

R. H. SEYMOUR.
ADJUSTABLE DIPPER TOOTH.
APPLICATION FILED AUG. 25, 1909.

976,507.

Patented Nov. 22, 1910.

2 SHEETS-SHEET 1.

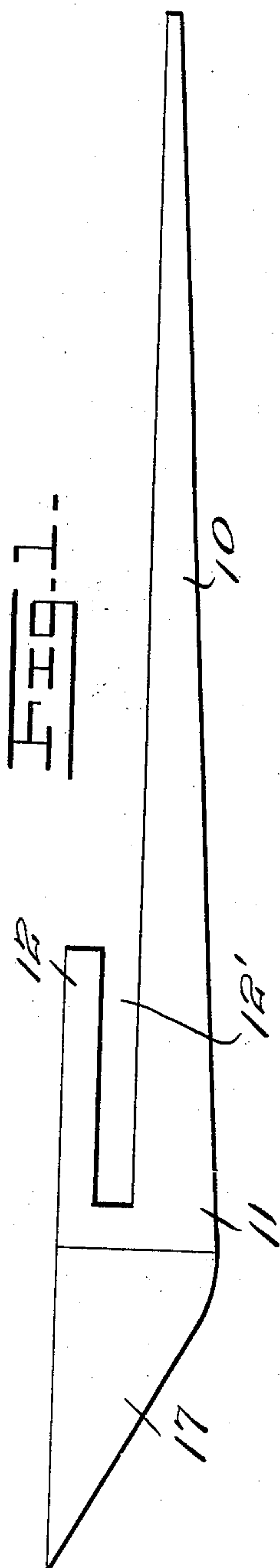


FIG. 1-

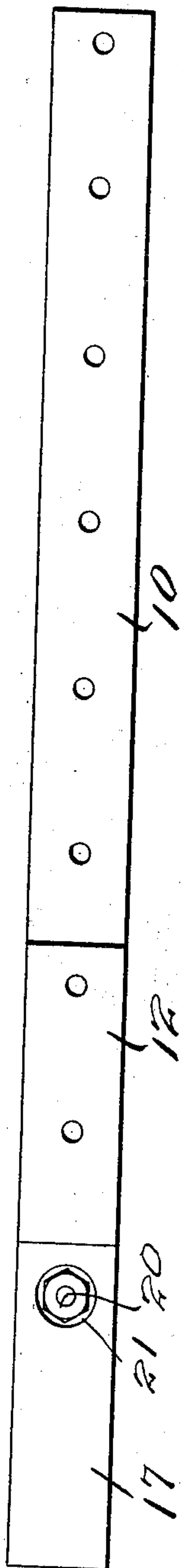
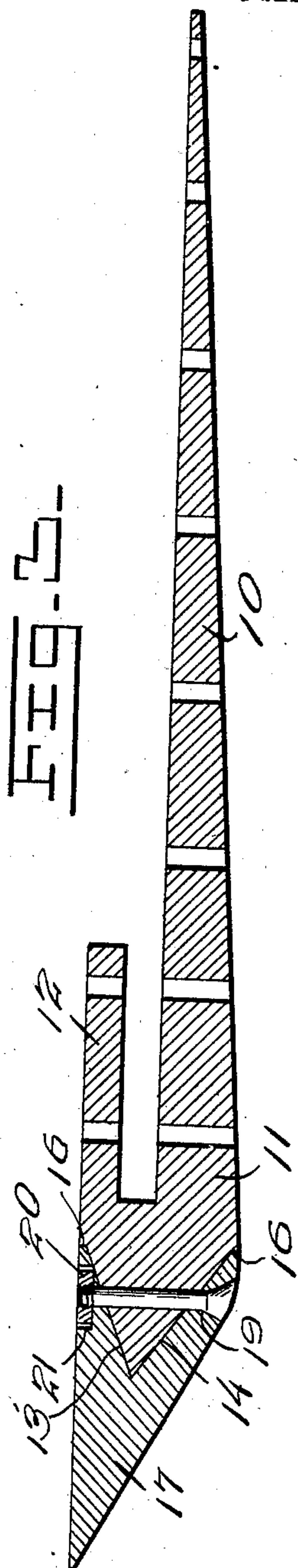


