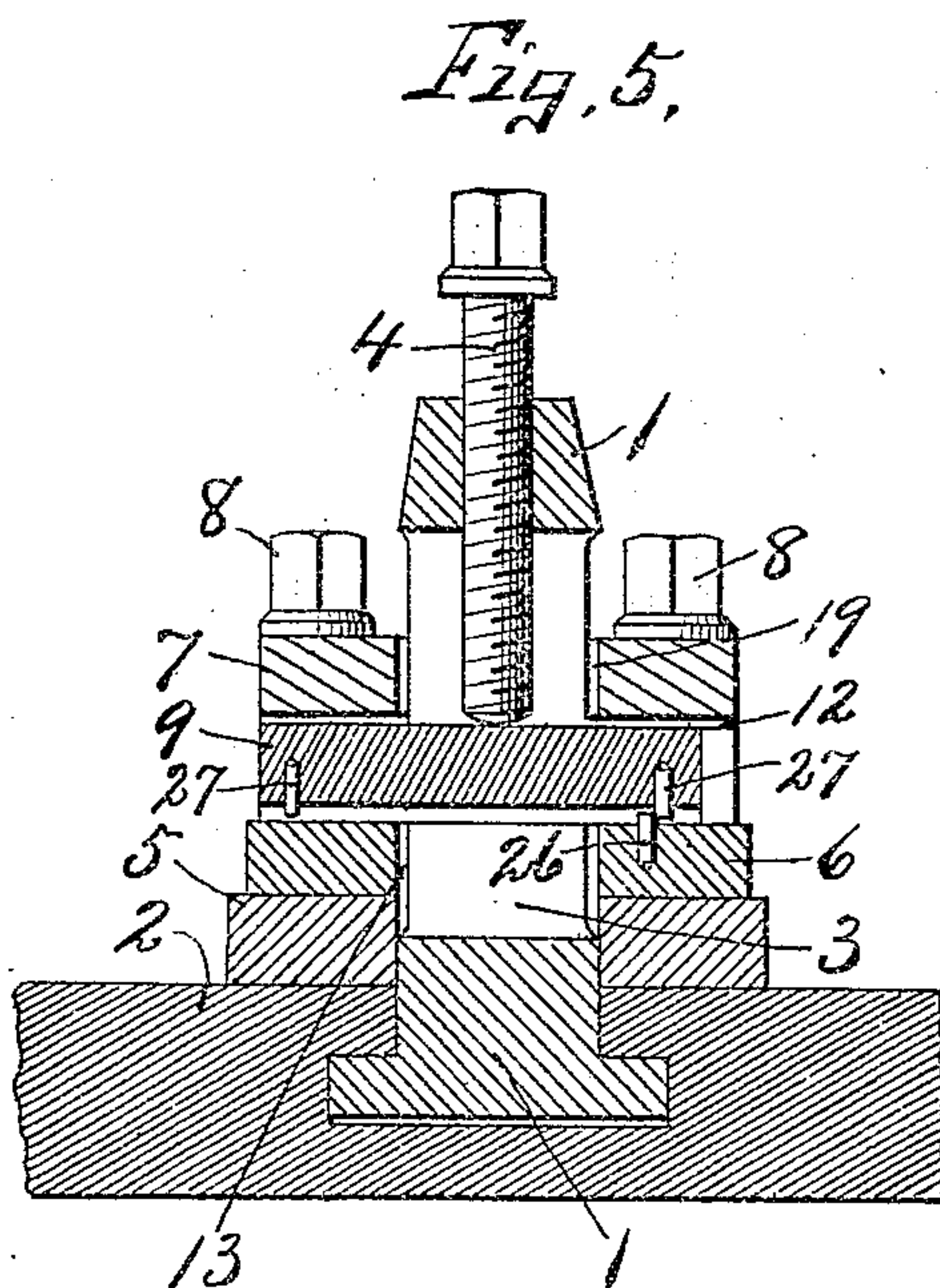
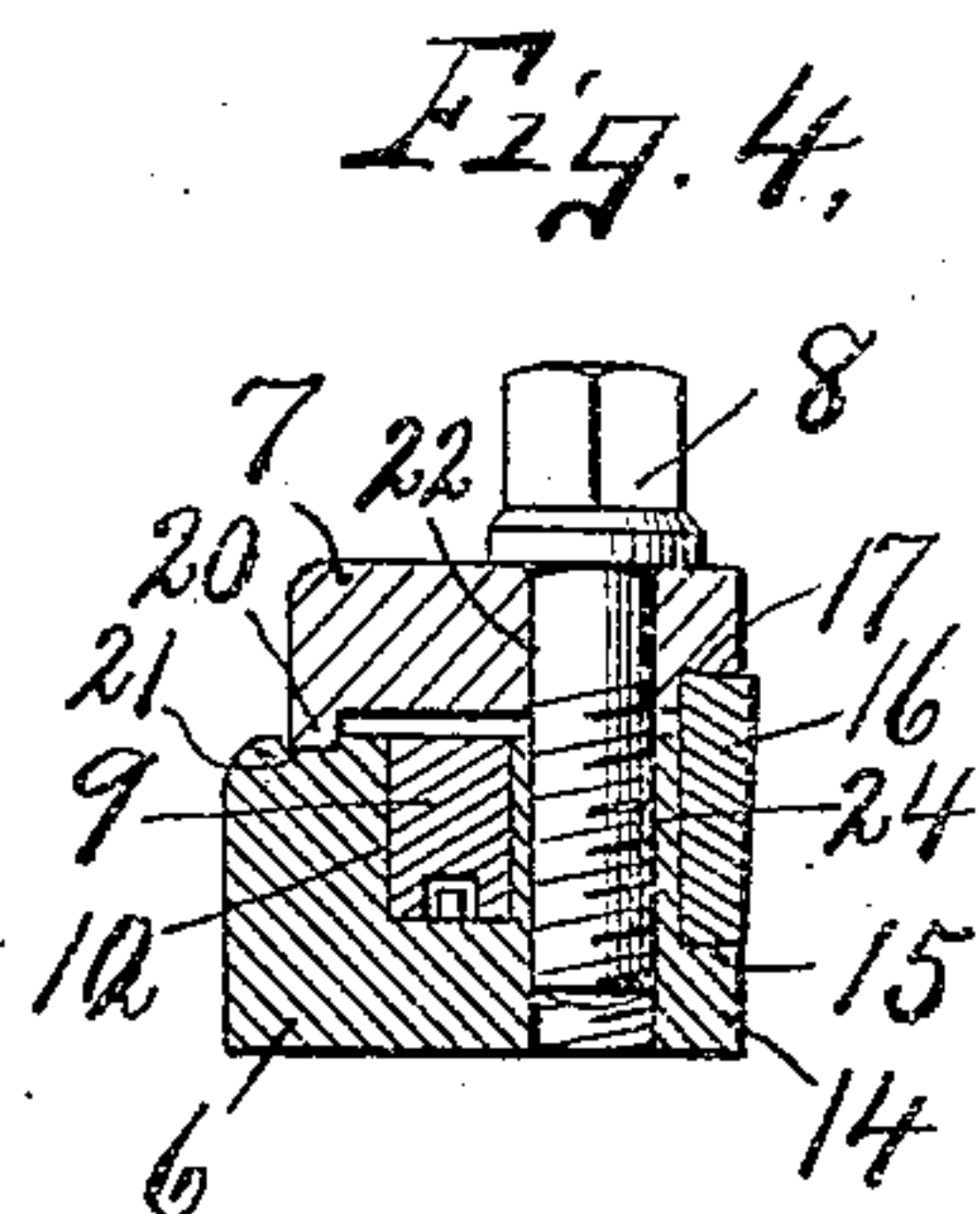
