No. 677,818. Patented July 2, 1901.

A. M. THOMPSON.

FOUNDRY CLAMP.

(Application filed Mar. 12, 1900.)

(No Model.)

Fig. 1.

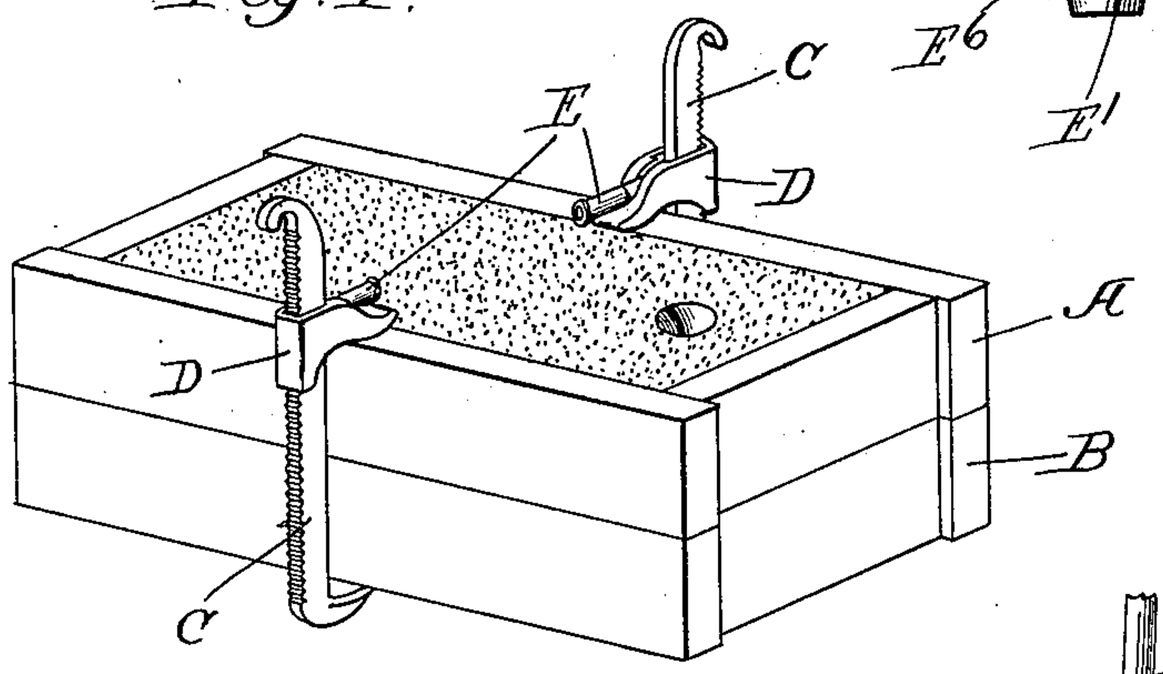


Fig. 3.

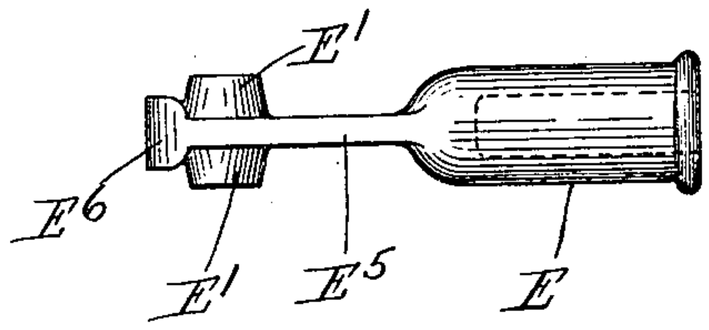


Fig. 4

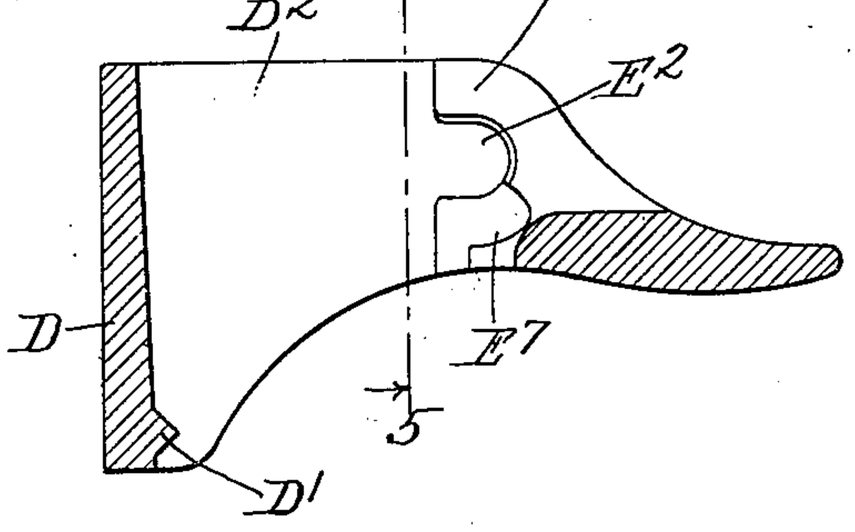


Fig. 5.

