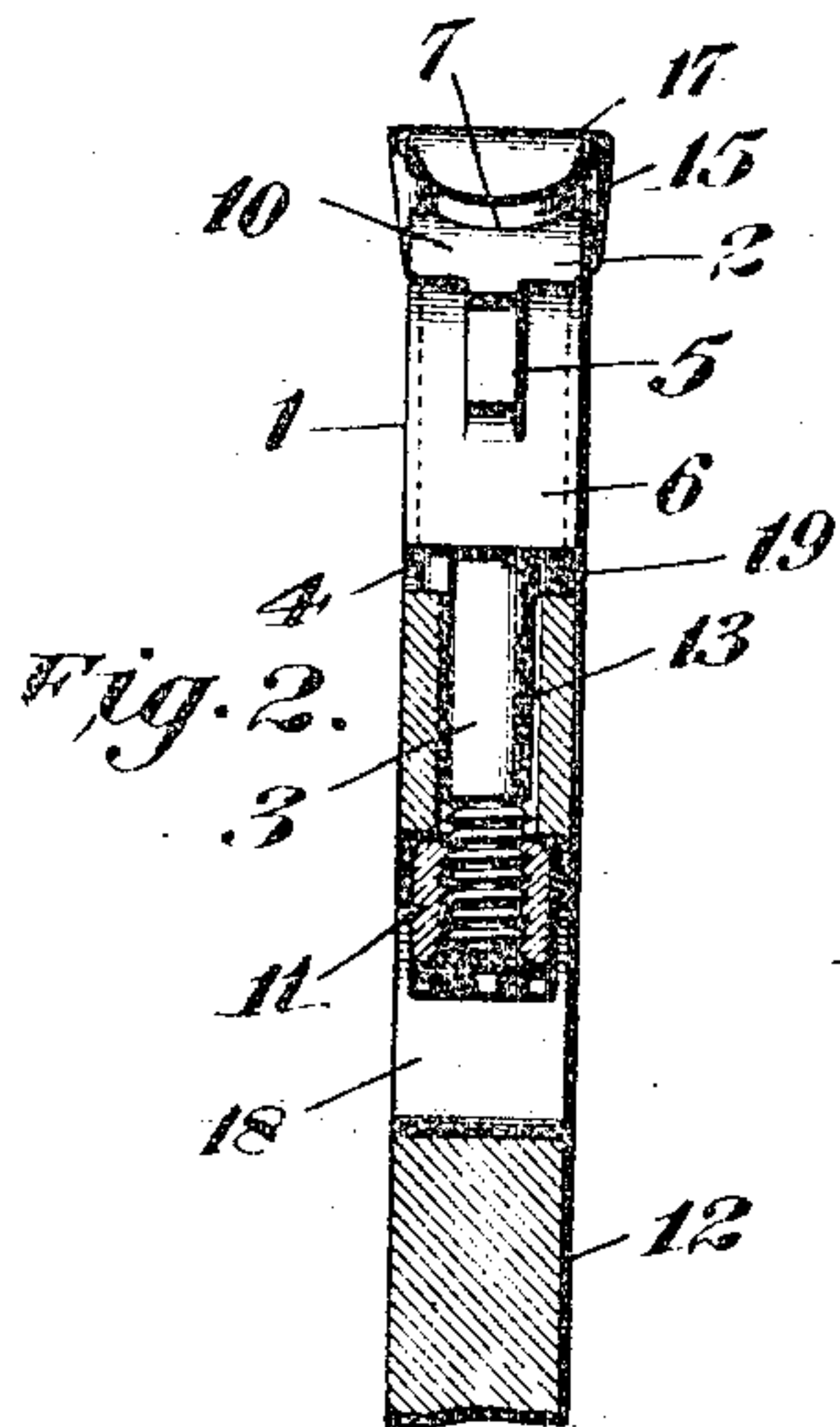
