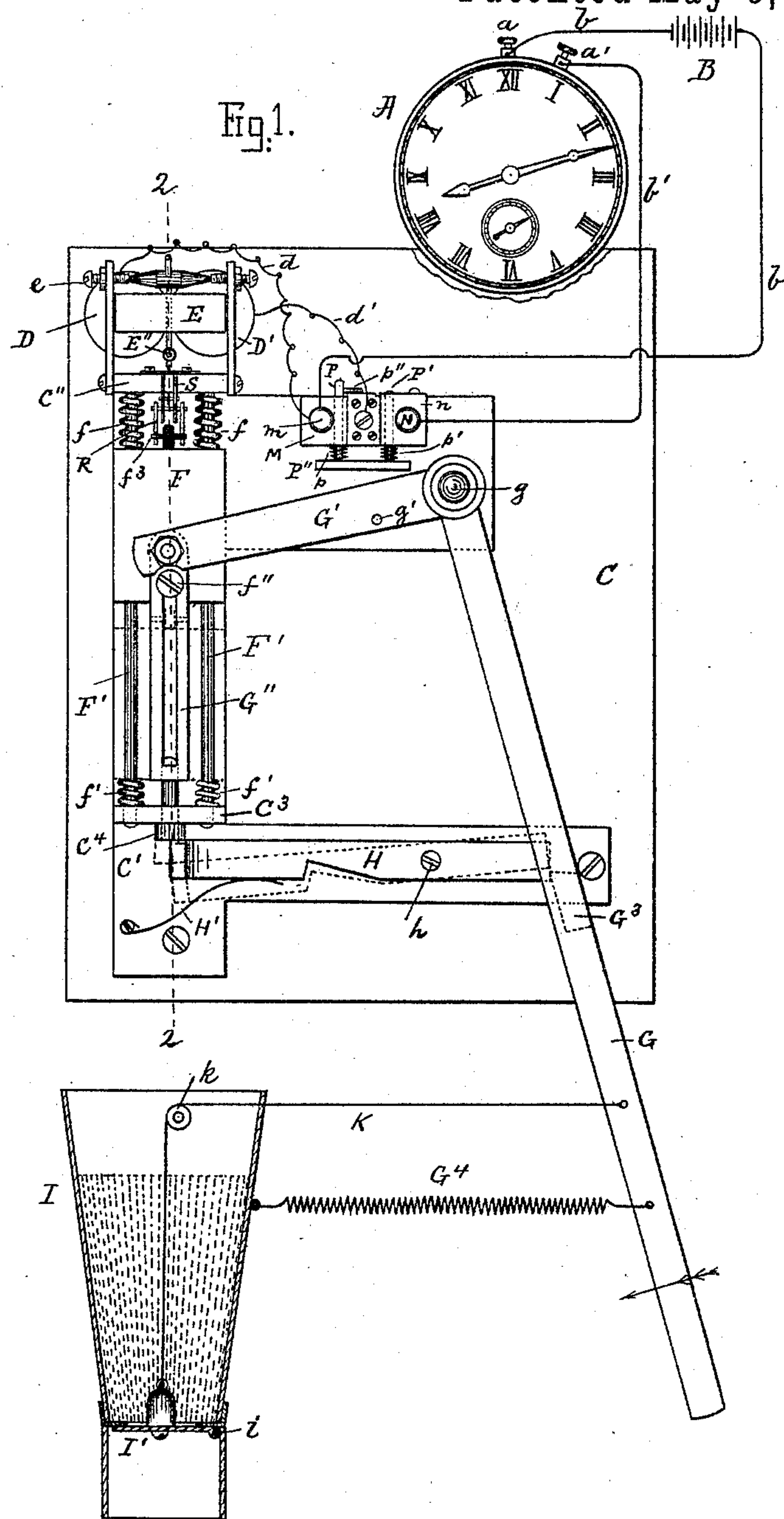


2 Sheets—Sheet 1.

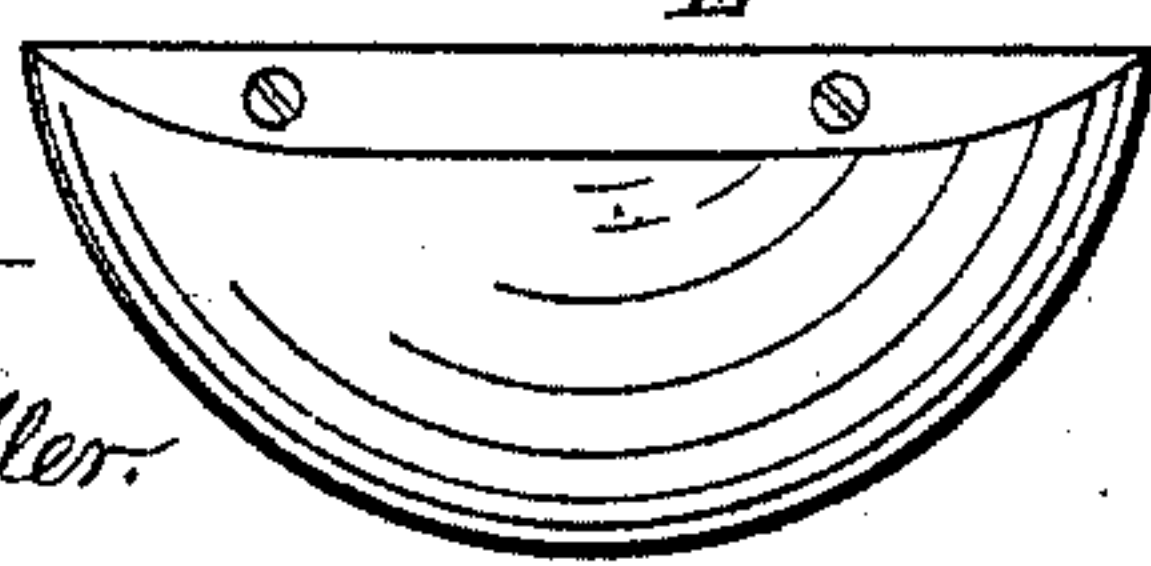
No. 497,203.

Patented May 9, 1893.



Witnesses.

Lauritz W. Moller.
Alice A. Perkins.



Inventors.

Herbert S. Page
and Livy Spear.

by Wm. Andre their atty.

