G. A. WOODMAN.

JOURNAL BOX.

APPLICATION FILED JULY 23, 1909.

956,661. **Patented May 3, 1910.**

3 SHEETS—SHEET 1.

Fig. 1

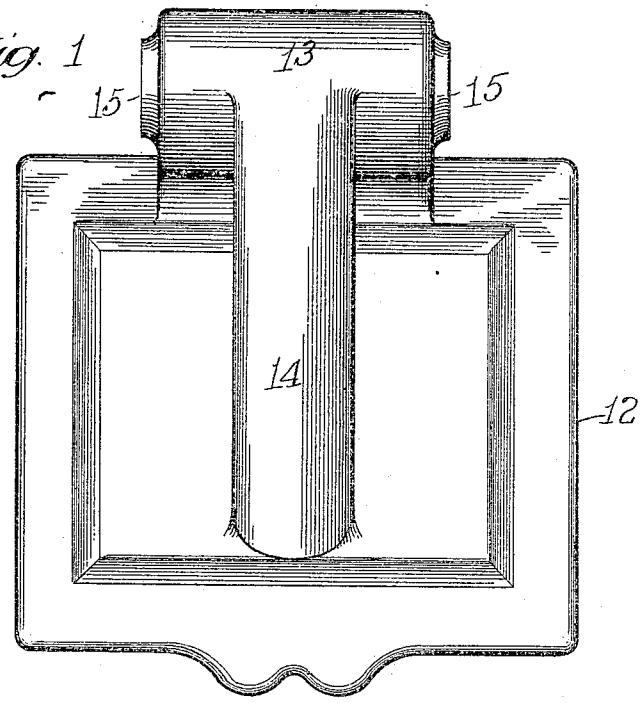
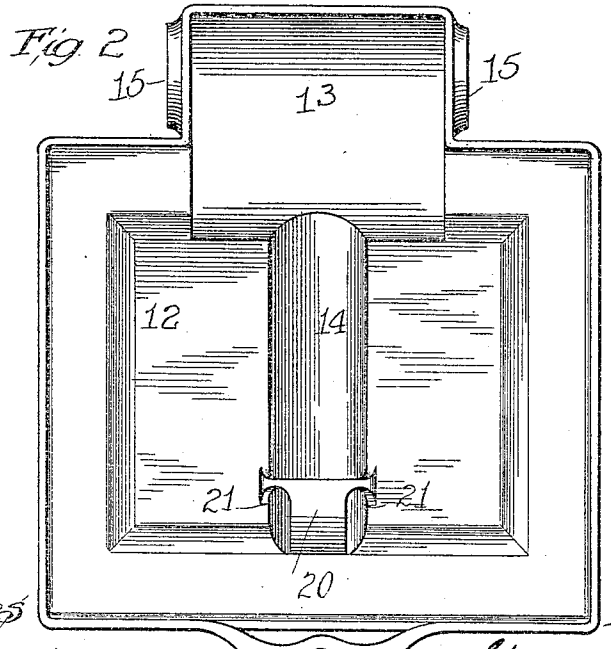


Fig. 2



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3 SHEETS—SHEET 2.

