

(No Model.)

F. SPAULDING.
MICROMETER GAGE.

No. 368,554.

Patented Aug. 16, 1887.

Fig. 1.

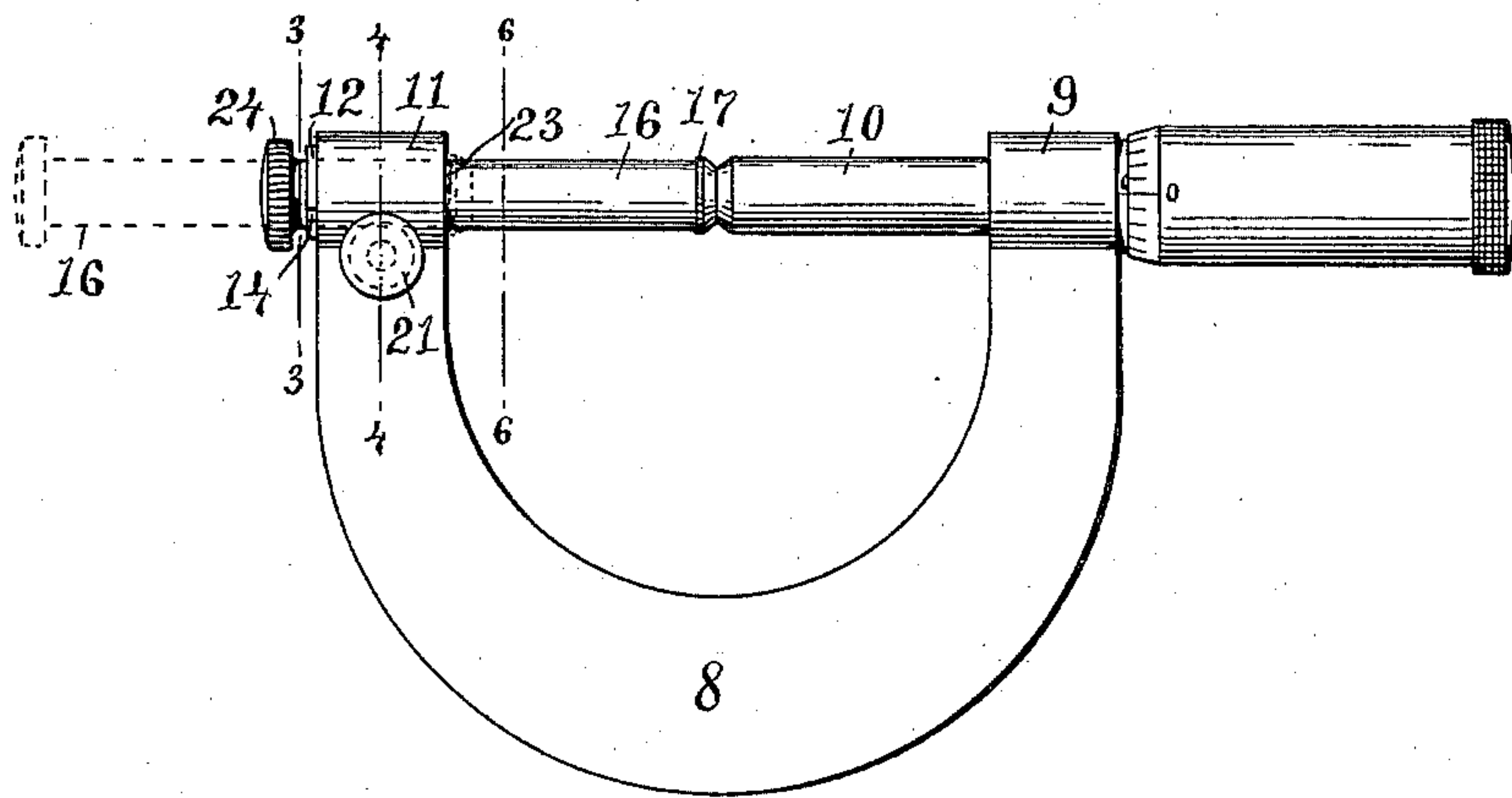


Fig. 2.