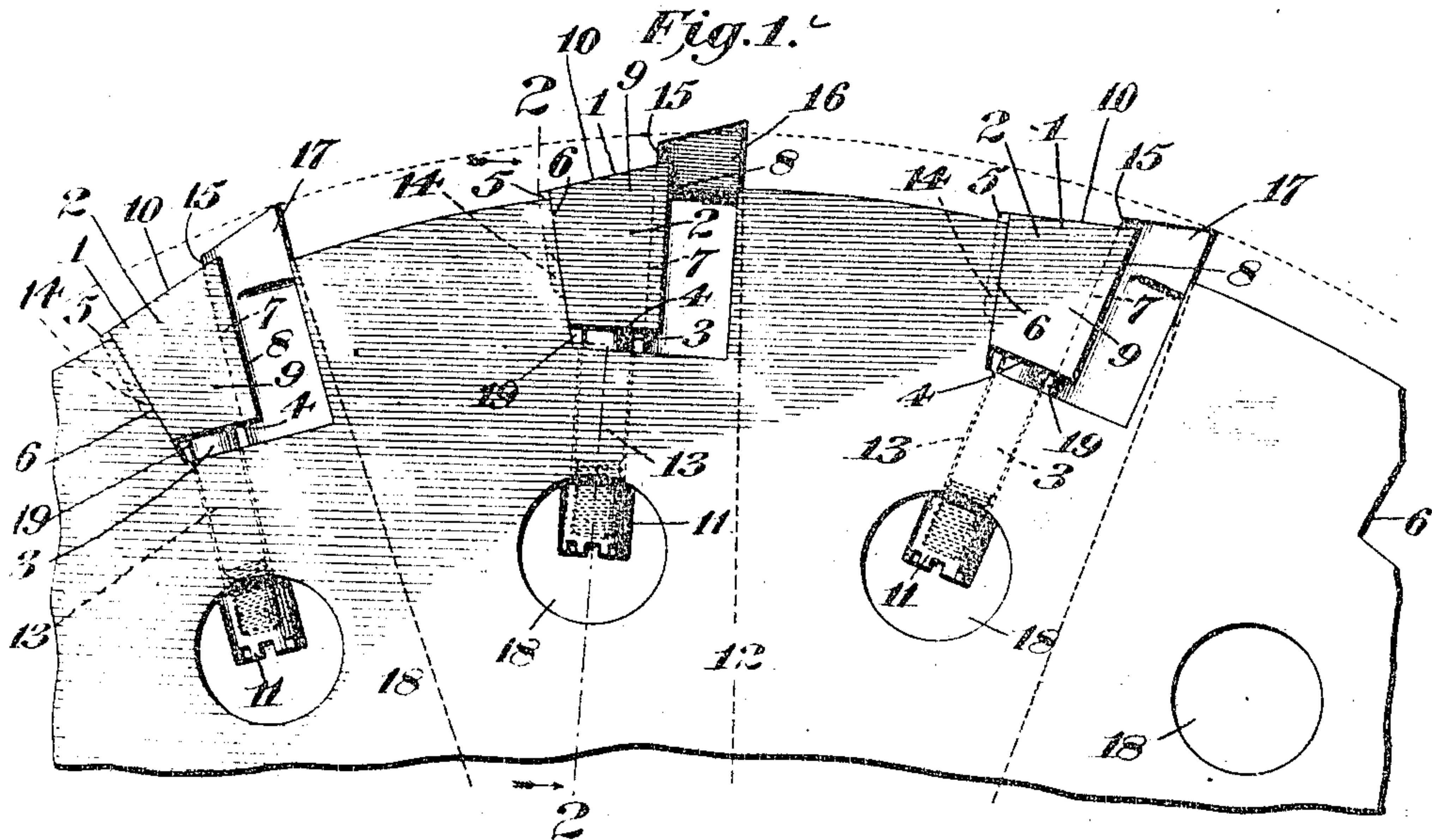


