

No. 773,338.

PATENTED OCT. 25, 1904.

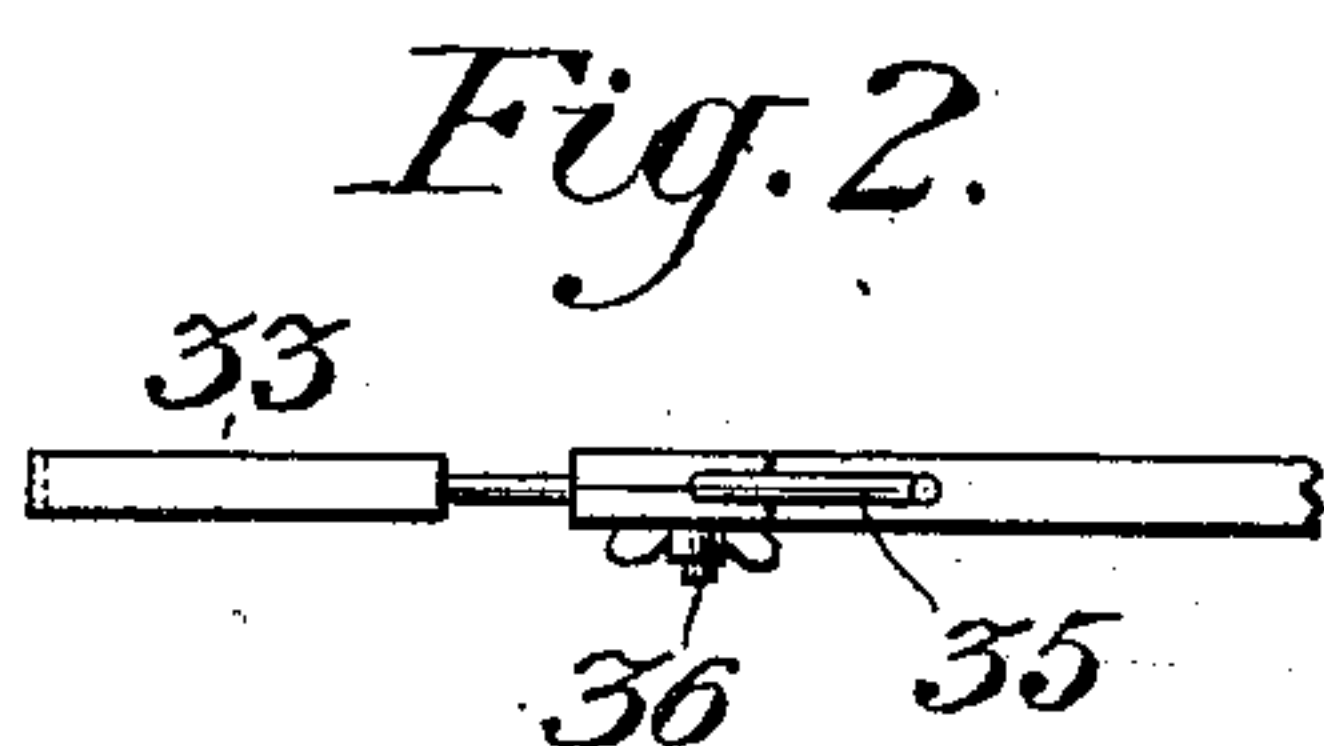
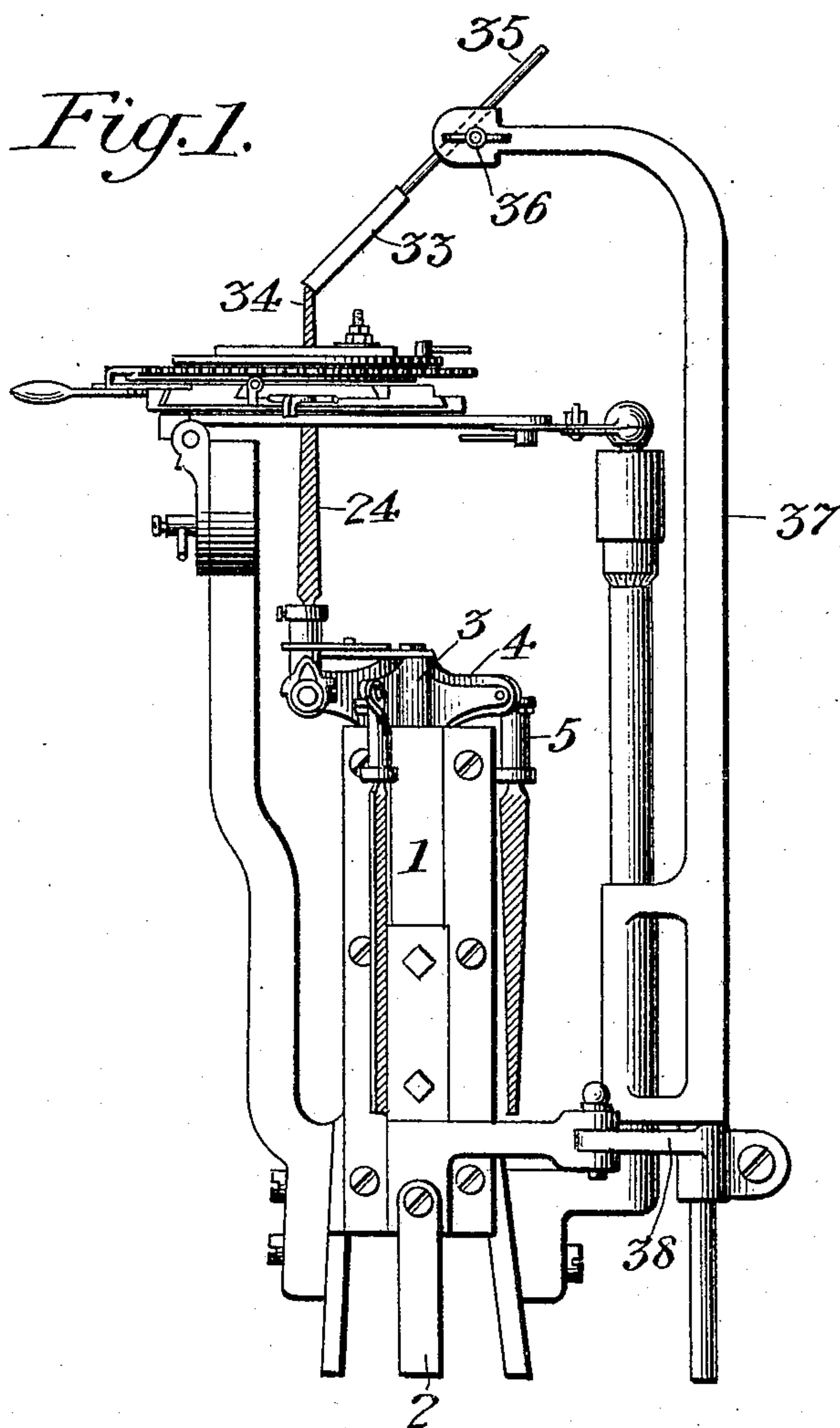
F. P. PFLEGHAR.

