

(No Model.)

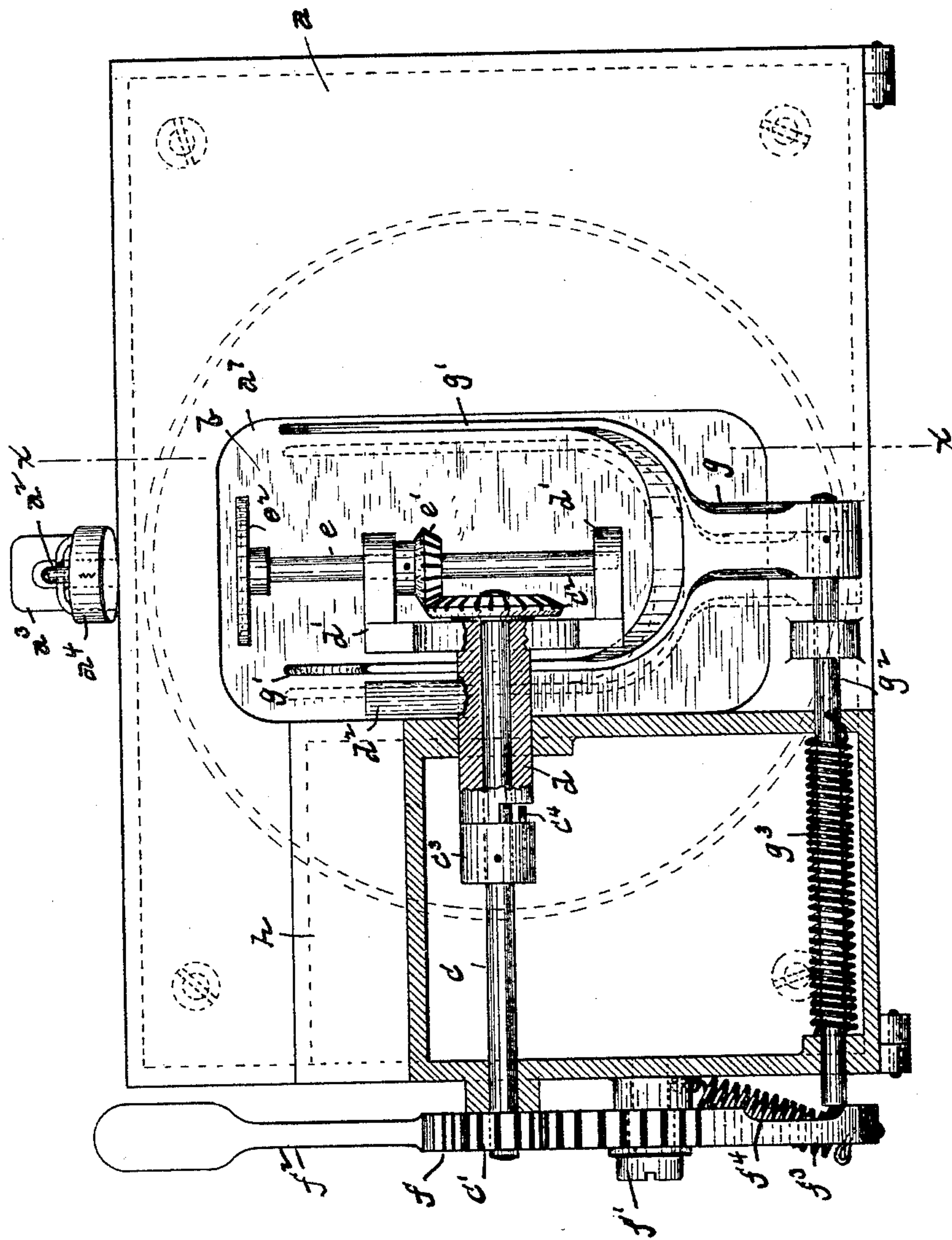
3 Sheets—Sheet 1.

C. F. GROSVENOR & H. E. HOLMES.
TOILET PAPER FIXTURE.

No. 460,775.

Patented Oct. 6, 1891.

