

(No Model.)

B. DONOHUE.
Wrench.

No. 238,369.

Patented March 1, 1881.

Fig. 1.

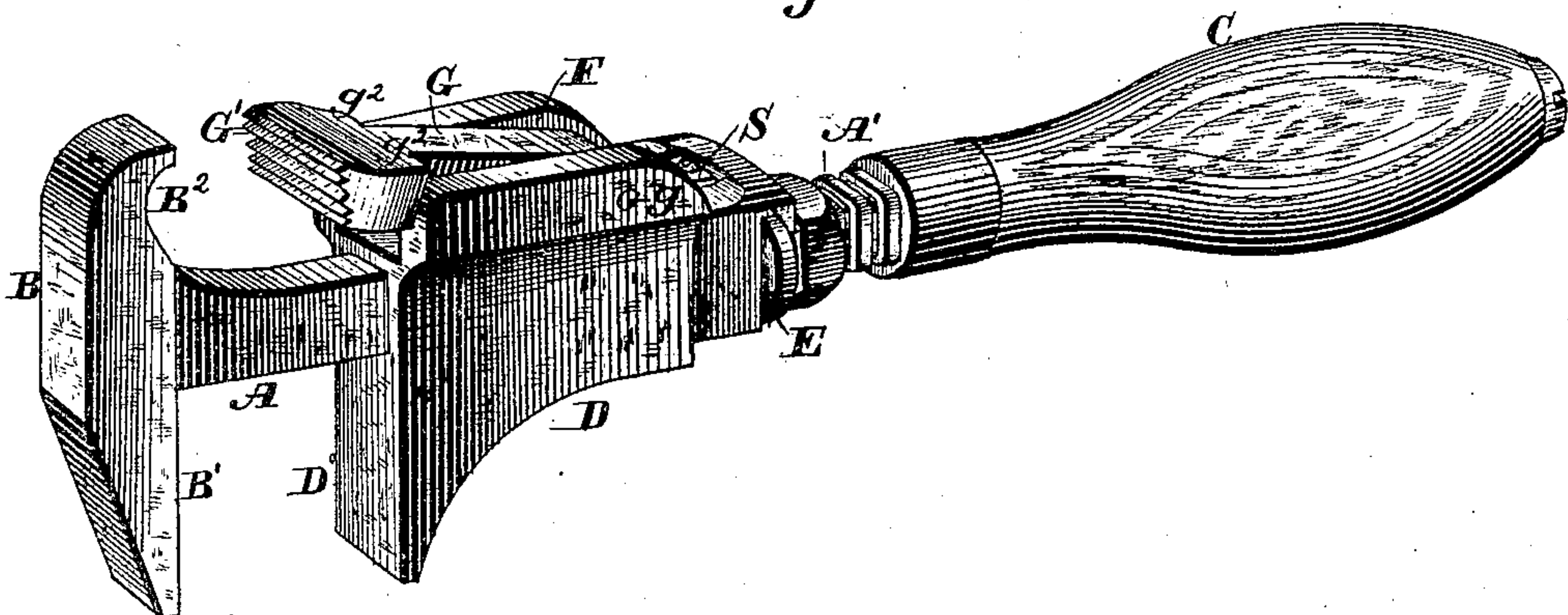


Fig. 5.

