May 19, 1953 W. E. GOUGH, JR 2,639,099

HOLDER FOR REPLACEABLE PAPER ROLLS

Filed Aug. 17, 1948 2 Sheets-Sheet 1

Fig. 1

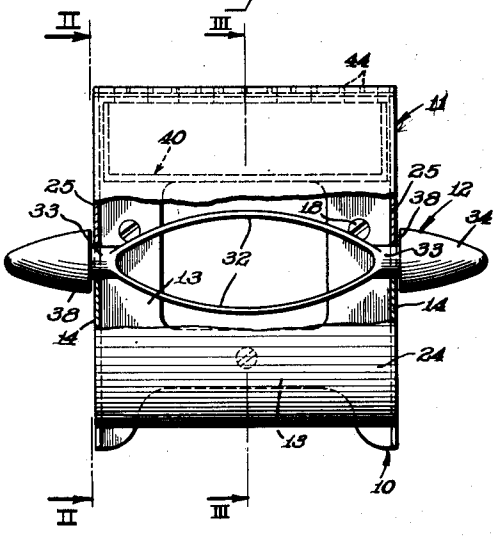


Fig. 2

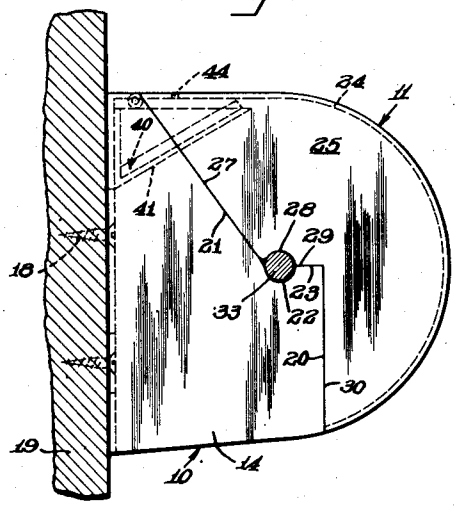
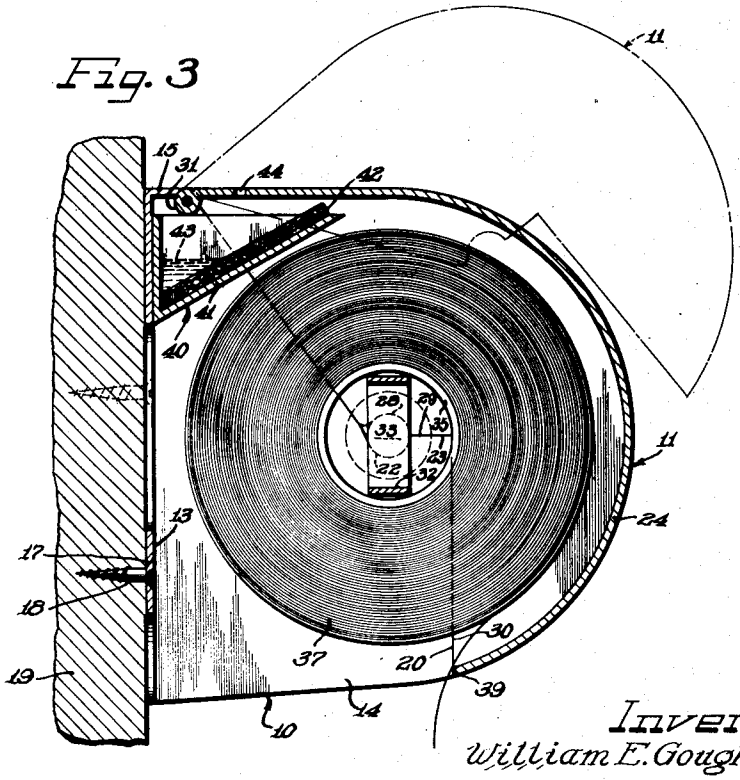


