

April 13, 1943.

W. E. JOHNSON
BLUEPRINT TRIMMING DEVICE

2,316,249

Filed Nov. 28, 1941

3 Sheets-Sheet 1

Fig. 1.

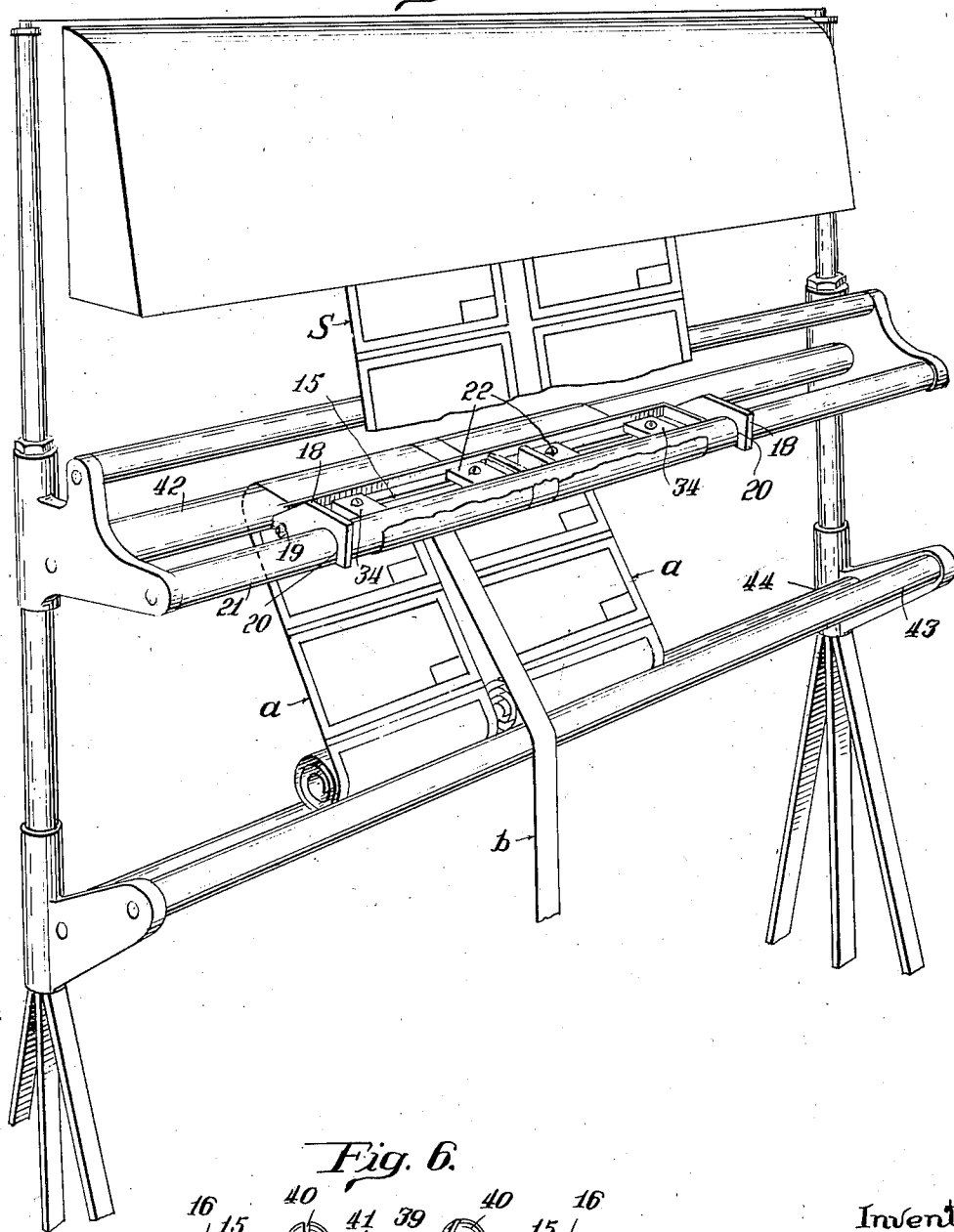
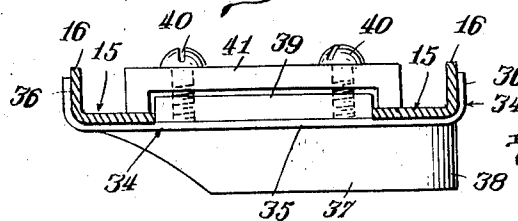


Fig. 6.



