

No. 697,048.

Patented Apr. 8, 1902.

T. WELCH.

LOCK LIFTER FOR RAILWAY AUTOMATIC COUPLINGS.

(Application filed July 21, 1899. Renewed Sept. 17, 1900.)

(No Model.)

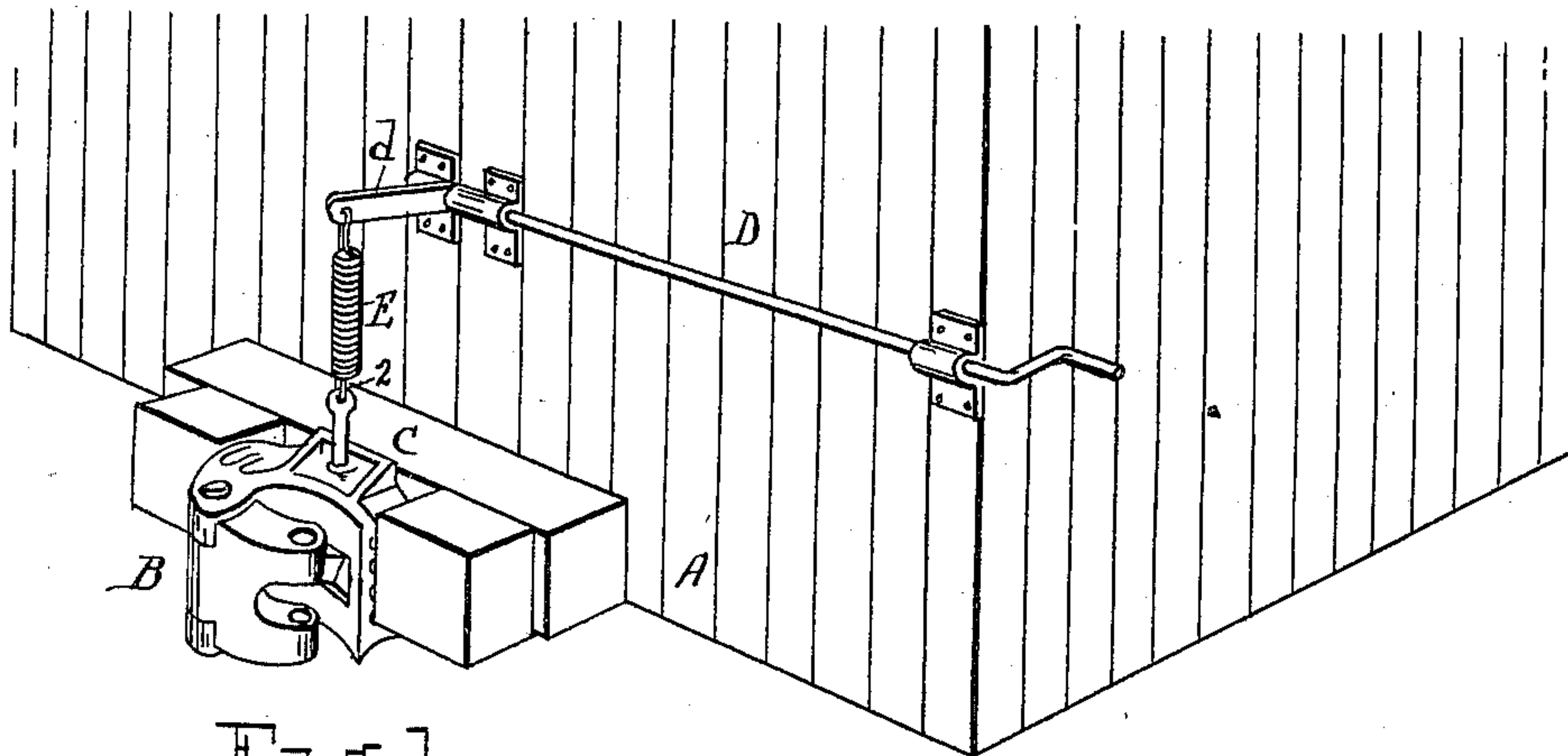


Fig. 1.