Fig. 3



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Fig. 4

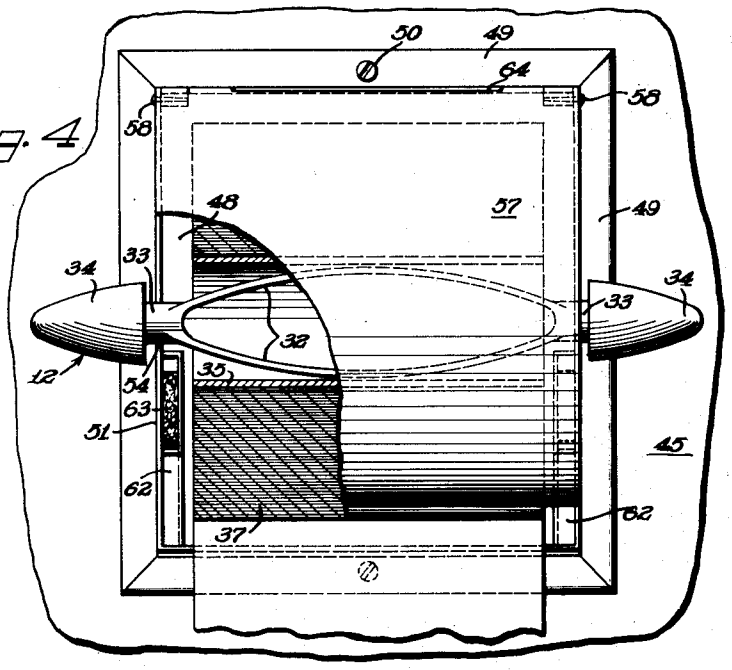
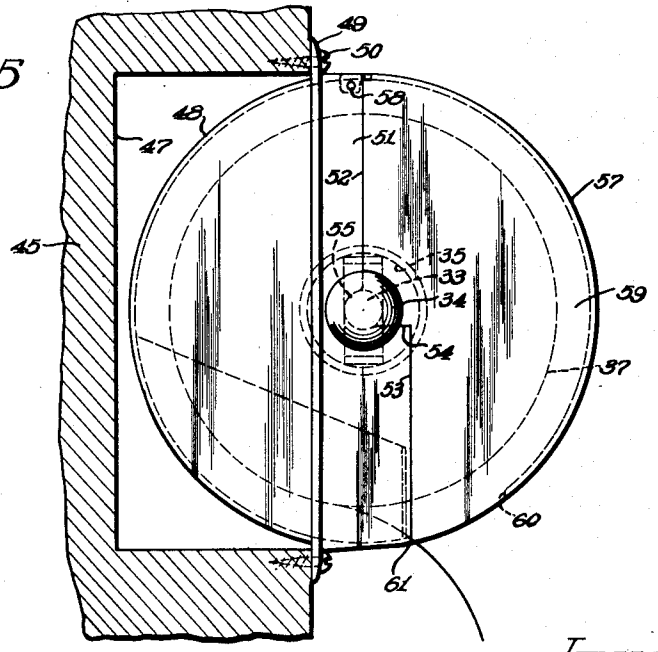


Fig. 5



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HOLDER FOR REPLACEABLE PAPER ROLLS

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6 Claims. (Cl. 242—55.2)

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This invention relates to improvements in holders for replaceable paper rolls and more particularly concerns holders of the type which are adapted to serve as bathroom or kitchen fixtures.

An important object of the present invention is to provide improvements in holders for replaceable paper rolls, such as toilet paper, paper towels, or the like, and which will afford an attractive ornamental fixture in which the paper roll is concealed from view.

Another object of the invention is to provide an improved holder for replaceable paper rolls which is conveniently constructed and arranged for ready replacement of the rolls and which is adapted to be made inexpensively from plastic material.

A further object of the invention is to provide a replaceable paper roll holder which can be made of a minimum number of components.

Still another object of the invention is to provide an improved holder for paper rolls and which includes a concealed deodorant or perfumant supply structure.

Another object of the invention is to provide an improved holder for replaceable paper rolls in which the rolls are supported in an improved manner.

It is also an object of the invention to provide an improved mandrel structure for replaceable paper roll fixtures.

Other objects, features, and advantages of the present invention will be readily apparent from the following detailed description of certain preferred embodiments thereof taken in conjunction with the accompanying two sheets of drawings, in which:

Figure 1 is a front elevational view of a paper roll holder embodying features of the invention and with certain portions thereof broken away and in section for clarity of illustration;

Figure 2 is a side elevational and sectional view of the holder taken substantially on the line II—II of Figure 1;

Figure 3 is an enlarged central vertical sectional view of the holder taken substantially on the line III—III of Figure 1 and disclosing in end elevation a paper roll inserted in the holder;

Figure 4 is a front elevational view of a modified form of the holder and with certain parts broken away and in sections for purpose of clarity; and

Figure 5 is a side elevational view of the holder of Figure 4.