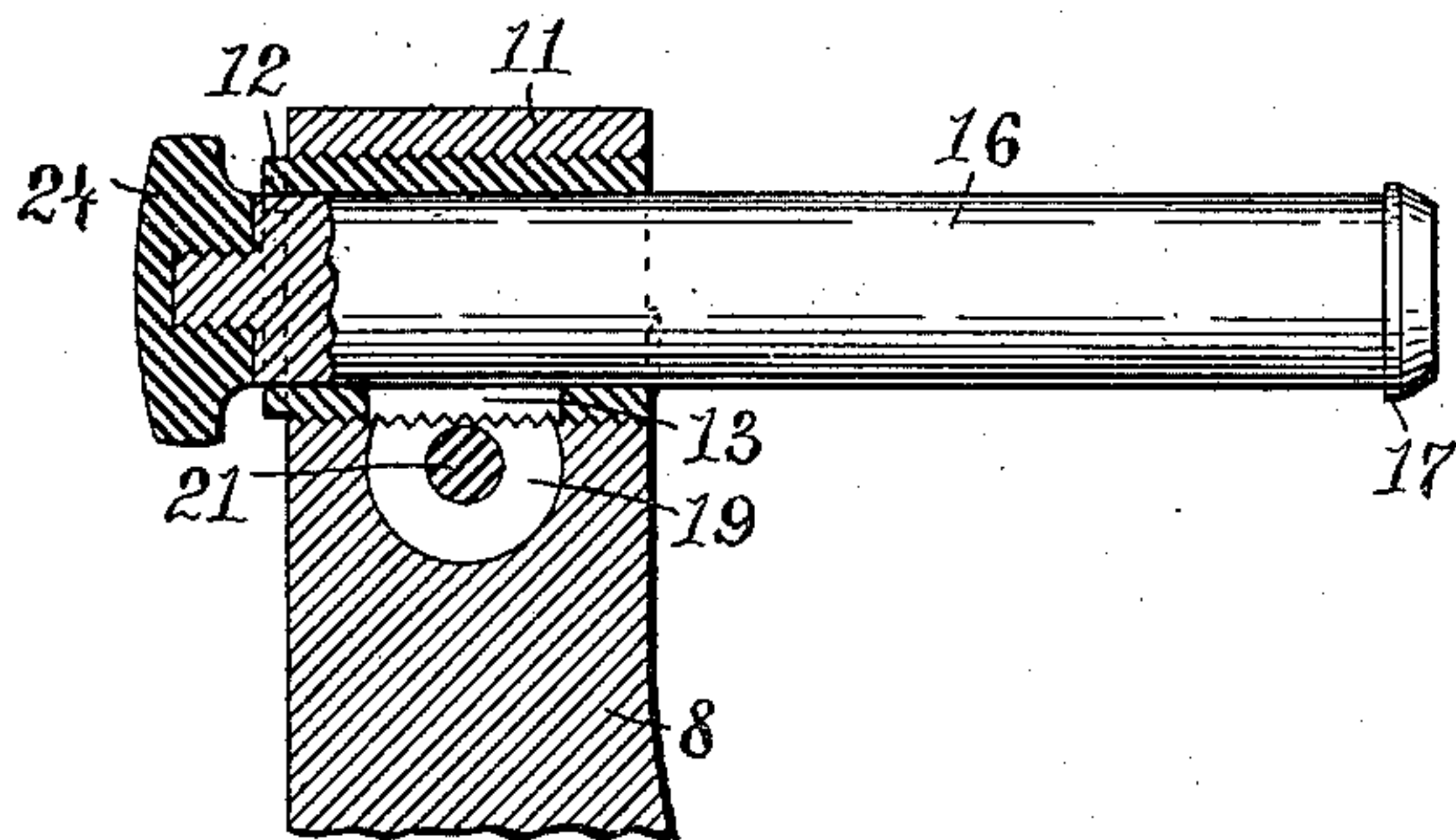


Fig. 3.

