

March 5, 1935.

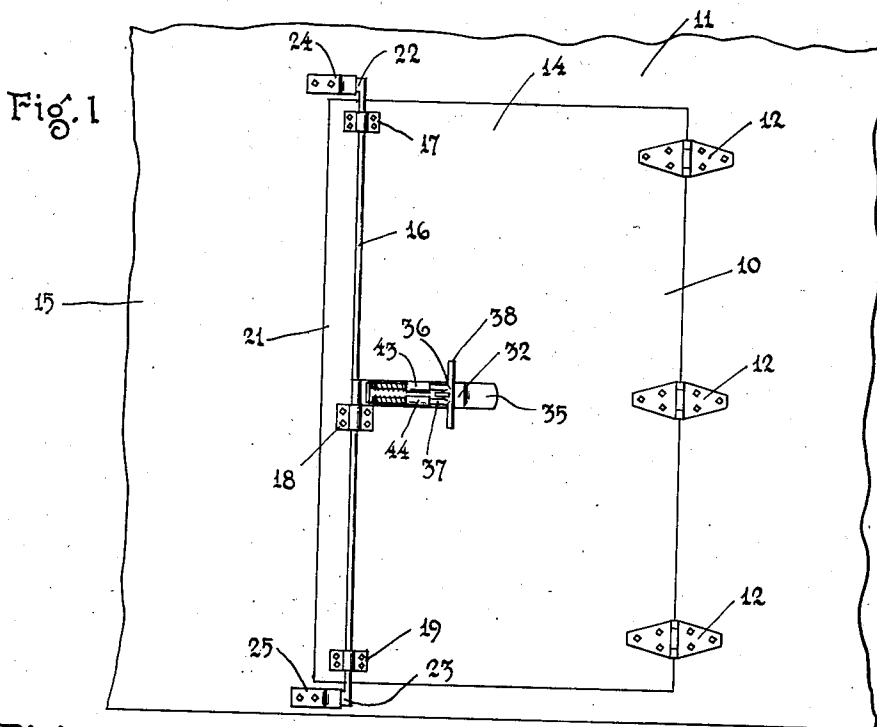
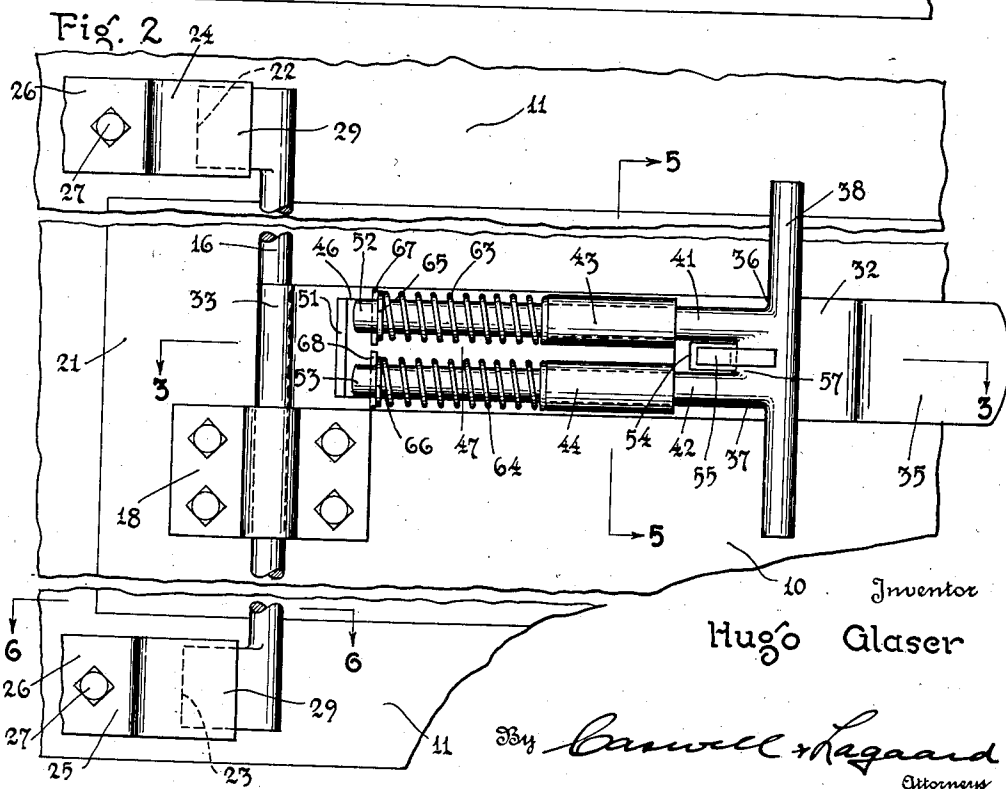
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1,993,002

