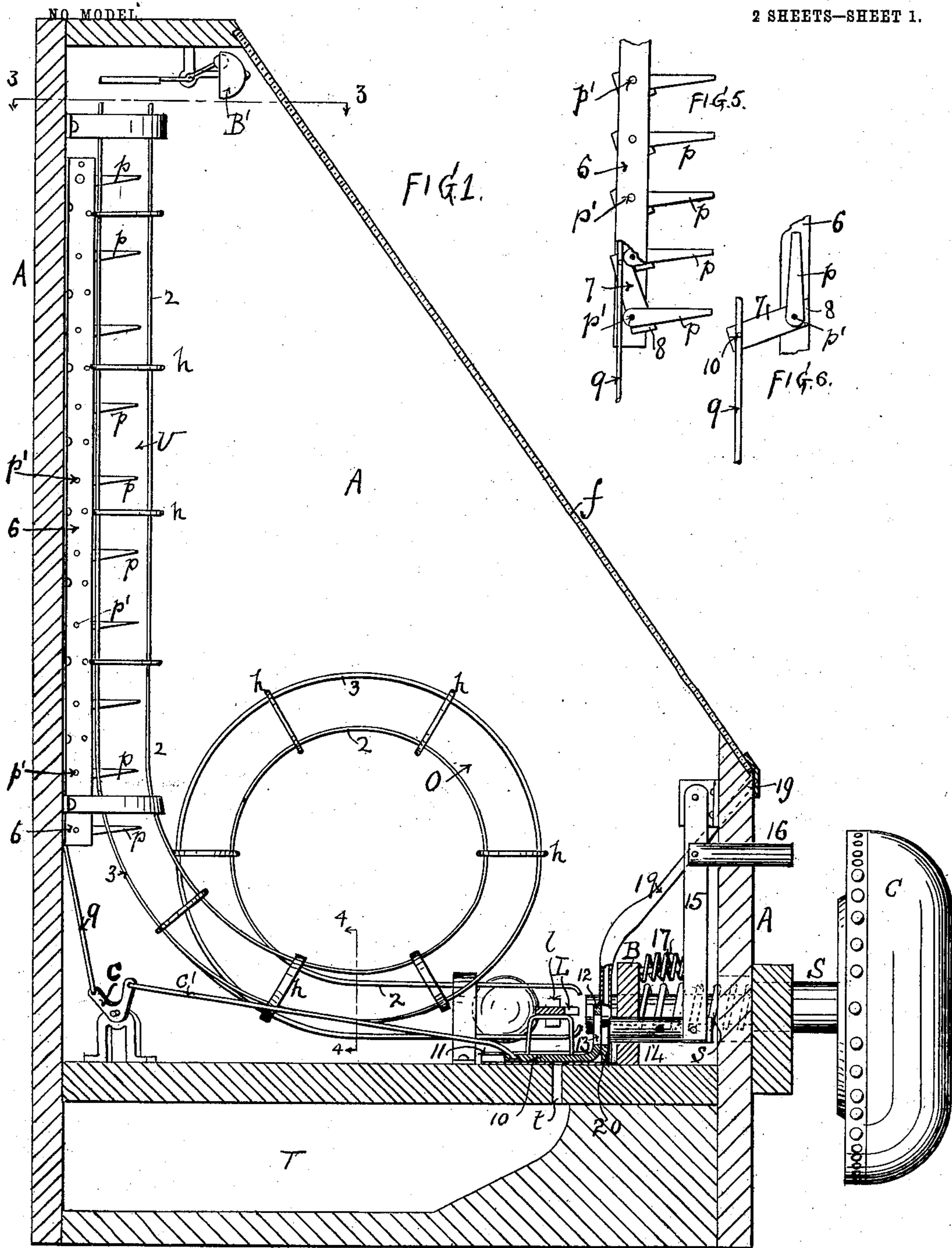


No. 741,625.

