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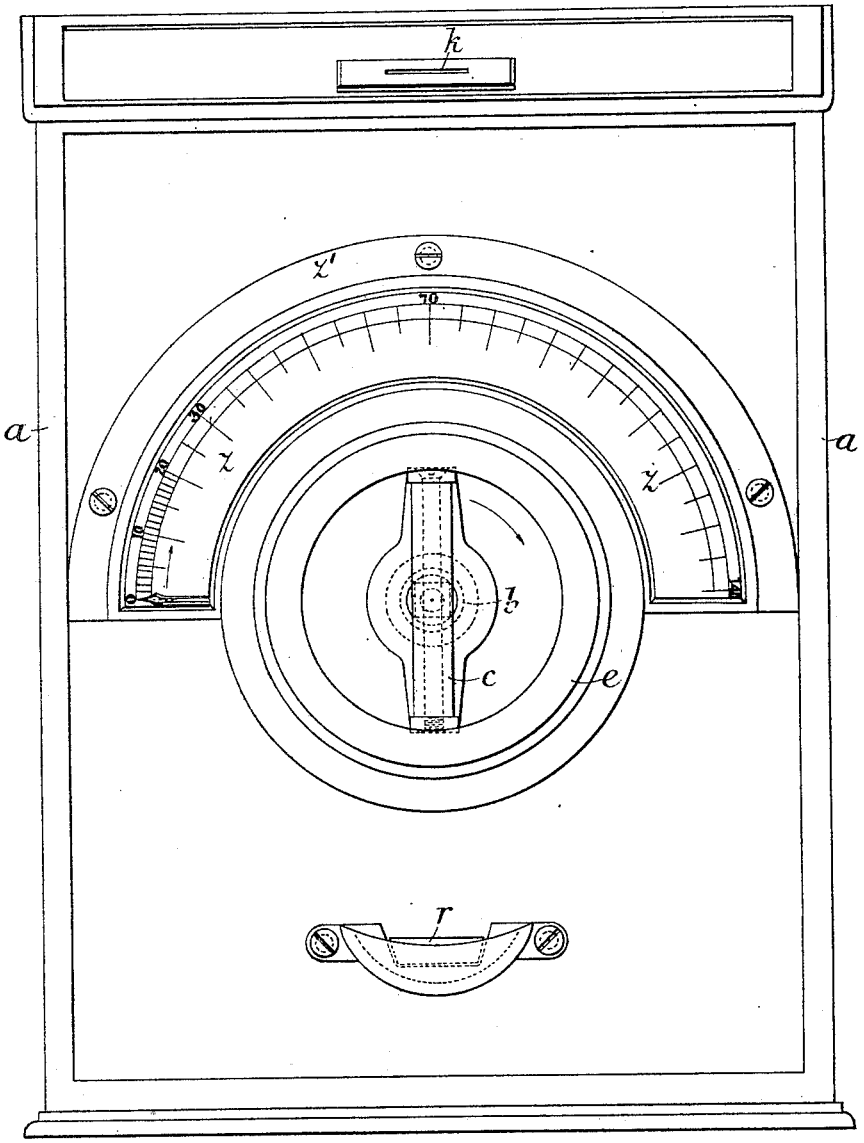
C. A. BARRETT.

COIN FREED DYNAMOMETER.

No. 453,729. Patented June 9, 1891.

Fig. 1.



Witnesses.
H. H. Halsted.
Jonas B. Culley

Inventor
Charles Arthur Barrett
By John J. Halsted & Son.
his attys

(No Model.) 4 Sheets—Sheet 2.

