March 19, 1940. G. D. SLUSS 2,194,408

LATCH

Filed June 29, 1938

Fig. 1.

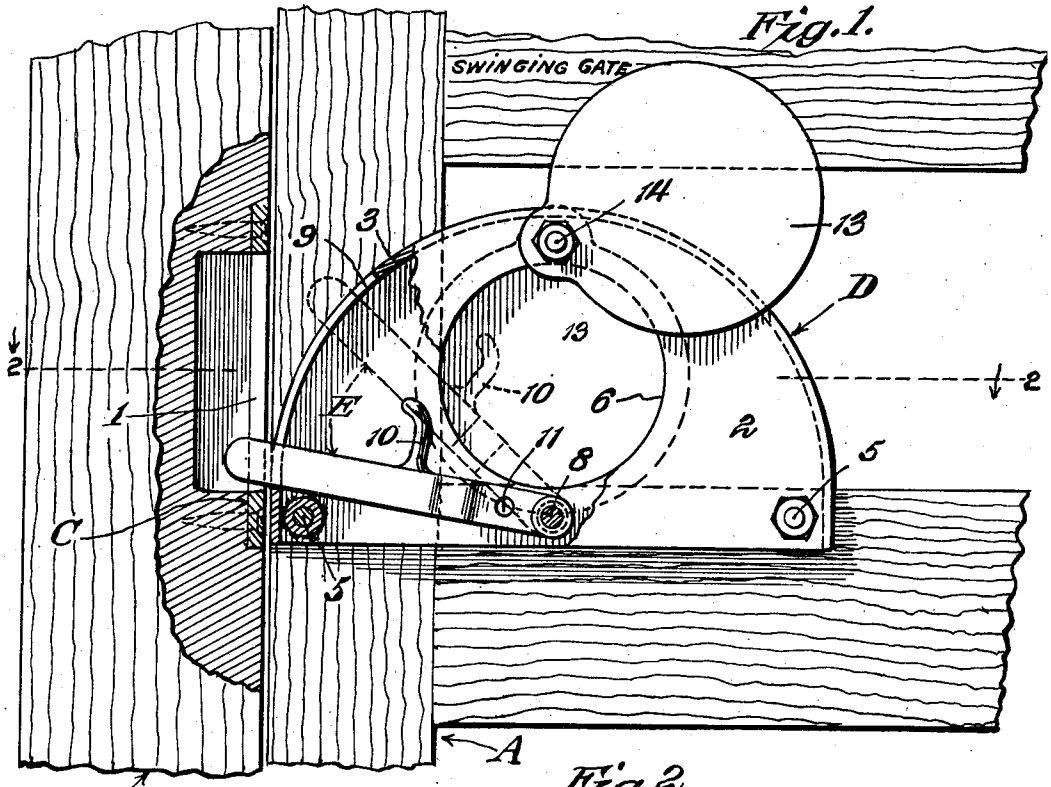


Fig. 2.

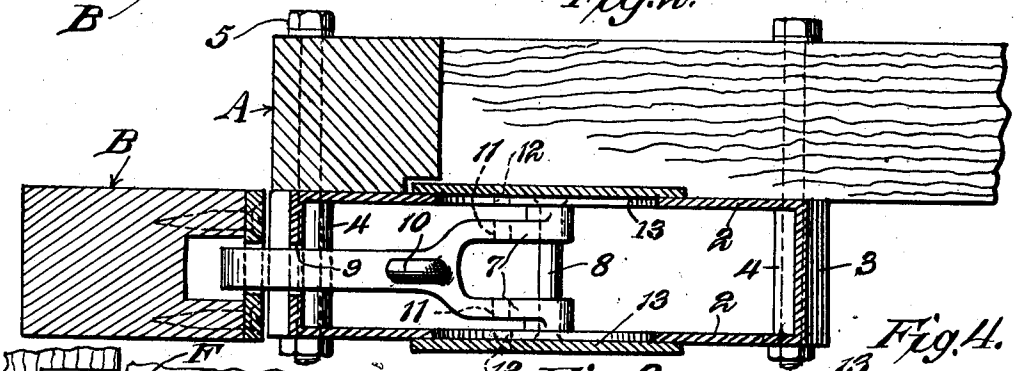


Fig. 3.