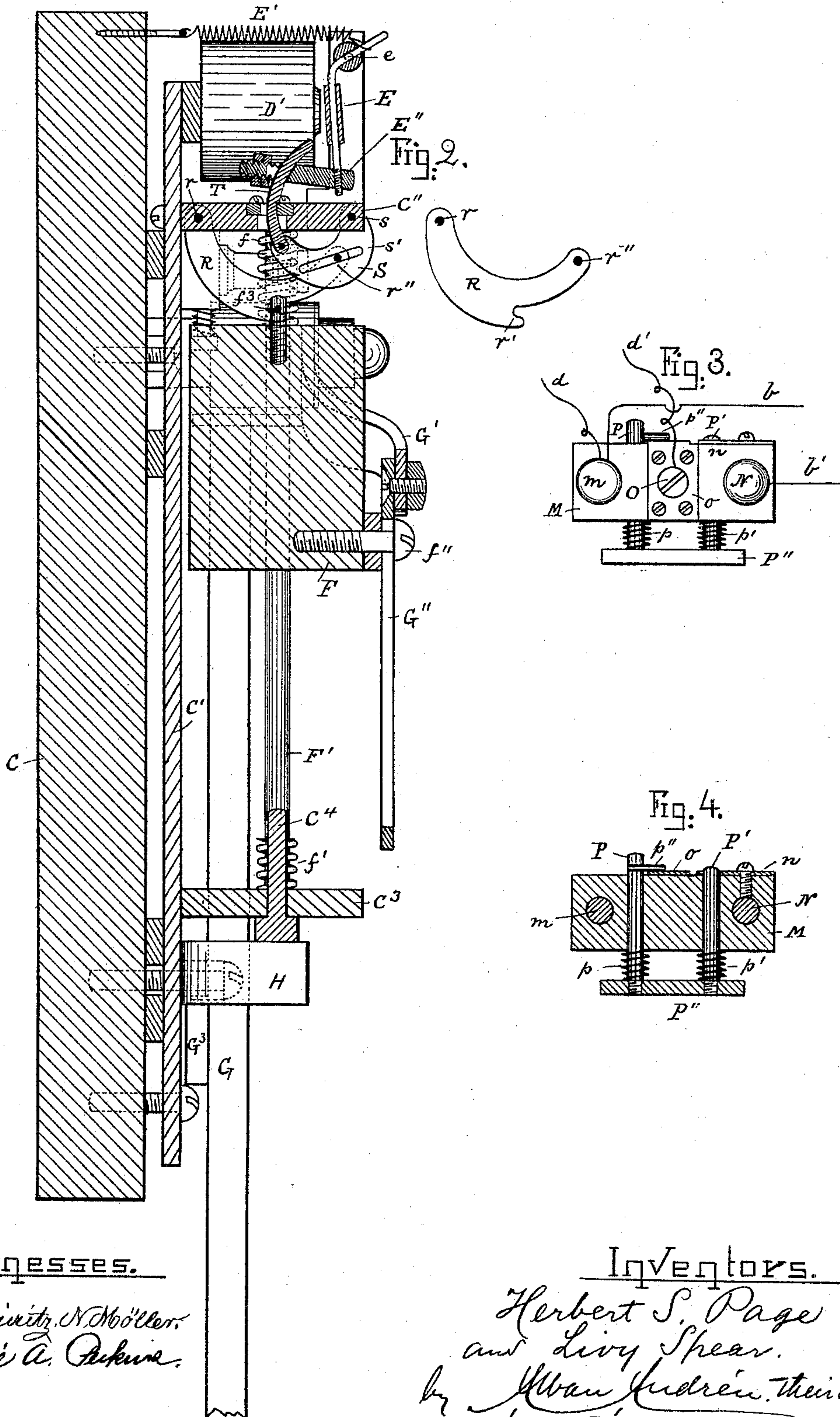
(No Model.)

2 Sheets—Sheet 2.

H. S. PAGE & L. SPEAR.
ELECTRIC TIME STOCK FEEDER.

No. 497,203.

Patented May 9, 1893.



UNITED STATES PATENT OFFICE.

HERBERT S. PAGE, OF MEDFORD, AND LIVY SPEAR, OF BOSTON, ASSIGNORS
TO EDMUND D. SPEAR, OF BOSTON, MASSACHUSETTS.

ELECTRIC TIME STOCK-FEEDER.

SPECIFICATION forming part of Letters Patent No. 497,203, dated May 9, 1893.

Application filed October 12, 1892. Serial No. 448,690. (No model.)

To all whom it may concern:

Be it known that we, HERBERT S. PAGE, a resident of Medford, in the county of Middlesex, and LIVY SPEAR, a resident of Boston, in the county of Suffolk, State of Massachusetts, citizens of the United States, have jointly invented new and useful Improvements in Electric Automatic Releasing Devices, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to improvements in electric automatic releasing devices and it is particularly well adapted for automatically feeding horses or other animals, at desired times, controlled by clock work or otherwise as may be desired, and it is carried out as follows, reference being had to the accompanying drawings, wherein—

Figure 1 represents a front elevation of the invention showing its connection to an animal feeding device. Fig. 2 represents an enlarged longitudinal section on the line 2—2 shown in Fig. 1. Fig. 3 represents a front view of the switch or circuit breaker; and Fig. 4 represents a vertical section of the latter.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

A represents a clock or time mechanism provided with any suitable circuit closing device connected in any well known manner to the respective binder posts a and a' from which lead wires b and b' as shown in Fig. 1.

B is the battery in the circuit on the wire b as shown.

C is the base of the automatic releasing device and in practice we prefer to attach to it, a metal plate or frame C' , but this is not essential, as the latter may be dispensed with if so desired. On the upper part of the frame C' are arranged electro magnets D and D' from which lead the respective wires d and d' , to the circuit breaker hereinafter to be described.