PATENTED OCT. 20, 1903.

R. J. CARSON.
STRENGTH TESTING OR PUNCHING MACHINE.
APPLICATION FILED DEC. 9, 1902.

2 SHEETS—SHEET 1.



WITNESSES:

F. W. Wright.
C. W. Collins

INVENTOR.

ROBERT J. CARSON

BY

Howell and Howell
HIS ATTORNEYS.

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NO MODEL.

2 SHEETS—SHEET 2.

FIG. 4.

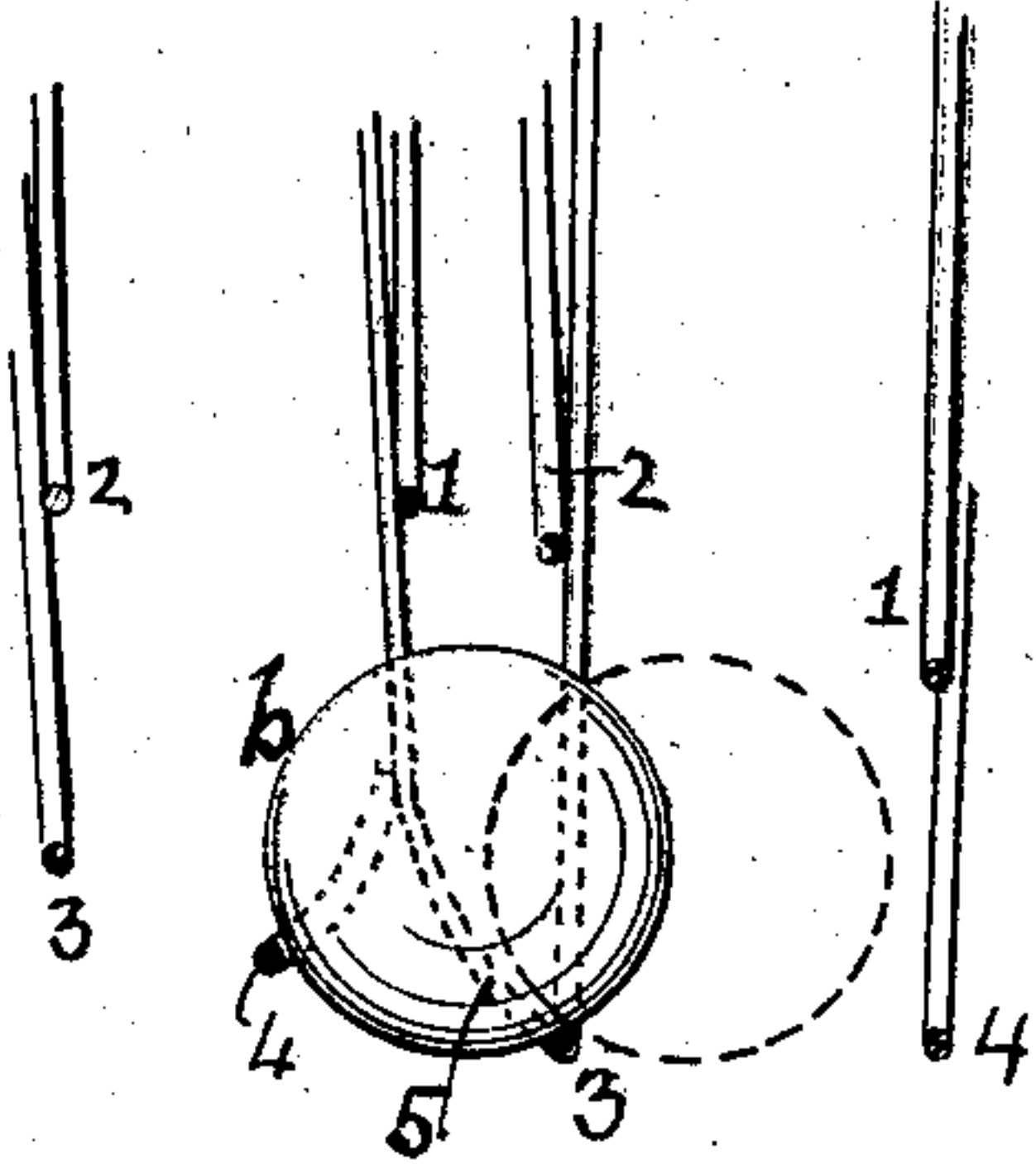


FIG. 2.

