

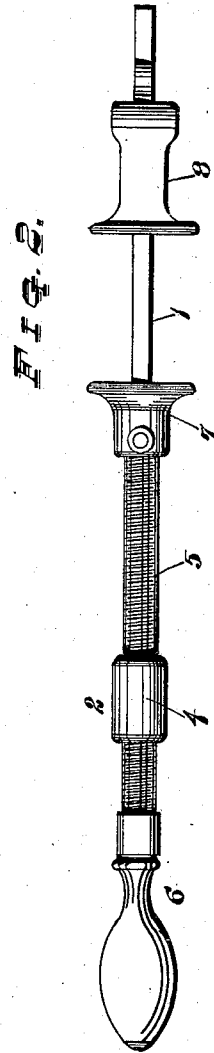
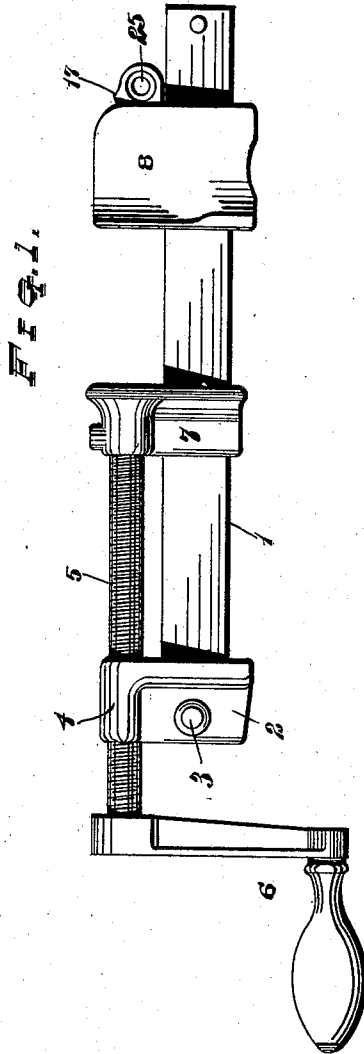
No. 867,622.

PATENTED OCT. 8, 1907.

J. L. TAYLOR.
SCREW CLAMP.

APPLICATION FILED JUNE 26, 1906.

2 SHEETS—SHEET 1.



WITNESSES

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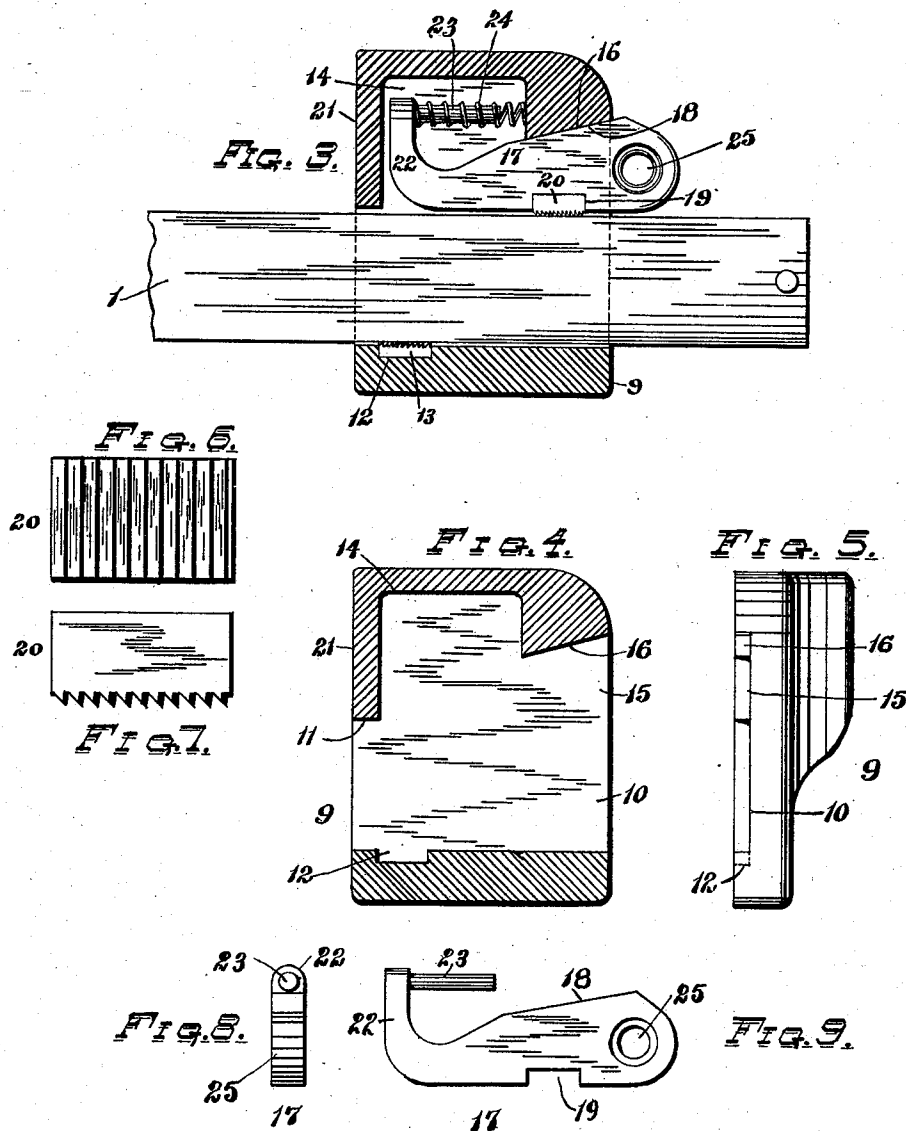
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2 SHEETS—SHEET 2.