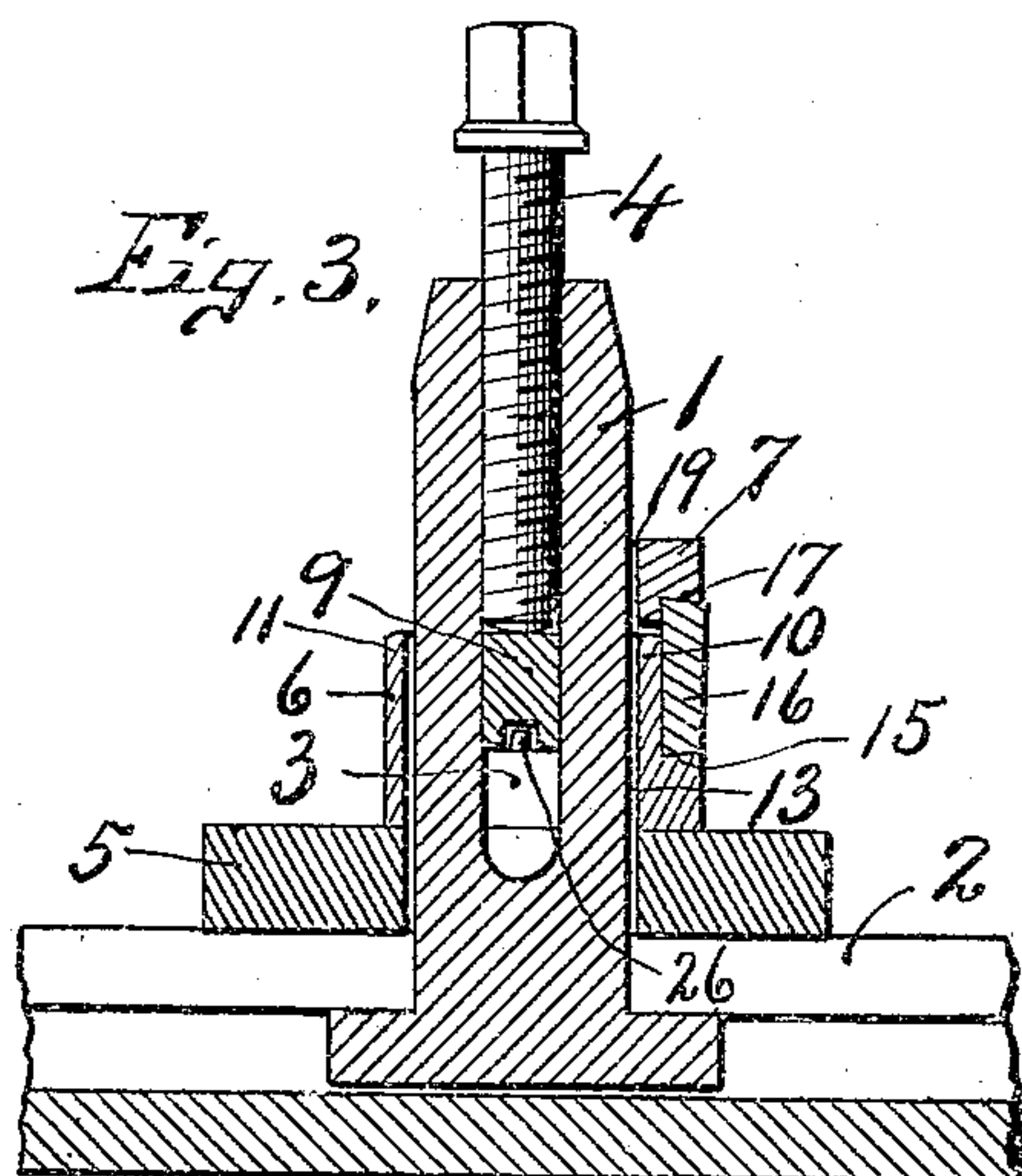
