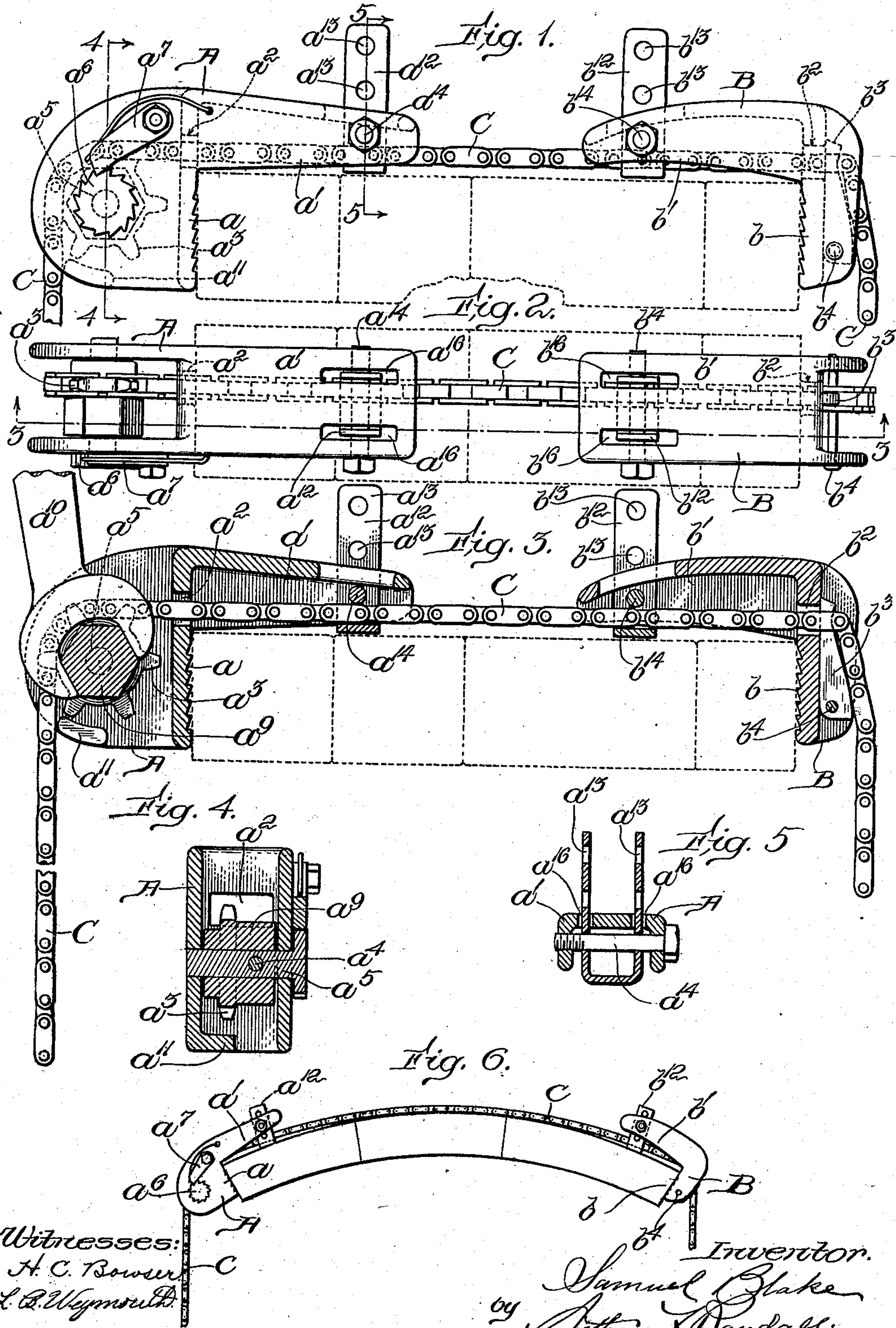


S. BLAKE.
CLAMP.

APPLICATION FILED NOV. 2, 1908.

