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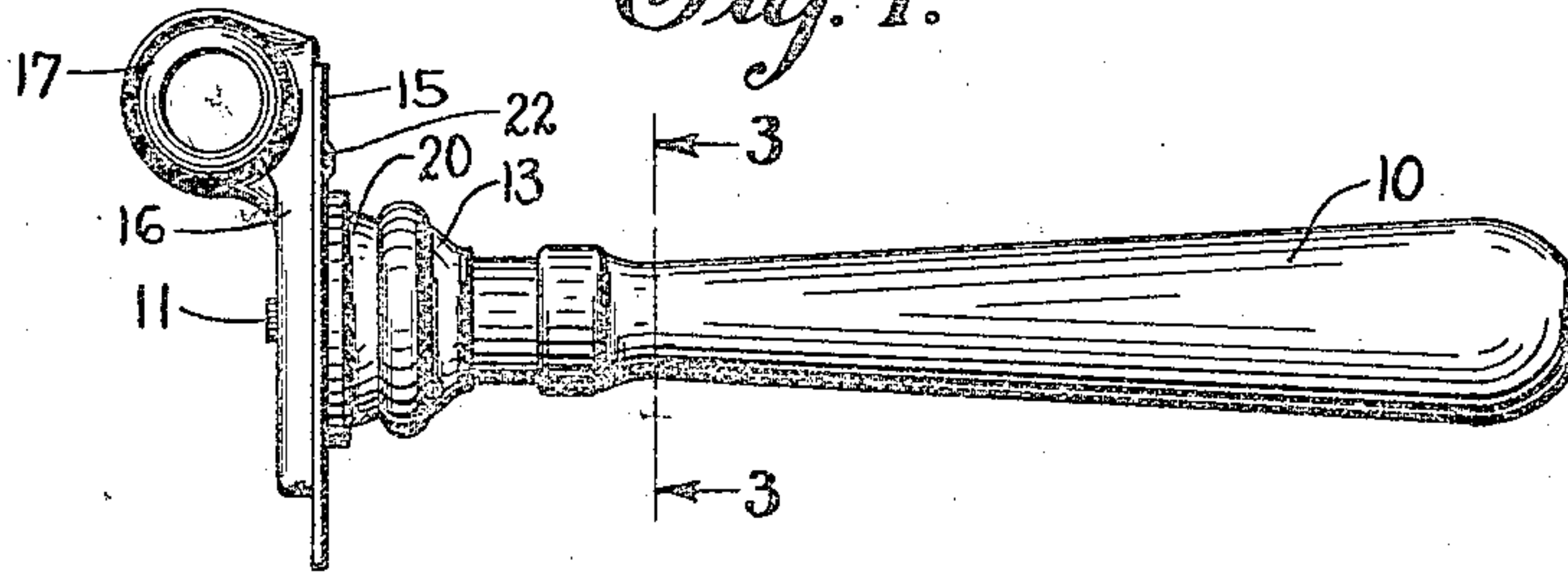
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F. I. KIMBALL

