May 9, 1933. W. S. HAMER 1,908,345

PAPER HANDLING DEVICE

Filed June 15, 1931

Fig. 1.

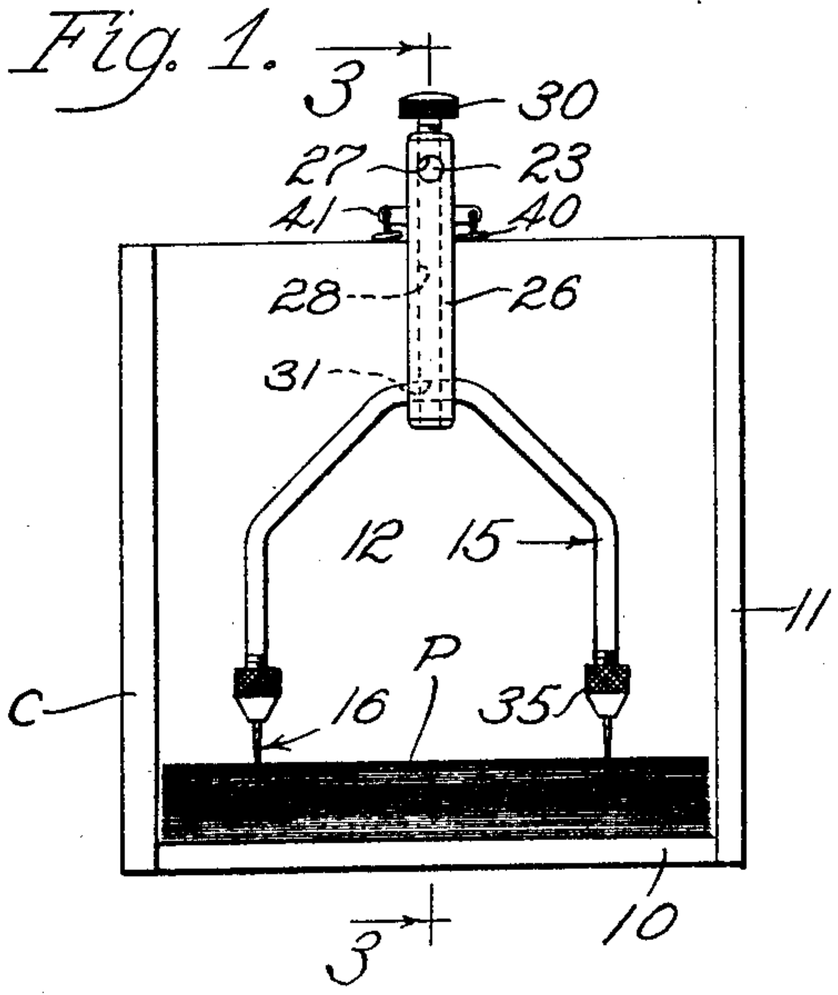


Fig. 2.

