No. 832,464. PATENTED OCT. 2, 1906.

E. R. ERICKSON.

CLAMP.

APPLICATION FILED MAR. 21, 1906.

Fig. 1

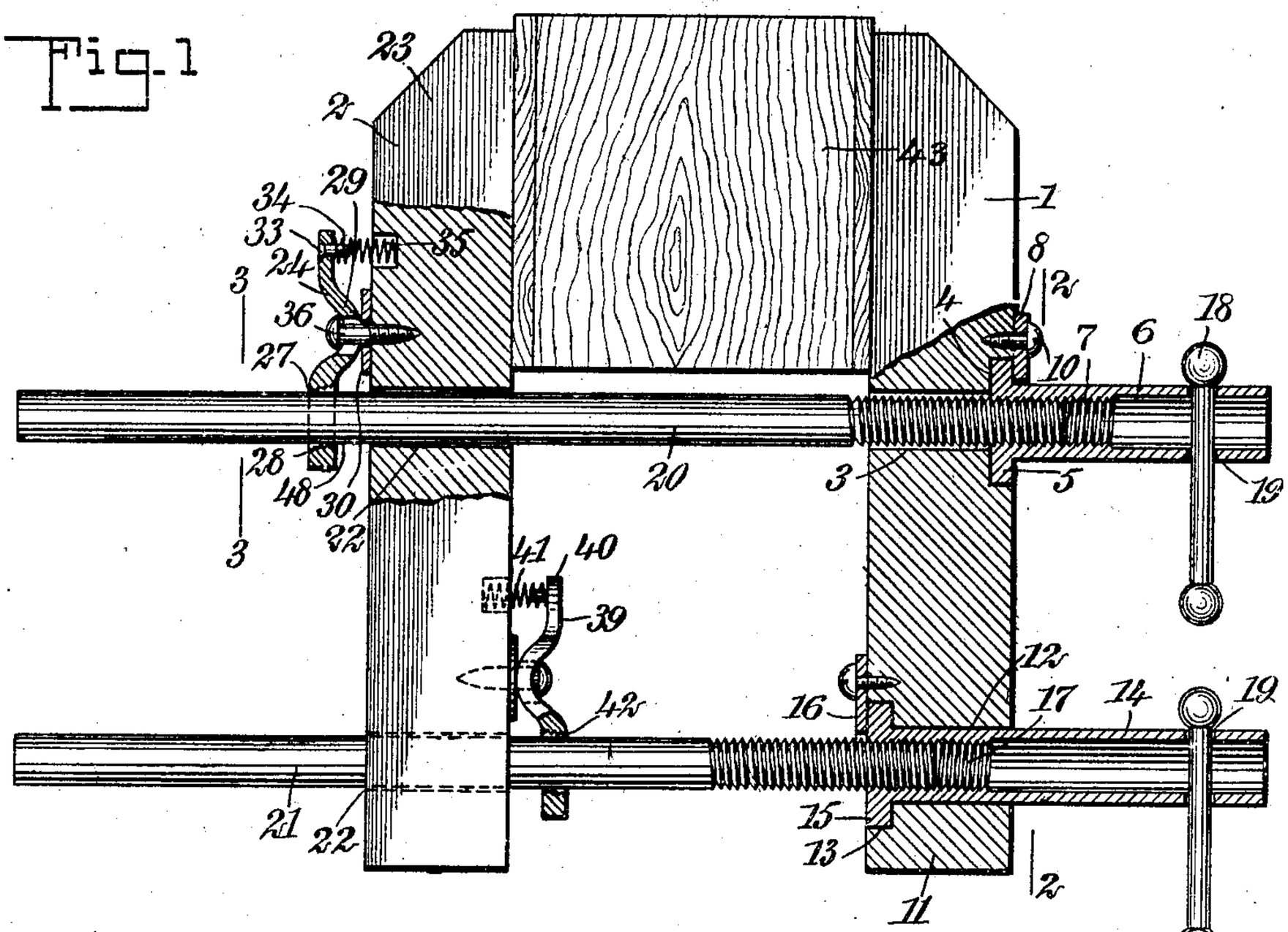


Fig. 2

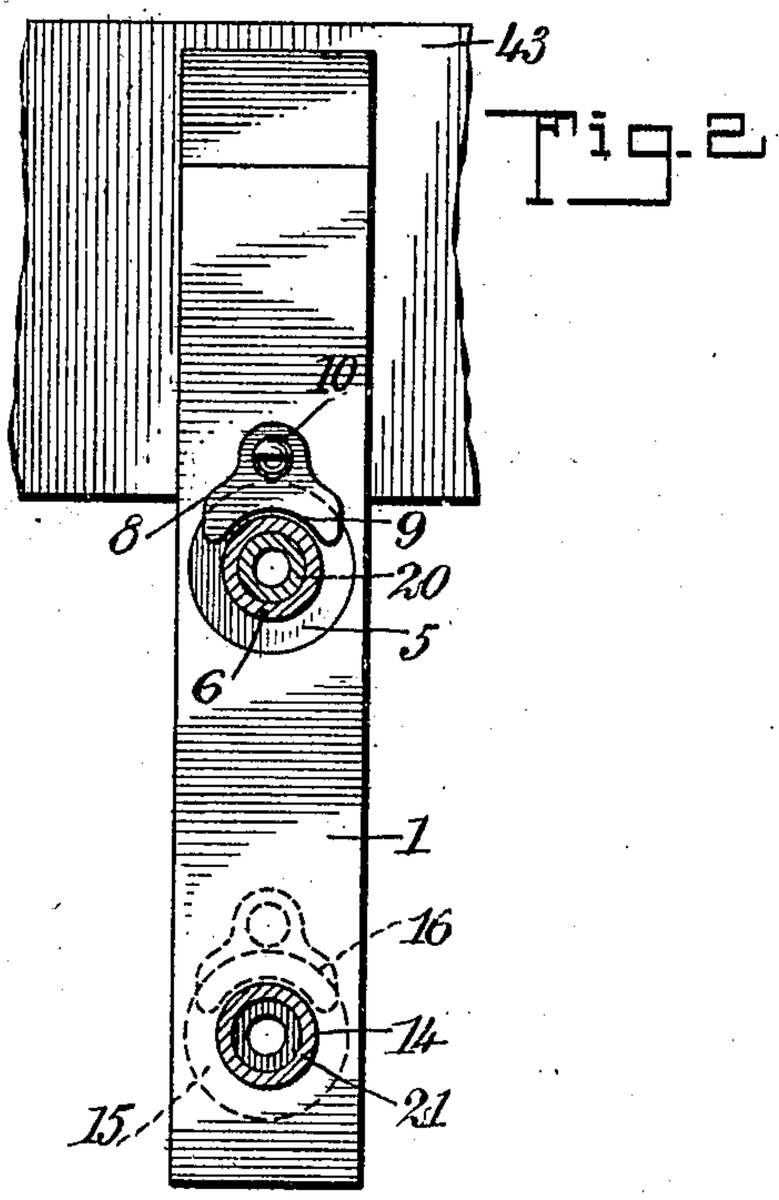
