3 Sheets—Sheet 1.

H. H. ADAMS.

MACHINE FOR CARVING WOOD.

No. 81,722. Patented Sept. 1, 1868.

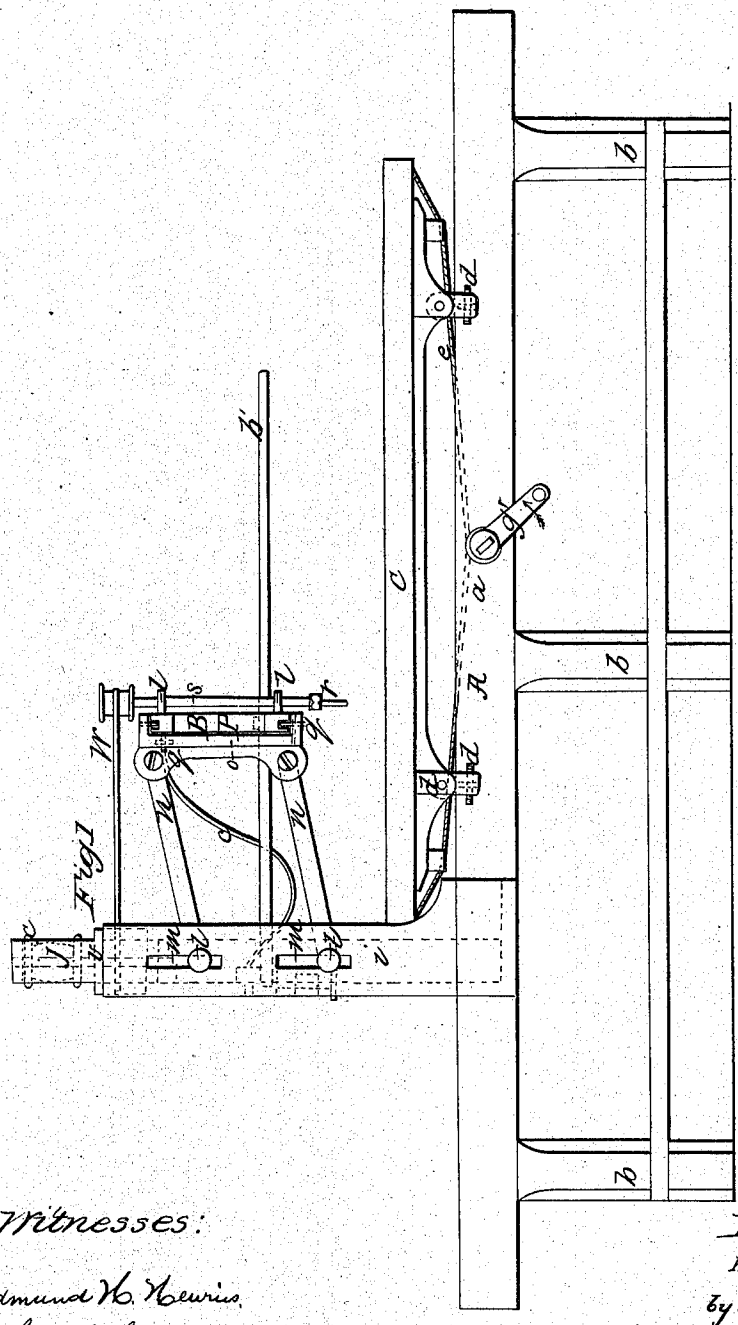


Fig. 1.

Witnesses:

Edmund N. Lewis.

Geo. A. Loring.

Inventor:

H. H. Adams.

by his attorney,

Frederick Curtis,

3 Sheets—Sheet 2.

H. H. ADAMS.

MACHINE FOR CARVING WOOD.

No. 81,722. Patented Sept. 1, 1868.