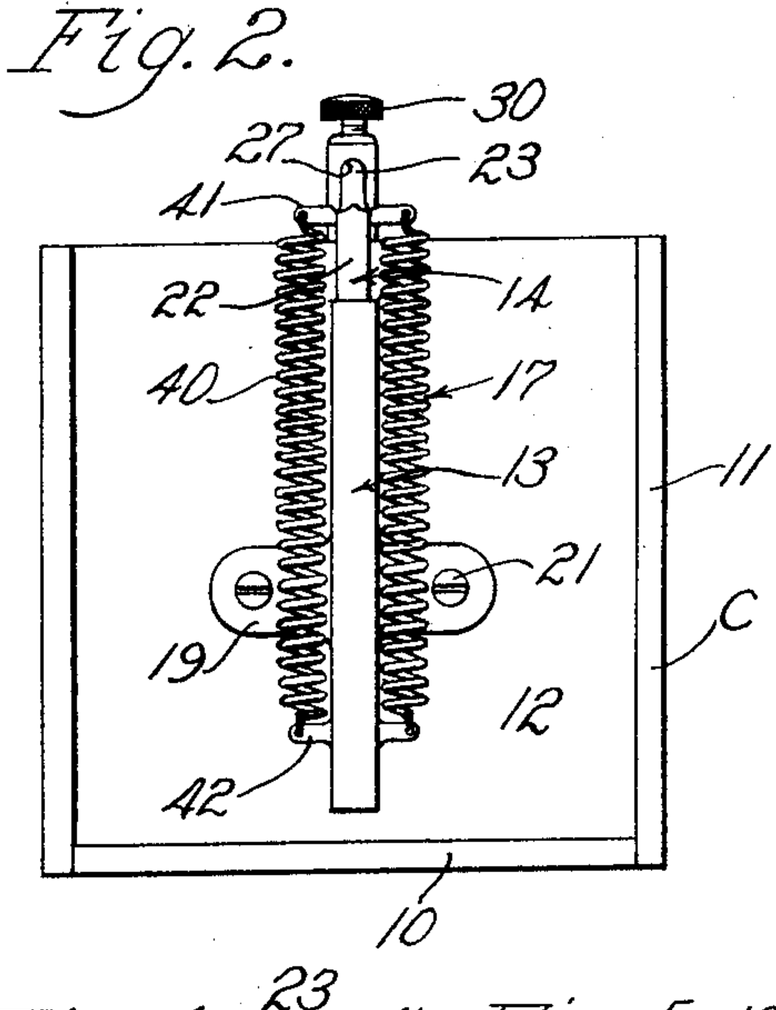


Fig. 3.

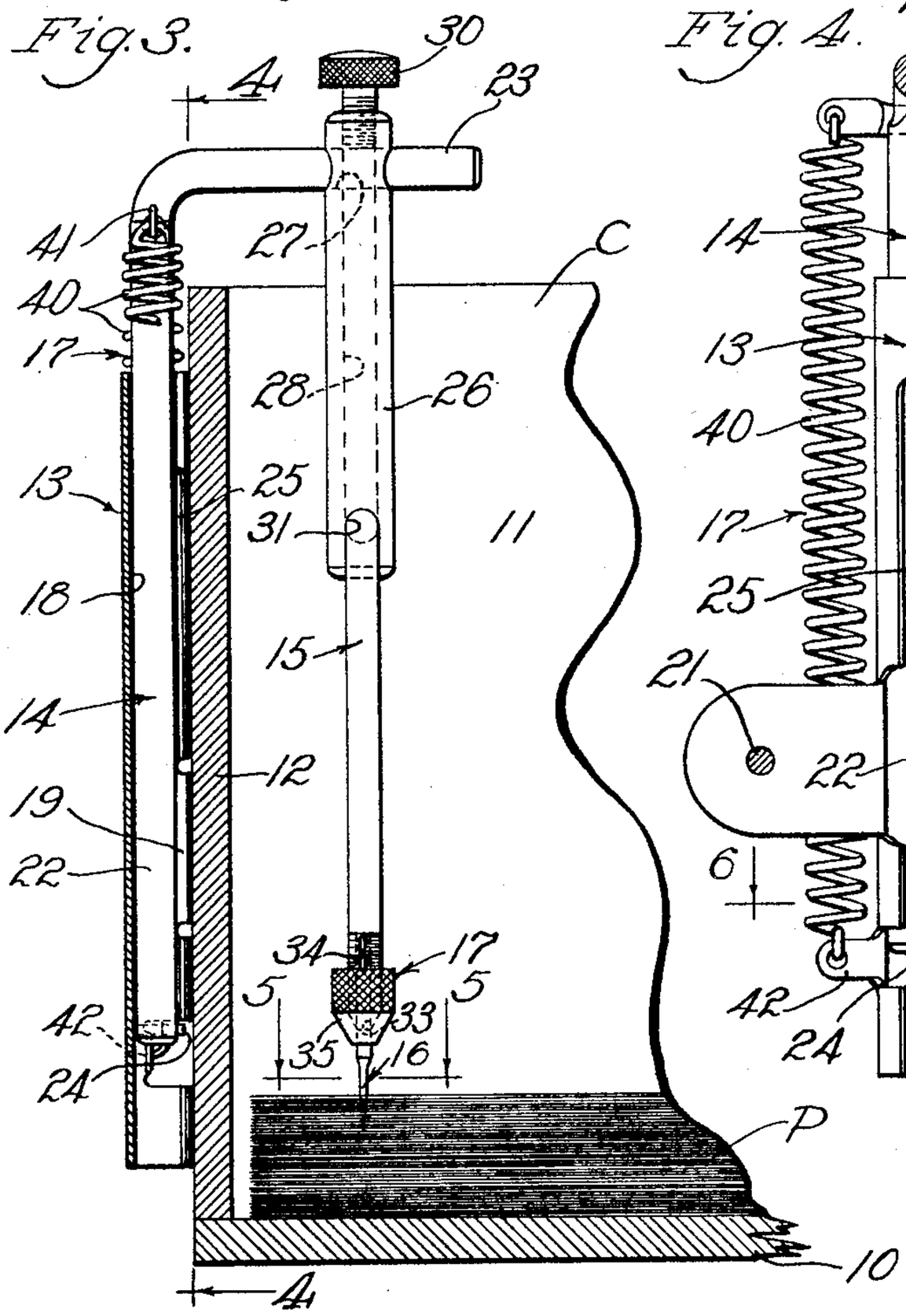


Fig. 4.

