E. B. NORMAN.

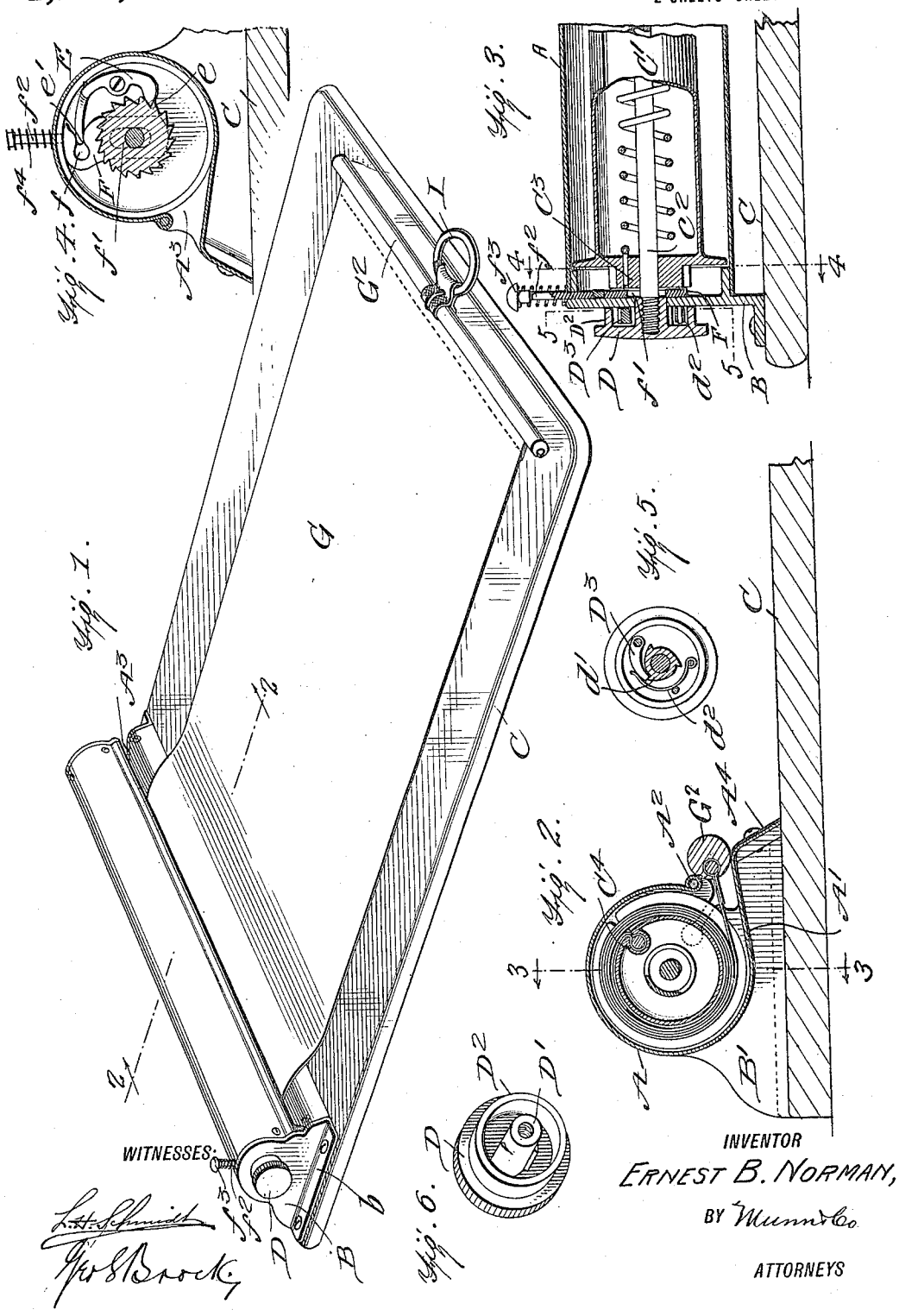
CARBON SHEET HOLDER.

