readily be adjusted or removed in a handle or cutter-bar, (denoted by E.) The latter has a sleeve, E', by means of which it slides upon a horizontal rod, *e'*, secured in the uprights or supports *e e*. F is a coiled spring, placed upon rod *e'* so as to abut at one end against one of the supports *e*, and at the other against the end of sleeve E', thereby forcing the latter in the direction of the head of the traveling carriage B. Spring F is preferably covered by a cylindrical cap, *f*, so as to prevent it from getting clogged up by dust or shavings. G is an arm, which projects downward from the cutter-bar or sliding handle E, so as to reach the notched strip or guide *c*, already described. The lower end of the arm G has a vertical slot or mortise, *g*, in which slides the bearing-plate H, the lower edge of which rests upon the notched piece C. Plate H may be adjusted within its slot or recess *g* by a set-screw, *h*, in such a manner as to raise or lower arm G, and with it the horizontally-sliding cutter-bar E. The piece C being of a height corresponding to that of the guide *c*, it follows that when the carriage B, with its attachments, is moved forward, the arm G and cutter-bar E will pass by the notches *c'* in the guide *c*, unless pressed down into these notches as the plate H passes over them. The V-shaped slot *d* in slide C permits of this depression at regular intervals, measured by the frequency of the slots in the cutter-bar and handle E, so that the knife or cutter D is brought into operation every time the handle E is depressed, cutting at a depth that may be gaged by the plate H, and for a continuous period equal to the time it takes the carriage to travel from one notch in guide *c* to the next.

It is obvious that the guide *c* may be arranged either inside or outside of the frame A without changing the spirit of our invention, the positions of the piece C and downward-projecting arm G being changed accordingly. In Figs. 1 and 2 we have shown the notched guide *c* arranged within the frame A, and in Fig. 3 we have shown this guide affixed exteriorly upon the lathe. The latter construction would in most cases be preferable when it is desired to affix our improvement

upon gage-lathes of the ordinary description. The method of operation being precisely similar in both cases, convenience will in each case where it is desired to apply our improvement suggest the best way of doing it.

In the foregoing description we have omitted any reference to the detailed construction and operation of a gage-lathe as ordinarily constructed, as these are well understood by those conversant with the state of the art to which our invention pertains.

After the lathe has done the rounding and rough shaping of the stock, the operation of our improvement will be as follows: As the carriage B travels forward, the cutter and attachments D, E, E′, F, and G move with it, plate H bearing against the top of sliding piece C until a notch is reached, when the operator depresses the handle E. The notch *d* in sliding piece C lets the plate H and arm G down until the knife D cuts and shapes the bead or member required, the knife remaining stationary, while the carriage B moves on, thereby compressing spring F. By the time the member or bead has been cut, the bevel of the notch *d* in the sliding piece C will gradually lift plate H out of the notch, when the compressed spring F throws the sleeve E′, with the cutter-bar E and cutter D, forward, thereby causing it to overtake the forward movement of the carriage B in time for the plate H of arm G to be let into the next notch in guide *c*, and repeat the operation of cutting and finishing the next member or bead.

In turning bedstead and chair stock, banisters, balusters, or similar work requiring sharp angular and clean-cut members, this auxiliary cutter attachment enables the operator to move the cutter over a beaded pattern and complete the rough work in considerably less time than it takes an ordinary gage-lathe to turn out the ordinary rough work, that invariably requires subsequent sandpapering and finishing. The arrangement of the vertically-sliding plate H in the arm G admits of the gaging of the cutter D in such a manner that it shall meet the wood at the most suitable angle, thereby avoiding scratching or scraping. Finally, the cutter D remaining stationary while doing its work, while the carriage alone moves forward, causes the knife to cut the wood clean, without leaving any ridges, such as are usually found on stock that has been turned out by a common gage-lathe without our improvement, so that work done with the aid of our improvement has the appearance and finish of work done on a lathe where the knife is held by hand.

Having thus described our invention, we claim and desire to secure by Letters Patent of the United States—

1. In a gage-lathe, the combination of the traveling carriage B with the auxiliary cutter attachment herein described, consisting of the cutter D, handle or cutter-bar E, arm G, sleeve E′, and spring F, arranged to operate substantially as and for the purpose herein shown and specified.

2. In combination with the lathe A and traveling carriage B, the sliding piece C, substantially as and for the purpose set forth.

3. The combination of the lathe A, guide *c*, traveling carriage B, and sliding piece C, substantially as and for the purpose herein shown and described.

4. The combination of the lathe A, having notched guide *c*, with the carriage B, having sliding piece C and auxiliary cutter attachment D E E′ F G H, all combined and arranged so as to operate in the manner and for the purpose substantially as hereinbefore set forth.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in presence of two witnesses.

WILLIAM BROWN.
JOHN D. HOWE.

Witnesses to the signature of WILLIAM BROWN:

LOUIS BAGGER,
JAS. E. MURDOCH, Jr.

Witnesses to the signature of JOHN D. HOWE:

THOMAS MILLIDGE,
GEO. T. MCCOY.