H. HIGGIN.

CURTAIN FASTENER.

APPLICATION FILED JUNE 29, 1905.

923,523. Patented June 1, 1909.

Fig. 18.

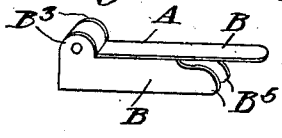


Fig. 2.

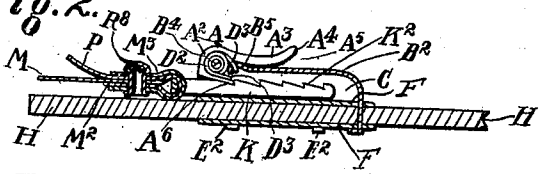


Fig. 4.

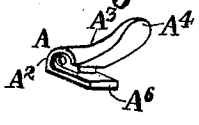


Fig. 3.

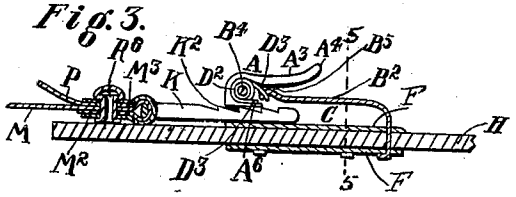


Fig. 5.

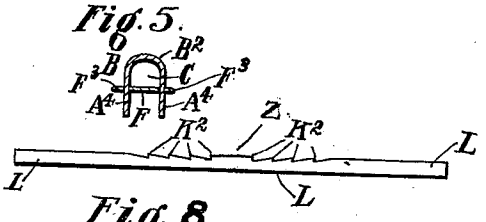


Fig. 7.

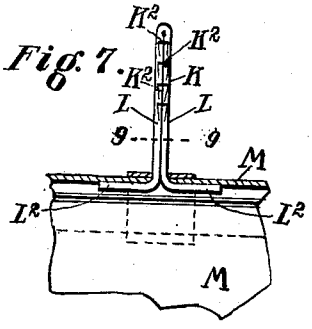


Fig. 8.

Fig. 9.



Fig. 6.



Fig. 11.

Fig. 12.

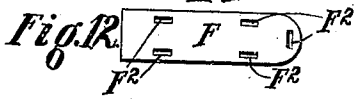


Fig. 1.

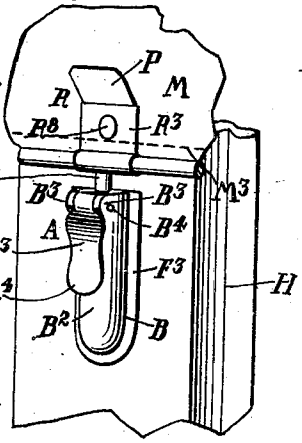


Fig. 13.

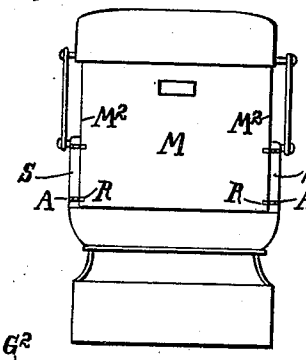


Fig. 14.

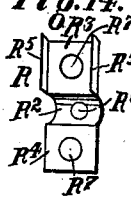


Fig. 10.

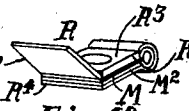


Fig. 15.

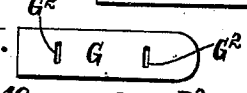


Fig. 16.

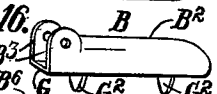
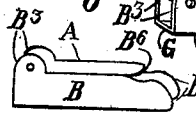


Fig. 17.



Witnesses

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UNITED STATES PATENT OFFICE.

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CURTAIN-FASTENER.

No. 923,523. Specification of Letters Patent. Patented June 1, 1909.

Application filed June 29, 1905. Serial No. 267,577.

To all whom it may concern:

Be it known that I, HENRY HIGGIN, a citizen of the United States, and a resident of the city of Newport, in the county of Campbell and State of Kentucky, have invented certain new and useful Improvements in Curtain-Fasteners, of which the following is a specification.

