

(No Model.)

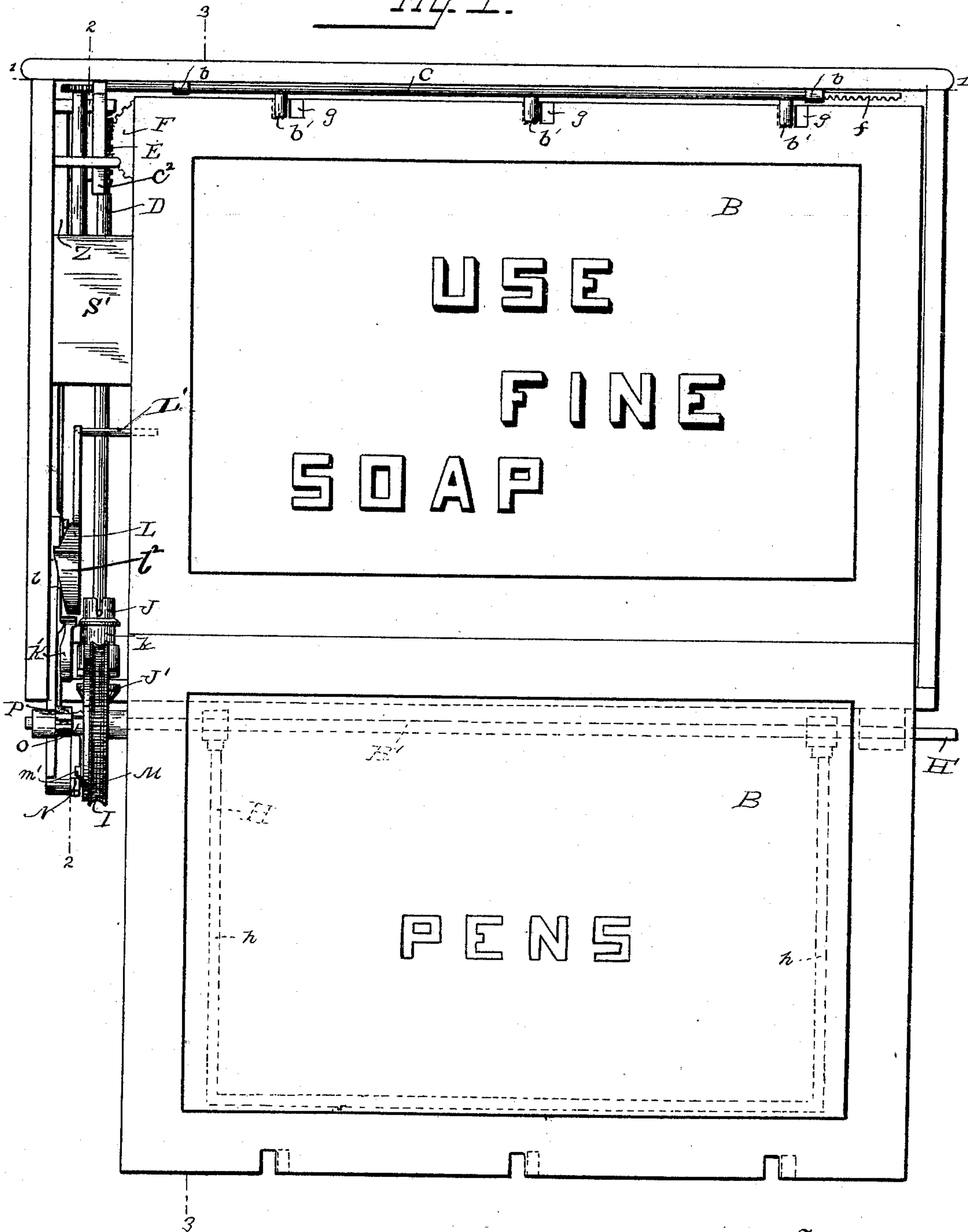
3 Sheets—Sheet 1.

M. ANTHONY.
ADVERTISING MACHINE.

No. 509,640.

Patented Nov. 28, 1893.

Fig. 1.



Witnesses
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his Attorney

(No Model.)

3 Sheets—Sheet 2.

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Fig. 2.