C. A. BARRETT.

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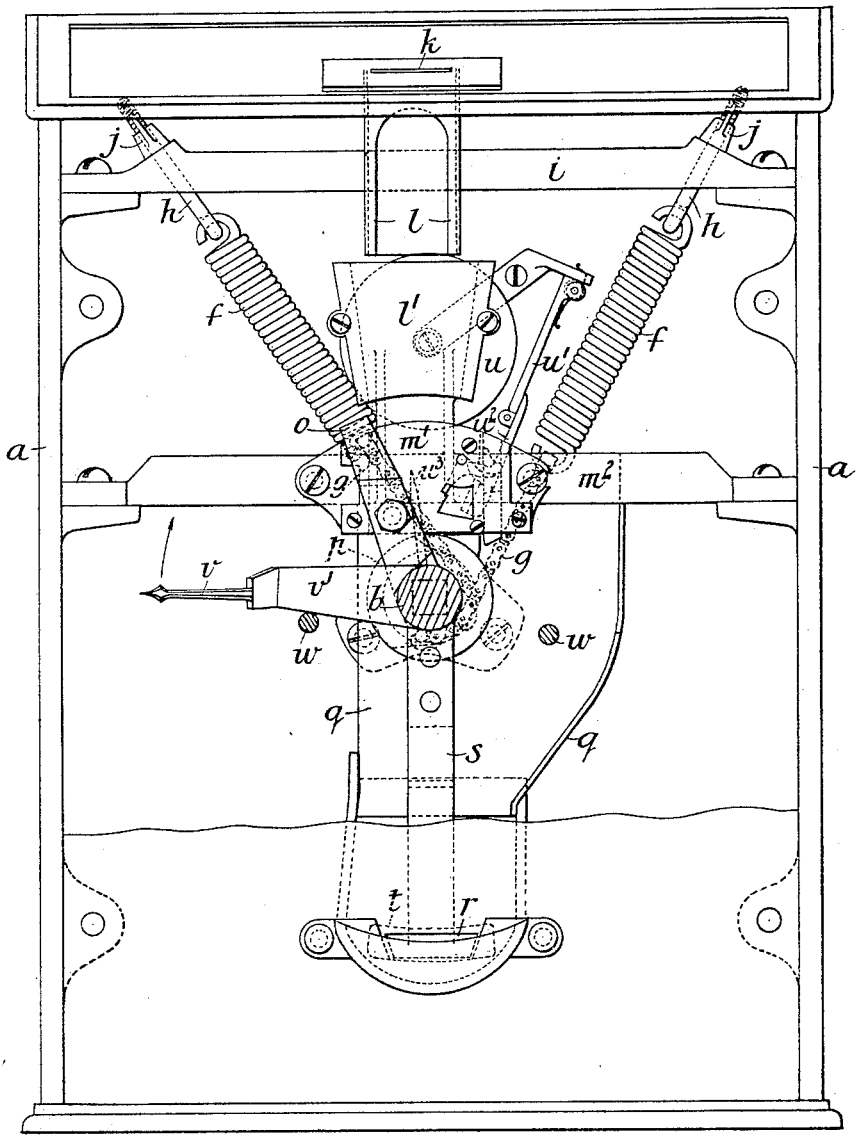
Fig. 2.



Witnesses.
H. H. Halsted.
Jona. Bleiler

Inventor
Charles Arthur Barrett.
By John J. Halsted & Son
his Attys

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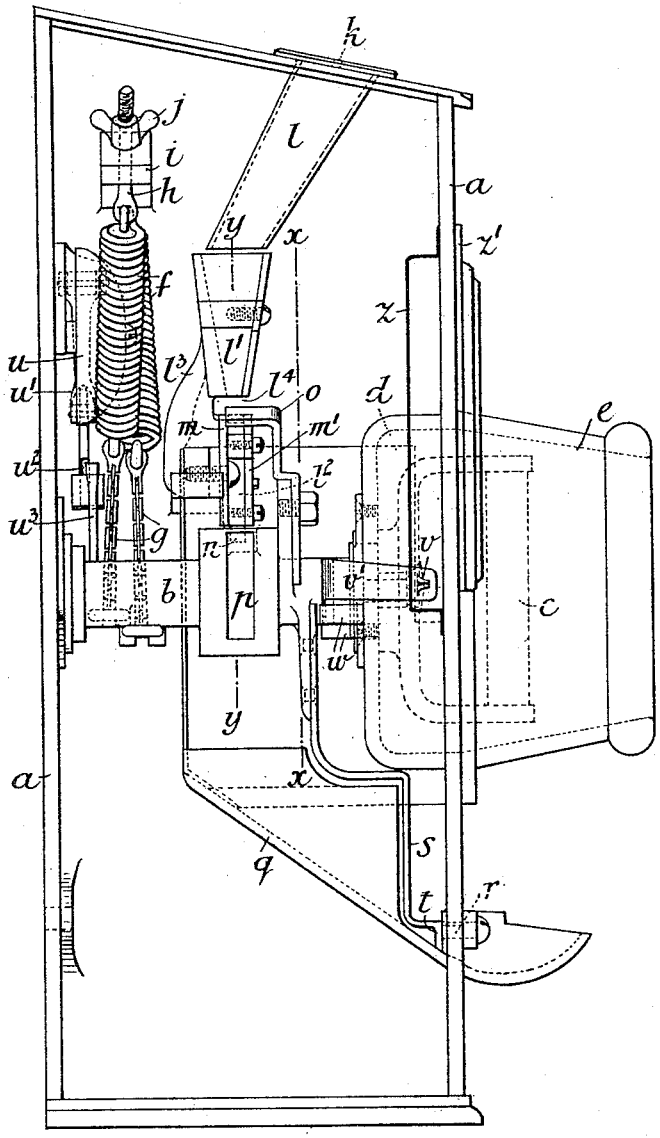
C. A. BARRETT.

COIN FREED DYNAMOMETER.

No. 453,729. Patented June 9, 1891.

Fig. 3.