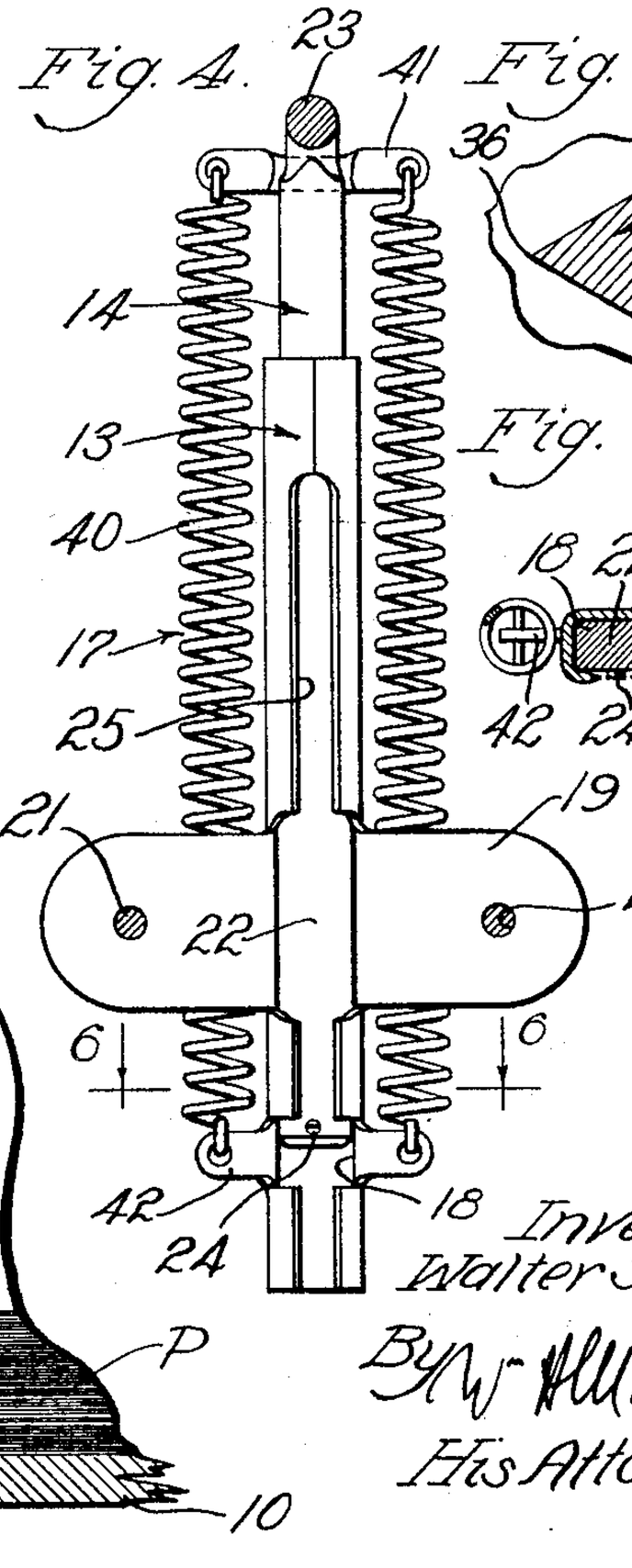


Fig. 5.

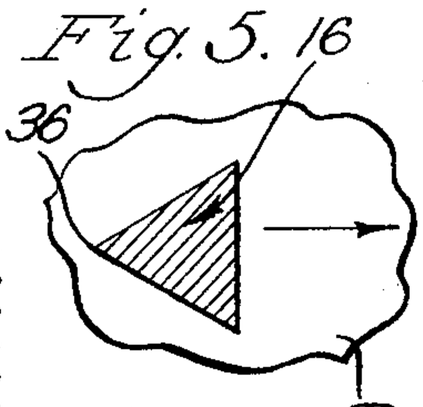
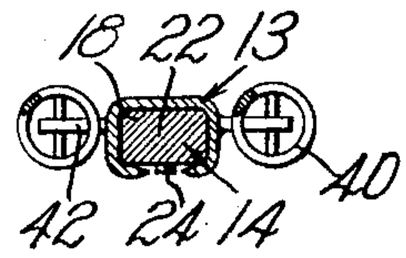


Fig. 6.