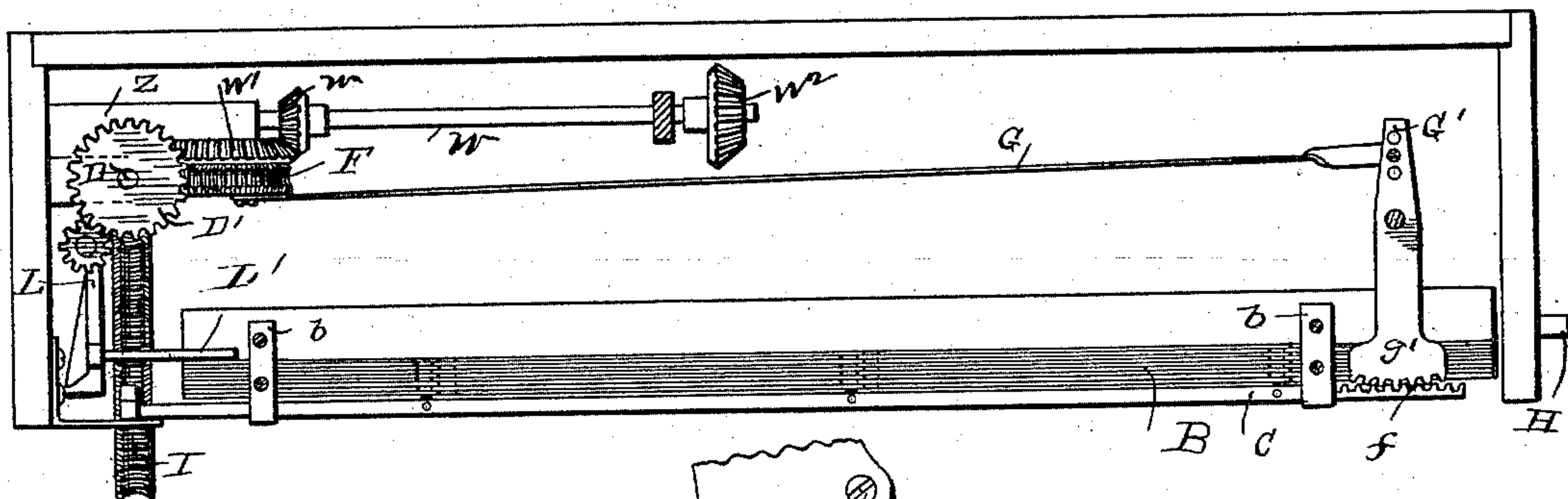


Fig. 5.