Fig. 4

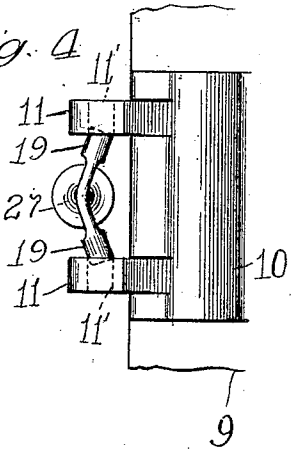

Fig. 5

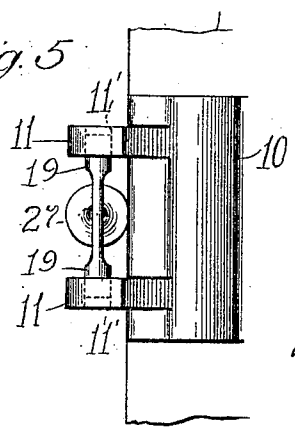

Fig. 3

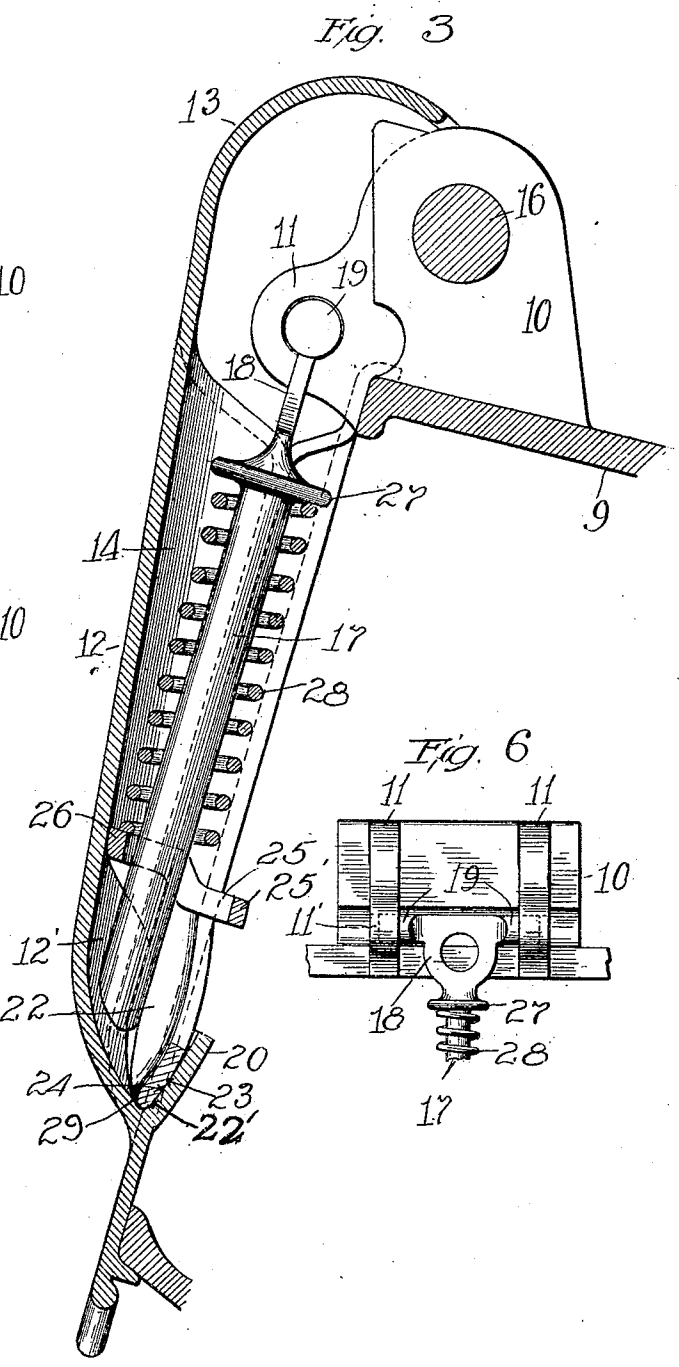

Fig. 6

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3 SHEETS—SHEET 3.