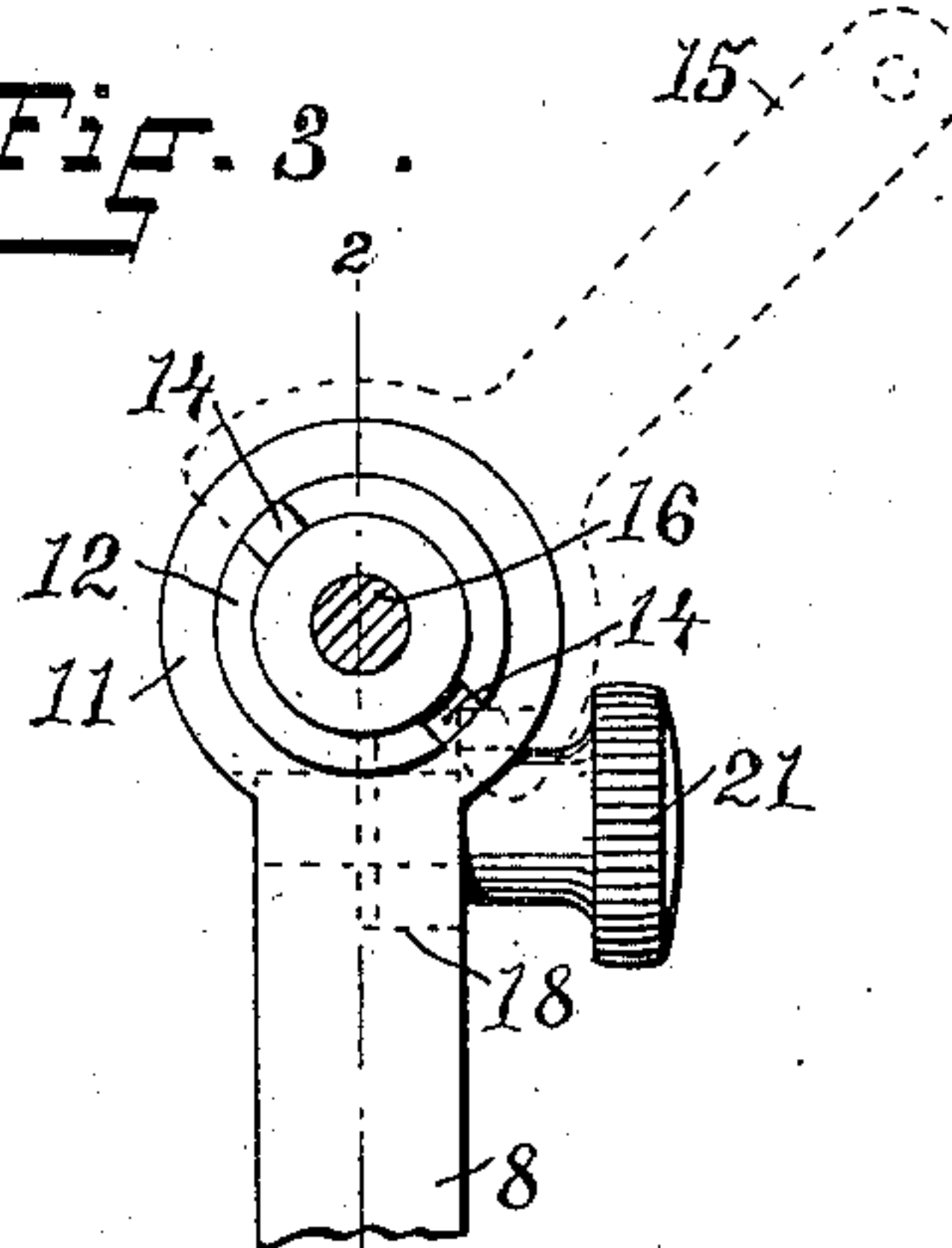


Fig. 4.