DOOR FASTENING DEVICE

Filed Jan. 12, 1934

3 Sheets-Sheet 1



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Fig. 4

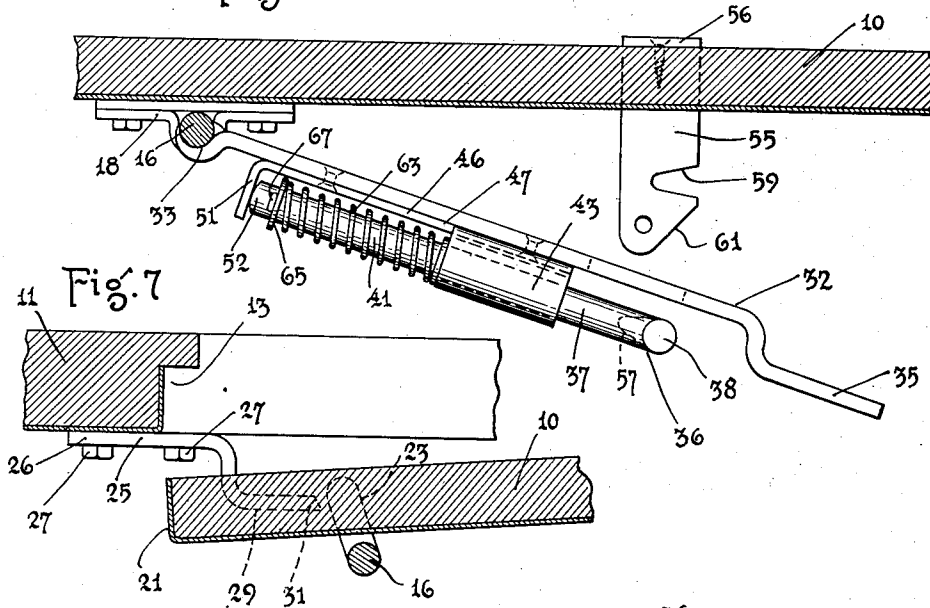


Fig. 7

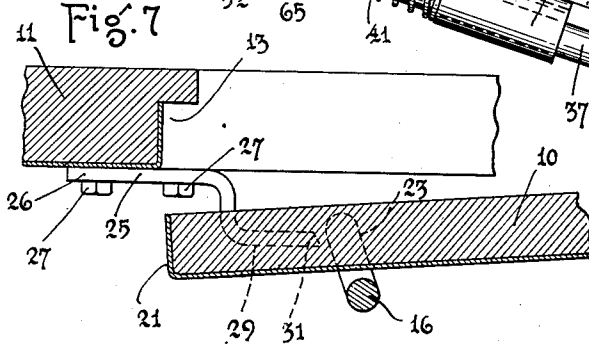


Fig. 3

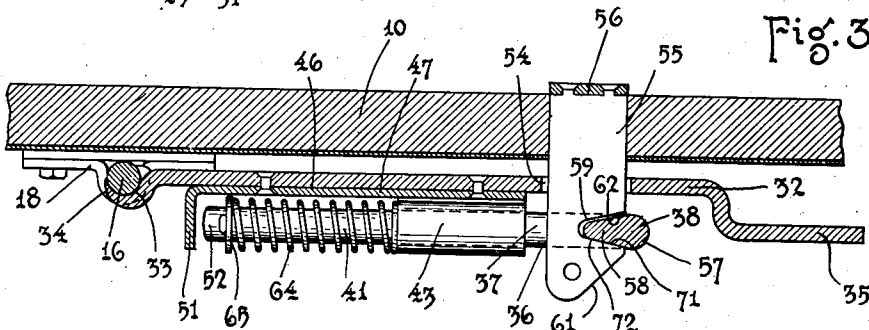


Fig. 5

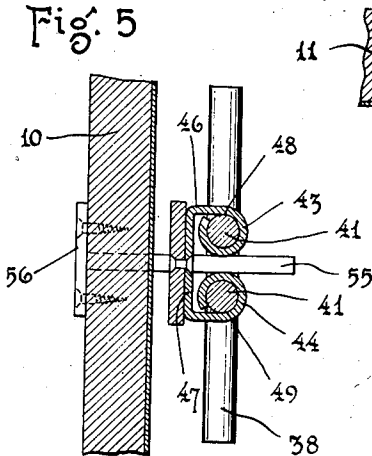
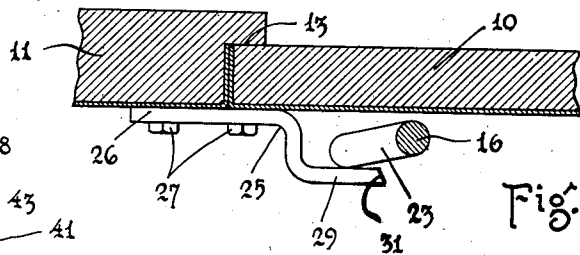


