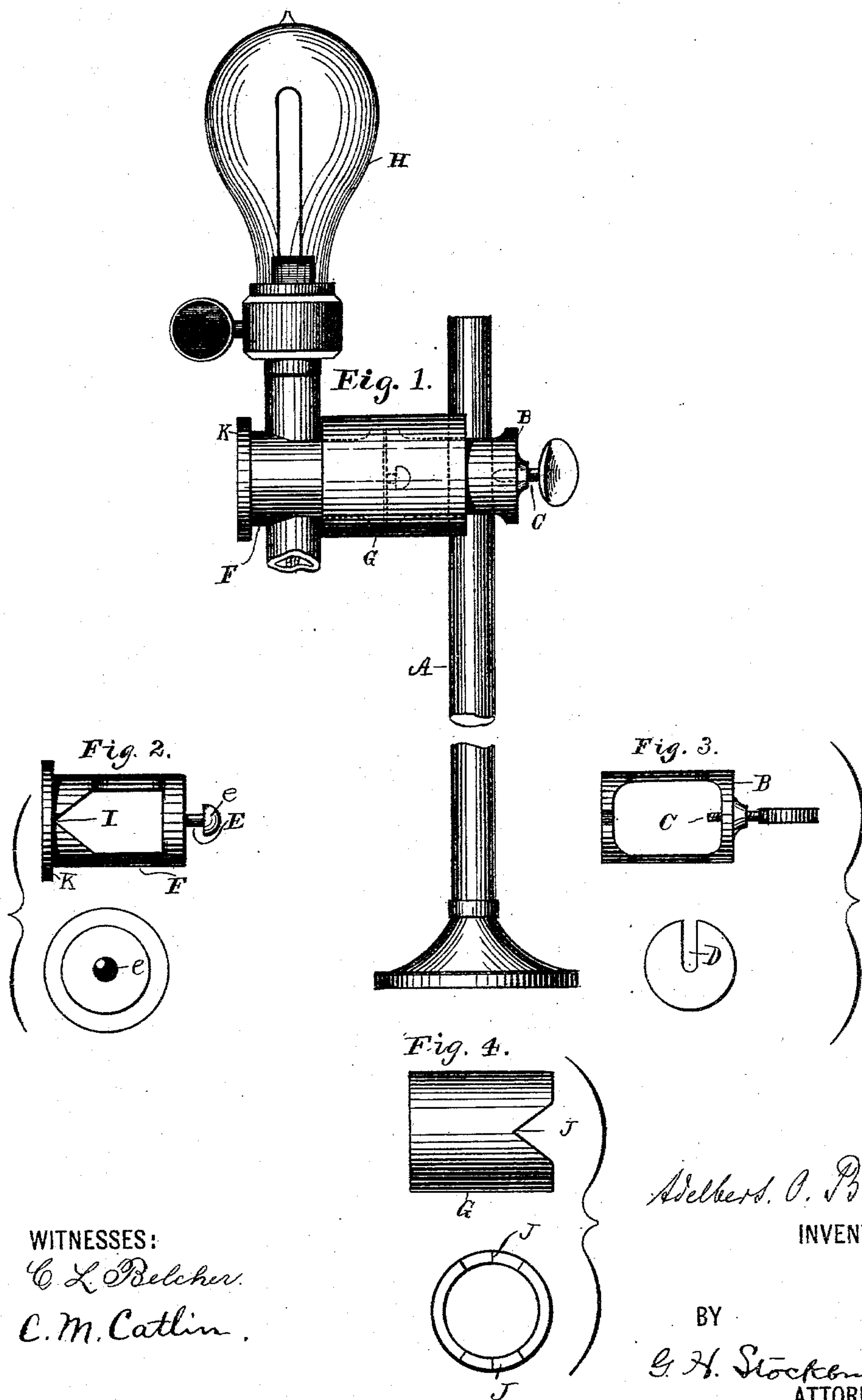


(No Model.)

A. O. BENECKE.
UNIVERSAL CLAMP.

No. 551,358.

