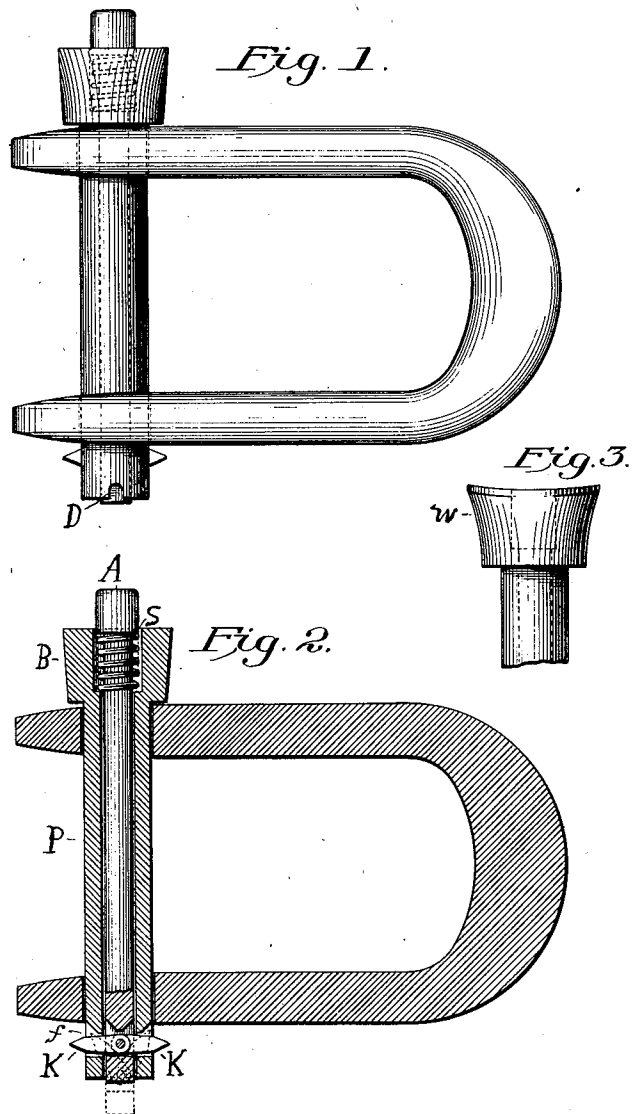


(No Model.)

W. P. KIMBRELL.
CLEVIS PIN.

No. 575,032.

Patented Jan. 12, 1897.



Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM PRESTON KIMBRELL, OF BEAVER CITY, NEBRASKA.

CLEVIS-PIN.

SPECIFICATION forming part of Letters Patent No. 575,032, dated January 12, 1897.

Application filed June 27, 1894. Serial No. 515,896. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM PRESTON KIMBRELL, a citizen of the United States, residing near Beaver City, in the county of Furnas and State of Nebraska, have invented a new and useful Clevis-Pin, of which the following is a specification.

My invention relates to improvements in clevis-pins or key-pins to be used in clevises or in any machinery where keyed pins are used; and the objects in my improvement are, first, to provide a pin with a key that is self-acting and easily operated; second, to provide a pin with keys that cannot lose out by any jarring of machinery or clevis in which it is used; third, to provide a pin that can be quickly and easily put in place or taken out of place without stopping to key or unkey it. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a clevis and clevis-pin, showing my invention in operative locking position. Fig. 2 is a vertical longitudinal section through Fig. 1, showing the unlocked position of my improved clevis-pin in dotted lines. Fig. 3 is a detail view in elevation of the upper portion of the clevis-pin, taken transversely to Fig. 1.

Similar letters refer to similar parts throughout the several views.

P designates a pin of the ordinary cylindrical form of suitable length and size for use in clevises or such other places as desired. Pin P is tubular throughout its length to receive the inside bolt or plunger A, which reciprocates loosely therein and is held normally in raised position by means of compression-spring S. This spring S is a coiled spring which surrounds the upper end of plunger A, inclosed in an annular enlargement of the tube in head B of pin P, and rests at its lower end against a shoulder formed by the lower end wall of said enlargement or spring-chamber and bears at its upper end against the thumb-rest or head of bolt A. This thumb-rest extends above the top of head B and is of a size to loosely fit the spring-chamber when depressed within the same.

Plunger A is slotted near its lower end to receive one or more keys K, which are pivoted at their inner ends on pivot-pin *f*, passed

transversely through the middle of said slot. This slot has a straight horizontal lower wall or bottom and at its top flares obliquely upward from its central portion, so as to allow said keys K to swing therein, as presently described. Normally aligned with the respective ends of the plunger-slot are perforations through the adjacent walls of the tubular pin P, which are likewise provided with oblique top and horizontal bottom to correspond to said parts of said slot. The outer ends of the keys K are beveled on their top and bottom sides to permit of more ready operation within said perforations, and also so that said bottom beveled side may lie within the outer surface of pin P when in retracted or depressed relation thereto, as shown in dotted lines in Fig. 2.