TOOL HOLDER.

APPLICATION FILED OCT. 24, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



*Witnesses:*

*F. G. Machenberg.*

*Henry Thiel.*

*Inventor:*

*Frank P. Pfleggar*

*by attorneys*

*Brown & Seward*

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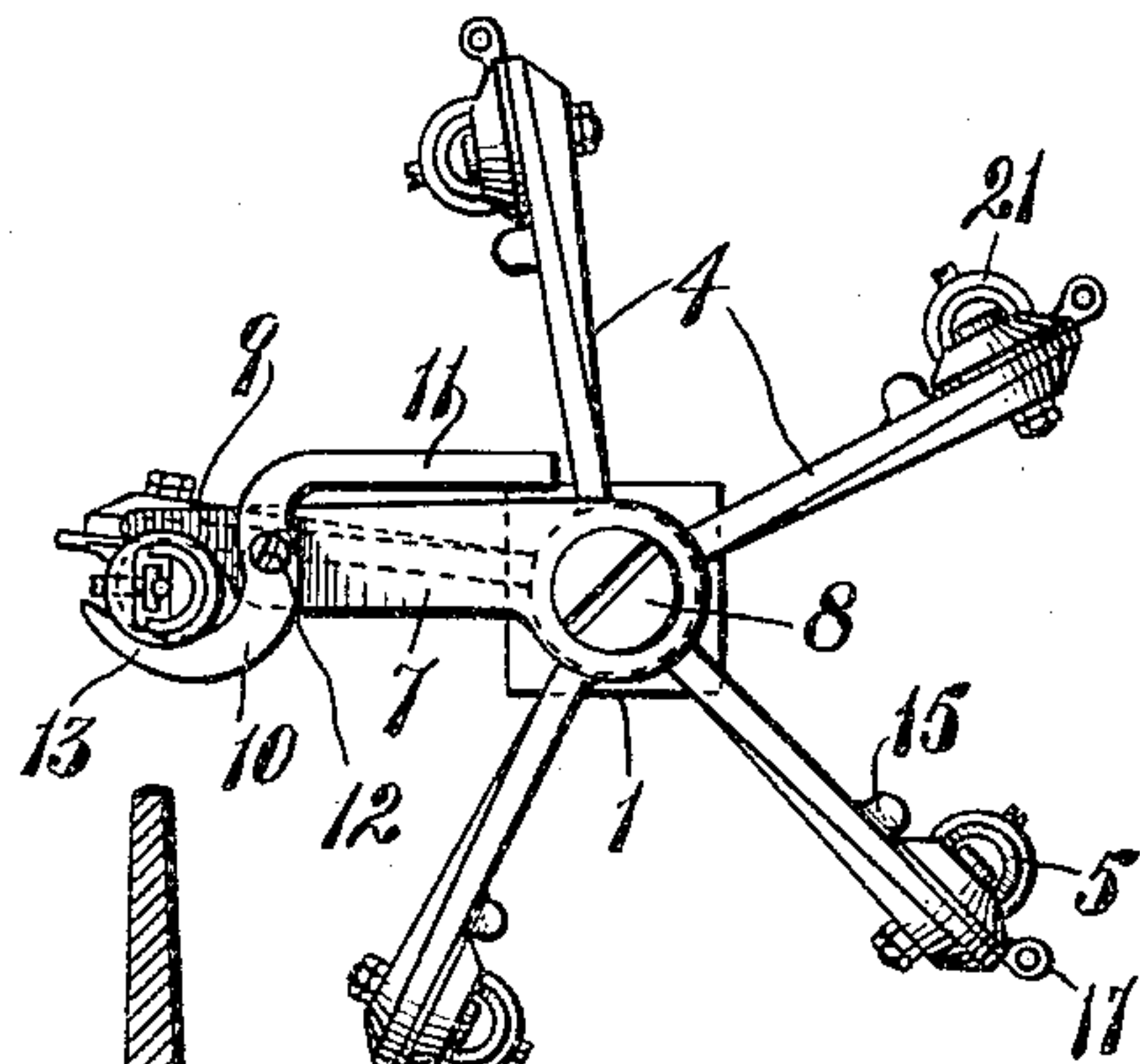
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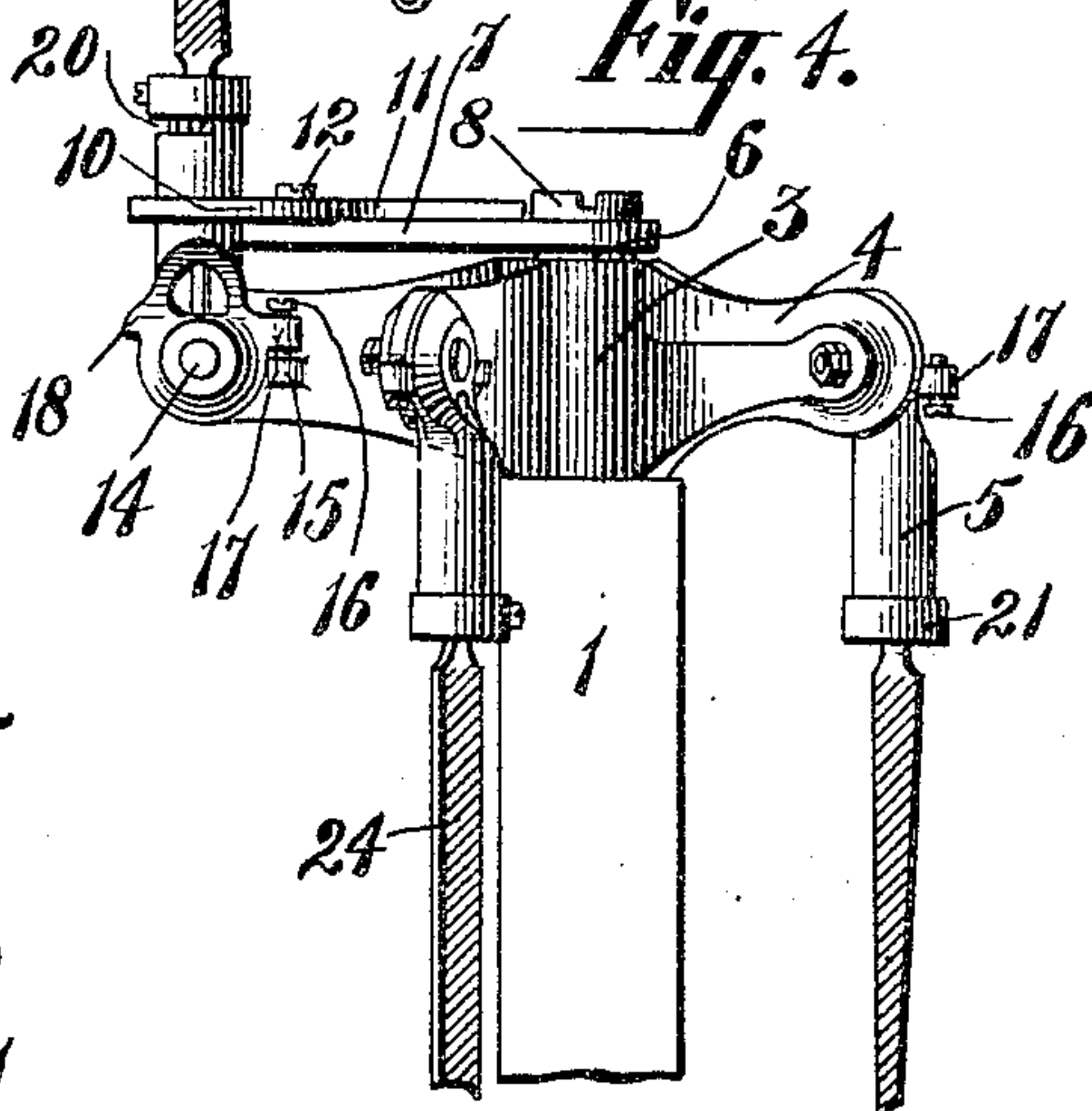
NO MODEL.