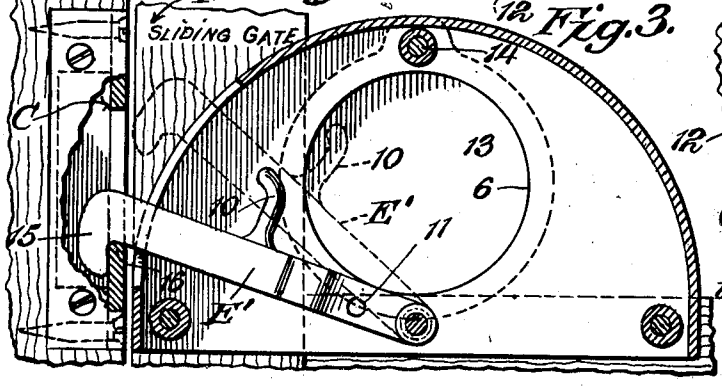
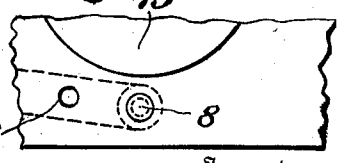


Fig. 4.



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2,194,408

LATCH

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8 Claims. (Cl. 292—136)

This invention relates to latches, and more particularly to stock gate latches.

In many instances, it is necessary to keep stock definitely and surely confined, particularly in stock yards or on breeding farms, while at the same time avoiding the necessity of a human being's using a key for operating a lock (as distinguished from a simple latch).

It is well known among stock men that many animals acquire the knack of operating conventional gate latches, enabling them to escape from or gain access to enclosures, often resulting in serious consequences. Many bulls soon learn to operate ordinary latches by rubbing the gate or latch arm, or by hooking the arm with the horn. The horse, one of the most intelligent of animals, learns to work at gate latches until eventually able to open the gate. Pets such as dogs and ponies also have been known to acquire this ability.

Although it is desirable in any case to prevent stock from escaping confinement, it is of particular importance to prevent this in the case of registered breeding animals so as to guard against incorrect mating.

An object of my invention is to provide a gate latch adapted to be manually operable with ease by human beings but being so constructed that it cannot be operated by stock.

Another object is to provide a latch of the character referred to which is manually operable by human beings without the aid of a key or other appliance.

A further object is to provide a latch of the kind referred to which is constructed or arranged to receive a lock or seal.

A still further object of the invention is to provide a latch of the character referred to which comprises few and rugged parts, which is easy to operate, and which is economical to manufacture.

Other objects will become apparent from a reading of the following description, the appended claims, and the accompanying drawing, in which:

Figure 1 is a front elevation partly in section of one form of latch constructed in accordance with my invention and adapted particularly for use in connection with swinging closures;

Figure 2 is a horizontal section taken on the line 2—2 of Figure 1;

Figure 3 is a view similar to Figure 1 but showing the invention as embodied in a latch for use with sliding closures; and

Figure 4 is a detailed fragmentary view in front elevation.

Figures 1 and 2 of the drawing show one preferred embodiment of the invention particularly adapted for use in connection with swinging gates or other closures, generally designated at A and associated with a relatively fixed enclosure frame part B. The latch mechanism includes a keeper plate generally designated C and means such as a housing D mounting a latch or arm E for movement into and out of the slot 1 in the keeper C.