A paper holder according to the present invention, and as shown in Figures 1, 2 and 3, comprises merely three principal components, namely, a base or bracket member 10, a cover member 11 and a mandrel member 12. Each of these members is adapted to being made as a unit from a suitable plastic material and adapted to be molded in one piece and in any preferred color or combination of colors. As a result, the completed unit affords an inexpensive, highly attractive fixture for a bathroom, kitchen, or the like.

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The bracket member 10 comprises a vertical back panel 13 and forwardly extending vertical, preferably parallel, spaced side panels 14, while the upper edge of the back panel is preferably formed with a forwardly projecting narrow flange 15 which may join at its ends with the upper edges of the side panels 14 and affords reinforcement to assist in maintaining the latter in proper spaced relation. Appropriate apertures 17 are afforded in the back panel 13 to accommodate fastening means such as screws 18 by which the bracket is adapted to be secured to a wall 19 or the like.

Each of the side panels 14 is preferably formed with a generally vertical lower front edge portion or section 20 and an upper inset diagonal edge portion or section 21 extending from the flange 15 diagonally downwardly and forwardly, and merging with a mandrel bearing depression 22 at the inner end of an upstanding ear portion 23 intervening between the mandrel bearing depression and the lower forward edge portion 20 of the panel.

The cover member 11 is formed with a preferably rounded contour in cross section and comprises a combination top and front wall panel 24 which may lie horizontally at the top and extend forwardly and then on a curve downwardly between spaced parallel side wall panels 25 of the same spacing as the side wall panels 14 of the bracket member and adapted in assembly to form separable forward complementary extensions of the bracket side wall panels. For this purpose each of the cover side wall panels 25 is formed at its inner edge with an upper diagonal portion 27 complementary to the diagonal portion 21 of the bracket side wall panel 14, a bearing or mandrel retainer notch or recess 28 complementary to and cooperative with the bearing recess 22, a generally horizontal edge portion 29 extending from the bearing notch complementary to the upper edge of the ear 23, and a generally lower vertical edge portion 30 complementary to and engageable with the lower edge portion 20 of the cooperating bracket side

wall 14. Thus, in assembly the side wall edges of the cover will interfit snugly and attractively with the side wall panels 14 of the bracket and provide a neat streamlined appearance.

At its upper edge the cover 11 has a hinge connection 31 with the forward edge of the bracket member flange 15. Through this arrangement the cover is adapted to be swung upwardly away from the bracket side wall panels 14 for access to the interior of the holder, substantially as shown in Figure 3 where the cover is depicted in dot and dash outline in merely partially opened condition, but it can be raised all the way up, the forwardly extending top flange 15 on the bracket offsetting the edge of the cover far enough from the wall 19 so that full opening of the cover is practicable.

The mandrel 12 is of a substantially improved construction and is adapted to be made as a one-piece resilient plastic molded structure. A salient feature of the mandrel comprises the advantageous formation of the body portion thereof as mutually acting, oppositely bowed resilient leaf clutch spring sections or portions 32. At their adjacent opposite ends the spring sections 32 are united integrally and in one piece with respective cylindrical bearing neck sections 33 terminating in suitable space relation to the ends of the spring sections in respective knob portions 34.

The spring sections 32 are bowed apart an ample distance so that the maximum outside face spacing therebetween is somewhat greater than the inside diameter of the usual core tube identified at 35 in Figure 3 of a paper roll 37 adapted to be mounted on the mandrel. Since the inside dimensions of the core tubes 35 may vary some in the rolls of paper derived from various manufacturers, the outside bowed spacing of the clutch spring sections 32 preferably exceeds the maximum inside diameter core dimension that may reasonably be expected to be obtained on the market. If desired, of course, the mandrel spring sections 32 may be especially related as to spacing for any special core size. As a result, when the mandrel 12 is inserted within the core tube 35, the central portions of the arcs of the clutch spring sections 32 will engage resiliently with the inside surface of the core tube and by the necessary compression thereof, to accommodate the smaller inside dimension of the core tube, will exert an effectual frictional grip upon the core tube which affords substantial hold upon the paper roll against turning relative to the mandrel. A tendency toward relative slipping is further inhibited by having the spring sections substantially flat in cross section so that it is actually the edges of the central portions of the spring section bows that engage the inside of the core tube strongly and tend to press into the engaged narrow linear areas of the core tube surface under the mutual outward resilient pressure of the spring sections. Since the spring sections 32 taper symmetrically toward each opposite end of the mandrel, the mandrel is adapted to be inserted into the core tube of the paper roll 37 from either end and no special attention need be paid to which end of the mandrel is inserted through the paper roll.