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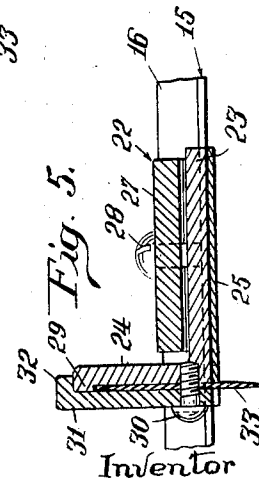
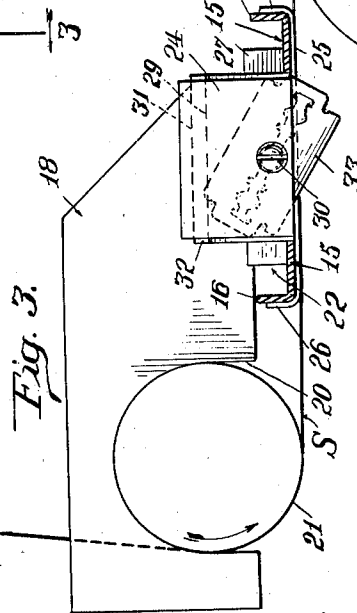
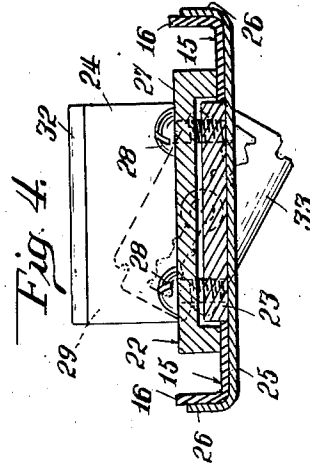
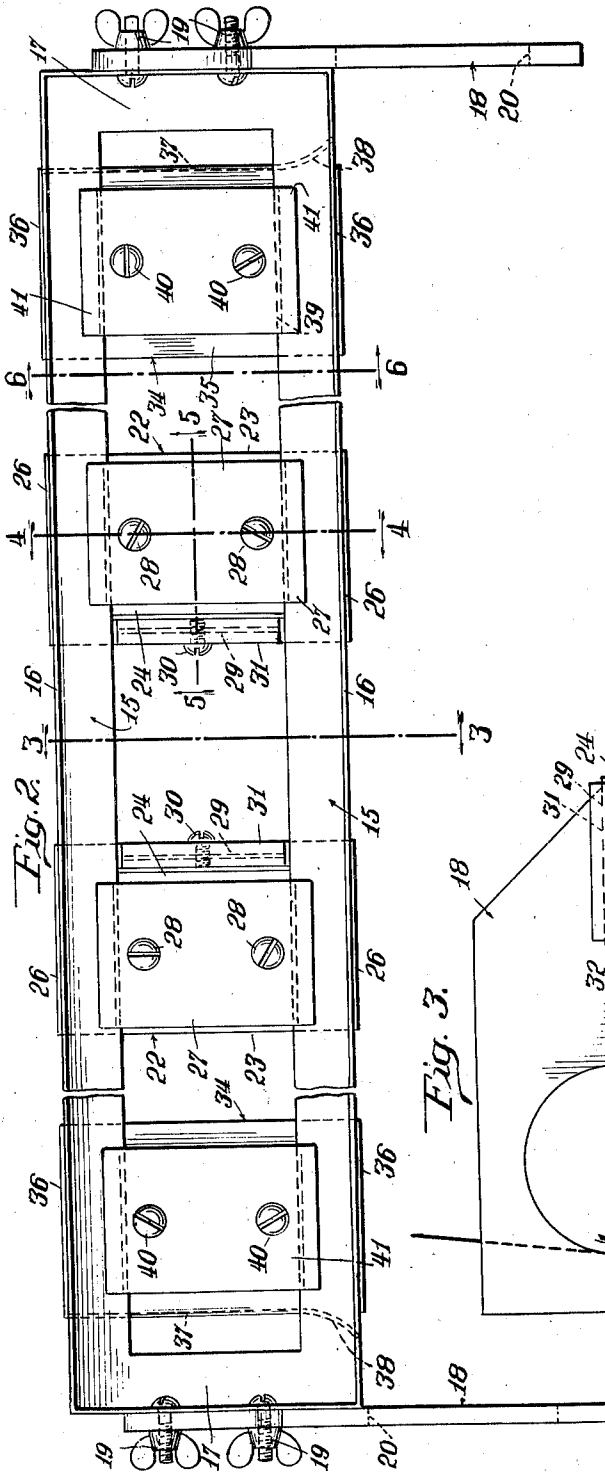
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2,316,249

