Dec. 31, 1940. W. M. GOLDSMITH ET AL 2,227,185

NOTCHING MACHINE

Filed June 3, 1940

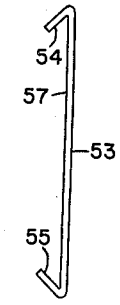


FIG. 7.

FIG. 1.

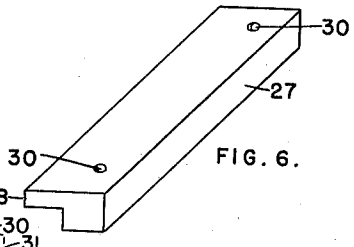


FIG. 6.

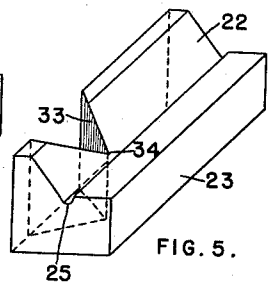


FIG. 5.

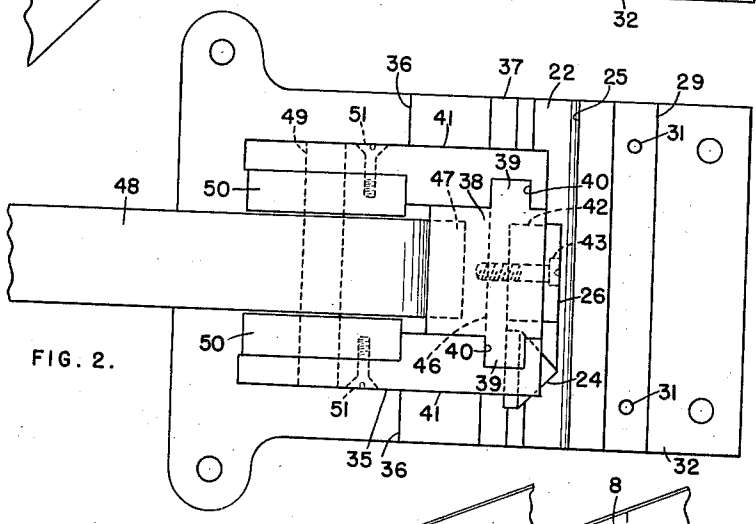


FIG. 2.

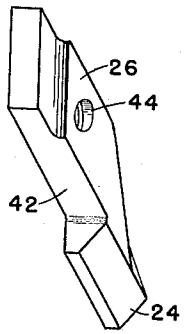


FIG. 4.

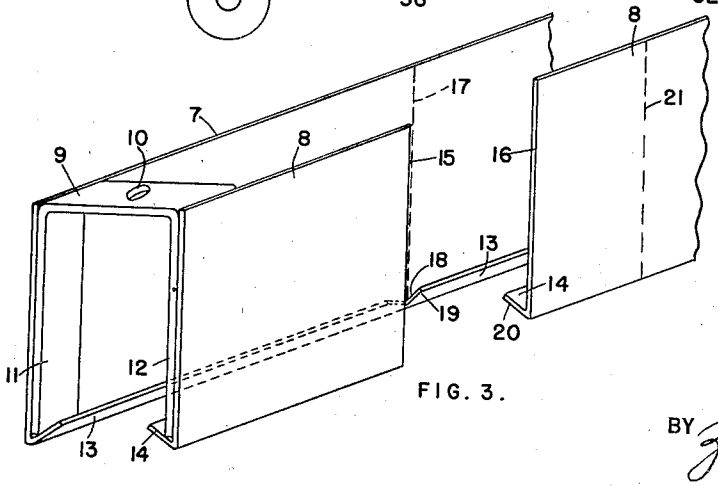


FIG. 3.