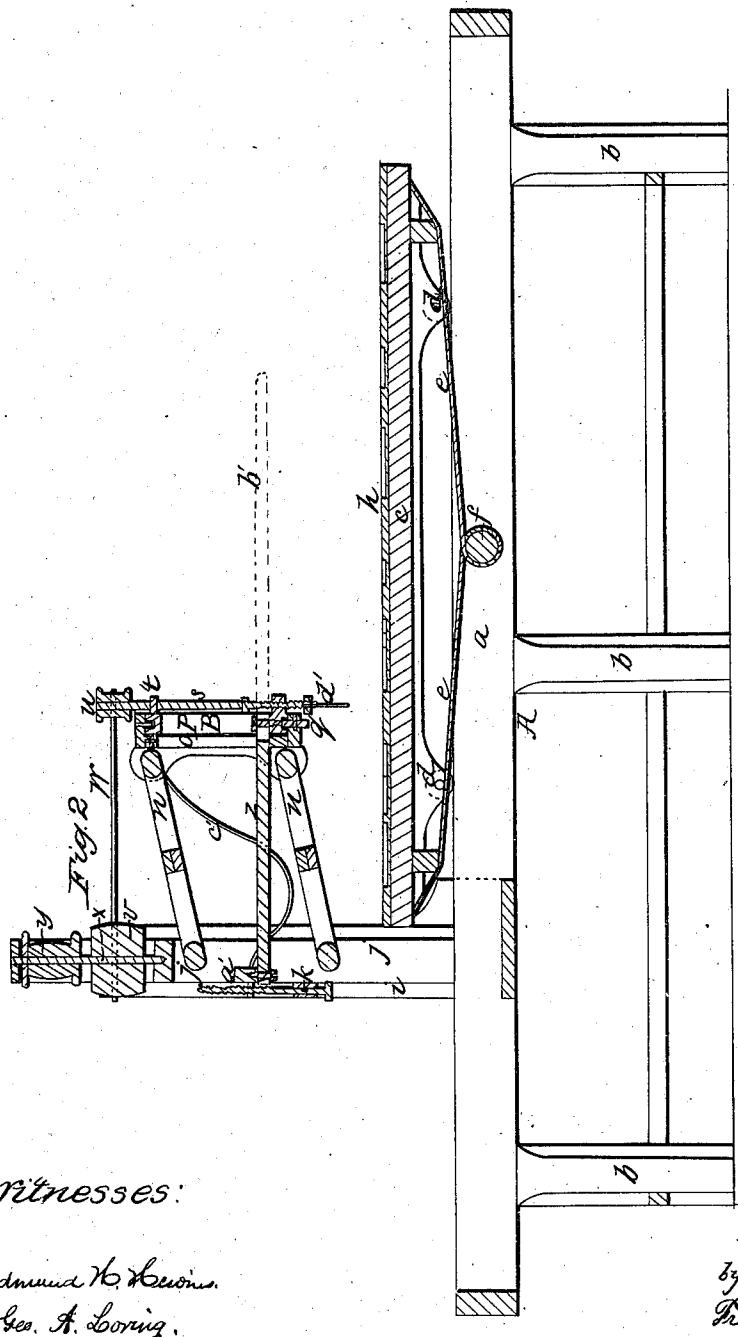


Fig. 2.

Witnesses:

Edmund K. Stevens.

Geo. A. Loring.

Inventor:

H. H. Adams.

by his attorney

Frederick Curtis

3 Sheets—Sheet 3.

H. H. ADAMS.

MACHINE FOR CARVING WOOD.

No. 81,722. Patented Sept. 1, 1868.

Fig. 4

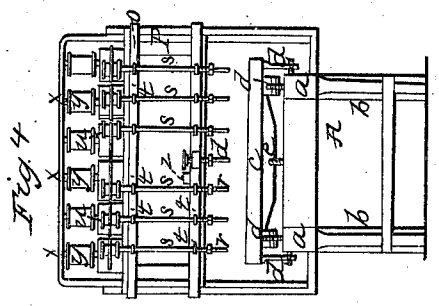
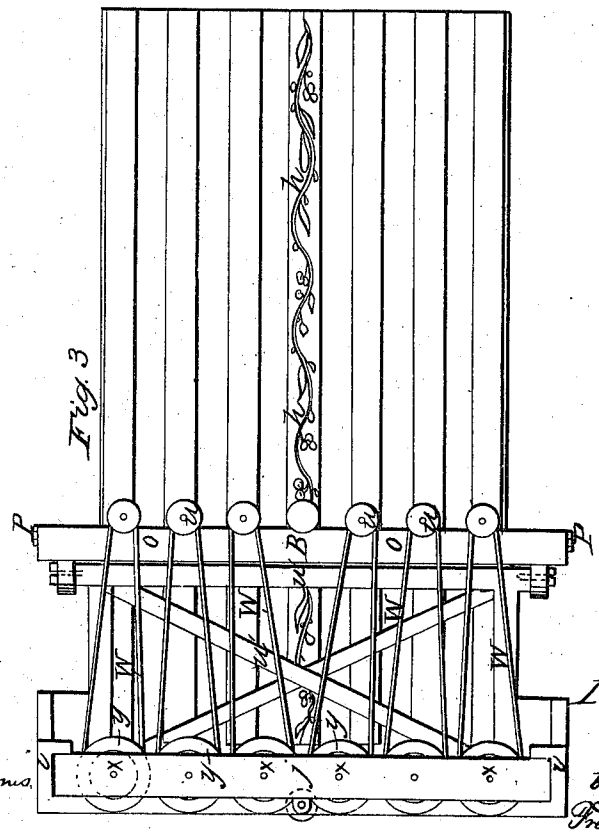