Witnesses.
H. H. Halsted.
Jonas B. Cullen

Inventor
Charles Arthur Barrett
By John S. Halsted Jr.
his Atty's

(No Model.) 4 Sheets—Sheet 4.

C. A. BARRETT.

COIN FREED DYNAMOMETER.

No. 453,729. Patented June 9, 1891.

Fig. 4.

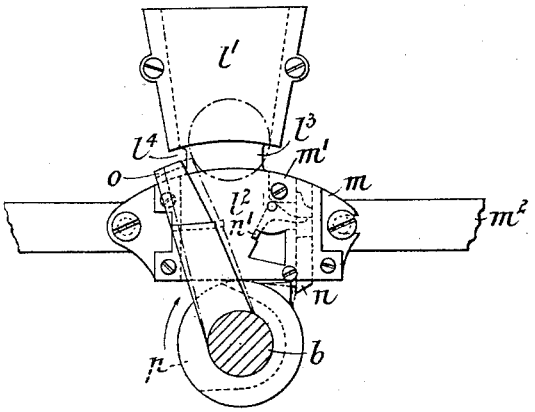
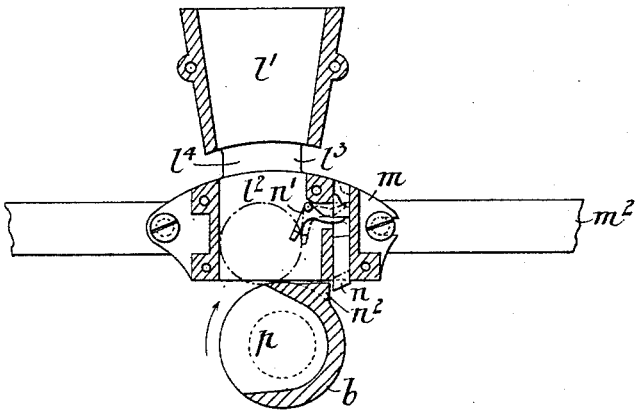


Fig. 5.



Witnesses.
H. H. Halsted.
Jonas B. Culley

Inventor
Charles Arthur Barrett
By John J. Halsted & Son
his attys

UNITED STATES PATENT OFFICE.

CHARLES ARTHUR BARRETT, OF LONDON, ENGLAND.

COIN-FREED DYNAMOMETER.

SPECIFICATION forming part of Letters Patent No. 453,729, dated June 9, 1891.

Application filed February 26, 1891. Serial No. 382,938. (No model.)

To all whom it may concern:

Be it known that I, CHARLES ARTHUR BARRETT, a subject of the Queen of Great Britain, residing at London, England, have invented certain new and useful Improvements in what are known as Automatic or Coin-Freed Dynamometers, of which the following is a specification.

This invention relates to the construction of a novel and simple apparatus for testing the power exerted by the hand of a person in twisting or wringing, the apparatus only working on a coin of proper value being inserted therein, and which coin, if the power exerted exceeds a given amount, is returned to the user of the apparatus.

In carrying out my invention I employ a spindle (hereinafter referred to as the "twist-spindle") suitably connected to a dynamometer spring or springs, the said spindle being provided with a coin-slot, and on one end outside the case of the apparatus with a handle, whereby the spindle can be turned. A coin-chute is provided in the case of the apparatus, and the spindle is locked in its normal position by a bolt or locking arrangement. An ordinary dial is provided, upon which the torsional power exerted is indicated by a hand or pointer advantageously fixed on the spindle. In order to prevent the aperture or mouth of the channel which conveys the coin outside the apparatus, when sufficient power is exerted, from being blocked by paper, &c., pushed up from the outside, I find it advantageous to provide a shutter, which closes the aperture when the parts of the machine are in their normal position, but which uncovers the said opening as the spindle is turned. This shutter is advantageously operated by the turning of the spindle. Any suitable or usual arrangement is employed for preventing coins of too small a value or size unlocking the spindle or blocking the mechanism.

To enable my invention to be fully understood, I will describe the same with reference to the accompanying drawings, in which—

Figure 1 is a front elevation of a coin-freed dynamometer provided with my improvements, and Fig. 2 is a similar view, but with a part of the front of the case removed to show the internal mechanism. Fig. 3 is a side view of the apparatus, one side of the case being removed. Figs. 4 and 5 are sections on the lines x x and y y, respectively, of Fig. 3.

a indicates the case of the apparatus; b, the twist-spindle carried in bearings in the said case, and c the handle secured to the said spindle on the outside of the case, the said handle being partly within a recess d in the front of the case, which recess is surrounded by a shield e, into which the hand has to be placed to reach the handle c. This arrangement of the sleeve prevents the application of a lever to the handle c or the use of two hands, whereby the apparatus could be improperly operated.