E is the armature which is pivoted at e and normally held away from the electro-magnets by the influence of a suitable spring E' as is common in electrical devices.

From a lever R, hereinafter explained is normally suspended a weight F which is

guided on rods F' , F' , provided in their upper and lower ends preferably with suitable springs or yielding cushions f , f , and f' , f' , for the purpose of relieving the shock or momentum of said weight as it is being moved from its highest to its lowest positions on the rods F' , F' , during the act of releasing and setting it as will hereinafter be more fully described.

G is the releasing lever which is pivoted in its upper end at g and provided with a bell crank or arm G' to the end of which is pivoted a slotted link G'' that receives a pin or screw f'' attached to the weight F as shown in Figs. 1 and 2.

In Figs. 1 and 2 the upper and lower ends of the guide rods F' , F' , are shown as attached to brackets C'' , C^3 on the frame C' .

The lever G is normally held in the position shown in Fig. 1 by means of a spring pressed lever H which is pivoted at h and has one of its ends butting against a projection G^3 on the lever G (shown in dotted lines in Fig. 1), its other end supporting a pin C^4 loosely guided in a perforation in the bracket C^3 as shown in Figs. 1 and 2.

H' represents the spring by means of which the lever H is held in the normal position shown in Figs. 1 and 2.

The improved electric automatic releasing device may be used for any desired purpose to which it is applicable. In Fig. 1, we have shown it as arranged for automatically discharging or feeding grain for horses or other animals, and in said Fig. 1, I represents a hopper or grain receptacle having pivoted to it at i , near its lower end, a weighted valve or gate I' which is connected by a chain or cord K going over a pulley k to the lever G as shown in Fig. 1. If so desired a spring G^4 may be connected to the hopper I and lever G for the purpose of swinging the latter in the direction of arrow shown in Fig. 1, when said lever is released. The descent of the weight F as it strikes the pin C^4 causes the lever H to be tripped sufficiently to disengage the lever projections G^3 from said lever H by which the weighted valve I' is also liberated and as it swings open to discharge the contents of the hopper I it causes the lever G to

move in the direction of the arrow shown in Fig. 1, which movement of lever G throws the arm G' upward and by this means the weight F is automatically raised and engaged with the lever R.

L in Fig. 1, represents a feed trough below the hopper or chute I as usual.

The improved circuit breaker which is arranged in the circuit between the electromagnets, battery and circuit-closing time mechanism is represented in Figs. 1, 3 and 4 and is constructed as follows: It consists of a plate M, made of a suitable insulating material secured to the frame C or other stationary part of the apparatus. Said plate M has a binding post *m* to which the wires *b* and *d* are metallically connected. If so desired the binding post *m* may be dispensed with and the wire *b* connected directly to the wire *d* without departing from the essence of our invention.

N is another binding post secured to the plate M, which binder post is connected to the wire *b'* leading to one of the binding posts on the clock-mechanism A as shown in Fig. 1. The binding post N is metallically connected to a metal plate *n* arranged on the plate M as shown.

O is another binder post on the plate M which is metallically connected to a metal plate *o*, and is also connected to the wire *d'* leading to the electro magnets as shown in Figs. 1 and 3.

P and P' are metal rods adapted to move in perforations in the plate M, said rods being connected in one end by means of a metal plate P'' between which and the plate M are located springs *p, p'* by means of which the parts P, P' and P'' are normally held in the position shown in Figs. 1, 3 and 4, in which position the rod P is held in metallic contact with the plate *o* and its binder post O by means of a pin or side projection *p''* on said rod P, and the springs *p, p'*. The rod P' passes through a perforation in the plate *n* and is continually in metallic contact with the latter and its binder post N.

