

No. 893,831.

PATENTED JULY 21, 1908.

H. A. ADAMS.
PARALLEL CLAMP.
APPLICATION FILED MAY 14, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

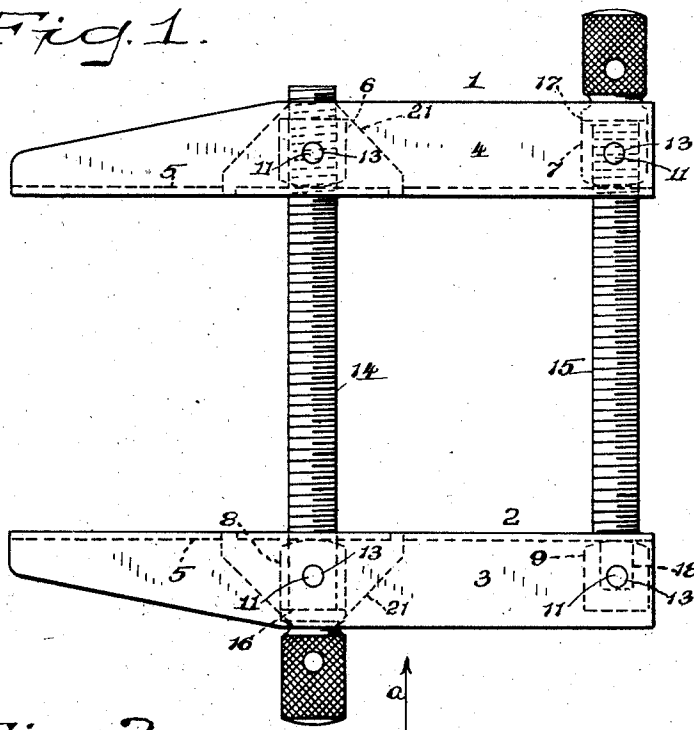


Fig. 2.

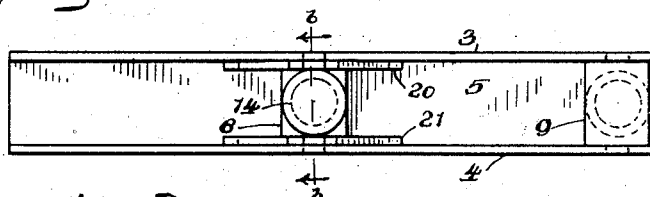
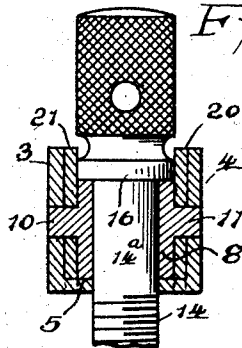


Fig. 3.



WITNESSES

Fig. 5.

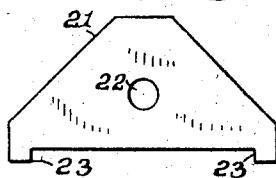


Fig. 4.

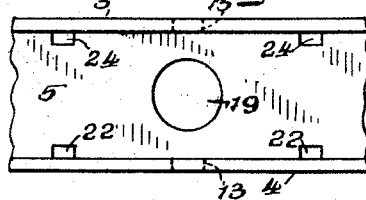


Fig. 6.



H. A. Adams
J. A. Mc Namara

INVENTOR
Harry A. Adams

BY Geo. D. Phillips
his ATTORNEY

No. 893,831.

PATENTED JULY 21, 1908.

H. A. ADAMS.
PARALLEL CLAMP.
APPLICATION FILED MAY 14, 1906.

2 SHEETS—SHEET 2.

Fig. 7.

