May 21, 1940. A. W. HENDRICKS ET AL 2,201,815

SHAKE SPLITTING MACHINE

Filed April 4, 1938 2 Sheets-Sheet 1

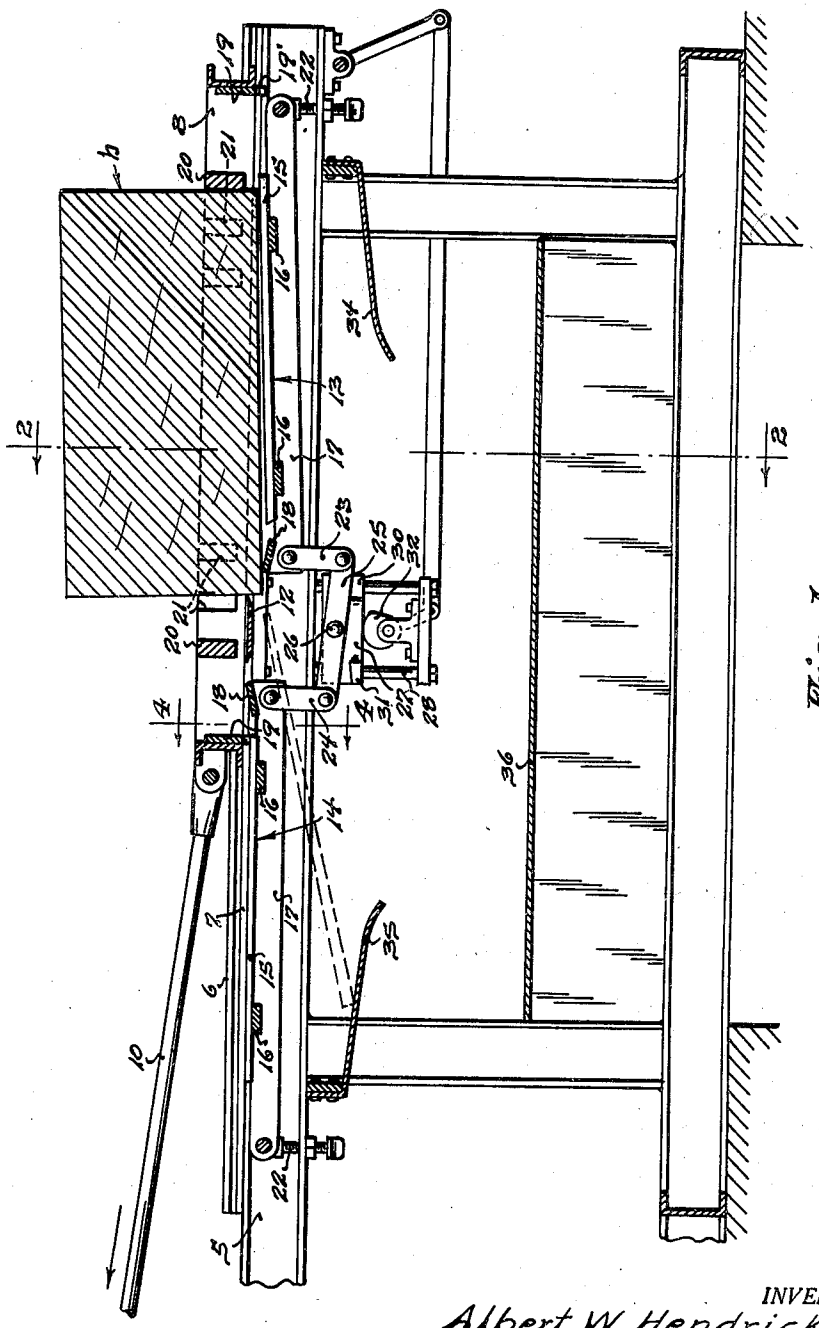


Fig. 1.

INVENTORS:
Albert W. Hendricks
Donald H. Clark
BY Edwards & Dawes
ATTORNEYS.