BLUEPRINT TRIMMING DEVICE

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3 Sheets-Sheet 2



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BLUEPRINT TRIMMING DEVICE

Filed Nov. 28, 1941

3 Sheets-Sheet 3

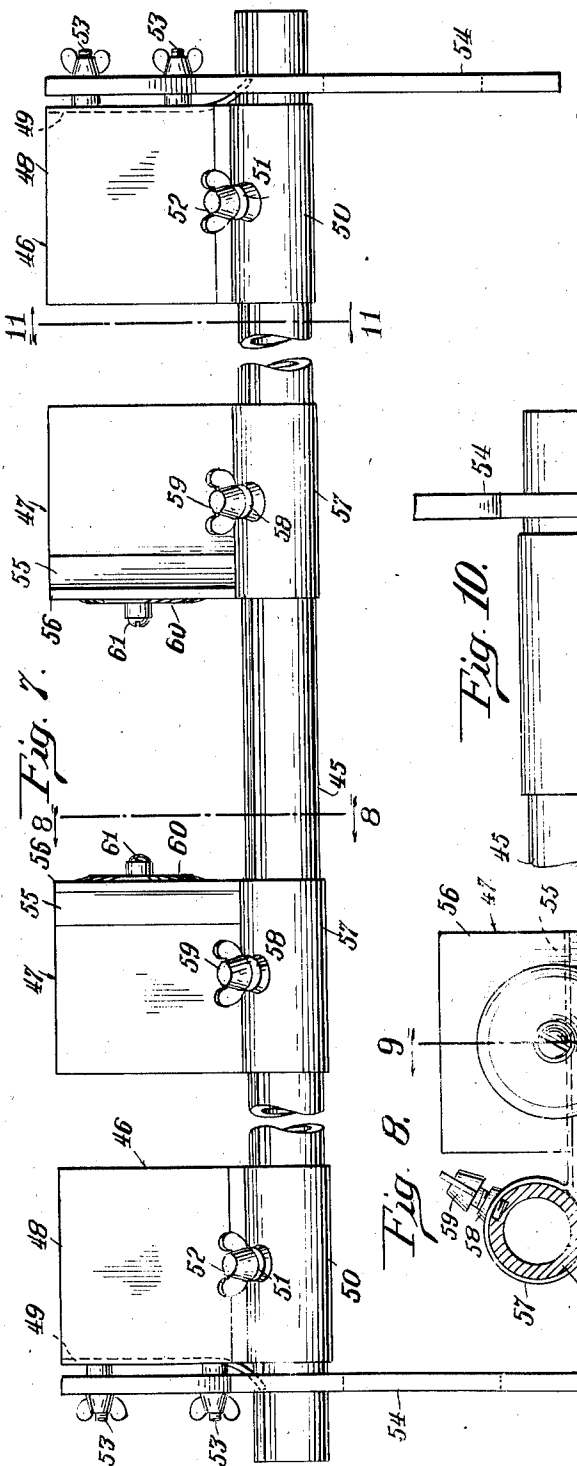


Fig. 7.

Fig. 8.

Fig. 9.