923,805.

Patented June 8, 1909.



Witnesses:
H. C. Bower
L. B. Weymouth

Inventor.
Samuel Blake
by Arthur J. Randall
Att'y.

UNITED STATES PATENT OFFICE.

SAMUEL BLAKE, OF CLIFTONDALE, MASSACHUSETTS.

CLAMP.

No. 923,805.

Specification of Letters Patent.

Patented June 8, 1909.

Application filed November 2, 1908. Serial No. 460,663.

To all whom it may concern:

Be it known that I, SAMUEL BLAKE, of Cliftondale, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Clamps, of which the following is a specification.

My invention relates to clamps and the like, and has for its object to provide an improved portable clamp for holding work and for similar uses. Also it is the object of my invention to provide a clamp of the type indicated which will be of simple construction, easily manipulated and powerful in its action.

To these ends my invention consists of a portable clamp, comprising a pair of opposed jaws adapted to engage the work to which the clamping pressure is to be applied, a chain or the like connecting the two jaws, and means for taking up the slack of the chain to force the two jaws together against the work. The distinguishing feature of my improved clamp is, therefore, that the two clamping jaws are connected by a flexible chain-like connection, the principal advantages to which are that the clamp can be applied to work of curved or other irregular shape, since the flexibility of the chain permits of the latter bending to conform to the shape of the work. The flexibility of the chain permits of the clamp being collapsed into small compass when not in use, and a very simple, strong and powerful take-up device may be employed.

Other features of my invention are hereinafter pointed out.

In the accompanying drawings:—Figure 1 is a side elevation of a clamp constructed in accordance with my invention. Fig. 2 is a plan view of the clamp shown in Fig. 1. Fig. 3 is a section on line 3—3 of Fig. 2. Fig. 4 is a section on line 4—4 of Fig. 1. Fig. 5 is a section on line 5—5 of Fig. 1. Fig. 6 is described later.

Having reference to the drawings, A and B are the two jaws of my improved clamp, and C is the chain connecting said jaws. The jaws A and B are hollow, angular castings made, respectively, with arms a and b to engage the opposite sides of the work and with perpendicular arms a^1 , b^1 to rest upon the top of the work. The arms a and b may be scored upon their work engaging faces as shown to prevent slipping.

The chain C extends from jaw A through

a perforation b^2 in jaw B, and is locked to the latter by an arm b^3 pivoted at b^4 to jaw B. The free end of arm b^3 extends through one of the links of chain C, and said arm is held against the back of jaw B by the strain brought upon the chain when the clamp is set as described later. If the jaw A has been first applied to the work, the operator can grasp the end of chain C adjacent arm b^3 with one hand, and with the other hand shove jaw B toward jaw A and against the work. The jaw B is then locked to chain C by re-inserting the free end of locking arm b^3 in one of the links of chain C. The opposite end of chain C extends through a perforation a^2 in jaw A and over a sprocket wheel a^3 provided on a sleeve a^9 , the latter being fastened by a pin a^4 to a shaft a^5 carried by jaw A. One end of shaft a^5 is made with an integral ratchet wheel a^6 engaged by a spring pressed detent a^7 pivotally mounted on jaw A. Thus if jaw B has been first applied to one side of the work, the operator can, by holding the end of chain C adjacent sprocket a^3 with one hand, quickly shove jaw A along chain C into engagement with the opposite side of the work. It will thus be seen that, if either jaw is first applied to the work, the other jaw can be quickly adjusted along chain C to fit the clamp to the work.

The sleeve a^9 is made exteriorly hexagonal to receive upon it a wrench a^{10} by means of which sprocket a^3 can be forcibly rotated in a direction to take up the slack of chain C and thereby draw the two jaws together against the work with great force after they have been roughly adjusted to fit the work as above described. As the sprocket and its shaft are thus rotated the detent a^7 , engaging the teeth of ratchet a^6 , holds the sprocket against turning in the opposite direction while the wrench is being shifted on sleeve a^9 . To unset the clamp the operator, by means of wrench a^{10} , relieves detent a^7 of the pressure of ratchet a^6 and then lifts said detent out of engagement with ratchet a^6 .