Fig. 3



Witnesses:

Edmund N. Stevens.

Geo. A. Loring.

Inventor

H. H. Adams

by his attorney

Frederick Curtis

United States Patent Office.

HANSON H. ADAMS, OF NEWBURYPORT, MASSACHUSETTS.

Letters Patent No. 81,722, *dated September* 1, 1868.

IMPROVEMENT IN MACHINES FOR CARVING WOOD.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Be it known that I, HANSON H. ADAMS, of Newburyport, in the county of Essex, and State of Massachusetts, have invented a new and useful Machine for Producing Carvings of different styles and designs; and do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, and in which—

Figure 1 is a side elevation.

Figure 2, a vertical and longitudinal section.

Figure 3 a plan, and

Figure 4 an end view of a machine in which are contained the ideas of my invention.

The machine comprising the subject of this application for Letters Patent is for cutting or carving ornamental, curved, or irregular figures or objects, for mouldings, medallions, &c., and for reproducing or multiplying such carvings in great numbers, and exact counterparts of each other, the object sought in making the invention being to provide, in a perfect manner, mouldings or other carved ornaments at a much less cost than has formerly been done, and to place within the reach of persons of humble or moderate means articles which have heretofore been considered much in the light of luxuries.

The principal feature of the invention is the employment of a plurality of revolving cutters, duly supported within a vibrating head, and operating in connection with a pattern-matrix or guiding-groove, applied to the upper surface of a sliding carriage, which supports such matrix, as well as the strips of wood or other objects to be carved, both the vibrating cutter-head and the sliding carriage being supported by a suitable frame, and the whole being arranged and operating as hereinafter explained.

In the drawings above referred to as illustrating my invention, A denotes a rectangular frame, composed of two long horizontal and parallel ways or guides, *a a*, supported upon a series of legs, *b b*, &c., a sliding carriage, *c*, being supported upon the top of the guides *a a* by a series of vertical and horizontal friction-pulleys, *d d*, alternate traverse or reciprocating movements of the carriage *c* upon the guides *a a* being effected by means of a rope or chain, *e*, wound about a horizontal shaft, *f*, extending transversely of the frame of the machine, and below the sliding carriage, the inner extremity of the shaft *f* being provided with a crank, *g'*, for putting it in rotation in either direction, and the two ends of the rope or chain being fastened respectively to opposite ends of the carriage *c*, the construction and arrangement of the frame A being similar to that of ordinary metal-planing machines now universally in use in machine-shops.

The sliding carriage *c* has formed upon its upper surface, and preferably in the centre thereof, a longitudinal irregular groove or matrix, *h*, such groove being of the form or design which it is intended to impart to the duplicate series of mouldings or other objects carved upon the machine, when such objects or figures are depressed. When raised figures are to be cut upon the machine, a raised pattern is to be employed in place of the groove *h*.

The frame A of the machine is furthermore provided with two upright posts, *i i*, supporting between them a vertical cross-frame, *j*, applied thereto in such manner as to be capable of freely sliding thereon, the vertical adjustment of such cross-frame, and the mechanism connected with it, being effected by a regulating-screw, *k*, applied to the two, as shown in fig. 2 of the drawings.

For additional means of security in this respect, however, I apply to the sides of the cross-frame *j* a series of clamp-screws, *l l*, &c.; the shanks of such screws extending through slots, *m m*, made in the posts *i i*, before mentioned, the heads of such screws overlapping the edges of the slots, and serving to confine the frame securely in position, the object of this vertical adjustment of the frame *j* being to accommodate the machine to objects of varying thicknesses.

