W. E. FIRTH.

DROP BOARD FOR DROP HAMMERS.

APPLICATION FILED JULY 14, 1908.

914,560. Patented Mar. 9, 1909.

Fig. 1.

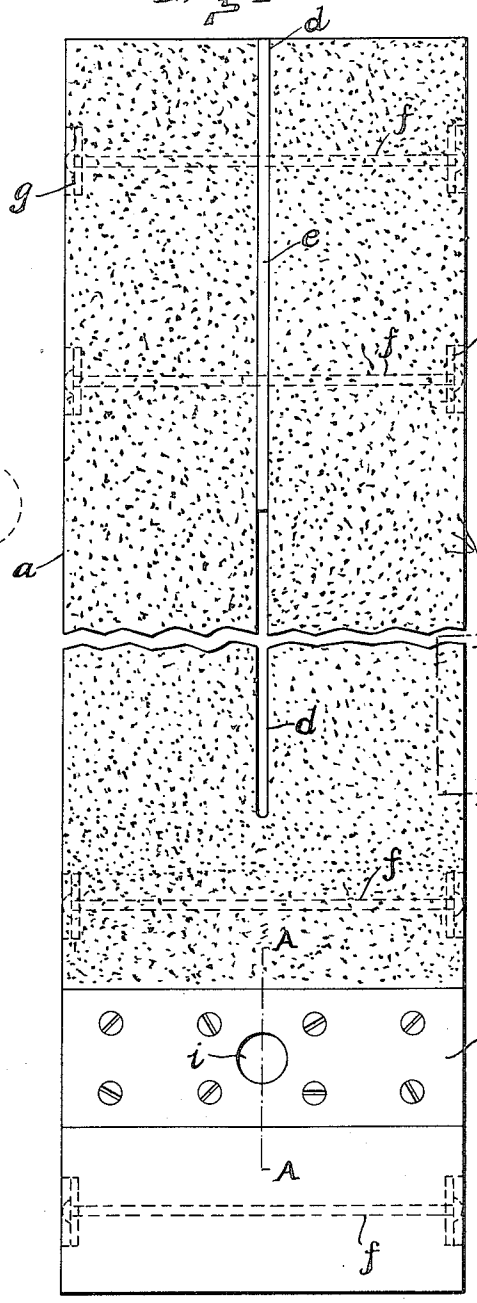


Fig. 2.



Fig. 4.

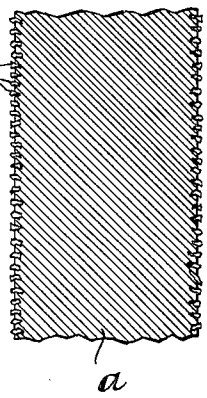
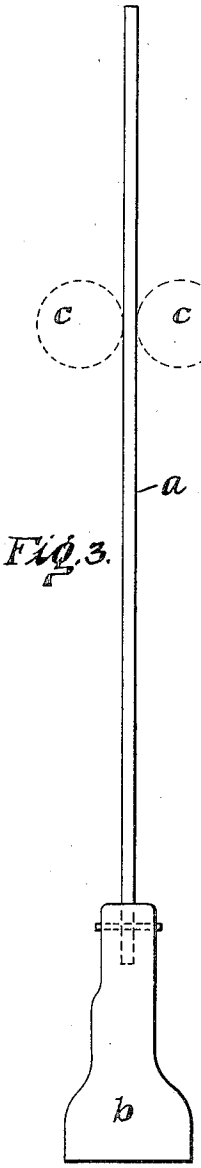


Fig. 3.



Witnesses

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DROP-BOARD FOR DROP-HAMMERS.

No. 914,560. Specification of Letters Patent. Patented March 9, 1909.

Application filed July 14, 1908. Serial No. 443,427.