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JAMES L. TAYLOR, OF BLOOMFIELD, NEW JERSEY.

SCREW-CLAMP.

No. 867,622.

Specification of Letters Patent.

Patented Oct. 8, 1907.

Application filed June 26, 1906. Serial No. 323,456.

To all whom it may concern:

Be it known that I, JAMES L. TAYLOR, a citizen of the United States, residing at Bloomfield, in the county of Essex, State of New Jersey, have invented certain new and useful Improvements in Screw-Clamps, of which the following is a specification.

This invention relates to that class of clamps in which a steel bar is provided at one end with a screw working parallel to the bar and carrying at its end a head adapted to engage one side of the work to be clamped, while the other side is engaged by a cooperating head which can be adjusted to any desired point upon the length of the bar and will then hold itself rigidly in such position as a stop for the work, such clamps being commonly known as carpenters' or cabinet makers' clamps.

The objects of the invention are to secure a more firmly fixed position of the adjustable head upon the longitudinal bar, under strain, and prevent any slipping of the same; to utilize for this purpose the principle of the wedge; to secure instantaneous action of the gripping means; to at the same time enable the adjustable head to be quickly and easily moved to a new position, and to obtain other advantages and results as may be brought out in the following description:

Referring to the accompanying drawings, in which like numerals of reference indicate corresponding parts in each of the several figures, Figure 1 is a side elevation of a clamp of my improved construction; Fig. 2 is a plan of the same; Fig. 3 is a sectional view of the adjustable head taken longitudinally of the bar; Fig. 4 is a view of the body portion of the adjustable head similar to that shown in Fig. 3, the bar and the gripping means being removed; Fig. 5 is an edge or end view of the half of the body portion of the head shown in Fig. 4; Figs. 6 and 7 are bottom and side views, respectively, of one of the gripping blocks, and Figs. 8 and 9 show in end view and side elevation, respectively, a certain wedge employed in my improved construction.

In said drawings, 1 indicates a steel bar of the type commonly employed and having at one end of itself an end piece 2 held as by means of a bolt or screw 3 and providing in one end of itself an interiorly threaded sleeve 4 which is adapted to receive the screw shaft 5 parallel to the bar 1 and as closely adjacent thereto as may be desired. The outer end of said screw shaft 5 is provided with a crank or handle 6 for turning, and its inner end, as shown in the drawing, is connected to a head 7 adapted to slide loosely upon the bar 1, said connection being such that the screw imparts longitudinal motion to the said head and not rotary. It will be understood that this head 7 is adapted to be forced by the said screw up against one side of a piece of work.

