Aug. 1, 1939. D. R. DONNELL 2,167,746

SCORING MEANS IN PRINTING PRESSES

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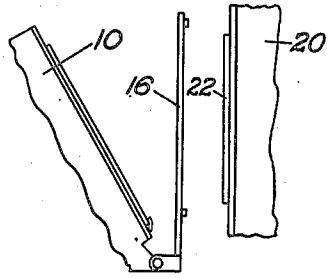


FIG. 2

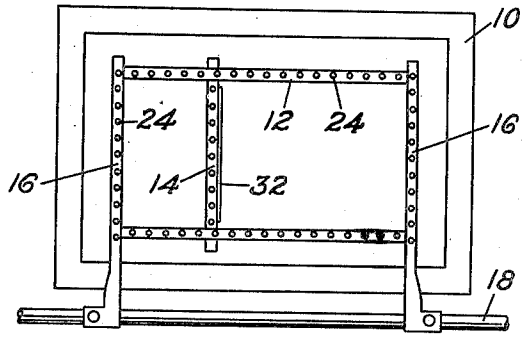


FIG. 1

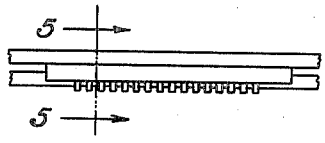


FIG. 4

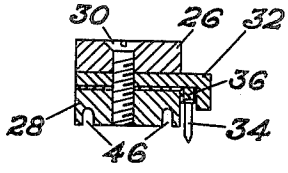


FIG. 5

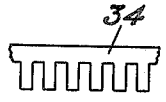


FIG. 6

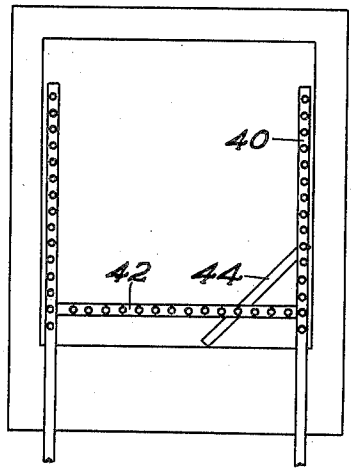


FIG. 3

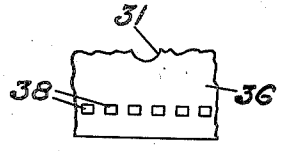


FIG. 7

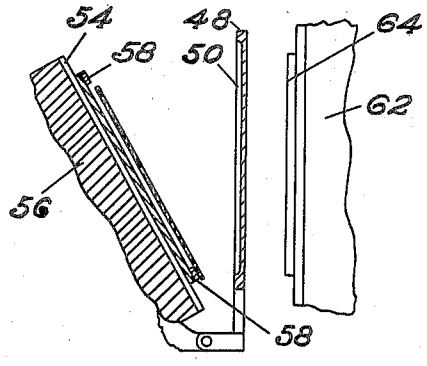


FIG. 8

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SCORING MEANS IN PRINTING PRESSES

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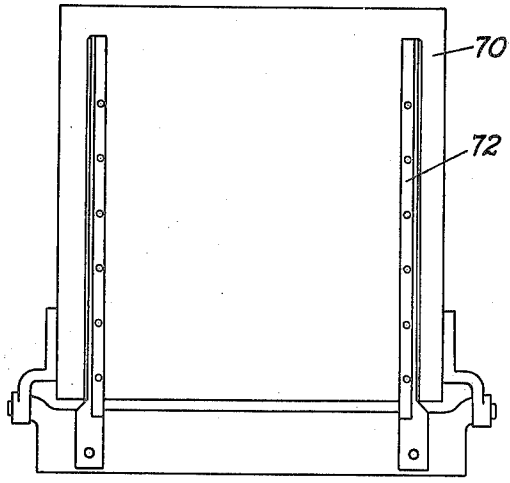