In order to effect a neat, yet a free turning relationship of the journal neck portions 33 of the mandrel within the bearing provided therefor by the cooperating bearing depressions and notches 22 and 28 at each respective side of the holder, the outside diameter of each of the bearing necks 33 is substantially the same as the diameter of the respective bearing apertures formed by the separable cooperating notches and recesses 22 and 28.

The length of the respective bearing or journal necks 33 is preferably equal and of such an extent between the ends of the spring sections 32 and the respective knobs 34 as to afford ample clearance for elongation and contraction of the mandrel 12 as between its condition free from the paper roll where the spring sections 32 are under maximum expansion, as seen in Figure 1, and the elongated condition of the mandrel caused by compression of the spring sections 32. In this connection, of course, the length of the spring sections 32 is substantially less than the width or spacing between the side walls 14 of the bracket member.

The knobs or handles 34 are each preferably more or less outwardly tapered or bullet shaped in order to facilitate entry into the core tube 35 of the paper roll. The length of each of the knob members 34 is preferably such as to facilitate handling of the mandrel thereby. The inner end of each of the knobs preferably is in the form of a shoulder 38 adapted to oppose the outer face of the adjacent side wall of the holder and thus cooperating to maintain the mandrel and the paper roll 37 supported thereby against appreciable end-wise shifting relative to the holder. By having the inside spacing between side walls of the holder appropriately wider than the length of the paper rolls to be supported therein, and by having the spacing between the knob shoulders 35 appropriately calculated with respect to the outside spacing between the holder side walls, the paper roll 37 when centered upon the mandrel will be substantially held by the mandrel against end-wise movement into binding relaton to either side wall of the housing whereby to assure freedom of turning movement of the roll.

In operation, the mandrel 12 is removed from the holder and assembled with the paper roll 37 by moving the mandrel endwise into position in the core tube 35 until the bearing necks and the knobs 34 are substantially equally exposed at the opposite ends of the roll. Then, with the cover 11 raised, the mandrel and roll assembly is moved transversely into the holder until the journal portions 33 of the mandrel engage against the respective diagonal side wall edges 21. Upon release of the roll and mandrel assembly it drops down and is guided by the diagonal edge portions 21 into the bearing cradle notches 22 where the mandrel journals 33 are held against escape by the upstanding ears 23. The cover 11 is then allowed to drop down into covering relation to the roll and the complementary edges of the side walls 25 of the cover engage against the edges of side walls 14 of the holder bracket.

By having the outer or front wall 24 of the cover turned rearwardly to the lower rear edge portions 30 of the side walls 25, the roll 37 within the holder is completely concealed from the front of the holder while nevertheless a large opening is present rearwardly of the lower edge of the cover front wall between the side walls 14 of the bracket and forwardly of the rear panel 13 of the bracket through which the end of the paper roll extends for withdrawal as needed. Furthermore, the lower edge of the cover front wall 24 may serve as a convenient tear-off abutment 39. On the other hand, of course, the roll could be

placed within the holder so that the end of the paper strip runs off the back of the roll.

Should an excess length of the paper strip be withdrawn, it can be readily rewound onto the roll by appropriately manipulating either of the mandrel knobs or handles 34. A tendency to overrun is minimized by the relatively large frictional bearing interfaces between the bearing necks 33 of the mandrel and the bearing edges afforded by the bearing notches 22, especially where the material from which the holder is made is of a moldable plastic of the type customarily utilized for molding household items and which though permitting adequate bearing slippage, does afford enough frictional resistance between the bearing interfaces to avoid free running of the loaded mandrel.