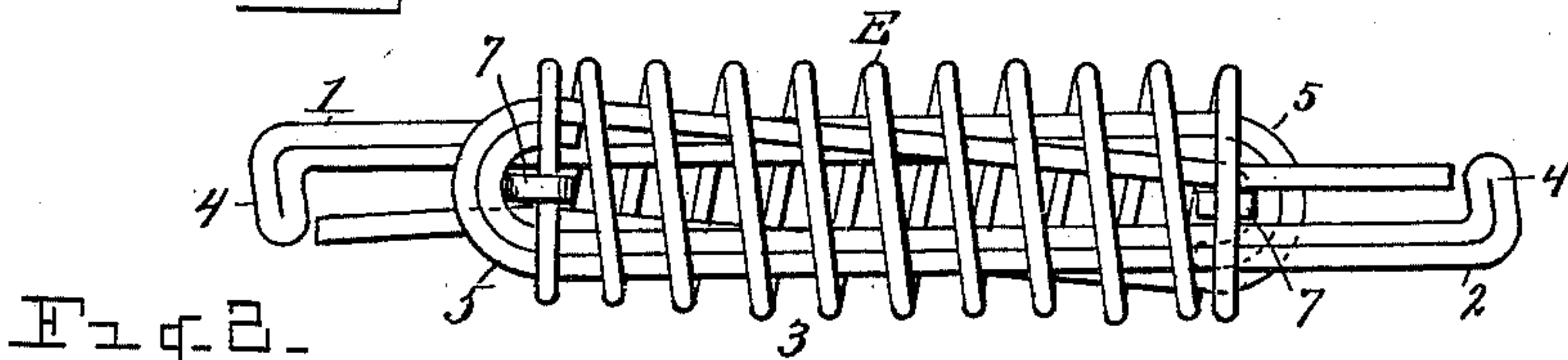


Fig. 2.