2 SHEETS—SHEET 2.

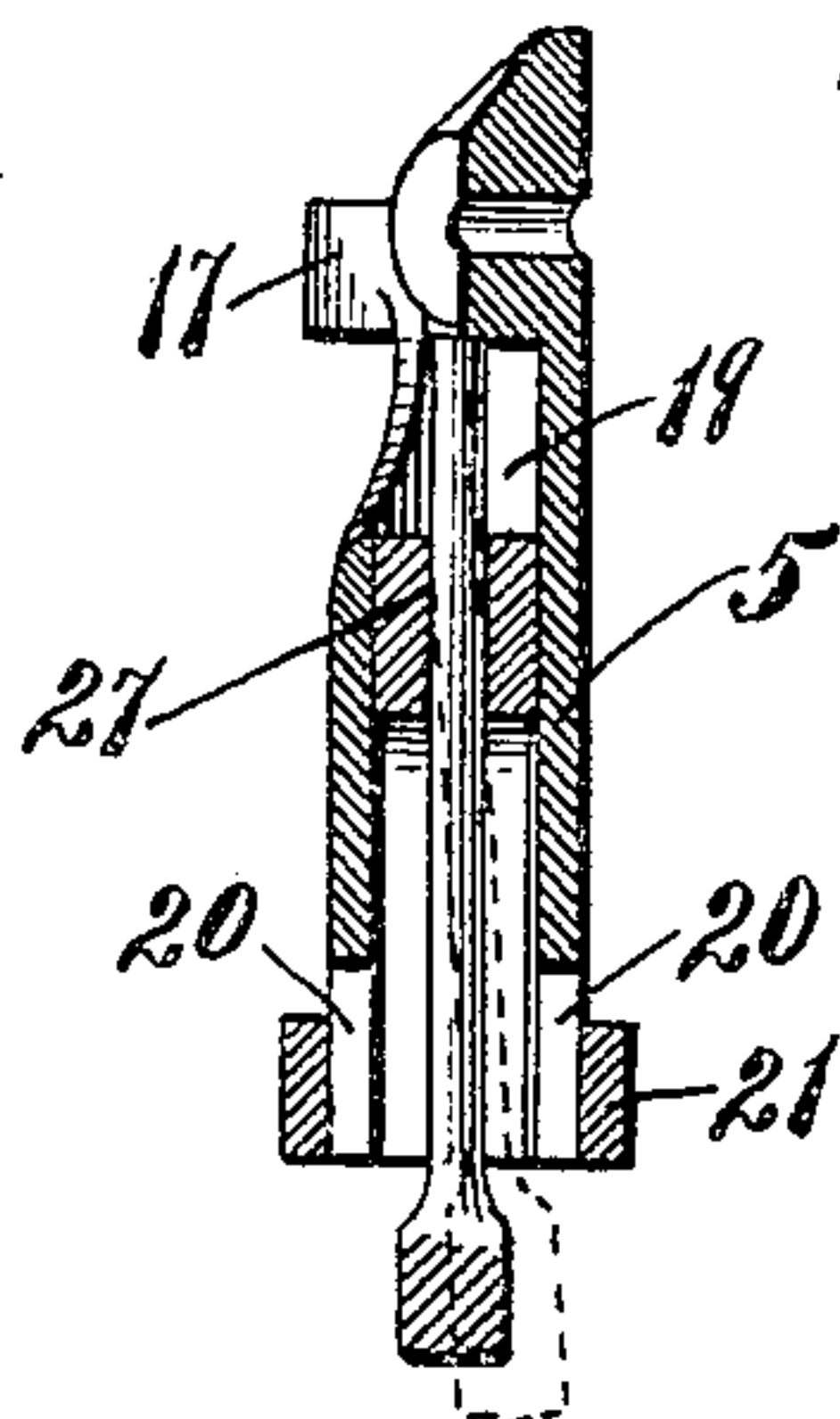
*Fig. 3.*



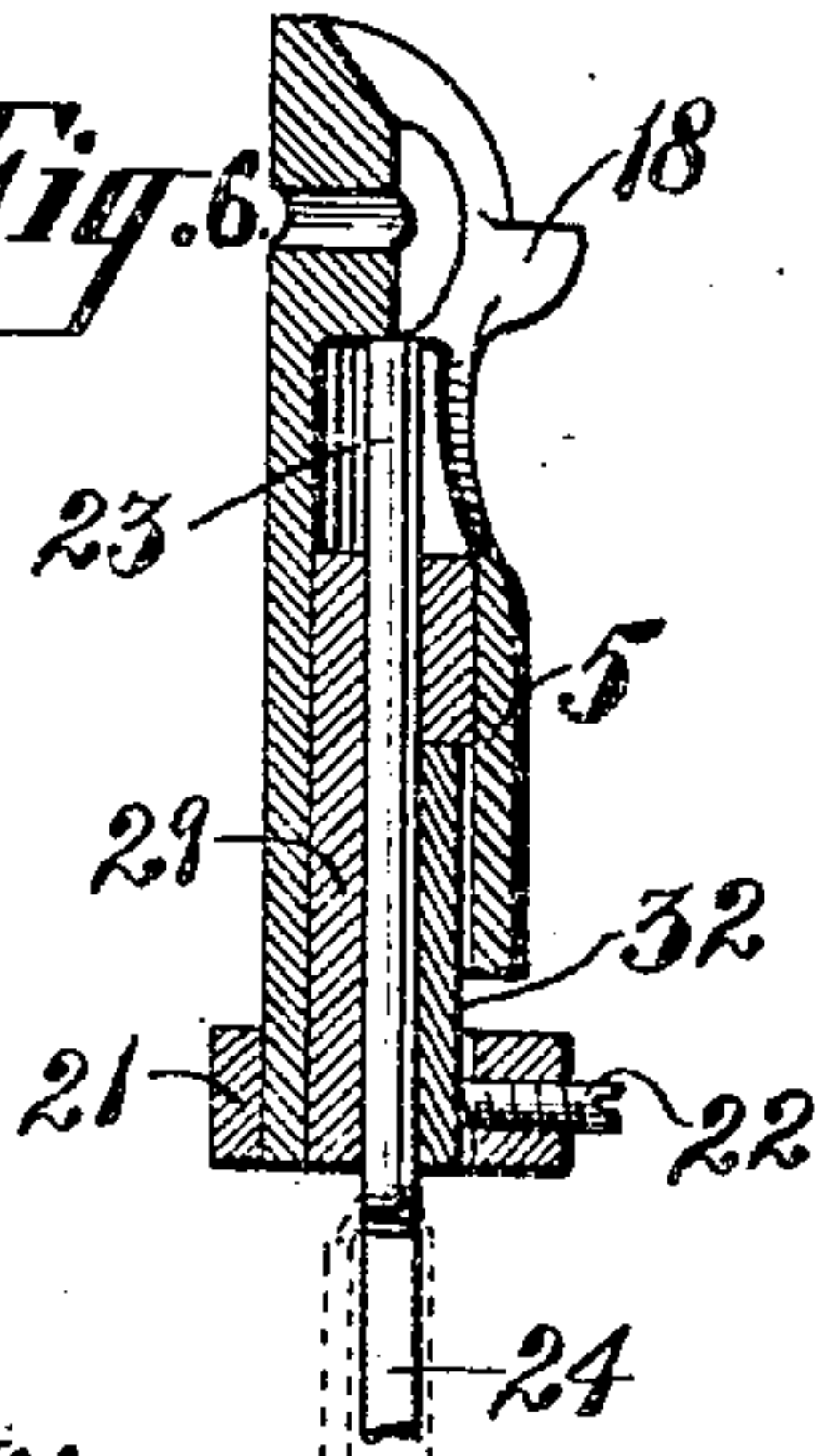
*Fig. 4.*



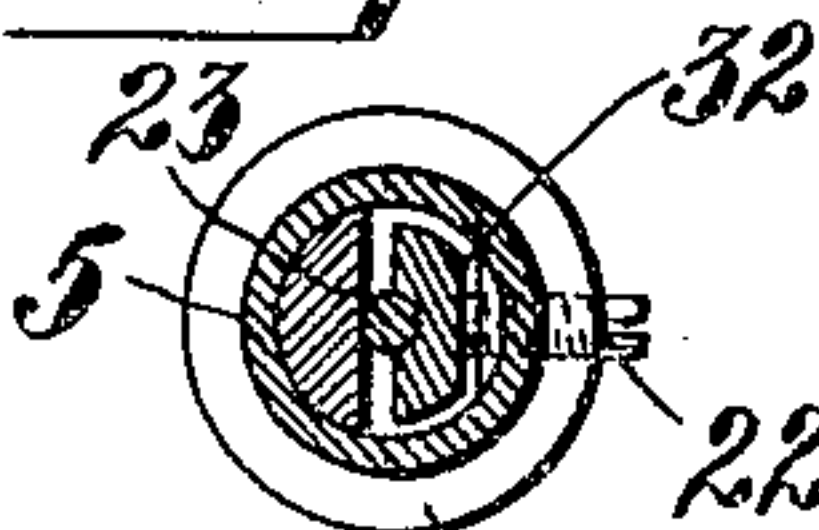
*Fig. 5.*



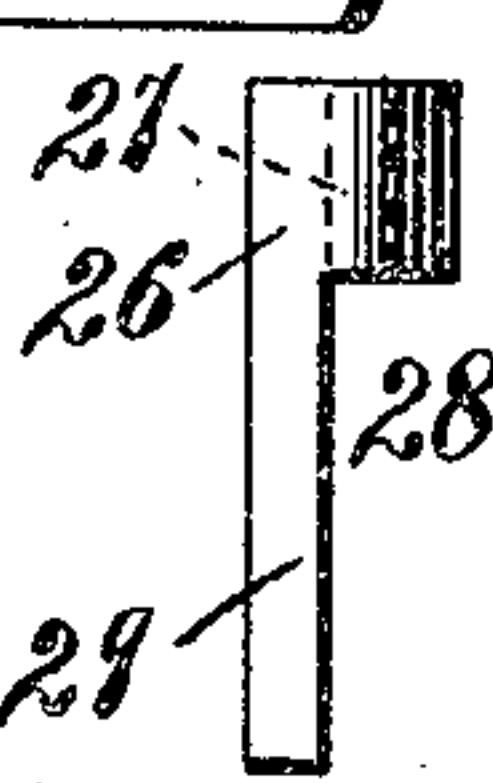