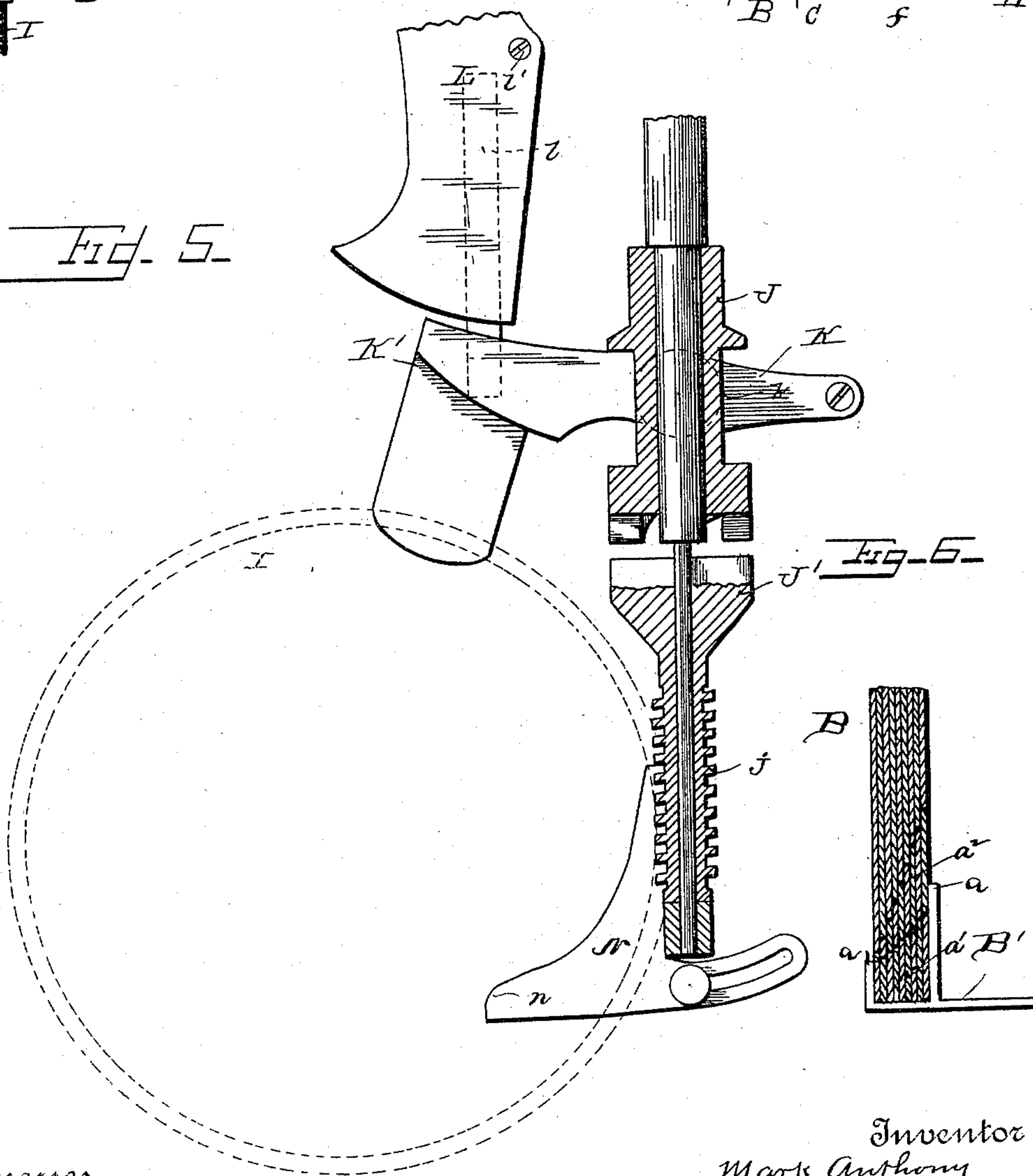
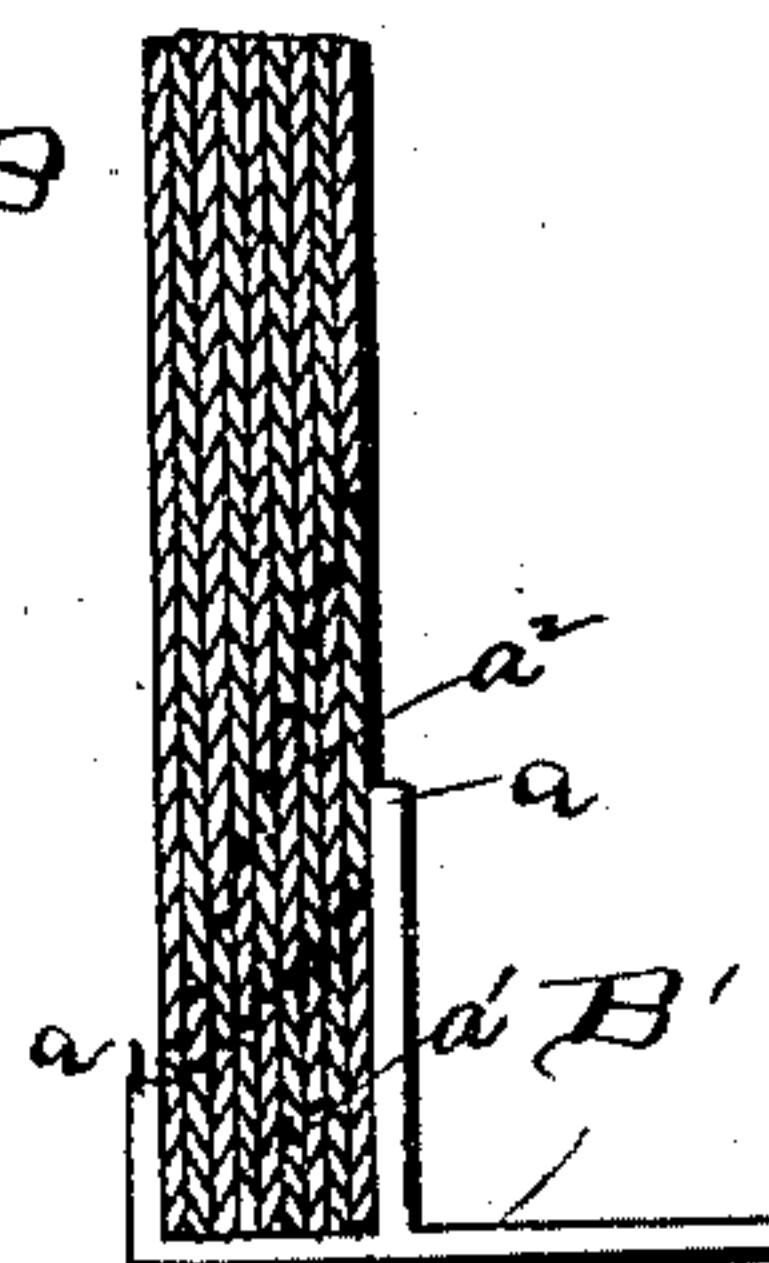