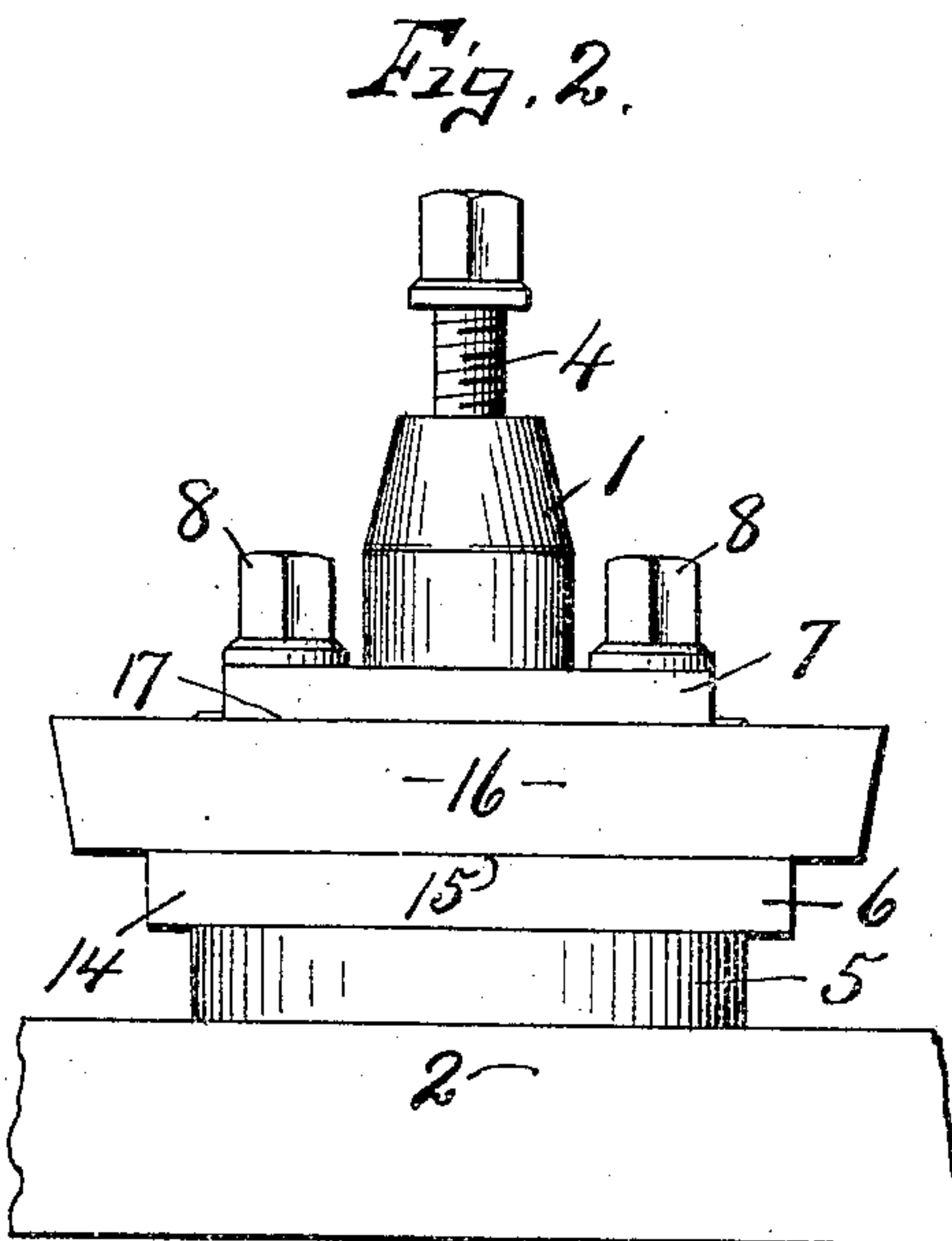
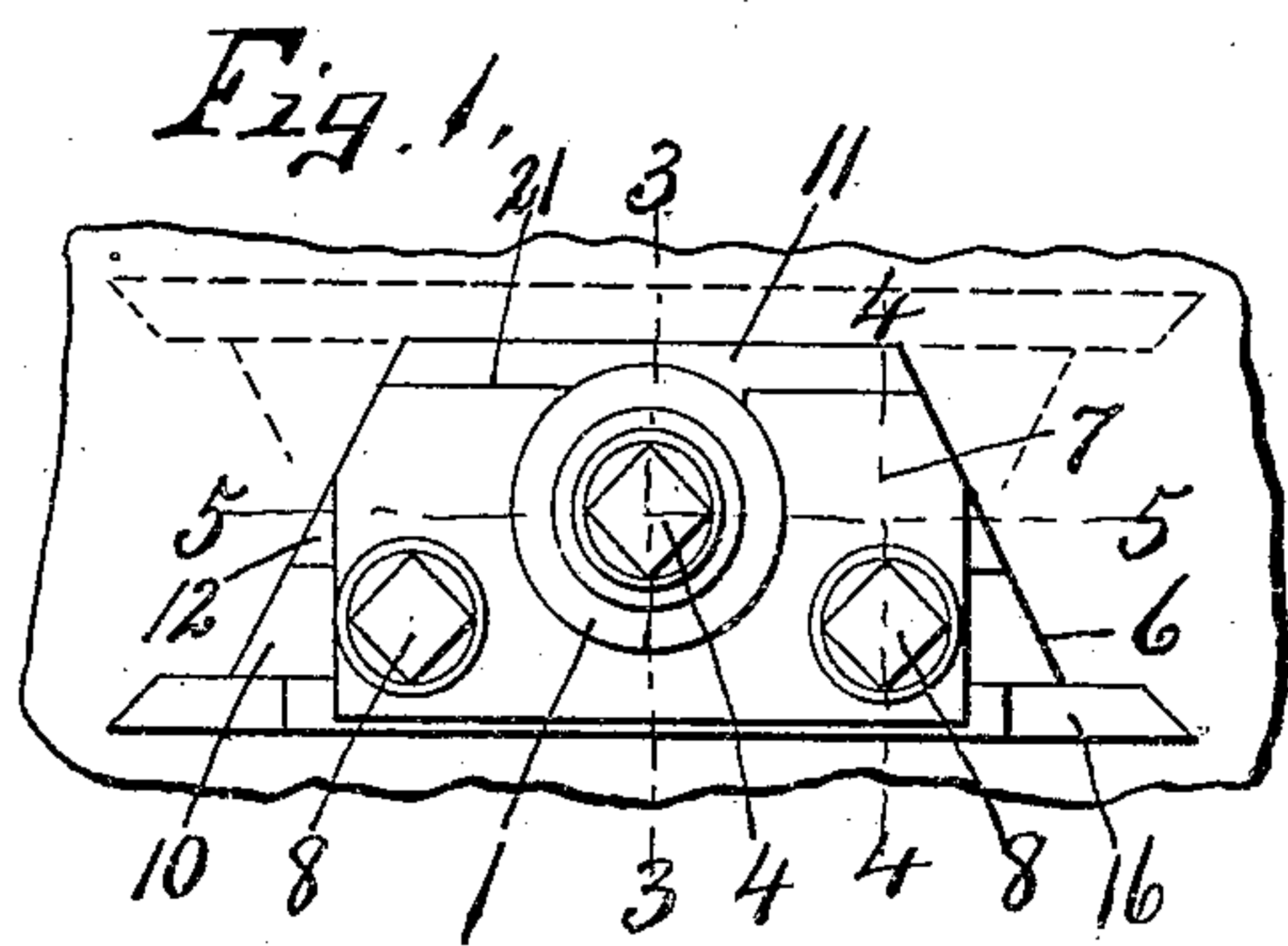