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UNITED STATES PATENT OFFICE

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PAPER HANDLING DEVICE

Application filed June 15, 1931. Serial No. 544,646.

This invention relates to a paper handling device, and has particular reference to a device for handling paper of the character used in wrapping fruit, and the like.

Fruit wraps for wrapping fruit are usually of very thin paper and are more or less inconvenient to handle. The fruit wraps, or paper for wrapping fruit, are usually arranged in stacks from which they are individually removed when used. It is very difficult to remove a single sheet of this thin paper from a stack or pile without ruffling or disturbing the order of the pile.

It is a general object of the invention to provide a device for retaining a stack of fruit wraps, or the like, in an orderly condition.

It is another object of the invention to provide a device of the character mentioned that retains a stack or pile of paper in a manner so that an individual sheet of paper may be easily and quickly removed without shifting or creasing the remaining sheets of paper.

It is another object of the invention to provide a paper handling device of the character mentioned that is automatic in its operation and that does not require adjustment or setting as the paper is used of removed.

It is another object of the invention to provide a device of the character mentioned that may be readily mounted on a typical paper carrier and that may be adjusted to engage the paper at various distances from its edge.

It is a further object of the invention to provide a device of the character mentioned that is sturdy in construction and simple and inexpensive of manufacture.

The various objects and features of my invention may be best and more fully understood from the following detailed description of a typical, preferred form of the invention, throughout which description reference will be had to the accompanying drawing, in which:

Fig. 1 is a front elevation of the device, showing it in operative position on a typical paper box or carrier. Fig. 2 is a rear elevation of the device, illustrating it mounted on the paper carrier. Fig. 3 is an enlarged vertical view taken as indicated by line 3—3 on Fig. 1, showing certain parts in cross section. Fig. 4 is a vertical view taken as indicated by line 4—4 on Fig. 3, showing the device apart from the carrier. Fig. 5 is an enlarged horizontal detailed sectional view of one of the paper engaging needles, being a view taken substantially as indicated by line 5—5 on Fig. 3, and Fig. 6 is a transverse detailed sectional view taken as indicated by line 6—6 on Fig. 4.

The present invention is capable of embodiment in forms for use on or in connection with various classes of paper containers or carriers. In the drawing I have illustrated a form of the invention particularly adapted for use on a typical container or box for holding fruit wraps, or the like, it being understood that the invention is not to be taken as restricted to the particular form or application illustrated, but that it is to be taken as including any features or modifications that may fall within the scope of the claims.

The paper container or carrier C illustrated in the drawing may be considered as being constructed of wood, or the like, and is intended primarily to hold a stack of fruit wraps P, or paper of like character. The carrier C may consist of a bottom 10, spaced sides 11, and an end or back 12. The forward end and top of the carrier C are open so that the paper P may be readily withdrawn.

The paper holding device provided by this invention includes, generally, a bracket or body 13 adapted to be mounted on the back 12 of the carrier C, a shank or stem 14 slidably carried by the body 13, spaced arms 15 connected with the stem 14 and disposed within the carrier C, needles 16 on the arms 15 for engaging the paper P, and means 17 for maintaining the needles 16 in pressural engagement with the stack of paper P.

The bracket or body 13 is adapted to be mounted in a vertical position on the outer side of the back 12 of the paper container C. The body 13 is the stationary element of the device and slidably carries and guides the stem 14. In the form of the invention illustrated in the drawing, the body 13 is an elon-

gated integral member having a central longitudinal opening 18. The opening 18 carries or guides the stem 14 for vertical movement and is preferably rectangular in cross sectional configuration. Mounting ears or flanges 19 project laterally from opposite sides of the body 13. The flanges 19 are adapted to seat against the back 12 of the paper carrier and are provided with openings 20 for passing screws 21, or the like, for attaching the body to the carrier C. The body 13 is preferably mounted on the carrier C so that its upper end is flush with or below the upper edge of the carrier.