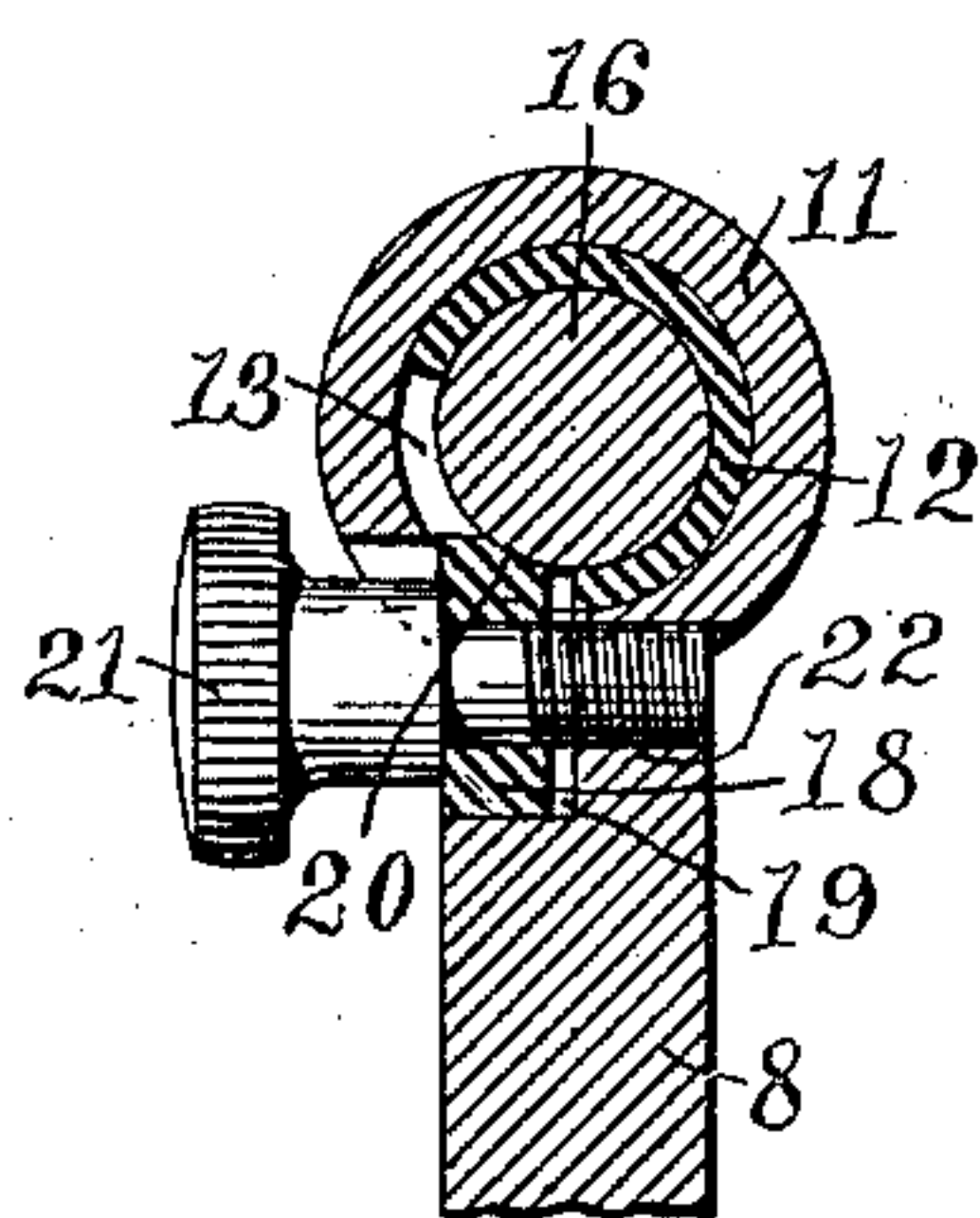


Fig. 5.