J. & W. CARR.
LATHE TOOL HOLDER.
APPLICATION FILED OCT. 2, 1907.

939,976.

Patented Nov. 16, 1909.
2 SHEETS—SHEET 1.



Witnesses.
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W. E. Chare

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Fig. 6.

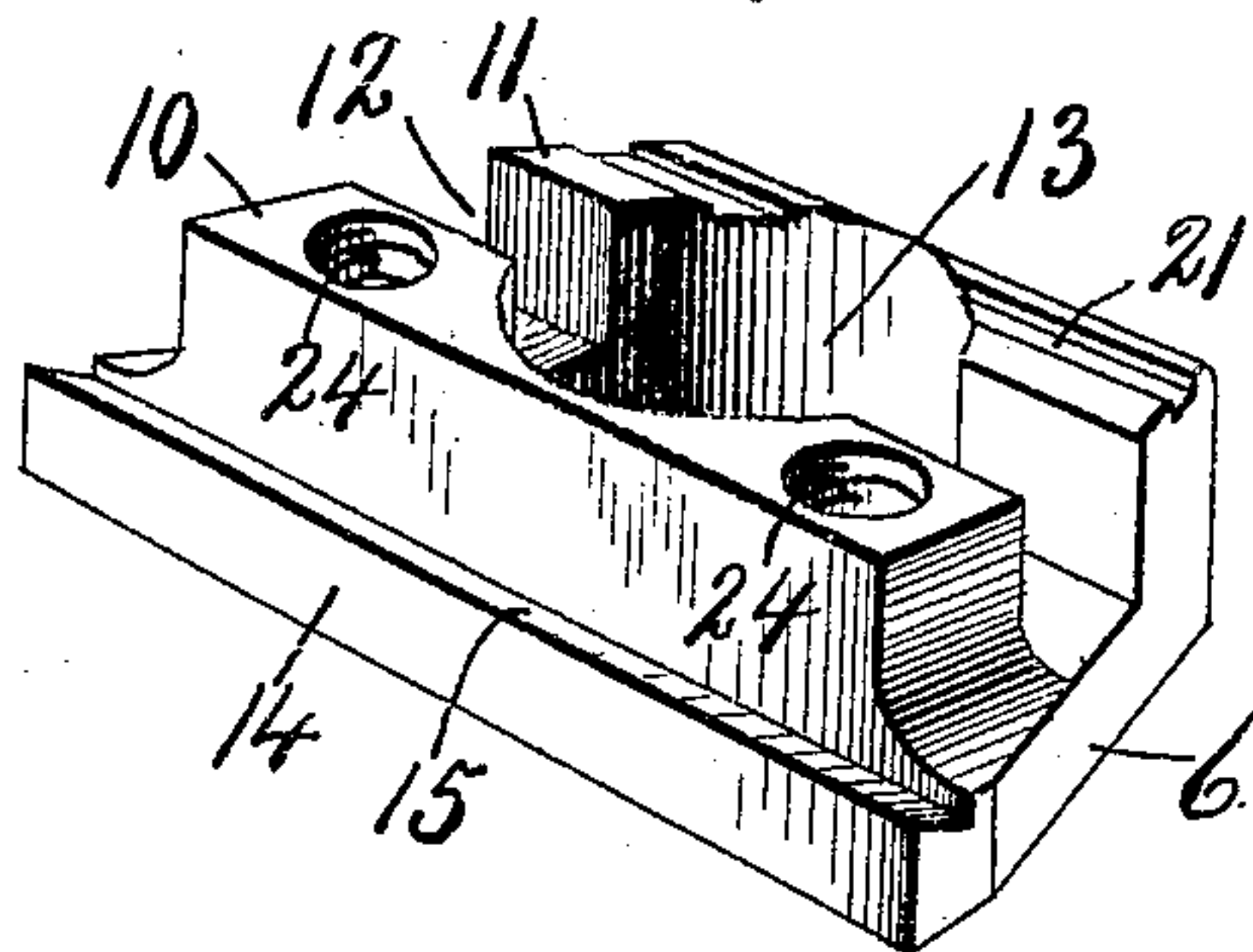


Fig. 7.

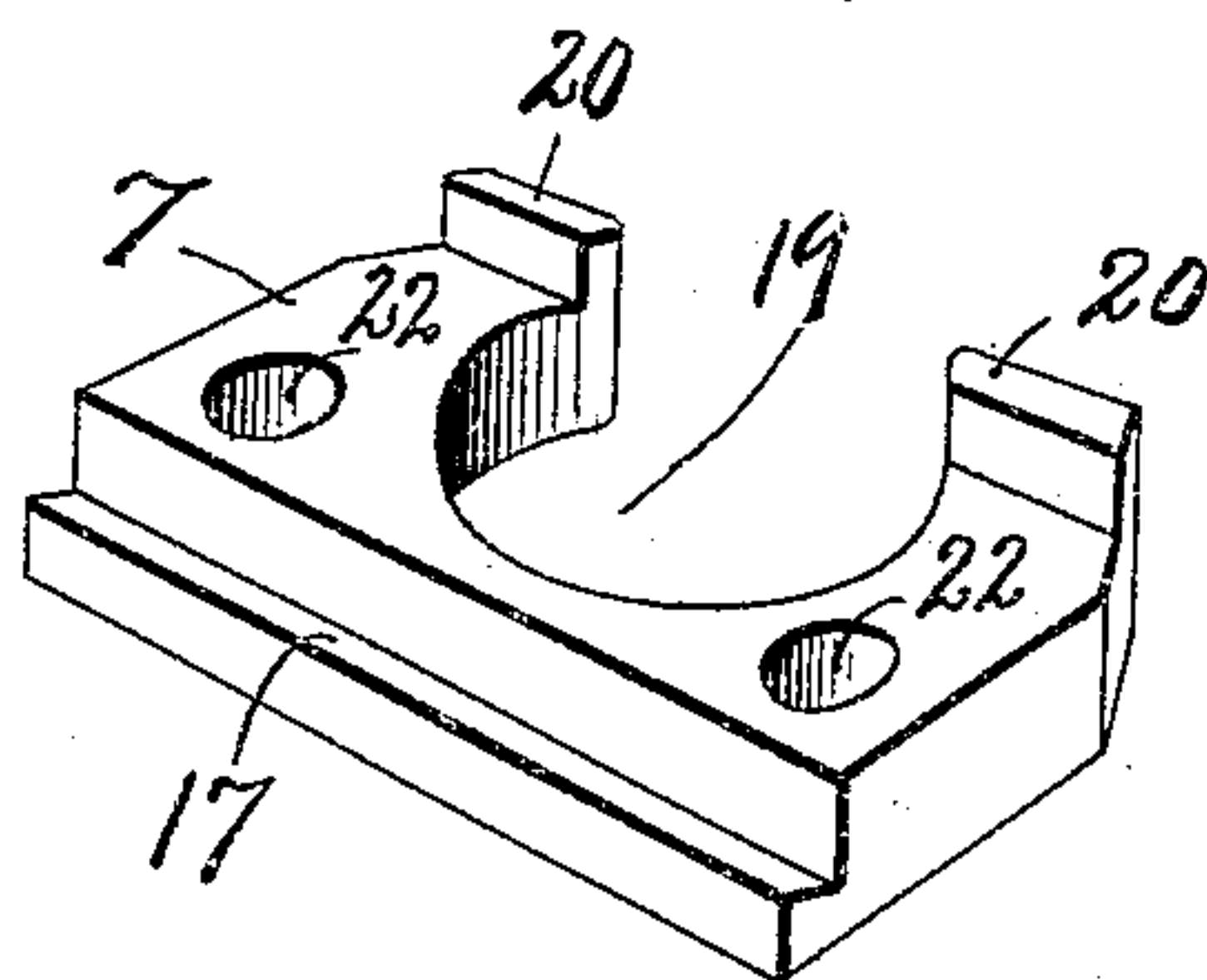
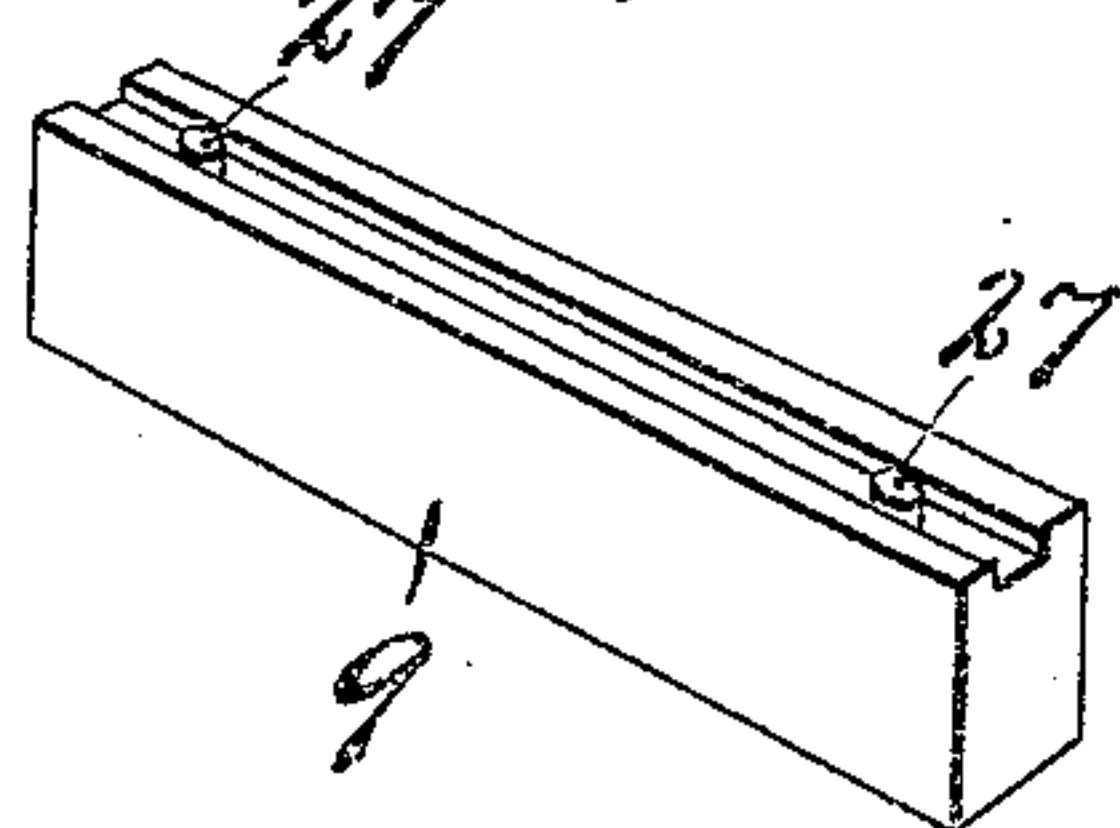