f f are springs, each of which at one end is connected to a chain g, which chains are also attached to the twist-spindle b, the other end of each of the said springs being connected to an eyebolt h, passing through a hole in a cross-bar i within the case a, and provided with a thumb-nut j for regulating the tension of the spring. With this arrangement it will be obvious that when the twist-spindle is moved in the direction of the arrows, Figs. 1 and 2, the chains g g will be more or less wound upon the twist-spindle, thereby extending the springs f f, the amount of extension, as is obvious, depending upon the torsional power exerted.

k is the money-slot, and l is the chute which directs the coins into a hopper l', whence the coins fall into a chamber l^2, in connection with which is arranged the locking mechanism. The chamber l^2 is formed between two plates m m', secured to a cross-bar m^2, and the hopper l' is carried at a short distance above the chamber l^2 by means of an arm l^3 upon the back of the plate m, so as to form a slot or opening l^4, for the purpose hereinafter described.

The locking mechanism comprises a bolt n, sliding in guides between the plates m m', and a bell-crank lever n', one arm of which is in engagement with the bolt n, while the other arm projects into the chamber l^2 in such a manner that when a coin falls into the said chamber it will operate the said bell-crank lever, as indicated by dotted lines in Fig. 5 to lift the said bolt.

Upon the twist-spindle b is a lug or pro-

jection n^2, so placed that when the apparatus is in its normal position the bolt n obstructs its path, as shown in Figs. 2, 4, and 5.

o is an arm fixed to an extension upon the twist-spindle and having one end bent, as shown most clearly in Fig. 3, so as to enter the slot l^3. This bent arm serves to prevent a coin from falling from the hopper l' into the chamber l^2 in case the lug n^2 is in contact with the bolt n, as indicated in Fig. 4, in which position the friction between the said bolt and lug would probably be so great as to render it impossible for the coin to operate the bell-crank lever to lift the bolt.

p is the coin-slot in the twist-spindle b, into which the coin drops from the chamber l^2. This coin-slot is so placed that if, when the parts of the apparatus are in their normal position, a coin is introduced it will rest upon the twist-spindle, as indicated by the dotted lines in Fig. 5, thereby retaining the locking mechanism in the unlocked position, so that the twist-spindle can be operated. When, however, the said spindle is turned in the direction of the arrow, Fig. 5, the coin will drop into the slot p. Should the twisting-power exerted be sufficient, the slot p will be carried so far round that the coin will roll therefrom into a chute q, by which the said coin will be returned to the operator through a slot r. Should, however, the power exerted be insufficient to return the coin, as described, the said coin will on the return of the parts to their normal positions fall into the case or into a money box or bag therein.

s is another arm connected to the twist-spindle and having at its free end a plate or shutter t, which normally closes the slot r to prevent the said slot from being choked from the outside.

u is a bell or gong, which I sometimes provide for announcing that a certain amount of power has been exerted; and u' is a spring-arm, to the end of which the hammer u^2 for striking the bell is pivoted in a well-known manner.

u^3 is an arm attached to the twist-spindle and serving to press back the hammer, and, when the desired point is reached, to release it.

v is the hand or pointer carried by an arm v', secured to the twist-spindle, and w w are stops, which limit the movement of the arm v'.

z is the dial for indicating the amount of power exerted, the said dial being covered by a glass held in the frame z' upon the front of the case.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. A coin-freed dynamometer for testing the power of torsion, having in combination a twist-spindle provided with a coin-receiving slot, a chute to receive the coin from said slot and to deliver it outside the apparatus upon applying the requisite amount of power to the spindle, and a receiver within the apparatus to receive the coin upon the return movement of the spindle when a lesser amount of power is applied.

2. In a coin-freed dynamometer for testing the power of torsion, the combination, with the twist-spindle, of a bolt adapted to engage with a lug upon the said spindle, and a lever actuated by the falling coin, the said bolt being operated to unlock the apparatus through the medium of said lever, substantially as described.

3. In a coin-freed dynamometer for testing the power of torsion, the combination of a slotted twist-spindle having springs arranged in connection therewith, substantially as described, and means for unlocking the spindle, substantially as set forth.

4. In combination with the spindle having in it a slot or recess to receive a coin, and with a chute or coin-passage-way leading to the outside of the machine, an arm, such as s, extending from such spindle and having thereon a shutter, which upon the exertion of a given wrist-power opens the said passage and permits the exit of such coin through such passage to the outside of the machine.

5. In combination, a twist-spindle having in it a coin slot or cavity, a coin locking and unlocking mechanism actuated by said spindle, springs arranged in connection with the spindle, a chute for discharging the coin, and a shutter normally closing said chute and serving, when moved, to open the mouth of the chute.

CHARLES ARTHUR BARRETT.

Witnesses:

JOHN E. BOUSFIELD,

Of the firm of G. F. Redfern & Co., 4 South Street, Finsbury, London, Patent Agents.

A. ALBUTT.