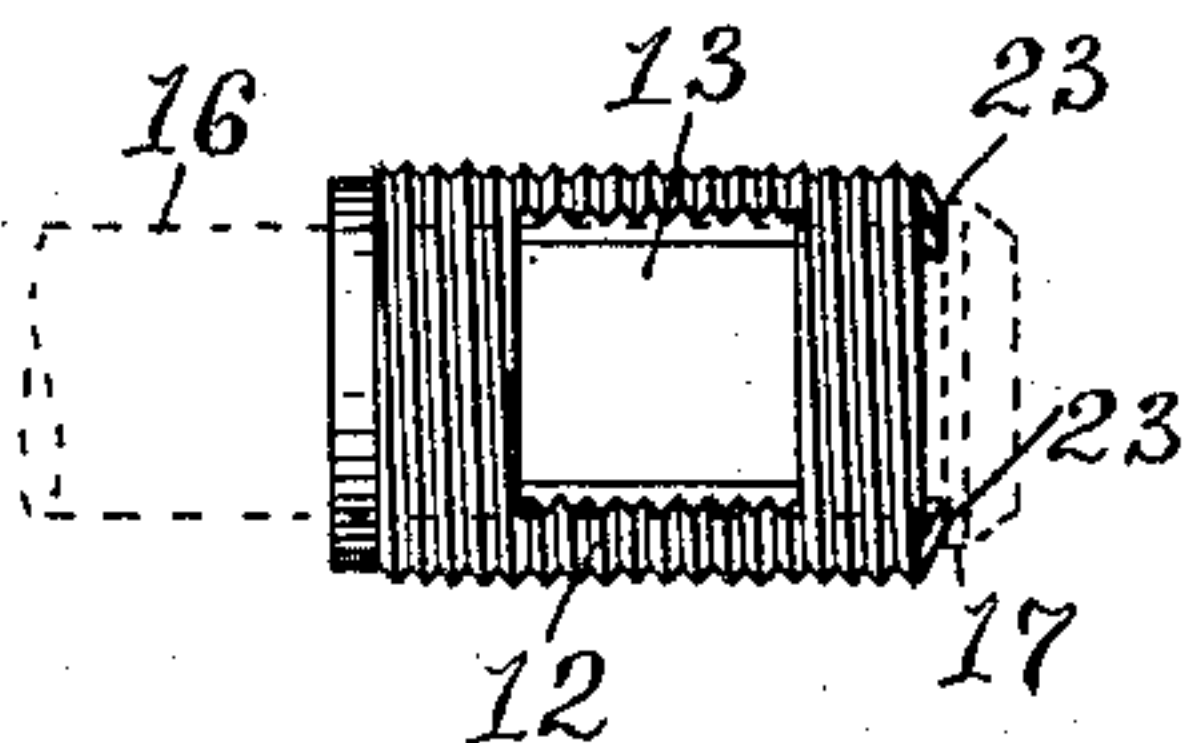