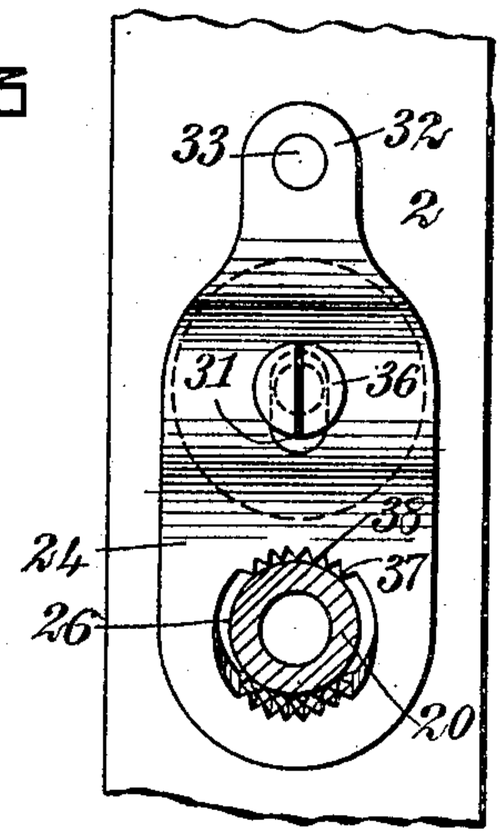


Fig. 3



WITNESSES

J. A. Brophy

F. D. Cranmer

INVENTOR

Erick R. Erickson

BY Munn & Co

ATTORNEYS

UNITED STATES PATENT OFFICE.