Fig. 6.



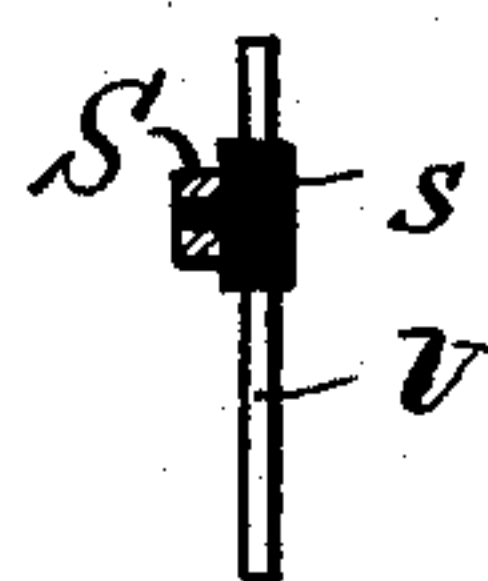
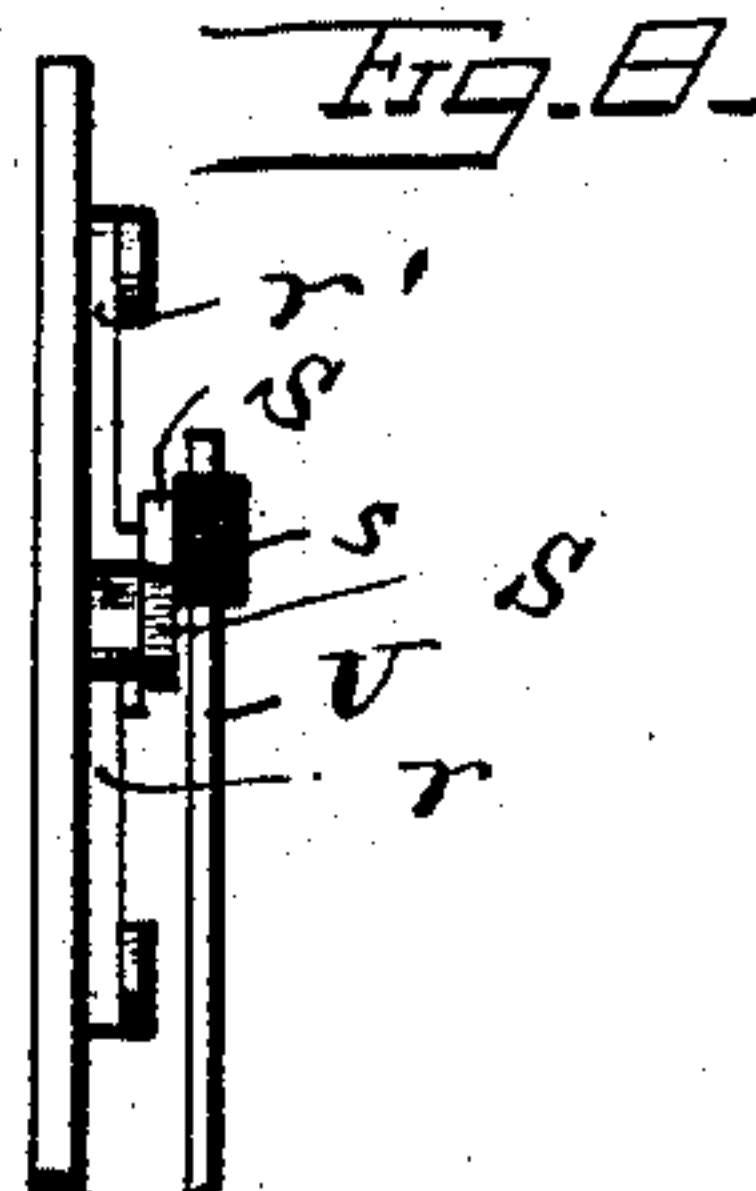
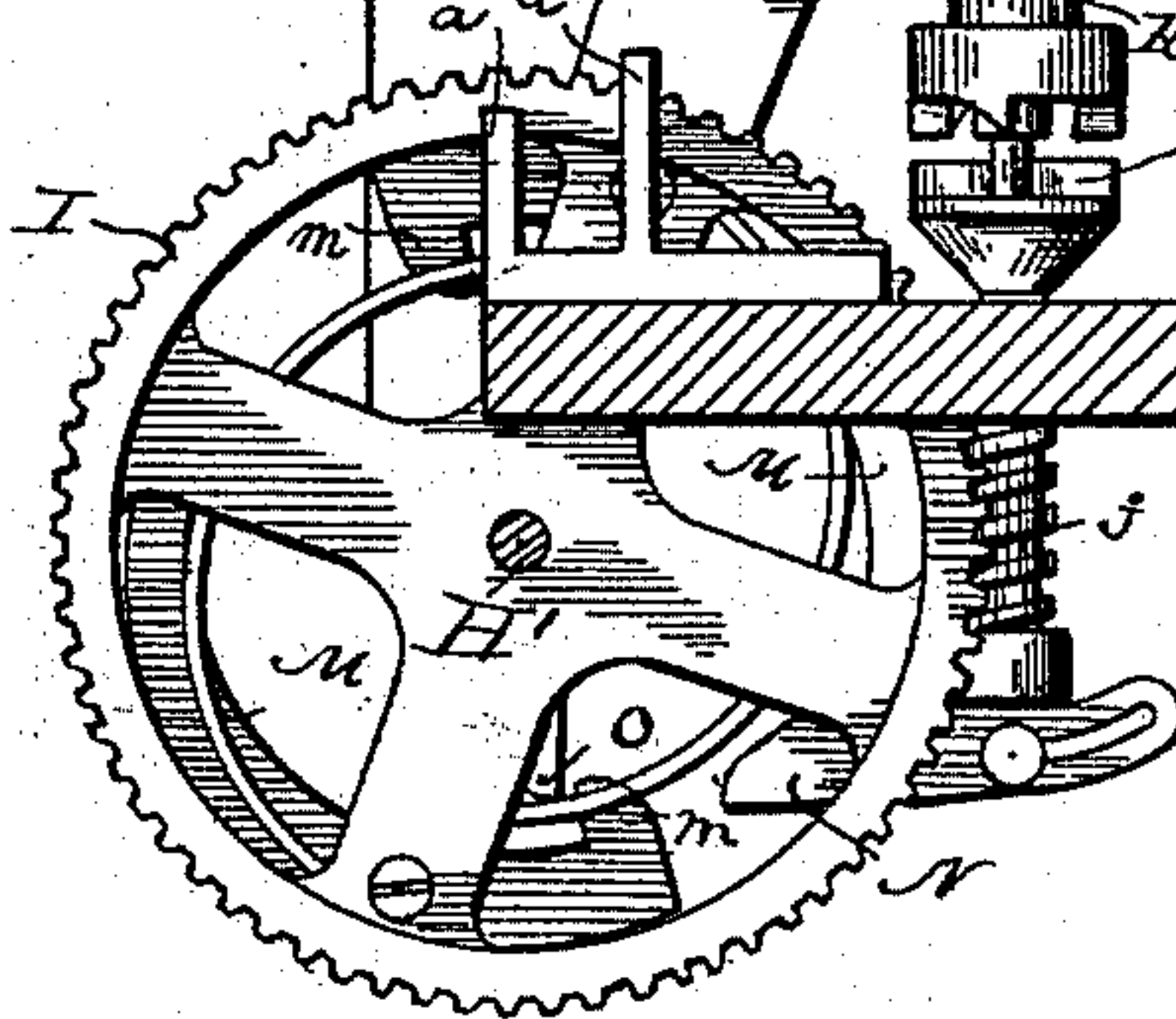
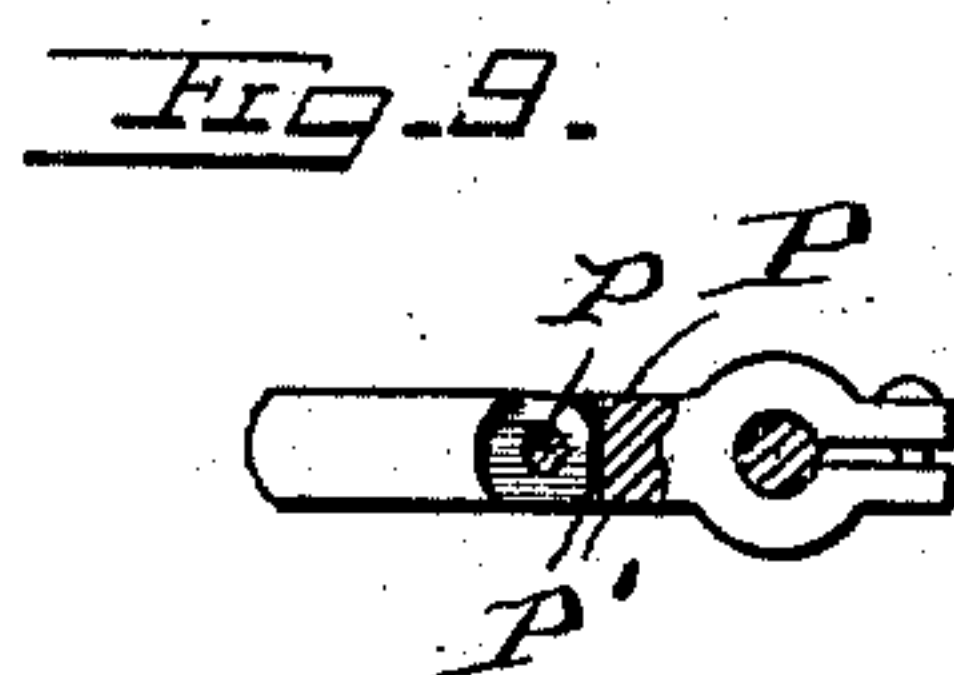