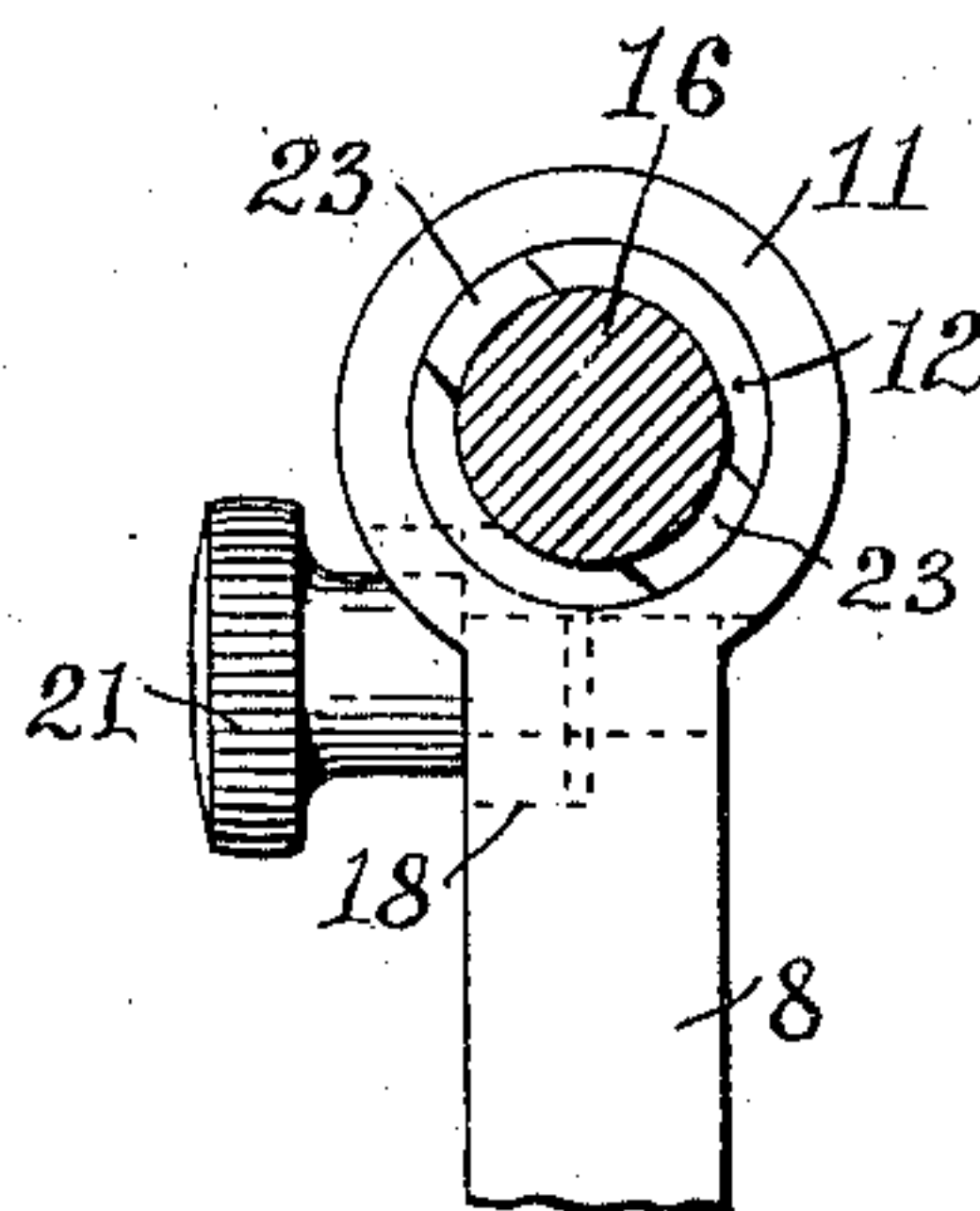