Fig - 1



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Fig-3

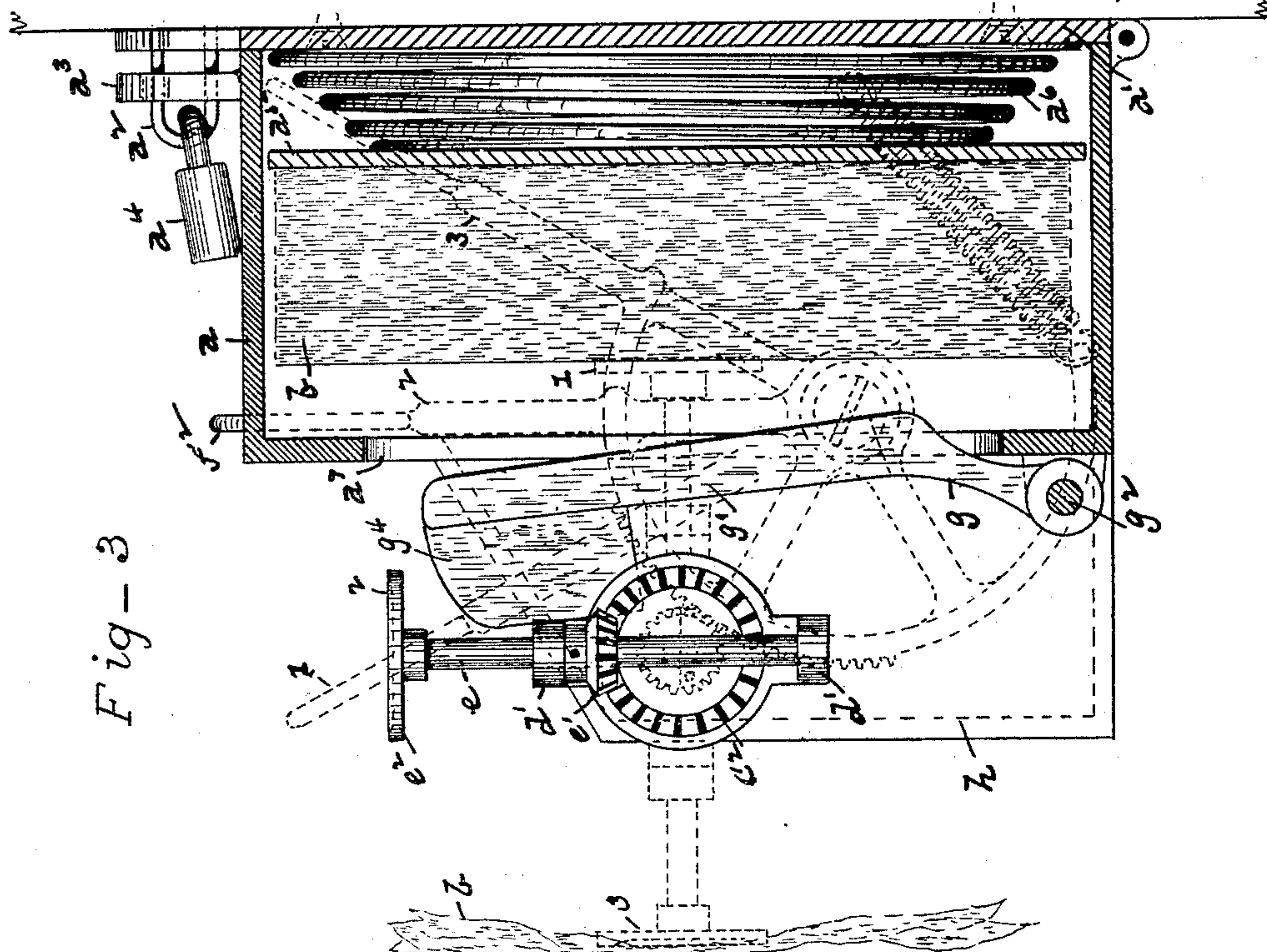
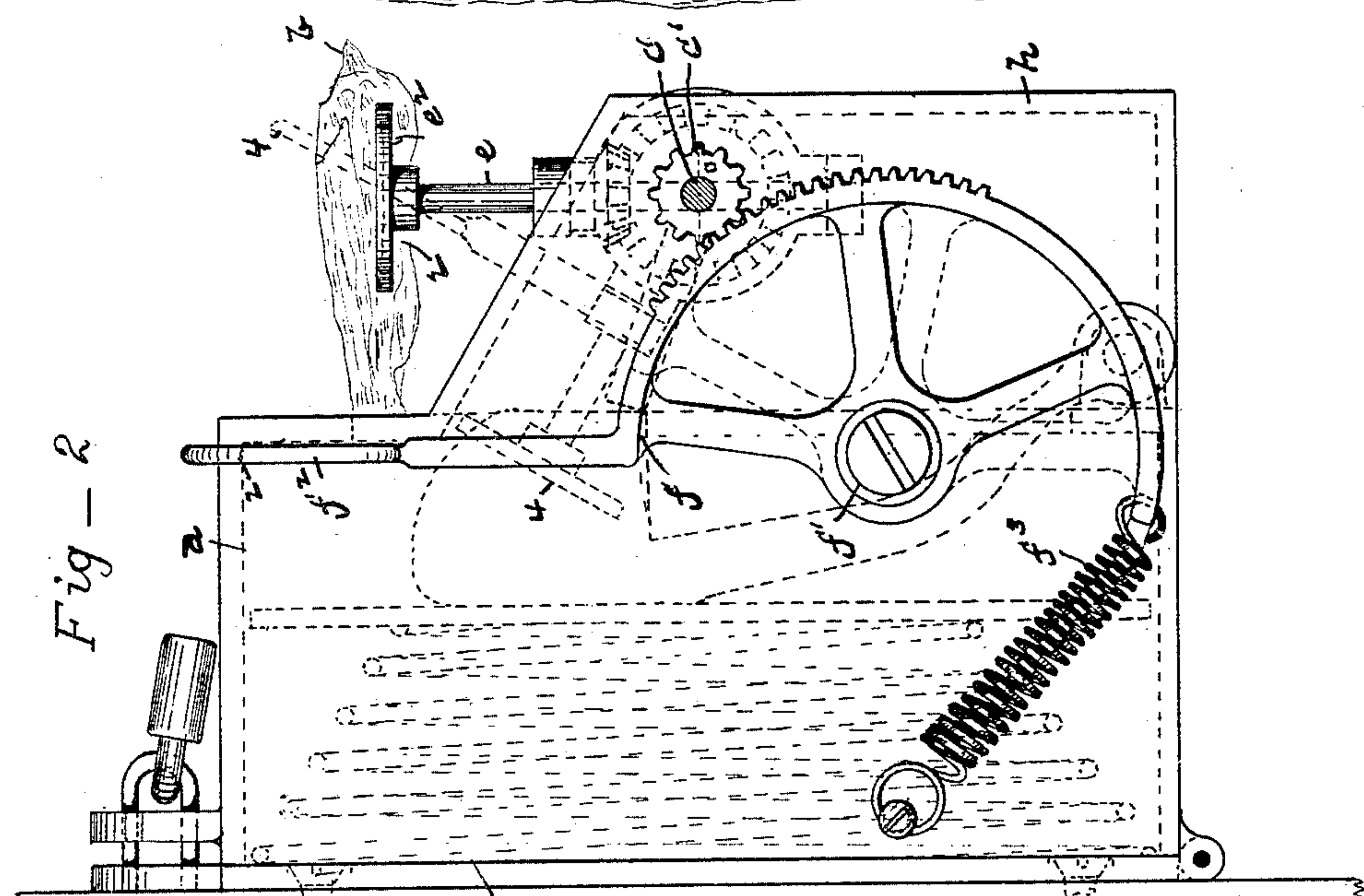