A notch D is provided in the lower edge of pin P, suitably aligned with the pivot-holes for pin *f*, through which pin *f* is inserted to support the keys K in assembled position. Head B of pin P is outwardly flared at its top to form gripping-walls W on two opposite sides to prevent the fingers slipping when the thumb depresses plunger A.

Having now described the details of my invention, I will describe the assembling of the parts and the operation thereof.

The parts are assembled by inserting spring S in the spring-chamber and then inserting plunger A therethrough and through the tubular pin P, compressing the spring until the pivot-hole at its lower end comes opposite notch D. The keys are then dropped through the perforations in pin P into the slot therefor in the plunger, and pivot-pin *f* is inserted through the notch D into the plunger to retain said keys. My improved clevis-pin is now complete.

The operation is simple. The pin may simply be forced into position, the outer ends of key K yielding upwardly by reason of their beveled bottom edges, or they may be drawn in out of the way by depressing the plunger. To remove the clevis-pin, the fingers are clasped under walls W and the thumb pressed down on the head of plunger A, which withdraws keys K from engagement with the under side of the clevis, as shown by dotted lines in Fig. 2, and the pin is then free to be withdrawn. Thus it appears that the device is

always normally in locked position, the parts are always together, there is no key or cotter to drop out or to be jarred loose, and the entire device occupies no more space than the ordinary pin. One key is sufficient, although two will generally be preferable, and several more may be used for certain purposes.

Changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

What I claim is—

1. The combination of a clevis, and a clevis-pin comprising a tubular pin arranged in openings of the clevis, provided at its top with a shoulder to engage the upper portion thereof and having at its lower end a slot located beyond the lower side of the clevis, a key arranged in the slot, projecting therefrom and engaging the bottom of the clevis to lock the clevis-pin therein, a plunger arranged within the tubular pin and pivoted to and carrying the key, and a spring engaging the plunger and holding the key normally extended, substantially as described.

2. The combination of a clevis, and a clevis-pin comprising a tubular pin arranged in openings of the clevis, and provided at its top with a shoulder to engage the upper portion thereof and having at its lower end a slot located beyond the lower side of the clevis, a key arranged in the slot and projecting therefrom and adapted to engage the bottom of the clevis to lock the clevis-pin therein, a depressible plunger arranged within the tubular pin and projecting above the latter and pivoted to and carrying the key, and a spring housed within the tubular pin and holding the plunger normally raised to maintain the key extended, substantially as described.

3. The combination with a clevis, of a tubular pin arranged in an opening of the clevis, having a notch at its bottom and provided at its top with a head resting upon the top of the clevis, the lower end of the tubular pin being provided below the clevis with opposite slots having horizontal lower walls and inclined upper walls, a depressible plunger arranged within the tubular pin, provided at its lower end with a slot having a horizontal lower wall and an oppositely-inclined upper wall, oppositely-disposed keys pivoted in the slot of the

plunger, projecting outward through the slots of the tubular pin and arranged to engage the bottom of the clevis, and a spring housed within the tubular pin and holding the plunger normally raised to maintain the keys extended, substantially as described.

4. A clevis-pin comprising a hollow cylindrical pin, provided with a head at one end and a transverse slot through the other end, said head containing an annular enlargement, a compression-spring within said enlargement, a plunger arranged to reciprocate within said hollow pin and provided with a head adapted to enter said enlargement and normally held in retracted position by said spring, a slot through the opposite end of said plunger and normally aligned with the pin-slot, a key pivoted within the plunger-slot and arranged to project normally through and beyond the pin-slot, but adapted to be retracted within said pin-slot by the depression of said plunger, all combined substantially as described.

5. A clevis-pin comprising a hollow cylindrical pin, provided with a head at one end and a transverse slot through the other end, said slot having a bottom wall perpendicular to the pin and top walls extending obliquely upward thereto at the other ends of said slot, said head containing an annular enlargement, a compression-spring within said enlargement, a plunger arranged to reciprocate within said hollow pin and provided with a head adapted to enter said enlargement and normally held in retracted position by said spring, a slot through the opposite end of said plunger and normally aligned at its bottom with the pin-slot bottom, two keys transversely pivoted at their inner ends, within the plunger-slot and arranged to project normally through and beyond the pin-slot, but adapted to be retracted within said pin-slot by the depression of said plunger, and a notch in the lower edge of said pin, arranged to aline with the key-pivot hole when the plunger is depressed, said notch being provided for the insertion of said key-pivot through the plunger, all combined substantially as described.

WILLIAM PRESTON KIMBRELL.

In presence of—

CHAS. S. ANDERSON,
WILLIAM W. MILLARD.