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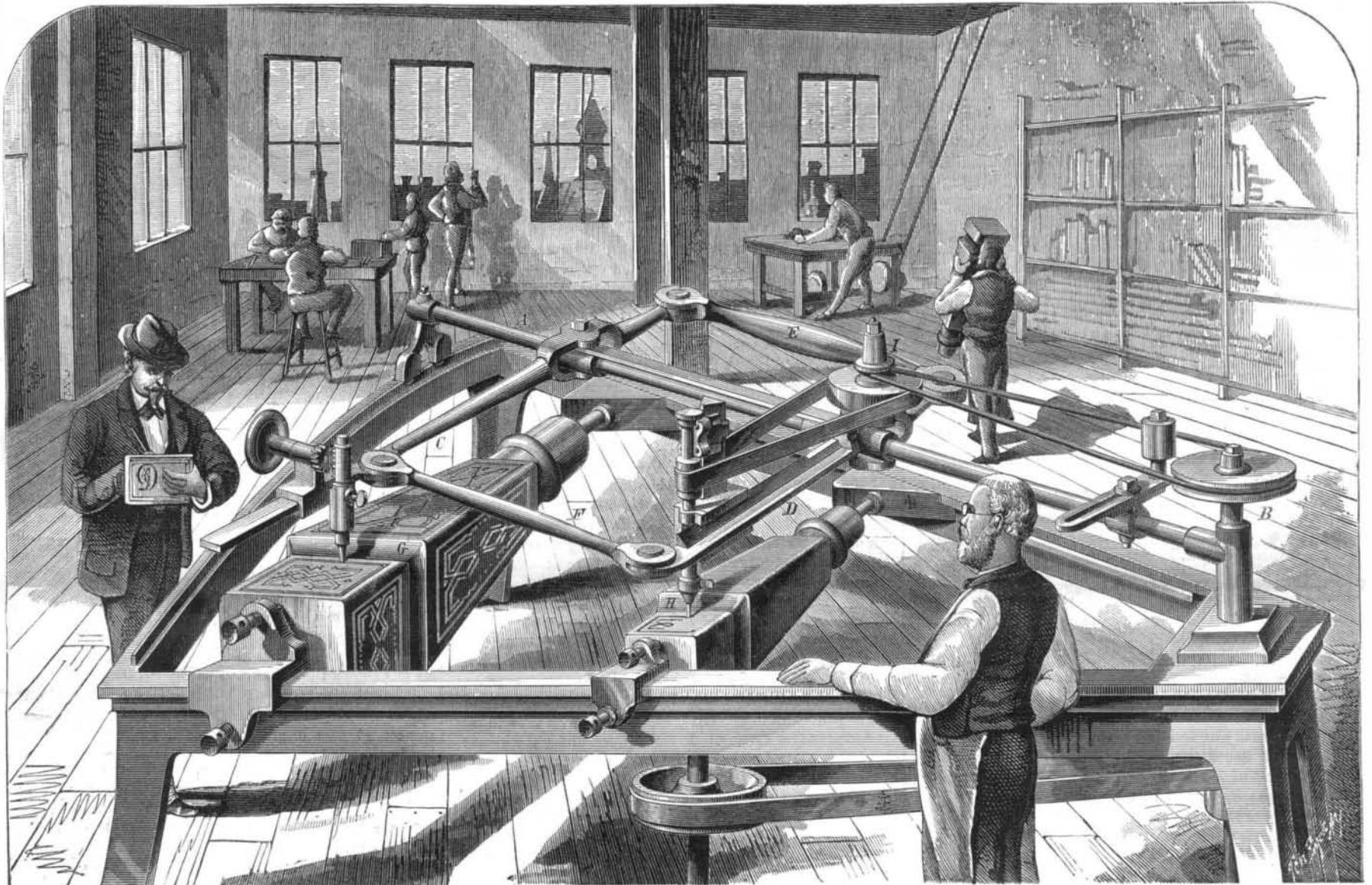
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## IMPROVED WOOD-CARVING MACHINE.

