M. S. CUMNER.

CLAMP.

APPLICATION FILED OCT. 22, 1906. RENEWED APR. 6, 1908.

900,915. Patented Oct. 13, 1908.

Fig. 1.

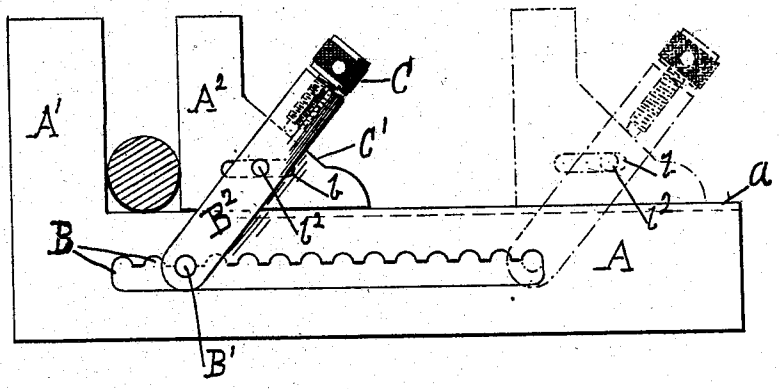
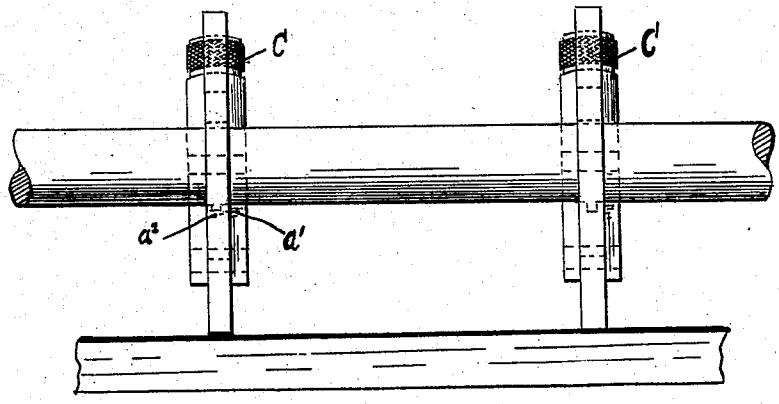


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

MATTHEW S. CUMNER, OF NEW YORK, N. Y.

CLAMP.

No. 900,915. Specification of Letters Patent. Patented Oct. 13, 1908.

Application filed October 22, 1906, Serial No. 339,893. Renewed April 6, 1908. Serial No. 425,447.

To all whom it may concern:

Be it known that I, MATTHEW S. CUMNER, residing in the city of Greater New York, in the county and State of New York, have invented certain new and useful Improvements in Clamps, of which the following is a specification.

My invention in clamps relates to that class employed principally by machinists, machine tool makers, or the like and is particularly adapted to the securing of articles in the process of manufacture, whereby they may be more readily positioned and maintained for machine operations than by the clamping devices hitherto in vogue and previous to my invention in so far as I am at present aware.

The object of my invention is to provide a simple and inexpensive clamp which may be readily adjusted to grip an article, which it is desired to secure, while at the same time it may have a considerable range in adjusting the clamping means for articles of various size and form with facility.

The features characteristic of my invention wherein I accomplish the object thereof, are depicted by the illustrations in the sheet of drawings hereto attached and forming part of this specification, wherein,

Figure 1 is a side elevational view of one of my improved clamps gripping a cylinder shown in section and illustrating by the dotted position of the clamping jaw the extreme range thereof; and Fig. 2 is an end elevational view of a pair of my improved clamps as applied to a cylindrical bar when the same is to be carried and secured in a horizontal position on the bed of a machine tool for example a drill press, shaper, milling machine, grinder or the like.

In both views similar characters of reference designate like parts throughout, wherein,

A the shank of the clamp has an integrally formed lug A′ constituting one of the jaws and the other jaw A^2 is fitted to the upper surface *a* of the shank A by tongue and groove connection comprising the tongue *a′* at the base of the jaw A^2 and the groove a^2 in the upper surface *a* of the shank A. The shank A is provided with a series of semicircular stops B for engagement with a stud B′ which is carried by the terminal of a link B^2, which link embraces the jaw A^2 and by virtue of a clamp screw C passing through the opposite end of the link and impinging against the relatively angular face C′ of the jaw A^2 which, in the instance illustrated, is the hypotenuse of a right angle triangle (formed by respectively the base and vertical face of the jaw), forces the latter into a binding engagement with the jaw A′ or any intervening article which it is desired to clamp. These series of stops which are preferably formed by drilling the stock and cutting away there-after approximately one half of the drill holes, together with a sufficient portion of the shank to insure clearance of the stud B′ from the semicircular stops B in disengaging the stud B′ from the stops B when adjusting the clamp, are arranged approximately at equal distances and extend along the length of the shank for a distance equal to a point substantially in line with the lug or jaw A′ and a point in line with the face of the jaw A^2 when the latter is in a position toward the other end of the shank A as illustrated by the broken lines Fig. 1.