Patented Dec. 17, 1895.



WITNESSES:

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UNIVERSAL CLAMP.

SPECIFICATION forming part of Letters Patent No. 551,358, dated December 17, 1895.

Application filed January 10, 1895. Serial No. 534,429. (No model.)

To all whom it may concern:

Be it known that I, ADELBERT OSWALD BENECKE, a subject of the Emperor of Germany, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Universal Clamps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

There are many kinds of apparatus, such as telescopes, head-rests for sitters in photographic studios, chemists' retorts and other laboratory appliances, and the like, which are liable to require adjustment both vertically and horizontally and which need, after adjustment, to be rigidly fixed in place. For securing such adjustment and the fixing of these instruments in place, various joints or clamps have been suggested or used, and my present invention is designed to furnish an improved appliance of this sort.

The chief advantage of my universal clamp is that it can be easily manipulated and that when the instrument requiring adjustment is brought to the proper place it can be fixed there by the turning of a single screw—that is to say, by a single operation. Even if the adjustment calls for both a horizontal and a vertical movement of the particular instrument concerned, both movements can be accomplished readily with one hand while the screw or key which is to secure the instrument firmly in place after adjustment can be turned with the other hand. Between the time when the said screw or key is loosened, preparatory to making the adjustment, and the time when the screw or key is tightened again after the adjustment is made, there are absolutely no other acts required except that the hand manipulating the clamp shall turn it by a sort of compound motion so as to bring the instrument to the desired position. What I mean is that there is no necessity with my apparatus, as there is with many others, to first make, say, the proper vertical adjustment and then turn a set-screw to fix the instrument vertically, afterward making the horizontal adjustment and then complet-

ing the fixing of the instrument by turning another set-screw. On the contrary, either by what I have called a sort of "compound" motion or by a succession of vertical and horizontal movements, the operator can complete the manipulation of my clamp before turning the single screw which holds the whole apparatus in place.

The clamp which I have invented is a universal clamp, permitting the fixture which it carries to be brought to any position whatever, within the limits of its length, with relation to the support or standard to which the clamp is attached.

In using the terms "vertical" and "horizontal" I assume that the standard or support is vertical. Of course, if this support should be at an angle from the perpendicular, the terms "vertical" and "horizontal," as herein employed, would not be strictly correct. I am sure, however, that my meaning will be clear.

It goes without saying that the clamp as a whole together with the fixture which it carries can be vertically adjusted upon the standard or support, thus increasing the range of space which the instrument to be adjusted can occupy. This is entirely apart from the vertical adjustment of the instrument with relation to the clamp itself.

For convenience of illustration, I have chosen an incandescent electric lamp as the instrument to be adjusted and I shall refer to such an instrument in the remainder of the specification. It should be understood that the lamp is taken simply as typical of an adjustable instrument which it might be found desirable to bring into a great variety of positions.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my universal clamp attached to a vertical standard and itself supporting an incandescent lamp. Fig. 2 is a plan and an end view of one of the chief members of my clamp. Fig. 3 is a plan and an end view of another member of my clamp, and Fig. 4 is a plan and an end view of a sleeve forming part of my clamp.

Referring to the drawings by letter, A is

a standard, forming a support for my clamp and its attachments. The part of my clamp which is most intimately connected with the standard is shown at B in Fig. 3 as a piece
 5 of metal, round at its ends and having its central portion cut away or slotted, so as to slip over and inclose the standard. One end of the part or member B is solid except where it has a set-screw C running through it. The
 10 other end is cut half-way through at D, so that it can pass over the shank of a bolt or catch E on the inner end of the other chief member of my clamp, which is shown at F in Fig. 2. The said bolt E is provided with
 15 a head e, which prevents the two members B and F being drawn apart longitudinally after being brought into engagement. The parts can easily be separated, however, by simply slipping the shank of the bolt E out
 20 through the notch or cut D sidewise. When, however, the third member of my clamp (shown at G in Fig. 4) is slipped over the joint of the members B and F, as shown in Fig. 1, the last-named members cannot be
 25 disengaged, although there is no hinderance to the rotary movement of either one with respect to the other. Accordingly, the incandescent lamp H, which is supported within the member F, can, when there is no binding of the said member against the sleeve G,
 30 be turned to any point in a vertical plane within the limits between the member F and the outer end of the lamp.