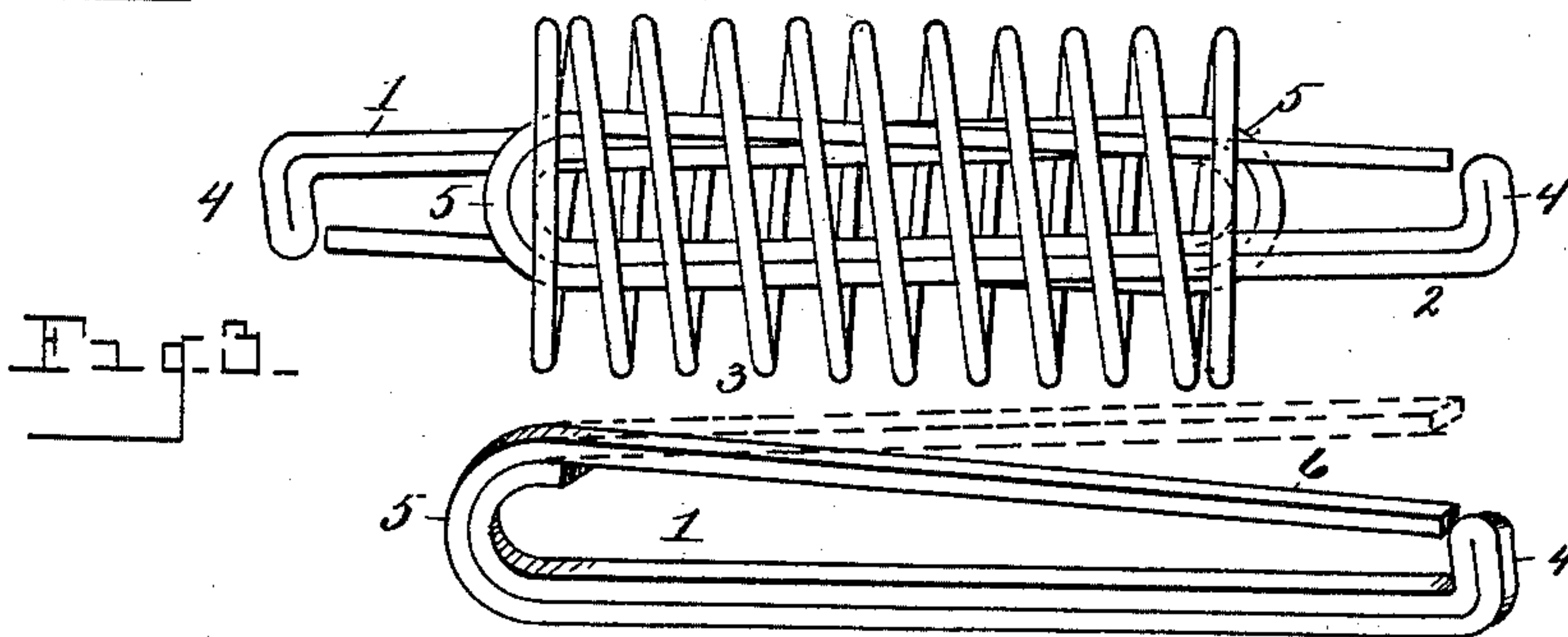


Fig. 3.

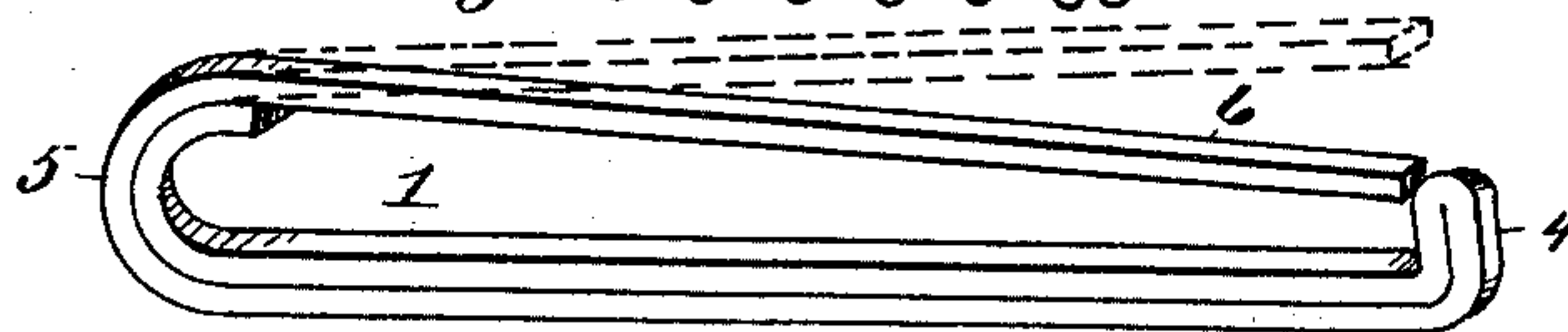


Fig. 4.