*Fig. 6.*



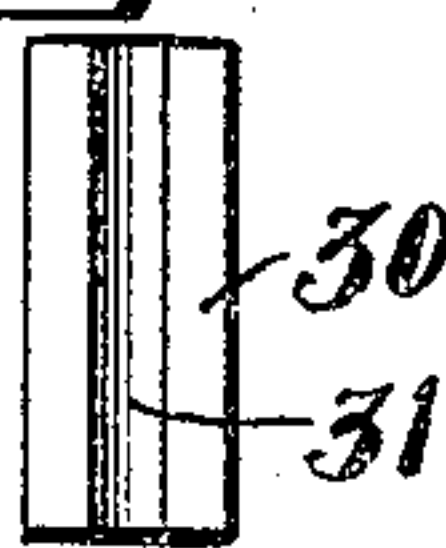
*Fig. 7.*



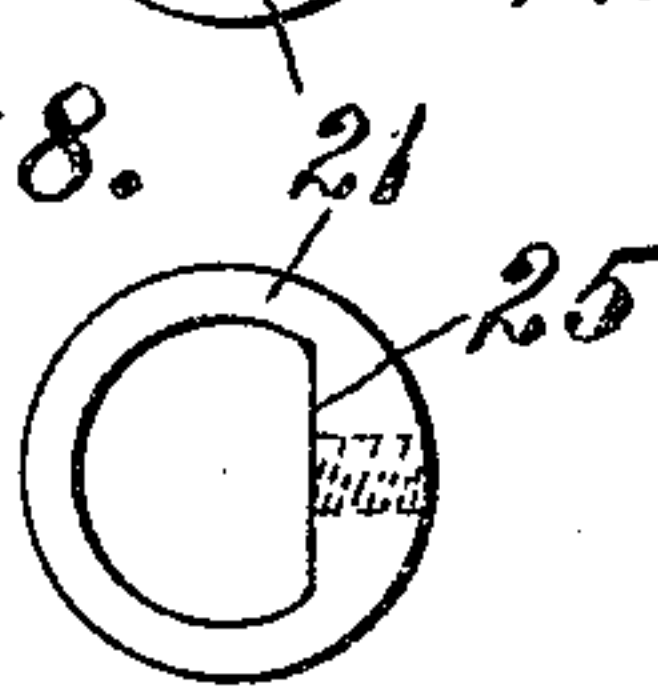
*Fig. 9.*



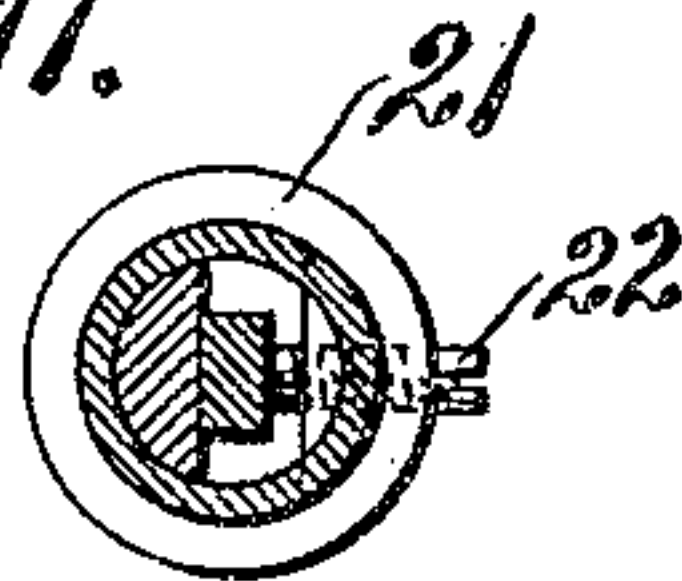
*Fig. 10.*



*Fig. 8.*



*Fig. 11.*



**Witnesses:**

J. G. Hackmeyer,  
Henry Thiele.

**Inventor:**

Frank P. Pflughar  
by attorneys  
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# UNITED STATES PATENT OFFICE.