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NOTCHING MACHINE

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Application June 3, 1940, Serial No. 338,550

6 Claims. (Cl. 164—50)

The present invention relates to a notching machine adapted for use on the job in preparing metallic baseboards or baseboard units for a bending operation. The accompanying drawing discloses a baseboard unit of the kind to be accommodated by the notching machine, and though the use or application of the baseboard unit is not material to the present invention, the reader may refer to the patent of P. D. Peck et al., No. 2,052,033, dated August 25, 1936, for an explanation concerning application of the baseboard unit on the job, or in the field. Reference may also be had to the disclosure in the pending application of William M. Goldsmith, Serial No. 288,003, filed August 2, 1939.

One of the principal objects of the present invention is to provide a notching machine which is so constructed as to be set up for work in the field or on the job, and operated by hand to cut a notch in one flange of a metallic baseboard unit wall where the wall is to be bent to form an angular corner wall or partition construction.

Another object is to provide a machine of the character stated with suitable gauging means for establishing a location of a notch to be cut in the baseboard side wall flange, without requiring the use of tools or calculations in locating the notch.

Another object of the invention is to provide a notching machine to be used as stated above, which will operate equally well upon a double-sided baseboard unit, or upon a single wall baseboard section.

Another object is to provide a notching machine having the characteristics above mentioned, and which is simple and inexpensive, as well as durable, so that its use may be entrusted to unskilled labor when necessary or desirable.

The foregoing and other objects are attained by the means described herein and disclosed in the accompanying drawing, in which:

Fig. 1 is a side elevational view of the machine of this invention, showing in broken lines a metallic baseboard unit placed for receiving a notching operation.

Fig. 2 is a top plan view of the machine illustrated by Fig. 1.

Fig. 3 is a fragmental perspective view of a metallic baseboard unit which has been subjected to the notching operation of the machine.

Fig. 4 is a perspective view of a punch which constitutes a detail of the invention.

Fig. 5 is a perspective view of a die with which the punch of Fig. 4 cooperates.

Fig. 6 is a perspective view of a steady block that constitutes an element of the machine.

Fig. 7 is an end view of a single basboard, double-flanged, and which may be notched by the machine of the invention.

An understanding of the machine of the invention may be aided by first noting the construction of the metallic baseboard unit, an example of which is illustrated by Fig. 3. The unit comprises a pair of spaced parallel side walls 7 and 8 reinforced and maintained in spaced relationship by means of a series of U-straps 9 to which the side walls are welded or otherwise securely fixed. Usually, the base of the U-strap is provided with a perforation 10 whereby the unit may be nailed or otherwise secured to a floor, it being understood that the unit of Fig. 3 is shown inverted to correspond with the Fig. 1 illustration. The legs 11 and 12 of the U-strap may extend substantially the full width of each side wall, so that its ends will reach the crotch formed by the inturned flanges 13 and 14 of the unit. The flanges form an acute angle with each side wall, and they extend along the full length thereof. The manner of usage of the metallic baseboard unit is of no consequence to the present invention, suffice it to say that the unit of Fig. 3 is merely to be inverted, placed upon a suitable support or floor, and then fastened thereto by driving a nail through the elongated aperture 10.

In the past, the installation of metallic baseboard units presented a rather difficult problem when it became necessary to build a partition corner, or a wall corner, due to the fact that the manufacture of corner baseboard units had to be effected at the factory if a satisfactory joint was to be constructed. The manufacture of special corner pieces was expensive, and it presented also problems arising from inaccuracy of measurements and fitting, as well as shipping problems due to the shape of the preformed corner pieces. By providing for the notching and bending of a baseboard unit on the job, the various difficulties above mentioned are obviated, and the cost of construction work minimized to an appreciable extent.

In preparing a straight length of metallic baseboard unit for corner bending, it is first necessary to cut away a section of one of the side walls, for example wall 8, thereby to provide the opposed edges 15 and 16. These edges are parallel, and are at right angles to the upper

and lower edges of the side wall 8. The cut-out preferably is of a width approximating the distance between the walls 7 and 8. A saw, shear, or other suitable tool may be utilized in cutting out the section, as indicated.