In accordance with the invention, the arm E and the means for mounting it are so constructed and so cooperatively positioned and arranged that the arm will not be accessible for operation by an animal, but will be readily operable by a human being familiar with the construction of the latch. To this end the latch housing includes a plate formed with an aperture through which the operating or latch arm E may be reached by a human being but which is constructed and so disposed with reference to the latch arm E that the arm can not be reached or manipulated by an animal. In the form shown, the housing comprises two spaced semicircular side plates 2 and an intervening web 3. Studs or sleeves 4 extending between the plates 2 serve to stiffen the housing structure and are adapted to receive mounting bolts 5 for securing the housing to the movable closure member A. Each plate 2 is formed with an aperture or access opening 6.

The arm or dog E is bifurcated as at 7 to provide for pivotal mounting of the arm at spaced points on a pin 8 disposed below the apertures or access openings 6 and adjacent the bottom of the housing plates 2, the opposite end of the arm extending through a slot 9 in the web 3 and projecting beyond the housing. The latch arm E is movable to the operative or latching position in engagement with the keeper plate C as shown in full lines in Figure 1, and may be moved about the pivot 8 to the unlatching or unlatched position shown in dotted lines in Figure 1.

An important feature of my invention resides in the provision of means for operating the latch arm or dog E, such means being easily reached and operated by a human being, but being inaccessible to or inoperable by an animal. In the illustrated embodiment of my invention, the operating means comprises a finger-engageable part 10 on the latch arm or dog E, the finger-engageable piece being so positioned on the arm with reference to the openings 6 that a human operator, by extending a finger in through one of the openings 6 and by crooking or bending the finger,

can grasp the finger piece 10 to swing the latch from the latched position to the dotted line or unlatched position shown in Figure 1, whereas, because of the position of the part 10, an animal, even though capable of operating ordinary or conventional gate latches, would be unable to reach the finger piece 10 to operate the latch. Preferably the arrangement is such that when the latch arm E is in its operative or latching position, the finger piece 10 is disposed outwardly beyond the margin of the access opening, thereby necessitating the crooking of the operator's finger in order to grasp the finger piece. Preferably also the finger piece projects transversely from the arm, the free end of the finger piece being directed longitudinally of the arm and away from the access opening. Thus, even though an animal might be able to reach and touch the finger piece 10 when the arm E is in its operative or full line position shown in Figure 1, it would not be possible for the animal to touch the side of the finger piece which faces toward the keeper-engaging end of the arm E, and consequently the animal could not lift or swing the arm out of engagement with the keeper.

The pivotal mounting for the arm E is so disposed with respect to the access openings 6 that the latch dog or arm must be swung from its latching position through an arc of considerable extent before the finger piece 10 passes in front of or in registration with the access openings 6, this being due to the eccentric mounting of the arm E relative to the access openings.

Preferably, the latch arm is formed with an opening or openings 11 adapted to register with openings 12 in the housing plates 2 when the arm is in latching position so as to receive a padlock or seal such as commonly is used by the Government in stock yards.

To render the operating arm E still less accessible to animals, I may provide cover plates 13 pivotally mounted on the housing as at 14 and adapted normally to cover or close the access openings 6.

The modification shown in Figure 3 is especially adapted for use in connection with sliding gates or closures, indicated generally at F. In this form the latch arm E' is formed with a nose 15 adapted to engage with a part 16 of a keeper plate C. In other respects, the parts of the latch mechanism are similar to corresponding parts of the latch construction shown in Figures 1 and 2.

It is apparent that I have provided a latch mechanism which, although easily accessible to and operable by human beings, can not be operated by animals. The compactness, ruggedness, simplicity, and dependability of my improved latch render it valuable for use in connection with all types of closures, such as farm gates, whether swinging or sliding; for commercial stock yard gates; community sales pavilion gates; on small doors for hog houses and sheep barns; for field gates located at dangerous points, such as near railroad crossings; for material yards on factory sites; in oil fields, and mining and construction camps; and near power houses and transformer banks and booster stations.

The latch as shown for the purposes of illustration embodies the invention in the preferred and practical forms, but it will be understood that various modifications may be made without departing from the invention as defined in the claims.