Fig-2



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UNITED STATES PATENT OFFICE.

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TOILET-PAPER FIXTURE.

SPECIFICATION forming part of Letters Patent No. 460,775, dated October 6, 1891.

Application filed December 15, 1890. Serial No. 374,845. (No model.)

To all whom it may concern:

Be it known that we, CHARLES F. GROSVENOR, of Ludlow, in the county of Hampden and State of Massachusetts, and HERBERT E. HOLMES, of Mittineague, in the county of Hampden and State of Massachusetts, have invented a new and useful Improvement in Devices for Holding and Delivering Toilet-Paper, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

Our invention relates to means for holding packages of toilet-paper in sheet form, as distinguished from those in which the paper is held in a continuous roll, and to means for delivering said sheets of paper, one at a time, from the holder as the same are required for use.

The objects of our invention are to provide a holder which is adapted to receive the paper in loose packages of any desired size, thereby obviating the necessity of previously punching the paper to receive a needle or hook within the holder and avoiding the necessity of using the paper furnished by any particular manufacturer or dealer, and to provide delivering means connected with such holder, which will infallibly deliver but one sheet at a time, thereby preventing waste of the paper.

To these ends our invention consists in the device for holding and delivering paper constructed and operating as hereinafter fully described, and particularly pointed out in the claims.

Referring to the drawings, in which like parts are designated by like letters in the several figures, Figure 1 is a front view, partly in vertical section, of a paper holding and delivering device embodying our invention. Fig. 2 is an end view thereof looking toward the right in Fig. 1. Fig. 3 is a cross-section taken upon line $x-x$ of Fig. 1. Fig. 4 is a plan view with a portion of the box or casing broken away.

The letter a designates the box or casing for holding the paper, which is preferably rectangular in shape, as shown, and of the proper length and width to receive loosely therein sheets of toilet-paper of the usual or any desired dimensions. Said box or casing

will be provided with suitable means for securing it to a wall or other support and for enabling a package of paper to be inserted therein, and we prefer to secure these results by hinging it at the bottom of its rear side to a back piece a' , which back piece is provided with a staple a^2 at its upper end, adapted to enter an eye a^3 on box a , thereby enabling the latter to be locked in its closed position by a suitable padlock a^4 , or other suitable locking means. The back piece a' is preferably secured to the wall or other support by means of screws passing therethrough from the inner side of the box a , as indicated by broken lines, thereby preventing its removal without first gaining access to the interior of said box. The box a , being thus hinged to the back piece, is adapted to be swung downwardly away from the latter whenever it is desired to insert a package of paper therein, and to be again securely locked in its closed position, thus preventing the removal of the paper, except by the delivering means presently to be described.

Within the box a is located a false bottom or other movable device capable of movement toward and away from the front side of the box, which is constantly pressed in the former direction by a spring a^5 , said spring, as herein shown, being of convolute form and of considerable diameter to secure a substantially uniform degree of pressure against said false bottom throughout its range of movement. Centrally located in the front side of box a is the delivery opening a^7 , and the sheets of paper b , being placed in the box in front of said false bottom, are pressed by the latter and its spring against or toward the front side of the box in such manner that a limited portion of the outermost sheet at or near its center is exposed to the action of the delivery device through said opening. To remove said sheets through said opening a^7 one at a time, we depend upon the action of a frictional device which is caused to engage the outermost sheet, impart a turning or twisting movement thereto to disengage it from the remaining sheets of the package, and then withdraw the crumpled sheet through said opening by engaging it at or near its center. Various arrangements of mechanism for thus engaging

and withdrawing the sheets of paper can be employed within the spirit of our invention, but we prefer to use that shown in the drawings and which will next be described.

5 The letter *c* designates a shaft revolubly mounted in suitable bearings at the front side of the box or casing *a*, which shaft at one end projects beyond the end of said box and has mounted thereon a pinion *c'* and at its
10 opposite end projects in front of the opening *a'* of the box and carries at said end a bevel or other gear-wheel *c''*. Surrounding said shaft at its inner end or the end to which the gear *c''* is secured is a hub *d*, which passes
15 through the adjacent bearing for said shaft in such manner as to be capable of rotation about the shaft as a center and independently of the latter. At its inner end said hub carries two bracket-arms *d'*, in which is
20 mounted a shaft *e*, the axis of which is perpendicular to that of shaft *c*, upon which shaft is mounted, between said bracket-arms, a bevel or other gear *e'*, which meshes with gear *c''*, whereby revolution of shaft *c* will impart
25 a similar movement to said shaft *e*. At one end thereof the shaft *e* carries a head *e''*, which, as shown, is circular in form, and has its face slightly concaved, as indicated by broken lines, said face being preferably covered with rub-
30 ber or otherwise provided with a frictional surface. Said head *e''* constitutes the medium for engaging and exerting a twisting frictional action upon the paper, and while we have shown a head which is of circular or disk
35 form, it will be understood that the same could consist of radial arms or have various other forms without affecting its operation. The shaft *e* is of such length that in its normal position the head *e''* will project within
40 the box through the opening *a'*, the shaft at such time occupying a position perpendicular to the face of the outermost sheet of paper, and the paper being pressed squarely against head *e''* by the false bottom and its spring.

