Dec. 15, 1931. H. A. W. WOOD 1,837,005

PIN FOR FOLDING CYLINDERS

Filed July 26, 1928 2 Sheets-Sheet 1

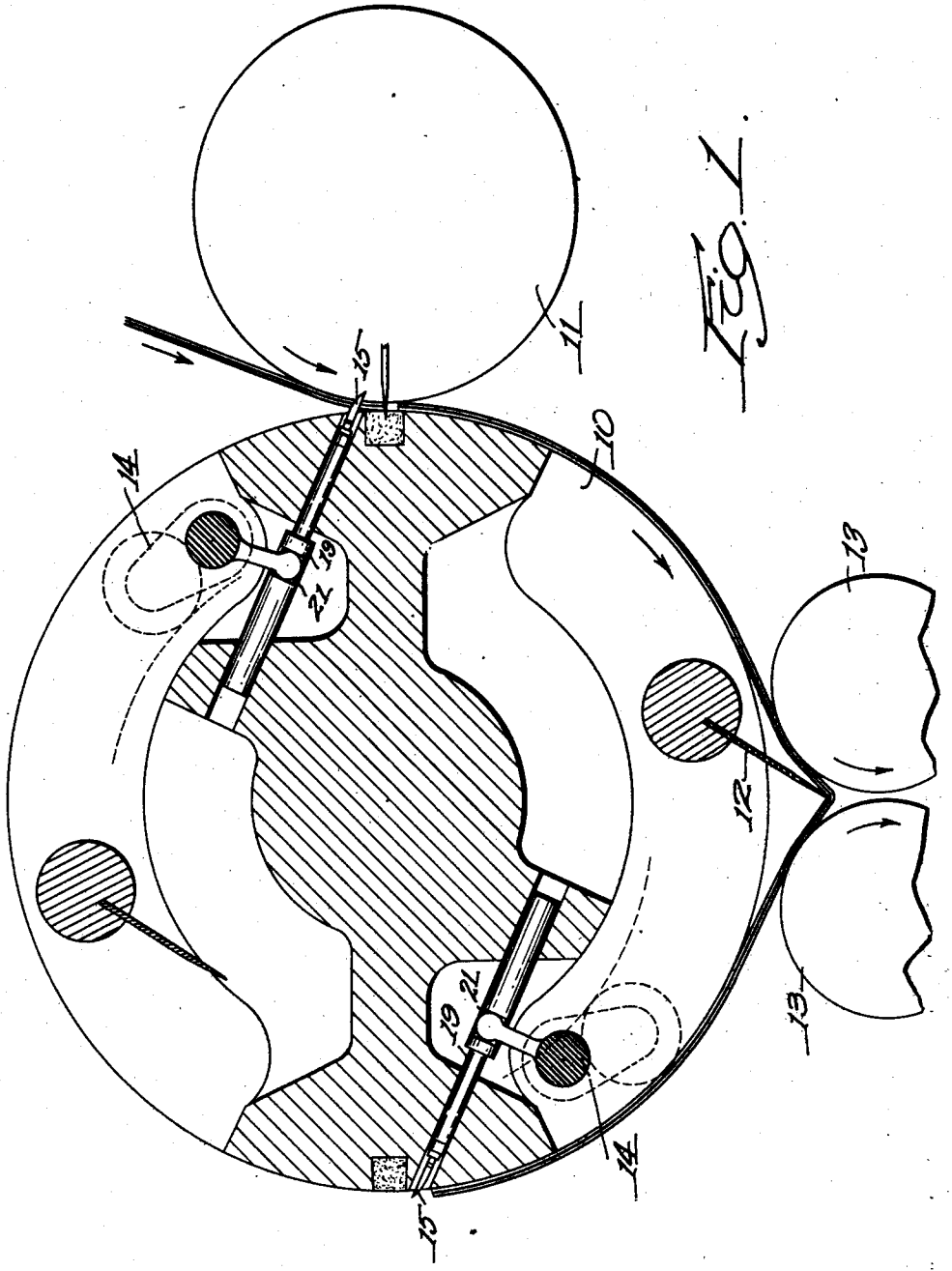


Fig. 1.