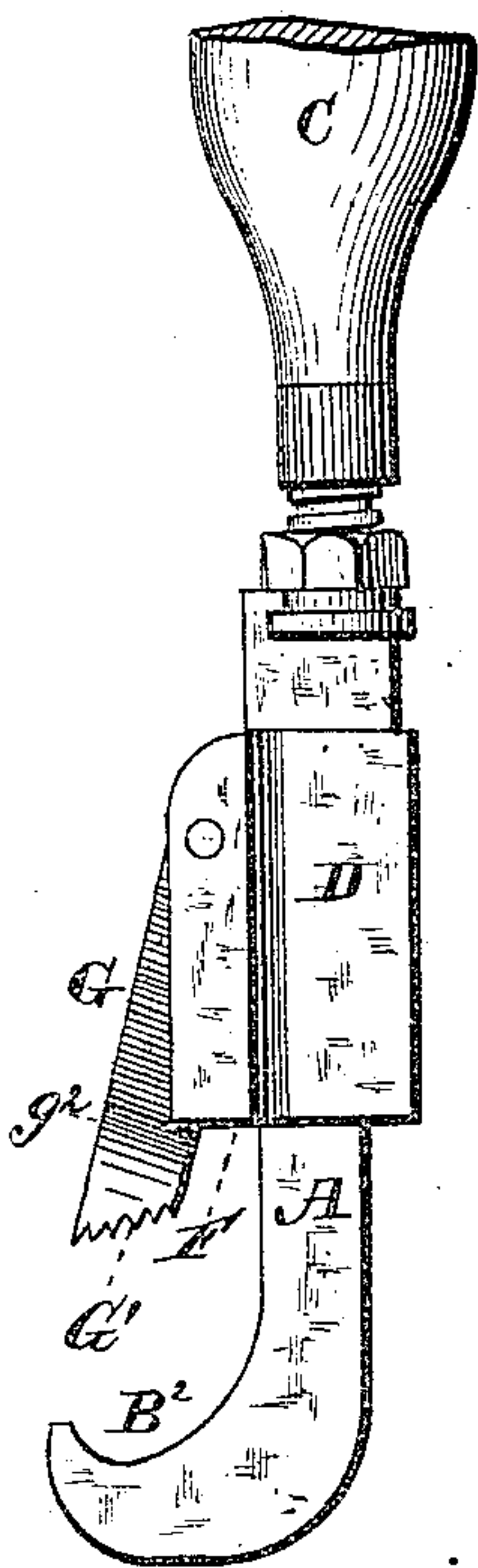


Fig. 3.

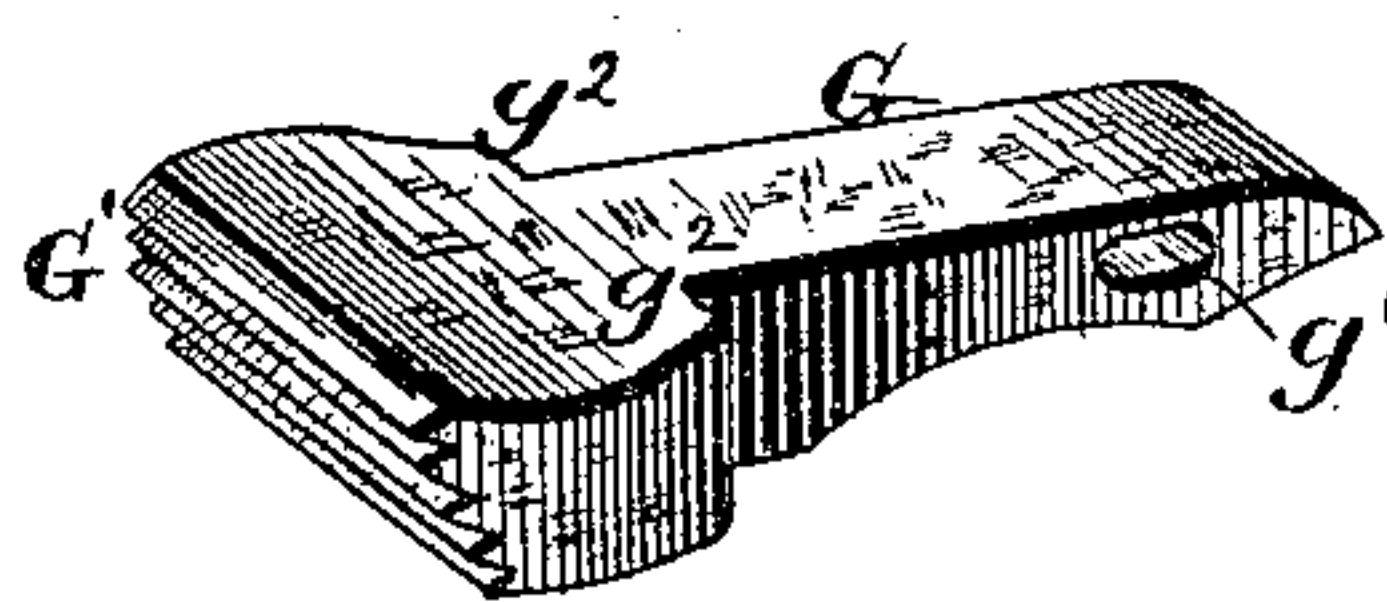


Fig. 2.