In the position illustrated in Fig. 1, the clamp A^2 is forced to engage the article to be clamped by the angularly disposed link B^2 which, by virtue of its terminal stud B′ being restrained by one of the stops in the shank A while the screw C is forced against the hypotenuse of the jaw A^2, will force the latter in the direction of the integral jaw A′ and movement of the jaw A^2 will be permitted within range of the slot *b*.

Intermediate of the link B^2 and engaging the slot *b* of the jaw A^2 is a stud b^2 rigidly carried by the link B^2. This stud b^2 takes a portion of the reaction thrust upon the jaw A^2 as well as the clamp screw C.

The arrangement of the clamping jaw A^2, the link B^2 and its clamping screw C is such that when the latter is forced to engage the hypotenuse of the jaw A^2 in the operation of clamping an article between the jaw A′ and jaw A^2, the jaw A^2 will be forced in the manner of a wedge into engagement with the article to be clamped and by virtue of the angular position of the link B^2, the jaw A^2 would be substantially held in contact with the shank A irrespective of the strain which it may be subjected to within the limits of the strength of the clamp, and the jaw A^2 will be maintained parallel with the jaw A′.

It will be observed by the dotted position Fig. 1, that the stud b^2 is approximately in a position with respect to the jaw A^2 which would limit the movement of the jaw from further clamping, since the contact of the stop pin b^2 with the terminal of the slot *b*

is the limit of clamping movement allotted to the jaw A^2. Thus it will be seen that a limited movement of the clamping screw C on the hypotenuse of the jaw A^2 is provided; and thus the tendency for restricting the jaw A^2 to a parallel strain rather than an oscillating movement, is obviously more effective than were the clamping screw C in either of the extreme positions.

The plurality of stops B provide a considerable range in the adjustment of the clamp while the slot *b* in the jaw being parallelly disposed with the face of the shank or the foot of the jaw A^2 provides a limiting range of movement for any individual stop B.

It will be observed by the foregoing description that my novel parallel clamp provides a convenient and readily adjustable means for securing small articles while positioning them on the bed of a drill press or other tool as aforesaid, and serves the purpose in general of the usual means for strapping which is somewhat troublesome when pieces of work are required to be held substantially parallel with the bed of the press or other tool.

The clamp as illustrated shows the shank A as the base but it is obvious that the integral jaw A′ may serve as well for the base in which case a piece which is drilled or operated upon in the position illustrated may be subjected to a further operation at 90 degrees from the first by turning the clamp together with the piece into a position 90 degrees from the former and in a manner whereby the integral jaw A′ will be the base in lieu of the shank A.

I am aware that prior to my invention, clamps having parallel jaws adapted to rapid adjustment have been in vogue, and I therefore do not claim these broadly as my invention, and having fully described my invention, I do claim, however, and desire to secure by Letters Patent of the United States:—

1. In a clamp, the combination with a shank, and an integral clamping jaw, of an adjustable jaw, and a clamp co-acting between the shank and the adjustable jaw, and an adjustable pivotal connection between the said latter clamp and the adjustable jaw.

2. In a clamp, the combination with a shank, and an integral clamping jaw, said shank having a longitudinally slotted portion, provided with series of stops, of an adjustable jaw, having a slotted portion, and a clamp co-acting between the slotted portion of the shank and the adjustable jaw, and the slotted portion of the adjustable jaw being pivotally connected to the co-acting clamp.

3. In a clamp, the combination with a rectangular shank, and an integral clamping jaw, having its outer extremity substantially perpendicular to the shank, said shank having a longitudinally slotted portion, provided with a series of stops, of an adjustable jaw, adapted to slide upon the shank, having a slotted portion and a clamp co-acting between the stops in the slotted portion of the shank and the slotted portion of the jaw, and a clamping screw carried by the latter said clamp adapted to engage the adjustable jaw.

4. In a clamp, the combination with a rectangular shank, and an integral rectangular jaw, perpendicularly situated with respect to the shank, said shank having a longitudinally slotted portion provided with a series of stops, of an adjustable jaw slidingly mounted on the shank, having a perpendicular securing face and an angular clamping face and a longitudinal perforation between the two said faces, and a clamp co-acting between the stops, in the slotted portion of the shank and the slotted portion of the jaw and a clamping screw carried by the latter said clamp adapted to engage the angular clamping face of the adjustable jaw.

5. In a clamp, the combination with a rectangular shank, and an integral rectangular jaw, having a free rectangular terminal perpendicularly situated with respect to the shank, said shank having a longitudinally serrated portion, of an adjustable jaw slidingly mounted on the shank, having a perpendicular securing face and a rectangular free terminal lying in the same plane with the rectangular terminal of the integral jaw and an angular clamping face, and a longitudinal perforation between the two said faces and of a clamp co-acting between the serrated stops in the slotted portion of the shank, and the slotted portion of the jaw and a clamping screw carried by the latter said clamp adapted to engage the angular clamping face of the adjustable jaw.

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

MATTHEW S. CUMNER.

Witnesses:
PHILIP K. STERN,
J. WALLACE CARTER.