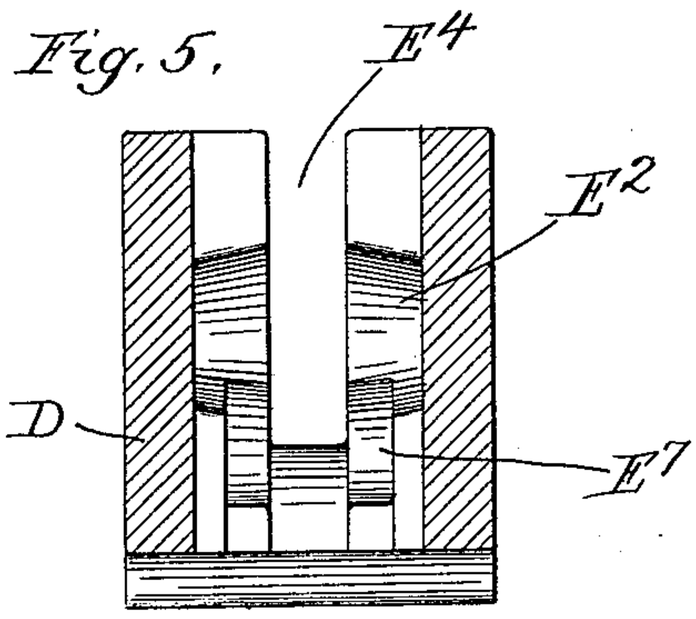
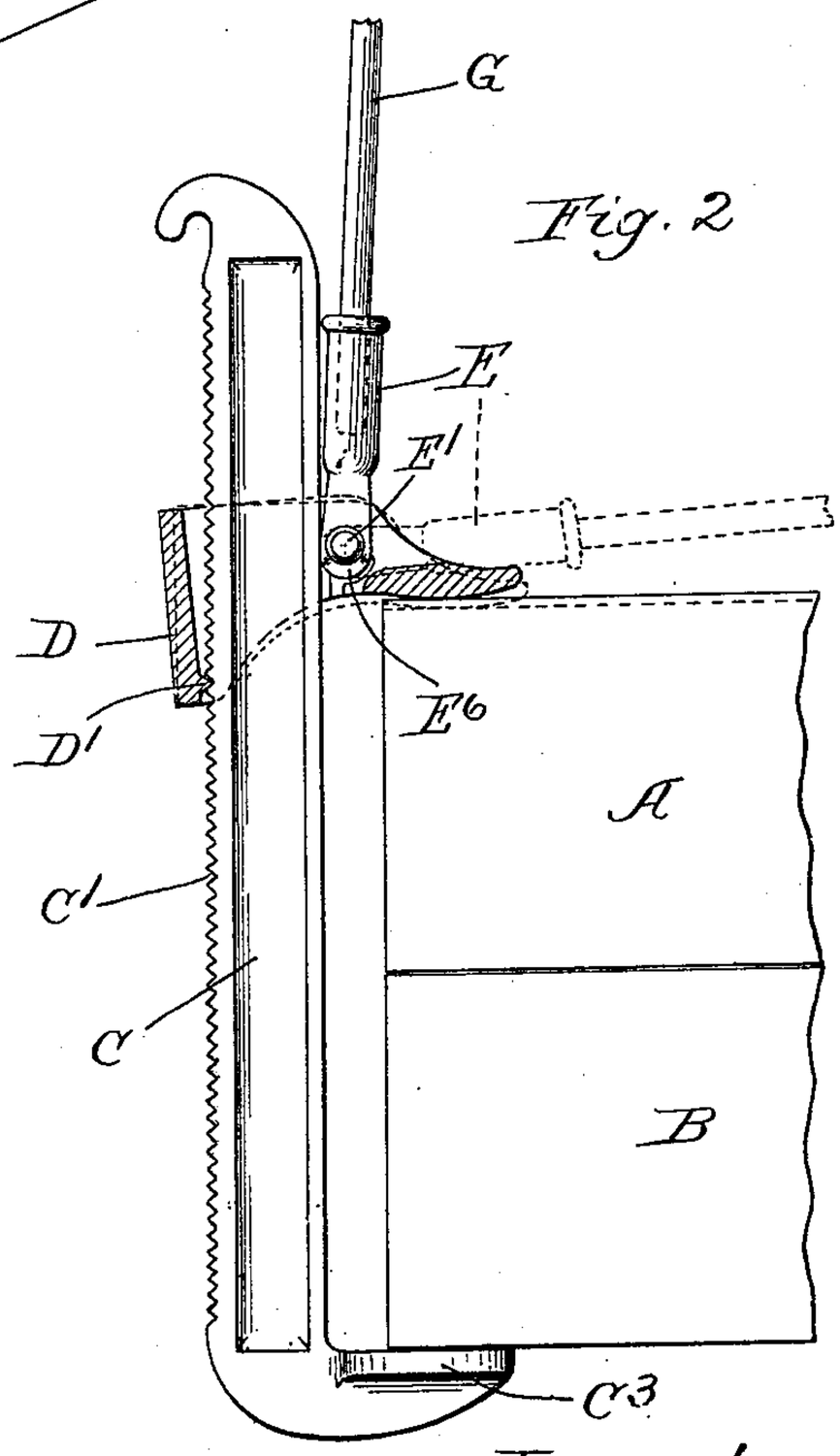