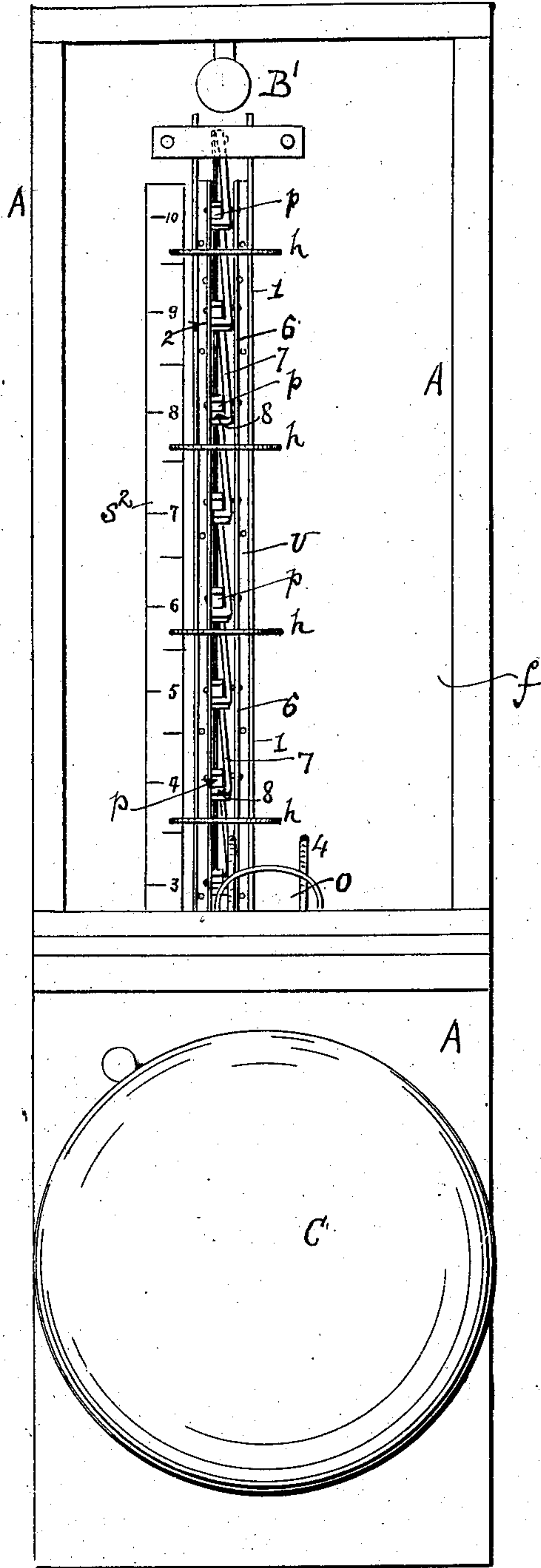
