(No Model.)

H. P. NIELSEN.

AUTOMATIC RELEASING DEVICE.

No. 490,211. Patented Jan. 17, 1893.

Fig. 1

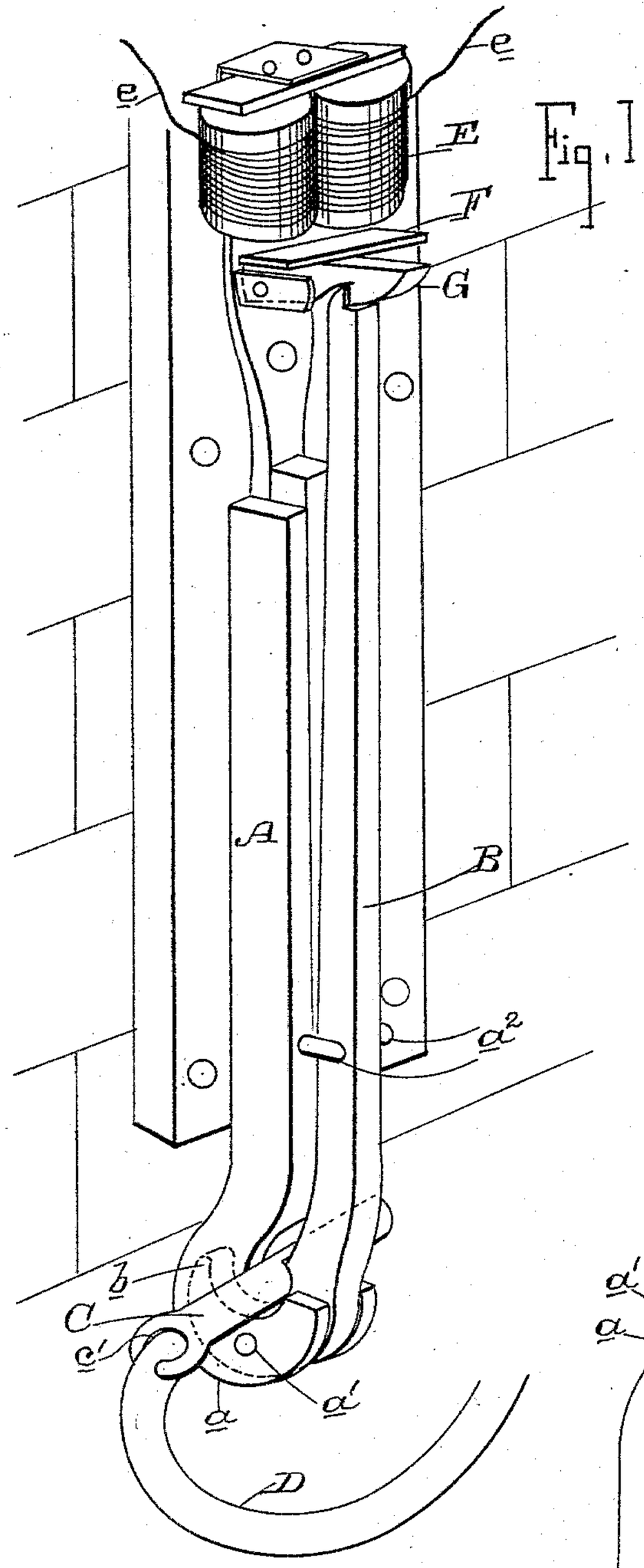
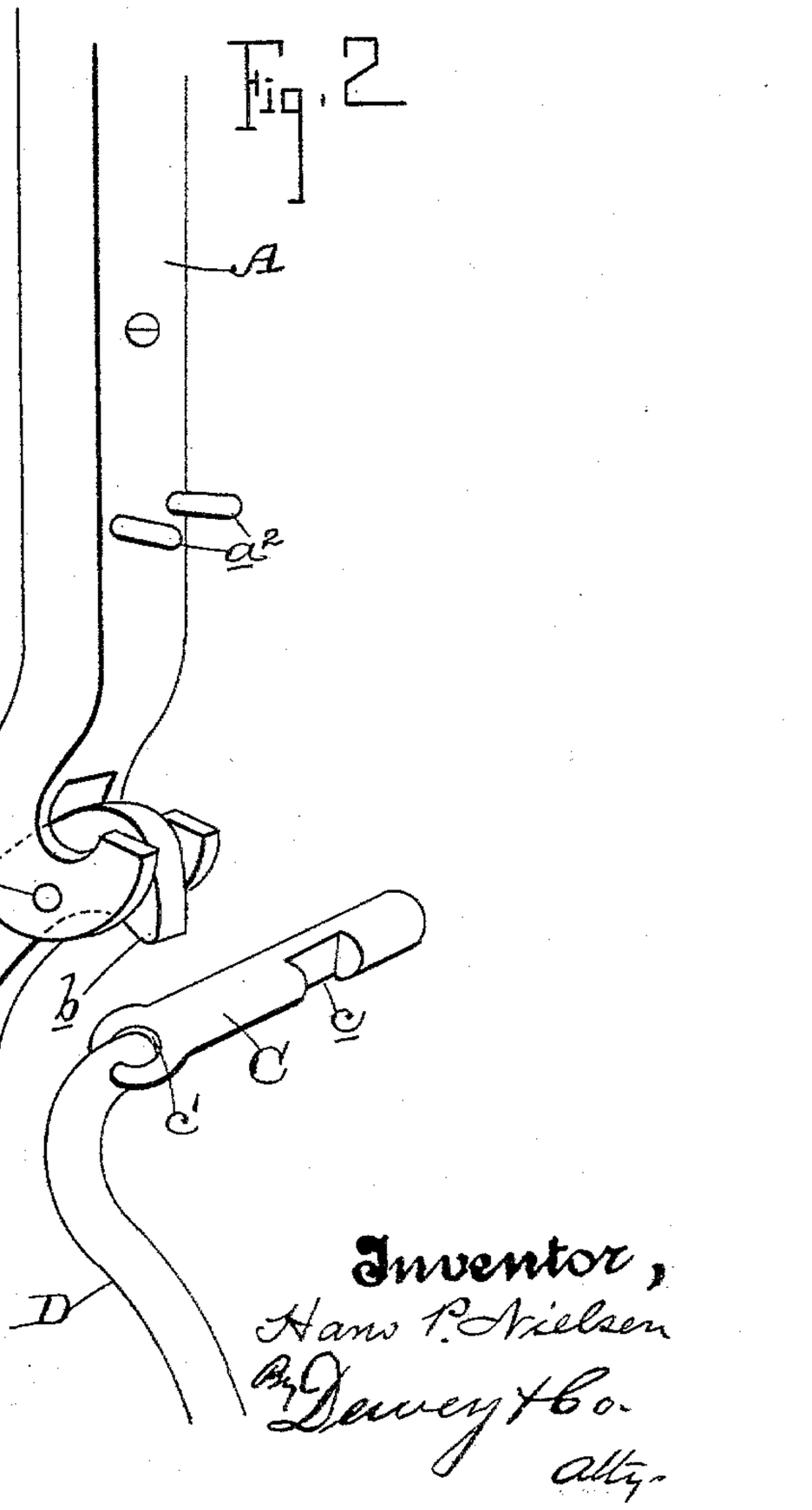