Fig. 6



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3 Sheets-Sheet 3

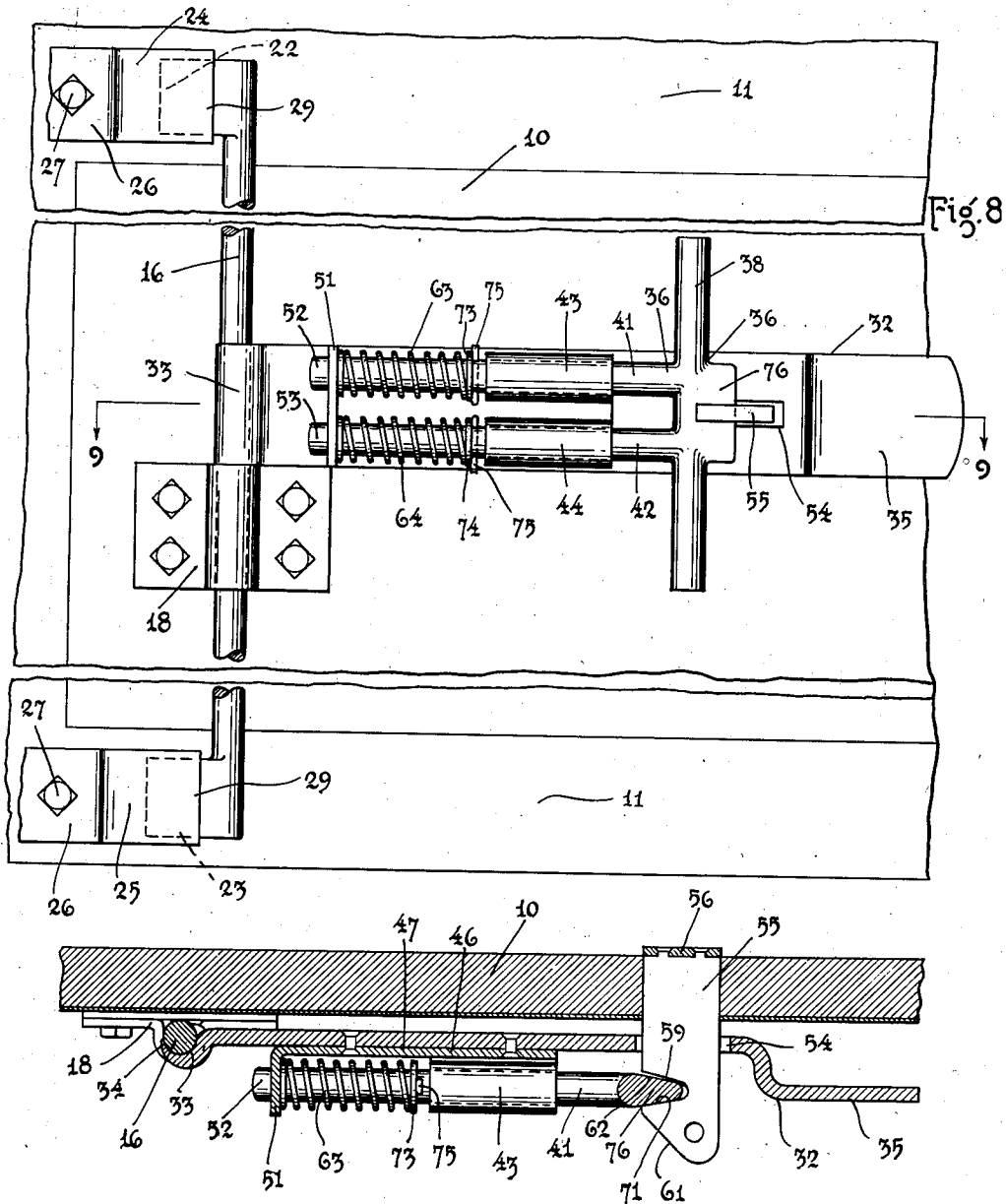


Fig. 9

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UNITED STATES PATENT OFFICE

1,993,002

DOOR FASTENING DEVICE

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5 Claims. (Cl. 292—283)

My invention relates to a fastening device for a door hinged to a door frame and has for its object to provide a device by means of which the door may be fastened both at the upper and lower portions of the same.

Another object of the invention resides in providing a fastening device which may be easily and efficiently operated.

Another object of the invention resides in providing a latching device for holding the fastening device in fastening position.

A still further object of the invention resides in utilizing a rod mounted for swinging movement on the door and extending along the same adjacent to the edge thereof opposite the door hinges.

A feature of the invention resides in providing said rod at its ends with levers adapted to engage abutments on the door frame, the abutments being situated at the upper and lower parts of the door frame.

An object of the invention resides in attaching a hasp to the rod which serves as a handle for swinging the same, said hasp lying substantially in the plane of the door when the fastening device is in fastening position.

Another object of the invention resides in constructing the hasp with an opening therein and in providing a notched latch lug projecting from the door and adapted to extend through said opening.

Another object of the invention resides in slidably mounting a latch bolt for movement relative to the hasp, said latch bolt having a latch head adapted to engage the notch in said latch lug for holding the hasp from movement.

A feature of the invention resides in constructing said latch bolt, T-shaped and in bifurcating the leg thereof to provide two spaced branches.

An object of the invention resides in arranging said latch bolt with the bifurcated leg extending along said hasp and the cross bar thereof extending across said hasp and projecting beyond the edges of the hasp to form finger pieces for manipulating the latch and hasp.

A still further object of the invention resides in providing spaced guides on the hasp adapted to receive the branches of said leg and to slidably support the latch bolt relative to the hasp.

An object of the invention resides in constructing the branches of the leg of the latch bolt so the same project outwardly beyond the guides and in further providing a bracket for engagement with the ends of the branches to limit movement thereof.

A still further object of the invention resides in providing compression coil springs encircling the branches of said legs and seated against abutments on the branches and against some part fixed relative to the hasp.

A feature of the invention resides in arranging the latching head of the latch bolt between the two branches of the bifurcated leg thereof.

Other features of the invention reside in the novel combinations and arrangement of parts and in the details of construction hereinafter illustrated and/or described.