FIG. 2-



Witnesses
E. L. Armstrong
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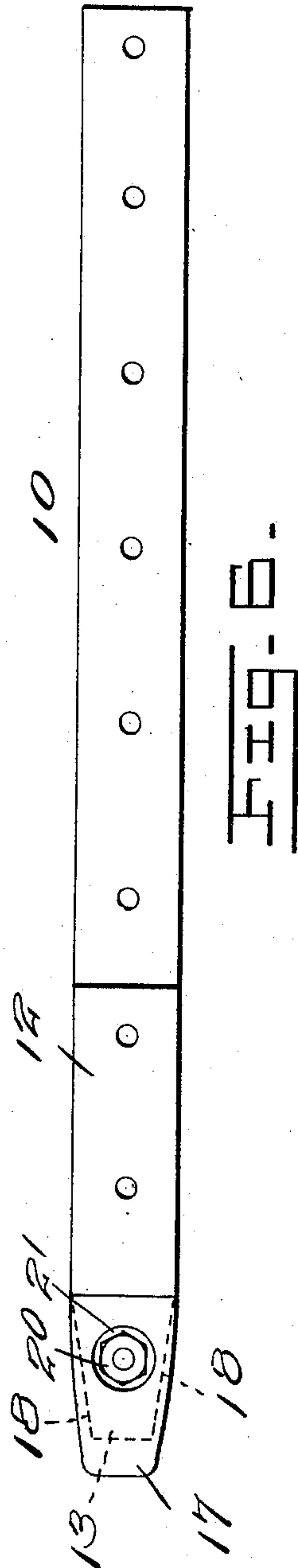
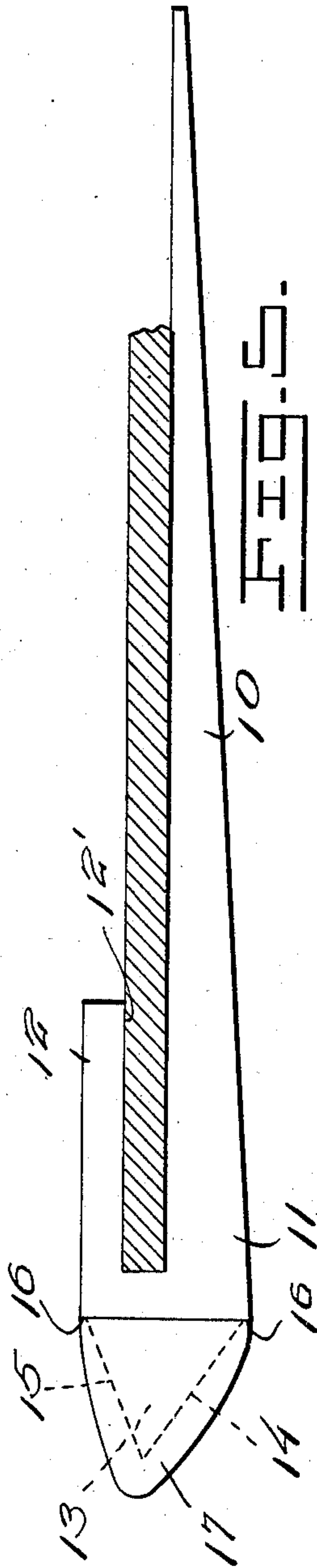
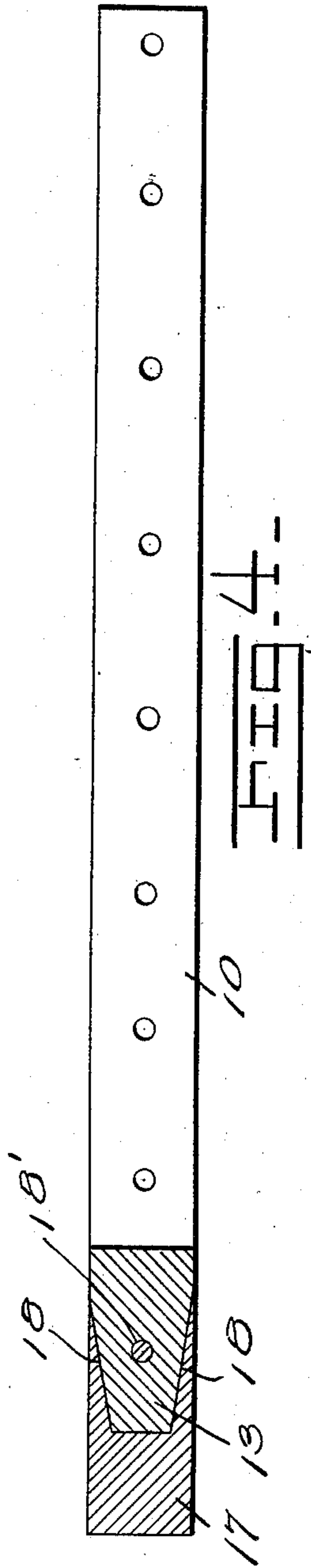
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UNITED STATES PATENT OFFICE.

RICHARD H. SEYMOUR, OF BRISTOL, VIRGINIA.

ADJUSTABLE DIPPER-TOOTH.

976,507.

Specification of Letters Patent.

Patented Nov. 22, 1910.

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To all whom it may concern:

Be it known that I, RICHARD H. SEYMOUR, a citizen of the United States, residing at Bristol, in the county of Washington and State of Virginia, have invented certain new and useful Improvements in Adjustable Dipper-Teeth, of which the following is a specification.

This invention relates to the construction of teeth for dippers of dredges, steam shovels and similar devices.

The object of the invention is to provide a dipper tooth comprising a shank and a detachable point, the shank being so constructed as to allow a maximum use of the point before the renewal of the point is necessary.

Another object is the construction of the point and shank in such a manner that each will have a maximum strength and be held securely in operative relation.

