

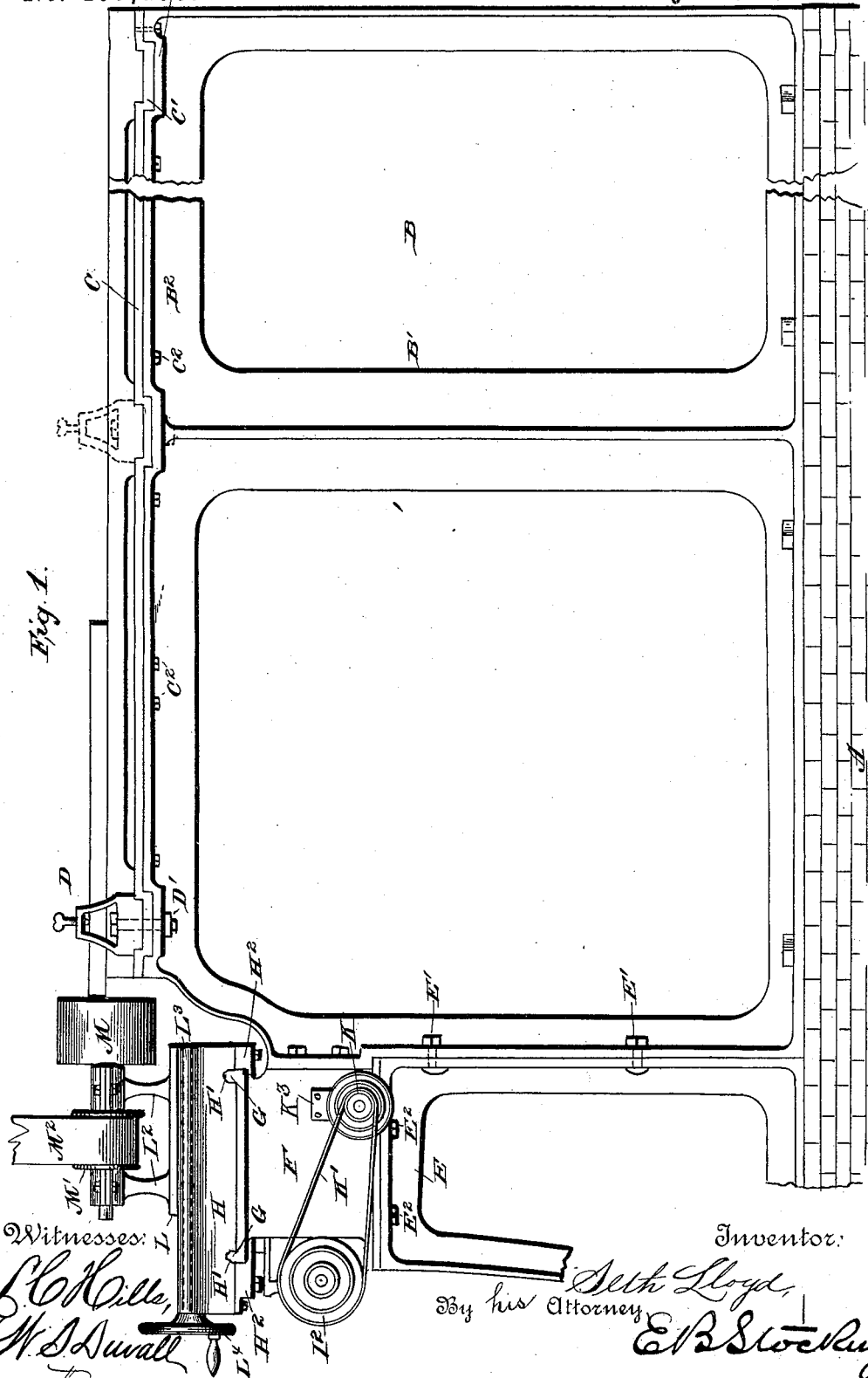
S. LLOYD.

MACHINERY FOR GRINDING THE EDGES OF A SERIES OF SLABS OF SLATE, &c.

No. 407,408.

Patented July 23, 1889.

Fig. 1.



Witnesses:

L. C. Hills,
W. S. Duwall

Inventor:

Seth Lloyd,
 By his Attorney *E. B. Stocking*

(No Model.)