FRANK P. PFLEGHAR, OF NEW HAVEN, CONNECTICUT.

## TOOL-HOLDER.

SPECIFICATION forming part of Letters Patent No. 773,338, dated October 25, 1904.

Application filed October 24, 1903. Serial No. 178,358. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK P. PFLEGHAR, a citizen of the United States, and a resident of New Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Tool-Holders, of which the following is a specification.

This invention relates to an improvement in tool-holders, and has more particularly for its object to provide means for rigidly holding a die-cutting tool up to its work, so as to insure absolute accuracy in the cutting of the die.

My invention is herein represented as applied to a die and pattern making machine; and it still further consists in improved means for permitting the accurate adjustment of the cutting-tool both in a vertical plane and in a rotary plane.

A practical embodiment of the invention is represented in the accompanying drawings, in which—

Figure 1 represents the upper portion of a die and pattern making machine in side elevation with my improved tool-holder applied thereto. Fig. 2 is a top plan view in detail of the device for steadying the upper end of the tool. Fig. 3 is a top plan view of the tool-holder and its vertically-reciprocating support. Fig. 4 is a side view of the same, one of the tool-holder sockets and its tool being swung up into its operative position and locked therein and the remaining tools being shown in their dropped or folded position. Fig. 5 is a vertical central section in one plane through one of the tool-holder sockets, showing the tool-shank in full lines in one of its vertical positions and in dotted lines in another of its vertical positions. Fig. 6 is a vertical central section taken through one of the tool-holder sockets in a plane at right angles to that shown in Fig. 5, the shank portion of a tool being shown in position therein. Fig. 7 is a transverse section through the tool-holder socket. Fig. 8 is a detail plan view of the clamping-ring. Fig. 9 is a view in side elevation of the shank-holding block. Fig. 10 is a face view of the spacing-block, and

Fig. 11 is a transverse section showing the means for securing the shank of a tool without the use of the spacing-block.

The tool-holder support is denoted by 1, and it is reciprocated through a pitman 2, operated by any desired means. (Not shown herein.)

The tool-holder is denoted by 3, and it is herein shown as provided with five arms 4, to the free ends of which the tool-holder sockets 5 are hinged to swing vertically into and out of operative position. This tool-holder 3 is rotatably mounted on a reduced portion 6 of the support 1. A stationary arm 7 is secured to the top of the support 1 above the tool-holder 3 by means of a set-screw 8. This arm 7 is provided at its upper end with a curved seat 9, against which the socket 5 is clamped when swung up into its vertical operative position. The means which I have shown for clamping the socket in this position comprises a two-armed lever 10 11, pivoted at 12 to the arm 7. The arm 10 of the said lever is provided with a curved cam-surface 13, which is so shaped that it will be caused to engage the socket 5 opposite the seat 9 and cramp the socket firmly into position when the arm 11 is swung inwardly. When it is desired to release the socket, the lever 10 11 may be quickly swung out of its cramping engagement with the socket, thus permitting the socket to be swung down into its folded position and allowing the tool-holder to be rotated to bring a socket containing another tool into position to be swung up into engagement with the arm 7 for being cramped in its operative position.

Each of the arms 4 of the tool-holder is provided with a stud 14, upon which the socket 5 is hinged to swing vertically. The arm 4 is further provided with a lug 15, the top of which is engaged by an adjusting-screw 16, carried by a lug 17 on the socket when the socket is in its operative position. The socket 5 is further provided with an abutment 18, which engages the bottom of the lug 15 on the arm 4 for limiting the inward movement of the socket when folded down into its inoperative position. It will be seen that the adjust-



ing-screw 16 serves to adjust the socket 5 to stop the socket in a substantially vertical position when in use.