APPLICATION FILED JUNE 9, 1915.

1,231,418.

Patented June 26, 1917.

2 SHEETS—SHEET 1.



WITNESSES:

L. H. Schmidt

Geo. S. Brock

INVENTOR

ERNEST B. NORMAN,

BY Munn & Co.

ATTORNEYS

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

E. B. NORMAN.

CARBON SHEET HOLDER.

APPLICATION FILED JUNE 9, 1915.

1,231,418.

Patented June 26, 1917.

2 SHEETS—SHEET 2.

Fig. 8.

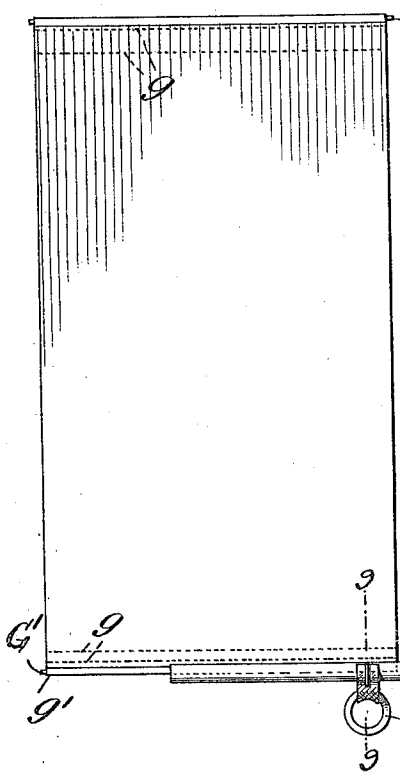


Fig. 7.

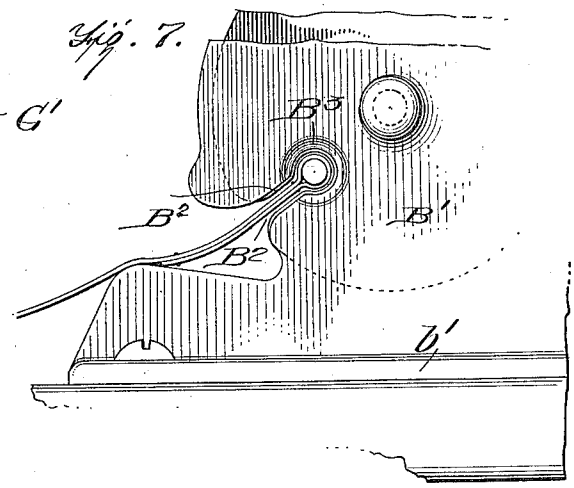


Fig. 9.

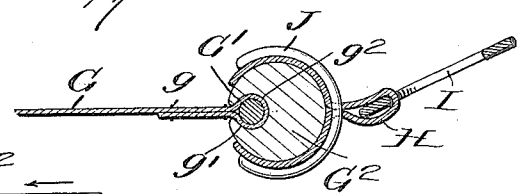


Fig. 11.

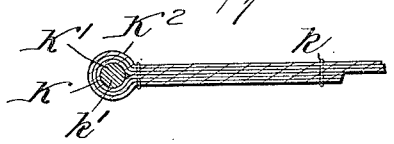


Fig. 10.

WITNESSES:

L. H. Schmidt

Geo. S. Brock

INVENTOR

ERNEST B. NORMAN,

BY Munn & Co.

ATTORNEYS

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ERNEST BRIANT NORMAN, OF NEW ORLEANS, LOUISIANA.

CARBON-SHEET HOLDER.

1,231,418. Specification of Letters Patent. Patented June 26, 1917.

Application filed June 9, 1915. Serial No. 33,090.

To all whom it may concern:

Be it known that I, ERNEST B. NORMAN, a citizen of the United States, and a resident of New Orleans, in the parish of Orleans and State of Louisiana, have invented a certain new and useful Improvement in Carbon-Sheet Holders, of which the following is a specification.