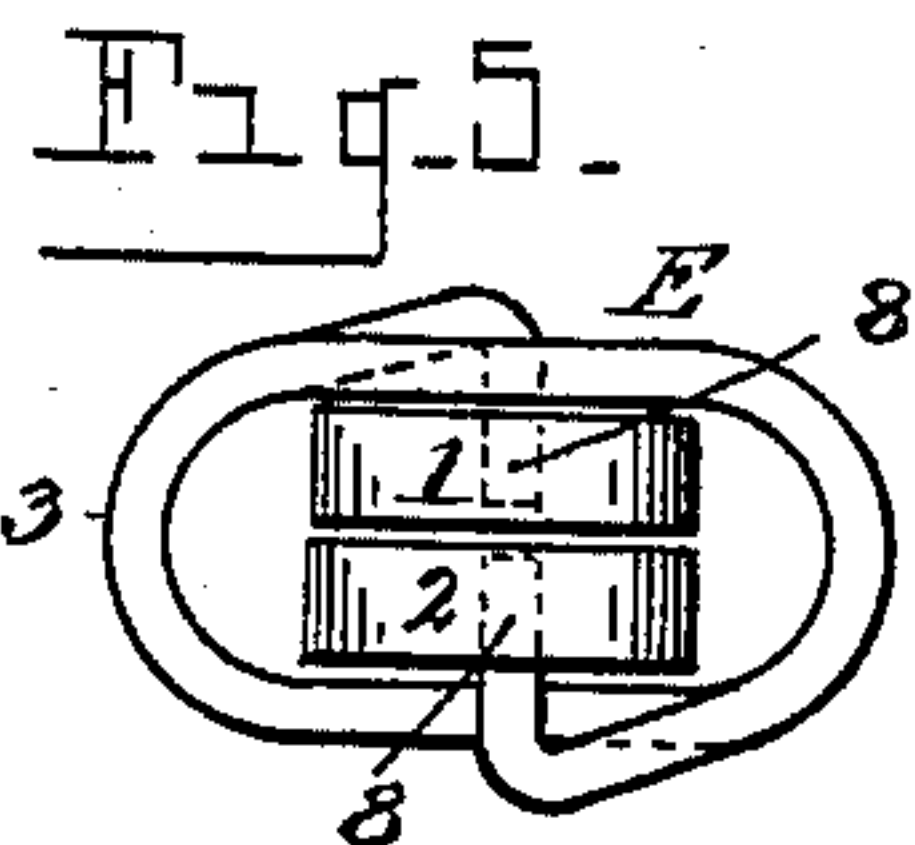


Fig. 5.

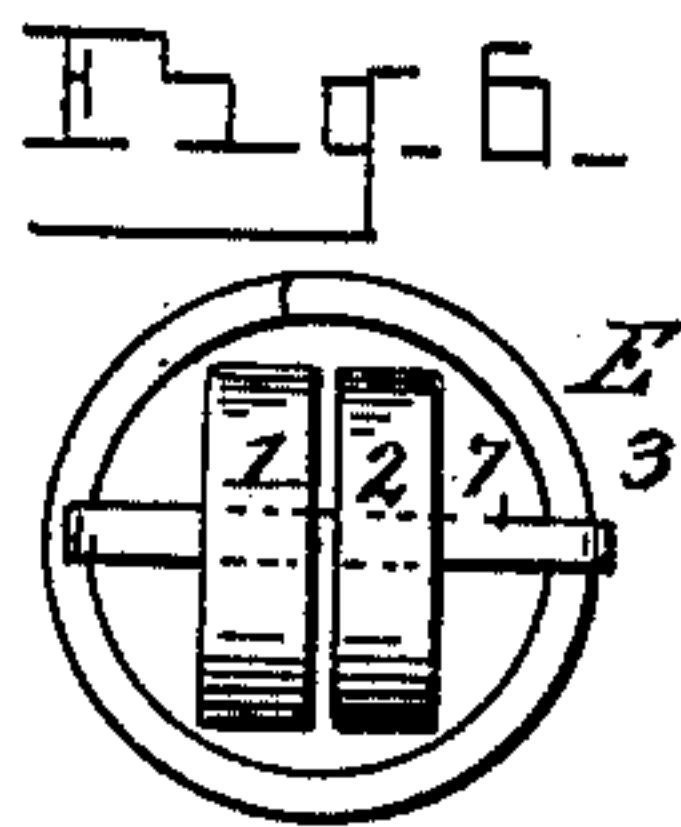


Fig. 6.

WITNESSES.

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LOCK-LIFTER FOR RAILWAY AUTOMATIC COUPLINGS.

SPECIFICATION forming part of Letters Patent No. 697,048, dated April 8, 1902.

Application filed July 21, 1899. Renewed September 17, 1900. Serial No. 30,344. (No model.)

To all whom it may concern:

Be it known that I, THOMAS WELCH, a citizen of the United States, residing at Paw Paw, county of Van Buren, State of Michigan, have
5 invented a certain new and useful Improvement in Lock-Lifters for Railway Automatic Couplers; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the
10 art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention has for its object to provide
15 an improved lock-lifter for railway automatic couplers; and it consists of the construction, combination, and arrangement of devices hereinafter described and claimed, and illustrated in the accompanying drawings, in
20 which—

Figure 1 is a view in perspective, illustrating features of my invention. Fig. 2 is a detail view of the lock-lifter, showing the same provided with a round spiral compression-
25 spring. Fig. 3 is a similar view showing a flattened spiral compression-spring. Fig. 4 is a detail view of one of the safety-hooks. Fig. 5 is an end view of the device illustrated in Fig. 3. Fig. 6 is an end view of the device
30 illustrated in Fig. 2.