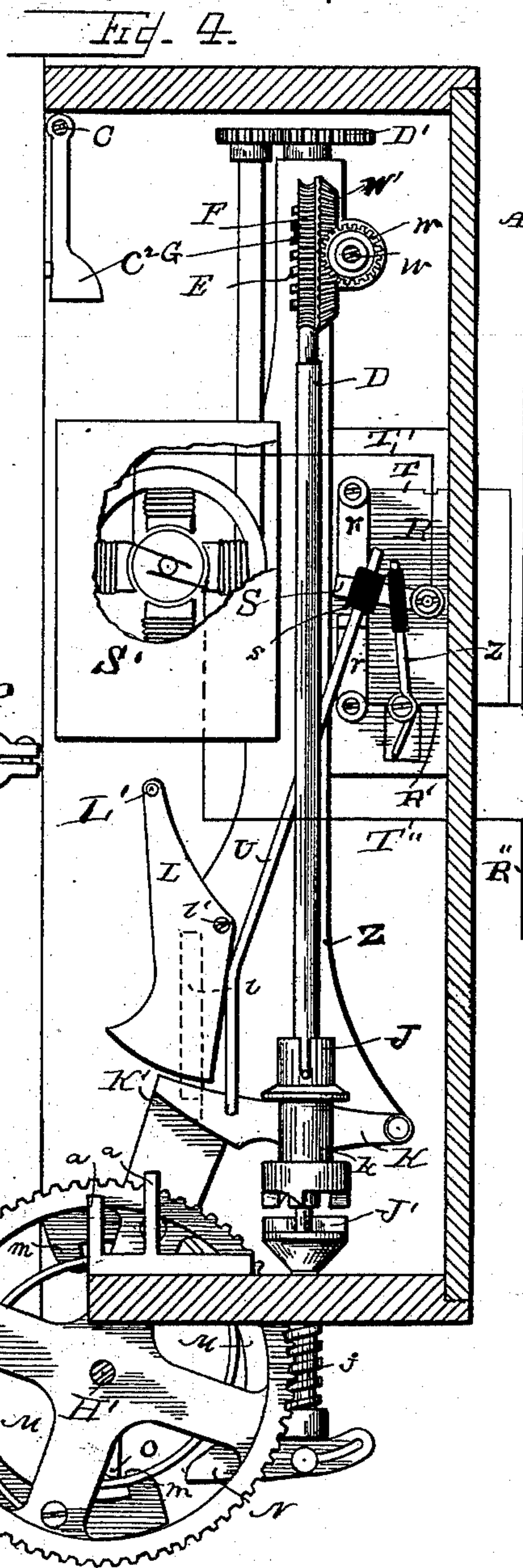
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3 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