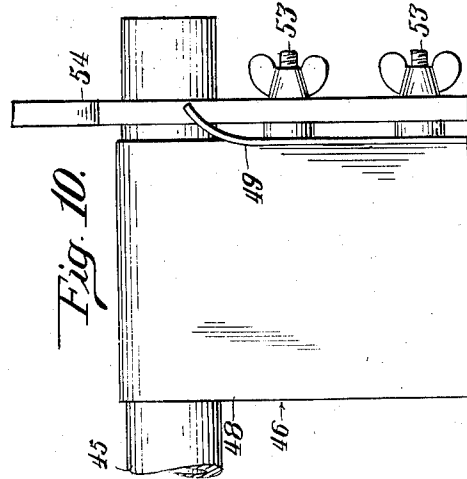


Fig. 10.

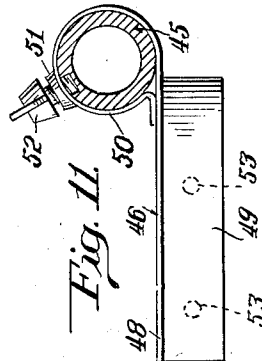


Fig. 11.

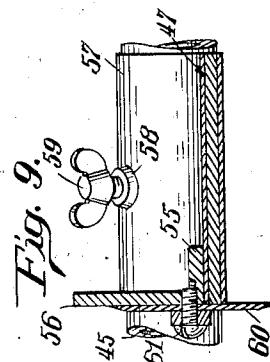


Fig. 9.

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UNITED STATES PATENT OFFICE

2,316,249

BLUEPRINT TRIMMING DEVICE

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Application November 28, 1941, Serial No. 420,743

2 Claims. (Cl. 164—36)

My invention relates to a device, adapted to be applied to the delivery end of a blueprint drying machine, whereby the continuous roll or sheet of paper containing the various imprints or tracings arranged in aligned columns or series adjacent opposite edges of the continuous roll or sheet will be automatically cut into two or more separate continuous sheets or strips, each containing a series of imprints or tracings.

In large industries or in the drafting room of the engineers of railroad systems where blueprints of the respective tracings are made, it is customary to assemble or group tracings of substantially the same size and arrange them horizontally or transversely of the continuous blueprint roll and in successive longitudinal columns so that the sheet issuing from the drying machine will contain a multiple of prints arranged in longitudinal rows. This continuous sheet or exposed, treated and dried roll must then be cut to separate the respective prints by hand trimming, transversely and longitudinally, along the lines indicated by the respective tracings.

This operation consumes considerable time and labor and greatly limits the output of the blueprint room.

My invention has for its object the provision of a device which may be readily applied to the delivery side of a blueprint drying machine and adjusted so as to cut the outcoming continuous roll or sheet, between transversely aligned prints, into two or more continuous strips, each containing a series of prints.

Another object of the invention is the provision of a device which, in addition to its cutting operation, will automatically adjust or align itself with the outcoming sheet or roll of blueprint paper.

The invention also has for its object the provision of a comparatively inexpensive device which may be readily applied to the delivery end of the drying portion of blueprint machines at present in use without need for change in construction.

The foregoing enumerated objects and the advantages of my invention all will be readily comprehended from the following detailed description of the accompanying drawings, wherein—

Figure 1 is a perspective view of the delivery side of a drying machine with my improved trimming device applied.

Figure 2 is a top plan view of the trimming device.

Figure 3 is a cross-section taken on the line

3—3 of Figure 2, looking in the direction of the arrows.

Figure 4 is a cross-section taken on the line 4—4 of Figure 2.

Figure 5 is a sectional view taken on the line 5—5 of Figure 2, looking in the direction of the arrows.

Figure 6 is a cross-section taken on the line 6—6 of Figure 2 looking in the direction of the arrows.

Figure 7 is a top plan view similar to Figure 2, illustrating a modification.

Figure 8 is a cross-section taken on the line 8—8 of Figure 7.

Figure 9 is a cross-section taken on the line 9—9 of Figure 8.

Figure 10 is an inverted plan of the guide element at the right end of the frame as shown in Figures 2 and 7.

Figure 11 is a cross-section on the line 11—11 of Figure 7.

My improved trimmer is intended to be employed in connection with continuous roll blueprinting machines, being especially designed for splitting or cutting the roll paper into two or more continuous strips containing the respective prints spaced transversely of the roll, so that the series of prints on each strip when delivered will be trimmed on the edges lengthwisely of the paper and the prints of each series or strip ready to be separated by cutting or trimming crosswisely of the strip.

