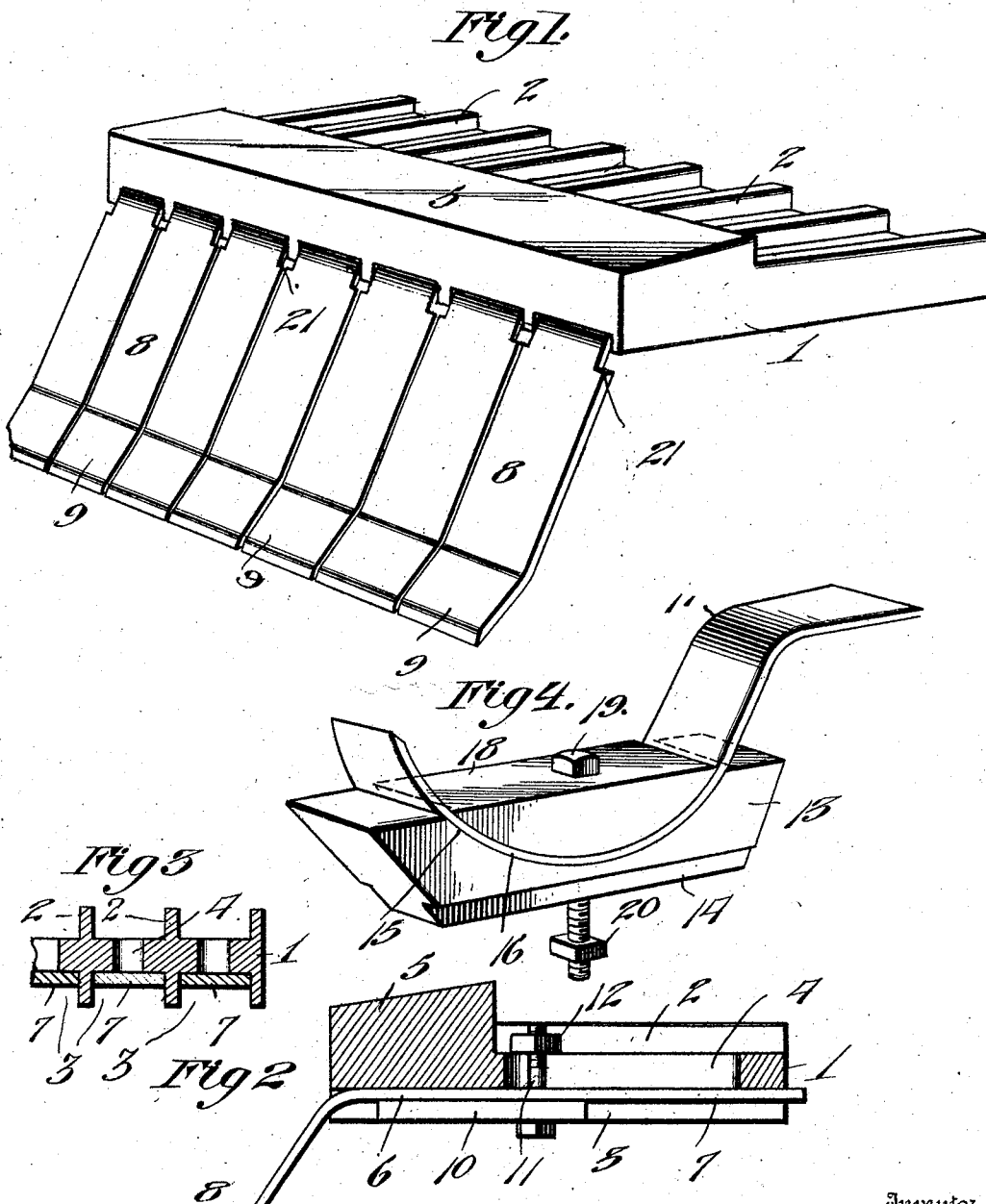


J. E. GARNER.
CHIP BREAKER.

APPLICATION FILED MAR. 1, 1905.

2 SHEETS—SHEET 1.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN E. GARNER, OF PHILADELPHIA, PENNSYLVANIA.

CHIP-BREAKER.

No. 806,078.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN E. GARNER, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Chip-Breakers, of which the following is a specification.

This invention relates to improvements in chip-breakers.

The object of the invention is to provide a device of this character by which an even pressure may be obtained entirely across the surface of the work, however uneven such surface may be, and whereby wide and deeply-cut work can be operated upon and held from springing up from the bed of the cutting-machine.

The preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of my improved chip-breaker. Fig. 2 is a front to rear section of the same, taken on a line between adjacent bearing-springs. Fig. 3 is a detail cross-section. Fig. 4 is an inverted perspective view of a bearing-spring and attachment for securing an extended adjustment of the spring. Fig. 5 is a view similar to Fig. 2, showing the finger illustrated in Fig. 4 applied for use. Fig. 6 is a detail sectional view on the line 6-6, Fig. 5, looking in the direction of the arrow; and Fig. 7 is a detail perspective view of the special form of finger illustrated in Figs. 4 and 5.

The numeral 1 in the drawings designates a substantially oblong rectangular block or plate constituting the body or supporting bracket of the breaker. This body is provided upon its upper and lower sides with grooves 2 and 3, extending from front to rear thereof in a direction transverse to its length. The lower grooves 3 extend entirely from front to rear of the body, while the upper grooves 2 terminate some distance in rear of the front of the body and are connected with the grooves 3 by intervening vertical slots 4. In advance of the grooves 2 and above the forward ends of the grooves 3 the front portion of the body is made solid, thus providing a transverse reinforcing-bar 5.