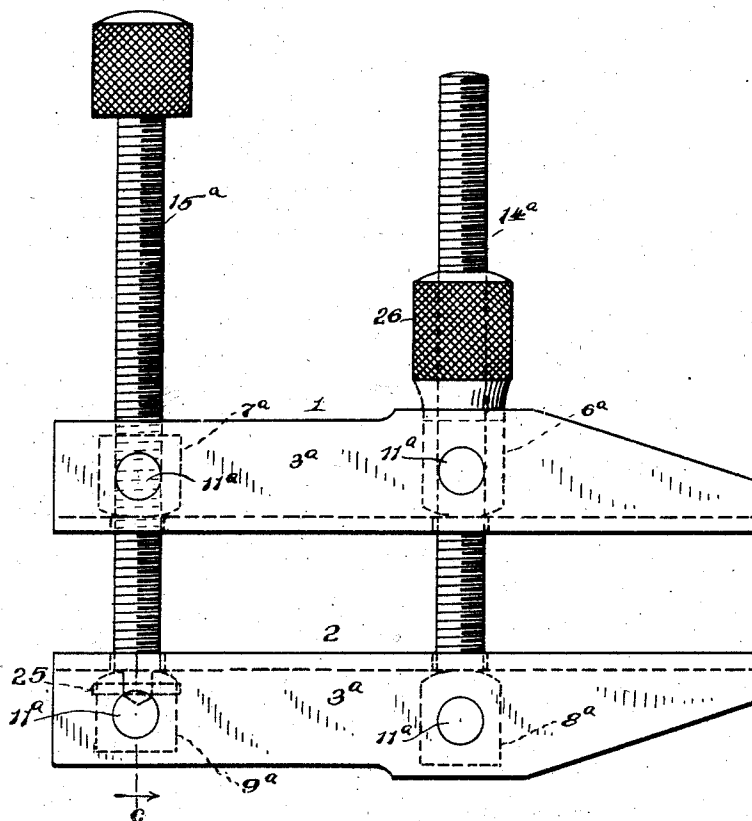
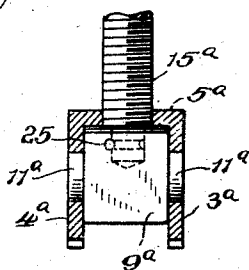


Fig. 8.



WITNESSES

H. A. Lamb.
J. A. Mc Lamara

INVENTOR
Harry A. Adams.
BY Geo. D. Phillips.
his ATTORNEY

UNITED STATES PATENT OFFICE.

HARRY A. ADAMS, OF EAST HARTFORD, CONNECTICUT.

PARALLEL CLAMP.

No. 893,831.

Specification of Letters Patent.

Patented July 21, 1908.

Application filed May 14, 1906. Serial No. 316,658.

To all whom it may concern:

Be it known that I, HARRY A. ADAMS, a citizen of the United States, and a resident of East Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Parallel Clamps, of which the following is a specification.

My invention relates to that class of hand clamps having parallel jaws with screws for operating the jaws to and from each other.

Heretofore it has been the custom to make the jaws and screws of the hand clamps used by carpenters and pattern-makers, entirely of wood. This necessitated a large unwieldy construction in order to obtain the required strength. The hand clamps used by machinists are made of steel with solid jaws. In this construction, the jaws must be made extra large in order to provide holding surface for the screws and also to compensate for the stock taken out of the body of the jaws to admit the screws.

My improved clamp comprises skeleton jaws made from sheet metal, open at the top, with interiorly threaded swivel blocks for the screws located in the channel jaws and having trunnions journaled in the sides of the jaws with the body portion of the blocks preferably resting on the base of the channeled jaws as a brace against the strain of the screws.

To enable others to understand my invention reference is had to the accompanying drawings in which:

Figure 1—represents a side elevation of my improved sheet metal skeleton jaw clamp opened: Fig. 2—is an upper plan view looking in the direction of arrow *a* of Fig. 1: Fig. 3—is a cross sectional view of one of the jaws and the block and bracing pieces on line *b b* of Fig. 2, also broken view of one of the operating screws: Fig. 4—is a broken detail plan view of one of the jaws looking in the direction of arrow *a* of Fig. 1: Fig. 5—is a detail view of one of the central bracing pieces: Fig. 6—is a detail elevation of one of the blocks: Fig. 7—is a modification of the clamp showing the screws located on one side: Fig. 8—a broken view of the rear screw and a sectional view of one of the clamp jaws on line *c* of Fig. 7.

The construction and operation are as follows:

The jaws 1 and 2 are alike as to construc-

tion, being first blanked out of sheet metal then U shaped to form the sides 3 and 4, and the base 5 to form the clamping face. The blocks 6, 7, 8 and 9, see Figs. 3 and 6, are provided with the trunnions 10 and 11 adapted to enter holes 13, Figs. 1, 3 and 4, in the sides of the jaws. These trunnions are inserted into said holes when the sides 3 and 4 of the jaws are being formed at right angles to the base. The inner ends of the blocks are slightly curved and such curved ends rest on the base 5 to resist the strain of the screws 14 and 15. These curved ends permit the blocks to rock on their trunnions to permit the jaws to readily conform to tapered surface, and also to maintain a perfect alinement of the screws with the axis of the blocks and thus avoid undue strain on the screws.