No. 830,779

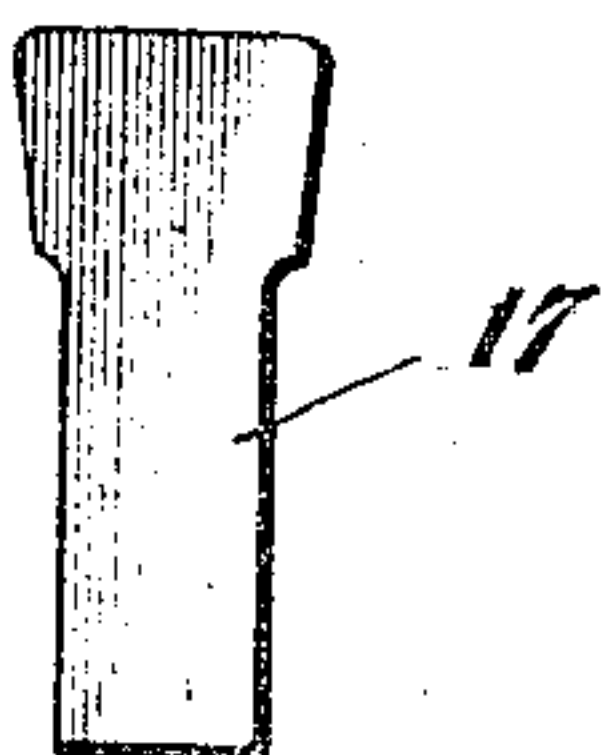
PATENTED SEPT. 11, 1906.

H. R. GEER.  
METAL SAW.

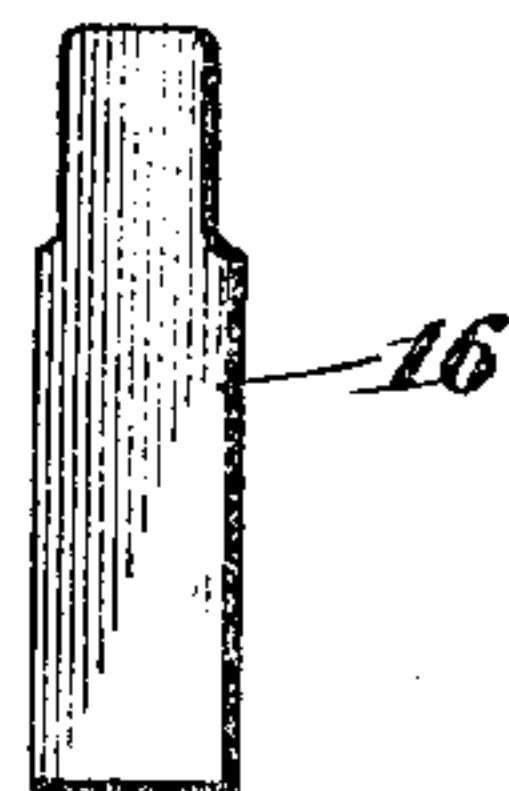
APPLICATION FILED DEC. 31, 1904.