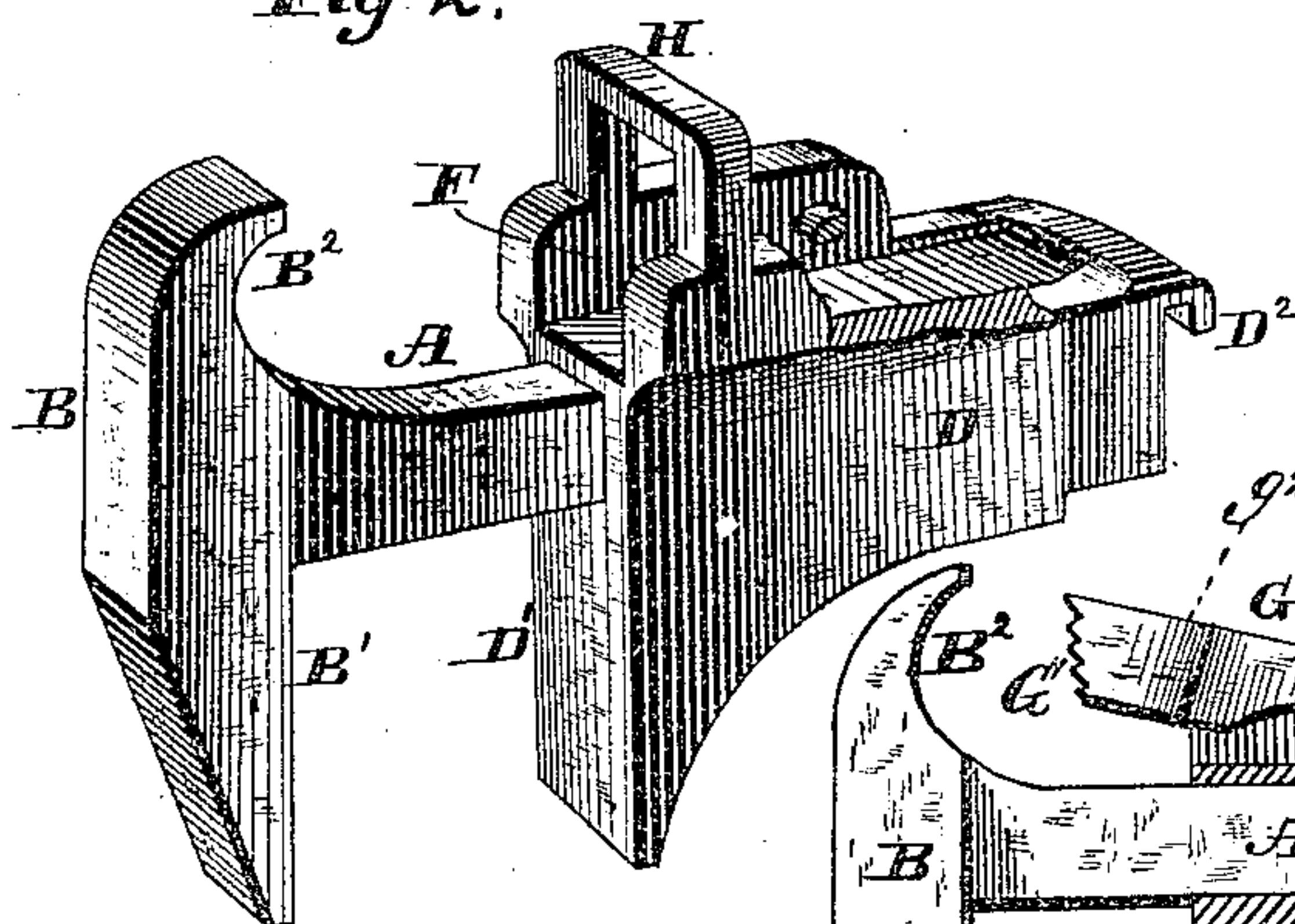