The lever G' is provided with a pin or projection *g'* (shown in Fig. 1) which comes in contact with the spring pressed plate P'' as the lever G is moved in the direction of the arrow shown in Fig. 1 by which the circuit is broken between the binder posts N and O on account of the pin *p''* being pushed away from the plate *o* to which the binder post O is attached, thus leaving the circuit broken as long as the valve I' remains open after the discharge of the grain, &c. by which the battery is prevented from being unnecessarily used up, and shutting off the circuit from the electro magnets by which the armature E is withdrawn by the influence of the spring E' to enable the weight F to be suspended from the armature connections hereinafter to be described. As soon as the lever G is returned to the position shown in Fig. 1, a metallic con-

nection is automatically established between the posts N and O by the springs *p, p'* forcing the pin *p''* against the plate *o* to which the binder post O is connected. The link or lever R, is provided with a notch or recess *r'* for receiving a pin *f*³ on the weight F, whereby the latter is supported in its elevated position by the link or lever. This link or lever is pivoted at *r* to the inner end of a bracket C." 75

S is another link or lever pivoted at *s* to the bracket C'' and provided with a slot *s'* adapted to receive a pin or projection *r''* on the lever R as shown. To the upper end of the link S is pivoted the locking rod T having a notch or recess adapted to be locked on the bracket C'' or a plate secured thereon as shown in Fig. 2. The upper end of the locking rod T is loosely connected to a rod E'' forming a part of or connected to the armature E as shown in Fig. 2. The attraction of the armature toward the electro magnet causes the link T to be released allowing the links R, S to spread apart, one moving inward and the other outward, whereby the weight F is liberated and allowed to drop onto the pin C⁴ by which the lever H is tripped, and the lever G is liberated from the latter and caused to swing in the direction shown by the gravity of the released weighted valve I', which allows the grain to drop out from the chute or hopper I at or about the same time as the weight F is caused to move upward to its normal locked position by the movement of the said lever G in the direction shown by the arrow in Fig. 1, thus automatically returning and locking the weight F in position for a subsequent operation. Preparatory to placing a new charge of grain, &c., in the hopper, the handle lever G is swung back to its normal position shown in Fig. 1 causing it to be locked in such position by the spring actuated lever H at the same time as the valve I' is returned to its closed position. At the appointed time when the clock A closes the circuit the armature E will be attracted to the electro magnet causing the suspended weight F to be liberated for the purpose of opening the valve or gate I' and so on from time to time as may be required. The invention although particularly designed for automatically feeding horses or other animals may to equal advantage be used as an automatic releasing device for any other purpose to which it may be applicable without departing from the essence of our invention. 120

What we wish to secure by Letters Patent and claim is—

1. The combination with a time mechanism, an electro magnet, and an armature, of a vertically movable weight, a lever mechanism normally supporting the weight and released by the attraction of the armature to free the weight, an electric circuit including the time mechanism and magnet, a battery and circuit breaker in the circuit, a lever loosely connected with the weight, a trip normally en-

gaging the lever and released therefrom by the descent of the weight, and means for swinging the lever to operate the circuit breaker and raise the weight when said trip
5 is operated, substantially as described.

2. In an electric automatic releasing device, an electro magnet and armature combined with a locking link T connected to said armature, a pair of links R, S, pivoted together
10 and to the link T and means substantially as described for suspending and releasing the weight F as and for the purpose set forth.

3. In an automatic electric releasing device, the combination with a time mechanism, of
15 the herein described circuit breaker, consisting of an insulator M having binder posts N, O, and a spring pressed plate P'' having rods P, P', one of the latter having a projection adapted to break the circuit by the movement
20 of the said rods in the insulator M, substantially as and for the purpose set forth.

4. The combination of a circuit closing

clock, a battery, an electro magnet, an armature, a circuit breaker in the circuit, a lever mechanism held in operative position by the
25 armature, a weight supported by the lever mechanism and released by the closing of the circuit, a lever connected to a discharge device I and arranged to break the circuit when released, and a trip arranged to hold the lever
30 and operated by the descent of the weight, substantially as described.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, on this 24th day of
35 September, A. D. 1892.

HERBERT S. PAGE.

LIVY SPEAR.

Witnesses to Herbert S. Page:

ALBAN ANDRÉN,

ALICE A. PERKINS.

Witnesses to Livy Spear:

CHAS. F. PARKER,

K. E. PARKER.