Fig. 2.



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UNITED STATES PATENT OFFICE.

ALEXANDER M. THOMPSON, OF CHICAGO, ILLINOIS.

FOUNDRY-CLAMP.

SPECIFICATION forming part of Letters Patent No. 677,818, dated July 2, 1901.

Application filed March 12, 1900. Serial No. 8,268. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER M. THOMPSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Foundry-Clamps, of which the following is a specification.

My invention relates to adjustable clamps particularly adapted for use in foundries and the like.

My invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a view showing clamps embodying my invention and one manner in which they may be used. Fig. 2 is an enlarged view, in part section, showing one of the clamps in position. Fig. 3 is a view of the movable arm of the clamp. Fig. 4 is a longitudinal section through the movable clamping part. Fig. 5 is an enlarged sectional view on line 5 5, Fig. 4.

Like letters refer to like parts throughout the several figures.

The clamp herein shown may be used for many purposes, but is particularly adapted to be used in foundries in clamping the two parts of the molding-flasks together.

In large foundries a great number and variety of flasks are used, and they are placed close together on the floor. Each flask must have at least two clamps to hold the parts in position. As the flasks are of various sizes it will be seen that a number of different kinds of clamps will have to be provided or the clamps will have to be made adjustable, so that one clamp may fit a number of different flasks. If the clamps are not adjustable, a large number will always be idle, and hence such a system is not economical. Again, since the flasks are placed close together the clamp, if adjustable, must be made so that no extra space will be required to operate it. In view of the dust and dirt and other adverse conditions present in a foundry a clamp to be commercially successful ought not to be provided with screws or screw-threads, as the conditions cause them to rust and bind, and hence unsatisfactory results are sure to follow. The clamp herein shown is particularly adapted to overcome all these difficulties and is durable, cheap, and efficient.

Referring now to the drawings, I have shown in Fig. 1 a form of flask consisting of two parts A and B. These parts must be clamped together when the flask is in use. In order to satisfactorily hold the parts of the flask together, it is necessary to force them toward each other during the operation of clamping and then hold them in this latter position. The construction herein shown is adapted to perform this function.

Referring now to Fig. 2, I have shown one form of clamp in position ready to be applied to the flask. This clamp consists of the piece C, provided with a series of teeth or projections C′ on the outer edge thereof and separated by the notches or indentations C^2. The piece C is provided at its lower end with the foot or clamping part C^3. An adjustable clamping part D is provided and is adapted to be moved along the piece C. This adjustable clamping part is provided with a projection D′ near one end adapted to engage the notches or indentations C^2 on the piece C. As herein illustrated, the adjustable clamping part is preferably made of a single piece and is provided with an enlarged opening D^2, through which the piece C passes. This opening D^2 in the adjustable clamping part is made larger than is necessary to permit the free movement of the piece C, and at one side said opening is formed so as to receive the end of the movable arm E, used to operate the clamp. The end of this arm is preferably provided with lugs E′, which fit into suitably-formed spaces E^2, the lugs being held in place at one side by the inwardly-projecting faces E^3 of the clamping part. The movable arm E is loosely placed in position and can be easily taken out when the movable clamping part is removed from the piece C. When in position on the piece C, the side of said piece acts in conjunction with the projecting faces E^3 to hold the movable arm in position. It will be seen that said movable arm can be rocked, the lugs E′ acting as the shaft. The front face of the adjustable clamping part is provided with a slot or cut-away part E^4 for the movable arm, said movable arm being preferably made thin at E^5, so as to pass through this slot. The lower end of the movable arm is formed in the shape of a cam E^6, so that the distance from the center of the lugs E′ to the face of the cam at the side