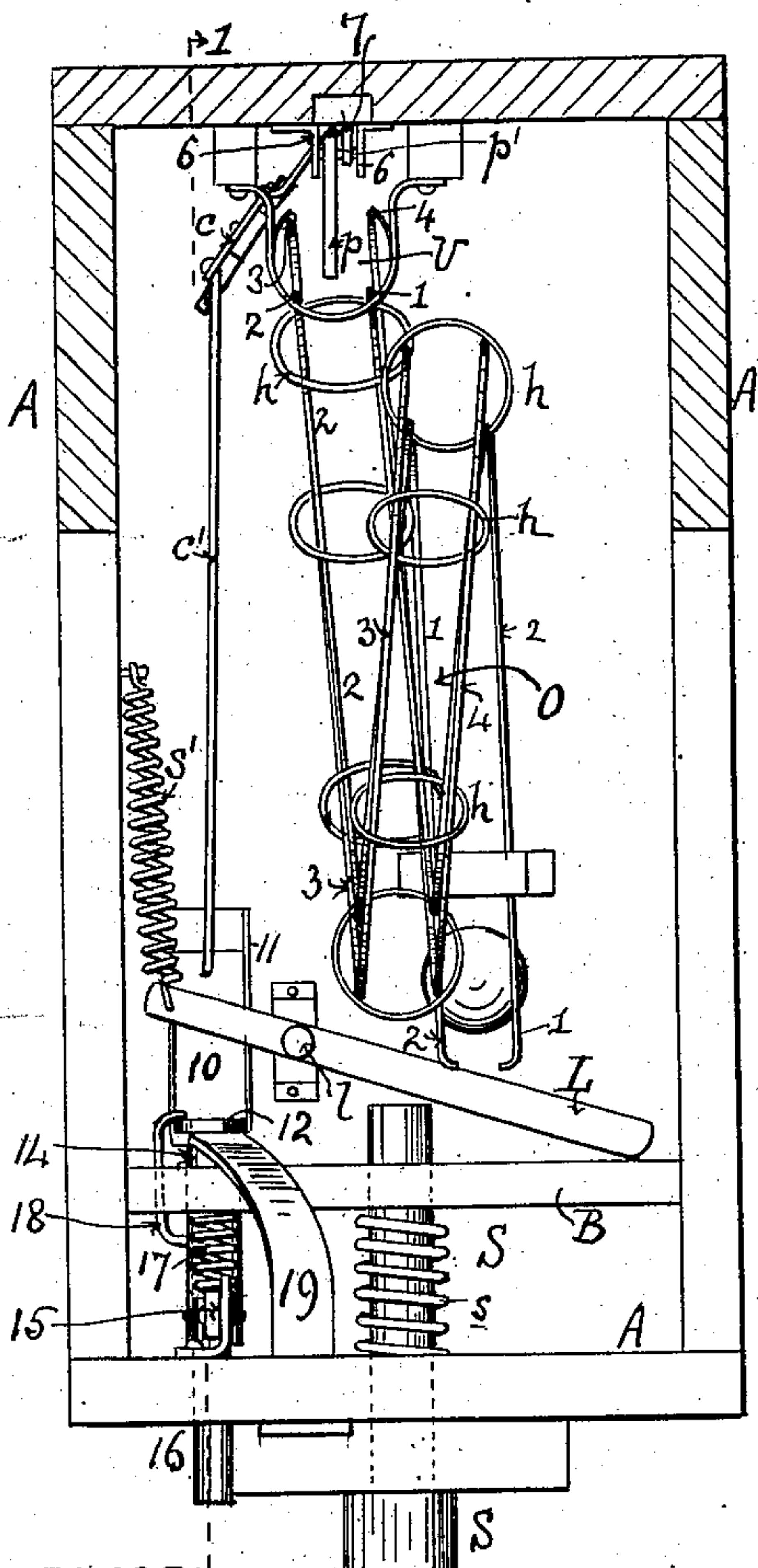


