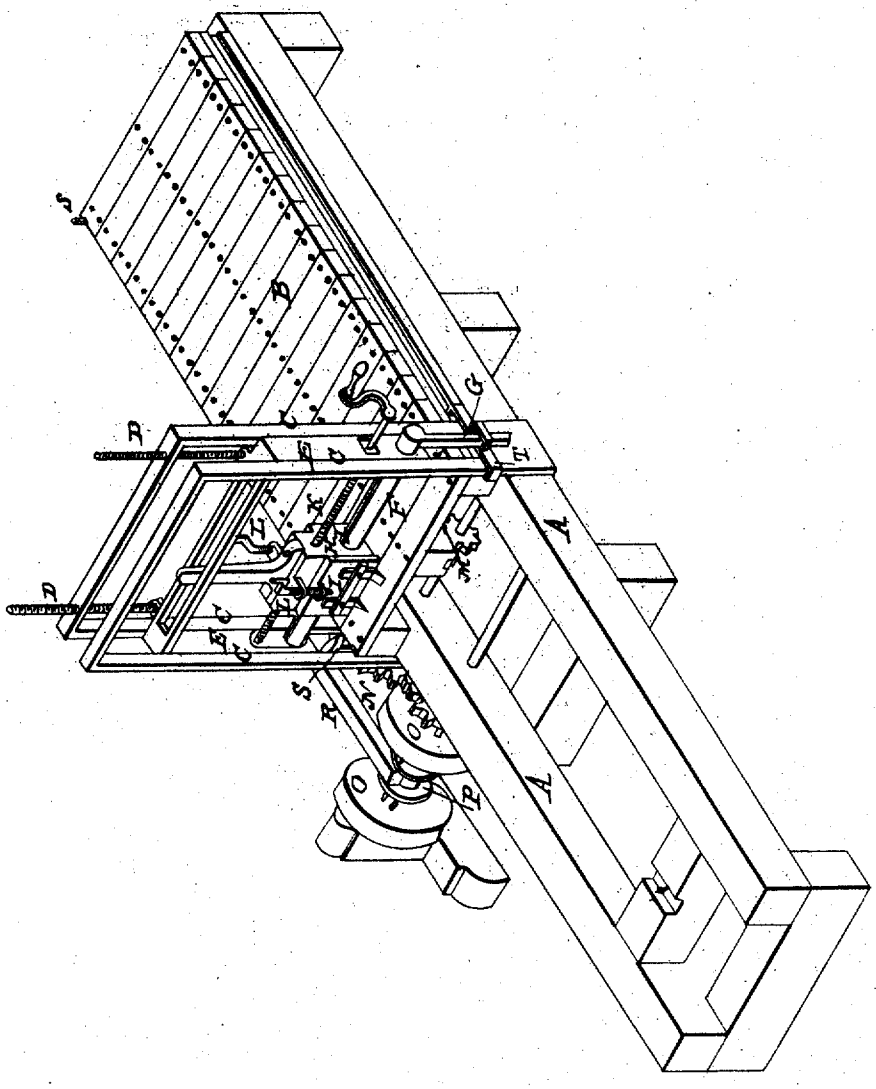
9744X

CLARK & BOYNTON.

Machine for Planing Stone.

Patented June 20, 1836.



9744X June 20, 1836

Anson Clark & Charles B Boynton West Rock Bridge Mass.

Letters Patent

The Schedule referred to in these Letters Patent and making part of the same containing a description in the words of the said Anson Clark and Charles B Boynton themselves of their improvement in the machine for planing or cutting and shaving Stone.

To all to whom these presents shall come. Be it known that We Anson Clark and Charles B Boynton both of West Rockbridge in the County of Berkshire and State of Massachusetts have invented certain new and useful improvements in the cutting or planing and shaving of Marble & other stone.

Upon a suitable foundation are placed two sticks of timber about thirteen inches square and at least three times as long as the longest block of stone which is intended to be cut or planed. These timbers are designed to support the other part of the machine & are framed together about five feet apart. A Platform to hold the blocks which are to be planed is formed by bolting planks two or more inches thick upon longitudinal timbers about eight inches square. This platform for common purposes should be about five feet in width and about twelve feet long. It is placed upon the foundation timbers and may slide thereon on rollers or upon friction rollers. In the centre of the foundation timbers are placed four upright cast iron posts about seven feet in height and of any required strength. These posts serve for guides in which the frame that holds the tools is moved up and down by hand according as the blocks to be planed vary in thickness. The tool frame is an oblong cast iron frame fitted to move accurately in the guides of the upright posts and is moved up and down by means of screws passing through the cross Bar that connects the tops of the upright posts. On the lower part of this tool frame is hung a horizontal cylinder of cast iron about five inches in diameter. This cylinder or shaft rests on the tool frame upon a journal turned on each end and is so fitted as to permit a motion on its axis and one end of the shaft or cylinder passes through the tool frame far enough to allow the attachment of a bevel wheel on the outside of the upright posts. This cylinder is accurately turned through its whole length so that the cast iron blocks to which the tools are screwed may slide upon it from one side of the platform to the other upon the upper side of the cylinder is cut a groove of about half an inch in depth through which a hole is

and to this groove is fitted a tongue in the tool block that prevents it from turning round upon the cylinder. The tool block is of cast iron about eight inches square and bored out so as to be nicely fitted to the horizontal cylinder and a strong screw passes from one side of the tool frame to the other and through the tool block above the cylinder by which screw the tool block is moved upon the cylinder from one end of the platform to the other. Two sliding cast iron plates of about one inch in thickness and of the same width of the tool block are fitted to the tool block one upon each side. To these plates the tools are secured by screws & the plates are moved upon and down on the tool block by screws. so that the tools may be accurately adjusted to the surface of the stone or to the depth required to be cut. There are projections both on the tool block & on the sliding plates through which the screws pass. A strong bar of iron either cast with or bolted to the top of the tool block runs upward about twelve inches. and between the cross bars that from the upper part of the tool frames. The use of this bar is to steady the tool block by resting alternately upon each cross bar of the tool frame as one or the other set of tools is brought into operation. The screw which runs through the tool block horizontally for the purpose of sliding it back and forth along the cylinder has a crank upon one end and it may be moved either by hand or by machinery.