To all whom it may concern:

Be it known that I, WILLIAM E. FIRTH, a citizen of the United States, and resident of Germantown, city and county of Philadelphia, State of Pennsylvania, have invented an Improvement in Drop-Boards for Drop-Hammers, of which the following is a specification.

The drop boards of drop hammers, owing to the squeezing action of the friction rollers by which the board and its hammer are lifted, become inefficient after a very short period of use and must be replaced. The great pressure destroys the cohesion of the fibers so that they become slivered and the least warping results in splitting. Some boards become useless after a half a day's use, while the best do not last for more than three or four days as a maximum. Not only is the great consumption of boards expensive but the constant replacement involves labor and loss of time.

It is the object of my invention to improve and greatly prolong the efficiency of the boards by reducing the liability of splitting and slivering under the gripping action of the friction rollers.

To prevent the crushing of the fibers by the rollers and the resulting slivering, I provide the working faces of the board, *i. e.* the length which is subjected to the gripping action of the rollers with a surface which both increases friction and protects the fibers. This surface is preferably obtained by forcing particles of sand or equivalent matter into the working faces of the board, and may be produced by sprinkling the sand on the board and then running the board between rolls by which the particles are embedded in the fibers of the wood.

To remove warping and prevent the resulting splitting, I provide the board with a saw cut extending longitudinally from the upper edge substantially through the working length. This cut may be filled with a wooden strip or filler and transverse bolts may be employed to give rigidity.

In the drawings: Figure 1 is a front elevation of a drop board embodying my invention; Fig. 2 is a side elevation of the same with part in vertical section on the lines A—A Fig. 1; Fig. 3 is a side elevation of a drop hammer and board on a reduced scale; and Fig. 4 is a transverse section on an enlarged scale, through part of the board on the line B—B of Fig. 1.

The board *a* usually consists of a flat piece of straight grained, well seasoned maple, to the lower end of which the hammer or die *b* is secured. The upper portion of the board passes between gripping rollers *c*, *c* (dotted lines in Fig. 3) which grip the board and lift it when they are rotated. When the hammer is raised to the proper height the rollers are moved apart to release the board and the hammer falls by gravity. As the mechanism for operating the rollers and the other parts of the drop-press or hammer form no part of the invention they are not illustrated. A saw cut *d* is made longitudinally through the board preferably at the center and extends through the working faces terminating preferably at a point substantially above the point of connection of the hammer die. The upper part of this saw cut may be provided with a wooden filler *e* which holds the edges of the cut apart.

f, *f* are bolts extending transversely through the board; as shown they are riveted in metal washers *g* set in recesses in the edges of the board. The saw cut through the working faces of the board serves to take out the unevenness due to warping and to make the faces level.

In the working faces of the board are embedded the particles of sand as shown at *h*. I prefer to employ sharp clean flinty sand sprinkled over the surface of the wood. The board is then passed between rolls which force these particles into the fibers and produce the friction surfaces over the portions of the boards which are subjected to the gripping action of the friction rollers. Not only do these embedded particles of sand increase the friction between the surfaces of the board and the friction rollers and thus decrease the pressure required for lifting the drop, but they protect the fibers to a very great extent from the direct contact and crushing action of the rollers, and the rollers act to force the sand particles farther and farther into the wood so that they recede and remain effective as the surface wears.

i is the pin hole in the lower end of the board for receiving the pin by which the hammer die *b* is attached, and *j* is a protecting plate secured to the board adjacent to the pin hole to prevent the pin from splitting the board.

What I claim is as follows:

1. A drop-board for the hammer dies of drop-hammers having its working surfaces which are subjected to the gripping action of the friction rollers provided with a friction surface composed of particles embedded in the fiber of the board.

2. A drop-board for the hammer dies of drop-hammers having particles of sand embedded in the working surfaces.

In testimony of which invention, I have hereunto set my hand.

WILLIAM E. FIRTH.

Witnesses:

JOS. ENTWISLE,

A. J. SHERMAN.