FIG. 9

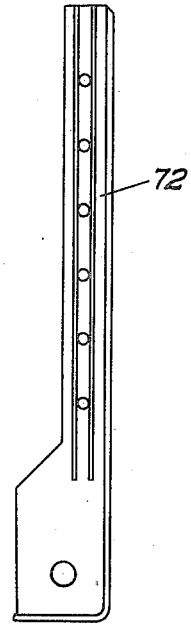


FIG. 10

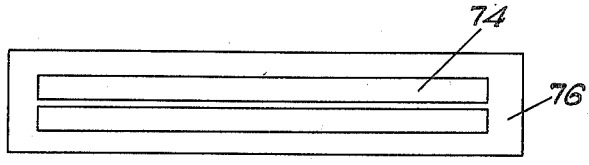


FIG. 11

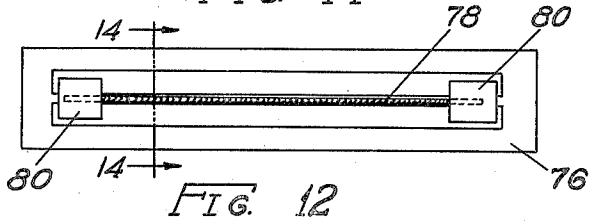


FIG. 12

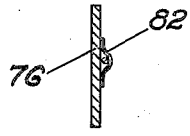


FIG. 14

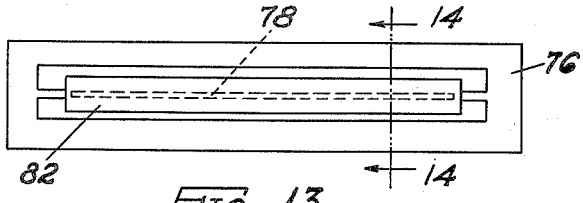


FIG. 13

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Patented Aug. 1, 1939

2,167,746

UNITED STATES PATENT OFFICE

2,167,746

SCORING MEANS IN PRINTING PRESSES

Don R. Donnell, Los Angeles, Calif.

Application June 13, 1938, Serial No. 213,441

4 Claims. (Cl. 93—58)

This invention relates to an improved printing press attachment and has, for one of its principal objects, the provision of means which can be readily incorporated into the usual platen printing press and the use of which will enable the ready cutting, perforating or scoring of the paper and printed material without damaging or in any way interfering with the operation of the composition inking rollers.

This application is a continuation-in-part over my parent Patent Number 2,133,658 on "Printing-press attachment."

One of the important objects of this invention is to provide a sturdy perforating, cutting or scoring rule for use with a platen press which shall be easily installed and which, furthermore, is completely adjustable.

Another and further important object of the invention is to provide a perforating, cutting or scoring means for printing presses or the like which is simple of construction, economical of manufacture, easy of operation, and which, furthermore, will not interfere in any way with the usual and proper operation of the printing press itself.

Other and further important objects of this invention will be apparent from the disclosures in the accompanying drawings and following specification.

The invention, in a preferred form, is shown in the drawings and hereinafter more fully described.

In the drawings:

Figure 1 is an elevation of the improved printing press attachment of this invention, showing the same as associated with the platen.

Figure 2 is a side elevation of the structure shown in Figure 1, and this figure also includes the press bed itself and the form of type.

Figure 3 is a view somewhat similar to Figure 1, showing a slight modification of the invention.

Figure 4 is a side elevation of one of the improved perforating or cutting elements of this invention.

Figure 5 is a sectional view taken on the line 5—5 of Figure 4.

Figure 6 is a detail view of the improved perforating rule of this invention.

Figure 7 is a detail view of the shim by means of which the rule is properly fastened in desired position.

Figure 8 is a view somewhat similar to Figure 2, but with certain parts shown in section, and this view illustrates the operation of the scoring attachment of the invention.

Figure 9 is a view similar to Figure 1, showing a slight modification of the invention.

Figure 10 is a detail view of part of the structure of Figure 9.

Figure 11 is a plan view showing one step of the method of operation.

Figure 12 shows the next step in the operating method.

Figure 13 shows a further step in the method of operation.

Figure 14 is a sectional view on the line of 14—14 of Figure 13.

As shown in the drawings:

The reference numeral 10 indicates generally the platen of the printing press to which the improved attachment of this invention is adapted to be applied. The device consists essentially of a framework 12—14 (Figure 1) which is adjustably secured or otherwise fastened to the gripper fingers 16 of the usual printing press, and which gripper fingers are pivotally mounted on a rod or other support 18. The platen and gripper fingers are mounted in opposed relationship to a press bed or the like 20 having a form of type 22 thereon.

The gripper fingers 16 and also the frame elements 12 and 14 are adapted for adjustable mounting by providing a plurality of closely positioned screw holes 24 in the strips.

As best shown in Figure 5, each strip comprises an upper element 26 and a lower element 28 fastened together by screws or the like 30, which screws can also serve as mounting and connecting elements.

Positioned between the strips is an L-shaped holder 32 having an outer depending edge as shown in Figure 5, and the actual cutting or perforating rule 34 is mounted between this L-shaped element 32 and the lower frame piece 28. The cutting or perforating rule 34 is held in position between the elements 28 and 32 by means of a thin metal shim 36 which has a series of perforations 38 therein adapted for the passage of the teeth of the perforating rule 34 therethrough. This shim is bent into shape, as best shown in Figure 5, around and about the perforating rule and between the strip or frame elements 28 and 32. The screws 30 pass through openings 31 in the shims, thereby securely holding the rule 34 in position when the screws are tightened.

A slight modification of the invention adapted for diagonal cutting or perforating is shown in Figure 3 wherein the gripper fingers 40 are provided with a bottom cross frame element 42, and

in any of the angles between the gripper fingers and the cross frame element, there may be positioned a perforating or cutting rule **44**, this being mainly for the purpose of providing a detachable corner coupon in the printed work.

From an inspection of Figure 5, it will be noted that the lower strip or frame piece **28** is provided with a pair of grooves **46**, and these grooves are used for the purpose of scoring the printed material as distinguished from perforating or cutting. The construction of the scoring assembly is illustrated in Figure 8 wherein either the gripper finger or attachment **48** is provided with grooves such as that shown at **50**, and in order to accomplish the desired scoring, a cord or cords **52** is mounted upon the tympan paper **54** which is on the platen **56**. The cord is held in position by means of strips of gummed paper or the like **58**.