Another object is to provide a shank with a point-receiving portion so constructed as to facilitate the engagement of the point thereon, and also so shaped that it will not be possible to engage the point therewith in improper position.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a side view of the device in assembled position, Fig. 2 is a top view at right angles to Fig. 1, Fig. 3 is a longitudinal sectional view, Fig. 4 is a similar view at right angles to Fig. 3, Fig. 5 is a side view of the device in assembled order showing the point partly worn, the head of the shank being indicated in dotted lines, Fig. 6 is a top view of the tooth shown in Fig. 5.

It has been found that where the head of the shank is extended forwardly into the removable tip and formed so as to extend in parallel with the outer surfaces of the tip, it is necessary to renew the tip within a comparatively short time, as the tip is soon worn away and the head of the shank itself subjected to abrasion by the material excavated. Also, in the devices of this kind heretofore provided, the head of the shank has usually been made of common width throughout its length and as the tip wears away on all sides, it is soon worn through at the sides, so that the head of the shank becomes worn in this way, also. This wearing of the head of the shank makes such de-

vices inefficient in operation, by reason of the lack of snug fitting of the shank within the tip, as well as weakening the shank itself. It has also been found desirable to make the head of the tip as wide as possible in proportion to the size of the tip, and yet leave a supporting shoulder against which the tip may abut to afford a firm seat therefor.

It is the object of the present invention to provide a shank having a novel form of head in which the defects mentioned above are overcome, and in which the desirable features mentioned have been retained.

Referring to the drawings, there is shown a shank member 10 preferably of cast steel enlarged gradually toward its outer end, as shown at 11, and having the usual offset inwardly extending supplementary shank 12. The shank carries a head portion 13 of pyramidal form, its upper and lower faces 14 and 15 beginning at a point spaced inwardly of the respective surfaces of the shanks 10 and 12, thus leaving the shoulder or seat 16, against which the tip 17 is seated as shown. The faces 14 and 15 of the head converge and intersect on a plane extending centrally through the recess 12' formed between the shank 10 and the supplementary shank 12. This space is adapted to receive the edge or lip of an excavator bucket or shovel, and by locating the point of intersection of the faces 14 and 15 at this point, the force of the forward thrust of the bucket is communicated most effectively to the tip 17, as will be apparent. The side faces 18 of the head 13 are inclined inwardly beginning flush with the side face of the shank on a common plane with the shoulders 16 and intersecting the angle of the faces 14 and 15 a spaced distance apart, thus forming a narrowed point-receiving portion having a base equal to the full width of the shank, and thus possessed of a maximum strength, while at the same time providing shoulders 16 against which the tip may be seated. It will be noted that these shoulders are provided on those sides of the shank at which they will best take up the strain to which the tip is subjected during use, there being comparatively little lateral strain in a horizontal direction, but a considerable lateral strain in a vertical direction caused by the lifting of heavy matter upon the tip, or because of the weight of the bucket or other excavating member upon which the shank is

carried. There is consequently no advantage in providing a shoulder upon the sides of the shank and by eliminating these the head of the shank is greatly strengthened without
 5 sacrificing any material efficiency or security in the seating of the tip, while the shoulders at the top and bottom sides of the shank are disposed at the point best adapted to counteract lateral strains to which the tip
 10 is subjected.

In Figs. 5 and 6 there is shown a side view of a shank after it has been subjected to considerable wear, the outline of the head of the shank being indicated in dotted
 15 lines. It will be seen that in wearing down, the point has retained some sharpness, sufficient to make it effective in use, and though the sides have been considerably worn away, the head of the shank is still well protected
 20 from abrasion, and the device is still adapted for considerable use before the shank will be affected.

It will be observed that the face 14 of the head is considerably longer than the one
 25 15, and it is impossible to engage the tip snugly upon the shank in any other than its proper operative relation, because of this peculiar difference in the length of the different sides. Also by having the head tapered inwardly from the sides, the disengagement and engagement of the tip thereon is greatly facilitated and a firmer support provided for the tip, as the inclined
 30 faces of the head serve to take up some of the pressure to which the tip is subjected, thus preventing the wear of the shoulders 16.

The head of the shank is provided with

a vertically extending opening 18', and the tip has registering perforations 19 adapted to register with the opening when the tip
 40 is engaged with the head, for the reception of a fastening pin, or bolt which is provided with a suitable head countersunk in the lower side of the tip, and in threaded engagement with a nut 20 disposed in the
 45 recess 21 formed on the upper side of the tip.

What is claimed is:

A point for excavators comprising a shank, said shank being enlarged toward its
 50 outer end and having an inwardly extending supplementary shank offset therefrom forming a space therebetween adapted for engagement with an excavator bucket or the like, said shank having a pyramidal head
 55 at its outer end the bases of two faces of which are disposed a spaced distance inwardly of the upper and lower faces respectively of the shank, providing shoulders, said faces intersecting centrally the central
 60 plane of said space, the remaining sides of the head beginning flush with the side faces of the shank on a common plane with said shoulders, a tip detachably engaged upon the head, and having a socket adapted to
 65 snugly fit the head, and means to secure the tip upon the head.

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

RICHARD H. SEYMOUR.

Witnesses:

O. A. BUTLER,
 H. G. LAVINDER.