In a bathroom where the holder is used for supporting toilet paper, or in a kitchen where the holder may be used for supporting a roll of paper towels, it is often desirable to provide a deodorant or a perfuming substance, or a deodorizer. To this end, the present paper holder is preferably equipped with a trough-like reservoir or receptacle 40 located in the rear upper portion within the holder casing under the upper flange 15 of the rear wall and with its bottom wall slanting forwardly and upwardly to clear the paper roll 37 and extending substantially forwardly from beneath the flange 15 for ready access. Within the trough 40 may be supported a wick 42 for disseminating a deodorizing or perfuming liquid 43 adapted to be contained in the trough. To promote dissemination of the evaporated liquid 43 the top portion of the wall 24 of the cover of the holder is preferably formed with a series of apertures 44 adjacent to the hinge 31 and over the trough 40. By opening the cover 14, ready access can be had to the trough 40 for supplying the same with liquid and replacing or reconditioning the wick 42. Since the bottom of the holder is rather wide open, a good upward chimney draft effect is afforded to carry evaporated deodorant or perfumant up and out through the apertures 44.

The form of the invention in Figures 1 and 3 is, of course, primarily adapted for attachment to the outer side of a wall and thus supplies the need for a paper roll holder that can be applied as a replacement fixture, or a new installation where the fixture must be applied to the outer side of a wall, molding, door, or the like.

However, the modification shown in Figures 4 and 5 is adapted to be applied to a wall 45 which is equipped with a recess or cavity 47 within which the fixture can be at least partially received so as to minimize protrusion of the fixture into the room from the wall. To this end, the holder is provided with a half-shell bracket portion 48 adapted to be received within the cavity 47 and having a lateral attachment flange 49 which is adapted to be secured by means of screws 50 to the margin of the wall defining the mouth of the opening or cavity 47. The bracket portion is provided with side walls 51 which project forwardly slightly beyond the attachment flange 49 and have respective identical forward edges including an upper vertical portion 52, a lower forwardly offset vertical portion 53, an intermediate juncture inset shoulder 54, and a juncture bearing recess 55 at the juncture of the inner vertical portion 52 and the shoulder 54 to accommodate the respective bearing necks 33 of the mandrel 12 for supporting the paper roll 37. Inasmuch as the mandrel 12 is identical with the mandrel described in connection with the holder of Figures 1 to 3, identical reference numerals are used to designate the elements thereof.

A cover 57 is in the form of a half-shell hingedly secured to the forward edge of the forwardly extending flange portion of the rear wall of the bracket member 48, as at 58, and has side walls 59 which are formed with complementary edges to engage with the forward edges of the side walls 51 of the bracket member and provide a smooth, streamlined external appearance for the holder. In this instance the cover 57 and the bracket member 48 are preferably formed to provide a composite substantially cylindrical shape generally concentric with and of larger internal diameter than the paper roll 37.

The lower edge of the outer wall of the cover 57 is preferably set back from the rear edges of the side walls 59, as shown at 60, so as to cooperate with the forward lower edge of the bracket intermediate wall, as indicated at 61, to define an exit or withdrawal opening for the end portion of the paper strip from the roll 37. The edges 60 and 61 serve as selective tear-off abutments for the paper strip.

In use, a roll of paper mounted upon the mandrel 12 is inserted into the holder after the cover 57 has been raised, the bearing neck portions 33 of the mandrel being engaged in the bearing notches or recess 55, and the cover then closed. The paper roll is thereby completely enclosed within the ornamental housing provided by the holder.

To afford a deodorizing or a perfuming means, the holder of Figures 4 and 5 is equipped with one or more, and in this instance shown as a pair, of liquid receptacles 62, one at each side of the casing of the holder and located at the inside of each respective side wall 51 of the bracket portion, there being adequate clearance provided between the side walls 51 and the end of the paper roll 37 for this purpose. The receptacles 62 open upwardly and are adapted to contain the desired liquid and a wick 63 in each instance. Since the receptacles 62 are disposed rearwardly of the paper withdrawal opening, they are favorably located for a chimney-like up-draft action of air entering through the paper withdrawal opening at the bottom of the holder casing and discharging through an escape slot 64 at the top of the casing and preferably provided at the upper rear edge of the outer or forward wall of the cover 57. Ready access into the receptacles 62 is attained by opening the cover 57 and removing the mandrel 12.

It will, of course, be understood that various details of construction may be varied through a wide range without departing from the principles of this invention, and it is, therefore, not the purpose to limit the patent granted hereon otherwise than necessitated by the scope of the appended claims.