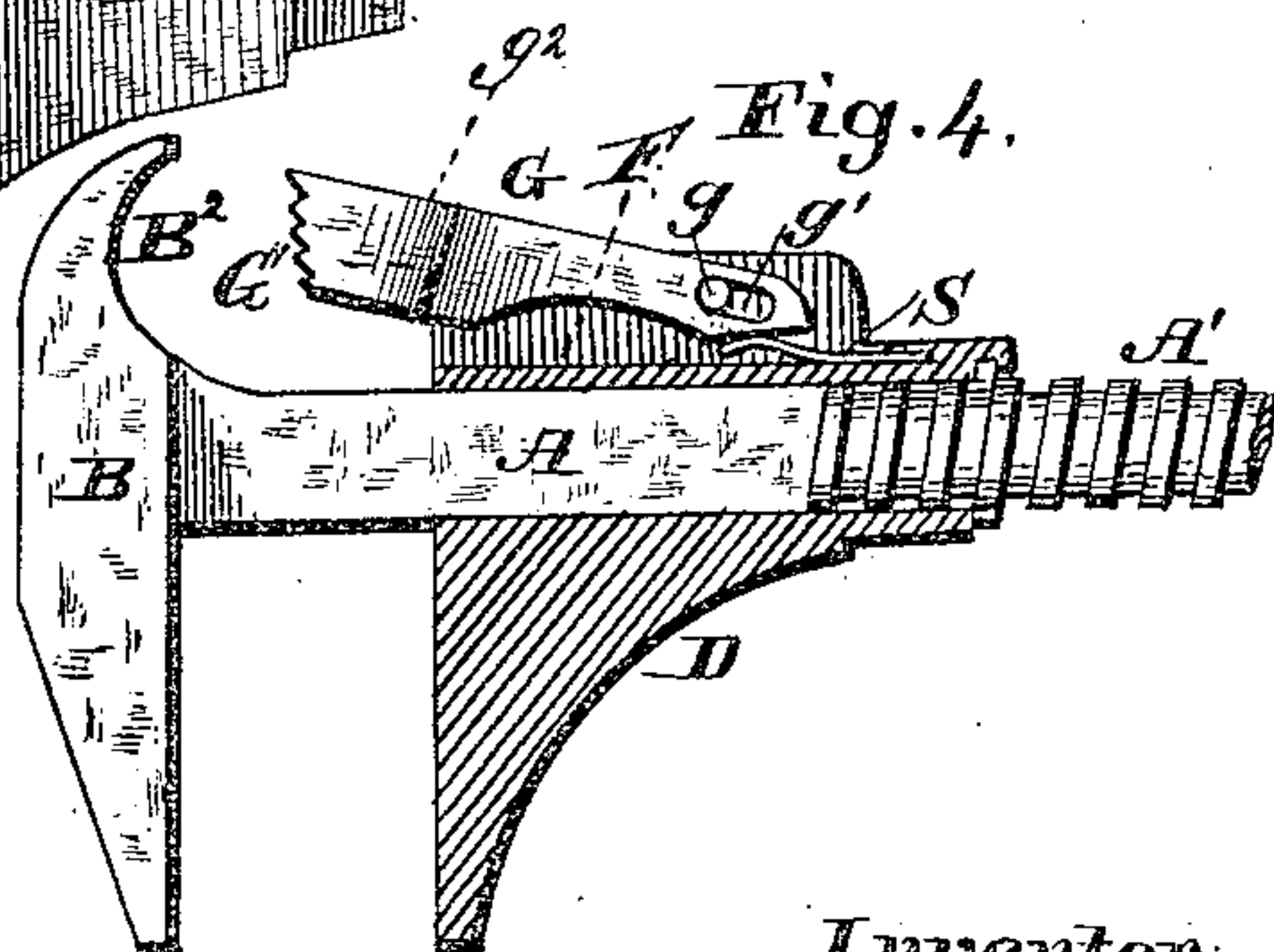