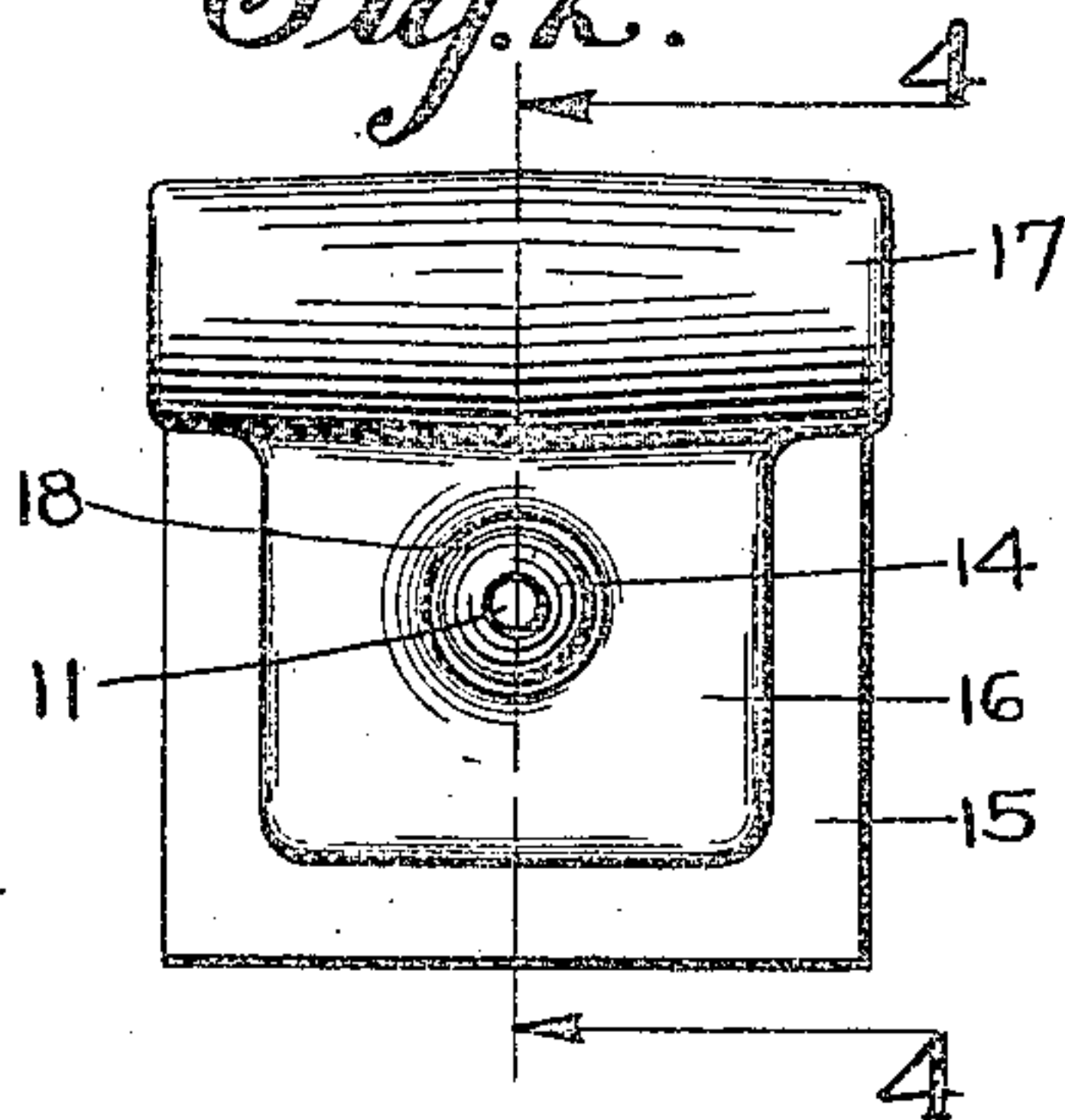
FLOOR SCRAPER

Filed May 2, 1921

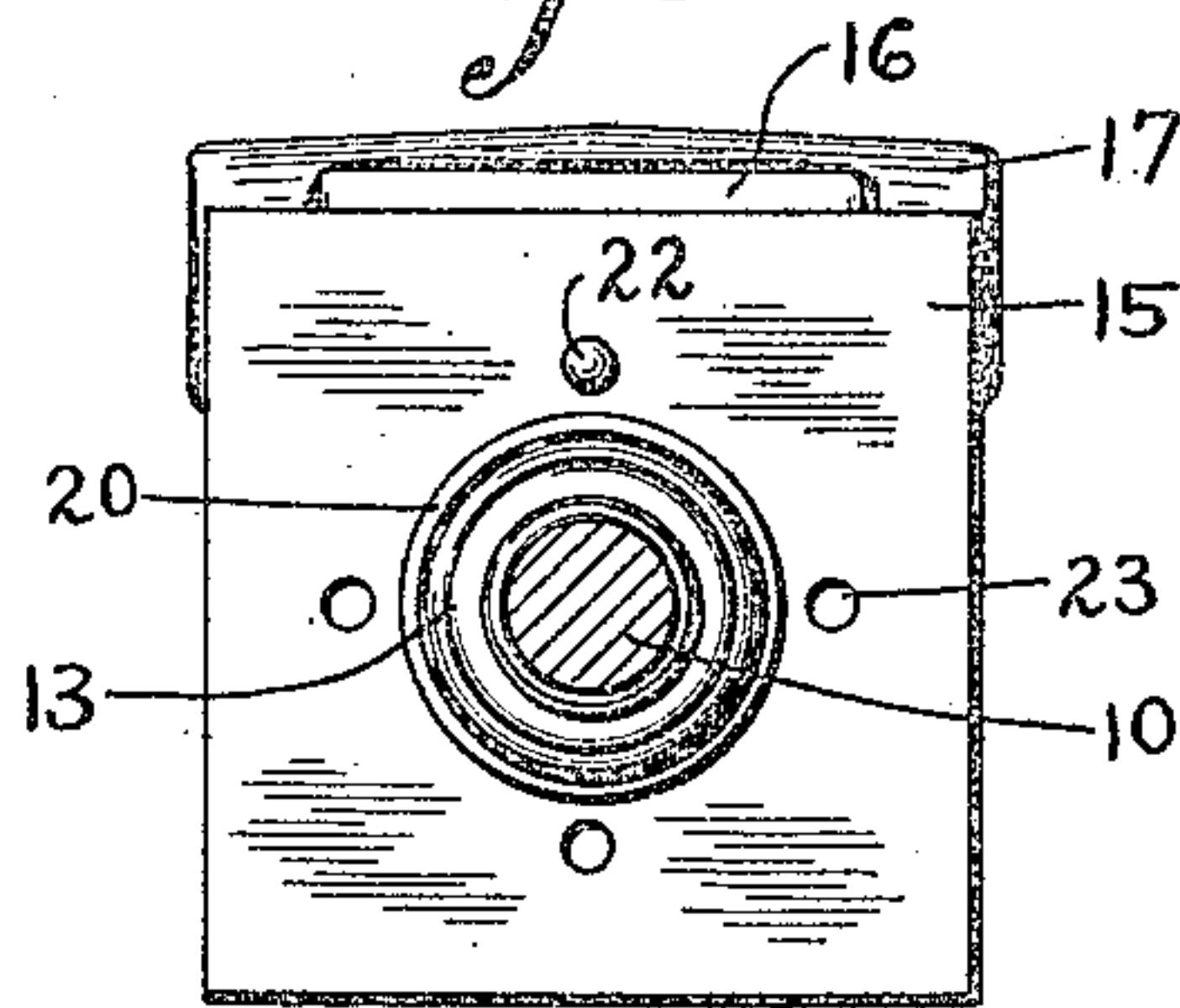
*Fig. 1.*



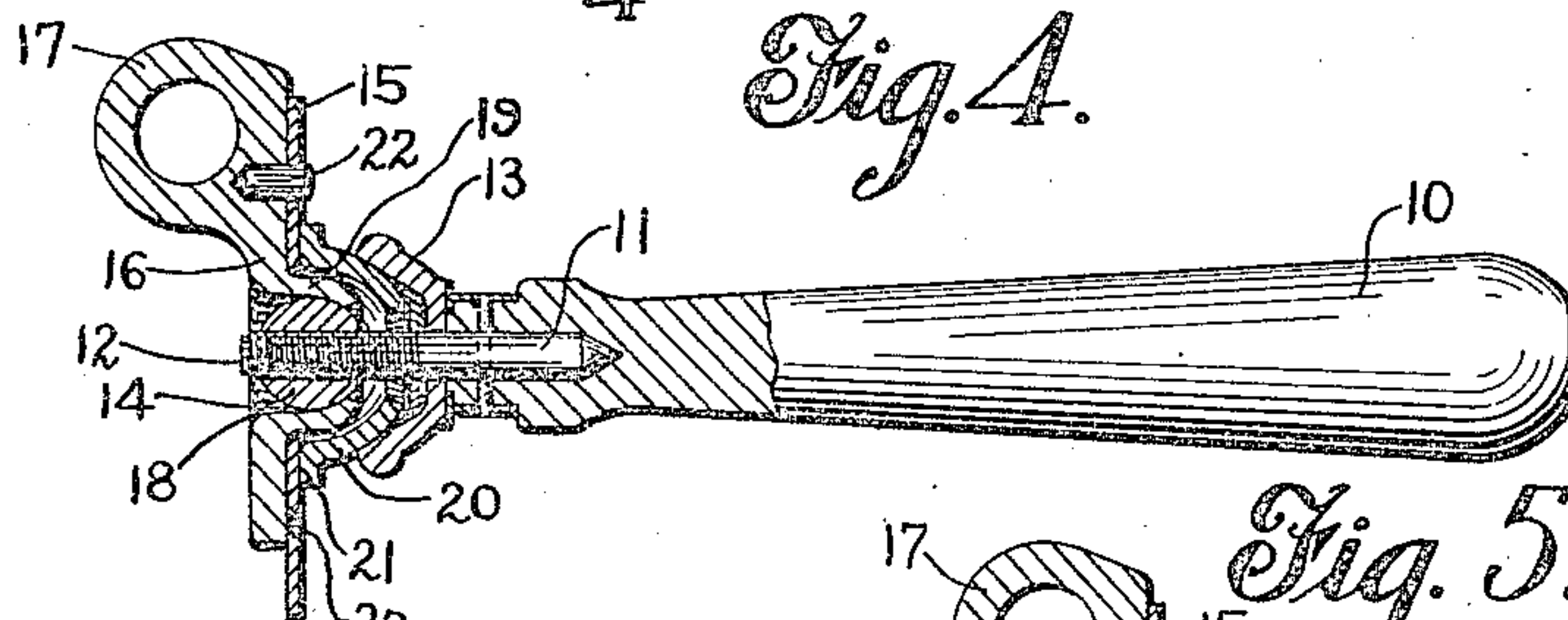
*Fig. 2.*



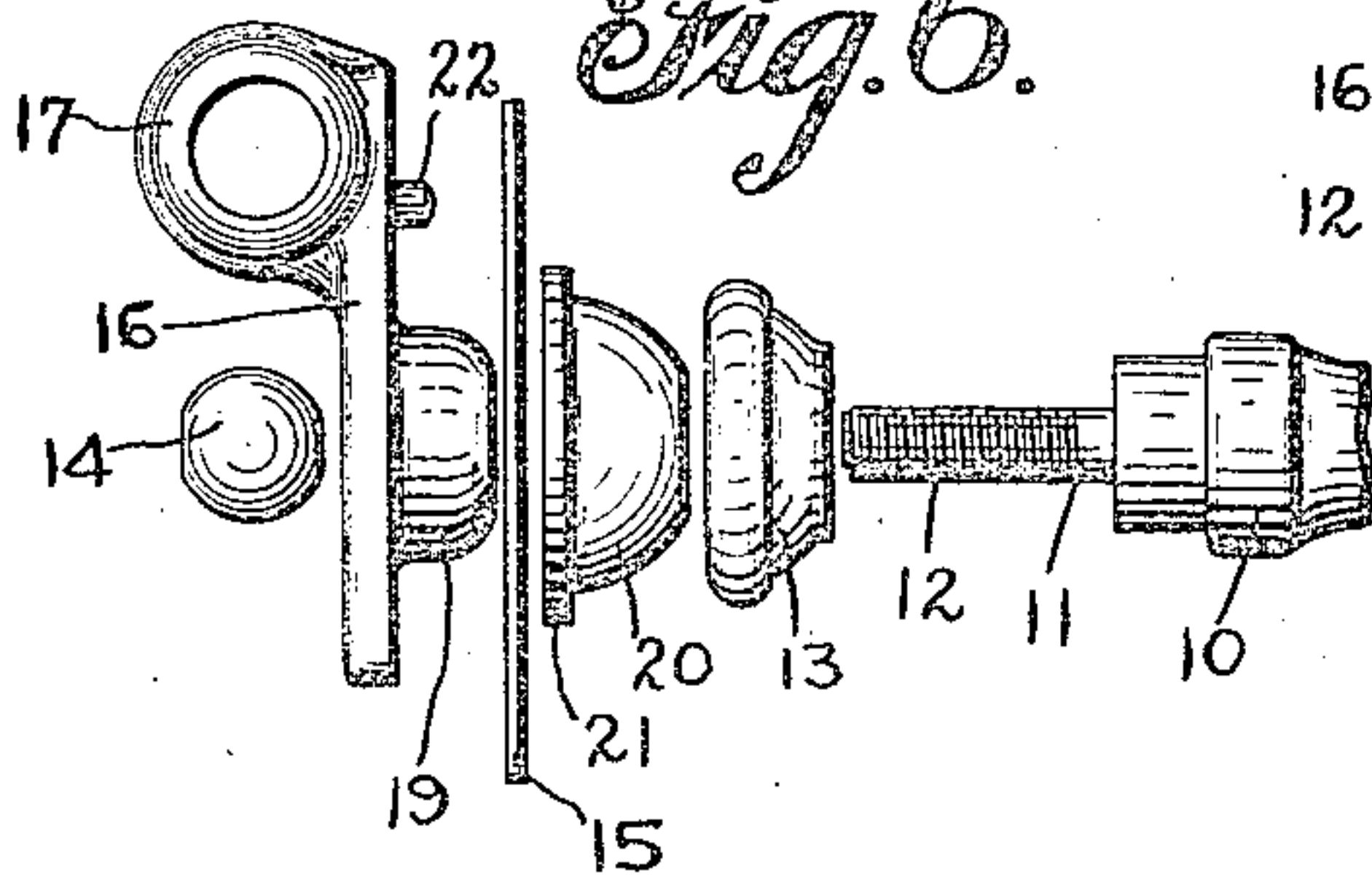
*Fig. 3.*



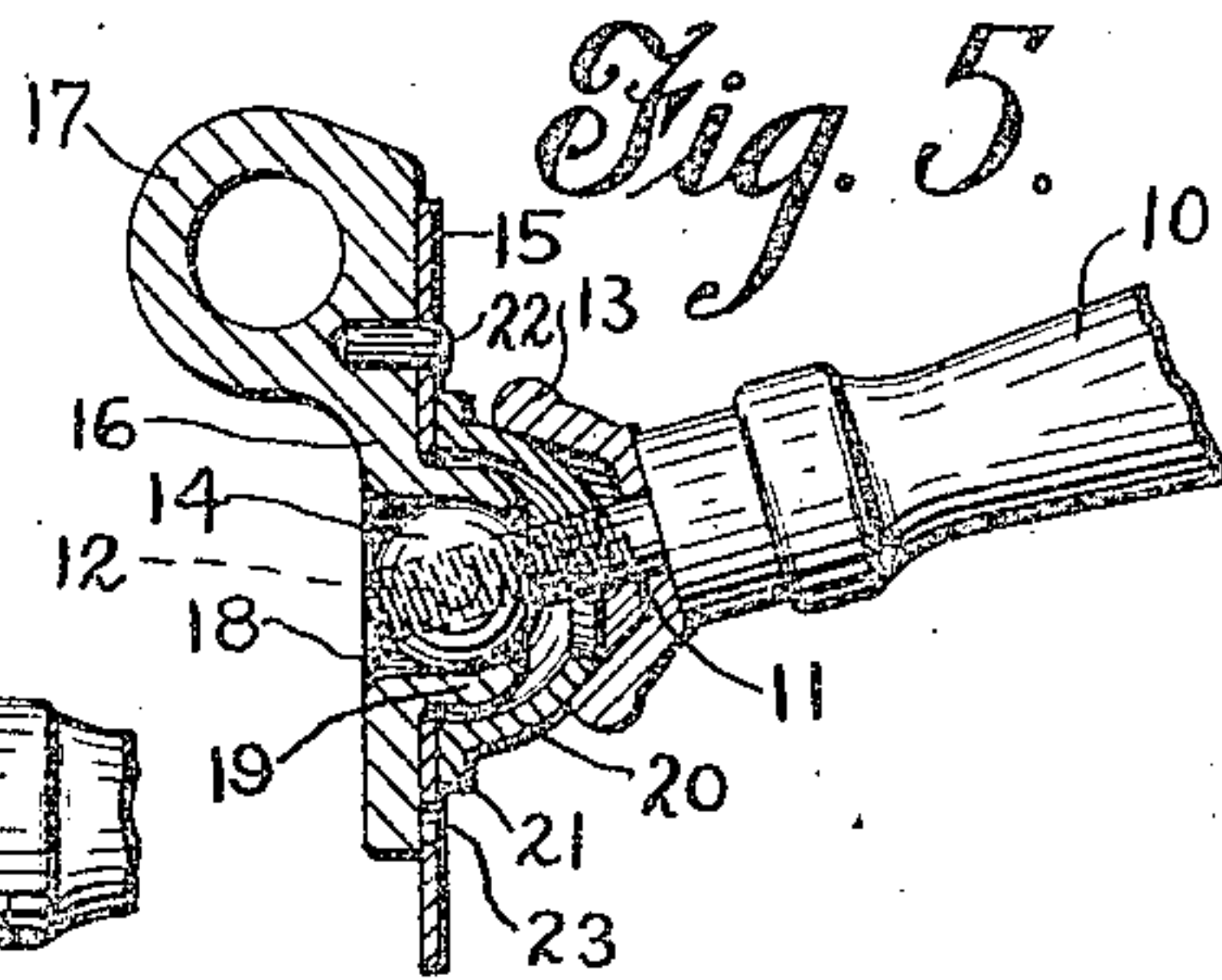
*Fig. 4.*



*Fig. 6.*



*Fig. 5.*



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## UNITED STATES PATENT OFFICE.

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## FLOOR SCRAPER.

Application filed May 2, 1921. Serial No. 466,018.

*To all whom it may concern:*

Be it known that I, FRANK I. KIMBALL, a citizen of the United States, residing in West Haven, county of New Haven, State of Connecticut, have invented certain new and useful Improvements in Floor Scrapers, of which the following is a full, clear, and exact description.