The blocks 6 and 7 are threaded to receive the threaded portions of the screws. The threadless portion 14^a of the screw 14 is journaled in the block 8, while the reduced threadless portion 18 of the screw 15 is journaled in the block 9. The shoulder 16 of the screw 14 rests on the outer end of the nut 8, and the shoulder 17 of the screw 15 rests on the outer end of the block 7.

The clamp is operated in the usual manner of clamps of this character, viz: Turning the screws 14 and 15 in opposite directions will cause the jaws 1 and 2 to be brought together or separated as required.

In the base of the central portion of each jaw is a hole large enough to freely admit the body of the screw 14. One of these holes, 19, is shown in Fig. 4. Therefore, in clamps of this character, this is the weakest point, owing to the loss of stock by reason of these holes. To overcome this weakness in the solid jaw heretofore used, the jaw had to be considerably increased in size which made the clamp very cumbersome to handle and clumsy in appearance. With wooden clamps they were liable to break over these holes, and, when made of iron, to bend at this point.

While the skeleton jaws of my improved clamp will stand a greater breaking or bending strain than solid jaws of equal size, I have provided an additional reinforcement by means of the braces 20 and 21 located on each side of the nuts 6 and 8 as shown at Figs. 1, 2 and 3. As each of the four braces are exactly alike, a brief description of the one shown at Fig. 5 will suffice for all of

them. The hole 22 is formed in the side to admit one of the trunnions of the block, and the projections or feet 23 are adapted to enter the holes 24, Fig. 4, in the base 5 of the jaw, while the lower surface of the brace will rest directly on the base of the jaw. The feet 23 will anchor the brace to the base of the trunnioned block oscillates. In all cases these braces may not be required, but they will undoubtedly enable the jaws to be made of thinner material, especially in very small clamps.

The modification of the clamp shown at Fig. 7 possesses the advantage of being able to engage the clamp with the work where there is but little room as neither of the screws project beyond the jaw 2. In this construction, the rear screw 15^a engages a threaded hole extending through the block 7^a while its lower end is journaled in the block 9^a and rotatably held there by the pin 25. These blocks are provided with the trunnions 11^a similar to those shown in the other views.

The forward screw 14^a extends freely through the block 6^a and, is either anchored in the block 8^a, or said block may form an integral part of the screw. The nut 26 is a clamping nut or runner threaded to engage with the screw 14^a and it abuts the outer surface of the block 6^a.

From the foregoing description it will readily be seen that my improved clamp is not only stronger and lighter than one where the jaws are made solid, but it can be much reduced in size to represent the same strength required for one with solid jaws.

While I state that the skeleton jaws are made of sheet metal, I wish it distinctly understood that, as my object is to combine lightness with strength, cast-iron, malleable-iron, or what is known in the trade as "channel-iron" or "angle-iron" will answer equally as well, and I hold myself at liberty to use any or all of them.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. A parallel clamp comprising skeleton jaws each having a base to form the clamping face and sides angularly disposed with respect to said base, swivel blocks journaled in said sides and adapted to have a rocking engagement with said base, operating screws for said blocks, for the purpose set forth.

2. A parallel clamp comprising skeleton jaws each having a base to form the clamping face and sides angularly disposed thereto, operating screws, the base of each jaw having a centrally located hole therethrough to admit the body portion of the central screw, swivel blocks located between the sides of the jaws for said screws, detachable braces for the central portion of the jaws, for the purpose set forth.

3. A parallel clamp comprising skeleton jaws each having a base to form the clamping face and sides angularly disposed thereto, swivel blocks journaled in said sides and adapted to have a rocking engagement with the base, operating screws for said blocks, braces located between said blocks and sides, for the purpose set forth.

4. A parallel clamp comprising skeleton jaws each having a base to form the clamping face with angularly disposed sides projecting therefrom, trunnioned blocks journaled in said sides, screws passing freely through block 6^a, clamping nut 26 operatively mounted on said screw, the screw 15^a engaging the threaded block 7^a and rotatably mounted in block 9^a, for the purpose set forth.

Signed at Bridgeport in the county of Fairfield and State of Connecticut this 7th day of April A. D. 1906.

HARRY A. ADAMS.

Witnesses:

GEO. D. PHILLIPS,
GEO. W. FINN.