Fig. 4.



Attest:

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UNITED STATES PATENT OFFICE.

BERNARD DONOHUE, OF YONKERS, NEW YORK.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 238,369, dated March 1, 1881.

Application filed November 22, 1880. (No model.)

To all whom it may concern:

Be it known that I, BERNARD DONOHUE, a citizen of the United States, residing at Yonkers, in the county of Westchester and State of New York, have invented new and useful Improvements in Wrenches, of which the following is a specification.

This invention relates to certain improvements in that class of mechanical devices which are adapted to serve either as a combined pipe-tongs and duplex wrench or as a wrench more especially constructed to serve as a pipe-tongs alone. From the following specification it will be seen that the novel elements of my invention may be applied to a wrench of either character.

The object of the invention is to relieve the pivot of a pivoted gripping-jaw from pressure during such time as the said pivoted jaw is subjected to pressure induced by gripping the article to be manipulated between the pivoted and the stationary jaw, and to transfer the pressure directly to the slide in which the jaw is pivoted.

In the drawings, Figure 1 represents a duplex wrench with my improvement applied thereto. Fig. 2 is a perspective view of the wrench-slide and the fixed jaws of the T-head, the pivoted jaw being removed from this figure and a portion of the slide being broken away in order to more clearly illustrate the recess therein. Fig. 3 shows the pivoted jaw detached. Fig. 4 shows the slide in section, and also illustrates the fixed jaws upon the stock, a part of the stock being represented and a portion only of the pivoted jaw being shown. In this figure, as well as in Fig. 1, a spring is employed in connection with the pivoted jaw, said spring being dispensed with in Fig. 2. Fig. 5 is a side view of a form of wrench, a portion of the pivoted jaw being shown. This form of wrench is particularly adapted to serve as pipe-tongs.

The letter A indicates the stock of a wrench, this said stock being provided at one of its ends with a T-head, B, adapted to constitute the fixed or stationary jaws of the wrench, and being provided at its remaining end with the usual handle C.

The movable slide D, which is arranged to slide longitudinally upon the stock, is formed

with a rigid jaw, D', this rigid jaw of the slide having a plane gripping-surface for serving, in conjunction with the plane gripping-surface B' on the T-head, to gripe nuts or the heads of bolts, as is usual in nut-wrenches. The slide is provided at its rear end with a flange, D², which sets in an annular groove formed in the screw-nut E. This screw-nut is arranged to travel upon the screw-threaded portions A' of the stock, so as to operate the movable slide and adjust the jaws to and from each other. The slide is formed with a recess, F, between the walls of which is pivoted the jaw G, the pivotal point of said jaw being adjacent to the rear portion of the slide. The forward end of this pivoted jaw, which extends out from the recess of the slide, is provided with an inclined or beveled gripping-surface G', which is serrated, so as to take better hold upon the object to be grasped, and the fixed jaw B² of the T-head is concaved, whereby such articles as a pipe or cylinder can be gripped by these jaws in the manner of a pipe-wrench.

In turning or twisting a pipe or cylinder it will be found that the severe strain to which the pivot is subjected will be apt to break the latter, and, hence, to relieve the pivot from such strain, and to transfer the pressure from the pivot directly to the slide, I pass the pivot *g* through a slot, *g'*, in the aforesaid jaw G, thus admitting of a back-and-forth or sliding movement of said jaw as well as an oscillatory movement thereof. The forward end or head of this jaw is enlarged, so as to form shoulders *g*² *g*², and the parts belonging to this portion of the device are arranged with relation to each other so that when the pivoted jaw is subjected to pressure during the gripping of the article between the jaws G B² the pivoted jaw will be forced back until the shoulders of its head abut against the slide at the forward end of the recess in the latter. Under such arrangement the pivot is relieved from pressure and the pressure transferred directly to the front end of the slide D.

The spring S (shown in Figs. 1 and 4) may be dispensed with, as in Fig. 2, and the pivoted jaw depressed by the fingers of the operator; and in the form of wrench shown in Fig. 5 the spring may or may not be employed, as preferred.

In Fig. 2 the slide is represented as provided with a loop, H, which serves as a safeguard against the displacement of the pivoted jaw. This loop straddles the recess in the slide, and thus prevents the jaw from being forced out from the same. This renders the spring which tends to depress the front end of the jaw unnecessary, and hence no spring is shown in said Fig. 2, it being understood that any such depression of the forward end of the pivoted jaw can be readily effected by the finger of the operator. In the device shown in Fig. 5 this loop may or may not be employed, as preferred.

As thus constructed it will be seen that while the wrench is in use and its pivoted jaw under pressure, the pivot of such jaw will be relieved from the pressure, which will be transferred from such jaw directly to the slide, and that the jaw will have a broad firm bearing upon the slide, which renders the device thoroughly effective for the purposes for which it is designed.

I am aware that a wrench has been provided with a pivoted jaw in which the pivot-pin

passes through an elongated hole or slot, which permits the jaw to move rearwardly against an abutment on the slide, and I do not claim such construction, broadly.

What I claim is—

The combination, with the stock A, having the jaw B², of the slide D, having the recess F, and the movable toothed jaw G, provided with the shank, having near its rear end the slot g', through which passes a pin, g, extending between the walls of said recess, and with the shoulders g² arranged in front of the ends of said walls, the said slot being of such length as to permit longitudinal movement of the shank to bring said shoulders against said walls, thereby relieving the pin g of strain, and throwing the strain wholly upon the slide, essentially as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

BERNARD DONOHUE.

Witnesses:

JAMES L. NORRIS,

JAMES A. RUTHERFORD.