Fig. 8.



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UNITED STATES PATENT OFFICE.

JAMES CARR AND WILLIAM CARR, OF SYRACUSE, NEW YORK, ASSIGNORS TO THE
HENRY G. THOMPSON & SON COMPANY, OF NEW HAVEN, CONNECTICUT, A COR-
PORATION OF CONNECTICUT.

LATHE-TOOL HOLDER.

939,976.

Specification of Letters Patent.

Patented Nov. 16, 1909.

Application filed October 2, 1907. Serial No. 395,537.

To all whom it may concern:

Be it known that we, JAMES CARR and
WILLIAM CARR, of Syracuse, in the county
of Onondaga, in the State of New York,
have invented new and useful Improvements
in Lathe-Tool Holders, of which the follow-
ing, taken in connection with the accompa-
nying drawings, is a full, clear, and exact
description.

This invention relates to certain improve-
ments in lathe tool holders adapted to be
used in connection with the ordinary tool
post for the reception and retention of spe-
cially formed tools and capable of perform-
ing any work which may be performed with
any tool adapted to be used in connection
with the usual tool post.

The common practice is to provide the
tool with a shank adapted to be clamped in
the slot of the tool post or to provide one
end of a similar shank with tool holding
clamps but in either case the cutting edge of
the tool is almost invariably located a con-
siderable distance from the tool post thereby
allowing more or less vertical chattering or
vibration of the tool, particularly in heavy
cuts or castings of unequal hardness and in
order to overcome this, the tool end of the
shanks are usually deflected upwardly which
although reducing the vibration materially,
nevertheless necessitates light cuts and,
therefore, prolongs the time and labor to
give the article worked upon the desired fin-
ish. Furthermore, under the method now in
common use it is necessary to provide sepa-
rate tools for right and left hand cuts which
necessitates the removal of one tool and the
reinsertion of another tool into the tool post.

