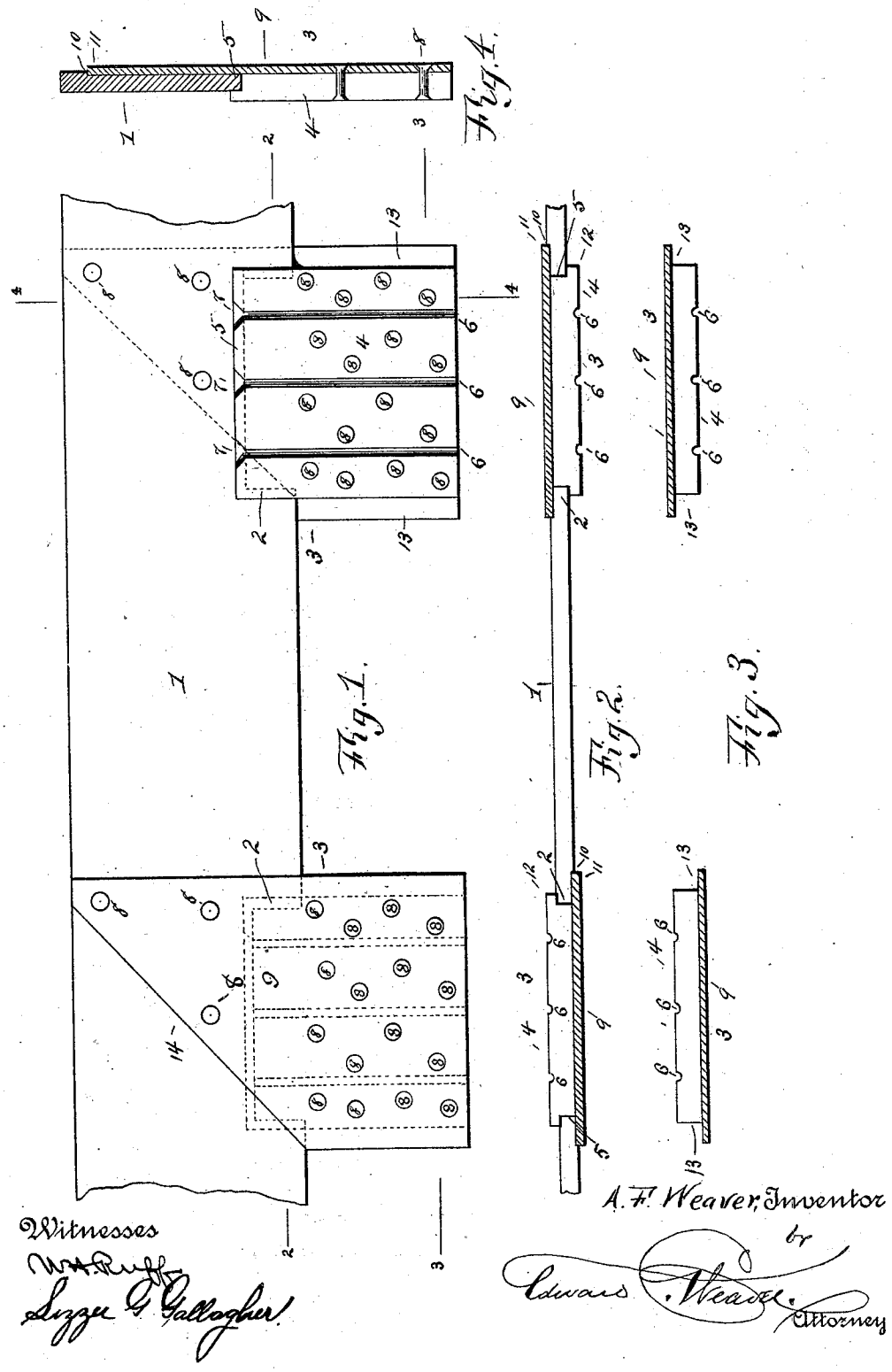
(No Model.)

A. F. WEAVER.

STONE SAW.

No. 554,430. Patented Feb. 11, 1896.



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UNITED STATES PATENT OFFICE.

ARTHUR FRANK WEAVER, OF PHILADELPHIA, PENNSYLVANIA.

STONE-SAW.

SPECIFICATION forming part of Letters Patent No. 554,430, dated February 11, 1896.