ERICK R. ERICKSON, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO HENRY WYNELL, OF NEW YORK, N. Y.

CLAMP.

No. 832,464. Specification of Letters Patent. Patented Oct. 2, 1906.

Application filed March 21, 1906. Serial No. 307,203.

To all whom it may concern:

Be it known that I, ERICK R. ERICKSON, a citizen of the United States, and a resident of the city of New York, borough of the Bronx, in the county and State of New York, have invented a new and Improved Clamp, of which the following is a full, clear, and exact description.

This invention relates to clamps such as used by artisans, and especially by wood-workers for clamping the work.

The object of the invention is to produce a clamp of simple construction the jaws of which may be readily separated to any desired distance, so as to apply them to clamp an object held therebetween.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation, partially in section, of a clamp constructed according to my invention. Fig. 2 is a cross-section taken on the line 2 2 of Fig. 1 and representing the object which is being clamped as partly broken away; and Fig. 3 is a section on the line 3 3 of Fig. 1, but upon an enlarged scale. In this view only a portion of the body of the clamp is shown.

Referring more particularly to the parts, 1 and 2 represents a pair of jaws of common form. The jaw 1, which may be considered as the "fixed" jaw of the clamp, is provided with a bore 3, disposed in the plane in which the clamp is applied. This bore 3 is provided with a counterbore 4, which constitutes a seat for an expanded head 5, formed on the extremity of a tubular handle 6, which handle is internally threaded, as at 7. As shown, the outer face of the head 5 is preferably substantially flush with the outer face of the jaw 1, and the handle is held to the jaw by means of a saddle-clip 8, the said saddle-clip having the form shown in Fig. 2, presenting a concave edge 9, which is adapted to lie adjacent to the side of the handle, the saddle-clip being attached to the jaw by means of a suitable screw 10 or similar fastening. At the butt 11 of the jaw 1 a similar bore 12 is provided; but this bore is provided with a counterbore 13 on the inner face of the jaw. A tubular handle 14 is provided which extends through the bore 12 and is formed with an enlarged head 15, which seats in the counterbore 13, as shown. This handle is retained in the jaw by means of a saddle-clip 16, similar to the saddle-clip 8 and secured in a similar manner, and the tubular handle 14 is provided with internal threads 17. In order to enable the handles 6 and 14 to be rotated, for a purpose which will appear hereinafter, they are provided with vise-levers 18, having knobs on the extremities thereof, the bars of the said levers being slidably mounted in oppositely-disposed openings 19, formed in the handles.

I provide stems 20 and 21, the extremities whereof are threaded and in engagement with the threads 7 and 17, as indicated. These stems 20 and 21 are parallel, as shown, and operate as guides for the movable jaw 2, the said jaw being provided with bores 22, through which the stems pass loosely, as shown. On the outer face of the jaw 2, on the side of the stem 20 near the nose 23 of the jaw, a clutch or clutch-plate 24 is provided, the form of this plate being very clearly shown in Fig. 3. It is an elongated oval plate provided at one extremity with an opening 26, through which the stem 20 passes, as shown. This opening is formed upon an axis inclined with respect to the axis of the stem, so that when the clutch-plate occupies the position shown in Fig. 1 the opening 26 will engage the side of the stem at the opposite points 27 and 28. This opening 26 is of slightly larger diameter than the stem 20, as indicated. The body of the plate 24 is offset to form a transverse rib or foot 29 of rounded form, which rests against a wear-plate 30, attached to the outer face of the jaw, and in this foot is formed an eye 31, elongated longitudinally of the plate. The extremity of the plate remote from the stem is reduced, so as to form a tail 32, and to this tail is attached an inwardly-projecting pin 33, which affords means for assisting and maintaining a helical spring 34, which seats at its lower extremity in a recess 35, made for the purpose in the jaw 2. As indicated in Fig. 1, the force of the spring tends to make the clutch-plate bite into the side of the stem at the points 27 and 28. The clutch is held in position by means of a suitable fastening or screw 36, which passes loosely through the eye 31

and through the wear-plate 30. The portion of the clutch-plate which has the opening 26 is offset away from the face of the jaw upon which the clutch-plate is attached.