FIG. 3.



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UNITED STATES PATENT OFFICE.

ROBERT J. CARSON, OF NEW YORK, N. Y., ASSIGNOR TO ROWLAND H. MAYLAND, OF FREEPORT, NEW YORK.

STRENGTH-TESTING OR PUNCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 741,625, dated October 20, 1903.

Application filed December 9, 1902. Serial No. 134,487. (No model.)

To all whom it may concern:

Be it known that I, ROBERT J. CARSON, a citizen of the United States of America, residing in New York city, county of New York, State of New York, have invented certain new and useful Improvements in Strength-Testing or Punching Machines, of which the following is a specification.

This invention relates to strength-testing or punching machines, more particularly machines to be operated upon the deposit of a coin in the machine.

The object of the invention is to construct a machine of relatively small dimensions, attractive to the public, and one that will indicate the capacity of the blow delivered to it and maintain that indication until the next person desiring to operate the machine shall have deposited a coin, and thereby restored the mechanism to working position.

In the accompanying drawings, Figure 1 is a longitudinal sectional elevation taken on line 1 1, Fig. 3. Fig. 2 is a front elevation. Fig. 3 is a sectional plan taken on the line 3 3, Fig. 1. Fig. 4 is a detail in section on line 4 4, Fig. 1. Fig. 5 is a detail of the retaining-pawls in their working positions, and Fig. 6 is a detail of one pawl in release position.

In the drawings, A is the frame or box to contain the mechanism, provided with a glass front *f* and a money-till T in the lower part opening into the box proper by the slot *t*.

C is a punching-cushion mounted on a shaft S, passing through an opening in the front of the box and through a transverse thrust-block B, secured to the bottom of the box A. A spring *s* is compressed by the blow struck, and according to the strength of this blow the inner end of the shaft S will be moved with greater or less force against the lever L, pivoted at *l* and retained normally in position adjacent to the shaft S by a spring *s'*.

A trackway for the projectile is in the form of an open-work cage and is formed, preferably, of wires 1, 2, 3, and 4, bound together at suitable points with metal hoops *h*. This cage may have three distinct portions—one horizontal, or nearly so, at the bottom of the box and open at one end, through which the lever L may freely pass, while at the other end it merges into the second portion, com-

posed of some means for retarding the ball, as shown. This is accomplished by making the trackway in a coil, so that the ball travels around a "loop-the-loop" O, from which it passes to the third portion U, consisting of an upright trackway. Within this upright portion U a series of pawls *p* are arranged, which allow the projectile or ball *b* to pass in going up, but any of which will hold the ball in its highest elevated position. An adjacent scale *s'* will serve to indicate the relative strength of blow struck. A bell B' may be placed at the top or elsewhere to be operated by the projected ball either, as shown, to indicate the maximum blow or the average, as it may suit the temperament of the public. The series of pawls *p* are each pivoted at *p'* to side plates 6 6, secured to the back of the machine. To each pivot *p'* a tripping-plate 7 is secured, having a lip 8, adapted in the position shown in Fig. 5 to allow the pawl *p* to be raised by the projected ball and to return after its passage to the position shown, while in the position shown in Fig. 6 all the tripping-plates 7 are lowered by the common pull-rod 9, pivoted to each plate 7 at 10. This raises all the pawls *p* and keeps them raised until the ball has fallen past the lowermost pawl and returned to its initial position, Fig. 1. As it would not have sufficient inertia on dropping back to climb the loop, I form a side outlet in the trackway, as shown in Fig. 4, by varying at this point the position of the lower inner wires 3 and 4 to allow the distance between them and the wires 2 and 1 to be greater than the diameter of the ball *b*. I may also secure a crossover-wire 5 from the wire 4 to the wire 3, as shown.

The operation of the device is briefly this: Upon striking the cushion C the spring *s* is compressed, the lever L swings upon its pivot *l* against its spring *s'*, its free end being brought into contact violently with the ball *b*, then in the position shown in Fig. 1. The ball is caused by this blow to travel around the loop-the-loop O into the upright, past, say, the lowest pawl *p*, by which it is prevented from returning. Upon pulling the pull-rod the pawl will be brought into the position shown in Fig. 6 and the ball will be allowed to drop. It will oscillate backward

and forward through the lower half-circle of the loop-the-loop O until it loses the greater part of its momentum, when it will pass to the right, Fig. 4, and return to the position Fig. 1.