Application filed October 7, 1895. Serial No. 564,919. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR FRANK WEAVER, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Stone-Saws, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to stone-saws, and is devised to perform certain functions which I will detail, and show their importance in the art of stone-sawing.

The present prevailing type of stone-saws is a plain blade of iron without teeth, and is operated in gangs, or singly, by being reciprocated back and forth. Into the kerf made by these blades is introduced water with sharp sand, chilled shot, crushed steel and other abrasive materials. The reciprocating motion of the saw-blades causes this abrasive material to cut into the stone. It will be readily seen that all of the abrasive or cutting material must pass down the side of the saw-blade and between it and the stone to be sawed before it reaches the bottom of the kerf, where it really performs its intended work. This action results in side cutting of the stone and sawing out of line. It produces unnecessary wear of the blades and uses far more power to perform the work than would be required if the abrasive materials could be fed directly to the bottom of the kerf, where they are required. It is to perform these functions that I have designed my present invention, which I will fully describe in connection with the accompanying drawings.

Figure 1 is a side view of a portion of my saw-blade, showing two adjacent teeth. Fig. 2 is a section of Fig. 1 on line 2 2. Fig. 3 is a section of Fig. 1 on line 3 3. Fig. 4 is a section of Fig. 1 on line 4 4.

In all the figures the same numeral represents the same part.

1 is a saw-blade of metal similar to those in common use and fastened to the saw-frame in the usual manner. This blade has in its lower edge a series of rectangular notches 2, into which are set teeth 3. The tooth 3 is a compound one, and is composed of a plate of soft iron or other metal 4, engaging notch 3 by means of shoulder 5, and projecting beyond the blade 1. The plate 4 is provided with clearing-grooves 6 with flaring sides 7. Riveted to the plate 4 by countersunk rivets 8 is a trapezoidal plate of steel or other metal 9, engaging recess 10 in blade 1, and in practice projecting about one-sixteenth of an inch therefrom, as shown at 11.

It is to be noticed that upon the opposite side of the blade the plate 4 projects as shown at 12. In practice this projection is about an eighth of an inch, but it may be much greater if required. The metal plate 9 also projects at the sides of the plate 4, forming wings 13; and it is also desired to call particular attention to the sloping edge 14 of the metal plate 9.

Having fully shown my invention, I will now show its operation and describe the functions of the various parts.

While the saw is being reciprocated in the manner well known in the art, the abrasive material will be fed from above and will slide down the bevel 14 to the front of the tooth and in the direct path of the returning tooth. The grooves 6 collect whatever abrasive material may enter between the tooth and the stone and thus prevent side cutting. The wings 13 throw the abrasive material directly into the kerf and in front of the cutting-plate 4, which is the true cutting portion of the tooth, and it being of soft metal the abrasive material will in a measure become embedded in it and form a fixed grinding-surface. It is seen that my tooth is, as it were, disposed in pairs upon the blade—that is, one tooth will have its plate 4 upon one side of the blade 1 and the next tooth upon the other side of blade 1. The result of this disposition is that the plate 4, projecting a sixteenth of an inch or more than the plate 9 of the next tooth, will clear the same and prevent side cutting at that point, and in long continuous blades tend to give an even balance, thereby requiring less tension to make the blades saw in line.

What I wish to claim as my invention in my Letters Patent is—

1. In a stone-saw, a rectangularly-notched blade and cutting-teeth alternately disposed therein, said teeth comprising a soft cutting-plate, a fastening-plate riveted thereto and riveted to said blade, substantially as described.

2. In a stone-saw, a rectangularly-notched

blade, cutting-plates shouldered in said notches, a plate riveted to said cutting-plate and to said blade and projecting to form wings 13, combined with vertical grooves in the face of said cutting-plate, substantially as described.

3. In a stone-saw, a tooth for the same, comprising a soft-metal cutting-plate, a fastening-plate riveted thereto and riveted to the blade, and vertical grooves in the face of the said soft-metal cutting-plate, substantially as described.

4. A tooth for stone-saws, comprising a rectangular soft-metal plate, vertical grooves on the face thereof, a trapezoidal fastening-plate riveted thereto, said trapezoidal plate projecting beyond said soft-metal plate to form wings 13, and vertical clearing-grooves in the face of the said soft-metal plate, substantially as described.

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

ARTHUR FRANK WEAVER.

Witnesses:

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