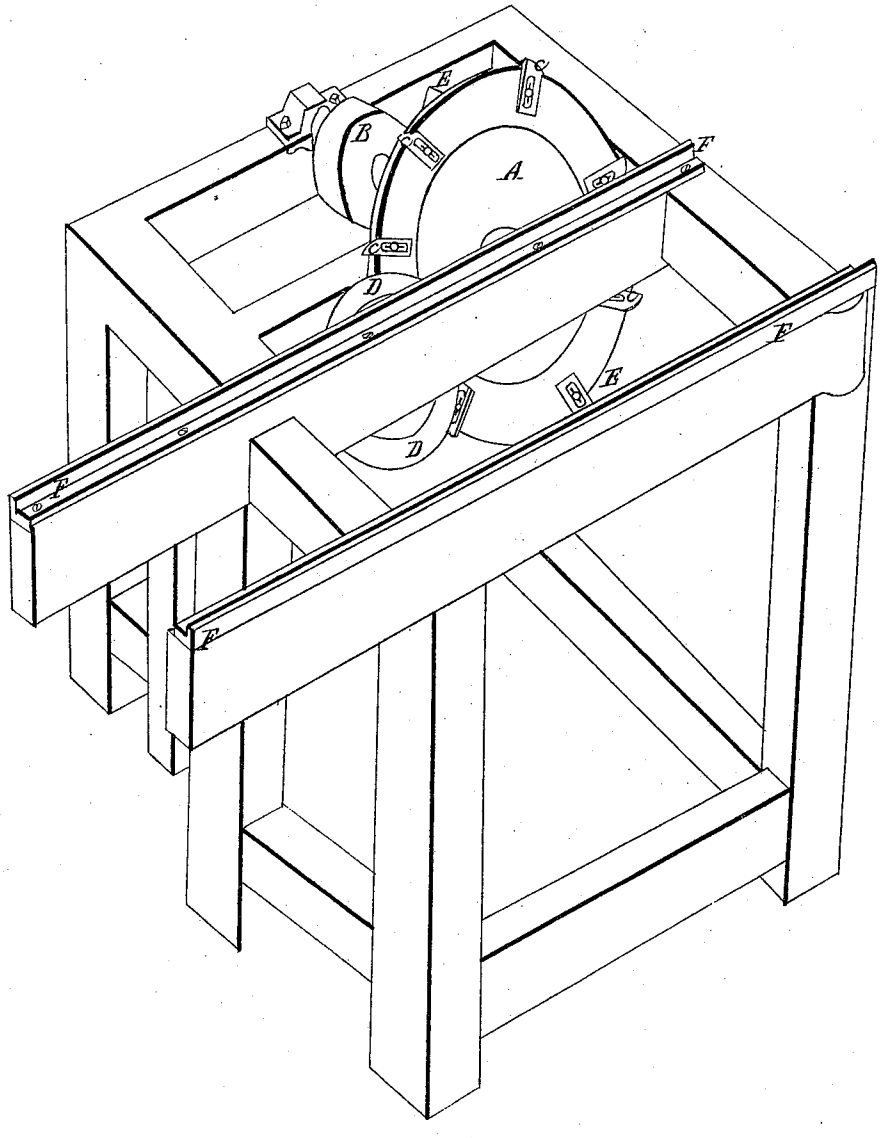
A. Keyes,

Cutting Slate.

No. 12,164. Patented Jan. 2 1855.



AM. PHOTO-LITHO. CO. N.Y. (OSBORNE'S PROCESS)

UNITED STATES PATENT OFFICE.

ASA KEYES, OF BRATTLEBORO, VERMONT.

MACHINE FOR CUTTING AND TRIMMING SLATE.

Specification of Letters Patent No. 12,164, dated January 2, 1855.

To all whom it may concern:

Be it known that I, ASA KEYES, of Brattleboro, in the county of Windham and State of Vermont, have invented a new and Improved Mode of Dressing Slate for Roofs and of Straightening the Edges of Stratified Stone for Flagging and Other Purposes; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and the letters of reference marked thereon.

The nature of my invention consists in applying a rapid succession of stone hammer blows, each of which beats off a minute piece of the slate while the latter is carried along for the purpose by a carriage on ways.

To effect this I construct a machine substantially as follows: A heavy cast iron wheel (A Figure I,) is made to revolve with its axis, which is mounted in suitable bearings, and propelled by a pulley (B). Into this wheel, and projecting a little beyond its periphery I insert and fasten firmly the requisite number of hammers or cutters (C Fig. I). Parallel with and very near to the above mentioned wheel I place another wheel which I call the "dog" (D Fig. I,) the purpose of which is to support the under surface of the slate opposite and near to the point where each blow is given. This dog wheel turns freely on its axis.

The carriage on which the slate is laid, is furnished with friction rollers which trundles it on ways (F Fig. I). The carriage may be of cast iron and it is well to make it of open work, like small window sash, for the purpose of allowing chips and dust to fall freely through it. The dog wheel is also of cast iron. It should rise a little higher than the upper surface of the carriage, to insure its contact with the slate. This dog may be a stationary, fixed segment of iron, over which the slate shall slide when the carriage moves; but I prefer a wheel as above described which shall revolve whenever the adhesion or friction of the slate is sufficient to turn it. The hammers or cutters are made of wrought steel, or of cast iron provided the latter is chilled at the outer end which comes in contact with the slate. As these hammers or cutters have narrow faces, and might have a strip of waste material which would run against the cast iron wheel and impede the motion, I insert among them two or three flat pieces of iron (E Fig. I) to break off any such tongue of waste slate. These flat head pieces, it will be obvious, should not project so far beyond the periphery of the wheel as do the hammers or cutters.

The wheel which carries the hammers or cutters is heavy, and this weight of the wheel not only furnishes the momentum of the individual blows of each hammer but supplies the purpose of a fly wheel to the machine. The hammers are held into mortises cast in the wheel, by bolts and nuts.

The carriage may be shoved by the operator by hand, or it may be geared to be carried by the main axis.

If this latter mode is pursued it will be well to so proportion the feed to the revolutions of the main axis that each hammer will strike onto the slate about one eighth of an inch, or from one eighth to one quarter when the stone to be cut is of the thickness of roofing slate.

The advantages of the circular dog wheel are important, for if the slate in process of trimming bears upon a level rest, the unevenness of the slate will occasion it frequently to break and waste the material. But in my invention above specified, the slate, however uneven, is always in contact with the circular dog at the point where it receives the blow of the hammer or cutter and thereby the frequent breaking of the slate is avoided.

I do not claim as my invention the cutting of roofing slate by means of a revolving knife and bevel rest, after the manner of shears, as patented by James Carter, of Delabole, in the county of Cornwall, England, in the year eighteen hundred and forty five, whose entire discovery as recited in his specification and exhibited in his drawing I wholly disclaim; but

What I claim as my invention and desire to secure by Letters Patent is—

The combination of the cutters or hammers C on the fly wheel A with the circular dog D, in direct contact with which each successive portion of the slate rests to receive the blows of the cutter while the slate is fed up by a carriage on the ways F, said combination operating substantially as and for the purpose above set forth and described.

ASA KEYES.

Witnesses:

I. D. BRADLEY,

S. R. BRADLEY.