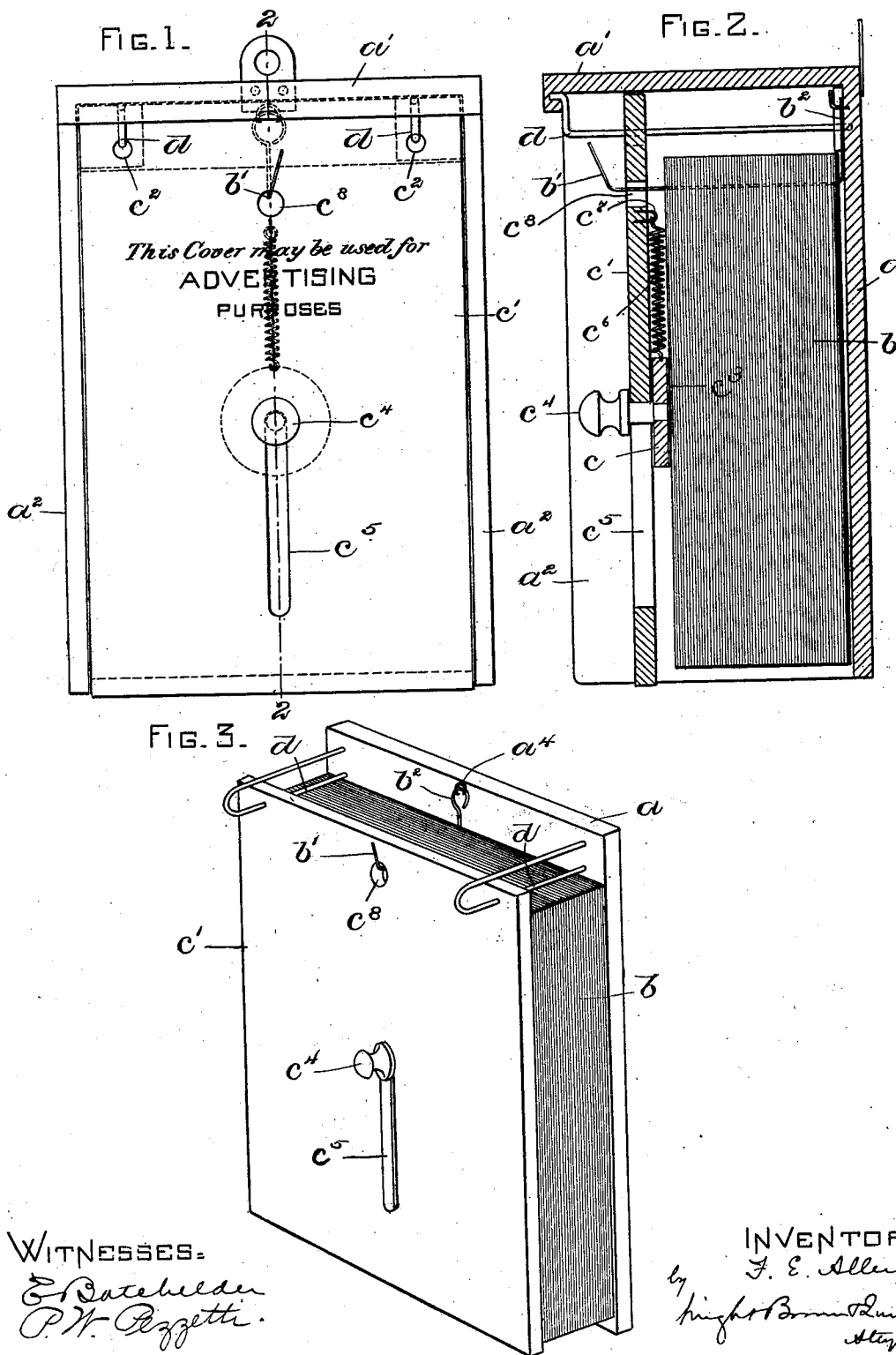


F. E. ALLEN.
PAPER HOLDING AND FEEDING DEVICE.

APPLICATION FILED OCT. 23, 1902.

NO MODEL.

3 SHEETS—SHEET 1.



WITNESSES:

E. Datchelder
P. H. Rizzetti.

INVENTOR:

F. E. Allen

by *Wm. B. Quinn*
Att'y

No. 747,344.