For engaging the opposite side of the piece of work, there is mounted upon the bar 1 an adjustable stop 8, and in which the present invention more particularly inheres. This stop comprises a body portion or casting

9 which encircles the bar 1 and is formed to project considerably at the upper edge thereof to engage the work in cooperation with the screw head 7. The opening or passage 10 in said body portion 9 fits snugly against the opposite sides and the bottom of the bar 1, as does also the front portion 11 of the upper wall of said opening, the fit, however, being such as will permit an easy sliding of the head upon the bar. In the bottom or floor of the said passage 10, and at its forward end or end next the screw 5, is a pocket 12 which is adapted to receive a toothed block 13 to engage the edge of the bar 1.

At the upper portion of the adjustable head 8, is an interior extension 14 of the passage 10, and a portion of the rear wall of said extended chamber, adjacent to the bar 1, is cut away, as at 15, to form an entrance thereto, the top of said entrance sloping from the outside inward toward the bar 1, as at 16, so as to form a beveled surface. At the upper side of the bar 1, and lying partly in the chamber or extension 14 and projecting therefrom out through the entrance 15, is a wedge-shaped member 17, the lower wall of which lies parallel to the bar 1 while the upper edge is beveled, as at 18, to correspond to the wall 16 of the entrance to the chamber 14. In the lower wall of this wedge-shaped member is a pocket or recess 19 to receive a gripping block 20 adapted to engage the bar 1, said pocket being so disposed as to lie adjacent to the rear side of the head 8 and thus cooperate with the block 13 above mentioned in gripping the bar 1 when the head is tilted backward by pressure upon its engaging face 21. At the same time that such pressure occurs, however, any tendency to slide the head 8 backward upon the bar wedges its beveled surface 16 against the wedge 17, and thus forces the gripping block into gripping engagement with the bar, which engagement is only increased by the tilting above referred to.

In order to hold the wedge always against the bar 1, its inner end 22 is up-turned, and carries a rearwardly projecting pin 23 upon which is arranged a spring 24, adapted to bear against the rear wall of the chamber 14. Furthermore, the extremity of the wedge which projects at the rear of the head 8, is provided with a finger grasp 25, by means of which it can be slightly loosened out of contact with the bar 1 and the entire head drawn idly backward to adjust it to a new position. It will be noted that the large outer end of the wedge 17 and its inner up-turned end allow the wedge a limited longitudinal movement independent of the head, and it should be stated that the gripping block 13, which is preferably loosely inserted in its pocket, is of sufficient thickness to prevent its escape between the bar and wedge even in the loosest position of the latter with respect to the former.

Obviously, my improved construction can be applied to any head or arm adapted to be adjusted longi-

tudinally of a bar and resist pressure, whether it be simply a stop, or carry a clamping screw or the like. Detail changes could also be made in the wedge which I have shown, in the disposition of the spring, and so forth, by one skilled in the art, without departing from the spirit and scope of the invention.

It should be noted that the pin 23 serves not only to carry the spring 24, but furthermore its extremity engages the rear wall of the chamber 14, when the said spring has been compressed, to positively limit rearward motion of the wedge 17, with respect to the head 8. Furthermore, by the use of the wedge as described, equal pressure is brought upon the two gripping blocks 20 and 13, to force them into engagement with the bar 7, under the ordinary strain of usage of the clamp, and a most effective clamping action secured with minimum damage to the bar. The said gripping blocks are preferably of substantially equal area at their toothed surfaces, as shown.

Having thus described the invention, what I claim as new is:

1. In a clamp, the combination with a bar, of an adjustable head slidably mounted on said bar and having a recess adjacent to said bar, a wedge in said recess having its large end rearward and a transverse slot in its edge next the bar, and a gripping block in said slot held against lateral escape by the walls of the said recess.

2. In a clamp, the combination with a bar, of an adjustable head slidably mounted on said bar and having a recess adjacent to said bar, a wedge in said recess having its large end rearward and a transverse slot in its edge next the bar, a gripping block in said slot held against lateral escape by the walls of the said recess, and a spring adapted to force said wedge longitudinally.

3. In a clamp, the combination with a bar, of a head slidably mounted on said bar and having on the side of the bar where the work lies a recess at its rear and being closed at its front against said bar, a wedge in said recess with its large end rearward and adapted to engage the bar, and a spring inclosed and concealed by said recess and acting longitudinally of the bar and the wedge to force said wedge forward.

4. In a clamp, the combination with a bar, of a head slidably mounted on said bar and having on the side of the bar where the work lies a recess at its rear and being closed at its front against said bar, a wedge in said recess adapted to engage the bar and having its large end projecting rearward from said recess and provided with a finger grasp, and a spring inclosed and concealed by said recess and acting longitudinally of the bar and the wedge to force said wedge forward.