Fig. 2



Witnesses,
L. A. Howse
J. A. Bayless

Inventor,
Hans P. Nielsen
By Dewey & Co.
Atty.

UNITED STATES PATENT OFFICE.

HANS P. NIELSEN, OF ALAMEDA, CALIFORNIA.

AUTOMATIC RELEASING DEVICE.

SPECIFICATION forming part of Letters Patent No. 490,211, dated January 17, 1893.

Application filed September 14, 1892. Serial No. 445,894. (No model.)

To all whom it may concern:

Be it known that I, HANS P. NIELSEN, a citizen of the United States, residing at Alameda, Alameda county, State of California, have invented an Improvement in Automatic Releasing Devices; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of releasing devices in which a swinging bar is controlled by a catch, operated by the armature of an electro magnet.

My invention consists in the novel construction and combination of the swinging gravity bar and the hitching or fastening bolt which the bar locks and releases, as I shall hereinafter fully describe and specifically point out in the claims.

The object of my invention is to provide a releasing device simple and economical in construction, delicate and effective in operation and which can be applied to the releasing of hitched animals, such as horses in fire houses and livery stables, or to spring-controlled doors or other structures which may be required to be automatically and quickly released.

Referring to the accompanying drawings for a more complete explanation of my invention,—Figure 1 is a perspective view of my device, showing the bar B in position to hold the hitching or fastening bolt C. Fig. 2 shows the bar B in a dropped or pendent position after being tripped, and the fastening bolt C thrown from its seat.

A is a bracket adapted to be secured to the wall or other support, in convenient position. The lower end of this bracket is formed into or is provided with a curved or hooked foot *a* which is bifurcated as shown. In this foot is pivoted at *a'*, the lower end of the swinging gravity bar B, said end being curved upwardly and terminating in the toe piece *b*. The body of the bar lies against the face of the bracket and may be guided thereon by side pins a^2. It will be seen that on account of the position of the pivotal pin of said bar, which is back of its center of gravity, the said bar, in the absence of any connection to hold it, will drop by gravity from a vertical or upright position swinging outwardly and downwardly to a pendent position. In this movement the toe piece *b* of the bar will swing forwardly and outwardly in the recess of the hooked foot *a* of the bracket.