The several features of my invention and the various advantages resulting from their use conjointly or otherwise will be apparent from the following description and claims.

In the accompanying drawing, making a part of this application,—Figure 1 is a view in perspective of a curtain fastener illustrating my invention. In this view and in the following Figs. 2 and 3, the fastener is shown applied as in use. Fig. 2 is a view, partly in elevation and partly in central longitudinal section, of the device shown in Fig. 1. In this view and in Fig. 1, the fastener is shown locked. Fig. 3 is a view similar to that of Fig. 2, but showing the fastener unlocked. Fig. 4 is a view in perspective of the pawl. Fig. 5 represents a transverse vertical section of one part of the fastener, this section being taken in the plane of the dotted line 5, 5 of Fig. 3. Fig. 6 illustrates in perspective the preferred form of spring for always keeping down the pawl, except when the latter is raised by the handle positively operated through human agency. Fig. 7 represents, partly in section and partly in elevation, the ratchet rod and the preferred construction of it and of the accompanying devices for attaching it securely to the curtain, etc., to which it is to be secured. Fig. 8 is a side elevation of the ratchet rod, before being bent according to the preferred construction of it. Fig. 9 is a transverse section of the ratchet rod taken in the plane of the dotted line 9, 9, of Fig. 7. Fig. 10 is a view in perspective of the device for securing the ratchet rod to the curtain, and also of the tang or pull piece, which is combined with this securing device. Figs. 11 and 12 are views showing the preferred means for securing the shell (support) of the fastener to the wood, or other foundation that is to carry it. Fig. 13 is a view of a buggy back and top and of my improved fastener applied thereto. The preferred mode of applying it to the buggy top curtain and back stays is here shown. Fig. 14 is a view in perspective of the device for securing the ratchet rod to the curtain before it has been bent and riveted in position. Figs. 15 and 16 illustrate a modification of the means for securing the shell to the foundation. Fig. 17 shows a modified form of a feature of my device. Fig. 18 shows another modification of a feature of my invention.

In the drawings, similar characters indicate corresponding parts.

I will now proceed to describe my invention in detail. One member of the fastener contains the pawl or latch, a spring for automatically moving it into engagement with the ratchet rod, a suitable support for these, and devices for securing it firmly to the foundation part which is to carry it. A indicates the latch or pawl. This consists of a pivotal or axial part A^2, a handle A^3 and a tooth or lug A^6. B is the support of the pawl and of its mechanism and for the better protection of the pawl, and its spring, this support has a roof B^2. The support at its forward end has provisions whereby the pawl A may be pivoted to it. These forward end pieces are preferably formed as shown, and are respectively indicated by the characters B^3, B^3. A pivot B^4, held in these pieces B^3, B^3, passes through the pivotal part A^2 of the pawl, and thus pivots the pawl in a suitable manner. When the handle A^3 of the pawl lies down flat upon the roof B^2 of the support B, the tooth or lug A^6 is inclined downward as shown in Fig. 2. This tooth is then in position to engage a tooth of the ratchet rod. With this pawl, I combine a suitable spring for keeping the tooth always down, except when lifted by human agency operating the handle. This spring D is for the most part located within the space situated between the tooth A^6 of the pawl A and the curved or pivotal portion A^2 of this pawl. The preferred construction of this spring consists as follows: This spring D, although it consists of two acting spring members D^2, D^2, is preferably in one piece, the two members being united at the rear by the union end portion D^4. The forward ends D^3, D^3 of this spring engage the tooth A^6. In its preferred construction, each spring member D^2 is a coiled one, and these members are respectively located around the axle or pivot B^4 at the respective ends of the part A^2 of the pawl A. The ends of the part A^2 of the pawl A are annularly recessed or diminished, so that there is abundant room at the end of

the part A^3 and between it and the adjacent side B^3 of the support B, for the spring member D^2. I provide a hook B^5 or other similar suitable means for engaging the spring, at the union end portion D^4. This hook B^5 is fixed to the support B and is usually integral therewith. In practice, the spring D hooked to the hook B^4 divides, and each spring member D^2 encircles the pivot B^4 at its adjacent end of the part A^2. The free end D^3 of each spring member bears against the tooth A^6, expecially near the free edge of the latter. The spring D is always strained, and continually tends to move down the free end of the tooth, and to cause it to engage with a tooth of the ratchet rod K, when the latter is within the support B.