MARK ANTHONY, OF BERKELEY, CALIFORNIA.

ADVERTISING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 509,640, dated November 28, 1893.

Application filed December 31, 1891. Renewed December 13, 1892. Again renewed July 31, 1893. Serial No. 482,018. (No model.)

To all whom it may concern:

Be it known that I, MARK ANTHONY, a citizen of the United States, and a resident of Berkeley, in the county of Alameda and State of California, have invented certain new and useful Improvements in Advertising-Machines and Street and Station Indicators; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in machines for exhibiting in succession a series of advertisements, or of names of stations on tramways or railways, and the like, and it consists in the novel construction and combination of parts as hereinafter described.

In the accompanying drawings I have shown a particular construction which is well adapted for my purpose, but it will be understood that its details may be varied without departing from my invention.

Figure 1 is a front elevation of the machine with one of the leaves of the book dropped. Fig. 2 is a top or plan view of the machine with cover removed, as indicated by line 1—1 in Fig. 1. Fig. 3 is a vertical section on the plane of line 2—2 of Fig. 1, looking to the right. Fig. 4 is a vertical section on the plane of line 3—3 of Fig. 1, looking to the left, but with the book removed. Fig. 5 is a detail sectional elevation of the clutch mechanism, with the driven gear indicated by dotted lines. Fig. 6 is a sectional detail view of the lower portion of the book showing the manner in which its leaves are held in place. Fig. 7 is a detail edge view of the electric switch device. Fig. 8 is a cross section of the switch arm with a portion of its connecting rod. Fig. 9 is a detail elevation, partly in section, of the arm for disengaging the clutch.

In the drawings the letter A designates a frame in the forward portion of which is supported a book B on the leaves of which are printed the desired advertisements or names of stations and the like. The lower edge of this book is held in the lugs a, a , of the fixed plate B', and the upper edge is designed to

be held by the longitudinal rod or bar C, which has loose bearings b in the upper forward edge of the frame. On this rod or bar is a series of depending lugs or projections b' , which are designed to rest against the leaves of the book and to prevent said leaves from falling downward by gravity, the book being held in a slightly inclined position. Said leaves are provided with a series of notches g at their upper edges which are alternately offset with respect to each other in successive leaves; and it is only when the lugs b' on the bar C are brought into alignment with said notches, as hereinafter more fully described, that a leaf is permitted to fall.

In order that the leaves may be arranged to fall in succession from a perpendicular position above the lugs a, a , to a perpendicular position nearly below the lugs a, a , the book is constructed in the manner shown in Fig. 6. The fixed or hinge-bearing portion a' of each leaf from front to rear is made higher or longer than the corresponding portion of the leaf in front of it by about the thickness of the leaf. To each fixed portion a' is hinged a stub or joint a^2 , each of the stubs a^2 being longer than the one in front of it by about twice the thickness of a leaf. To the outer edge of each stub a^2 is hinged a leaf. The result of this arrangement is that when the book is up the stubs and leaves occupy the positions shown in Fig. 6, the leaves standing nearly straight up, and as each leaf after the first is allowed to fall its stub a^2 lies horizontally upon the one which fell before it and projects beyond it sufficiently to allow the leaf hinged thereto to hang perpendicularly from its edge.

D designates a vertical shaft located preferably near one end of the frame and provided with suitable bearings at each end. On the upper end of this shaft, or at any other suitable point thereon is a gear wheel D' or other suitable device, through which power may be applied to the shaft. On the upper portion of the shaft may be fixed a worm E, which is in engagement with a worm-wheel F hung on a horizontal axis, and having an eccentric connection with a pitman or connecting rod G. The other end of the rod is connected to one arm of a pivoted lever G' near the other end of the frame, the other

arm of which carries at its end a toothed segment g' , the teeth of which are in engagement with a rack f on the end portion of the bar or rod C. As said bar is capable of an endwise sliding movement in its bearings, it will be apparent that when said shaft D is actuated, the rod C will be longitudinally reciprocated through the medium of the pitman and the segment-carrying lever. The book B being in place, at a certain point during the reciprocation of the rod C the lugs or projections b' will be brought to alignment with the notches g of the first leaf of the book, and said leaf will fall downwardly and over by gravity.

As the advertisements or other printed matter are usually printed on both sides of the leaf, not only will the advertisement on the face of the second page be displayed, but also that on the other surface of the first page, which has fallen. As the rod C continues to reciprocate, the lugs b' come into alignment with the notches of the second page, which, as before stated, are offset with respect to the notches of the preceding page, and said second page will fall, and so on until all the leaves are exhausted.

In order that the leaves of the book, when they are again restored to their normal, elevated position, may be engaged and held by the lugs b' as before, the rod C is capable of oscillating on its axis so that the lugs may yield backward as the leaves are pushed against them from the front. A weighted arm C^2 or equivalent spring is fixed to the rod to return the lugs to the position in which they will retain the leaves.