Fig. 7

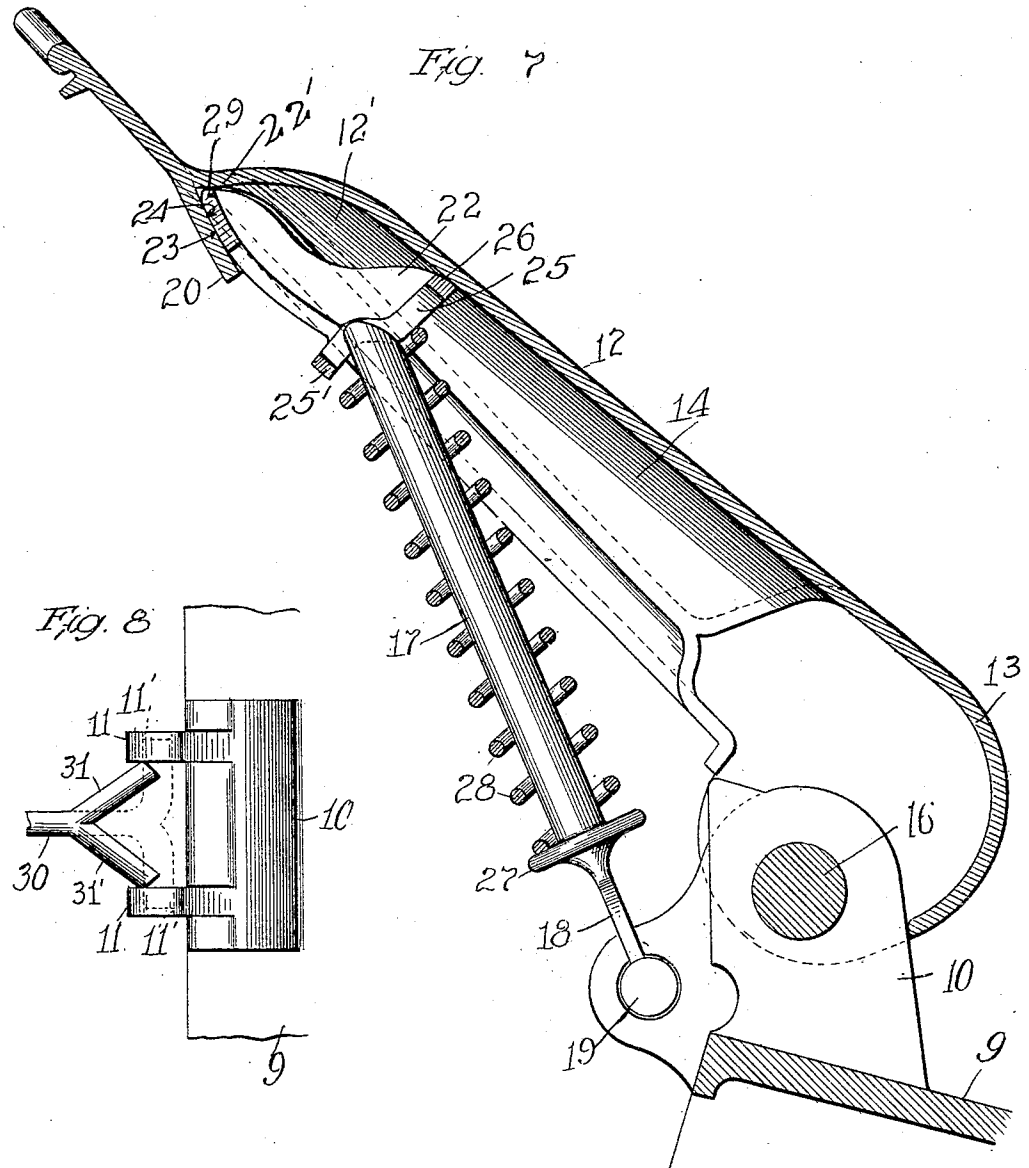

Fig. 8

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UNITED STATES PATENT OFFICE.

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JOURNAL-BOX.

956,661. Specification of Letters Patent. Patented May 3, 1910.

Application filed July 23, 1909. Serial No. 509,094.

To all whom it may concern:

Be it known that I, GEORGE A. WOODMAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Journal-Boxes, of which the following is a specification.

The object of this invention is to provide a car axle box with means of simple and inexpensive but substantial construction for holding the lid in open position, for automatically swinging the lid to closed position when it is released from open position, and for yieldingly but tightly locking the lid against the box to form an effective closure and exclude dirt and to prevent rattling when the car is traveling.

A further object of the invention is to apply the pressure of the spring which is employed for holding the lid in open or closed positions, and for automatically swinging the lid, to a point closely adjacent to the lower edge of the lid and thereby utilize to the best advantage the power of the spring. And a further object of the invention is to simplify the construction and reduce the weight of parts and to provide a thimble for the lower end of the spring which is capable of movement, during the movement of the lid, to avoid strains and adjust itself to the pressure of the spring, but which is not required to slide or move to any material extent, for the purpose of applying the pressure of the spring inwardly to hold the lid tight against the box in closed position and outwardly to hold the lid in open position.

The invention consists of certain new and useful improvements on the invention forming the subject matter of my application No. 496,007, filed May 14, 1909, which improve the construction and operation and increase the efficiency thereof.

In the accompanying drawings Figure 1 is a front view of the lid. Fig. 2 is a back view of the lid. Fig. 3 is an enlarged sectional view showing the lid in closed position on the box. Fig. 4 is a detail top plan view showing the manner of connecting the spring pin with the box. Fig. 5 is a similar view showing the spring pin engaged with the box. Fig. 6 is a detail front view showing the pin engaged with the box. Fig. 7 is an enlarged sectional view showing the lid in open position. Fig. 8 is a view similar to Fig. 4 illustrating another manner of engaging the spring pin with the box.

Referring to the drawings, 9 designates a car axle box which may be of any suitable construction and which is provided with an upstanding lug 10 and two ears 11 projecting forwardly from said lug. The lid 12 has a hood 13 for the lug and ears on the box and a spring housing 14 below the hood and extending approximately to the lower edge of the lid. The hood has ends 15 and these ends and the lug 10 are bored to receive a pintle 16 which hinges the lid to the box in the usual manner.