My invention relates to improvements in carbon sheet holders used for duplicating and copying and sheets for the same, and has for an object to provide carbon sheets used for duplicating, triplicating, etc., which can be quickly used and removed and which can readily and quickly be replaced when unfit for use, and which will be protected against deterioration by exposure. Another object of my invention is to provide an improved holder and protector for such sheets whereby the carbon duplicating sheets can be quickly applied for use and will be housed and protected against accident and exposure when not in use. Another object is to facilitate the adjustment of carbon or transfer sheets for use in connection with an original manifolding pad or the like.

With these and other objects in view, my invention consists in certain novel features of construction, arrangement and combination of parts as will be hereinafter described and pointed out in the claims, reference being had to the accompanying drawings, in which:

Figure 1 is a perspective view showing my improvements applied to a base board.

Fig. 2 is an enlarged transverse vertical section of one end of the device taken as indicated by line 2—2 of Fig. 1.

Fig. 3 is a vertical section showing one end of the spring roller, the tension regulating mechanism and the spring roller release, being taken on line 3—3 of Fig. 2.

Fig. 4 is a vertical section taken on line 4—4 of Fig. 3.

Fig. 5 is a section taken on line 5—5 of Fig. 3 showing the inside of the cap for adjusting tension of the spring roller.

Fig. 6 is a perspective view of such cap detached from the hood.

Fig. 7 is an enlarged end view of the hood or housing showing the improved means for permitting the carbon sheet to be introduced into the hood for attachment to the spring roller.

Fig. 8 is a view of a carbon sheet and attachments used with my improved hood.

Fig. 9 is an enlarged sectional view of one of the carbon sheets with means for unrolling the same from the hood.

Fig. 10 is a perspective view of my improved multiple carbon sheet, with means for attaching to the spring roller and for manipulating the same for use in making duplicates, triplicates, etc.

Fig. 11 is a section of such multiple sheet taken on line 11—11 of Fig. 10.

In carrying out my invention I preferably make use of a casing or housing which comprises the cylindrical portion A having a floor A′ inclined upwardly to the front which forms with the beaded front edge A^2 a slot A^3 which extends from the bracket or end piece B entirely across the casing being open at the opposite end as shown in Figs. 1, 2 and 7, the end plate or bracket B′ having an opening B^2 registering with the slot; the floor A′ is turned downwardly at A^4 and rests on any suitable base to which the casing is applied, as in the present instance to a flat board or base C; the hood or casing is secured to its base or foundation by the flanges or feet *b*—*b*′ forming the attaching means for the end brackets B and B′ which are in turn secured to the cylindrical member A by screws or other suitable means. Revolubly mounted in the end brackets B and B′ and within the slotted casing A is a spring roller C′ the internal mechanism of which is of usual construction and hence need not be here further described; the end of the roller C which is journaled in end bracket B′ is also of usual construction; at the opposite end of the roller, however, the axis C^2 is prolonged beyond the ratchet collar C^3 and threaded to engage the internally threaded nipple D′ projecting inwardly from the cap D which has on its inner face near its circumference, an annular flange D^2 spacing it from the outer face of bracket B and resting thereagainst within the cap D; and between the nipple D′ and the flange D^2 is pivoted the pawl D^3 having its end engaging the ratchets *d*′ made on the nipple D′, said pawl being held to engagement by the spring d^2; the ratchet collar C^3 at the end of the spring roller does not extend entirely to the inner face of bracket B leaving a space within which is disposed a peculiar ratchet and pawl mechanism for releasing the spring roller to wind up the carbon sheet; this ratchet and pawl mechanism consists, as seen in Fig. 4, of a curved pawl