I claim as my invention:

1. In combination in a paper roll holder of the character described, a bracket member adapted to be attached to a supporting surface and having generally parallel forwardly extending side wall portions, each of said wall portions including a lower forward edge section and an offset upper forward edge section with an intermediate upstanding mandrel-retaining ear portion, the juncture of the upper edge section and the ear portion comprising an upwardly opening journal bearing depression, a paper holding mandrel hav-

ing a body comprising spaced apart mutually cooperative bowed clutch spring sections and journal neck portions integral with the respective opposite adjacent end portions of the spring clutch sections and received bearingly in said bearing depressions, the length of the clutch spring sections being substantially less than the width between the side wall portions of the bracket member and the length of the journal necks being such that compression and release of the spring clutch sections is accommodated by axial movement of the journal necks in said bearing depressions without interference of the spring clutch sections with the side walls of the bracket, terminal knobs on the journal necks projecting outwardly beyond the respective adjacent side walls and engageable for manipulating the mandrel and constructed to facilitate insertion of the mandrel into the core tube of a paper roll, and a cover hingedly attached to the upper portion of the bracket and swingable into closing position with respect to the bracket, the cover having side walls with edges complementary for edgewise engagement with said edges of the bracket side wall portions and cooperating with said ear portions for retaining disposition relative to the mandrel, the cover having a lower edge in spaced relation to the bracket to afford a downward opening for paper delivery from a supported paper roll.

2. In combination in a paper roll holder of the character described, a mandrel comprising a body in the form of a plurality of outwardly bowed leaf spring clutch sections having the ends thereof respectively joined integrally in one piece in the form of axially oppositely extending respective journal necks, said journal necks terminating in knob portions, and a supporting bracket having side walls including bearing edges engaged in bearing supporting relation with said journal necks, said side walls being spaced apart further than the maximum extent of said spring sections when the spring sections are compressed by insertion of the mandrel within a roll having a smaller internal diameter than the expanded diameter described by the bowed spring clutch sections.

3. In combination in a paper roll holder of the character described, a mandrel having mutually cooperative bowed leaf-spring-like central clutch portions with the opposite ends symmetrically disposed and united in one piece with coaxial oppositely extending respective journal necks, the journal necks terminating in respective knob extremity portions, and a supporting bracket having side walls formed with bearing edges supporting said mandrel by engagement with said journal necks, the length of said journal necks relative to the spacing between said side walls being such as to afford ample clearance between the ends of the clutch portions and the adjacent knobs for free accommodation of relative axial displacement of the journal necks and knobs in the compression and expansion of the spring clutch sections without binding of the clutch portions or the knobs against the side walls.

4. In combination in a paper roll holder of the character described, a half-shell structure including a lateral flange for attachment of the half-shell structure to a wall about a cavity with the major portion of the half-shell structure

extending into the cavity and the opening of the half-shell structure facing outwardly, a cover member cooperable with the half-shell structure to close said opening and affording with said half-shell structure a casing for enclosing a paper roll, a forward edge of the half-shell structure including a generally vertical upper section spaced forwardly from said flange and a generally vertical lower section offset outwardly relative to the upper section by an upwardly facing shoulder intervening between the upper and lower edge sections, and a mandrel having an end knob and a journal portion inwardly adjacent said knob, said half-shell structure having a bearing recess at the juncture of the upper section with said shoulder for accommodating the paper roll supporting mandrel with said knob clear of said flange for ready manipulation.

5. In a paper roll supporting device of the character described, a mandrel comprising a one-piece member of inherently resilient material comprising a central portion including a plurality of outwardly bowed leaf spring sections having the ends thereof integrally connected in one piece in the form of journal neck portions, said neck portions having respective bullet-shaped terminal knobs of substantially greater diameter than the neck portions and having shoulders facing toward the adjacent ends of the spring sections and in spaced relation thereto.

6. In combination in a paper roll holder, a bracket portion adapted to be secured to a wall, said bracket portion having spaced parallel vertical side walls adapted to receive a roll of paper endwise therebetween, the upper edges of said side walls being coextensive and each including a generally downwardly extending rear portion and a generally horizontally extending forward portion defining a reentrant corner, said reentrant corner juncture of the wall edge portions providing respective journal recesses, a paper supporting mandrel having respective bearing portions journaled in said recesses and respective knobs beyond the outer ends of the bearing portions, and a cover having side walls complementary to the bracket side walls and engaging the upper and forward edges of the bracket side walls when the cover is closed, said cover side walls having journal recesses complementary to the bracket side wall journal recesses for accommodating the bearing portions of the mandrel, said knobs being engageable outside the closed holder for rotating the mandrel.

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