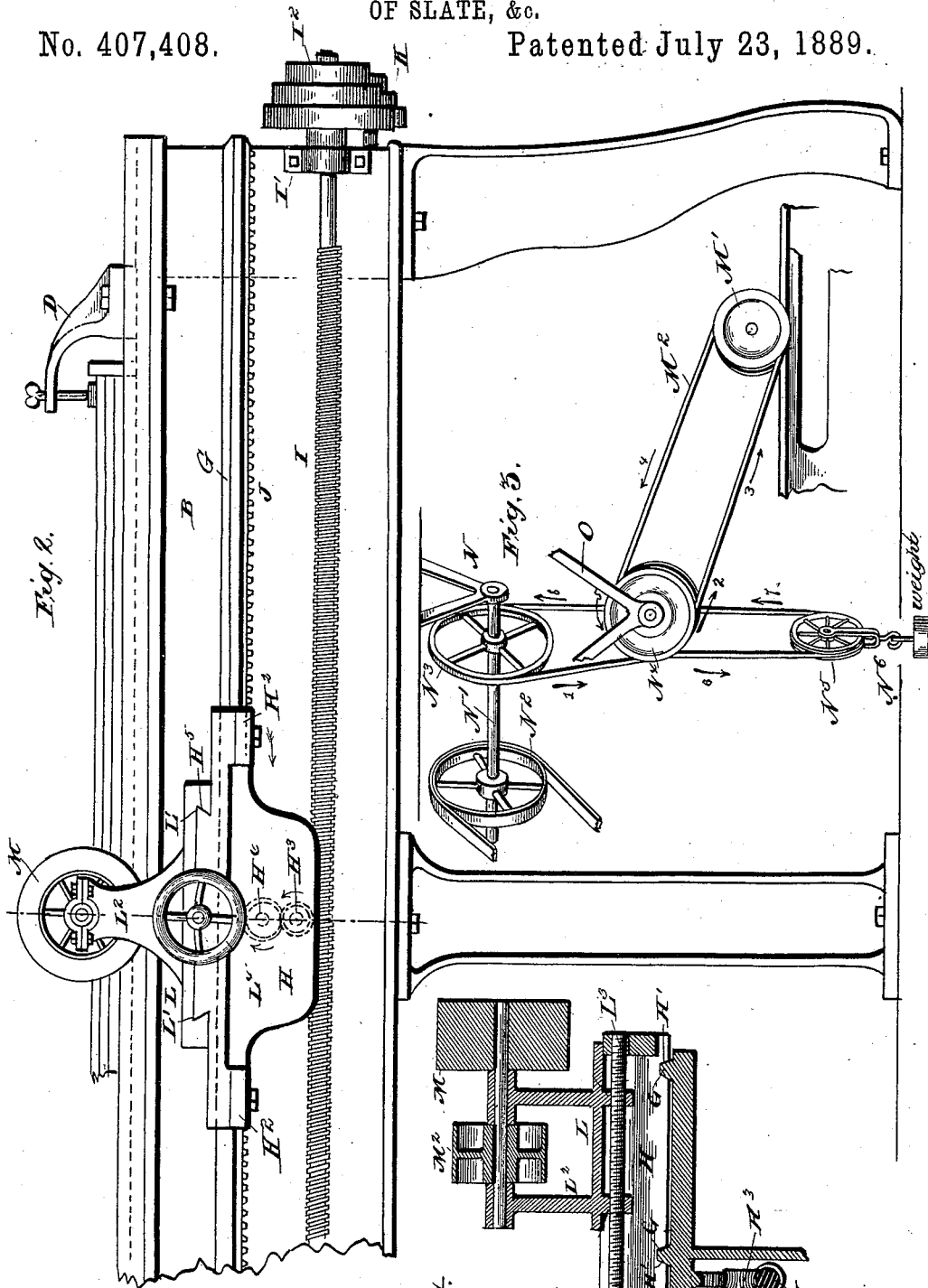
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W. S. Davall

Fig. 4.

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UNITED STATES PATENT OFFICE.

SETH LLOYD, OF WEST NEW BRIGHTON, NEW YORK, ASSIGNOR TO THE OLD BANGOR SLATE COMPANY, OF BETHLEHEM, PENNSYLVANIA.

MACHINERY FOR GRINDING THE EDGES OF A SERIES OF SLABS OF SLATE, &c.

SPECIFICATION forming part of Letters Patent No. 407,408, dated July 23, 1889.

Application filed March 29, 1888. Serial No. 268,925. (No model.)

To all whom it may concern:

Be it known that I, SETH LLOYD, a citizen of the United States, residing at West New Brighton, Staten Island, in the county of Richmond, State of New York, have invented certain new and useful Improvements in machinery for grinding the edges of a series of slabs of slate, stone, glass, metal, or other like substances uniformly, so that they may be joined to form a continuous surface with almost imperceptible joints, of which the following is a specification, reference being had therein to the accompanying drawings.

The object of this invention is to provide a machine for grinding the edges of a series of slabs of slate or other like substance uniformly, so that they may be joined to form a continuous surface in which the lines of juncture will be as far as possible imperceptible, and although herein shown and described for the purpose of grinding the edges of slabs of slate the machine as a whole is applicable to and may be used for the purpose of grinding the edges of other substances—such as, for instance, glass, stone, metal, &c.—wherein a perfect joint of the slabs is essential to form a continuous and unbroken surface.

Other objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a side elevation of a machine of the class described constructed in accordance with my invention. Fig. 2 is a front elevation thereof; and Fig. 3 is a perspective in detail, herein after described. Fig. 4 is a vertical section of the carriage, illustrating the mechanism employed for feeding the same.