This invention relates to floor scrapers and more particularly to a hand tool of this character. It is desirable to mount the blade of the tool adjustably upon the handle in order that it may be set and used at various angles to the axis of the handle. For this reason it has been customary in the past to provide an adjustable mounting made up of close fitting parts which are expensive to manufacture and assemble, as the parts require expensive machine operations and are excessive in number. My improved floor scraper retains all of the adjustments and advantages of those now in use, but is less expensive to manufacture, more durable, and simpler in construction. It has, moreover, many advantages not found in similar tools heretofore used.

One object of my invention is the provision of a floor scraper of simple and inexpensive character which shall have a wide range of adjustment to vary the angle between the blade and the handle.

A further object of the invention is the provision, in a tool of this character, of a mounting for the blade such that it may be set or turned to present any of its various cutting edges to the work.

A still further object of the invention is to provide a tool of this character with a blade which may be turned to present several cutting edges to work, which may be capable of angular adjustment relatively to the handle and which may be securely and rigidly, clamped in any of its different positions.

Still another object of the invention is the provision in a tool of this character in which the handle will be provided with a single rigid stem upon which all of the parts are mounted and a single clamping nut cooperating with this stem to secure the parts in assembled position and to retain them in any adjusted position which may be desired.

To these and other ends the invention consists in the novel features and combinations

of parts to be hereinafter described and claimed.

In the accompanying drawings:

Fig. 1 is a side view of a floor scraper embodying my improvements;

Fig. 2 is a front end view of the same;

Fig. 3 is a sectional view on line 3—3 of Fig. 1;

Fig. 4 is a sectional view on line 4—4 of Fig. 2;

Fig. 5 is a view similar to Fig. 4, but showing the blade in an adjusted position; and

Fig. 6 is an elevational view showing the assembly of the separate parts.

To illustrate a preferred embodiment of my invention I have shown a floor scraper provided with a handle member 10 in which is rigidly mounted a stem 11 provided with a threaded end 12. Upon this stem is loosely mounted adjacent the end of the handle member 10 a socketed bearing member 13. A clamping nut 14 is shown threaded upon the end of the stem 11. This nut will preferably have a rounded bearing surface at its lower side and may, as is shown in the drawings, consist of a member substantially spherical in shape provided with a threaded opening to receive the stem 11.