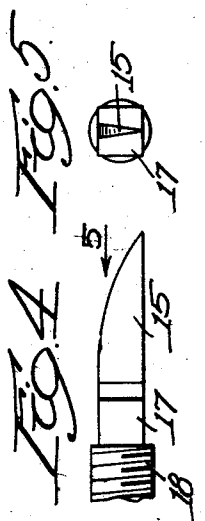
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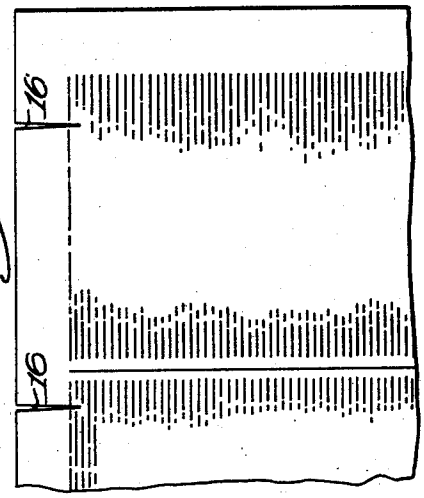
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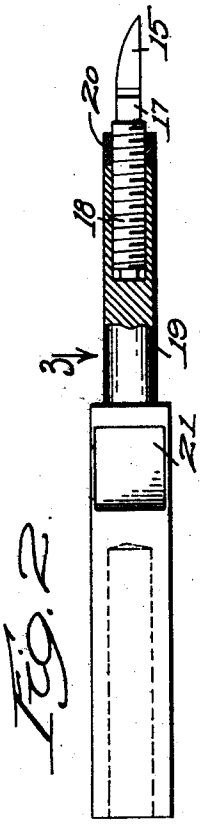
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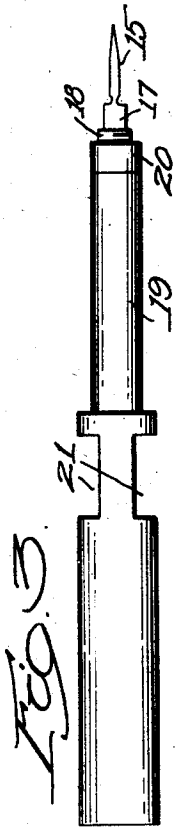
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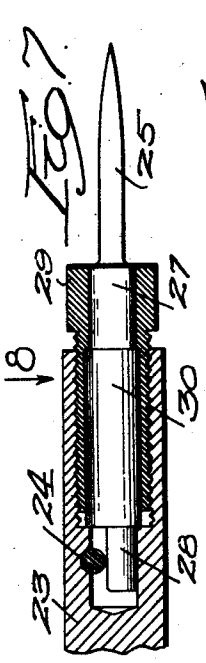
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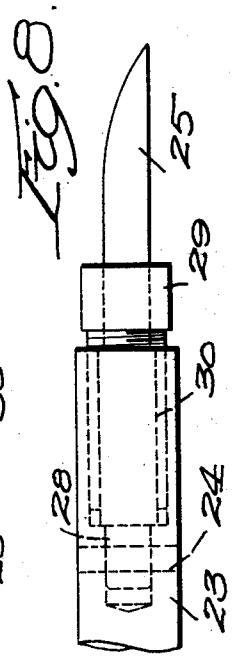












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1,837,005

UNITED STATES PATENT OFFICE

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PIN FOR FOLDING CYLINDERS

Application filed July 26, 1928. Serial No. 295,390.

This invention relates to the pins with which folding cylinders, constituting a part of a folding couple, are provided.

The principal objects of the invention are to provide an improved form of pin which will not tear or seriously mutilate the edge of a sheet if drawn out through it instead of drawing the pin out of the paper; to provide a construction in which the pins can retain control of the paper for the longest possible time, and to provide improved means for setting the pin in the pin holder and keeping it in proper position therein.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings in which

Fig. 1 is an end view of a folding couple with the folding cylinder shown in section to illustrate the position and action of the pins which constitute the subject matter of this invention;

Fig. 2 is a side view of one of the pins, partly in section, and its holder on enlarged scale;

Fig. 3 is an edge view of the same;

Fig. 4 is a view similar to Fig. 3 of the pin itself on further enlarged scale;

Fig. 5 is an end view of the same;

Fig. 6 is a view of a newspaper showing the cuts made by these improved pins;

Fig. 7 is a sectional view of a modified form, and

Fig. 8 is a side view of the same.

The pins with which folding cylinders are provided for holding the webs of paper while on the cylinder, carrying it around to the position in which it is tucked into the folding rolls, should retain control of the paper as long as possible. As a matter of fact, if it were not objectionable to tear the pin holes out to the edge of the paper, the usual pins would be left projecting out until the folding rolls nipped the paper and drew it through them, but this is objectionable on account of the fact that the round pins ordinarily employed would leave the paper torn in a jagged manner. As a matter of fact it is, of course, necessary to move the pins out to project them into the paper and heretofore they have been moved back again to leave the paper free just before the time comes when they would commence to tear it if they were left projecting. This has been done, of course, in order to avoid the tearing of the paper in the manner above described.

In accordance with this invention, I form the pinpoints in such a way that they will not tear the paper but will cut a neat slit in it and then I leave them in the paper longer than has been the case heretofore and thus secure control of the paper by the pin-points just as long as is possible on this kind of a machine.