To automatically return the book to its original position, after all its leaves have fallen, so that the operation will be continuous, I provide the mechanism now to be described. As the leaves fall, as above described, they drop against a lifter which may consist of a depending bail H, the arms h of which are fast to a longitudinal shaft H' , held loosely in its bearings. On this shaft, at that end of the machine where is located the driving shaft D, is loosely sleeved a large gear wheel I. On the lower portion of the shaft D is a clutch, the upper section J of which, while turning with said shaft, is capable of an endwise movement thereon. To permit this endwise movement and at the same time to cause said section to rotate always with the shaft D, the section is loosely sleeved on the shaft, but has a vertical slot j' therein which engages a pin j'' on the shaft. Said pin prevents any rotary movement of the section independently of the shaft, but allows a limited vertical movement by reason of the slot. The lower clutch-section J' is loosely sleeved on the shaft. The lower portion of the sleeve of this section J' has a worm j thereon, which is in engagement with the wheel I.

The clutch is adapted to be operated to bring the bail actuating mechanism into operative connection with the driving shaft D

by an automatic shifter which will presently be described. The shifter might be either spring-impelled or weight-impelled but preferably, by reason of the greater certainty of action, consists of an arm or lever K pivoted at its rear end to the main casing of the machine, and weighted at its forward end as shown at K' . This arm is in engagement with a reduced or grooved portion k of the upper sliding clutch section J, or otherwise loosely connected therewith in any suitable manner, and when raised, carries said section out of engagement with the lower section J' , the arm being retained in raised position by means of a spring catch l which is secured to the frame or casing in such position and is so bent or hooked that it will engage a lip on said arm K, when the latter is raised, as above stated and as shown in Figs. 1 and 3. In this position the shaft D turns loosely in the clutch section J' and gear wheel I is not actuated. The shifter is disengaged or released from the detent which holds it in abnormal position by the falling of the last leaf of the book and in order that the shifter may have sufficient power to effect its object with certainty and yet that too great pressure may not be put upon the leaf or leaves I prefer to interpose between the leaves and the shifter a releaser which may easily be held in abnormal position by the last leaf. This releaser likewise might be either spring-impelled or weight-impelled, but for the reasons above noted preferably consists of a ponderous body or weighted dog L which is pivoted to the casing at l' . This ponderous body or dog bears a cam l^2 and has an arm L' , which projects at right angles thereto, and which rests against the back of the last leaf when the leaves or any of them are up. The stiffness of the leaves is sufficient to hold the dog in raised position. When, however, the last leaf falls, the dog swings slightly on its pivot, forcing backward the spring catch l , by means of the cam l^2 and releasing the weighted arm K, which carries with it the clutch section J and thereby throws the lower section J' into gear with the rotating shaft D. The gear wheel I is normally loose on the shaft and in order to effect a rigid connection between the parts when the worm is thrown into gear, I attach to said wheel the curved arms M, having each at one end a hook m . Each of said arms has also a spring m^2 which is connected at one end to the wheel and at the other end bears against the arm. These springs serve to hold the arms in position to engage with an arm O which is rigidly fixed on the shaft H' , as hereinafter described. Each arm M is pivoted to the wheel at a point between its ends, and at the opposite end from the hook m each has a friction roller m' which is designed to engage and travel on an adjustable cam N fixed to the main casing.

On the shaft H' is rigidly fixed the arm O, which, as the wheel I is turned by the worm, is engaged by the hook of one of the arms M and effects the connection between said wheel

and the shaft so that as said wheel continues its movement it rocks the shaft and raises the bail H and the book therewith. When the bail has been raised sufficiently to return the book to its original position, the friction roller m' on the arm M reaches the point n of the cam N which raises the hook out of engagement with the arm O, breaking the connection between the shaft H' and the wheel I, and allowing the bail to fall by gravity to its original position. As it comes to this position, a second arm P, having an elbow joint and fast on the shaft H', comes into engagement with the weighted end of the arm K, said elbow joint being then straight and rigid, and throws said arm K upwardly together with the upper clutch section J, where it is caught and held by the catch l , and the connection between the shaft D and wheel I is thereby broken.

The arm P, as shown in Fig. 9, is preferably formed in two sections connected by a pin p , said sections on their abutting ends having each a shoulder p' , so arranged that while the outer section may flex with relation to the inner section in one direction, it will by the abutment of said shoulders, be rigid with said inner section so far as movement in the other direction is concerned. It will be apparent, therefore, that as said arm comes into position to engage the lever arm K, it will be rigid against the contact of said lever. By means of the arm L' the book, when brought to its original position, carries back the dog L and the cam l^2 out of engagement with the catch l and permits the latter to engage the arm K. The parts are then all in position for a second operation.