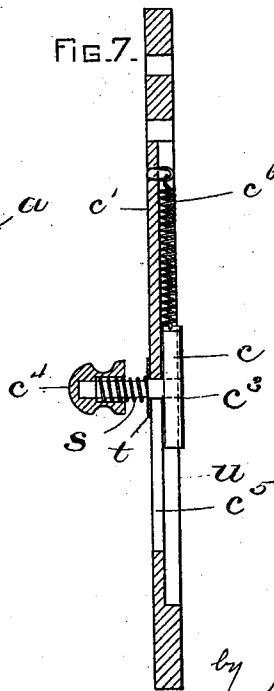
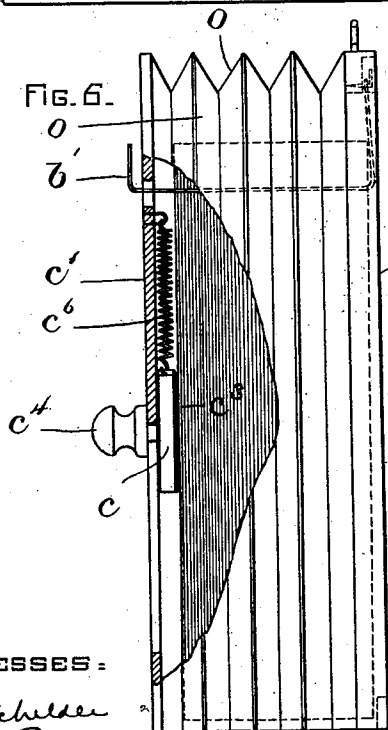
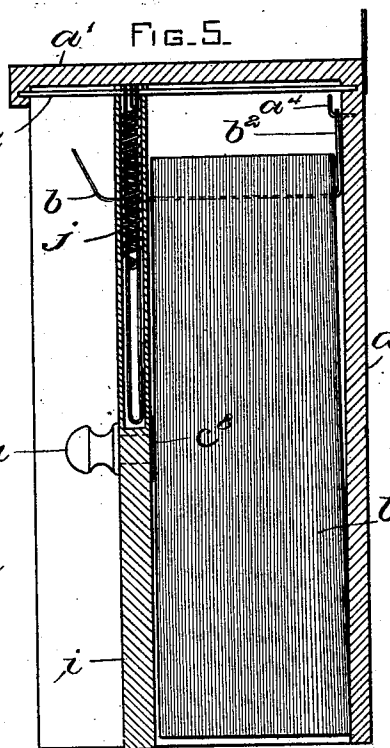
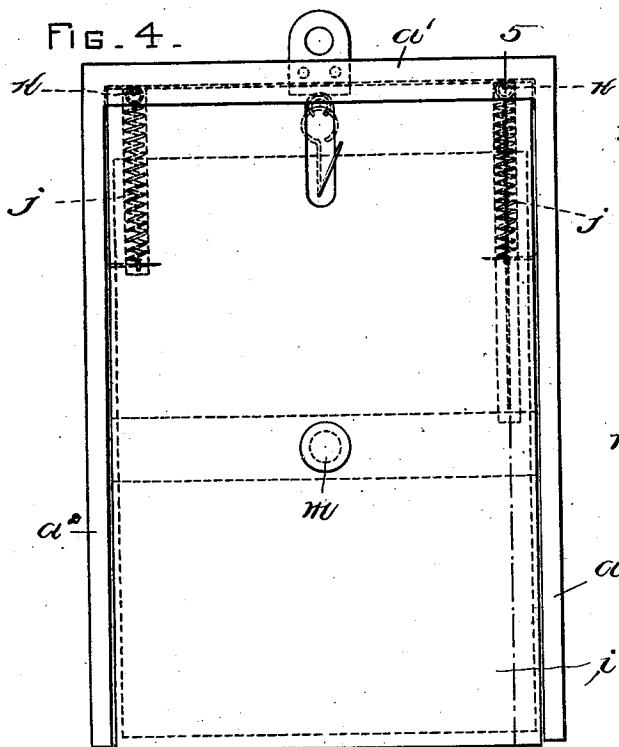
PATENTED DEC. 22, 1903.

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NO MODEL.