The shank or stem 14 includes a main portion 22 slidable in the opening 18 and a lateral extension 23 projecting from its upper end to extend over the interior of the carrier C. The main portion 22 of the stem is of rectangular cross section and slidably fits the opening 18. The stem portion 22 is preferably comparatively long to provide for substantial vertical movement of the arms 15. In the particular case illustrated, the main portion 22 of the shank is somewhat longer than the body 13 so that its upper end extends above the body when the parts are in the full down position. The upward movement of the stem 14 may be limited by a set screw 24. A longitudinal slot or passage 25 is provided on the inner side of the body 13 to freely pass the set screw 24, and the set screw is adapted to engage the upper end of the slot to stop the upward movement of the stem 14. The extension 23 of the stem extends laterally or substantially horizontally from the upper end of the main portion 22 to extend over the upper edge of the back 12 and over the interior of the carrier C. The extension 23 may be integral with the main portion 22 of the stem. In accordance with the invention, the extension 23 is of round cross section to adjustably carry the arms 15, as will be hereafter described.

The arms 15 are provided to carry the paper engaging needles 16 and are suspended from the extension 23 of the stem. In the particular embodiment of the invention illustrated in the drawing, the needle carrying arms 15 project downwardly from the lower end of a head 26. The head 26 is an elongated vertical member having a transverse opening 27 adjacent its upper end for passing the extension 23. The opening 27 slidably passes the extension 23 so that the head and arms 15 may be adjusted toward and away from the back 12 of the carrier and so that the arms may be positioned where their needles 16 effectively engage the paper P. Means is provided for releasably setting the head 26 against movement along the extension 23. The head 26 is provided with a central longitudinal opening 28 intersecting the opening 27 and a set screw 30 is screw-threaded into the upper end of the opening 28 for clamping against the extension 23. The set screw 30 may be provided with a knurled head, or the like.

The arms 15 may be formed of a single length of material or stock having its central portion extending through and fixed in a transverse opening 31 in the head 26. The upper portions of the arms 15 may extend or diverge downwardly and outwardly from the head 26, while the lower end portions of the arms are preferably parallel. During normal operation, the lower parallel portions of the arms 15 are substantially vertical, as illustrated in the drawing. The opening 31 intersects the opening 28 of the head, and the central portion of the arm assembly extending through the opening 31 closes the lower end of the opening 28 to form a chamber for holding a supply of needles for use on the arms 15. It will be apparent that needles may be inserted in or removed from the opening 28 by unthreading the set screw 30 and removing the head 26 from the extension 23.

A needle 16 is mounted on the lower end of each arm 15 for engaging the stack of paper P. The needles 16 are removably attached to the arms. In accordance with the broader principles of the invention, the needles may be removably secured to the arms in any suitable manner. In the form of the invention illustrated in the drawing, the lower end parts of the arms 15 are in the form of chucks and have vertical sockets or openings 33 for receiving the shanks of the needles. Transverse slots 34 extend upwardly from the lower ends of the arms 15. Clamping nuts or chuck nuts 35 are screw-threaded on the ends of the arms to clamp their split portions onto the shanks of the needles. The extreme ends of the arms 15 and the openings in the nuts 35 may be provided with co-operating tampered parts to cause effective compression of the split portions of the arms against the needles 16. The nuts 35 may be provided with knurled exteriors so that they may be effectively grasped when it is desired to mount or replace a needle 16.

Any suitable type of sharpened pin or needle may be mounted on the ends of the arms 15 for engaging the stack of paper P. The needles 16 operate to pierce the uppermost sheets of paper to hold them against shifting or displacement. In the drawing, I have illustrated an improved type of paper engaging needle 16 mounted on the spaced arms 15. The needles 16 are provided with tapered or pointed lower ends to pierce the uppermost part of the stack of paper P. The pointed or tapering portions of the needles 16 are of triangular cross section, having three sharpened longitudinal edges 36. The needles 16 are arranged in the chucks at the lower ends of the arms 15 so that each has a sharpened edge 36 facing rearwardly toward

the back 12 of the carrier C. When a sheet of paper P is drawn forwardly from the carrier in the direction indicated by the arrow in Fig. 5, the rearwardly facing edge 36 cuts the paper. As the paper is drawn forward, the angularly related sides of the needle which converge at the edge 36 act to part the paper at each side of the cut so that the paper is not torn.