If a small electric motor is used to supply power it is evident that a greater current will be required when the book is being raised, than is normally required to reciprocate the rod C, and to regulate the current supplied to the motor, I provide a switch device R. (See Figs. 4, 7 and 8.) This may comprise the two contact plates r, r' , and the movable switch arm S, adapted to contact with either plate r, r' . The contact plate r is connected by the supply wire R^1 with the main line wire R^2 , while to the contact plate r' is connected a fine resistance wire T which is a shunt from said supply wire. The arm S has an electrical connection T' with one binding post of the motor S', the other binding post being electrically connected with the main line wire by a wire T². Said arm S has an insulated connection s with a rod V, which at its other end is loosely connected to the weighted arm or lever K, or to any other movable part of the mechanism, in such a manner that when said clutch section is raised, an endwise thrust will be given said rod. This endwise thrust is sufficient to move the switch arm S out of contact with the plate r , and into contact with the plate r' . When the clutch section again falls into engagement, a downward pull is exerted on

said rod which brings said switch arm back into contact with the plate r . It will therefore be apparent that when the leaves are being dropped, the motor will receive a slight current only through the resistance wire, but that when said leaves are being raised, it will take the full current. In place of the fine resistance wire, any suitable resistance may be employed.

Z is a spring bearing against the arm S to hold it in close contact, said spring being insulated from the arm, as shown.

If it is desired to run a display stand, automaton or other device at the same time, and from the same power, a shaft W may be provided having a bevel gear pinion w thereon, or other suitable gear in engagement with a pinion or gear w' connected to the gear wheel F; said shaft also carrying a gear w^2 for running the gear of the display stand or automaton.

Many variations of the details of the mechanism which has been chosen for illustration of the principles of my invention will suggest themselves and it is to be understood that I do not limit myself to the arrangement shown. I believe that I am the first to devise a machine of this character wherein the movement of the last of a series of hinged or independently moving leaves is made to set in motion mechanism whereby all of the leaves are returned to their original position in readiness to be released and moved again one by one, whereby the action of the apparatus is made automatic and continuous so long as the motor, of whatever kind it may be, continues to run, and therefore, in this respect especially, my invention is not limited to the particular mechanism shown for producing this result.

I claim as my invention—

1. In an exhibiting machine, the combination with a series of independently movable leaves and mechanism for successively displaying said leaves, of gear for returning said leaves to their original position, a device held in abnormal position by said leaves and released by the movement of the last leaf, and mechanism acted upon by said device upon its release for automatically putting said gear into action, substantially as shown and described.

2. In an exhibiting machine, the combination with a book having a series of leaves bearing indications or advertisements and mechanism for successively displaying said leaves, of a lifter for returning said leaves to their original position, gear for operating said lifter, and a device held in abnormal position by said leaves and released by the turning of the last leaf for putting said gear into action, substantially as shown and described.

3. In an exhibiting machine, the combination with leaves and mechanism for successively displaying said leaves, of a lifter, its shaft, and a gear wheel on said shaft, and a device held in abnormal position by said leaves and released by the turning of the last

leaf and operating to throw said gear wheel and shaft into engagement with the display mechanism, substantially as shown and described.

5 4. The combination with a book having notched leaves, a reciprocating rod adapted to successively release said leaves and means for operating said rod, of a device held in abnormal position by said leaves and released
10 by the turning of the last leaf and mechanism operated by the release of said device for automatically returning said leaves, substantially as shown and described.

5 5. The combination with a book having a series of leaves bearing advertisements or indications and mechanism for successively displaying the leaves, a shaft from which said mechanism is operated, a lifter, its shaft, the loose gear wheel, the worm loose on the first
20 named shaft in engagement with said wheel, a device held in abnormal position by said leaves and released by the turning of the last leaf, clutch mechanism operated by the release of said device for making said worm
25 fast to its shaft, means operated by said wheel to cause its connection with its shaft to operate said lifter, means for automatically loosening said wheel to allow the lifter to return, and means for throwing said worm out of
30 gear by the return of the lifter, substantially as shown and described.

6. In an exhibiting machine, the combination with a series of leaves bearing the indications or advertisements, devices for successively displaying said leaves, and devices
35 for automatically returning them to their original position upon the display of the last leaf, of a motor for operating said display and returning devices, and a switch operated
40 automatically by a connection with the returning devices for controlling said motor, substantially as shown and described.

7. The combination with a book having notched leaves, and a reciprocating bar having depending legs or projections, of a lever

having a toothed segment in engagement with a rack on said bar, and a connecting rod and gear for operating said lever, substantially as shown and described.

8. In an exhibiting machine, the combination with the bail, its shaft, and the gear wheel loosely sleeved on said shaft, of pivoted hooked arms on said wheel, an arm on the shaft designed to be engaged by the hooked arms, a cam device for throwing the
55 hook out of engagement, and means for operating said wheel, substantially as shown and described.

9. In an exhibiting machine, the combination with the main or power shaft and the clutch thereon, of the weighted arm having a connection with one of the clutch sections, means for automatically raising said arm, a catch for retaining it in raised position, and a pivoted dog having a cam for releasing said
65 catch, substantially as shown and described.

10. A book for exhibiting machines, composed of a series of fixed hinge-bearing portions, each higher or longer than the one in front, a series of stubs hinged to said fixed
70 portions, each stub being longer than the one in front, and a series of leaves hinged respectively to the outer edges of said stubs, substantially as shown and described.

11. In an exhibiting machine, the combination of a book and mechanism for successively releasing the leaves of said book, the book being composed of a series of fixed hinge-bearing portions, each higher or longer than the one in front, a series of stubs hinged
80 to said fixed portions, each stub being longer than the one in front, and a series of leaves hinged respectively to the outer edges of said stubs, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

MARK ANTHONY.

Witnesses:

PHILLIP C. MASI,
SAMUEL KER.