I have shown the invention as applied to an ordinary folding couple comprising a folding cylinder 10 and cutting cylinder 11. The folding cylinder, as usual, is provided with the folding blades 12 which tuck the paper between the folding rolls 13. Mechanism, indicated generally by 14, is employed to move the pin-points back and forth in the same manner as usual, only the motion is changed slightly to give the pins a chance to stay in the paper a longer time and keep better control of it. This change is merely in the time of withdrawal of the pins and does not involve any material change in the mechanism.

Referring particularly to Figs. 2, 3, 4 and 5, it will be seen that each pin-point 15 is made in the form of a pen knife blade. This is sufficiently pointed at the end to enable it to impale the paper in the usual manner and the edge is sufficiently dull to carry the paper around to the other side of the cylinder without tearing. When the folding blade folds the paper into the folding rolls, the pin-points at the left still project from the cylinder and the thin or sharp edge of the blade or pin-point 15 will cut a narrow slit 16 in the paper, as shown in Fig. 6. This, therefore, will be a clean, neat cut, as shown, with no danger of producing a jagged edge. The pin-points are not withdrawn until they reach the position shown at the left in Fig. 1.

It will be seen that the pin point is straight on the sharp side and curved on the dull side. Each pin point is provided directly below the blade, or next to it, with a square section 17

adapted to be used for turning it, in other words, a convenient area for the application of a wrench. Beyond this is a screw thread 18 which is screwed into the pin holder 19. A jam nut 20 is placed on the end for the purpose of holding the pin in position and keeping it from turning even slightly on its threads. It has to be kept of course in position in line with the movement of the web.

The pin holder 19 is provided with opposite flat depressions 21 for the reception of an arm of the operating means 14, which keeps the holder from turning as well as operating it. Thus the pin is prevented from having any slight turning motion and from being jarred loose so that it can get out of position.

This pin is pointed, as will be seen, so that it will penetrate the paper and the so-called "sharp" edge is not sharpened sufficiently to move forward in the paper when the cylinder turns to draw the paper in but will carry the paper around to the bottom of the cylinder without cutting into it, but when this folding blade moves the paper backwardly around the cylinder, as has been done in Fig. 1, the thin edge of the knife blade cuts the narrow slit in the paper as shown at 16 in Fig. 6. If the pin breaks off, the square 17 will still be there, so the shank can be removed.

A modification is shown in Figs. 7 and 8 in which the pin holder 23 is in essential points like the pin holder 19 but the blade is held in a different manner. In this case the pin holder is provided with a master pin 24 which can be considered as permanent although it is removable for certain purposes. The pin 25 is of the same general shape as the pin 15 and is provided with a cylindrical portion 27 and with a flattened projection 28. A jam nut 29 is provided threaded into the end of the pin holder 23 and having a shoulder inside fitting against the enlarged base 30 of the shank of the pin 25.

The pin is inserted with the flat 28 under the master pin 24 and can be inserted in no other position than the right one. Thus the pin 25 is kept in the right position at all times. It is forced into place and held there by the jam nut which cannot turn the pin 25. If the blade 25 breaks off, the shank, consisting of the parts 27 and 30, can be withdrawn by unscrewing the jam nut 29 and entirely removing it, thus leaving the portion 27 of the shank projecting where it can be reached for withdrawing it from the pin holder.

In both cases the results above mentioned are secured.

Although I have illustrated and described only two forms of the invention, I am aware of the fact that other modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore, I do not wish to be limited to all the details of construction herein shown and described, but what I do claim is:—

1. As an article of manufacture, a pin for impaling the sheets on a folding couple having a blade with a cutting edge along one side and blunt along the other side.

2. As an article of manufacture, an impaling pin for a folding cylinder comprising a flat blade having a straight forward sharp cutting edge adapted to cut a clean slit to the edge of the paper and a thicker unsharpened rear edge.

3. As an article of manufacture, an impaling pin for a folding cylinder having a forward cutting edge for the purpose described, and a curved rear edge terminating in a point in line with the cutting edge for impaling the paper.

4. As an article of manufacture, an impaling pin for a folding cylinder having a cutting edge and provided with means for holding it in a pin holder in one position only with said cutting edge in front.

5. In a device of the character described, the combination with a reciprocable pin holder for a folding cylinder, of a pin having a cutting edge and provided with a shank having a screw thread adapted to screw into the pin holder and a jam nut on the thread for holding the pin in fixed position with the cutting edge forward after it has once been put in place.

6. The combination with a reciprocable pin holder for a folding cylinder having an opening extending into the end provided with a thread and a transverse master pin extending across the opening beyond the thread, of a pin having a cutting edge and a shank having a flat portion at the end adapted to fit against the master pin and prevent the impaling pin being inserted in any but the correct position, and a jam nut fitting said screw thread for holding the pin after it is introduced into the pin holder.

7. In a device of the character described, the combination of a reciprocable pin holder for a folding cylinder, a pin having a longitudinal cutting edge, and screw-threaded means for securing the pin in the holder.

In testimony whereof I have hereunto affixed my signature.

HENRY A. WISE WOOD.