In certain industries and particularly in the drafting division of railroad systems where blueprints of all drawings or tracings must be made, the prints are made on a continuous roll of paper which, after exposure, treatment and drying, must be cut up to separate the respective prints and trimmed by hand along the lines indicated by the various tracings. This hand trimming operation consumes considerable time and consequently limits the output of the blueprint division or room.

The utility of my device has been demonstrated in the drafting division of one of the large railroad systems of this country, particularly when prints are made from small tracings such as shop cards, locomotive folio pages, and the like, and where it is the practice to operate the blueprint machine after a number of tracings have been made; the operator grouping tracings of similar size and arranging them in series or longitudinal parallel rows. The continuous roll or sheet coming from the drying machine is then hand trimmed by the operator by cutting the con-

tinuous roll or sheet lengthwisely and transverse-ly to separate the respective prints. Where a single operator is employed, the blueprinting machine must remain idle during the trimming operation, with the result that the output of the blueprint room or division is limited.

My automatic trimming device is designed to be readily applied to blueprint drying machines as at present in use and in the specific embodiment disclosed in Figures 1 to 6, inclusive, comprises an elongated rectangular frame of length somewhat greater than the width of the roll of blueprint paper; the frame being composed of the parallelly arranged sheet metal plates or rails 15, 15 provided at their outer longitudinal edges with upstanding flanges 16, and the ends united by the similarly formed end pieces 17, 17.

The ends 17, 17 of the frame are provided with the hook-like members or arms 18, 18 which may be secured in place in any suitable manner. The members 18 are preferably removably secured in place by the short bolts and butterfly nuts shown at 19 and extend beyond one longitudinal side of the main frame, with their lower edges socketed as at 20, see Figure 3, to permit the members 18 to fit onto the rod or roller 21 on the delivery side of the blueprint drying machine of which a portion is shown in Figure 1. The members or arms 18, for the sake of lightness, may be made of hard fibre.

The main frame, which may be of any desired length in keeping with the width of blueprinting paper used, may be provided with any number of cutter blade holders. The exemplification in Figure 1 shows the device provided with two blade holders at 22, arranged to cut the continuous sheet indicated at S and coming from the drying machine, into three strips a, a and b; the strips a, a containing the desired prints, while the strip b is the scrap or non-print containing portion of the blue-print paper intermediate the print containing strips a, a.

The blade holders 22 are slidable or adjustable lengthwisely of the main frame and each holder consists of a metal block 23 provided with an upstanding end 24; while the bottom of the block 23 is shown provided with a metal plate 25 which may be welded to the block. The block 23 with its upstanding end 24 preferably is of width corresponding to the distance between the frame members 15, 15 so as to slide freely therebetween and at the same time prevent lateral movement of the block; while the bottom plate 25 is of width slightly greater than the width of the main frame in order that its flanged or upturned ends 26 may overlap the flanged sides of the frame members 15, 15, as shown in Figures 2, 3 and 4. The block 23 with its bottom plate 25 is held in position by a clamp or top plate 27 whose ends are flanged downwardly and overlap the side rails or plates 15, 15; the flanges of the plate 27 being forced into clamping relation with the side rails 15, 15 by the screw bolts 28 which screw into tapped holes in the block 23. As is apparent from the construction, the bottom plate 25 will be brought into firm relation with the bottoms of side rails 15, 15, while the flanged top plate 27 will have its ends forced into firm relation with the top surfaces of the side rails 15, 15 when the screw-bolts 28 are screwed into the block 23; the blade holders, upon loosening screws 28, being slidable lengthwise of the frame to properly position the cutting blades.

The upper end of the upstanding end 24 of block 23 is preferably provided with a small out-

wardly disposed lip 29, see Figure 5; while the base of the end is provided with a tapped hole to receive the screw 30 which extends through a blade clamping block 31 whose upper end preferably is flanged as shown at 32 to overlap the upper end of the upstanding end 24 of the blade holder block 23.