Fig. 6.



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UNITED STATES PATENT OFFICE.

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MICROMETER-GAGE.

SPECIFICATION forming part of Letters Patent No. 368,554, dated August 16, 1887.

Application filed May 10, 1887. Serial No. 237,678. (No model.)

To all whom it may concern:

Be it known that I, FRANK SPAULDING, of the city and county of Providence, and State of Rhode Island, have invented certain new and useful Improvements in Micrometer-Gages, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to micrometer gages or calipers for making delicate measurements of the thickness of sheet metal, the diameters of wires, and for other measuring purposes.

The ordinary form of micrometer-gages consists, in general, in a curved two-armed frame having an anvil mounted at the extremity of one arm and a micrometer-screw mounted at the extremity of the other arm, in axial alignment with the anvil and capable of being moved longitudinally toward and away from the anvil. The measuring capacity or caliber of a gage constructed in this manner is dependent upon and is limited by the length of the micrometer-screw and the extent of the traverse of the same. Since it is not practical to make the micrometer-screw of a very great length, so as to give it an extended traverse in order to provide a gage of a large caliber, the sizes of the gages are necessarily much limited.

The object of my invention is to increase the measuring capacity or caliber of micrometer-gages, so that large-sized gages may be practically made, and which will possess all the trueness and delicacy required in these instruments.

Another object of my invention is to provide means for securely holding the sliding anvil in adjusted position.

Another object of my invention is the provision of means for truing the anvil, so as to compensate for wear.

Another object of my invention is to permit the anvil to always become truly seated in its lowest position, by providing cleaners which act to scrape the accumulated dirt from certain parts of the anvil.

To the aforesaid purposes my invention consists, essentially, in the certain combinations of parts set forth in the claims at the close of this specification, and comprising the follow-

ing mechanical features—namely, the frame formed with the sockets, the micrometer-screw set in the frame, a sliding anvil adapted to move endwise to increase or diminish the measuring capacity or caliber of the gage, a sleeve surrounding the anvil and capable of being moved on its length to true the anvil and compensate for wear, the slide engaging the anvil and provided with a set-screw for holding the anvil rigidly in adjusted position, the cleaners mounted upon the sleeve, and the key-notches in the sleeve.

In order that my invention may be fully understood, I have illustrated it in the accompanying drawings, and will proceed to describe the best form thereof so far devised by me, with the knowledge that such forms may be variously modified without, however, making a substantial departure from the spirit of my invention.

In the accompanying drawings, Figure 1 is a side view of my improved micrometer-gage, and shows the micrometer-screw closed on the anvil, which is at its highest position. The broken lines represent the lowest position which the anvil may assume. Fig. 2 is an enlarged longitudinal sectional view of a portion of the gage, the view being taken on line 2 2 in Fig. 3. The anvil is shown mainly in full. Fig. 3 is an enlarged sectional view taken on line 3 3 in Fig. 1, the frame being shown in portion. The device shown in broken lines is a key for adjusting the sleeve surrounding the anvil. Fig. 4 is an enlarged sectional view taken on line 4 4 in Fig. 1, the frame being represented in portion. Fig. 5 is a side view of the sleeve which surrounds the anvil, which is shown in portion in broken lines. Fig. 6 is an enlarged sectional view taken on line 6 6 in Fig. 1, with the frame broken off.

In the said drawings like numbers of reference designate corresponding parts throughout.

Referring to the drawings, the number 8 designates a curved two-armed frame, which is formed at one extremity with the socket 9, in which is mounted a well-known form of micrometer-screw, 10, which is constructed to be fed to and fro on its axis in the ordinary manner. The other end of the frame 8 is formed with the internally screw-threaded socket 11, in which works the externally screw-threaded

sleeve 12, which is provided with the lateral opening 13. One end of the sleeve 12 is formed with the diametrically-opposite key-notches 14, which are designed to receive the respective ends of the forked key 15, shown in broken lines in Fig. 3, and by means of which the sleeve may be adjusted longitudinally in its socket in order to compensate for the wear of the anvil and the micrometer-screw, as will be hereinafter described.

The anvil 16 consists in a cylindrical bar having a removable milled thumb-piece, 24, at one end, and provided at the other end or head with the circumferential flange 17. The anvil is made to fit closely in the sleeve, and is capable of being slid to and fro therein.

In order to lock and rigidly hold the anvil in adjusted position within the sleeve, I have provided the slide 18, which takes in the opening 19, which is formed in the frame 8 and opens into the socket 11, so that the slide may extend through the openings 19 and 13 and bear upon the side of the anvil, with the grooved end 20. The slide is provided with a perforation, through which takes the shank of the set-screw 21, which works in the socket 22, formed in the frame 8.

The operations of the set-screw will serve in an obvious manner to move the slide relatively to the anvil, and the slide may be forced into close contact with the anvil, thereby binding and holding the same rigidly in adjusted position.