E pivoted to the end of the roller, one end *e* engaging the teeth of the ratchet and the other end *e'* slidably engaging and working in a slot *f* in the upper end of the sliding link plate F which has an elongated guide slot *f'* fitting over the axis C^2 of the spring roller between the ratchet or toothed collar C^3, and the inner face of end bracket B; a pin f^2 projects upwardly from the link plate through the hood A and has on its outer end the button or enlargement f^3 between which and the casing a coiled spring f^4 is placed surrounding the pin to normally draw the link plate to the uppermost portion and throw the pawl into engagement with the ratchet teeth of the ratchet collar of the spring roller and hold said roller against reverse revolution. The cap D through its peculiar construction and connection with the spring roller allows of the rewinding of the spring within the spring roller C' to increase the tension of same when necessary. The nipple D' which is internally threaded is freely rotatable in the end of the hood or casing. The slot *f'* through which the axis of the roller passes causes said link plate F to have a vertical movement when pushed down and when forced upwardly by the spring f^2.

The carbon sheet and its adjuncts used in my invention are of special construction, the sheet in its simplest form comprising the prepared sheet G folded upon itself at each end and stitched through and through as at *g*—*g* and forming the tubular end *g'* into which is threaded a rod G' the diameter or thickness of which is considerably greater than the carbon sheet; over the lower end of the sheet a stick G^2 is slid by means of the undercut groove g^2 therein, in the manner illustrated in Fig. 8; at the center of the stick G^2 is secured the pull device, consisting of a piece of webbing doubled to form a loop H in which is placed the ring I of celluloid, metal or other suitable material, and the ends of the webbing clamped around the stick by the flexible clip J; as stated both ends of the sheet are made tubular and have threaded into the tube the rods G'; now the upper end of the sheet is to be attached to the spring roller and this is done by inserting the end of the rod through the slot B^2 in the bracket B', said slot being countersunk or flaring so that guiding walls B^3 are produced to catch the end of the rod and guide it to the slot; it then passes through and into the undercut groove C^4 in the spring roller which has been brought into alinement with the aforesaid slot B^2 in bracket B'; when the sheet with its rod at the top has been inserted entirely within the casing, the operator, holding the outer end of the sheet by the stick, presses downwardly on button f^3, throws the pawl E out of engagement with the spring roller ratchet and permits the roller to revolve, winding the carbon sheet on it until the stick G^2 reaches the throat of the slot where it is held by the spring roller's influence against the floor A', almost completely closing said slot as the stick is considerably larger than the width of the slot. To remove a carbon sheet, the sheet is pulled out revolving the spring roller until the rod at the upper end of the sheet comes into register or alinement with the slot B^2 in bracket B' where it can be easily seen, and then drawn sidewise entirely out of the roller and casing.

When the tension of the spring roller becomes lessened through continued use the spring can be rewound and tension increased by simply turning cap to the right until the desired degree of tension is secured, the edge of said cap being knurled or milled for that purpose.

I may use more than a single sheet of carbon paper as shown in Figs. 10 and 11; as shown three sheets are used, the sheets being superposed and their upper ends folded over to form a tubular end and stitched as at *k*; in this tubular end is threaded the rod *k'*; the lower end of each of the sheets is folded back to form the tubular space for the rods *k'* and fingerholds or straps L attached thereto by stitching or otherwise; these multiple sheets are to be used in the same manner as a single sheet and are applied to the spring roller and removed therefrom in the same manner; this arrangement of multiple sheets will be found very handy and advantageous where a number of duplicates are required.

While I have shown my improvements applied to a base board it is obvious that it can be applied to various places or devices such for instance to a typewriting machine by so placing the casing as to enable the sheet or sheets to be drawn out and placed in register with the sheets upon which the copy is to be made so that they may all pass around the platen of the typewriting machine.

By constructing the carbon sheets in the manner above set forth they can be quickly and readily handled without injuring or soiling the hands, and by coupling them up with the spring roller within the hood they are guarded against injury and loss or misplacing, being always at hand and ready for use.