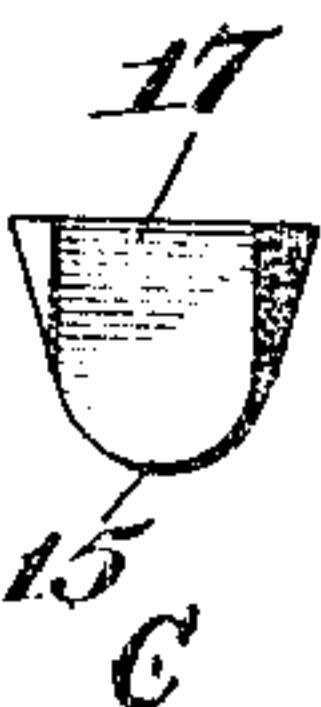
*Fig. 3.*



*Fig. 5.*



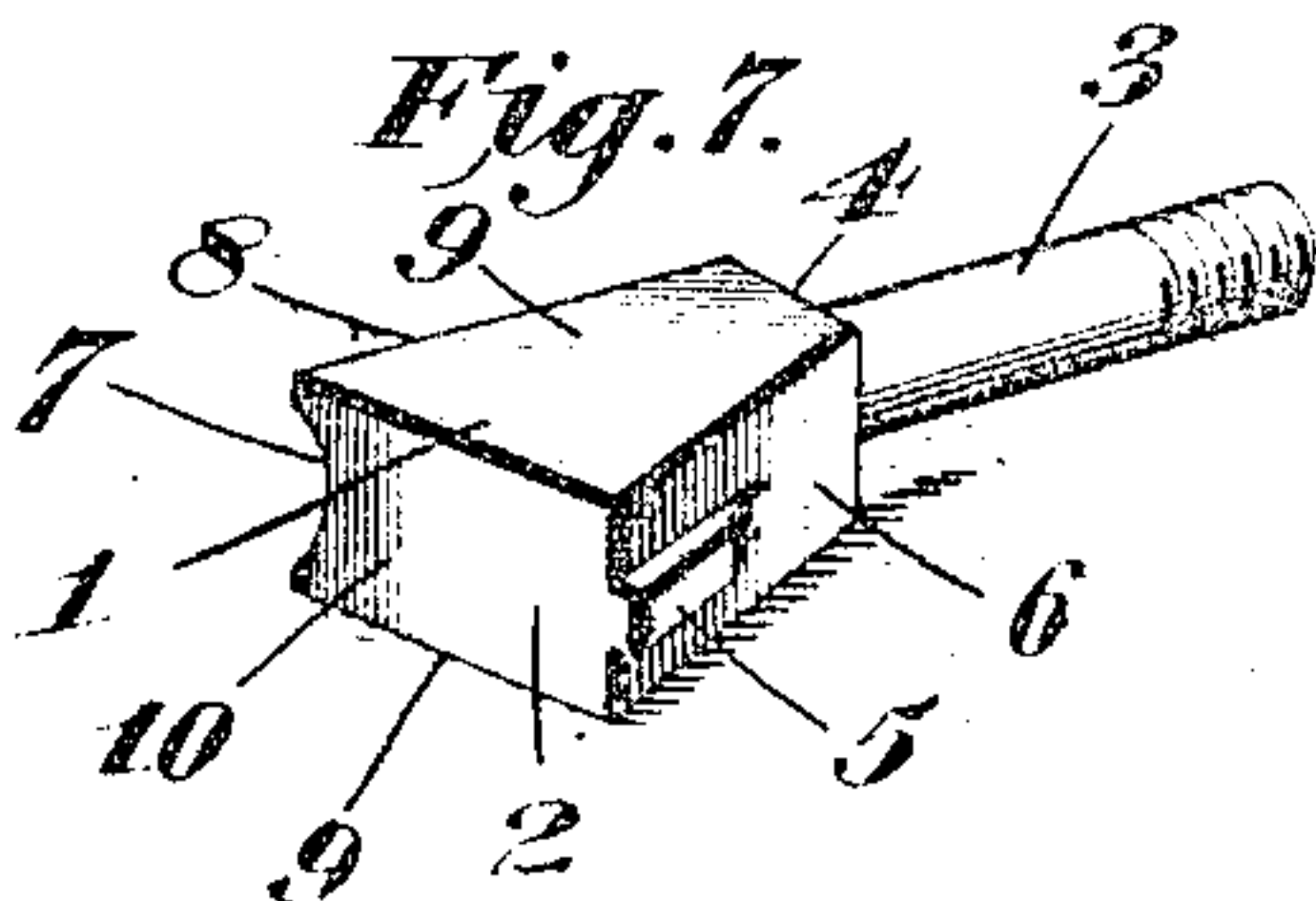
*Fig. 4.*



*Fig. 6.*



*Fig. 7.*



WITNESSES,

Elmer Seavey  
Geo. Beatty

INVENTOR.