Now, assuming that the lamp is in place,
 35 and that the other parts occupy the position illustrated in Fig. 1, the whole appliance is made firm by turning the set-screw C against the standard A. In order to change the position of the lamp the set-screw must be loosened and the lamp then turned to whatever
 40 position it is desired to have it occupy. If the user wishes to move the lamp farther down in a vertical plane, he can simply turn the member F with a rotary motion as far as he wishes. He may then shift the whole
 45 clamp around the standard as far as he wants to, and, if need be, he can raise or lower the entire apparatus along the standard A. Then, by turning the set-screw C, he can secure the
 50 parts in place without difficulty.

It will be observed that the opening in the part F is notch-shaped at one end (see reference-letter I) and also that the sleeve G has similar notches J J at one end, while the other
 55 end is uncut, presenting a straight edge. In putting the parts together the members B and F are first coupled in the manner already described and the sleeve G is passed over the member B until it comes to rest against a
 60 flange K on the outer end of the member F. The sleeve, in being put in place, has its unnotched end toward the flange K and its notched end in the opposite direction. The parts having been brought to the position described the whole is slipped down over the
 65 standard A to the proper height. Then the

sleeve is moved toward the standard so that its notches inclose the same, and the lamp or other instrument is then put in place. Then the turning of the screw does the rest.

By virtue of the arrangement described the standard itself and the fixture have at least one notched surface presented to them, which insures a firm hold upon a round surface. If the standard should be square, the sleeve can
 75 be turned so as to present one of its straight surfaces, intermediate between the notches, to the side of the standard. If the shank of the lamp or other instrument should be square, it will readily be held from shifting,
 80 by reason of the straight sides of the opening in the member F and the straight edge of the sleeve G.

What I claim is—

1. A universal clamp consisting of two cylindrical members, adapted to engage end to end by a slot and bolt connection so as to have free rotation with respect to each other, and a sleeve surrounding the adjacent ends of the said members, the said slot extending
 85 inward from the edge of one of the said members and the said bolt being provided with a head of greater diameter than the said slot, whereby the members, when locked together by the slot and bolt, cannot be separated
 90 without the removal of the sleeve.

2. A universal clamp consisting of a cylindrical member having a suitable opening for slipping over and inclosing a standard, a key or set screw in the outer end of the said
 100 member, a second cylindrical member provided with a suitable opening for inclosing an instrument to be adjusted and having end to end connection with the first named member, all in combination with a sleeve surrounding the joint of the two members, whereby the turning of the said key or set screw will operate to bind all the parts together by pressing the ends of the sleeve against the standard and the instrument to be adjusted,
 105 respectively.

3. A universal clamp consisting of a member having means for attachment to a suitable standard, a cooperating member joined therewith end to end and having free rotation with respect thereto the said cooperating member also being provided with means for attachment to an instrument to be adjusted, and an intermediate piece surrounding the joint and forming at each end one of
 115 the bearings for the standard or the instrument to be adjusted, whereby the attaching of the first named member to the standard, simultaneously attaches and holds the instrument to be adjusted.

4. In a universal clamp two members engaging end to end and having suitable openings for receiving a standard or an instrument to be adjusted, and a sleeve surrounding the joint of the said member, the outer
 120 end of the opening in one member being substantially rectangular, and the outer end of

the opening in the other member being
notched, while the ends of the said sleeve
are respectively straight and notched, the
straight end being presented toward the
5 notched end of the second named member,
and the notched end of the sleeve being pre-
sented to the rectangular end of the said
first named member.

In testimony whereof I have signed my
name, in the presence of two witnesses, this 10
20th day of December, A. D. 1894.

ADELBERT OSWALD BENECKE.

Witnesses:

E. F. MACKUSICK,
R. C. MACKUSICK.