We illustrate herewith a new apparatus designed to perform all kinds of carving, from the coarsest scroll work or similar decoration used upon furniture, down to the pictorial engraving of wood blocks. The principal features of the invention are its simplicity and the ease with which it may

be operated, requiring no skilled attention nor especial care other than that involved in the very plain proceeding of following the outlines of a given pattern with a pointer moved by hand. The machine, in construction, is nearly identical with the pantagraph, an instrument used by draftsmen for duplicating drawings on an enlarged or reduced scale, the carving cutters being substituted for the pencil used in that apparatus. A is the principal rod or shaft upon which

carries the cutting tool, H. Said shaft is driven by a belt from the pulley, I, fixed at the central portion of the bar, D, which, in turn, is actuated by another belt from the pulley located on the summit of the vertical shaft, B. Shaft, B, is belted to the driving pulley shown under the table. It will be obvious that any motion given to the tracer, G, will be at once followed by the cutting tool, H, so that, for example, if the tracer be moved about the edges of a certain curve, the cutter will follow a like path. The latter, however, will be reduced in size, though in exact proportion, on account of the cutter being located nearer the center of the circle of which the bar, A, is the radius, than the tracer. Since the sleeves to which the bars, C and D, are pivoted are adjustable, it is clear that the nearer the cutter is carried toward the shaft, B, the smaller will be the path it describes, corresponding to that moved over by the tracer; and therefore the object, the outlines of which are followed by the latter, may thus be reduced, to any less scale desired, by suitable movements of the sleeve of the bar, D, in or out on the rod A.



BLACKMAN'S WOOD-CARVING MACHINE.

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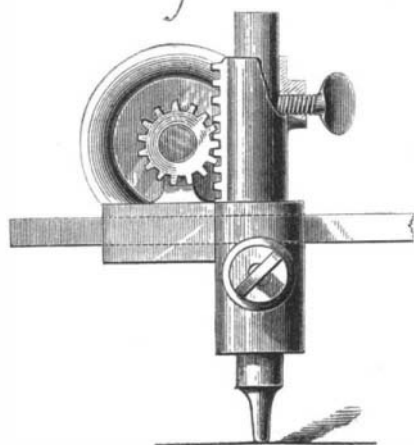
In the engraving, the machine is represented as carving the scroll work upon a pianoforte leg, which is mounted on centers so that the surfaces to be operated upon may be brought uppermost in succession. The work is always reduced in scale from three fourths downward, so as to secure greater ease and accuracy in operation; and therefore the pattern, which is shown secured beneath the tracer, G, is considerably larger than the article itself, which is fastened beneath the cutter.

Thus far we have referred principally to motions of the tracer and cutter in a horizontal plane. In order, however, to cause the tool to form the raised or indented portions of the work, it is necessary that there should be free movement in a vertical plane, so that, by continuous pressure on the tracer, the cutter may cut downward or be raised to leave certain portions in relief. The bar, E, it will be noticed, is very much heavier in construction than bar, F. It thus

serves as a counterpoise, and balances the frame on centers on the sleeves on bars, C and D, which surround rod, A. The motion of the frame, therefore, is universal; and at the same time, the parts are perfectly balanced in every position, reducing the manual labor of moving it to a minimum. This is probably the most important improvement in the inven-

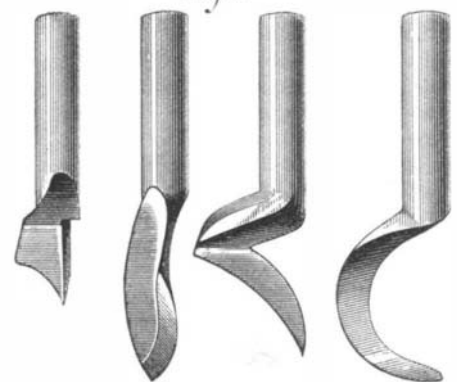
tion, and gives a large advantage over the ordinary routing machine, the motion of the cutter of which is confined to one horizontal plane. Connected with the upper part of the tracer, G, is a small rack, with which engages a pinion operated by a hand wheel. This device is shown more clearly in Fig. 2. Its object is to control the vertical action of the cutter, so that, if desired, it can be prevented from making as deep an indentation as called for by the pattern, or just the reverse. In Fig. 3 several forms of the cutters used are shown.

Fig. 2.



the working part of the device is supported. Its inner end is attached to a sleeve which surrounds the vertical driving shaft, B, which serves as a center for the circle, an arc of which is described by the outer extremity of the rod which is mounted on slides or rollers which traverse a curved track upon the table. Pivoted, as shown, to collars which slide freely upon the rod, A, and which may be adjusted thereon and clamped in position by set screws, are bars, C and D, o

Fig. 3



The capacity of the machine is large, since the table may be built on a more extended arc, thus admitting of an area to be worked over as great as is afforded beneath the cutter, allowing, of course, room for the pattern. The invention is light in all its portions, and easily constructed. It will prove, we think, a valuable aid to workers in wood of all classes.

Patented July 6, 1875. For further particulars address the inventor, Mr. John F. Blackman, with Vanderbergh, Wells & Co., corner of Fulton and Dutch streets, New York city.