3 SHEETS—SHEET 2.



WITNESSES:

E. Batchelder
P. H. Perzetti.

INVENTOR:

F. E. Allen

by *Wright, Brown & Lundy*
Attys

No. 747,344.

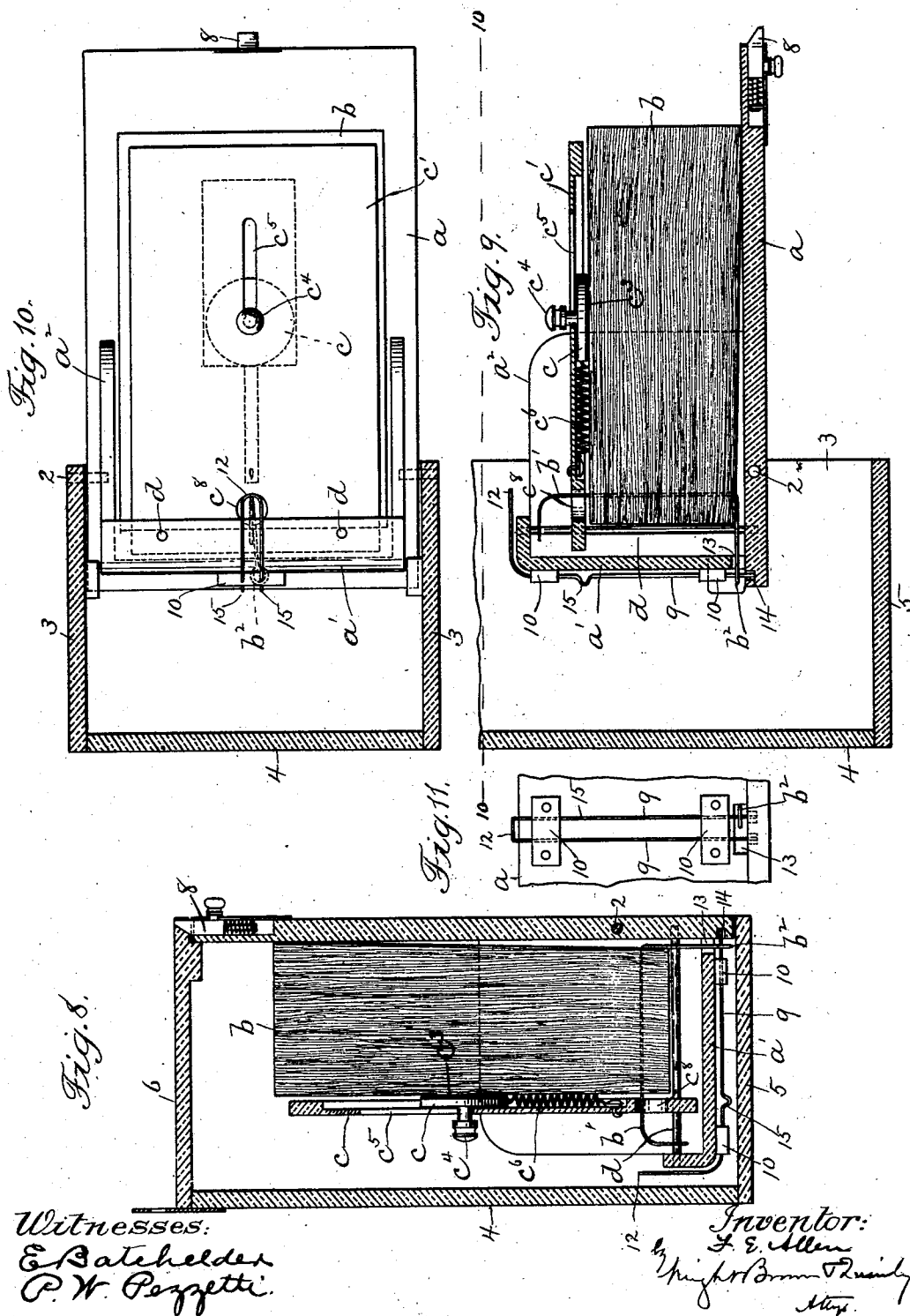
PATENTED DEC. 22, 1903.

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PAPER HOLDING AND FEEDING DEVICE.

APPLICATION FILED OCT. 23, 1902.

NO MODEL.

3 SHEETS-SHEET 3.



UNITED STATES PATENT OFFICE.