May 21, 1940. A. W. HENDRICKS ET AL 2,201,815

SHAKE SPLITTING MACHINE

Filed April 4, 1938 2 Sheets-Sheet 2

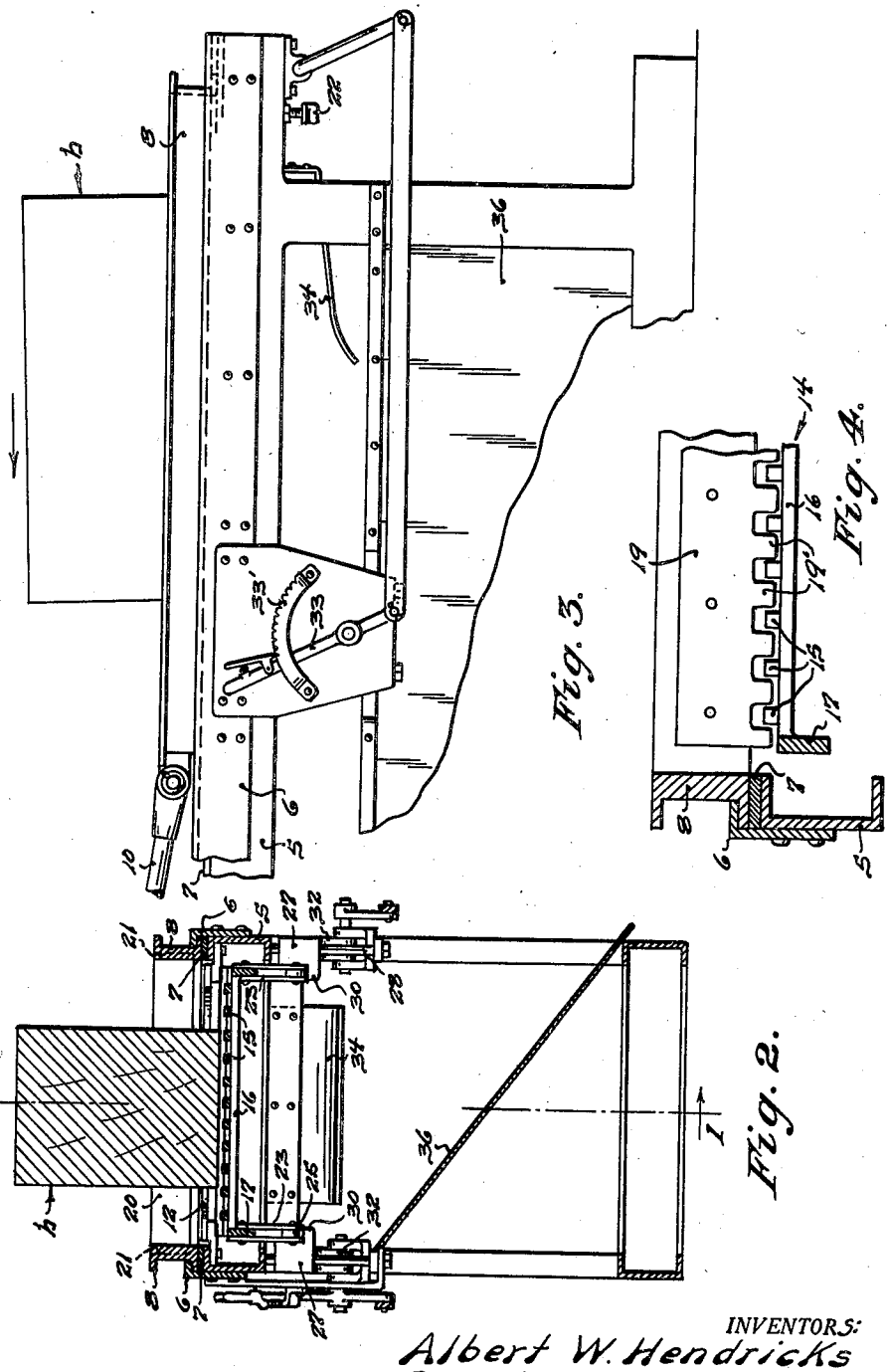


Fig. 3.

Fig. 4.

Fig. 2.

INVENTORS:
Albert W. Hendricks
Donald H. Clark
BY Edward E. James
ATTORNEYS.