The rear (free) end A^4 of the handle A^3 is somewhat curved up away from the support, so that the tip of the finger or of the thumb may be put beneath this end A^4, and the handle thereby be easily lifted. The space between the free end of the handle and the support is indicated by the character A^5, see Fig. 2. A modified construction to secure the same advantage in the initial operation of lifting the handle is illustrated in Fig. 17. There the rear portion B^5 of the pawl support is depressed, and leaves the space B^6 between the support B and the free end of the pawl handle A^3. The handle might project beyond the rear end of the pawl support as shown in Fig. 18, in which construction this end could be readily grasped. In such event, no special space would have to be provided. But the last named construction is not desirable, as the free end of the pawl thus projecting beyond the pawl support, is liable to be caught by outside things, and injured, or be lifted and the curtain or other thing fastened to be disengaged at a time when it should be fastened.

The preferred construction of the shell or support B is illustrated. The preferred material of it is sheet metal struck or stamped into shape. In securing the shell to its proper foundation for use, I provide each lower edge of the shell or support B with prongs or clips E^2, preferably triangularly shaped. These prongs or clips E^2 pass through openings in the foundation piece H, and the points projecting beyond this piece H are bent down. Usually it will be desirable to have a plate F present between the shell B and the foundation piece H. In such event, the plate will have perforations F^2, through which the respective prongs E^2 of the shell B respectively pass first, before passing into and through the piece H. But this piece F may be omitted.

Among the various other modes of securing the shell to the foundation, I have shown that one illustrated in Figs. 15 and 16. Herein is a plate G, provided with prongs G^2 formed out of it. The plate is secured to the shell B by soldering it or riveting it thereto. The plate rests on the foundation H and the prongs G^2 pass down through and beyond the piece H and are then bent so as to clamp the plate G and its shell B securely to the piece H.

The complementary part of the fastener consists as follows: Broadly speaking, it consists of a rod having teeth, each adapted in turn to engage the tooth A^6 of the pawl A. The preferred construction of this ratchet rod K is as follows: A wire or rod L, flat on one side L^2 and semi-circular on the other side L^3, is cut of the desired length. On each side of its midlength and in the top of this rod, the teeth K^2 are formed. The rod is now bent at its midlength Z, and the two halves are brought side by side into contact, as indicated in Fig. 7, and constitute a compound rod. The free end portions L^2, L^2 of this rod L are bent apart and at right angles to the remainder of the rod L, which forms the ratchet rod K having teeth K^2, and the retaining arms L^2, L^2. The curtain, or the like, is now made fast to the ratchet rod as follows: The edge of the curtain M is lapped over the arms L^2, L^2, the curtain being cut where the ratchet rod K is present. These edges M^2 are now sewed at M^3 to the opposing part of the curtain. I further provide a very advantageous device for holding the tang or pull piece P to the curtain or ratchet rod so that when the pawl is disengaged from the ratchet rod K, the latter can be readily withdrawn from the shell B. This device consists of the piece R having the concaved central part R^2, and the two parts R^3 and R^4 complementary to one another. The central part R^2 has a hole R^6, through which the ratchet rod K extends. Each of the parts R^3 and R^4 has a hole R^7. After the arms L^2 of the ratchet rod K have been located within the edge portion of the curtain, the piece R is applied. In this case, the ratchet rod K is passed through the hole R^6. The parts R^3 and R^4 are then bent over the rods L^2 and together and are brought close to the curtain M. The forward part of the tang or pull piece P usually of leather or flexible material, is placed between the part R^3 and the curtain. A rivet R^8 is passed through the holes R^7, and of course, at the same time through the pull piece P and is headed (set) thereby securing these parts firmly together.

I provide the side edges of the part R^3 each with an edge flange R^5. The pull piece P is placed between these flanges R^5, R^5 and by them is prevented from moving sidewise out of place.

It should be remarked that when the piece R just described is present, no sewing will be necessary to hold the ratchet rod to the curtain although such sewing is obviously desirable.