To make this apparatus to be coin-controlled, it is only necessary to control the operation of the pull-rod 9 by the insertion of a coin. Any known means for coin-controlling mechanism can be used. In the drawings I have shown one particularly adapted for the work required in the machine herein described. The pull-rod 9 has its end secured to a bell-crank c, while a rod c' from the bell-crank leads to and is secured in a plate 10, sliding in guides 11. An upturned end 12 in the plate, having a central opening 13, is shown in Fig. 1 opposite a plunger 14, pivoted to a lever 15, operated by a push-button and rod 16 against the spring 17. A loop 18, passing freely through the thrust-block B, embraces the upturned end 12 of the plate 10 and serves to pull the plate back through the tension of the spring 17 to return the slide to the position shown in the drawings, adjacent to the coin-chute 19, as hereinafter described. Upon inserting a coin into the chute 19 it will fall into the space between the plunger 14 and the opening 13 in the slide, resting on the guide 20. Upon pressing the push-rod 16 the plunger 14 is caused to bear against the coin and hold it firmly against covering and overlapping the opening 13. Upon continued pressure the slidable plate 10 is thrust forward until the coin has come to a position over the slot t. When this has occurred, the pawls p and ball b will have been released and the ball returned to working position. When the pressure is released from the push-rod 16, the spring 17 tends to return the rod, at first taking the pressure off the coin and allowing it to fall through the slot into the receptacle below, and then the spring will move back into position by means of the hooked loop secured to the plunger 14 and embracing the upturned end of the slidable plate 10. It is obvious that should a person attempt to operate the rod 16 without a coin the plunger would merely pass through the opening 13 without in any way causing the mechanism to be operated to let the ball drop back to the position Fig. 1.

I claim as my invention—

1. A punching-machine having a projectile, a continuous trackway comprising a portion of the trackway adapted to hold the projectile, an indicator portion, an intervening "loop-the-loop" portion, and means for forcing the projectile along the trackway, substantially as described.

2. A punching-machine having a projectile, a continuous trackway comprising a starting

portion, an indicator portion adapted to indicate the force of a blow struck and a portion adapted to retard and change the direction of travel of the projectile before it reaches the indicator portion, and means for striking the projectile to cause it to travel throughout the trackway, substantially as and for the purpose described.

3. A punching-machine having a projectile, a horizontal trackway, a "loop-the-loop" trackway and an upright trackway, all continuous, and means for forcing a projectile through them, substantially as described.

4. A trackway for a projectile-driving punching-machine, comprising a cage and a number of pawls opening upward but not downward within the cage, in combination with means for withdrawing the pawls from the cage to release the projectile, substantially as described.

5. A punching-machine having a "loop-the-loop" trackway with a crossover at its lower side from one side of the loop to the other, substantially as described.

6. A punching-machine having a punching-cushion and shaft, a lever adapted to be operated thereby, a trackway open at one end to the lever, a projectile on the trackway, a "loop-the-loop" portion and an indicator portion to said trackway in combination with pawls in the indicator portion and means for operating the pawls, substantially as described.

7. A punching-machine, having a cage-like trackway, a projectile, and means for elevating said projectile through the trackway and means located throughout the trackway adapted to catch the projectile and mechanism to afterward release said projectile, substantially as described.

8. A punching-machine, having a cage-like trackway, a projectile and means for elevating said projectile through the trackway and pawls located along the said trackway, spaced apart and projecting into the interior of said trackway and means for releasing said pawls, substantially as described.

9. A punching-machine, having a cage-like trackway for a projectile, comprising a starting portion, a "loop-the-loop" portion and an indicating portion, and means to retain the projectile in the position to which it may be driven in combination with means to release the retaining means to allow the projectile to return to its initial position.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ROBERT J. CARSON.

Witnesses:

C. SEDGWICK,
HUBERT HOWSON.