Like letters of reference indicate like parts in all the figures of the drawings.

Bolted or otherwise affixed to any suitable foundation A is the frame-work B, comprising an upper beam B² and standards B', said frame-work being of desired dimensions and in accordance with the size of slabs to be ground. At suitable intervals along the top B² of the frame-work are formed depressions or square recesses B³, into which similar depressions C' of the bed-plate or table C enter, which bed-plate is bolted to the flanges

of the frame-work, as at C². Mounted in the countersunk or recessed portions C' of the bed plate or table are suitable clamps D, bolted, as at D', to the bed-plate and top of frame-work, for the purpose of rigidly maintaining the work upon the table and insuring a uniformly-ground edge to each of the slabs presented to the grinding mechanism, which I will now describe.

Secured by bolts E' to the front standards of the frame-work B is a supplemental frame-work E, upon which is mounted and secured by bolts E² a lathe-bed, with the usual ways or gibs G projecting beyond the front and rear of said lathe-bed, for a purpose hereinafter described. Adapted to slide upon the ways G is the grinding-carriage H, formed with grooves H', adapted to receive said tracks or ways and embrace the same. Suitable clip-bars H² are secured to the under surface of the carriage by means of bolts, and embrace the under side of the ways where they project beyond the edges of the lathe-bed F, and thereby prevent the carriage from being lifted from the track.

A feed-screw I is mounted in brackets I' at opposite corners of the lathe-bed, and is provided at one end with a cone-pulley I². Adapted to mesh with and be actuated by the screw I are a pair of vertically-arranged gears H³ H⁴, mounted in the carriage, the upper gear H⁴ meshing with a rack-bar J fixed to the front of the lathe-bed and the lower with the screw I. A belt K' connects the pulley I² to a similar cone-pulley K, mounted in a bracket K³, secured to the end of the lathe-bed F, and from this pulley K power is transmitted to the pulley I² and its feed-shaft, the pulley K receiving the power from any suitable system of belting and pulleys leading from the motor. It will now be seen that as the shaft I is rotated in the direction indicated by the arrow the gear H³ will be rotated, as indicated, and the gear H⁴ in an opposite direction, whereby the carriage will be fed along the track from end to end of the machine. Any suitable and well-known belt-shifting devices may be mounted above the machine for returning it to the starting-point or for reversing the feed.

The top of the carriage H is formed with

transverse dovetail gibs or ways H⁵, upon which is mounted and adapted to slide the grinding-wheel support L, formed with corresponding dovetail grooves L'. Standards L² project upwardly from the support L, and the latter is connected beneath to the cross-feed L³, (see Fig. 4,) having a hand-wheel L⁴, by which means the standards which form journals for a shaft carrying the grinding-wheel M and their supports may be fed to and from the work, and said wheel will be held in uniform contact with the edges of the slate throughout the entire travel of the carriage from end to end. By means of a pulley M', mounted on the grinding-wheel shaft and between the standards, motion is given said wheel, said motion being transmitted by mechanism hereinafter described.

At a suitable point above the machine in bracket N is journaled a counter-shaft N', carrying a pulley N², leading to the motor, and a pulley N³, from which extends the belt M². After passing over the pulley N³ the belt M² passes down and under a pulley N⁴, set in a hanger O at a right angle to the counter-shaft N', and from thence to the pulley M', over the same, and back over the pulley N⁴ to a pulley N⁵, carrying a weight N⁶, as indicated by the arrows. By this construction it is apparent that as the carriage carrying the pulley M' travels back and forth from side to side of the machine the pulley N⁵, carrying the weight N⁶, will be elevated and lowered, the weight serving to keep the belt sufficiently taut and gradually lowering as the carriage travels toward the end of its feed.

By reason of the bed-plate being set into

the top of the upper beam of the frame-work, the pressure of the grinding-wheel against the edge of the slates prevents the same from being pressed back out of the path of the wheel, and said bed-plate is made rigid with the frame-work.

Having thus described the invention, what is claimed is as follows:

1. In a machine of the class described, a frame-work, the top or upper beam of which is formed with recesses, in combination with a bed-plate having similar recessed projections adapted to take therein, with clamps mounted in the recesses of the bed-plate, and a bolt passing through said clamp, bed-plate, and beam, substantially as specified.

2. In a machine of the class described, a frame-work provided with a longitudinal feed-screw and a rack-bar at its front, and with ways, in combination with a carriage mounted on said ways and carrying a grinding-wheel and provided with series of gear, one of which meshes with the feed-screw and the other with the rack-bar, substantially as specified.

3. In a machine of the class described, the combination of the bed-plate C, having recesses C', with the frame-work B, recessed as at B³, and with the clamp D, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

SETH LLOYD.

Witnesses:

CHARLES MCNAMEE,
A. T. MOORE.