when the arm is in the position shown in Fig. 2 is less than the distance from the center of said lugs to the bottom face. The adjustable clamping part is also cut away at E^7 to receive the cam when the arm is in the position shown in Fig. 2—that is, substantially parallel with the piece C. It will be noted that the projection D′—the point of engagement of the movable clamping part with the piece C—is at one side of the center of the lugs E′—that is, the center or axis about which the cam rotates. It will further be noted that the projection D′ is also at one side of the engaging face of the adjustable clamping part. When the arm E, therefore, is moved to the position shown in dotted lines in Fig. 2, the action of the cam in its engagement with the piece C rocks the said movable clamping part about the point D′, so as to move the engaging face of the clamping part toward the foot C^3, as shown in dotted lines. It will be noted that the movable arm E for operating the clamp is placed on the inner face of the piece C and is normally substantially parallel thereto in its initial position. It will further be seen that when said arm is moved to operate the clamp it is moved inwardly, so that it projects over the top of the flask, and hence the spaces between the flasks need not be in any manner enlarged. I have shown the arm E as being hollow at the end, so as to receive the removable part G. This removable part may be of any desired length, so that the power may be increased to any desired extent by increasing the leverage.

I have shown in detail a particular construction and have illustrated this construction in a particular use; but it is of course evident that the construction and use may be varied, and I do not limit myself in these particulars.

The use and operation of my invention are as follows: When it is desired to use the clamp, the foot or clamping part C^3 is placed at one side of the device to be clamped, and the movable clamping part is then moved along the piece C until it engages the other side of the device. When the clamp is used in a vertical position, I prefer to have the movable clamping part uppermost. When in this position, it is only necessary to raise the adjustable clamping part above the face it is to engage and then lower it until the engaging face engages the thing to be clamped. The device then naturally and automatically takes the position shown in full lines in Fig. 2, the projection D′ falling into one of the notches C^2. The movable arm E in the meantime is held in the position shown in full lines in Fig. 2. If now the arm E is moved away from the piece C toward the position shown in dotted lines, the cam E^6, engaging the face of the piece C, rocks the adjustable clamping part about the point D′, so as to move it toward the clamping part C^3 and compress the thing upon which the clamp is used. When the arm is moved to the position shown in dotted lines, it automatically locks itself and the clamp tightly grips and compresses the thing to be clamped and will stay in that position until released. When it is desired to release the clamp, the arm E is moved to the full-line position, thus rocking the adjustable clamping part about the point D′, so as to separate it from the foot C^3.

It will be seen that by this construction one clamp may be used to clamp devices of various thicknesses and that the adjustment for this purpose is simple, accurate, and efficient. It will further be seen that I can cast all of the parts and that there is no necessity for any machine-work of any kind. The parts are made separately and can be quickly and easily assembled without turning up any portion thereof. It will also further be seen that the device is strong and durable and can stand without injury the rough handling usually received in foundries.

I claim—

1. A clamping device, comprising two clamping parts, a connecting-piece therefor, one of said clamping parts provided with an enlarged opening through which the connecting-piece passes, a series of engaging devices at the rear of said connecting-piece, an engaging device on said clamping part adapted to coöperate with the engaging devices on the connecting-piece, a cam provided with lugs which engage projecting parts on the inner face of said enlarged opening, said cam held in position by engagement with said connecting-piece.

2. A clamp, comprising a suitable foot and an adjustable clamping part, a connecting-piece between them, said adjustable clamping part provided with an enlarged opening through which the connecting-piece passes, a series of engaging devices on said connecting-piece, said adjustable clamping part provided with a projecting end which projects to one side of its engaging face, an engaging device on said projecting end adapted to coöperate with the engaging devices on the connecting-piece and a cam adapted to engage said adjustable clamping part and the connecting-piece, so that, when moved, it rocks said adjustable clamping part about the engaging part thereof.

ALEXANDER M. THOMPSON.

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