The mode in which my invention operates is as follows:—The support B, containing the spring pawl, is duly fastened to the founda-

tion adapted to receive it, and the ratchet rod is connected to that other part which the fastener is to hold. For the more easy understanding of such attachment, I will describe the attachments of the parts and their operation relative to a carriage curtain. The support B and its pawl and spring, and so forth, are secured to the back stay S of the vehicle top. The ratchet rod K is connected with the curtain M at its edge. The preferred modes of making these respective connections having been already described, further mention thereof here is not necessary.

To connect the curtain to the back-stay, the ratchet rod K is pushed into the hole C of the shell or support B. The rod K as it is pushed in, lifts the tooth A^6, thus pressing up the spring D, and passes onward, allows the tooth to drop. After the rod K has been thus introduced, a tooth K^2 of the ratchet rod engages the pawl tooth A^6. The ratchet rod K cannot now be withdrawn until the pawl tooth A^6 is lifted (moved) out of engagement with the tooth or teeth K^2 of the ratchet rod K. This lifting of the pawl tooth A^6 is accomplished by means of the handle A^3, A^4. The latter is moved from the position shown in Figs. 1 and 2, that is to say, moved away from the support B to the position shown in Fig. 3. The ratchet rod K is now free from the tooth A^6 and can be withdrawn. The curtain after being disconnected on each side (for the arrangement of fasteners is present on each side), can be and, of course, usually will be rolled up and secured at the top of the buggy top, in any well known manner.

It is to be noted that the several teeth upon the ratchet rod allow the latter to be connected at various points on that rod to the tooth A^6. This is advantageous, first, on account of the various widths of curtains. Secondly, because heat and moisture often vary the distance to be taken up by the fastener. Thirdly, because the curtain itself in many cases does, in the lapse of time, stretch.

Attention is also called to the fact that pressure upon the handle A^3, A^4 of the pawl toward the support B, has no effect upon the tooth A^6, and does not have any tendency to unlock the tooth A^6 from the ratchet rod K.

Inasmuch as every pressure to which the fastener is subjected, in ordinary use, is such as to press this handle against the support, there is no liability of this fastener becoming unlocked except through human agency. The latter easily and quickly unlocks the fastener by lifting the handle A^3, A^4 as afore specified.

The special construction of the ratchet rod and its accompaniments whereby it is connected to the curtain are easy of manufacture, economic of cost, exceedingly useful in good results.

What I claim as new, and of my invention and desire to secure by Letters Patent, is:—

1. In a pawl and ratchet combination, a pawl handle rigidly connected to the pawl, the pivot of the pawl being located at the junction of the pawl and of the handle, the pawl and the handle extending in the same general direction from the pivot, and a spring embracing the pivot and bearing against the pawl, substantially as and for the purposes specified.

2. In a pawl and ratchet combination, a frame, a pawl handle rigidly connected to the pawl, a pivot at the junction of the handle and of the pawl, the pawl and handle extending from the pivot in the same general direction, the pivot being between the handle and the pawl, and a spring embracing the pivot of the pawl and secured to the frame beneath the handle, substantially as and for the purposes specified.

3. In a fastening device, a pawl support B, having an interior space, a roof, pivot cheeks B^3, pivot B^4, means for connecting it to a foundation, pawl A, having part A^2, pivoted at B^4 to the pawl support, tooth A^6 of the pawl extending toward the rear of the pawl, spring D having curved members D^2 united at D^4, and having free end portions D^3 pressing against the pawl tooth A^6, the pawl support having a hook engaging the union part D^4 of the spring, the pawl and pawl support adapted for a ratchet rod or toothed piece engaging said tooth, substantially as and for the purposes specified.

4. In a fastening device, a pawl support B, having an interior space, a roof, pivot cheeks B^3, pivot B^4, means for connecting it to a foundation, pawl A, having part A^2, pivoted at B^4 to the pawl support, the handle when the pawl is in use lying close to the pawl support, the latter and the handle constructed so that a space shall be present between the free end of the handle and the pawl support, tooth A^6 of the pawl extending toward the rear of the pawl, spring D having curved members D^2 united at D^4, and having free end portions D^3 pressing against the pawl tooth A^6, the pawl support having a hook engaging the union part of the spring, the pawl and pawl support adapted for a ratchet rod or toothed piece engaging said tooth, substantially as and for the purposes specified.