45 The preferred means for revolving shaft *c* consists of a sector-lever *f*, pivoted at *f''* to the end of box *a*, said lever being provided with teeth which mesh with those of pinion *c'* and with a suitable handle *f'* for convenient manual operation thereof, whereby, by moving
50 said lever about its pivot in one direction, shaft *c* will be revolved in the opposite direction, and vice versa, the movement of said shaft *c* being transmitted to shaft *e* through the gears *c''* and *e'*, as described. A coil-spring *f''*, secured at one end to the box and at the other to said sector-lever, normally retains said lever in its forwardmost position, in which position of said lever the head *e''* on
60 shaft *e* bears against the face of the outermost sheet of paper in the box, as before described. It will be obvious that with the parts in such position if lever *f* be moved rearwardly a revolving movement will be imparted to head *e''*, and that the latter, by reason of its frictional engagement with the
65 outermost sheet of paper, will twist the latter

from its center in such manner as to disengage it from the next sheet and cause it to become bunched about said head. The sheet 70 so bunched still remains within the box, however, and it becomes necessary to withdraw the head with the paper through the opening *a'* of the box in order to enable the sheet to be used. This result we secure by impart- 75 ing a partial revolution to hub *d* about shaft *c* as a center, and thereby swinging shaft *e* bodily in such manner as to reverse the position of its ends, the head *e''* and the sheet of paper being carried upwardly and outwardly 80 in said swinging movement. We provide for producing such partial revolution of hub *d* from a continuous movement of the shaft *c* by rigidly securing upon the latter a collar *c''*, having projecting from the end thereof a 85 stud or pin *c'''*, adapted to engage the end of the hub, and by providing for a certain amount of lost motion between said stud or pin and the hub, which lost motion, in the example shown, is secured by cutting away a 90 portion of the end of the hub to form a shoulder extending diametrically across said end, against which said stud or pin is adapted to be brought by a partial revolution of shaft *c* in either direction. 95

In order to prevent head *e''*, as it returns to its normal position against the paper from exerting a downward-rubbing action against the outermost sheet and crumpling the latter in such manner as to interfere with its 100 proper action in picking up said sheet, we employ a compressor to force back the package of paper against the stress of spring *a''*, sufficiently to permit said head to resume its normal position without touching the paper, 105 whereupon the compressor is retracted, and the paper is forced against said head by spring *a''*. As herein shown, the compressor is composed of a U-shaped lever *g*, having the upwardly-extending arms *g'*, adapted to enter the 110 opening in the front side of the box and to bear against the package of paper at each side of the vertical plane in which the latter is engaged by head *e''*. At its lower end said lever *g* is rigidly secured to a shaft *g''*, which is sup- 115 ported in suitable bearings at the lower front side of the box in such manner as to be capable of a rotary and also of a slight endwise movement, and which projects slightly beyond the end of the box, as shown in Fig. 1. 120 A coil-spring *g''*, surrounding said shaft and connected at one end to the shaft and at its opposite end to the box, normally retains the arms of lever *g* out of engagement with the paper or in the position shown in Figs. 3 and 125 4, and tends to move shaft *g''* in a direction to cause its end to project to a greater distance beyond the end of the box or toward the left in Fig. 1. The end of said shaft is thus caused to bear against the inner side of 130 sector-lever *f*, which lever is provided upon said inner side with a depression or recess *f''*, into which the end of said shaft normally projects, thus causing the lever *g* to normally oc-

cupy the position indicated by broken lines in Fig. 1. The end walls of said depression or recess f^4 are beveled, thereby enabling the sector-lever to act as a cam as the depression is moved past the end of shaft g^2 to force the latter and lever g to the position shown by full lines in Fig. 1, as will be presently described. To secure the requisite rotary movement of said shaft g^2 to move lever g rearwardly against the paper and depress the latter, we utilize an arm d^2 on hub d , so located lengthwise of said hub as to engage one of the arms g' of said lever only when the latter occupies its normal position, said arm being provided with a wing g^4 at its upper end and upon its front side, against which said arm d^2 acts and beneath which it is held to positively prevent rotary movement of the hub while head e^2 is given its initial revolving movement.