The means which I have shown for adjust-  
ably securing the tool within the socket is as follows: The bore of the socket 5 is denoted by 19. The mouth of the socket is cut away along one side thereof, as shown at 20. A clamping-ring 21 is fitted to the exterior of the  
socket around its mouth, which clamping-ring  
is provided with a set-screw 22, arranged to  
clamp the shank 23 of the tool 24 within the  
socket, as will hereinafter appear. This  
clamping-ring 22 has its inner wall flattened  
opposite the cut-away portion 20 of the mouth  
of the socket, as shown at 25, to permit a slight  
rotary movement only of the ring 21 on the  
socket. A shank-holding block 26 is inserted  
within the bore 19 of the socket, the said block  
being provided with a small bore 27 there-  
through which loosely embraces the shank 23  
of the tool 24 when the shank is inserted there-  
through. The block 26 is provided with a  
cut-away portion 28, leaving an extension 29,  
having a flat face against which one side of  
the shank 23 of the tool is pressed by the set-  
screw 22 of the clamping-ring 21. When the  
shank of the tool has two flat faces, as shown  
in Fig. 11, the set-screw 22 may be directly  
engaged with one face of the shank for clamp-  
ing it in position within the socket. Where the  
shank is curved in cross-section, as shown in  
the balance of the figures, a spacing-block 30  
is inserted within the socket opposite the cut-  
away portion 28 of the block 26. This spac-  
ing-block is provided with a groove 31 for  
receiving a portion of the shank 23. The  
outer face of this spacing-block 30 is flattened,  
as shown at 32, against which face the set-  
screw 22 impinges for clamping the shank  
within the socket. The free end of the tool  
24 is rigidly supported when the tool is in use  
by means of an adjustable bar 33, having a  
recess 34 in its outer end for receiving the  
free end of the said tool. The shank 35 of the  
tool-supporting bar 33 slides through a clamp  
36, carried by the upper end of a frame 37,  
connected, through a link 38, with the recip-  
rocating support 1 of the tool-holder.  
The structure herein shown and described  
permits of the following adjustments of the  
tool, so as to bring the tool with extreme ac-  
curacy into the desired position for operation  
on the work. The tool-holder support 1 is  
lowered to a position which will permit the  
tool to be swung into a vertical position. The  
tool-holder is then rotated until the desired  
tool is brought into a position where the tool  
may be swung up into engagement with the  
arm 7, and after the set-screw 16 has been ad-  
justed to get a vertical position for the tool  
the clamping-lever 10 11 is engaged with the  
tool-holder socket for locking it in position.

The set-screw 22 is then released sufficiently  
to permit the tool to be rocked on its own  
axis slightly to bring the face of the tool into  
the desired position with respect to the work  
to be done. The tool may then be rocked  
slightly in one or the other direction to swing  
its edge in a diagonal direction with respect  
to the hinged connection between the socket  
and arm to complete the adjustment of the  
tool. When the tool has been thus adjusted,  
the set-screw is tightened, thus clamping the  
tool in its adjustment within the socket. The  
support 1 of the tool-holder is then raised to  
bring the tool up through the work-table of  
the machine. The supporting-bar 33 for the  
free end of the tool is then adjusted to bring  
its recess 34 into engagement with the end of  
the tool. The clamp 36 is then tightened, thus  
rigidly holding the tool in position.

While I have shown this invention as ap-  
plied to a die and pattern making machine, it  
is to be understood that it may be used in con-  
nection with machines of many different forms  
used for other purposes.

What I claim as my invention is--

1. A vertically - reciprocating support, a  
multiple-armed tool-holder rotatably mount-  
ed thereon, sockets hinged to the arms of the  
tool-holder, a laterally-extended arm affixed  
to the support, and a lever carried by the arm  
having a cam-face for cramping one of the  
sockets between it and the laterally-extended  
arm to hold the socket in its operative posi-  
tion.
2. A vertically - reciprocating support, a  
tool-holder carried thereby, a tool having one  
end engaged by the tool-holder, a frame car-  
ried by the reciprocating support and an ad-  
justable bar extending downwardly and for-  
wardly and engaging the tool at an angle there-  
to for holding it rigidly up to its work.
3. A tool-holder, a tool-holder socket hinged  
to swing vertically thereon, means for adjust-  
ing the socket in a vertical plane with relation  
to the tool-holder, a tool carried by the socket  
and means for adjusting the position of the  
tool within the socket in a direction at an an-  
gle to the adjustment of the socket with rela-  
tion to the tool-holder.
4. A tool-holder, a socket hinged thereon,  
means for adjusting the socket in a vertical  
plane with relation to the tool-holder, a tool  
within the socket and means for adjusting the  
tool in a rotary direction and also in a verti-  
cal plane at an angle to the axis of the socket.
5. A tool-holding socket, a block within the  
socket, a clamping-ring engaging the socket,  
a tool fitted to be swung into different verti-  
cal and rotary positions with respect to the  
socket and a set-screw carried by the clamp-  
ing-ring for clamping the tool in its different  
adjustments.
6. A tool-holding socket having cut-away

portions at its mouth, a clamping-ring engaging the socket opposite the cut-away portion, a block within the socket having a rotary adjustment with respect thereto, said block being fitted to loosely retain the tool within the socket and a set-screw carried by the clamping-ring for clamping the tool in its different adjustments with respect to the socket.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 19th day of October, 1903.

FRANK P. PFLEGHAR.

Witnesses:

FREDK. HAYNES,

R. B. SEWARD.