5. In a clamp, the combination with a bar, of a head slidably mounted on said bar and having on the side of the bar where the work lies a recess at its rear and being closed at its front against said bar and having an interior enlargement or extension of the inner end of said recess in a direction away from the bar, a wedge in said recess adapted to engage the bar and having its large end rearward, and a spring inclosed in said extension of the recess and adapted to act longitudinally of the bar and wedge upon the inner end of said wedge to force said wedge forward.

6. In a clamp, the combination with a bar, of an adjustable head slidably mounted on said bar and having at its rear on the side of the bar where the work lies a recess and an interior enlargement or extension at the inner end of said recess, a wedge in said recess adapted to engage the bar, having its large end rearward and its small end up-turned in said extension or enlargement of the recess, and a spring adapted to act longitudinally of the wedge between said up-turned end and the rearward wall of the said enlargement chamber.

7. In a clamp, the combination with a bar, of an adjustable head slidably mounted on said bar and having at

its rear on the side of the bar where the work lies a recess and an interior enlargement or extension at the inner end of said recess, a wedge in said recess and adapted to engage the bar, having its large end rearward and its small end up-turned in said extension or enlargement of the recess, a rearwardly projecting pin on said up-turned end, and a coiled spring on said pin and adapted to engage the rear wall of the said enlargement chamber.

8. In a clamp, the combination with a bar, of an adjustable head slidably mounted upon said bar and having a recess adjacent to said bar, a wedge in said recess having end extensions which will not pass through said recess between the head and bar and having a pocket in its face next the bar, and a gripping block in said recess of greater thickness than the space between the bar and wedge in the loosest position of the latter.

9. In a clamp, the combination with a bar, of a head apertured to receive said bar and providing a serrated surface at the forward end portion of the wall of the aperture on the side of the bar away from the work, and a wedge between said bar and the rear end portion of the wall of the aperture at the side of the bar where the work lies, presenting to the bar a serrated surface, said serrated surfaces of the wedge and opposite wall of the aperture in the head projecting from said wedge and wall of the aperture, respectively, constituting the only engagements of the head with the edges of the bar and engaging on opposite sides of a plane transverse to the bar.

10. In a clamp, the combination with a bar, of a head slidably mounted on said bar and having on the side of the bar where the work lies a recess, a wedge in said recess having its large end rearward away from the work and having a transverse slot in its face next the bar, the forward end portion of the wall of the aperture at the side of the bar away from the work having a pocket, and removable gripping blocks in said pockets projecting from said wedge and wall of the aperture, respectively, constituting the only engagements of the head with the edges of the bar and engaging on opposite sides of a plane transverse to the bar.

11. In a clamp, the combination with a bar, of an adjustable head slidably mounted on said bar and having at its rear on that side of the bar where the work lies a recess and an interior enlargement or extension at the inner end of said recess, a wedge in said recess having its large end rearward, a pocket in its face next the bar and its small end up-turned in said extension or enlargement of the recess, a spring adapted to act longitudinally of the wedge between said up-turned end and the rearward wall of the said enlargement chamber, and a gripping block in said pocket adapted to bite against the bar.

12. In a clamp, the combination with a bar, of an adjustable head slidably mounted on said bar and having at its rear on that side of the bar where the work lies a recess and an interior enlargement or extension at the inner end of said recess, a wedge in said recess having its large end rearward, a pocket in its face next the bar and its small end up-turned in said extension or enlargement of the recess, a rearwardly projecting pin on said up-turned end, a coiled spring on said pin and adapted to engage the rear wall of the said enlargement chamber, and a gripping block in said pocket.

13. In a clamp, the combination with a bar, of a head slidably mounted on said bar and having at its rear on the side of the bar where the work lies a recess and an interior enlargement or extension at the inner end of said recess, a wedge in said recess adapted to engage the bar, having its large end rearward and its small end up-turned in said extension or enlargement of the recess, a rearward projection on said up-turned end adapted at its extremity to engage the rear wall of said recess extension and positively limit rearward motion of the wedge with respect to the head, and a spiral compression spring on said projection normally projecting beyond the end thereof into permanent engagement with the said rear wall of the recess extension

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Witnesses:

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