C is the hitching or fastening bolt. This consists of a piece having a holding notch *c* and its end provided with an eye *c'* or other means for securing it to the chain, rope, cable, strap, or other fastening D by which the animals are hitched or the door or other structure fastened. The bolt C lies in the recess of the hooked foot *a* of the bracket and is secured and locked therein by the gravity bar B when said bar is in an upright position, the edge of said bar entering the notch *c* of the bolt and its toe piece *b* curving up behind the bolt. When bar B drops, the bolt is released, and in addition to this, it is positively thrown out by the toe piece *b* which coming forwardly behind it, forces it from its seat in the foot *a* of the bracket. Thus any object fastened to it, whether animate or inanimate is instantly released.

The gravity bar B is held and tripped by the following mechanism:—Supported above is an electro-magnet E the circuit wires *e* of which may be supposed to extend to a suitable electric battery and to include push buttons or other normally open switches in convenient positions. The armature F of the magnet is carried by a gravity catch G adapted to engage the upper end of bar B. When the bar is pushed upwardly its top slips by and is engaged by the catch G. It is thus held in a set position. When the circuit is closed, the armature F being attracted by the magnet lifts the catch G, and the bar B thereupon drops down, releasing the bolt C as heretofore described. It is obvious that the bar B may be assisted in its dropping by means of a spring behind it, and also that the catch G may be spring-controlled. I prefer, however, to operate these parts by gravity alone. A point to be noted in this construction is that on account of the position of the locking bolt C at the lower end of the bar B and the construction and arrangement of the seat for the bolt relatively to the position of the pivotal pin of the bar, there is little or no strain transferred from the hitched or fastened objects (such as the pulling of the horses or the spring force of the door or other structure) to the bar B tending to pull it outwardly, as

would be the case were the fastening chain or strap made to engage the bar at a point higher up. Therefore, the engagement of the trip catch G with the bar is sufficiently light and delicate to enable a light current to release it positively and instantaneously which would not be the case if the bar B engaged it under considerable strain.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is—

1. A releasing device consisting of a bracket, having a curved foot, a swinging bar pivoted to the curved foot, a trip catch for holding and releasing the bar, and a hitching or fastening bolt resting in the curved foot and locked between the bar and bracket when the bar is set, and released by the swinging of the bar when tripped, substantially as herein described.

2. A releasing device consisting of a bracket having a curved foot, a swinging bar pivoted to said foot, a trip catch for holding and releasing the upper end of the bar, an electro magnet and armature for operating the catch and a hitching or fastening bolt resting in the curved foot and locked between the bar and bracket when the bar is set and released by the swinging of the bar when tripped, substantially as herein described.

3. A releasing device consisting of the bracket having the curved or hooked foot, the swinging bar pivoted by its lower end in said foot, a trip catch engaging the top of the bar, and a hitching or fastening bolt seated in the curved or hooked foot of the bracket, said bolt being locked therein when the swinging bar is set and released when said bar is tripped, substantially as herein described.

4. A releasing device consisting of the bracket having the curved or hooked foot, the swinging bar pivoted by its lower end in said foot and having the upturned toe piece, a trip catch engaging the top of the bar, and a hitching or fastening bolt seated in the curved or hooked foot of the bracket, said bolt lying and being locked between the swinging bar and its toe piece when the bar is set and released and forced out when the bar is tripped, substantially as herein described.

5. A releasing device consisting of the bracket having the curved or hooked foot, the swinging gravity bar pivoted by its lower end in said foot and out of its center of gravity whereby said bar when released drops down, the trip catch engaging the top of the bar, and the hitching or fastening bolt seated in the curved or hooked foot of the bracket, said bolt being locked therein when the bar is set and released when said bar is tripped, substantially as herein described.

6. A releasing device consisting of the bracket with its curved foot, the bar B with its upturned toe piece, the pivot pin connecting the bar with the bracket and lying back of the center of gravity of said bar whereby it can drop by gravity, the notched hitching or fastening bolt lying in the bracket foot and engaged by the bar and its toe piece, and the electrically controlled trip catch engaging the top of the bar B, substantially as herein described.

In witness whereof I have hereunto set my hand.

HANS P. NIELSEN.

Witnesses:
S. H. NOURSE,
J. A. BAYLESS.