A pin 17 is pivotally engaged with the ears 11 and hangs down wholly within the housing 14 substantially parallel with the lid when in closed position. The pin may be engaged with the ears in any suitable manner but I prefer to provide it at the upper end with a flattened head 18 and two trunnions 19 projecting outwardly therefrom to work in openings 11′ in the ears. In practice the head is made bent or curved sufficiently between the trunnions to enable the head to be arranged between the ears and with the trunnions in the openings 11′ in the manner indicated in Fig. 4, after which the head is straightened out by a hammer blow thereon into the position shown in Figs. 5 and 6. Thus the trunnions are forced into operative position in said openings and the pin is permanently engaged with the ears in a very simple and effective manner so that it will swing freely as required and without liability of becoming disengaged in service.

I provide a keeper in the form of a short upwardly and inwardly projecting lip 20 on the inner side of the lid at the bottom of the housing adjacent to the lower edge of the lid to form a pocket 12′, and I prefer to cast this keeper integral with the lid as shown. This keeper is curved in form and has one or more openings 21 at its bottom to discharge any cinders or other foreign matter that may fall therein (Fig. 2).

A thimble or spring seat 22 is supported by the keeper in place on the lid in the pocket between the keeper and the housing and it has a convex surface 23 to engage the concave surface 24 of the housing. The thimble is made in skeleton form and it has an opening 25 to receive the lower end of

the pin 17 and a guard 25′ behind the pin to prevent disengagement of the pin from the thimble when the lid is opened. I prefer to make the thimble somewhat higher at 26 in front of than behind the pin, and I may provide the thimble with an opening to reduce its weight and permit the escape of any dirt that may fall therein. A shoulder 27 is provided on the pin just below the head 18. A coil spring 28 is arranged on the pin between the shoulder 27 and the thimble with its lower end in engagement with the high point 26 of the thimble, as shown in Fig. 3. The thimble is a separate part from the lid and pin and entirely independent of the box, and it is slipped into place in the pocket 12′ before the latter is engaged with the box. The thimble is held firmly in its seat against the keeper by the pressure of the spring and in the operation of opening and closing the lid the thimble does not slide up and down on the lid to any material extent but merely rocks or moves slightly back and forth in its pocket to transmit the force of the spring forwardly or rearwardly. Therefore, I make the thimble long enough to engage the bottom of the housing at 29 at the base of the keeper, as shown in Figs. 3 and 7.

In practice the pin is first engaged with the ears, the toe 22′ of the thimble is inserted in the pocket, the spring is put on the pin and then the lid is placed in position to receive the pintle 16. Thus the parts are assembled in a very simple and expeditious manner and when once assembled they are not liable to become separated or disarranged in service and can only be taken apart by first removing the pintle. The spring is under compression when the lid is closed and its pressure is transmitted through the thimble from the high point 26 to the back of the toe 22′ thereof and against the keeper at the lower part of the lid. Thus the force of the spring is utilized in the most effective manner to hold the lid tight against the box in closed position thereby excluding dirt from the box and preventing rattling when the car is traveling.

When the lid is opened the lower end of the spring slides rearward on the thimble and the effect is to transmit the force of the spring through the thimble and force its toe forwardly against the housing instead of rearwardly against the keeper as when the lid is closed and in this way the force of the spring is most effectively applied to hold the lid open. The lid may be closed by forcing it down for a short distance until the action of the spring is sufficient to automatically close it and this is accomplished quickly and effectively as heretofore described.

In the closed position of the lid the pin extends in a direction parallel or substantially parallel with the front of the box and entirely outside thereof, as shown in Fig. 3, and it is made sufficiently long so that it will not become disengaged from the thimble when the lid is thrown to open position, as shown in Fig. 7. The guard 25′ prevents any chance of the pin slipping out of the thimble. In the open position of the lid the spring is somewhat distended but it is at all times under sufficient compression to hold the lid in open position or in closed position.

Instead of engaging the pin with the ears in the manner shown in Figs. 4—6 I may provide the pin 30 at its upper end with a fork, the branches 31 of which are initially straight, as shown in full lines in Fig. 8. With this construction the pin is arranged with the ends of the branches opposite the openings in the ears and is then driven in with sufficient force to bend the branches and drive them into the openings to the position shown in broken lines in Fig. 8. In this manner the pin is permanently engaged with the ears on the box so that it can swing freely with the lid as required and in the manner heretofore described.