B, in the drawings, denotes the cutter-head of the machine, suspended over the movable carriage *c*, and in advance of the frame *j*, and being pivoted to such frame by two truss-frames or toggles, *n n*, such truss-frames being parallel to each other, and serving to maintain the cutter-head at all times in a perpendicular position, or substantially so.

The cutter-head is composed of two open horizontal frames, *o p*, one sliding within the other, a series of rollers, *q q*, being disposed between the two, for the purpose of diminishing friction consequent upon the lateral movements of one within the other.

The movable portion, *p*, carries a series of vertical revolving cutters, applied to the lower extremities of a series of upright shafts, *s s*, &c., revolving in suitable bearings, *t t*, affixed to the front face of the movable frame *p*, such shafts *s s*, &c., being provided at their upper extremities with pulleys, *u u*, around which and a series of larger pulleys, *v v*, disposed within the upper part of the cross-frame *j*, endless belts, *w w*, travel, and put the shafts *s s* and cutters *r r* in rapid revolution.

The pulleys *v v* are supported within the frame *j* by vertical shafts, *x x*, and are provided with driving-pulleys, *ŷ y*, as represented in the drawings.

The lateral adjustment of the cutter-head B is effected by a lever, *z*, disposed longitudinally of the machine, the outer extremity of such lever being pivoted to a cross-bar, *a'*, of the frame *j*, and pivoted at about its centre to the sliding portion, *p*, of the cutter-head, the free end or handle, *b'*, extending over the carriage *c* and into a convenient position to be grasped by the attendant of the machine. The cutter-head is held some distance from the surface of the carriage *c* by means of a curved spring, *c'*, applied, as shown in the drawings, or by any other suitable device. Furthermore, a guiding-pin or follower, *d'*, is applied to the front face of the portion *p* of the cutter-head, and in alignment with the series of cutters *r r*, &c., the object of such pin being to take into or against the pattern *h*, before mentioned.

The above is a description of the component parts and construction of my invention. The operation of it is as follows:

A series of strips or pieces of wood are to be suitably secured to the upper surface of the movable carriage or bed *c*, parallel to the pattern *h*, and in alignment with the revolving cutters *r r*, &c., which are supposed to be in rapid revolution. The attendant of the machine now grasps the crank, *g'*, in one hand, and the handle *b'* of the lever *z* in the other. With one hand he now revolves the crank in the direction of the arrow thereon, at the same time depressing the cutter-head B by means of the lever *z*, and so that the guiding-pin or follower *d'* shall take into the indentations of the groove *h*, or be brought in contact with the pattern, if a raised one, by which means the lateral movements of the cutter-head will be so affected as to cause the rotary cutters to describe the same path of movement or figure as the said pattern, and to cut or carve from the strips of wood a series of objects, exact counterparts of such pattern.

When employing the machine for the purpose of cutting small ornaments, I have contemplated the application to the bed *c* of one or more supports for holding the object to be carved, and applied to the bed by a swivelling joint, in such manner as to be tilted or inclined at any desired angle with respect to the upper surface of the bed or revolving cutters *r r*.

When extreme traverse movements of the cutter-head, or the portion *p* of it which carries the revolving cutters, become necessary, I have contemplated applying to the machine, in place of the pulleys *v v*, &c., a long horizontal drum, and carry crossed belts from this drum to the pulleys *u u*, &c. This will allow the belts to move upon the drum, and follow the lateral movements of the cutter-head without alternately tightening and slacking the belts, which would occur but for some such device as the drum before mentioned.

The capacity of the machine above described for performing the work required of it is limited only by the number of revolving cutters that it is practical to combine in one machine, and by the dexterity of the attendant.

The machine performs the operation of carving one or an indefinite number of any irregular objects, exact counterparts of each other, and enables the work to be produced by the employment of a much smaller number of employees, and at less wages than the high prices now paid experienced carvers.

Having now described my invention, and the manner in which the same is or may be carried into effect, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with the vertical adjustable frame *j*, of the vibrating frames or supports *n*, and laterally-sliding or adjustable cutter-head and its cutters, under the arrangement and for the operation as herein shown and specified.

2. The combination, with the frame *j*, laterally-adjustable cutter-head, and vibrating truss-frames, by which the cutter-head is supported, of the lever *z* and spring *o'*, or its equivalent, constructed and arranged to operate substantially as and for the purpose set forth.

HANSON H. ADAMS.

Witnesses:

FRED. CURTIS,

GEO. A. LORING.