The line of bending of the opposite side wall 7, which is indicated by means of the broken line 17, is substantially opposite the edge 16 of wall 8, and since the inclined flange 13 would interfere with performing a sharp and smooth bend along line 17, it is desirable that said flange be notched at 18, with approximately a 45° angularity. To more accurately locate the line of bending 17, it may be stated that the corner 19 of the notch is directly opposite the edge 20 of the flange 14. When the baseboard unit is bent along the line 17, the edge 15 will substantially abut the wall 8 along a location indicated by broken line 21, assuming that a right angle bend is desired. Such bend is disclosed also in our copending application which has been filed of even date herewith.

Fig. 1 illustrates how the baseboard unit of Fig. 3 is to be placed transversely of the notching machine and held in place preparatory to execution of the notching operation. It will be noted that flange 13 rests upon the inclined face 22 of a die 23, immediately beneath a triangular punch 24. The bend of the flange rests within a seat groove 25 of the die block, at the base of the inclined face 22, while the inner face of unit wall 7 rests against a perpendicular extension 26 on the face of the punch. The baseboard unit is to be held in the position indicated and explained, by means of a steady block 27 which has a face 28 adapted to abut the outer surface of unit wall 7 at an elevation above the seat groove 25. The steady block must be displaceable from the top of stool 29 in order to permit placement and removal of the flanged wall 7 relative to the punch and die, and to this end said block may be provided with apertures 30 to receive the stationary pins 31 that extend upwardly from the stool 29. The stool may be part of the base 32 of the notching machine.

From the foregoing, it will be understood that the baseboard unit may be placed in the notching machine die, with the cut away portion of wall 8 receiving the width of the notching machine, while the wall 7 is securely held in place and in readiness for notching of its flange 13. As will readily be understood, the die 23 is furnished with a triangular notch 33 having its point 34 terminating at the base of the inclined face 22. It should be noted particularly that the notch is off-set from the center line of the machine, to the extent necessary for cutting the notch in flange 13 at a predetermined location relative to the edge 16 of wall 8 as heretofore explained, it being understood that said edge 16 of wall 8 will be placed against the face 35 of the machine, to gauge the location of the notch to be formed in flange 13. Face 35 may be referred to as a gauge face, as it determines the location at which the notch will be formed in the flange 13.

The die block 23, as will be understood, is securely held or attached to the base of the machine between stool 29 and an upright extension 36 of the base, and is preferably backed by a finished hardened backing plate 37 for the punch 24.

The triangular punch may be supported for vertical reciprocatory movement into and from the notch 33 of the die with the use of any acceptable form of means for that purpose. By preference, there is provided a reciprocating slide block 38 which has a pair of opposed fins or guides 39 adapted to operate within vertical grooves or ways 40 formed in the side plates 41 of the machine. To this reciprocating slide block, the body 42 of the punch is fixedly mounted, so that the punch must move with the block. For the purpose of securing the punch to the block, a screw 43 may be provided, for reception in an aperture 44 of the punch body, the threaded end 45 of the screw being anchored in the slidable block 38.

At the rear of the slidable block 38 there is provided a socket 46 which is adapted to receive the head 47 of an actuating lever 48 whereby an operator in pivoting the actuating lever about its mounting 49, may cause the head 47 to depress the slide block for advancing the triangular punch 24 through the flange of the baseboard unit wall and into the complementary notch of the die 23. The handle end of the actuating lever preferably is so weighted as to always maintain the punch and slide block in the elevated position of Fig. 1. Thus it will be apparent that rotation of the actuating lever in a clockwise direction is required in performing the punching or notching operation.

The side plates 41 of the machine may be mounted upon the spaced parallel upright extensions 50 of the machine base, which extensions are so spaced apart as to accommodate the width of the actuating lever. The mounting of the side plates may be by means of screws, bolts or other suitable fasteners 51.