In the drawings:

Fig. 1 is an elevational view of a door and a door frame illustrating an embodiment of my invention applied thereto.

Fig. 2 is an elevational view of a portion of the structure shown in Fig. 1 drawn to a larger scale.

Fig. 3 is a plan sectional view of the structure shown in Fig. 2 taken on line 3—3 of Fig. 2.

Fig. 4 is a view similar to Fig. 3 showing the parts in altered relation.

Fig. 5 is an elevational sectional view taken on line 5—5 of Fig. 2.

Fig. 6 is a plan sectional view taken on line 6—6 of Fig. 2.

Fig. 7 is a view similar to Fig. 6 showing the relation of the parts when the hasp is in the position shown in Fig. 4.

Fig. 8 is a view similar to Fig. 2 illustrating a modification of the invention.

Fig. 9 is a sectional view similar to Fig. 3 and taken on line 9—9 of Fig. 8.

In the fastening of doors and particularly of doors where a tight closure is desired it becomes essential to secure the doors both at the top and bottom thereof. My invention provides a fastening device by means of which a door can be secured both at the top and bottom and by means of which the fastening of the door at both of such localities can be simultaneously accomplished.

For the purpose of illustrating the application of my invention I have shown an ordinary door 10 which is mounted for swinging movement in a door frame 11. The door 10 is hinged to the frame 11 through three hinges 12 which are secured to said door and frame and which function in the usual manner. In the drawings the door 10 has been illustrated as seated within a rabbet 13 in frame 11, so that the outer surface 14 of the door lies flush with the outer surface of said frame. The frame 11 has been illustrated as being a part of a wall 15 instead of as a separate structure secured to the wall thereof though it

can be readily comprehended that the invention may be applied to any type of door and frame construction similar to that illustrated.

My invention proper includes a swinging rod 16 which is mounted for swinging movement in three bearings, 17, 18 and 19 secured to the outer surface 14 of door 10 in proximity to the free edge 21 thereof which is the edge of the door opposite to that along which the hinges 12 are secured. The rod 16 is provided at its ends with levers 22 and 23 which project outwardly from said rod in the same direction and which lie in a common plane. These two levers are adapted to engage abutments 24 and 25 secured to the frame 11. The construction of the lever 23 and abutment 25 is shown in detail in Fig. 6. The abutment 25 is constructed with a base portion 26 which is secured to the frame 11 through screws or bolts 27. Said abutment is further constructed with an offset portion 29 which is spaced from the outer surface of the frame 11 and from the surface 14 of door 10. The lever 23, when rod 16 is swung, is adapted to enter in back of the offset portion 29 of abutment 25 as shown in Fig. 7 and operates in conjunction therewith to draw the door inwardly into the rabbet 13 and to close the same. When the door is in its closed position the relation of the parts are as illustrated in Fig. 6. To facilitate the engagement of the lever 23 with abutment 25 the offset portion 29 of said abutment is constructed with a beveled edge 31 which is adapted to be engaged by the lever 23 and which functions to effectively bring the parts into proper cooperation.

For swinging the rod 16 a hasp 32 is employed which is constructed from a strip of metal bent into the desired form. At one end of this hasp is provided a transverse groove 33 which receives the rod 16. This portion of the hasp is directly welded to said rod so as to form an integral connection between the rod and hasp. The extreme end 34 of the hasp is bevel so as to permit of the swinging of the rod sufficiently to disengage the two levers 22 and 23 from the abutments 24 and 25. The hasp 32 lies substantially along the surface 14 of the door 10 when the fastening device is in fastening position. To permit of manipulation of same, the extreme end 35 of the hasp 32 is offset with respect to the hasp proper so that said part clears the surface 14 of the door 10. This portion serves as a finger piece which may be used in moving the hasp into either fastening or unfastening position.