I claim:

1. In a latch, mounting means comprising a plate formed with an access opening of a size to accommodate freely an operator's finger; a latch arm carried by said mounting means and being movable to latching and unlatching positions, said latch arm being urged in a direction away from said opening to latching position so that an object inserted into said opening will lie in the path of opening movement of the latch, said arm having a finger-engageable part laterally disaligned with said opening, when the arm is in its latching position, as to necessitate pulling toward the opening by the operator's finger being extended through said opening and only when crooked laterally.

2. In a latch for a frame member and associated swinging closure member; a mounting means for attachment to one of said members and comprising a plate formed with an access opening; a latch arm pivotally carried on said plate and being movable to latching and unlatching positions, said latch arm being urged in a direction away from said opening to latching position so that an object inserted into said opening will lie in the path of opening movement of the latch; and a finger-engageable part on said arm engageable at a location disaligned with said opening when the arm is in latching position to necessitate pulling toward the opening in unlatching said latch arm.

3. In a latch for a frame member and associated sliding closure member; a mounting means for attachment to one of said members and comprising a plate formed with an access opening; a latch arm pivotally carried on said plate and being movable to latching and unlatching positions, said latch arm being urged in a direction away from said opening to latching position so that an object inserted into said opening will lie in the path of opening movement of the latch; a nose on said latch arm for engagement with the other member; and a finger-engageable part on said arm engageable at a location disaligned with said opening when said nose is in latching position to necessitate pulling toward the opening in unlatching said latch arm.

4. In a latch, a housing comprising spaced substantially parallel plates, one of which is provided with an access opening; a latch arm mounted between said plates for movement in a plane substantially parallel to said plates to latching and unlatching positions, said latch arm being urged in a direction away from said opening to latching position so that an object inserted into said opening will lie in the path of opening movement of the latch; and a finger-engageable part on said arm, said part being so positioned on said arm as to be disaligned with said opening in proximity to an operator's finger extended into the opening and crooked or bent laterally of the axis of the opening when the arm is in latching position to necessitate pulling toward the opening in unlatching said arm.

5. In a latch, mounting means comprising a plate formed with an access opening; a latch arm carried by said mounting means and being movable to latching and to unlatching positions; and a finger-engageable piece connected to said arm and engageable at a portion laterally disaligned with said opening when the arm is in its latching position, said finger-engageable piece projecting transversely from said arm and said portion being deflected longitudinally of the arm away from the access opening.

6. In a latch, mounting means comprising a

plate formed with an access opening; a latch arm carried by said mounting means and being movable to latching and to unlatching positions, said latch arm being urged in a direction away from said opening to latching position so that an object inserted into said opening will lie in the path of opening movement of the latch; and an object-engageable means provided on said arm disposed for pulling toward said opening by an object while the object is located in said opening to move the latch to unlatching position.

7. In a latch, a housing having a side wall, said side wall having an opening therethrough, a wall extending laterally from the side wall, the second mentioned wall curving upwardly and inwardly with respect to the opening, a latch arm in the housing completely laterally disaligned with said opening and accessible through said opening, means pivoting the arm transversely of the side wall below said opening at substantially the center of curvature of the second mentioned wall, and an upwardly extending opening in the second mentioned wall, said latch arm extending outwardly through the latter opening.

8. In a latch, a housing having a side wall, said side wall having an opening therethrough, a wall extending laterally from the side wall and upwardly and inwardly with respect to the opening, a latch arm in the housing accessible through said opening, means pivoting the arm transversely of the side wall below said opening, the second mentioned wall having an opening extending upwardly from substantially the plane of the lower extremity of the first mentioned opening in which the latch arm operates, and said arm having a finger-engaging surface thereon laterally disaligned with respect to the opening in the side wall to necessitate lifting toward said opening to unlatch the arm whereby operation of the arm merely through insertion of an object into the opening is thwarted.

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