Harry R. Geer  
by Geo. E. Packray  
his ATTORNEY.



# UNITED STATES PATENT OFFICE.

HARRY R. GEER, OF JOHNSTOWN, PENNSYLVANIA.

## METAL-SAW.

No. 830,772.

Specification of Letters Patent.

Patented Sept. 11, 1906.

Application filed December 31, 1904. Serial No. 239,109.

*To all whom it may concern:*

Be it known that I, HARRY R. GEER, a citizen of the United States, residing at Johnstown, in the county of Cambria and State of Pennsylvania, have invented certain new and useful Improvements in Metal-Saws; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in metal-saws that have inserted saw-teeth made of pieces of metal independent of the saw-blade; and it especially relates to means for holding said inserted saw-teeth in their operative positions and an adjustable locking device therefor.

Certain of my objects are to provide an adjustable locking-piece which will extend near to the cutting edge of the saw-tooth, and thus thoroughly support the same, said locking-piece being preferably composed of comparatively soft steel, iron, or other suitable material and so formed as to permit its use in connection with drop-forged saw-teeth, which are practically in their rough or forged state with the exception of their cutting edges, which are ground.

Further objects of my invention are to provide means whereby inserted saw-teeth can be quickly adjusted, easily removed, and rigidly held in their operative position.

In general my invention consists of a circular metallic saw blade or disk, preferably of hard and stiff steel or other suitable material, provided with a series of recesses in its periphery, a socket extending from the bottom of each recess to an aperture in the saw-blade, a series of inserted teeth mounted in said recesses, and a locking-piece for each tooth comprising a truncated wedge-shaped body portion provided with interlocking means mounted in each recess, the body portion of said locking-piece being also provided with a projecting shank or stud adapted to extend through said socket and into said aperture, the end of said stud within said aperture having means for adjusting and securing the same and its attached locking-piece in position.

Having thus given a general description of my invention, I will now, in order to make the same more clear, refer to the one sheet of drawings, which form part of this specifica-

tion, and in which like characters of reference refer to like parts.

Figure 1 is a side elevation of a portion of a saw disk or blade with my improved adjustable inserted locking device in operative position. Fig. 2 is a section taken on the line 2 2 of Fig. 1, while Fig. 3 is a front elevation of a follower-tooth, and Fig. 4 is a bottom plan view of the same. Fig. 5 is a front elevation of a leader-tooth, while Fig. 6 is a bottom plan view thereof, and Fig. 7 is a perspective view of my improved locking-piece.

Referring now to the various characters of reference shown on the drawings, 1 represents my improved device composed of a body portion 2, which has a shank or stud 3 projecting from the small end 4 thereof. The body portion 2 is further provided with a tenon 5, projecting from the sloping side 6, and a semicircular groove 7, formed in the sloping side 8, while the parallel sides 9, the end 10, and means for adjusting and securing the locking device, shown as the nut 11, constitute the remaining elements of my improved locking-piece.

Referring now to Fig. 1, the locking-piece 1 is adjustably mounted in the saw disk or blade 12 and secured therein by the aid of the stud 3 and the nut 11, while the stud 3 is inserted in the socket 13, extending from the bottom of the recess 19, and said locking-piece is further held in position by means of the tenon 5, which fits into the groove 14 of the saw-disk. The locking-piece is provided with a groove 7, which interlocks with the curved surface 15 of the saw-tooth 16 or 17, and thereby holds said teeth in position laterally. 16 represents what is known as a "leader-tooth," the cutting portion of which is narrower than and projects farther from the center of the saw-disk than its companion tooth 17, which latter is known as a "follower-tooth," the cutting edges of which are broader than and its extreme edge is set nearer to the axis of the saw-disk than the corresponding portions of the leader-tooth, as may be clearly seen on reference to the drawings. 18 is an aperture in the saw-blade 12 at the inner opening of the socket 13, and affords a housing for the nut 11, while its side also acts as a bearing-surface for the same.