The hasp 32 is held in fastening position through a latch bolt 36. This latch bolt is preferably T-shaped in construction being formed with a leg 37 having a cross bar 38 connected at its center to said leg. Leg 37 is bifurcated being constructed with two parallel branches 41 and 42 best shown in Fig. 2. These two branches are cylindrical in form and are guided for sliding movement by two guides 43 and 44 formed on a sheet metal frame 46. Frame 46 is constructed with a base 47 which is attached to the hasp 32 through rivets, welding or otherwise. The metal of the base 47 of said frame is bent up along two of the edges thereof to form the two guides 43 and 44 which construction is best shown in Fig. 5. The two guides 43 and 44 are formed with bores 48 and 49 in which the two branches 41 and 42 of leg 37 slide. At the end of base 47 is constructed a bracket 51 which extends outwardly from said base and which is adapted to engage the ends 52 and 53 of the two branches 41 and 42 of leg 37 and serves as a stop for limiting the movement

thereof. The bracket 51 is spaced from the guides 43 and 44 so that the ends 52 and 53 project outwardly an appreciable distance beyond said guides.

In the hasp 32 is formed an opening 54 which is adapted to receive a latch lug 55 secured to the door 10. This latch lug may be constructed as a bar riveted to a base 56 which is attached to the door proper. The lug extends outwardly from the door and is adapted to enter the opening 54 when the hasp 32 is moved into fastening position. On the latch bolt 36 and between the two branches 41 and 42 of leg 37 is formed a latch head 57. This latch head is shown in cross section in Fig. 3 and consists of a wedge-shaped portion 58 which is adapted to enter a V-shaped notch 59 in the latch lug 55. The wedge shaped portion 58 is constructed with two beveled surfaces 62 and 71, the purpose of which will be presently described in detail. The latch lug 55 is constructed with a cam surface 61 which is adapted to engage the beveled surface 62 on the head 57 when the hasp is moved from its position shown in Fig. 4 to its position shown in Fig. 3. The said cam surface serves to draw the latch bolt 36 outwardly along the two guides 43 and 44 and to bring the portion 58 of head 57 in a position to enter the notch 59.

For drawing the portion 58 of latch head 57 into notch 59 two compression coil springs 63 and 64 are employed which encircle the ends 52 and 53 of the two branches 41 and 42 of leg 37. These coil springs are seated at one end against the ends of the two guides 43 and 44 and are seated at their other ends against washers 65 and 66 mounted on the ends of said branches. These washers are held in place by cotter keys 67 and 68 which extend through the branches. The two springs 63 and 64 act against the washers 65 and 66 which serve as abutments and urge the head 57 toward the frame 46.

The operation of the invention is as follows. When the door is in open position the latch bolt 36 is swung outwardly as shown in Fig. 4 and the levers 22 and 23 occupy the position shown in Fig. 7. When the parts are so disposed the door may be swung into open or closed position as desired. When the door is brought into closed position rod 16 may be swung on its bearings through manipulation of hasp 32 which causes the two levers 22 and 23 to engage the abutments 24 and 25. The said levers first engage the beveled end 31 of the offset portion 29 of said abutments and thereafter engage the inner surfaces of said offset portions to bring the door into closing position. When the door is fully closed the hasp 32 occupies the position shown in Fig. 3. In the swinging of the hasp 32 the beveled surface 62 of latch head 57 engages the cam 61 which has the effect of drawing the head 57 outwardly against the action of the two springs 63 and 64. This permits the wedge shaped portion 58 of the head 57 to enter the notch 59. It will be noted that the surface 71 of the head 57 is also beveled and that the same engages a corresponding beveled surface 72 formed in notch 59. These two beveled surfaces serve to urge the hasp 32 toward the door proper and to hold the two levers 22 and 23 in engagement with the abutments 24 and 25. Through the action of the springs 63 and 64 the parts are firmly held in position and the door securely fastened. In the manipulation of the hasp 32 the same may be moved into position adjacent the door by exerting pressure on the

finger piece 35 of said hasp. When it is desired to open the door the latch bolt 36 is manipulated through the cross bar 38 which serves as a finger piece. This is accomplished by moving this cross bar to the right as shown in Fig. 1. The head 57 thereof is then disengaged from the notch 59 and the latch bolt freed from the lug 55. When the latch bolt is in such position said hasp 32 may be swung outwardly by manipulation of the finger piece 38 of the latch bolt. Hence a single operation is all that is necessary to manipulate the fastening device in either opening or closing the door.