In Figs. 2 and 3 the different positions of the sector lever and head e^2 , (shown by full and broken lines,) are designated by corresponding numerals, and, referring more particularly to said figures, the operation of the device is as follows: Starting with the normal position of said parts, indicated by the numeral 1, in which the paper is pressed squarely against head e^2 by spring a^6 , and compressor g occupies the position indicated by broken lines in Fig. 1 with its wing g^4 overlapping arm d^2 on hub d , the handle f^2 of the sector-lever is grasped and moved rearwardly or away from the operator, thereby imparting a rapid revolving movement to shaft e and head e^2 through shaft c , pinion c' , and gears c^2 e' , and causing the outermost sheet of paper to become bunched about head e^2 , hub d during such initial movement of said head being positively held against accidental rotary movement by wing g^4 of the compressor, as before described. Shortly before the sector-lever reaches the position designated by numeral 2, the end wall of the depression f^4 therein is brought into engagement with the end of shaft g^2 and moves the latter and the compressor to the position shown by full lines in Fig. 1, and pin c^4 on collar c^3 is brought into contact with the shoulder on hub d and begins to revolve the latter, so that when said sector-lever reaches said point (designated by numeral 2) shaft e has been swung upwardly to a substantially vertical position, head e^2 carrying with it the bunched sheet of paper, as represented by full lines in Fig. 2. The continued movement of the sector-lever to its extreme rearward position (designated by numeral 3) carries shaft e to the position similarly indicated, in which its ends are reversed, head e^2 still carrying the sheet of paper, as indicated by broken lines in Fig. 3. The sheet of paper is thus withdrawn from the box and presented to the operator in crumpled form by a continuous backward movement of the sector-lever. If now the sector-lever be released, spring f^3 immediately returns it to its normal position,

its forward movement at first simply revolving shaft e and head e^2 in the reverse direction, thereby releasing the sheet of paper, and then as pin c^4 is brought into contact with the opposite side of the shoulder on hub d swinging said shaft and head back to their normal position. When the sector-lever and head e^2 in such return movement have arrived at substantially the position indicated by numeral 4 in Fig. 2, the recess f^4 in the sector-lever is again brought opposite to the end of shaft g^2 , and said shaft is forced by its spring g^3 into said recess, thus returning compressor g to its normal position laterally, whereupon arm d^2 on hub d engages the front side of wing g^4 on said compressor, and by the continued rotation of said hub, rocks the same rearwardly against the paper, pressing the latter toward the rear of the box as the head e^2 nears its normal position, and enabling said head to resume such position without rubbing against the outermost sheet. When said arm d^2 on hub d reaches its lowest position, it clears wing g^4 on the compressor, and the latter is moved outwardly by its spring g^3 , thereby permitting the paper to be moved against head e^2 by spring a^6 , and causing said wing g^4 to again overlap said arm d^2 , as before. All of the parts are thus restored to their normal positions, and the device is ready to be again operated to withdraw a second sheet of paper. Sheets of paper can thus be withdrawn from the box as rapidly as the sector-lever can be moved back and forth about its pivot, the head e^2 infallibly taking up a single sheet at a time without displacing in any manner the succeeding sheet. To protect the shafts c and g^2 from dirt and injury, we prefer to inclose them within a housing h at the front side of box a , as shown, the side walls of the housing thus affording bearings for said shafts, and, if desired, a hood or cover for the remaining parts of the delivery mechanism, having an opening to admit of the passage of head e^2 with the sheet of paper can be employed.