The material to be printed and scored is placed upon the platen as shown at **60**, and when the platen is then moved in contact with the adjacent press bed **62** with its form of type **64**, the cord **52**, being in alignment with the groove or grooves **50** and the gripper fingers or frame elements **48**, will push the paper or cardboard **60** into the groove, thereby forming the desired bend or score.

The gripper fingers in all these modifications of the invention are set far enough apart so as to clear the type in the form, and the strips themselves either come outside the type or between the same.

The strips are made of a height so that, when the press is closed, they work up against the furniture on one side and against the platen on the other side. The gripper fingers also work into this free space. The cutting rule and the perforating rule both extend only a very short distance above the face of the strip, and when the press is closed, the type is forced firmly against the platen with the paper between. Since the strips are of the same height as the type, the perforating or cutting rule is forced against the paper as it rests on the platen when the press is closed. The teeth of the rule **34** will thereupon either cut or perforate the paper but the projection is so slight that the heavy tympan paper will not be damaged, especially as it is ordinarily backed with a resilient cloth.

In Figure 9, the platen **70** has a slightly different type of gripper finger **72** applied thereto, this being shown in better detail in Figure 10, and in the method of operation, the bar **72** has two grooves in the face which imprint marks **74** on the strip **76** as shown in Figure 11, and a piece of cord **78** is then laid on the blank space between the imprints and preliminarily held in place by means of adhesive tapes **80**, after which a strip of adhesive material **82** is applied over the cord **78** as shown in Figures 13 and 14.

The thickness of the standard furniture combined with the thickness of the scoring gripper permits only enough pressure to score while printing. This method stretches the embossed surface of the stock and does away with cracking and scratching the surface with a rule. The supporting grippers also act as regular grippers. The score permits folding either way.

Broken lines of scoring are obtained by using several segments of string instead of one continuous piece, and if transverse scoring is desired, there may sometimes be a necessity for running the material through twice.

This attachment produces a real score which will not cut when made ready and which will stand up satisfactorily under long runs. An ornamental blind embossed rule effect can be obtained while the job is being printed, and the use of this device eliminates the wait for the job to dry before scoring. The stock will lay flat after scoring, and with the use of this apparatus, scores up to within three-sixteenths of an inch from the printing may be produced. Furthermore, the device will not break down when more than one sheet feeds through on an automatic press.

It will be evident that herein is provided an attachment for printing presses which can be used for cutting, perforating or scoring, and which will not in any way damage the platen or the rollers, the chief objection to attachments of this sort in the past being that with each operation of the press, the grippers must swing free of the type face sufficiently for the inking rollers to pass over the type. If a perforating or cutting rule is in the type form, it will necessarily damage the soft surface of the composition rollers, and the next time the form is placed in the press without a perforating rule or with the perforating rule in a different position, the grooves, which have previously been undesirably cut in the rollers, will fail to properly ink the corresponding portion of the type.

Somewhat the same objection applies to the method of scoring heretofore used which has been to simply place a blunt piece of rule a little taller than the type in the form, and as it is pressed into the paper against the platen, the desired bend or score is formed. Here again such a blunt piece of rule damages the rollers, and, furthermore, it makes an undesirable ink line on the paper. The present invention eliminates all these objections.

It is obvious that the invention may be developed for additional but similar uses such as, for example, thumb cutting. This can be accomplished by mounting a semi-circular cutting element in place of the straight perforating or cutting rule. Again, die embossing may be produced by mounting the die plate on the strips. Further, the strips may be made wider or a number of strips may be placed together for the purpose of obtaining considerable width for die plate mounting.

I am aware that many changes may be made and numerous details of construction varied throughout a wide range without departing from the principles of this invention, and I, therefore, do not purpose limiting the patent granted hereon otherwise than as necessitated by the prior art.

I claim as my invention:

1. In a printing press having gripper fingers, an attachment comprising a framework, means for adjustably fitting the framework to the gripper fingers, said gripper fingers having two grooves in their faces for imprinting parallel stripes on the tympan, and scoring means aligned between these imprinted stripes.

2. In a printing press having gripper fingers, an attachment comprising a framework, means for adjustably fitting the framework to the gripper fingers, said gripper fingers having two grooves in their faces for imprinting parallel stripes on the tympan, and scoring means aligned between these imprinted stripes, said scoring means being cord covered with an adhesive material.

3. In a printing press having gripper fingers, an attachment comprising a framework, means

for adjustably fitting the framework to the gripper fingers, said gripper fingers having two grooves in their faces for imprinting parallel stripes on the tympan, and scoring means aligned between these imprinted stripes, said scoring means being cord covered with an adhesive material, and the cord being continuous for the length of the stripes.

4. In a printing press having gripper fingers, an attachment comprising a framework, means for adjustably fitting the framework to the gripper fingers, said gripper fingers having two grooves in their faces for imprinting parallel stripes on the tympan, and scoring means aligned between these imprinted stripes, said scoring means being cord covered with an adhesive material, and the cord being intermittent for intermittent length of stripes.

DON R. DONNELL.