The means 17 for maintaining the needles 16 in pressural engagement with the paper P is in the nature of a spring means and operates to normally yieldingly urge the assembly of the stem 14, the head 26, and the arms 15 downwardly so that the pointed needles 16 pierce several sheets of paper at all times. The means 17 includes springs 40 arranged at opposite sides of the body 13. The springs 40 are in the form of helical springs and have their upper ends attached to lugs 41 projecting from the stem 14 and their lower ends attached to ears 42 projecting from opposite sides of the body. The lugs 41 project from the shank 14 at the upper end of the portion 22 and at a point above the upper end of the body 10 so that they are adapted to engage the upper end of the body to limit the downward movement of the stem. The springs 40 are under tension and act to feed the needles 16 downwardly into the stack of paper P as paper is removed from it.

It is believed that the utility and operation of the device provided by this invention will be readily apparent from the foregoing detailed description. When it is desired to place paper in the carrier C, the stem 14 may be manually raised to disengage the needles 16 from the paper. The head 26 may be adjusted longitudinally along the extension 23 so that the needles 16 will engage the paper at the desired points. Further, the head 26 may be oscillated or tilted on the extension to bring the needles in even engagement with the paper. The springs 40 are sufficiently strong to cause the needles 16 to pierce several of the uppermost sheets of paper P and, upon paper being removed from the stack, the needles are automatically fed downward. The device may be set to handle paper of various sizes and to engage the paper at any desired distance from its inner edge by threading or adjusting the single set screw 30.

Having described only a typical, preferred form of my invention, I do not wish to limit myself to the specific details set forth, but wish to reserve to myself any changes or variations that may appear to those skilled in the art or fall within the scope of the following claims:

Having described my invention, I claim:

1. A paper holding device including, a body adapted to be mounted on a paper carrier, a shank slidably carried by the body, a yoked member on the shank, needles carried by the arms of the yoked member for engaging paper in the carrier, and means for holding the needles in pressural engagement with the paper.

2. A paper holding device including, a body adapted to be mounted on a paper carrier, a shank slidably carried by the body, a yoked member on the shank, needles carried by the arms of the yoked member for engaging paper in the carrier, and spring means for holding the needles in pressural engagement with the paper.

3. A paper holding device including, a body adapted to be mounted on a paper carrier, a shank slidably carried by the body, a yoked member on the shank, needles carried by the arms of the yoked member for engaging paper in the carrier, and means for holding the needles in pressural engagement with the paper, said means including a spring arranged between the body and the shank.

4. A device for use on a paper carrier which includes a body adapted to be mounted on the carrier, a shank slidably carried by the body and having an extension extending horizontally over the paper in the carrier, spaced downwardly projecting arms carried by the extension, needles on the lower ends of the arms for engaging the paper, and spring means for urging the needles against the paper.

5. A device for use on a paper carrier which includes a body adapted to be mounted on the carrier, a shank slidably carried by the body and having an extension extending horizontally over the paper in the carrier, a downwardly projecting arm carried by the extension, a needle on the arm for engaging the paper, and means mounting the arm on the extension for horizontal adjustment.

6. A device for use on a paper carrier which includes a body adapted to be mounted on the carrier, a shank slidably carried by the body and having an extension extending horizontally over the paper in the carrier, a downwardly projecting arm carried by the extension, a needle on the arm for engaging the paper, and means mounting the arm on the extension for horizontal adjustment, said means including a head suspending the arm and having an opening slidably passing the extension.

7. A paper holder of the character described including, a body adapted to be mounted on a paper carrier, a shank slidable vertically in the body and having a lateral extension to extend horizontally over the paper, a head carried on the extension, a needle carried by the head for engaging paper in the carrier, and means whereby the head may be adjusted on the extension.

8. A paper holder of the class described

including, a body adapted to be mounted on a paper carrier, an element carried by the body for vertical movement, the element including spaced vertical arms adapted to extend into the paper carrier, chucks on the lower ends of the arms, needles removably held in the chucks, and means for urging the element downwardly to force the needles into the paper.

9. A device of the character described including, a body adapted to be mounted on the outer side of a box for holding paper, a stem slidable vertically in the body and having a part projecting horizontally over the interior of the box, an arm projecting downwardly from the said part, means whereby the arm may be adjusted along said part, a needle on the lower end of the arm for engaging the paper, and means for urging the stem downward to force the needle into the paper.

10. A device of the character described including a stem, means for mounting the stem on a paper carrier for vertical movement, means for urging the stem downward, and a needle carried by the stem for piercing the top sheets of a stack of paper in the carrier, the needle being of triangular cross sectional configuration, the needle being arranged with one of its edges facing the back of the carrier to cut the paper as the paper is withdrawn from the carrier.

In witness that I claim the foregoing I have hereunto subscribed my name this 20th day of January 1931.

WALTER S. HAMER.