The operation of the machine of the invention is as follows:

With the need arising for a metallic baseboard corner construction, the mechanic measures the baseboard unit of Fig. 3 for determining the location of the required bend, and for determining the position at which the bend is to occur, he saws or shears the baseboard wall 8 along the line 16. Then, measuring to the left a distance which is at least as great as the width of the baseboard unit, he saws or cuts along the line to form the edge 15. The distance between edges 15 and 16 will always be at least as great as the width of the punching machine head, that is, the over-all distance between the outer faces of the side plates 41. Having sawed out the section between edges 15 and 16, the mechanic will remove the steady block 27 from the stool 29, and will place the baseboard unit substantially about the side plates of the machine, with the solid wall 7 in flatwise abutment against the plane outer face 26 of the punch, while the flange rests against the inclined face 22 of the die, and within the seat groove 25 thereof. Then by placing the steady block 27 upon the guide pins 31, the baseboard unit is securely held in position to receive the punching or notching operation. The operator need only elevate the free end of the actuating lever to cause the punch to descend against the flange 13 of the baseboard unit, thereby to form the notch automatically in a predetermined relationship to the edge 16 of the opposite baseboard unit wall. As was previously explained, the operator before actuating the punch, will see that the edge 16 of the unit wall 8 is flush against the gauge face 35 of the machine, the effect of which is to so locate the flange 13 with relation to the punch, as to form the corner 19 of the notch at a location directly opposite the terminus 20 of the opposed flange 14.

Having performed the punching operation, the

operator removes the steady block and lifts the punched baseboard unit from the machine. Thereafter, the notched baseboard unit is to be subjected to another machine located at the job, for bending the unit wall 7 along a line 17 which intersects or bisects the point or base of the notch in the flange. The result of the bending operation is to form a corner construction which will be neat and substantial, as well as durable, without the aid of welding or otherwise joining any of the baseboard constituents. As previously explained, the bending operation will dispose the edge 15 along the line 21 of wall 8 when a right angled corner is required, and this will result in a neat corner both interiorly and exteriorly of the angle construction thereby formed. The operation is a simple one, and may be performed more accurately and with less expense on the job, than it may be effected at the factory upon order or specification, to fit the requirements of the job.

In Fig. 7 is illustrated a single wall baseboard 53, which has double flanges 54 and 55 formed along its upper and lower edges. This type of baseboard, as well as the double type illustrated in Fig. 3, can be accommodated by the notching machine of this invention. In order that the single baseboard of Fig. 7 may rest flatwise against the outer face 26 of the punch when place upon the die and held by the steady block 27, the face 26 and also the forward edge 56 of the machine side plates, are cut back or disposed rearwardly a distance which is at least as great as the extent to which the upper baseboard flange 54 extends from the inner face 57 of the baseboard wall. By means of this construction, the necessary clearance is provided for permitting the double-flanged baseboard to stand erect while undergoing the notching operation. The baseboard of Fig. 7 will assume the same position with relation to the punch and die, as does the side wall 7 of the baseboard unit illustrated by broken lines in Fig. 1. On exceptionally wide baseboard side walls, the upper flange 54 may be disposed entirely above the side plates of the machine, and this of course will not interfere with locking the side wall in place for the punching or notching operation.

It is to be understood that various modifications and changes may be made in the details of the notching machine, within the scope of the appended claims, without departing from the spirit of the invention.

What is claimed is:

1. In a machine for notching the flange of a metallic baseboard unit having a rectangular part of one side wall opposite to the flange removed, thereby presenting opposed spaced edges on said one side wall, said machine comprising a triangular punch and die arranged for relative movement, a pair of sides spaced apart a distance less than the space between said spaced edges on the side wall of the baseboard unit, whereby the unit envelopes part of the machine sides when placed with its flange upon the die, and a gauge face on one of the machine sides to provide an abutment for one of the spaced edges of the unit side wall, said gauge face having its plane meeting and intersecting a cutting edge of the triangular die at an angle approximating forty five degrees.

2. In a machine for notching the flange of a metallic baseboard unit having a rectangular part of one side wall opposite to the flange removed, thereby presenting opposed spaced edges on said one side wall, said machine comprising a triangular punch and die arranged for relative movement, a pair of sides spaced apart a distance less than the space between said spaced edges on the side wall of the baseboard unit, whereby the unit envelopes part of the machine sides when placed with its flange upon the die, and a gauge face on one of the machine sides to provide an abutment for one of the spaced edges of the unit side wall, whereby to locate the flange to be notched, relative to the punch and die, by gauging the previously severed unit flange to the machine side which carries the gauge face aforesaid.