FREDERICK E. ALLEN, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO
IMPROVEMENTS MANUFACTURING COMPANY, OF BOSTON, MAS-
SACHUSETTS, A CORPORATION OF MAINE.

PAPER HOLDING AND FEEDING DEVICE.

SPECIFICATION forming part of Letters Patent No. 747,344, dated December 22, 1903.

Application filed October 23, 1902. Serial No. 123,486. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK E. ALLEN, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Paper Holding and Feeding Devices, of which the following is a specification.

This invention relates to means for feeding or delivering sheets of paper one at a time from a pack of superimposed sheets held loosely together, so that the outer sheet of the pack can be readily detached from the body of the pack.

The invention has for its object to provide a simple and effective device which shall be relatively inexpensive in construction.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a front elevation of a paper holding and feeding device embodying my invention. Fig. 2 represents a section on line 2 2 of Fig. 1. Fig. 3 represents a perspective view of a modified construction of paper holding and feeding device embodying my invention. Fig. 4 represents a front elevation showing another modification of my invention. Fig. 5 represents a section on line 5 5 of Fig. 4. Fig. 6 represents a partial edge view and partial vertical section showing another modification. Fig. 7 represents a sectional view showing a feature of construction hereinafter referred to. Fig. 8 represents a view showing a holder of the general construction represented in Figs. 1 and 2 pivoted to a casing which, with the back piece of the holder, constitutes a box entirely inclosing the pack. Fig. 9 represents a view similar to Fig. 8, showing the holder and pack projected from the casing. Fig. 10 represents a section on line 10 10, Fig. 9, and a plan view of the parts below said line. Fig. 11 represents an end view of a portion of the holder.

The same reference characters indicate the same parts in all the figures.

In the drawings, *a* represents a base or back piece, having means for engaging and sup-

porting a pack *b* of independent paper sheets, the sheets being, for example, composed of tissue-paper and bound together or connected at one end of the pack by means of a binding-wire *b'*, which passes through the pack and has a loop *b²* at one end adapted to be suspended on a hook *a⁴*, affixed to the back piece *a*.

A pack of paper sheets connected as above described is a well-known standard article of manufacture, and it is the principle object of my invention to provide a holder adapted to support said pack and permit the convenient detachment of the sheets therefrom one at a time, the sheets being removed from one side of the pack—namely, the outer side—as the pack is supported on the holder *a*. My invention is not limited, however, to devices adapted to deal with this particular class of paper, and I desire it understood that my invention may be embodied in a holding and feeding device adapted to deliver sheets of paper of any kind and for any purpose.

It is the chief object of my invention to enable the sheet-ejecting device to be loosely supported in such manner that it can have a continuous inward adjustment to compensate for the decreasing thickness of the pack, this inward adjustment being conveniently effected by the pressure of the hand of the operator in manipulating the ejecting device, so that there is no occasion for the employment of pack-pressing springs, the construction being therefore simplified and made relatively inexpensive.

Referring to Figs. 1 and 2, *c* represents a sheet pusher or ejector, which is adapted to bear against the outer sheet of the pack *b* and is movable in a direction substantially parallel with the sheets of the pack, and *c'* represents a follower supporting said pusher, said follower being movable toward and from the back piece *a*, and therefore adapted to adjust the pusher inwardly to compensate for the gradually-decreasing thickness of the pack. The follower *c'* also preferably has provisions for directing the movement of the pusher in a direction parallel with the sheets of the pack. The follower *c'* is preferably a