5. In a fastening device, wherein a pawl is adapted to engage a toothed rod, the toothed rod consisting of a rod flat on one side, and bent so that the two halves run closely parallel and parallel for a distance from their junction bend, these halves being provided with a ratchet or toothed face, substantially as and for the purposes specified.

6. In a fastening device, wherein a pawl is adapted to engage a toothed rod, the

toothed rod consisting of a rod flat on one side, and bent so that the two halves come into contact for a distance from their junction bend, this portion being provided with a ratchet or toothed face, and means for connecting this rod to the foundation with which the rod is to connect the pawl, substantially as and for the purposes specified.

7. In a fastening device, wherein a pawl is adapted to engage a toothed rod, the toothed rod consisting of a rod doubled on itself for a given distance from its junction bend, and forming one compound rod, the remaining part of each branch of the rod being bent away from the other, and at right angles to the compound rod, this latter being provided with a tooth or ratchet surface, the angulated branches of the rod being secured to that article which is to be connected to the opposite or complementary article having the pawl tooth, substantially as and for the purpose specified.

8. In a fastening device, wherein a pawl is adapted to engage a toothed rod, the toothed rod consisting of a rod flat on one side, and bent so that the two halves come into contact for a distance from their junction bend, this portion being provided with a ratchet or tooth face, and a curtain or other flexible fabric, and means for connecting this fabric to said rod, and the tang holding device consisting of a piece of thin metal concave across the central portion of it, and provided at each edge of this central portion with a flap, the central portion having an opening through which the ratchet rod passes, the two flaps bent over and lying on opposite sides of the flexible fabric, a tang interposed between one of these flaps and the flexible fabric, the tang, the flexible fabric and the flaps being secured together, substantially as and for the purposes specified.

9. In a fastening device, a pawl support, a pawl combined therewith, a ratchet or toothed rod with which the pawl is adapted to engage, a flexible fabric connected to the said rod, a tang, the tang clasp consisting of the piece R concaved at R^2 and having the wing or end portions R^3 and R^4, the piece R^3 having the side flanges R^5, the clasp holding between its portions R^3 and R^4 the flexible fabric, the tang located between the flanges R^5, R^5, the tang, clasp and fabric secured together, substantially as and for the purposes specified.

10. In a fastening device, a pawl support, a pawl combined therewith, a ratchet or toothed rod with which the pawl is adapted to engage, this rod consisting of a rod L doubled on itself by being bent at Z, the two bent portions being in contact and forming the rod K, provided with means for engaging the pawl, the rear end portions of this rod L being bent at right angles to the rod K, a flexible fabric bent over these, a clasp consisting of the piece R, having convexity R^2, provided with opening R^6 through which extends the rod K, a portion of the angulated ends L^2, L^2 being embraced by this portion R^2, one end portion R^3 of the clasp having the side flanges R^5, the tang lying between the flanges and between the flexible fabric and the end part R^3, and means for securing together the clasp, tang and fabric, substantially as and for the purposes specified.

11. In a fastening device, a ratchet connected to one of the things to be fastened, a pawl support consisting of a shell, provided with prongs, a plate perforated, through the perforations of which the prongs extend, a foundation through which the prongs extend, the pawl, having a handle, extending rearward and having a pivot portion forward, pivoted between the forward cheeks of the pawl support, the tooth of the pawl extending rearward from the pivot the free end of the tooth of this pawl being opposite the pawl handle, a spring connected to the pawl support and pressing against this tooth, to automatically depress it, substantially as and for the purposes specified.

12. In a pawl and ratchet combination, a frame, a pawl handle rigidly connected to the pawl, a pivot at the junction of the handle and the pawl, a spring embracing the pivot and having one end bearing against the pawl and the opposite end connected to the frame beneath the pawl handle, substantially as and for the purposes specified.

13. In a pawl and ratchet combination, a frame, a pawl handle rigidly connected to the pawl, a pivot at the junction of the handle and the pawl, a spring held at said junction, and having one end bearing against the pawl and the opposite end connected to the adjacent end of the frame, substantially as and for the purposes specified.

HENRY HIGGIN.

Attest:
JOHN C. MORRISON,
K. SMITH.