In Figs. 8 and 9 I have shown a slight modification of the invention. In these drawings similar parts are designated by the same reference characters and the description of such parts of the invention will not be repeated. In this form of the invention the two branches 41 and 42 of latch bolt 36 are guided for sliding movement in the bracket 51 through which the said branches extend in addition to being guided in guides 43 and 44. The two compression coil springs 63 and 64 which encircle branches 41 and 42 are seated against the bracket 51 and also against washers 73 and 74 which are mounted on said branches. These washers are held from movement with respect to the same by cotter keys 75 which extend through said branches. It will be noted that the washers 73 and 74 are disposed at the portions of the branches 41 and 42 adjacent the guides 43 and 44 instead of at the outer ends of the said branches. For this reason the springs 63 and 64 urge the latch bolt 36 to move in the opposite direction. Due to this fact the position of the latch lug 55 is reversed, the notch 59 and the cam 61 being disposed toward the latch bolt 36 instead of away from it as shown in Fig. 3. Likewise the head 76 which engages the notch 59 is disposed upon the opposite side of the cross bar 38 instead of between the two branches 41 and 42. In operation the device shown in Figs. 8 and 9 is identically the same as that shown in the other figures, excepting that the latch bolt is moved in the opposite direction to engage or disengage the same.

My invention is highly advantageous in that an extremely simple and practical device is provided by means of which a door may be easily and securely fastened. The fastening device is operated by simple manipulation. My invention can be constructed at a nominal cost and the various parts thereof are so designed and arranged as to operate indefinitely. With my invention the door is fastened both at the top and the bottom and the fastening thereof is procured simultaneously through the operation of the hasp.

Changes in the specified form of my invention as herein disclosed may be made within the scope of what is claimed without departing from the spirit of my invention.

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

1. Latch mechanism for door fastening means having a hasp, said mechanism comprising a lug projecting from the door and adapted to be received by the opening in the hasp in the latched position of said hasp, said lug having a cam surface at the end thereof and a notch in its edge inwardly of said cam surface, the outer wall of said notch providing a cam surface, a latch bolt and a mounting therefor carried by said hasp, said latch bolt being T-shaped and having a

bifurcated leg, the mounting including a body formed with spaced guides thereon slidably receiving the branches of the latch bolt leg, said body being formed to provide a limit stop for abutment by the ends of the branches of said leg, each branch having an abutment thereon, a pair of compression springs, one for each branch, each spring being coiled about its respective branch and compressed between the abutment on its respective branch and the guide therefor, the head portion of the latch bolt between the branches of the leg being adapted upon the latching throw of the hasp to engage and slide along the cam surface at the end of the latch lug against the action of said springs, and under the action of the springs to enter the notch in said lug, the outer face of said latch head portion being beveled to provide a cam surface for cooperation with the outer cam wall of the notch, whereby the latch bolt is caused to hold the clasp, under tension, in its latched position, the opposite ends of the bar of the latch bolt overreaching the opposite edges of the hasp and providing dual finger pieces for unlatching the latch bolt from the notch in said lug.