flat board or front piece corresponding in its general shape to the back piece *a*. I have here shown fixed guides *d d*, secured to the back piece *a* and projecting outwardly therefrom crosswise of the pack, the said guides being preferably located above the pack and projecting outwardly beyond its outer face. The follower *c'* is provided with orifices *c² c²*, through which the guides *d d* pass, the follower *c'* being thus adapted to slide freely upon the guides *d d* toward and from the back piece *a*. The pusher *c* is preferably a plate or disk having a roughened inner surface adapted to engage the paper sheets, the said surface being preferably provided by cementing a facing *c³* of sandpaper to the inner side of the body portion of the pusher *c*. Means are provided for reciprocating the pusher, said means, as here shown, comprising a handle *c⁴*, affixed to the pusher and extending through a guiding-slot *c⁵* in the follower *c'*, and a retracting-spring *c⁶*, engaged at one end with the pusher *c* and at its other end with a staple *c⁷*, affixed to the follower *c'*. The follower *c'* is provided with an orifice *c⁸*, which receives the portion of the binding-wire *b'* that projects from the outer side of the pack. The wire *b'* in the pack as ordinarily placed upon the market is bent backwardly over one end of the pack, but is sufficiently flexible to be readily straightened out, as shown in Fig. 2. If desired, this projecting portion may be bent upwardly at the outer side of the follower *c'*. It will be seen that when a pack *b* is in place between the back piece *a* and the front piece of follower *c'* the operator can by grasping the handle *c⁴* press the pusher *c* against the outer side of the pack and at the same time by a downward movement of the pusher can separate the outer sheet from the body of the pack and cause its lower end to project below the pack in position to be conveniently grasped and removed. When the operator releases the handle, the follower *c'*, being loosely supported, is slightly forced outwardly by the expansion of the compressed pack, the pressure of the pusher on the pack being relieved to such an extent that as the spring *c⁶* contracts and raises the pusher the outer sheet will not be materially moved or displaced by the upward or retracting movement of the pusher. It will also be seen that as the thickness of the pack decreases the decrease is compensated for by the inward movement of the follower *c'*, caused by the pressure of the operator's hand on the handle *c⁴* whenever the device is operated.

In Figs. 1 and 2 I show the back piece *a* provided with a projecting top piece *a'* and with side pieces *a² a²*, the follower *c'* being movable freely between said side pieces. The outer portion of the top piece *a'* supports the outer ends of the guides *d d*. In Fig. 3 I show a similar construction, in which the top piece *a'* and side pieces *a² a²* are dispensed with, each guide *d* being made in the form of a loop

or staple, the ends of which are engaged with the back piece *a*. In this embodiment of my invention the edges of the pack are uncovered and exposed to view.

In Figs. 4 and 5 I show an embodiment of the invention in which the pusher is a facing *c⁸* of sandpaper affixed directly to a follower *i*. In this case the follower *i* and pusher *c⁸* are movable together both crosswise of the pack and in a direction parallel with the sheets thereof, the follower *i* being supported by springs *j j*, affixed at their lower ends to the follower and provided with eyes at their upper ends, which are adapted to slide upon guide-rods *k*, similar to the guide-rods *d*, above described. A handle *m* is provided on the outer side of the follower *i*, whereby the follower and pusher may be pressed inwardly against the pack and moved downwardly to remove a sheet therefrom, the springs raising the follower and pusher when the handle *m* is released.

In Fig. 6 I show a follower and pusher constructed substantially as shown in Figs. 1 and 2, the follower being connected with the back piece *a* by means of bellows-shaped side and top pieces *o*, which are sufficiently flexible to permit the follower and pusher to move toward and from the back piece, the pusher being yieldingly supported by a spring.

It will be seen that in each of the above-described embodiments of my invention there is a back piece, a pusher opposed to the back piece, and means for supporting the pusher and permitting sheet-feeding movements thereof in a direction parallel with the sheets and adjusting movements crosswise of the sheets. In the construction shown in Figs. 1, 2, and 3 said pusher-supporting means comprise the follower *c'* and the guides *d*. In Figs. 4 and 5 the said pusher-supporting means comprise the guide-rods *k* and the springs engaged with the follower *i* and slidingly connected with the guide-rods *k*. In Fig. 6 the said pusher-supporting means comprise the follower *c'* and the bellows-shaped side and top pieces connecting the follower with the back piece.

It will also be seen that the essential features of the embodiments of my invention shown in Figs. 1, 2, and 3 are, first, a holder having means for supporting a pack of paper sheets, said holder including the back piece *a*, the pack-supporting hook *a⁴*, and the guide-rods *d*, and, secondly, a feeder comprising a guiding member which is the follower *c'*, said follower being movable crosswise of the sheets, and a pusher which is movable independently on the follower in a different parallel with the sheets.

In the construction shown in Fig. 6 the holder is composed of the back piece and the bellows-shaped side and top pieces connected the same with the follower *c'*, said follower and the pusher movable thereon constituting the feeder.