While the sprocket a^3 is being rotated by wrench a^{10} and chain C is under tension, the frictional engagement of the links of said chain with the sprocket tends to prevent the teeth of the sprocket from passing out of engagement with the chain, that is, the chain tends to stick to the sprocket and to wind thereon. Therefore, in order to prevent this sticking of the chain to the sprocket, I make

the jaw A with a chain deflecting lug a^{11} located alongside of sprocket a^3 , which lug guides the chain away from the sprocket after it has passed partly around the latter.

5 When my clamp is applied to work which is of such shape that the chain does not pass directly from one jaw to the other in a straight line perpendicular to the work engaging faces of arms a^1 , b^1 , the strain of
10 chain C sometimes tends to displace or cant the jaws. Therefore, in order to hold the jaws in proper relation to the work, said jaws are provided near the outer ends of their arms a^1 and b^1 with adjustable props
15 or legs a^{12} and b^{12} , respectively. These props are U-shaped pieces, embracing chain C, with their legs extending upwardly through slots a^{16} and b^{16} in the jaws. The legs of the
20 props are made with perforations a^{13} and b^{13} and are pivotally and adjustably connected with the jaws by removable pins a^{14} and b^{14} extending through the perforations, the slots
25 pins a^{14} and b^{14} , as may be required by the shape of the work being clamped. In Fig. 6 I have shown my clamp applied to a semi-circular piece of work with the props in operative position holding the work engag-
30 ing faces of the jaws squarely against the work. As will be observed from this illustration, the work is not only subjected to the pressure of the jaws themselves, but the props and the chain also act to force and
35 hold together the parts of the work which they engage.

My improved clamp is of very simple, strong and inexpensive construction, and can be easily and quickly manipulated. Also its
40 peculiar construction gives it a very wide range of use, not only as a clamp, but also as a jack. It is, however, as a clamp, particularly useful in boat building, laying floors and other situations where a strong
45 and powerful clamp is desired. As a jack

it may be employed to lift heavy articles, to stretch wire fences and the like.

What I claim is:—

1. A clamp comprising a pair of jaws; a flexible connection to which one of said jaws 50 is fixed, and means carried by the other jaw and engaging the flexible connection for shifting said jaw along the flexible connection toward the fixed jaw to an extent limited only by the length of the flexible connection 55 between the two jaws.

2. A portable clamp comprising a chain; a jaw fixed to said chain; an opposed jaw movably mounted on said chain; a sprocket wheel on the movable jaw and engaging the chain; 60 and means to operate the sprocket wheel to shift the movable jaw on the chain toward the fixed jaw.

3. A portable clamp comprising a chain; a jaw fixed to said chain; an opposed jaw movably mounted on said chain; a sprocket wheel 65 on the movable jaw and engaging the chain; means to operate the sprocket wheel in one direction to shift the movable jaw on the chain toward the fixed jaw; and means to 70 hold the sprocket wheel against turning in the opposite direction when the clamp is set.

4. A portable clamp comprising a chain; a jaw fixed to said chain; an opposed jaw movably mounted on said chain; a sprocket wheel 75 on the movable jaw and engaging the chain; a chain deflector adjacent the sprocket wheel; and means to operate the sprocket wheel to shift the movable jaw on the chain toward the fixed jaw. 80

5. The above described clamp comprising the angular jaws A and B; the chain C; means on one of the jaws to take up the slack of the chain to set the clamp; and props adjustably mounted on jaws A and B, substantially as described. 85

SAMUEL BLAKE.

Witnesses:

ARTHUR F. RANDALL,
H. C. BOWSER.