Between the socketed bearing member 13 and the clamping nut is mounted upon the stem the clamping device which carries the blade 15. This clamping device is of such form that the members thereof will form a socket at one side to receive the clamping nut 14 and a convex bearing surface upon the other side which will rest within the socket of the member 13. The clamping device and blade carried thereby will then have a universal movement relatively to the handle, socketed clamping member, stem and nut 14.

This clamping device consists of a front plate member 16 provided with an enlargement 17 at its upper portion by which it may be grasped by the hand of the user. This enlarged portion is preferably cast hollow, as shown, so that it will not be of undue weight. This plate member contains a socket portion 18 provided in a rearwardly extending boss 19 which projects through a substantially centrally formed opening in the blade 15. A cup-shaped clamping member 20 is provided to be placed upon the



side of the blade opposite the plate 16 and to receive in the concavity thereof the boss 19 which projects through the central opening in the plate. This clamping member 20 is provided with a peripheral shoulder 21 about the upper edge thereof which bears against the surface of the blade to clamp the same firmly against the rear face of the plate 16.

The boss 19 is open at its lower end to permit the passage of the stem 11 there-through and the opening is sufficiently large, so that a considerable amount of play will be permitted between the stem and the edges of the opening. In like manner the cup-shaped clamping member 20 has an opening in the bottom thereof which, too, is enlarged so as to permit movement of this member relatively to the stem.

To prevent rotation of the blade about the boss 19 and to rigidly secure the blade in any adjusted position within the clamping device, the plate 16 is provided upon its rear face with a projecting pin 22, which is adapted to project through a plurality of openings 23 formed in the blade. This blade will preferably be polygonal in shape and may be, as shown in the drawings, square, thus presenting four different sides upon which cutting edges may be provided. It will be found desirable to prepare both edges of each of the four sides for cutting work so that one blade will in reality have eight cutting edges. As shown in Fig. 3, one of the openings 23 is provided opposite each of the sides of the blade so that each side of the blade may be presented to the working surface and securely held in this position.

It will be obvious that a tool of this character will be economical to construct, as the members 13, 20 and 16 are castings which may be cheaply made. It will also be obvious that very little machining of the parts will be necessary to provide for a proper fitting for the resulting ball and socket or universal movement. When the parts are assembled, as shown in Fig. 4, the handle 10 may be turned to slacken up the nut 14. When the nut has been loosened, the clamping device consisting of the members 16 and 20, carrying the blade 15 may be turned between the nut 14 and the socketed bearing member 13 to an adjusted position, as shown in Fig. 5. It is desirable that the blade be mounted so that it may be adjusted laterally relatively to the handle as well as vertically, and it will be seen that with the universal movement which is provided by the arrangement which I have shown, an adjustment in all directions is obtained.

While I have shown and described a preferred embodiment of my invention, it is to be understood that it is not to be limited

thereto in all of its details, but is capable of many modifications and variations which will lie within the spirit of the invention and within the scope of the appended claims.

When it is desired to adjust the blade 15, so that the pin 22 will be received in another one of the openings 23 and a different cutting edge will be presented to the work, the nut 14 is loosened sufficiently by the turning of the handle 10 until the blade may be moved out of engagement with the pin 22 and turned upon the boss 19 to the desired position. The handle 10 is thereupon turned to tighten the nut so as to clamp the parts in this adjusted position and the tool will be again ready for use.

What I claim is:

1. A floor scraper including a handle, a stem thereon, a blade and a blade mounting comprising a pair of members between which the blade is clamped and through which the stem passes, and means on the stem upon both sides of the blade mounting to attach the latter to the stem for universal movement thereon.

2. A floor scraper including a handle, a stem thereon, a blade, and a blade mounting to which the blade is rigidly attached, and through which the stem passes, and common means for securing the blade to its mounting and securing the latter upon the stem so as to permit it to be set at various angles relatively thereto.

3. A floor scraper including a handle, a stem thereon, a blade having substantially plane surfaces through which the stem passes, means upon which the blade is mounted, said means being secured to the stem to permit it to be set at various angles relatively thereto.

4. In a device of the character described, a blade, a mounting rigidly carrying said blade and a handle provided with a stem passing through the blade and mounting and supporting the latter for universal movement thereon.