The main object of our present invention
is to provide a tool holder adapted to em-
brace or fit upon the ordinary tool post and
to afford a broad bearing for the tool as well
as the tool holder and at the same time to
enable the tool holder with the tool thereon
to be reversed for right and left hand work
without removing the tool from the holder
or the holder from the post. The purpose in
affording a broad bearing for the tool and
tool holder is to prevent vertical vibration or
chattering of the tool while in action.

Another object is to provide the tool
holder with a slidable key movable into and
out of the slot of the tool post and adapted
to be engaged by the set screw with which

such post is usually provided and whereby
the tool holder is clamped to the tool post
separately from the means which clamps the
tool in the tool holder so that the tool holder
may be released and turned about the axis
of the tool post without disturbing the ad-
justment of the tool thereon.

Another object is to provide the clamping
key and tool holder with inter-engaging
shoulders arranged so as to permit the key
to be withdrawn from the tool post but still
retained in the tool holder against accidental
displacement thereby obviating any liability
of the clamping key becoming lost or dis-
placed.

Other objects and uses relating to specific
parts of our invention will be brought out in
the following description.

In the drawings—Figures 1 and 2 are re-
spectively a top plan and a side elevation of
our improved tool holder shown as oper-
atively mounted upon an ordinary tool post.
Figs. 3, 4 and 5 are sectional views taken re-
spectively on lines 3—3, 4—4 and 5—5, Fig.
1. Figs. 6, 7 and 8 are perspective views
respectively of the two clamping jaws and
key of the tool holder shown in Figs. 1 to 5
inclusive.

In Figs. 1, 2, 3 and 5, we have shown an
ordinary tool post —1— as adjustably
mounted in the usual manner upon a car-
riage —2— and provided with a transverse
slot —3— and the usual set screw —4—, said
carriage and tool post being shown in this
instance, as provided with a bed piece or
washer —5— although the latter may be dis-
pensed with if desired, its function being
simply to elevate the tool holder to the de-
sired level.

This tool holder which forms the subject
matter of our present invention consists es-
sentially of a lower clamping jaw —6— a
separate removable upper clamping jaw
—7—, suitable cap screws —8— for securing
the two clamping jaws together, and a key
—9— adapted to be passed through the slot
—3— of the tool post —1— forming with the
set screw —4— a clamping device whereby
the tool holder is held in place upon the car-
riage —2— and tool post 1—.

The lower clamping jaw —6— is provided
with a comparatively broad flat bottom of
considerably greater diameter than the cross
sectional area of the tool post around which

it is adapted to be placed so as to rest firmly throughout its bottom area upon the lower portion of the carriage —2— and is provided with a pair of opposed parallel ribs —10— and —11— spaced apart forming an intervening groove or key way —12— for the key —9—.

As previously intimated the lower clamping jaw is provided with a central circular opening —13— extending therethrough from top to bottom for receiving the tool post, said opening being of slightly greater diameter than that of the tool post to permit the tool holder to be readily placed upon said post and removed therefrom when desired, the lengthwise groove —12— being substantially central or diametrical of the opening —13— so that when the tool holder is properly adjusted on the post, the groove —12— and key —9— will be brought into exact alinement with the transverse slot —3— in the post.

The two clamping jaws 6 and 7 and key —9— are preferably formed of steel or case hardened iron, the lower clamping jaw being provided, in addition to the ribs —10— and —11—, with an additional laterally projecting and longitudinally extending rib —14— at the base and one side of the rib —10— and provided with a transversely beveled face —15— for receiving the corresponding beveled edge of a suitable tool —16— which is clamped between said beveled face —15— and a similar beveled face —17— on the under side of the outer edge of the upper clamping jaw —7—. These beveled clamping faces are, therefore, located wholly at one side of the tool post —1— and extend from end to end of the clamping jaws 6 and 7 so as to afford a long bearing for the tool extending a considerable distance in opposite directions beyond the ends of the slot —3— and sides of the post —1— thereby reducing the liability of chattering or vertical vibration of the tool to a minimum.

The outer side of the rib —10— and corresponding side of the upper clamping jaw —7— are disposed in vertical planes and form a suitable seat for the back of the tool —16— against which the tool is drawn by the beveled faces —15— and —17— when the upper clamping jaw is tightened by the bolts or screws —8—. This upper clamping jaw —7— is also provided with a vertical opening —19— of substantially the same size as the opening —13— in the lower clamping jaw —6— and also receives the tool post —1—. The upper clamping jaw —7— is of somewhat less width than the lower clamping jaw —6— and the opening —19— is, herein, extended through one side thereof. This upper clamping jaw preferably spans or bridges across the groove

—12— and rests upon the upper faces of the ribs —10— and —11—, said upper clamping jaw being provided at one edge with a lengthwise rib —20— which is seated in a corresponding lengthwise groove —21— in the rib —11— of the lower clamping jaw —6— and the opposite side of the upper clamping jaw is provided with bolt openings —22— for receiving the clamping bolts —8—, the ribs —20— and clamping bolts serving to secure the upper clamping jaw to the ribs —10— and —11— of the lower clamping jaw at opposite sides of the groove —12— thereby tying the ribs together transversely and relieving them of considerable strain from the clamping key which locks the tool holder to the tool post and which together with the set screw —4— locks the tool holder and tool post to the carriage —2—.

The tool side of the bottom of the lower clamping jaw —6— is somewhat longer than the ribs —10— and —11— and is also longer than the corresponding side of the upper clamping jaw —7— to afford a long bearing, the ends of which are close to the cutting edge of the tool, thus reducing the vibration or chattering of the tool when cutting.