By rendering it impossible to withdraw the paper from the holder except by a single sheet at a time, the device devised by us tends to obviate waste of the paper, and by delivering the sheets in crumpled form the likelihood of a quantity of paper being carried away for future use is greatly lessened — results of prime importance to those who furnish paper for workshops, hotels, railway-stations, and other public places. Furthermore, by obviating the use of any detaining device for the package of paper, such as a needle or hook, we do away with the time and trouble involved in punching or otherwise preparing the package to receive such detaining device each time the paper is renewed in the holder. Again, by withdrawing the paper from the holder through an opening in the front side of the latter, and by a device which engages the sheet in a plane perpendicular to the face of the same, we are enabled to make the de-

livery mechanism operate successfully with sheets of any size greater than that of said opening in the holder, and thereby enable the owner of the holder to purchase his paper in flat form and cut it into sheets of any desired size. A great saving in the expense of keeping the holder supplied with paper is thus effected, as compared with those forms of holders which are only adapted to receive paper of a certain form, and which must be procured of one particular manufacturer or dealer. By making the holder of metal, as is preferred, it presents a neat and attractive appearance, and is given the requisite strength and durability.

Believing ourselves to be the first to devise a holder for toilet-paper in which a sheet is withdrawn through an opening in the front side thereof by a device which exerts a combined rubbing and twisting action against the central portion of said sheet, we do not wish to limit ourselves to the exact details of construction herein shown and described for securing such result, as various modifications therein can be made without departure from the spirit of our invention.

Having thus fully described our invention, what we claim, and desire to secure by Letters Patent, is—

1. A holder for toilet-paper, consisting of a box adapted to receive a package of paper, said box having its rear side open and having at its front side an opening for the withdrawal of a sheet of paper, a back piece, to which said box is hinged at its rear side, said back piece having within the area thereof covered by the box in its closed position, means, such as screw-holes, whereby it can be securely fastened to a wall or other support, and means for locking said box in its closed position upon said back piece, substantially as and for the purpose set forth.

2. A holder for toilet-paper, consisting of a box-like receptacle for a package of paper having in the front side thereof and lying wholly within the edges of said side, a centrally-located opening of less area than that of the sheets of paper composing said package and provided with a spring adapted to press the paper toward said front side, and a delivery device for engaging the outermost sheet of paper at or near the center thereof and withdrawing it from the receptacle through said opening, combined and operating substantially as described.

3. A holder for toilet-paper, consisting of a box-like receptacle for a package of paper having in the front side thereof a centrally-located opening and provided with a spring to press the paper toward said front side, a rotating head adapted to bear against the outermost sheet of paper in the plane of said opening in the receptacle, and means for withdrawing said head through said opening, combined and operating substantially as described.

4. A holder for toilet-paper, consisting of a

box-like receptacle for a package of paper having in the front side thereof a centrally-located opening and provided with a spring for pressing the paper toward said front side, a shaft carrying at one end thereof a head which is adapted to bear against the outermost sheet of paper, said shaft being supported in bearings which are movable to advance said head through the opening in the receptacle and to withdraw it therefrom, and means for imparting a revolving movement to said shaft, combined and operating substantially as set forth.

5. A holder for toilet-paper, consisting of a box-like receptacle for a package of paper having in the front side thereof an opening of less area than that of the sheets of paper composing said package and provided with a spring for pressing the paper toward said front side, a hub revolubly mounted in bearings at the front side of said receptacle and having its axis parallel with the front side of the latter, a shaft supported in bearings upon said hub, the axis of which is perpendicular to that of the hub, said shaft carrying at one end thereof a head adapted to be moved into contact with the outermost sheet of paper through the opening in said receptacle by the rotation of said hub, and means, substantially as described, for imparting a revolving movement to said shaft and a rotary movement to said hub, combined and operating substantially as set forth.