2. Latch mechanism for door fastening means having a hasp, said mechanism comprising a lug projecting from the door and adapted to be received by the opening in the hasp in the latched position of said hasp, said lug having a cam surface at the end thereof and a notch in its edge inwardly of said cam surface, the outer wall of said notch providing a cam surface, a latch bolt carried by said hasp, said latch bolt being T-shaped and having a bifurcated leg, there being spaced guides on the hasp for slidably receiving the branches of the latch bolt leg and also a limit stop for abutment by the ends of the branches of said leg, each branch having an abutment thereon, a pair of compression springs, one for each branch of said leg, each spring being coiled about its respective branch and compressed between the abutment on its respective branch and the guide therefor, the head portion of the latch bolt between the branches of the leg being adapted upon the latching throw of the hasp to engage and slide along the cam surface at the end of the latch lug against the action of said springs, and under the action of the springs to enter the notch in said lug, the outer face of said latch head portion being beveled to provide a cam surface for cooperation with the outer cam wall of the notch, whereby the latch bolt is caused to hold the hasp, under tension, in its latched position, the bar of the latch bolt providing a finger-hold for unlatching the latch bolt from the notch in said lug.

3. Latch mechanism for door fastening means having a hasp, said mechanism comprising a lug projecting from the door and adapted to be received by the opening in the hasp in the latched position of said hasp, said lug having a cam surface at the end thereof and a notch in its edge inwardly of said cam surface, a latch bolt and a mounting therefor carried by said hasp, said latch bolt being T-shaped and having a bifurcated leg, the mounting including an elongated body plate fastened to the hasp and extending along the outer face thereof, said plate having opposed ears turned toward each other and forming spaced tubular guides for slidably receiving the branches of the latch bolt leg, said body having an outwardly turned portion providing a limit stop for abutment by the end of said leg, each branch of said leg having an abutment thereon,

a pair of compression springs, one for each branch, each spring being coiled about its respective branch and compressed between the abutment on its respective branch and the guide therefor, the head portion of the latch bolt between the branches of the leg being adapted upon the latching throw of the hasp to engage and slide along the cam surface at the end of the latch lug against the action of said springs, and under the action of the springs to enter the notch in said lug, the bar of the latch bolt over-reaching the opposite edges of the hasp and affording dual finger pieces for unlatching the latch bolt from said lug, with a minimum of frictional resistance.

4. Latch mechanism for door fastening means having a hasp, said mechanism comprising a lug projecting from the door and adapted to be received by the opening in the hasp in the latched position of said hasp, said lug having a cam surface at the end thereof and a notch in its edge inwardly of said cam surface, a latch bolt and a mounting therefor carried by said hasp, said latch bolt being T-shaped and having a bifurcated leg, the mounting including a body having spaced tubular guides thereon slidably receiving the branches of the latch bolt leg, said body also having a limit stop thereon for abutment by the end of said leg, each branch of said leg having an abutment thereon, a pair of compression springs, one for each of said branches, each spring being coiled about its respective branch and compressed between the abutment on its respective branch and the guide therefor, the head portion of the latch bolt between the branches of the leg being adapted upon the latching throw of the hasp to engage and slide along the cam surface at the end of the latch lug against the action of said springs, and under the

action of the springs to enter the notch in said lug, the bar of the latch bolt providing a finger piece for unlatching the latch bolt from the notch in said lug.

5. Latch mechanism for door fastening means having a hasp, said mechanism comprising a lug projecting from the door and adapted to be received by the opening in the hasp in the latched position of said hasp, said lug having a cam surface at the end thereof and a notch in its edge inwardly of said cam surface, the outer wall of said notch providing a cam surface, a latch bolt and a mounting therefor carried by said hasp, said latch bolt being T-shaped and having a bifurcated leg, the mounting including a body having spaced guides thereon slidably receiving the branches of the latch bolt leg, each branch having an abutment thereon, a pair of compression springs, one for each branch of said leg, each spring being coiled about its respective branch and compressed between the abutment on its respective branch and a portion of said mounting, the head portion of the latch bolt between the branches of the leg being adapted upon the latching throw of the hasp to engage and slide along the cam surface at the end of the latch lug against the action of said springs, and under the action of the springs to enter the notch in said lug, the outer face of said latch head portion being beveled to provide a cam surface for cooperation with the outer cam wall of the notch, whereby the latch bolt is caused to hold the hasp, under tension, in its latched position, the opposite ends of the bar of the latch bolt overreaching the edges of the hasp and affording finger pieces for unlatching the latch bolt from the notch in said lug.

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