My trimming device, as shown in Figure 2, is adapted to use the well known type of safety razor blade shown at 33 and arranged at an inclination, as more clearly seen in Figure 3; although it will be understood that any suitable type of blade may be employed. The cutting blade preferably is arranged at an inclination against the upturned end 24 and the clamp-block 31 is then positioned as shown and secured in place by screw 30 which passes through an enlargement in the central slot usually formed in safety razor blades of the type shown. As disclosed in Figure 5, the lip 29 on the upper end of the block-end 24 contacts the upper end of the clamp-block 31 and acts as a fulcrum, causing the lower end of the clamp-block 31 to be drawn into firm binding relation with the blade 33 and rotative movement of clamp block or plate 31 is prevented by its top flange 32. The frame 15 is also provided with guide members 34 adjustably arranged at opposite ends in keeping with the width of the blueprint paper. Both guide members are similar in construction and each consists of a sheet metal plate 35 provided with upturned ends 36, 36; the plate 35 being placed beneath the side rails or members 15, with the upturned ends in overlapping slidable relation with the outer faces of the rail flanges 16, as more clearly shown in Figure 6. The plate 35 at one of its longitudinal edges is flanged downwardly as shown at 37; the flange at one end flaring outwardly, which is accomplished by increasing the width of plate 35 at one end, as shown in dotted lines in Figure 2 at 38. The top of the plate is provided with a vertical enlargement or block 39 adapted to slidably fit between the side rails or members 15, 15; the block 39 being provided with tapped holes for receiving screws 40 whereby the clamp plate 41 and guide plate 35 are secured together; the ends of clamp plate 41 (which is similar to clamp plate 27) being flanged downwardly to engage the tops of the side rails 15, 15.

The guide members are intended to be adjusted to the width of the paper which passes across the bottom surface of the guides which are positioned with the flared ends 38 of the flanges 37 disposed toward the oncoming paper issuing from the drying machine, thereby maintaining the line of travel of the paper relative to the cutter blades.

The exposed and treated continuous sheet of blueprint paper passes downwardly around roller 21 and thence rearwardly across a second roller 42 and downwardly onto a series of endless tapes arranged on a lower set of rollers 43, 44, which tend to roll up the exposed or print containing portion of the paper as illustrated in Figure 1. The rollers and arrangement described are a part of drying machines at present in use. My device is applied by placing the socketed ends of the arms 18 onto the roller 21, with the main frame and its guide and cutter elements loosely floating on or supported by the blueprint paper traveling from roller 21 to roller 42. The weight of the device is sufficient to maintain it in close riding contact with the paper S and hence maintain the exposed portion of the cutter blades

in cutting contact with the paper, as shown in Figure 3.

In the exemplification, the exposed continuous sheet S is shown provided with a plurality of prints of equal size arranged in longitudinal parallel rows, with each row adjacent the selvage or outer edge of the sheet and with the two cutters 22, 22 positioned to trim the sheet adjacent the inner edges of the rows of prints and to separate the different rows from each other, thereby trimming the non-print containing intermediate portion from the other strips. The two trimmed strips resulting as above described merely need be cut transversely to separate the respective prints on each strip.

In Figures 7 to 11, I illustrate a modification of the invention wherein the supporting or main frame consists of a single piece tubing 45 on which the paper guide members 46, 46 and blade holding members 47, 47 are adjustably secured.

The guide members 46 each consist of a sheet metal plate 48 bent downwardly along the outer longitudinal edge and flared outwardly at one end as shown at 49. One end of the plate 48 is curled upwardly to provide the sleeve portion 50 adapted to slide onto the tubing 45; the sleeve 50 being provided with a boss 51 having a threaded opening to receive the thumb-screw 52 which effects a biting relation with tubing 45 and holds the guide member in place.

The outer face of the guide flange 49 of the plate 48 is provided with a pair of threaded studs 53, which may be welded to the flange. The studs 53 extend through holes formed in the supporting arms 54 whose construction is substantially similar to those heretofore described with the socketed ends sloping upwardly over the tubing 45 and adapted to hook onto the roller 21 of the drying machine in the manner heretofore described. The guide members 46 may be adjusted or slid lengthwise of the tubing 45 upon loosening the thumb-screws 52.