Patented May 21, 1940 2,201,815

UNITED STATES PATENT OFFICE

2,201,815

SHAKE SPLITTING MACHINE

Albert W. Hendricks and Donald H. Clark, Seattle, Wash., assignors to Totem Shake Corporation, Seattle, Wash., a corporation of Washington

Application April 4, 1938, Serial No. 200,024

7 Claims. (Cl. 144—193)

This invention relates to improvements in shake splitting machines and particularly to a machine such as C. DeKoster and N. J. Anderson illustrate and describe in their U. S. Letters Patent No. 2,094,640 issued October 5, 1937.

It may be here stated that the said DeKoster-Anderson machine provided a transversely extending double-edge knife, a pair of bed members for supporting a shake bolt disposed at opposite sides of the knife below the splitting plane of the knife, and means operating to carry the shake bolt in reciprocatory travel from one to the other bed member through the plane of the knife edges for removing shakes successively from the bottom of the bolt, the bed members being adjustable vertically to lower or raise the bolt and thereby regulate the depth of the shake at the leading butt end thereof. This adjustability, especially where the machine was set to obtain major depth as when cleaving relatively flat boards rather than the tapering shakes, not infrequently resulted in the leading end of the board hitting the opposite bed member. Another disadvantage, especially noticeable when riving these heavier boards, was a tendency for the leading end thereof to throw the rear end against the knife as the split is completed due to its drop and the rocker movement of the rear end about the toe of the bed member as a fulcrum, taking a triangular "bite" from the rear end of the board.

Our present improvements overcome the above objections and additionally correct certain other disadvantages. Each of these several perfected features will become apparent in the course of the following detailed description and claims, the invention consisting in the novel construction, adaptation and combination of parts hereinafter described and claimed.

In the drawings:

Figure 1 is a longitudinal vertical section illustrating a shake splitting machine embodying the present improvements, the section being taken on the line 1—1 of Fig. 2.

Fig. 2 is a transverse vertical section taken on the line 2—2 of Fig. 1.

Fig. 3 is a fragmentary side elevational view; and

Fig. 4 is a detail transverse vertical section taken to an enlarged scale on the line 4—4 of Fig. 1.

Referring to the drawings, the machine frame is comprised of suitable rigid structural members such as the transversely spaced channel-type uprights lying at each corner of the machine and supporting integral horizontal channel girders 5 along each side, these channels carrying angle bars 6 which co-act with wear plates 7 to form track-ways for the flanged skid cheeks 8 of an open-top-and-bottom carriage which is operated horizontally in reciprocatory travel by a connecting rod 10, the rod being driven from a suitable crank (not shown).

Supported to extend transversely of the frame at the approximate mid-point of the carriage travel is a double-edge stationary riving knife 12 having its upper face lying below the plane of the track-way. At opposite sides of this knife are a pair of bed members 13—14 supported for vertical adjustment and comprised of longitudinally extending grate elements 15 supported by transverse cleats 16 fixed to side bars 17, the grate elements acting to support only the rear edge of a shake bolt *b* and, as a forward support, being complemented by transverse foot bars 18 disposed at the forward limits of the beds. As will be readily seen from an inspection of Figure 1, our bed arrangement in which only the forward and rear ends of the bolt contact the bed member as the bolt is thrust into splitting engagement with the knife eliminates a rocking of the bolt as the result of irregularities on the underside of the same.

Denoted by 19 are stripping plates rigid with the carriage and these plates lie in transverse relation with teeth 19' being provided on the undersides to extend into the interstices between the grate bars for clearing the latter of wood fragments. 20 represents thrust members for driving the bolt into engagement with the knife, such members being fitted selectively in paired notches 21 formed in the skid-cheeks of the carriage to position the same according to the length of the bolt being cleaved.

Referring now to our vertical adjustment for the beds we mount the rear ends by suitable means such as the indicated jack-screws 22 and for the forward ends provide a transfer balance comprising links 23—24 carried by a scalebeam 25 which is medially fulcrumed as at 26 to a block 27 carried for sliding movement on parallel vertical guide rods 28, the rocker movement of the beam being limited by stop-pads 30—31. Said balance assemblies lie at each side of the beds and the blocks thereof are adjusted as to height by respective cams 32 regulated in unison by suitable linkage from a lever handle 33 acting over a setting quadrant 33'. The connecting linkage between the transfer balances at each side of the machine leaves the throat below the bed members and the knife unobstructed.