By the aid of my improved locking-piece I am able to use insertible drop-forged saw-teeth practically in their rough state with no machining required other than the grinding



of their cutting edges, while the high backing afforded by my locking-piece greatly stiffens and reinforces the saw-tooth, whereas in the common form of inserted cold saw-teeth no backing is furnished for the tooth beyond the periphery of the saw-disk. Furthermore, my improved locking-piece being constructed of softer metal than that composing the saw-disk the liability of damaging the expensive saw-disk in case of accident to a tooth is diminished, as may be readily understood.

My improved locking-piece being wedge-shaped, adjustable, and independent of the saw-tooth provides further advantages in the fact that the saw-tooth can be inserted in or removed from the saw-disk without injurious effects thereto resulting from hammer-blows or the use of drift-pins.

In order to use teeth of simple form with as many plane sides as possible, thus conducing to ease and economy of manufacture and maintenance, I arrange the front surface of the recess in the saw-disk in a direction which if prolonged would be tangent to a generating circle smaller than that of the saw-disk, but having the same center, thereby giving the front edges of the teeth an inclination and clearance which would not be obtained with this simple form of teeth if they were set on radial lines.

The inclinations of the front edges of the teeth are indicated in Fig. 1 as they are set at an angle with the radial dotted lines originating in the center of the saw-disk, as marked at C in the lower portion of the sheet.

Although I have shown and described my invention in considerable detail I do not limit myself to the exact details shown or described, as it is evident that various details of construction, such as the aperture and recess in the said blade, also the form of the locking-piece itself, together with the details shown for interlocking it with the saw blade and tooth, and the means for securing it in position might be modified without departing from the spirit of my invention, and I therefore reserve the right to use such substitutions, modifications, or equivalents thereof as are embraced within the scope of my invention and as pointed out in the claims.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a metal-cutting saw, the combination of the disk, a tooth-receiving recess in the periphery thereof, a tooth removably in-

serted in said recess, a transverse aperture in the disk, a socket leading from the recess to the aperture, and a tooth-locking device adjustably secured in the recess, said locking device being wedge-shaped, and having a shank passing through the socket and provided with adjusting means in the aperture.

2. In a metal-cutting saw, the combination of the disk, a tooth-receiving recess in the periphery thereof, a tooth removably inserted in said recess, a transverse aperture in the disk, a socket leading from the recess to the aperture, and a combined tooth-support and locking device adjustably secured in the recess behind the tooth, said support and locking device having a shank passing through the socket and provided with an adjusting-nut in the aperture.

3. In a metal-cutting saw, the combination of the disk, a tooth-receiving recess in the periphery thereof, a tooth removably inserted in said recess, and a tooth-locking device adjustably secured in the recess, said locking device being composed of metal softer than that of the disk or the tooth.

4. A metal-cutting saw provided with a series of trapezoidal peripheral recesses, each of which has a plane front surface and a grooved rear surface, a socket extending from said recess through the saw-disk and connecting with an aperture formed in said disk, a saw-tooth mounted in said recess, a locking device comprising a body portion of blunt wedge form, a tenon on said wedge cooperating with the groove aforesaid, a shank projecting from the smaller end of said wedge through said socket, and means mounted on the projecting end of said shank and within said aperture for holding and adjusting the wedge aforesaid.

5. A metal-cutting saw comprising a body or blade having recesses in its edge, a cutting-tooth seated in each recess and abutting against the bottom and front walls thereof, a retainer between the tooth and rear wall of the recess and having its front surface in contact throughout its length with the rear of the tooth and its rear surface in extended contact with the rear wall of the recess.

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

HARRY R. GEER.

Witnesses:

GEO. BEATTY,  
ELMER SEAVEY.