The cutter blade holders 47 each consists of a metal block 55 provided with an upstanding side 56; the base portion of the block having a sheet metal sleeve 57 welded thereto. The sleeve 57 is adapted to fit onto the tubing 45 and is provided with a tapped boss 58 for receiving a thumb-screw 59 whereby the holder is held in proper position on the tubing. Instead of employing the safety razor type of blade shown in Figure 3, I show the holders 47 each provided with a circular blade 60, centrally apertured to receive the bolt 61 whereby the blade is rotatably secured in place. When a circular blade is employed the clamping plate or member 31, shown in Figure 5, may be omitted; it being understood that the safety razor type of blade may also be used with the modified form of the device illustrated in Figure 7 and the circular blade used with the device shown in Figure 2.

The form of device shown in Figure 7 is applied to the drying machine so as to be supported by the print carrying sheet in the same manner as heretofore described and the blade holders adjusted to trim along the inner marginal lines of the respective rows of prints to separate the parallelly arranged rows from each other and from the intervening non-print containing portion.

It will be understood that the length of the supporting frame may be in keeping with the width of the roll of paper and that any number of blade holders may be employed in keeping with the number of longitudinally arranged rows of

prints being made; the device being floatingly supported on the roller of the drying machine so as to ride on the continuous sheet between the two rollers of the drying machine where the paper is taut and to shift laterally with the paper which is induced by the edges of the paper contacting the flanges 38 of the guide members shown in Figure 2 or the flanges 49 of the guides shown in Figure 7.

As the device is floatingly supported on one of the rollers and by the taut portion of the paper to be trimmed, with the guide flanges adjacent the opposite edges of the continuous sheet, the device will adjust itself to any weaving action of the paper and thus maintain cutter blades in alignment with the inner marginal edges or outlines of the imprints. The device may be made of any suitable rigid material of sufficient weight to maintain it in slight bearing relation with the paper; and while the exemplifications shown and described are believed to be the best embodiments of the invention, described in terms employed for purposes of description and not as terms of limitation, structural modifications are possible and may be made without, however, departing from the spirit of my invention as defined in the appended claims.

What I claim is:

1. A blueprint trimming device adapted to be loosely hung on a guide roller on the delivery side of a blueprint drying machine so as to ride on the paper issuing from said machine comprising an elongated rectangular frame provided with a rectangular slotway, the end members of the frame extending beyond one longitudinal side of the frame and socketed on their lower edges to extend across a guide roller of the drying machine while the body of the device is adapted to be floatingly supported by the paper issuing from the drying machine; guide members slidable lengthwise of the frame, provided with portions disposed beneath the frame adapted to engage the edges of the continuous sheet of blueprint paper issuing from the drying machine whereby the frame is made to ride longitudinally to follow any lateral movement of the paper, said guide members including means whereby the members may be clamped to the frame; one or more blade-holding members slidable lengthwise on said frame and each provided at one side with an upwardly disposed blade-supporting portion; a vertically disposed cutter blade secured to said blade-supporting portion of each blade-holding member with the cutting edge extending through the slot in the frame; and means whereby the blade-holding member may be clamped to the frame in its adjusted position.

2. A blueprint trimming device adapted to be applied to the delivery side of a blueprint drying machine comprising an elongated skeleton frame composed of spaced apart parallelly arranged flat sided rails to provide a slotway therebetween; a blade-holding member composed of a pair of blocks removably secured together to slide on the upper and on the lower flat sides of said frame rails and adapted to effect clamping engagement with the side rails, at least one of said blocks having vertically disposed portions extending between the spaced frame rails to prevent twisting movement of the blocks; a blade clamping member disposed against said vertically disposed portion and adapted to be removably secured in blade clamping relation with said vertically disposed portion; a cutter blade

arranged vertically between said vertical portion and said clamping member with its cutting edge disposed beneath the frame; hook-like members adjacent the ends of the frame and disposed beyond one longitudinal side thereof whereby the device may be loosely hung onto a horizontally disposed rod or roller at the delivery end of the

drying machine so as to floatingly support the device on the paper issuing from said machine; and means adjustably secured to the frame whereby the latter is made to move laterally with the issuing paper.

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