It is believed clear that the weight of the bolt, depressing one of the companion bed members to a point limited by the stop-pad therefor, automatically elevates the other bed member such that the foot bar 18 thereof lies out of the path of the advancing butt end of a shake being rived from the underside of the bolt. It is to support this advancing butt end as the split approaches the rear end of the bolt that we provide skirts 34—35 fixed to the frame in underlying relation to the rear ends of the respective bed members, these skirts carrying the butt end of the bed member to relieve what has heretofore been an excessive weight on the tip portion. Indicated by 36 is a diagonal slide which directs the shake or board, as the case may be, laterally into a receiving chute.

We propose no unnecessary limitations and expect that the hereto annexed claims be given a breadth in their interpretation commensurate with the state of the advance in the art.

What we claim is:

1. In a machine for splitting shake bolts, in combination with a transversely extending double-edge knife and bed members for supporting the bolt located at opposite sides of the knife below the splitting plane of the latter, means acting to obtain relative movement as between the supported bolt and the knife for carrying the bolt from one to the other bed member to successively remove shakes or boards, as the case may be, from the underside of the bolt, and skirt elements disposed in underlying relation to the bed members in the path of the leading end of work being split from the bolt for supporting said leading end and thereby relieving the weight from the rear end of the work.

2. In a machine for splitting shake bolts, in combination with a transversely extending knife and a bed member for supporting the bolt located at one side of the knife below the splitting plane of the latter, means acting to obtain relative movement as between the supported bolt and the knife for successively removing shakes or boards, as the case may be, from the underside of the bolt, and means complementing said bed member for supporting the leading end of work being split from the bolt to relieve the weight thereof as the knife approaches the rear end of the split.

3. In a machine for splitting shake bolts, bed structure for supporting the bolt in the travel of the bolt into engagement with the splitting knife, said bed structure comprising a floor and a transversely disposed foot bar complementing said floor and positioned terminally as respects the bed at the end thereof proximate to the knife, the foot bar being inclined longitudinally from the plane of the floor with the edge thereof adjacent to the floor being disposed in the approximate plane of the floor and the opposite edge spaced appreciably above said floor plane.

4. In a machine for splitting shake bolts, in combination with a transversely extending double-edge knife, bolt-supporting bed members located at opposite sides of the knife below the splitting plane of the latter and having their outer ends pivoted to obtain depression of their inner ends about said pivots as axes by the weight of the bolt delivered thereto, means acting to carry the bolt in reciprocatory travel from one to the other of said bed members through the plane of the knife edges, means connecting the inner free ends of said bed members and functioning to elevate a previously depressed bed member automatically in response to the weight-operated depression of the other bed member, and adjustment devices for regulating, relative to the splitting plane of the knife, the depth to which the bolt-supporting bed member is depressed by the weight of the bolt in each stroke of said reciprocatory travel.

5. The structure defined in claim 4 wherein the depth-regulating devices comprise the combination of a vertically movable foot-pad providing stops acting to limit the depression of the bed members, and a cam operatively associated with the foot-pad for adjusting the same vertically.

6. In a machine for splitting shake bolts, in combination with a transversely extending double-edge knife, bolt-supporting bed members located at opposite sides of the knife below the splitting plane of the latter and having their outer ends pivoted to obtain depression of their inner ends about said pivots as axes by the weight of the bolt delivered thereto, means acting to carry the shake bolt in reciprocatory travel from one to the other of said bed members through the plane of the knife edges, and means connecting the inner free ends of said bed members and functioning to elevate a previously depressed bed member automatically in response to the weight-operated depression of the other bed member.

7. In a machine for splitting shake bolts, in combination with a transversely extending double-edge knife and a pair of bolt-supporting bed members located at opposite sides of the knife below the splitting plane of the knife to alternately receive the bolt as the bolt traverses the knife, means acting to carry the bolt in reciprocatory travel from one to the other of said bed members through the plane of the knife edges, said bed members being pivotally mounted at their outer ends to obtain depression of their inner ends about said pivots as axes by the weight of the bolt delivered thereto, and connection between the inner free ends of said bed members comprising balance linkage acting automatically in response to the depression of the inner end of either of the bed members upon reception of the bolt thereby to elevate the inner end of the other bed member.

ALBERT W. HENDRICKS.
DONALD H. CLARK.