The body 1 supports a series of bearing-springs, each spring comprising a horizontal shank 7, terminating at its forward end in an angular finger 8, which finger projects downward from the front of the body at an oblique angle to the body and shank and has its lower

end bent upwardly at an obtuse angle thereto to provide a terminal pressure portion 9, which is adapted to bear upon the surface of the work. The shanks 7 of the several spring-fingers, of which any desired number may be employed, are slidably mounted in the guide-grooves 3, so that they may be adjusted to regulate the relative positions of the bearing portions 9 to conform to the surface of the work, and each shank is clamped in adjusted position by means of a clamping-plate 10, disposed upon the under side thereof, and a clamping-bolt 11, which latter has its head bearing against the plate and projecting upwardly therethrough and through an opening in the shank and the slot 4 into the groove 3, where it is provided with a clamping-nut 12, which bridges across the slot and draws upon the clamping-plate to hold the shank pressed firmly against the under side of the body 1. The fingers 8 extend across the front of the body and project downwardly and forwardly therefrom, so that their bearing portions 9 in practice will engage the upper surface of the work, and by the use of a series of spring-fingers arranged in this manner it will be readily understood that the fingers are free to have movement in a vertical plane to accommodate themselves to irregularities in the surface of the work, so that a firm bearing will be maintained on all portions of the work in a transverse direction, thus preventing the work from springing up from the body of the cutting-machine. By slidably mounting the shank 6 in the grooves 3 the spring-fingers may be adjusted so that their bearing portions will be arranged to project into and bear upon the surfaces of cavities of varying depths. As, however, the fingers so constructed and mounted can only be employed for shallow cavities or cuts, I provide means whereby a secure bearing may be maintained on the work when wide and deep cavities or cuts are made. To this end I employ a supporting-block 13, having a reduced upper guide portion 14, which may be slidably fitted in any one of the grooved guideways 3. This block is formed in its under side with a segmental or partially-circular recess 15, adapted to receive the curved or arcuate-shaped shank 16 of a special form of spring-finger 17. A clamping-block 18 is adapted to engage the outer or concaved surface of the shank 16 to clamp the same against the curved wall of the recess 15. The block 18 is secured in position by a bolt 19, having its head bearing

against the under side of said block and its shank projecting through an opening in the shank 16 of the plate and projecting upwardly through the block 13 and provided with a nut 20. The threaded end of the shank of the bolt 19 is adapted to project upwardly through one of the slots 4, similar to the bolts 11, and its nut 20 to bridge said slot to clamp the parts in adjusted position. By this construction the finger 17 may be adjusted in a circular path, so that its bearing portion will project downwardly below the bearing portions of the other fingers and engage the wall of a deep cut or mortise formed in the work to exert pressure upon that portion of the work, and thus prevent the same from springing upwardly from the bed of the machine. This special form of spring-finger may be employed in conjunction with any number of the other fingers, as will be readily understood.

If desired, I may provide each spring-finger with shoulders 21 at the point of intersection of its shank and downwardly-projecting portion 8, which shoulders will bear against the under side of the reinforcing-bar 5 when the finger bends upward to the limit of its movement, so as to prevent the finger from being broken. It will be observed that the bar 5 overhangs and reinforces the fingers at the point where the greatest strain falls thereon.

From the foregoing description, taken in connection with the accompanying drawings, the construction and mode of operation will be apparent without a further extended description of the invention.

Changes in the form, proportions, and minor details of construction may be made within the scope of the invention without departing from the spirit or sacrificing any of the advantages thereof.

Having thus described the invention, what is claimed as new is—

1. A chip-breaker comprising a body having upper and lower sets of grooves and intersecting slots, spring-fingers having shanks

slidably mounted in the lower grooves, and fastening devices passing through said slots and adjustably connecting the shanks with the body, said fastening devices having guide members occupying the upper grooves.

2. A chip-breaker comprising a body having upper and lower sets of grooves and intersecting slots, spring-fingers having shanks slidably mounted in the lower grooves, bolts engaging said shanks and projecting upward through the slots into the upper grooves, and nuts upon the upper ends of the bolts.

3. In a chip-breaker, a body, a spring bearing-finger having a curved shank adjustable in a path corresponding to its curvature, and means for mounting said finger upon the body.

4. In a chip-breaker, a body, a support adjustably mounted upon the body, a spring bearing-finger slidably adjustable in a circular path upon said support, and means for securing the finger in adjusted position upon the support and the latter to the body.

5. In a chip-breaker, a body, a supporting-block having a segmental recess, a spring bearing-finger having a segmental shank seated in said recess, a block to clamp the shank in the recess, and means for securing said block and support to the body.

6. A chip-breaker comprising a body having upper and lower sets of grooves and intersecting slots and a reinforcing portion disposed above the forward terminals of the upper slots, spring-fingers having shanks slidably mounted in the lower grooves and bearing at their forward ends against said reinforcing portion, and fastening-bolts engaging said shanks and projecting upward through the slots into the upper grooves and provided with clamping and guide members occupying said upper grooves.

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

JOHN E. GARNER.

Witnesses:

DAVID I. GLOVER,
JOHN MCKEE.