3. In a machine for notching a continuous flange of a metallic baseboard unit whose opposite flange and associated side wall are cut away along a portion of their length, thereby presenting opposed spaced edges on the severed side wall, said machine comprising a base, a pair of side plates upstanding upon the base with their outer faces spaced apart a distance less than the length of the cut-away portion of the unit side wall, whereby the opposed spaced edges thereof meet the side plates of the machine at right angles when the baseboard unit is applied preparatory to a notching operation, a die on the machine base having an offset triangular socket of which a small section of its cutting edge is substantially overhung by one of the upstanding side plates of the machine, said one side plate being planar to provide a butt gauge for one of the opposed spaced edges of the unit wall, for locating the continuous flange of the baseboard unit with relation to the die socket and said one edge of the unit wall which abuts the gauge, a reciprocating complementary punch supported for movement toward and from the socket of the die, and an actuating lever for manually reciprocating the punch.

4. In a machine for notching a continuous flange of a metallic baseboard unit whose opposite flange and associated side wall are cut away along a portion of their length, thereby presenting opposed spaced edges on the severed side wall, said machine comprising a base, a pair of side plates upstanding upon the base with their outer faces spaced apart a distance less than the length of the cut-away portion of the unit side wall, whereby the opposed spaced edges thereof meet the side plates of the machine at right angles when the baseboard unit is applied preparatory to a notching operation, a die on the machine base having an offset triangular socket of which a small section of its cutting edge is substantially overhung by one of the upstanding side plates of the machine, said one side plate being planar to provide a butt gauge for one of the opposed spaced edges of the unit wall, for locating the continuous flange of the baseboard unit with relation to the die socket and said one edge of the unit wall which abuts the gauge, a reciprocating complementary punch supported for movement toward and from the socket of the die, and an actuating lever for manually reciprocating the punch, said lever having a free end weighted to normally maintain the punch in an elevated relationship to the die, rendering the machine normally receptive of a baseboard unit to be operated upon.

5. In a machine for notching a continuous flange of a metallic baseboard unit whose opposite flange and associated side wall are cut away along a portion of their length, thereby presenting opposed spaced edges on the severed side wall, said machine comprising a base, a pair of side plates upstanding upon the base with their outer faces spaced apart a distance less than the length of the cut-away portion of the unit side wall,

whereby the opposed spaced edges thereof meet the side plates of the machine at right angles when the baseboard unit is applied preparatory to a notching operation, a die on the machine base having an offset triangular socket of which a small section of its cutting edge is substantially overhung by one of the upstanding side plates of the machine, said one side plate being planar to provide a butt gauge for one of the opposed spaced edges of the unit wall, for locating the continuous flange of the baseboard unit with relation to the die socket and said one edge of the unit wall which abuts the gauge, a reciprocating complementary punch supported for movement toward and from the socket of the die, an actuating lever for manually reciprocating the punch, and displaceable means on the machine base for bracing the unit side wall whose flange is to be notched, and for temporarily locking said flange in place upon the die.

6. In a machine for notching the flange of a metallic baseboard unit having a rectangular part of one side wall opposite to the flange removed, thereby presenting opposed spaced edges on said one side wall, said machine comprising a triangular punch and die arranged for relative movement, a pair of sides spaced apart a distance less than the space between said spaced edges on the side wall of the baseboard unit, whereby the unit envelopes part of the machine sides when placed with its flange upon the die, and a gauge face on one of the machine sides to provide an abutment for one of the spaced edges of the unit side wall, whereby to locate the flange to be notched, relative to the punch and die, by gauging the previously severed unit flange to the machine side which carries the gauge face aforesaid, and means cooperating with the die for temporarily locking to the die the flange to be notched.

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