The flange 17 on the anvil acts as a stop, which checks the anvil at its lowest limit and allows the anvil to be always adjusted at the same point by sliding the anvil through the sleeve until the under face of the flange comes in contact with the upper end of the sleeve 12, thereby insuring a true adjustment of the anvil relatively to the micrometer-screw 10. The upper end of the sleeve 12 is provided with the two cleaner-pieces 23, the edges of which are sharpened, so that when the anvil 16 is slid down to the lowest limit, as shown in broken lines in Fig. 1, any dirt which may adhere to the anvil, and which would become lodged between the flange 17 and its true bearing on the sleeve, can be readily dislodged by rotating the anvil on its axis, when the flange 17 is brought in contact with the cleaners 23, which will then serve to scrape the flange and free it from any dirt, thereby permitting the anvil to be seated always in its true adjustment when at the lowest limit of its movement.

From the foregoing description the operations of the gage will be at once understood. When the anvil is adjusted and held at the highest limit of its traverse, the capacity of measurement of the gage will then be only equal to the extent of the traverse of the micrometer-screw 10, which, let it be supposed, represents in Fig. 1 one inch. In this case it may also be supposed that the anvil has a traverse of one inch, the same as the micrometer-screw.

Now if it be desired to measure more than one inch, this may be accomplished with the use of the same micrometer-screw, by virtue of my sliding anvil, which is then slid to the lowest limit until the flange 17 is seated upon the cleaners 23, when the set-screw is turned to rigidly hold the anvil in adjusted position. The gage may be trued, in order to compensate for the constant wear upon the contact-faces of the anvil and micrometer-screw, respectively, by means of the sleeve 12. This sleeve may be advanced toward the micrometer-screw 10 by turning the sleeve with the detachable key, 15, which is shown in Fig. 3, in position to turn the sleeve.

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

1. The combination, as hereinbefore set forth, with a frame, of a longitudinally-sliding anvil mounted therein, a slide engaging the anvil, and a set-screw engaging and operating the slide, substantially as herein described.

2. The combination, as hereinbefore set forth, with a frame provided with a socket, of a sleeve adapted to move endwise in the socket, a sliding anvil disposed within the sleeve, and means for binding and holding the anvil in adjusted position, substantially as herein described.

3. The combination, as hereinbefore set forth, with the frame provided with a screw-threaded socket, of an externally-screw-threaded sleeve working in said socket, a sliding anvil working in the sleeve, and means for holding the anvil in adjusted position, substantially as herein described.

4. The combination, as hereinbefore set forth, with the frame provided with a socket, of a sleeve working in the socket and provided with the key-notches to receive a key for adjusting the sleeve, and an anvil placed within the sleeve, substantially as herein described.

5. The combination, as hereinbefore set forth, with a frame provided with a socket and having an opening leading into the side of the socket, of a sleeve working within the socket and provided with an opening which may register with the said opening in the frame, a sliding anvil set within the sleeve, and a slide provided with a set-screw and extending through the said openings in the frame and sleeve and bearing upon the anvil, substantially as and for the purpose herein described.

6. The combination, as hereinbefore set forth, with a frame, of a longitudinally-sliding anvil having a flanged head and mounted in the frame, one or more cleaner-points acting to engage the under side of the flange on the anvil and to scrape and clean the same, substantially as and for the purpose set forth.

7. The combination, as hereinbefore set forth, with the frame 8, formed with the screw-threaded socket 11, and the opening 19, of the sleeve 12, provided with the opening 13 and working in the socket, the sliding anvil 16, working in the sleeve 12, and the slide 18, provided with the set-screw 21 and adapted to bind

upon the anvil and hold the same, substantially as and for the purpose herein described.

8. The combination, as hereinbefore set forth, with the frame 8, formed with the screw-threaded socket 11, of the sleeve 12, working in the socket 11 and provided with the cleaner-pieces 23, and the sliding anvil 16, mounted in the sleeve 12 and provided with the flange 17, substantially as herein described.

10 9. The combination, as hereinbefore set

forth, with the frame 8, formed with the screw-threaded socket 11, of the screw-threaded sleeve 12, provided with the key-notches 14 upon one edge thereof, the sliding anvil 16, set in the sleeve 12, and the key 15 for rotating the sleeve, substantially as herein described.

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Witnesses:

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