A compression-spring has been found to possess particular advantages for drawing the lock in a railway-car coupler, for the reason that the application of tension compresses the
35 spring, a compressed spring lifting the lock when the lock is free to be moved. A compression-spring does not lose its elasticity and is never liable to break.

As stated in a patent granted to me February 23, 1897, No. 577,808, "it will be seen that
40 when the cars stand so as to exercise a strain upon the locking device more power would be required to disengage the locking device than where the cars stand in such a manner
45 that the locking device is without strain thereupon and is perfectly free to be lifted. In such a case a compression-spring is essential. The compression-spring is of such a
50 heft that it need not be compressed in actuating the locking device when there is no strain thereupon, the spring being compressed, however, when there is a strain thus upon the

locking device to be overcome, owing to the straining position of the cars. It will be obvious that when the spring is so compressed
55 and the strain upon the locking device is relieved the recoil of the compression-spring will draw the lock."

I have illustrated my invention as applied to a car in Fig. 1, in which A represents the
60 body of a car.

B represents any desired form of coupler mechanism.

C represents the lock or coupling-pin.

D represents a rock-shaft of any suitable
65 construction secured to the end of a car, the same being herewith shown as provided with an arm *d*.

E represents my improved lock-lifting device, said device embodying a couple of safety-
70 hooks (indicated by the numerals 1 and 2) and a spring (indicated by the numeral 3) surrounding portions of said hooks. These hooks are preferably identical in form of construction, each hook being formed of a bar
75 of steel bent intermediate its ends to form a hooked end 4 and a looped end 5. The hooked and looped portions 4 and 5 of the safety-hook, as shown, are formed by bending the bar of
80 steel back upon itself, thereby doubling the bar to form a strong hook 4 and a strong loop 5. One extremity of the bar, as indicated, preferably projects singly from the looped
85 portion 5, adjacent to the hooked portion 4, to form a spring-arm 6. The hooked end 4 of one of the safety-hooks is engageable with the arm of the rock-shaft or any analogous
90 lifting device, while the hooked portion 4 of the other safety-hook is engageable with the lock-pin or eyebolt passing into the coupling mechanism.

To engage the safety-hooks with the pin or lifting-arm, any suitable implement may be employed to spring outward the spring-arm
95 6 in order that the eye of the pin or arm may be engaged with said hooked portion. The two safety-hooks are engaged with the surrounding spring in reversed position—i. e., the hook portion 4 of one of the safety-hooks projecting in one direction while the hook
100 portion of the corresponding device projects in the opposite direction. To effect a compression of the spring, the opposite ends of the spring are secured by any suitable means

with the looped portions 5 5 of the safety-hooks.

In Figs. 2 and 6, where a round coiled spring 3 is employed, the extremities of the springs 5 may be engaged with the looped portions 5 of the safety-hooks by means of cross-bars 7. Said cross-bars extend through the inside of the corresponding loop and between the sides of the companion safety-hook, as indicated in Figs. 2 and 6. This cross-bar, if used, might be held in place in any suitable manner. It is preferred, however, to employ a flattened coiled spring (illustrated in Figs. 3 and 5) and to turn the two extremities of the wire of which the spring is formed to form engaging ends, as indicated more particularly in Fig. 5 at the numeral 8, the engaging ends 8 projecting inside the corresponding loops 5 of the safety-hooks. This construction dispenses altogether with the cross-arms 7 and simplifies as well as cheapens the construction of the device. The safety-hooks 1 2 extend through the spring, as shown and described, the hooked and looped ends projecting from the extremities of the spring.