The thimble is made a separate part and fitted loosely in the pocket therefor near the bottom of the lid so that it may rock or move slightly during the opening and closing movements of the lid without sliding up and down relative to the lid. This movement is sufficient to prevent unequal strains on the parts and to enable the thimble to adjust itself to transmit the force of the spring forwardly or rearwardly as required, but it is not so great as to cause excessive wear of the toe and lip. When the lid is in closed position the spring bears on the high point at the front of the thimble and the pressure thereof is exerted rearwardly through the lowest point of the thimble to the lid at the bottom of the pocket; when the lid is in open position the spring is shifted rearwardly on the thimble and the pressure of the spring is exerted through the lowest point of the thimble forwardly toward the front of the lid at the bottom of the pocket. In both cases the pressure of the spring is applied through the thimble to the lid at the bottom of the pocket which is adjacent to the bottom of the lid and approximately at the lower edge of the opening in the box.

What I claim and desire to secure by Letters Patent is:

1. The combination of a car axle box having a lug and ears projecting forwardly beyond the front of the box, a lid hinged to the lug and having a hood for the lug, a housing below the hood extending approximately to the lower edge of the lid and a pocket at the lower end of the housing, a pin pivotally engaged with the ears and arranged in the housing substantially parallel with the front of the box when the lid is closed, a loose thimble having its lower end

seated in said pocket and engaged with said pin, and a spring on the pin arranged to bear on the thimble and force the lower end of the thimble rearwardly when the lid is closed and forwardly when the lid is open, thereby applying the pressure of the spring to the lid in open and closed positions adjacent to its lower edge.

2. The combination of a car axle box having a lug and ears projecting forwardly beyond the front of the box, a lid hinged to the lug and having a hood for the lug and a housing below the hood extending approximately to the lower edge of the lid, an upwardly extending lip on the inner side of the lid at the lower end of the housing to form a pocket, a pin pivotally engaged with the ears and arranged in the housing substantially parallel with the front of the box when the lid is closed, a loose thimble having its lower end seated in said pocket and engaged with said lip, said thimble having an opening for the pin, and a spring on the pin arranged to bear on the thimble and force the lower end of the thimble rearwardly against the lip when the lid is closed and forwardly against the lower end of the housing when the lid is open, thereby applying the pressure of the spring to the lid in open and closed positions adjacent to its lower edge.

3. The combination of a car axle box having a lug and ears projecting forwardly beyond the front of the box, a lid hinged to the lug and having a hood for the lug and a housing below the hood extending approximately to the lower edge of the lid, an upwardly extending lip on the lid at the lower end of the housing to form a pocket, a pin pivotally engaged with the ears and arranged in the housing substantially parallel with the front of the box when the lid is closed, a loose skeleton thimble separate from and independent of the box and having a toe at its lower end seated in said pocket against the lip, and a spring on the pin arranged to bear on the thimble in front of the pin to force the toe of the thimble rearwardly against the lip when the lid is closed and forwardly against the housing when the lid is open, thereby applying the pressure of the spring to the lid in open and closed positions adjacent to its lower edge.

4. The combination of a car axle box having a lug and ears projecting forwardly beyond the front of the box, a lid hinged to the lug and having a hood for the lug and a housing below the hood extending approximately to the lower edge of the lid, an upwardly extending lip on the lid at the lower end of the housing to form a pocket, a pin pivotally engaged with the ears and arranged in the housing substantially parallel with the front of the box when the lid is closed, a loose skeleton thimble separate from and independent of the box and having a toe at its lower end seated in said pocket against the lip, said lip having a concave surface and said toe having a convex surface engaging said concave surface, said thimble being higher in front of the pin than behind the pin and having a guard behind the pin to prevent disengagement thereof from the thimble, and a spring on the pin arranged to bear on the high point of the thimble in front of the pin and force the toe of the thimble rearwardly against the lip when the lid is closed and forwardly against the housing when the lid is open, thereby applying the pressure of the spring to the lid in open and closed positions adjacent to its lower edge.

5. The combination of a car axle box having a lug and ears projecting forwardly beyond the front of the box, a lid hinged to the lug and having a hood for the lug and a housing below the hood, said ears having openings therein, a pin having a flat head and trunnions projecting outwardly from said head, said head being inwardly bent or curved to permit the trunnions to be arranged in position opposite the openings in the ears and adapted to be straightened out to enter the openings in said trunnions, a thimble carried by the lid at the lower end of the housing, and a spring arranged on said pin to press upon said thimble.

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