5. In a device of the character described, a blade, a mounting therefor comprising a pair of members between which the blade is clamped, a handle, a stem carried thereby, and passing through the blade mounting, a nut upon the stem on the side of the mounting opposite the handle to secure the blade mounting thereon and having a bearing surface about which it is adapted to move.

6. A floor scraper comprising a handle member having a stem, a blade, a member mounted rigidly with the blade and adapted to be secured for universal movement upon the handle member and a single clamping nut for securing said last named member to the blade and upon the stem.

7. In a device of the character described, a handle member, a socketed bearing mem-

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ber carried thereby, a blade, means for mounting the blade upon the handle including a member, rigidly applied to the blade, having a curved bearing surface movably mounted in said socket, and a stem upon the handle passing through the blade and the member rigidly applied thereto and receiving a securing member upon its outer end.

8. In a device of the character described, a handle member having a rigid stem, a blade, and a blade mounting therefor, comprising a pair of members rigidly applied to opposite sides of the blade, said stem passing through said blade and mounting, and means for mounting said members on said stem for angular adjustment in more than one plane.

9. In a device of the character described, a handle member having a stem, a socketed bearing member carried thereby, a blade, a member mounted rigidly with the blade and having a curved bearing surface movably seated in said socket, and a single clamping nut for securing the last named member to the blade and in the socketed member.

10. In a device of the character described, a handle member having a stem, a socketed bearing member carried thereby, a blade, a member mounted rigidly with the blade and having a curved bearing surface movably seated in said socket, said stem passing through said blade and receiving on its outer end a single clamping nut for securing the last named member to the blade and in the socketed member.

11. In a device of the class described, a handle member having a stem and a socketed bearing member carried thereby, a blade mounted between a recessed front plate member and a rear clamp member having a curved bearing surface, said stem passing through the blade and receiving a nut on the end thereof and said nut being mounted in the recess of said front plate.

12. In a floor scraper, a handle member having a stem and a socketed bearing member carried thereby, a member having a curved surface on the end of the stem spaced from said first member a blade, and means consisting of a pair of members between which the blade is clamped mounting said blade on the stem, said means being provided with bearing surfaces complementary to those of said members.

13. In a device of the character described, a handle member having a stem, a socketed bearing member carried thereby, a blade, a member against which the blade is adapted to be clamped and having a curved bearing surface movably seated in said socket, said

stem passing through said blade and having a nut thereon upon the side of the blade opposite the said bearing members.

14. A floor scraper comprising a handle and a blade mounted thereon, said mounting means including a bedplate having an integrally formed, rounded hollow grip portion at one side thereof, and disposed forwardly of the blade for the purpose set forth.

15. In a floor scraper, a handle member, a stem attached to the handle, a blade mounting and a blade clamped thereto, said stem passing through said blade and blade mounting and means upon the stem upon opposite sides of the blade mounting supporting the latter for universal movement thereon.

16. In a floor scraper, a handle member, a stem attached thereto, a blade, a plate carrying said blade and provided with a boss received in a perforation in the blade, a cup-shaped member upon the stem adjacent the handle, a retainer having a rounded bearing surface adjacent the end of the stem remote from the handle, said blade being mounted on the stem for universal movement between said retaining member and said cup-shaped member.

17. In a floor scraper, a handle member, a blade mounting, a blade attached thereto and a universal joint comprising members upon opposite sides of the blade mounting and blade for clamping said blade upon the mounting and clamping the latter upon the handle.

18. In a floor scraper, a handle member, a scraping blade, a blade mounting comprising a pair of members between which the blade is adapted to be clamped, a stem passing through said mounting members and supporting the same for universal movement thereon and secured to the handle.

19. A floor scraper comprising a handle having a stem on one end thereof, a blade having an opening therein, a member against which the blade is clamped having a boss extending through said opening, a cup-shaped clamping member on the side of the blade opposite said first-named member having a flange to press the blade thereagainst, a socketed bearing member carried by the stem and receiving said cup-shaped member, said stem passing through the blade and clamping members on opposite sides thereof, and means on the end of the stem to secure the parts together.

In witness whereof, I have hereunto set my hand this 29 day of April, 1921.

FRANK I. KIMBALL.