Upon the under side of the centre longitudinal timber of the platform is fastened a rack into which works a pinion hereafter described. by which rack & pinion the platform is carried backward and forward beneath the tools.

The pinion which works into the rack is fixed upon a horizontal shaft lying beneath the platform and across the foundation timbers. upon one end of this shaft is placed a cog wheel which is moved by another cog wheel upon a second shaft lying like the first across the foundation timbers and parallel to the first mentioned shaft. upon this second shaft are two pulleys with a clutch between them. One of these pulleys is worked by an open and the other by a cross band so that they revolve in opposite directions. and by the shifting of the clutch a reciprocating motion is communicated to the platform. The clutch is shifted from one pulley to the other by means of a bow moving horizontally upon a joint or pin. One end of this bow lies in the clutch. The other is bent into an elbow is so placed as to be struck by pins projecting from the edge of the platform. upon one end of the horizontal cylinder is also fixed a bow on the outside of the tool frame

9744x June 20, 1836

and upright posts. This lever hangs in a perpendicular position and is used to shift the position of the tool block by rolling the cylinder so that the tools being placed upon opposite sides of the tool block may be brought alternately into operation as the platform moves back and forth & likewise to prevent the tools upon one side from dragging upon the stone while those upon the other side are cutting. The lower end of this lever is attached to a clasp upon one of the upright posts opposite the edge of the platform. This clasp is several inches longer than the width of the post, so that it can slide a short distance back and forth. Upon the inner side of this clasp is fastened a forked spring which runs in a groove in the edge of the platform. The compression of the spring within the groove causes sufficient friction not only to move the lever as far as the clasp will permit but also to hold it steadily in its place. The manner in which this part of the machine operates is as follows. The block or blocks to be planed having been placed upon the platform, one point for roughing off & one chisel for smoothing are placed upon each side of the tool block, or if the block is only to be roughed two four points may be used. The tools having been properly adjusted. The machine is set in motion and the block with the platform passes on beneath the tools until a pin in the edge of the platform shifts the lever that shifts the clutch & the motion is reversed. The friction upon the spring which runs in the groove in the edge of the platform carries back the clasp with the lever attached and the cylinder is thus rolled so as to change the position of the tool block and bring the second set of tools into operation. At the same time the screw which moves the tool block along the cylinder is to be turned so as to slide the tools a much further upon the stone as is desirable to cut. The platform now passes on until the pin upon the other end of the platform shifts the lever which shifts the clutch and again reverses the motion. That part of the machine designed for sawing is constructed as follows. Four upright posts of wood or iron are framed or bolted to several timbers so as to form a frame about four feet high and about eight feet wide. A cast iron frame is fitted to slide up and down within the first mentioned frame by means of a screw passing through one of the cross pieces at the top of the outside frame. Near the ends of this cast iron frame are placed two horizontal iron pulleys. around these pulleys runs an endless saw.

9744x June 20, 1836

made of band or hoop iron: upon the upper end of the shaft which passes through one of the pulleys is placed a horizontal cog wheel which works into a vertical cog wheel, upon the shaft of the vertical wheel is a pulley around which a belt passes which puts the machine in operation. This belt also passes around a pulley upon the main shaft of the planing machine. The stone is to be placed between the horizontal pulleys beneath the saw. The pressure of the saw upon the stone is regulated by the screw which raises and lowers the frame: and the saw is supplied with sand and water as are the saws now in use for the sawing of stone. What is claimed as new in the planing machine is the form of the steel blocks, except the sliding plates; the manner in which it is held firm & steady by the bar which rests against the cog bar of the steel frame; the method by which the position of the steel block is altered so as to bring a number of steels into operation and prevent the other from dragging upon the surface of the stone, and the application of the combined machinery to the planing cutting or working of stone. What I claim as new in that part of the machine for sawing is the application of an iron belt saw to the sawing of stone to be used with sand and water as other saws now are. by which application the advantages of a circular saw are obtained without the inconveniences of the common circular saw. The planing machine is applicable not only to the squaring of blocks of the leveling and smoothing of surfaces, but to the rounding and fluting of columns. the cutting of grooves and straight mouldings for steps, cornices and other similar work. The principal feature of this machine that distinguishes it from Hunters English stone planing machine is that The English machine. the tool moves over a stationary stone, while in this the stone moves upon a platform against stationary tools Hunters tool frame moves over a portion of his platform so that no block can be planed longer than the width of the platform. Many blocks of our marble for building are from nine feet to twelve feet long and from twelve inches to fifteen inches square. These cannot be planed properly because the tools would destroy the corners of the blocks which is absolutely necessary to prevent. To plane such blocks in a machine of Hunters form would require a machine so large as to be cumbersome and unwieldy. Hunters tools can not be raised or lowered a few inches. our marble blocks vary in thickness from a few inches to several feet. and our tool frames must fall three or more feet in order to adapt itself to the different thicknesses

Witnesses
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