It will be evident that when the rock-shaft is manipulated, should there be a strain upon the coupling mechanism, the spring will be compressed and in readiness to lift the pin C as the strain is relieved therefrom. It is obvious that the lock-lifting device may readily be attached and may as easily be removed whenever required.

The special construction of the safety-hooks, as hereinbefore described, renders the device especially convenient for attaching and detaching the same, while the safety-hooks are found, as so constructed, to be strong and durable. The whole device may readily be substituted in place of customary chains or other devices heretofore in use to lift the lock of car-couplers.

It is evident that the spring-arm is adjustable, so that the hooked portion of each of the safety-hooks may readily be engaged with different sizes of lifting-pins or rock-shafts or analogous devices.

It will be perceived that there is an obvious advantage in the use of a flat coiled compression-spring. Obviously there must be sufficient room within the spring to open the spring-arm of the safety-hook. Were a circular compression-spring employed, it would have to be of sufficient diameter to permit the opening of said spring-arm, thereby making a bulky spring. Moreover, in a spring of necessary size made circular the extremities of the wire from which the spring is coiled would stand out or away from the safety-hook so far that the extremities could not be turned in practically to engage the safety-hook, as shown in Fig. 5 of the drawings; but by flattening the spring an elongated opening is made through the spring of sufficient width to permit the opening of the spring-arm, while the transverse width of said opening would be so narrow as to permit the ends of the spring

to be turned in, as and for the purpose described, while also the spring would not be of undue size. Moreover, the spring being flat the two safety-hooks are held firmly together when the devices are combined.

What I claim as my invention is—

1. An unlocking device for car-couplers consisting of oppositely - arranged safety-hooks, and a compression - spring engaged therewith, with an adjustable arm extending into proximity to the corresponding hook for the purpose described.

2. An unlocking device for car-couplers consisting of oppositely - arranged safety-hooks, and a compression - spring engaged therewith, each of said safety-hooks constructed with metal turned back upon itself intermediate its ends, and a spring-arm for the purpose described.

3. An unlocking device for car-couplers consisting of oppositely - arranged safety-hooks, each provided with a spring-arm extending into proximity to the corresponding hook, and a compression-spring engaged at its opposite ends with said safety-hooks, for the purpose described.

4. An unlocking device for car-couplers consisting of oppositely - arranged safety-hooks, and a flat coiled compression-spring engaged therewith, substantially as described.

5. An unlocking device for car-couplers consisting of oppositely - arranged safety-hooks, and a compression - spring engaged therewith, each of said safety-hooks constructed of metal turned back upon its intermediate ends to form a hook portion at one end thereof, and a looped portion at the other end thereof, one extremity of said metal projecting from the opposite end thereof to form a spring-arm extending from the looped portion to the hooked portion of the safety-hook, for the purpose described.

6. An unlocking device for car-couplers consisting of oppositely - arranged safety-hooks and a flat coiled compression-spring engaged therewith, the ends of said spring being turned inward to engage the loops of said safety-hooks for the purpose set forth.

7. An unlocking device for car-couplers consisting of oppositely - arranged hooks having spring-arms terminating adjacent to the hooked ends thereof, a compression-spring engaged therewith and means extending transversely of the springs to engage the extremities of the spring with the corresponding ends of the hooks to secure the compression of the spring for the purpose described.

8. The combination with a vertical-hook car-coupler, having a knuckle hinged to swing laterally, of a rock-bar, a locking device and an unlocking device consisting of hooks having spring-arms terminating adjacent to the hooked ends thereof and a compression-spring, one end of one of said hooks engaged with the rock-shaft and the opposite end of the other hook engaged with the locking device for the purpose set forth.

9. The combination with the locking device of an automatic car-coupling and a rock-shaft, of a compression-spring, transversely-disposed devices at the respective ends of the
5 spring, hooks directly engaging said devices, extending longitudinally of the spring and having their hooked ends projecting beyond the other ends of the spring, one of said hooks

connected with the rock-shaft and another attached to the locking device.

10

In testimony whereof I sign this specification in the presence of two witnesses.

THOMAS WELCH.

Witnesses:

N. S. WRIGHT,
M. HICKEY.