It is also obvious that I may use my improvements for making copies in books by simply placing the carbon sheet or sheets between the leaves of the book, and as the beaded front edge A^2 of the slot A^3 is rounded the carbon sheet may be carried up without injury and permit of use with a thick pile of sheets, as in a book.

When my carbon sheets are to be used with a typewriting machine the removable stick G^2 is not necessary and the rods G' may be

also omitted, provided the ends of the sheets have suitable reinforcement.

Again it is obvious that other means of making the enlargements at the ends of the sheet may be made use of, as for instance the folding back or rolling of the sheet to form such enlargement susceptible of being slid into the groove or other attaching means of the spring roller.

I claim:

1. A portable manifolding device consisting of a casing having end walls and an open ended slot in its front and extending through one end wall thereof, a spring roller revolubly mounted within said casing, and a carbon sheet detachably connected to said roller.

2. In a device of the class described, the combination with a casing having end walls and a slot in its front face, and a slot in one end wall registering with the front slot, of a spring roller revolubly mounted in said casing and having an undercut groove in its periphery extending through the end adjacent the slotted end wall of the casing, and a carbon sheet having an enlargement at one end held detachably in said groove.

3. In a device of the class described, the combination with a casing having end walls and an open ended slot in its front face and a slot in one end wall of the casing registering therewith, of a spring roller revolubly mounted in said end walls and having an undercut groove in its periphery extending through the end adjacent the slotted end wall, and a carbon sheet having an enlargement at one end removably fitting within said groove, said groove and front and end wall slots, when in alinement, permitting the attachment to and removal from the roller, of the aforesaid carbon sheet.

4. In a device of the character described, the combination with a casing having end walls and an open ended slot in its front face and a slot in one end wall registering therewith, of a spring roller mounted therein having an undercut groove in its periphery extending through one end thereof, and a carbon sheet having a tubular enlargement at each end, a rod in said enlargements, one end being fitted into the undercut groove of the roller and removable therefrom through the slots in the front and end of the casing.

5. In a device of the character described the combination with a casing having end walls and an open ended slot in its front face and a slot in one end wall registering with said open ended slot, of a spring roller revolubly mounted in the said casing, the axis of said roller extending through the opposite end walls of the casing, a cap secured to said axis exteriorly of one end wall, means within said cap for preventing backward rotation of said axis and roller, a carbon sheet detachably secured to said roller, and means for unwinding the same from the roller and through the slot in the front of casing.

6. In a device of the class described, the combination with a casing having end walls and a slot in its front face and a slot in one end wall registering therewith, the walls of the end slot converging inwardly, of a spring roller revolubly mounted in said end walls and having an undercut groove in its periphery, and a carbon sheet carried by said roller and having its upper edge enlarged and adapted to be centered by the converging walls of the end slot to permit the carbon sheet to be slid into and out of the undercut groove in the spring roller.

7. In a device of the class described, the combination with a casing having end walls and an open ended slot in its front face and a slot in one end wall registering therewith, of a spring roller revolubly mounted in said casing, the axis thereof extending beyond one end wall of the casing, a ratchet collar secured to one end of the roller, a slotted link within the casing between said collar and the end of the casing, a pawl having sliding engagement with one end of the slotted link, said link inclosing the axis, an extension of said link passing through the casing to permit manipulation of the link to release the pawl from the ratchet collar, to permit backward rotation of the spring roller, and a carbon sheet removably held to the periphery of the spring roller and adapted to be drawn from and into the casing through its front slot.

8. In a device of the class described, the combination with a casing having end walls and a front wall with a slot therethrough, an upwardly and forwardly projecting base guide wall extending to the slot in the front wall, one of the said end walls having a slot registering with the slot in the front wall, a spring roller revolubly mounted in said end walls, a carbon sheet detachably secured at one end to said roller, and a detachable stick at the opposite end of said sheet to prevent the same being drawn entirely within the casing.

ERNEST BRIANT NORMAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."