6. A holder for toilet-paper, consisting of a box-like receptacle adapted to receive loosely therein a package of paper, said receptacle having in the front side thereof a centrally-disposed opening and provided with a spring adapted to press the paper toward said front side, a hub revolubly mounted in bearings at the front side of said receptacle, the axis of which is parallel with the front side of the latter, said hub having at one end thereof bearings for supporting a shaft, a shaft supported in said bearings and having its axis perpendicular to that of said hub, said shaft carrying at one end thereof a head adapted to bear against the face of the outermost sheet of paper within the receptacle, a secondary shaft passing loosely through said hub and having gear connection with said head-carrying shaft, and intermediate connections, substantially as described, between said secondary shaft and said hub, whereby a partial revolution is imparted to the latter by the former to move said head into and out of the receptacle through the opening in the latter, combined and operating substantially as described.

7. The combination, with a box-like receptacle for loosely holding a package of toilet-paper, having in the front side thereof a centrally-disposed opening for exposing an area of the outermost sheet of paper lying wholly within the edges of such sheet and provided with a spring for pressing the paper toward said front side, of an engaging device for en-

gaging the outermost sheet of paper movable toward and away from the paper through said opening in the receptacle, and a compressor also movable toward and away from the paper for holding the paper out of the path of movement of said engaging device until the latter reaches its operative position, substantially as set forth.

8. The combination, with a box-like receptacle for holding a package of toilet-paper, having in the front side thereof a centrally-disposed opening and provided with a spring for pressing the package of paper toward said front side, of a hub revolubly supported in bearings at the front side of said receptacle and having its axis parallel with said side, a shaft supported in bearings on said hub with its axis perpendicular to that of the latter, said shaft carrying at one end thereof a flattened head adapted to bear against the face of the outermost sheet of paper when said shaft occupies its normal position, a secondary shaft passing loosely through said hub and having gear connection with said head-carrying shaft, intermediate connections, substantially as described, between said secondary shaft and said hub, whereby a partial revolution will be imparted to the latter from the former to move said head into and out of engagement with the package of paper, means for manually operating said secondary shaft, a pivotally-supported compressor-lever adapted to be moved into and out of engagement with the paper, a spring normally retaining said lever out of engagement with the paper, and means, as an arm on said hub, for moving said lever into engagement with the paper and forcing the latter out of the path of movement of said head as the latter approaches its normal position, substantially as and for the purpose described.

9. In a holder for toilet-paper, the combination, with the box *a*, having an opening in the front side thereof and a spring for pressing a package of paper loosely placed within said box toward said front side, of hub *d*, shaft *e*, supported upon said hub and carrying a head, as *e*², shaft *c*, passing loosely through said hub, said shaft having gear connection at one end with said shaft *e* and carrying at its opposite end pinion *c*¹, toothed sector-lever *f*,

operatively engaging said pinion *c*¹, collar *c*³, mounted upon shaft *c* and having stud or pin *c*⁴, adapted to engage a stop on hub *d*, and spring *f*³, arranged and operating substantially as set forth. 55

10. In a holder for toilet-paper, the combination, with box *a*, having opening *a*⁷ therein and provided with false bottom *a*⁵ and spring *a*⁶, of hub *d*, provided with arm *d*², shaft *c*, intermediate connections between said shaft and hub, whereby the latter is given a partial revolution from the former, sector-lever *f*, engaging a pinion on said shaft and having a recess, as *f*⁴, in the side thereof, compressor-lever *g*, shaft *g*², adapted to have both a revolving and an endwise movement in its bearings, said shaft carrying said lever *g* at one end and having its opposite end in engagement with the side of said sector-lever, and springs *g*³ and *f*³, arranged and operating substantially as set forth. 60 65 70

11. A holder for toilet-paper, consisting of a box-like receptacle adapted to receive loosely therein a package of toilet-paper, said receptacle having in one of the sides thereof an opening of less area than that of the sheets of paper composing said package and having a spring arranged to press the paper toward said opening, and a delivery device for withdrawing said sheets of paper one at a time through said opening, the same consisting of a shaft revolubly supported in movable bearings and carrying at one end thereof a disk having a slightly-concaved frictional face adapted to bear against the face of the outermost sheet of paper in the normal position of said shaft, means, substantially as described, for imparting an initial revolving movement to said shaft to cause the outermost sheet of paper to become bunched about said disk, and means, substantially as described, for imparting movement to the bearings in which said shaft is supported to withdraw said disk and the sheet of paper from the receptacle, combined and operating substantially as set forth. 75 80 85 90 95

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