The clamping screws —8— enter threaded apertures —24— in the lower clamping jaw —6— at one side of the groove —12— or rather between said groove and the beveled faces —15— and —17— so as to bring the clamps as near to the tool as possible, sufficient space being left between the contiguous faces of the rib —10— and upper clamping jaw —7— to allow the tool to be tightly clamped between the bevel faces —15— and —17—, the rib —20— serving as a fulcrum for the upper clamping jaw —7— during the clamping operation and at the same time establishes a lock between the two clamping jaws.

In the bottom of the groove —12— at one side of the opening —13— is placed a stop pin —26— and secured to the under side of the key —9— near its ends are additional stop pins —27—, the stop pin —26— being located between the stop pins —27— to permit the key to be moved endwise a limited distance into and out of the slot —3— of the post —1— without liability of withdrawal or displacement so that as long as the upper clamping jaw —7— is held upon the lower clamping jaw —6— by the screws —8— the key —9— will be retained in the groove —12—, the space between the stop pins —27— being greater than the transverse width of the slot —3— to permit the key to be entirely withdrawn from said slot when it is desired to place the tool holder upon or to remove it from the tool post.

The end faces of the tool holder are usu-

ally tapered from the tool holding side toward the opposite side to lighten its weight without sacrificing the strength and length of bearing for the tool.

5 In the use of our improved tool holder the upper clamping jaw and key are assembled upon the lower clamping jaw in the manner described, the key being withdrawn laterally and radially beyond one side of
10 the opening —13— whereupon the tool holder may be placed over and upon the tool post —1— until it rests upon the top face of the carriage or lift block —5— whereupon the groove —12— is brought
15 into registration with the slot —3— by simply rotating the tool holder to the desired position and the key —9— is then moved endwise through the slot —3— thereby locking the tool holder to the post. The tool
20 —16— is then placed between the bevel faces 15 and 17 of the clamping jaws, after which the clamping screws —8— are tightened to firmly lock the tool in place whereupon the tool holder is adjusted to bring
25 the tool to the desired cutting position and is then clamped in place by the set screw —4— in the manner previously described.

When it is desired to change from right to left hand cuts or vice versa, it is simply
30 necessary to loosen the set screw —4— and to rotate the tool holder and post a half turn to bring the opposite cutting end of the tool into cutting position, it being understood that both ends of the tool are usually pro-
35 vided with cutting edges which may be identical or dissimilar according to the work required and after the tool and its holder has been readjusted they may be readily clamped in place by the set screw —4—
40 thereby avoiding the necessity for loosening or otherwise displacing the tool from its holder. On the other hand when it is desired to sharpen or regrind the tool it may be readily removed by simply loosening the
45 clamping bolts —8— without disturbing the clamping screw —4— thereby keeping the tool holder in exactly the same position while the tool is being ground and it permits the tool to be readily replaced in the
50 same position without readjustment of the holder.

What we claim is:

1. In combination with a tool post having a transverse slot, a support for the tool post,
55 lower and upper clamping jaws rotatable about and both embracing the tool post and having tool seats in one and the same side, the lower jaw having a key way movable into and out of registration with the slot, a
60 key in said key way extending through the slot, means to engage said key to clamp the tool post and lower jaw to the support, and

separate means for clamping the upper jaw to the lower jaw.

2. In combination with a slotted tool post 65 and support therefor, lower and upper tool clamping jaws rotatable about said post and provided with undercut tool seats in one and the same side, the lower jaw being provided with a key way and the upper jaw extending 70 across the key way, a key movable in the key way into and out of said slot and key way, a set screw in the tool post engaging the key, and separate means for clamping the upper jaw to the lower jaw, the meeting faces of 75 the jaws being provided with an interfitting tongue and groove.

3. In a lathe tool holder, a tool post and bed piece, the tool post being provided with a transverse slot, lower and upper separable 80 jaws, both embracing the tool post, the lower jaw resting upon the bed piece and provided with a lengthwise key way registered with the slot in the tool post, a key in the key way and slot, a clamping screw in the tool post 85 engaging said key and clamping it and the lower jaws to the bed piece, said jaws having under cut tool seats in one side thereof parallel with the key way, and separate means for clamping the upper jaw to the lower jaw. 90

4. In a lathe tool holder, a tool post having a transverse slot and threaded aperture at right angles to the slot, lower and upper jaws embracing the tool post, the lower jaw having a lengthwise key way opening down- 95 ward from its upper side, a key slidable in the key way and slot, limiting stops on the key and lower jaw for limiting the sliding movement of the key into and out of the slot in the tool post, a screw in a threaded 100 aperture in the tool post engaging the key, the upper jaw engaging the lower jaw at one side of the key way and extending across said key way, and means engaging the jaws at the opposite side of the key way for 105 clamping them together, the latter side of the jaws being provided with under cut tool seats.

5. In a lathe tool holder, lower and upper clamping jaws, the lower jaw having a 110 lengthwise key way, said jaws having an interfitting tongue and groove at one side of the key way and under cut tool seats at the opposite side of the key way, means for clamping said jaws together, a key slidable 115 in the key way, and stops for limiting the sliding movement of the key in said key way.

In witness whereof we have hereunto set our hands this 25th day of September 1907.

JAMES CARR.

WILLIAM CARR.

Witnesses:

H. E. CHASE,

MILDRED M. NOTT.