In Fig. 7 I show a construction which is

similar to that shown in Fig. 2 with the following exception—namely, the pusher *c* and its handle *c'* are movable to a limited extent crosswise of the follower *c'*, the pusher being normally and yieldingly held in contact with the follower by means of a spring *s*, interposed between a washer *t*, bearing against the outer side of the follower and the bottom of a cavity formed in the handle *c'*. When the operator presses inwardly on the handle *c'*, the spring *s* yields and permits the pusher *c* to move inwardly away from the follower *c'* to a limited extent, the pusher being thus caused to bear on the pack *b*. When the handle *c'* is released, the spring *s* expands and moves the pusher backwardly into a cavity *u*, formed in the inner side of the follower *c'*, thus relieving the pressure of the pusher on the outer sheet of the pack and reducing the liability of displacement of the said outer sheet during the upward movement of the pusher caused by the spring *c'*.

In Figs. 8, 9, and 10 I show the back piece *a* of the holder hinged at 2 2 to the sides 3 3 of a casing, which is composed of said sides, a back 4, a bottom 5, and a top 6, the whole forming a box open at one side. The back piece *a* constitutes a swinging front or cover for said casing and is arranged so that when in a vertical position it closes the casing, the pack *b* being entirely inclosed and concealed from view. When the back piece *a* is swung downwardly, as shown in Figs. 9 and 10, it is partially projected with the pack from the casing, so that the device may be operated. The back piece is provided with a latch member 8, adapted to engage a complemental latch member on the top 6 of the casing, as shown in Fig. 8. The casing may be affixed to or hung on a wall or other vertical support.

In the last-mentioned figures and in Fig. 11 I show a device for locking the loop *b'* to the top piece *a'* of the holder, said device consisting of a staple-shaped piece of wire, the legs 9 9 of which are adapted to slide in guides 10 10, affixed to the top piece *a'*. The portions of said legs adjacent to the neck 12 are bent to project over the outer edge of the top piece *a'*, said bent portions and the neck constituting a handle. The top piece is provided with an orifice 13, through which the loop *b'* projects in position to receive one of the legs 9, the loop being thus locked to the holder. The ends of the legs 9 are inserted in sockets 14 in the back piece *a*. The legs 9 are provided with bends 15, located near one of the guides 10 and arranged to abut against the latter, and thus prevent the withdrawal of the legs from the guides.

It will be seen that in each of the above-described embodiments of my invention the follower is formed to cover the front of the pack, and thus retain the sheets in the desired flat condition.

Having thus explained the nature of my invention and described a way of construct-

ing and using the same, although without having attempted to set forth all the forms in which it may be embodied or all the modes of its use, I declare that what I claim is—

1. A device of the character stated, comprising a back piece having means for supporting a pack of paper sheets, a follower formed to cover the front of the pack and provided with a device for engaging the outer sheet of the pack and follower, supporting means having provisions for permitting the follower to move loosely toward and from the back piece, the said engaging device being movable in a plane parallel with the back piece.

2. In a device of the character stated, the combination of the following instrumentalities, viz: first, a base or back piece having means for engaging a pack of paper sheets and having also guides extending crosswise of the supported sheets; and secondly, a feeder comprising a follower movable on said guides toward and from the back piece, and a pusher movable on said follower in a direction parallel with the back piece.

3. In a device of the character stated, the combination of the following instrumentalities, viz: first, a base or back piece having means for engaging a pack of paper sheets and having also guides extending crosswise of the supported sheets; and secondly, a feeder comprising a follower movable on said guides toward and from the back piece and having an orifice to receive the projecting portion of a pack-binding wire, and a pusher movable on said follower in a direction parallel with the back piece.

4. In a device of the character stated, the combination of the following instrumentalities, viz: first, a base or back piece having means for engaging a pack of paper sheets and having also guides extending crosswise of the supported sheets; and secondly, a feeder comprising a follower movable on said guides toward and from the back piece, and a pusher movable on said follower in a direction parallel with the back piece and provided with a retracting-spring.

5. A paper holding and feeding device comprising a base or back piece having means for engaging a pack of paper sheets and having also guides extending crosswise of the supported sheets, a feeder composed of a follower which is movable crosswise of the sheets and a pusher movable on said follower in a direction parallel with the said sheets, combined with a casing to which said back piece is hinged, said back piece constituting a cover for the casing.

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

FREDERICK E. ALLEN.

Witnesses:

C. F. BROWN,
E. BATCHELDER.