In order that the edges of the opening 26 may grasp the stem 20 with greater firmness, I provide the said opening at opposite points with teeth 37, as indicated in Fig. 3. These teeth are preferably formed by threading the opening 26 internally and then cutting longitudinally-disposed grooves 38 therein thereafter.

On the inner face of the jaw 2 I attach a clutch or clutch-plate 39, which is in all respects similar to the clutch 24 already described. Its tail 40 projects in the same direction as that in which the tail of the clutch 24 projects, and it is similarly grasped by a spring 41, so that the edges of its opening 42 tend to bite into the stem 21, which passes through the opening, as indicated in Fig. 1.

With the construction described evidently the clutches 24 and 39 normally grasp the stems 20 and 21. When it is desired to slide the jaw 2 along the stems to grasp a piece of work 43, it is only necessary for the mechanic to depress the tails 32 and 40 of the clutches, whereupon they will rock upon the jaws and release themselves from the stems. The jaw may then be slid against the work, and the handles 6 and 14 may be then rotated so as to draw the jaws nearer together. In tightening the clamp in this way it will be found that the clutches 24 and 39 effectually prevent any backward movement of the movable jaw 2. In this connection attention is called to the fact that the clutches are attached not on the same face of the jaw, but on opposite faces. This feature is advantageous in that it throws the points of engagement of the clutches out of the same plane. The greater the tensile force exerted by the stem 20 the greater will be the force with which the clutch 24 grasps its side, and, similarly, as to the stem 21, it being understood, however, that the force in the stem 21 is a compressive force instead of a tensile force. In this connection attention is called also to the arrangement for mounting the handles 6 and 14 upon the jaw, which arrangement is such that the heads of the handles are compressed toward the jaw and not away from the same. For this reason there is comparatively little strain upon the saddle-plates 8 and 16. The fact that the eyes 31 are elongated longitudinally of the clutch-plates enables the clutch-plates to adjust themselves very readily to the positions of the stems.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a clamp, in combination, a jaw, a stem attached therein, a second jaw mounted to slide on said stem, a clutch-plate seating on the outer face of said second jaw and adapted to rock thereupon, said clutch-plate having a part offset from the outer face of said jaw and having an opening through which said stem passes, said clutch-plate affording means for locking said jaw on said stem.

2. In a clamp, in combination, a jaw, a stem attached therein, a second jaw mounted to slide on said stem, a clutch-plate seating on the outer face of said second jaw and adapted to rock thereupon, said clutch-plate having a part offset from the outer face of said jaw and having an opening through which said stem passes, said clutch-plate affording means for locking said jaw on said stem, and a spring tending to hold said clutch-plate in a position to lock itself upon said stem.

3. In a clamp, in combination, a stem constituting a guide, a jaw adapted to slide thereupon, and a clutch-plate attached to the face of said jaw and adapted to rock thereupon, said clutch-plate having an inclined opening therethrough through which said stem passes.

4. In a clamp, in combination, a stem, a jaw adapted to slide thereupon, a clutch-plate having an opening receiving said stem and adapted to grasp the same, said clutch-plate having an offset constituting a foot held against said jaw, said foot having an eye formed therein and a fastening device passing through said eye and securing said clutch-plate to said jaw.

5. In a clamp, in combination, a stem, a jaw adapted to slide thereupon, a clutch-plate having an opening through which said stem passes, the edge whereof is adapted to bite said stem, said plate having an offset constituting a foot and having an elongated eye therein, a fastening device passing through said eye and securing said plate to said jaw, and a spring engaging said plate and tending to force the same into engagement with said stem.

6. In a clamp, in combination, a fixed jaw, stems mounted therein, a movable jaw mounted to slide on said stems, a clutch-plate mounted on the outer face of said movable jaw, and a second clutch-plate mounted on the inner face of said movable jaw, said clutch-plates having openings respectively receiving said stems and adapted to bite the same, said clutch-plates further having projecting tails adapted to be depressed to release the same.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ERICK R. ERICKSON.

Witnesses:
F. D. AMMEN,
JNO. M. RITTER.