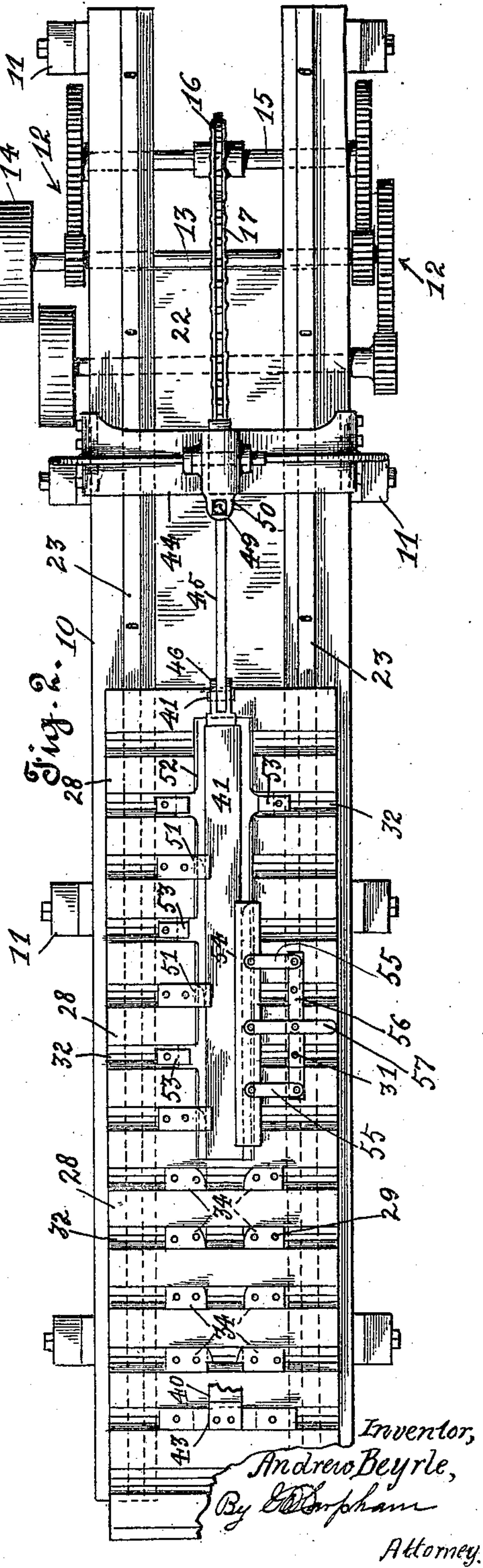
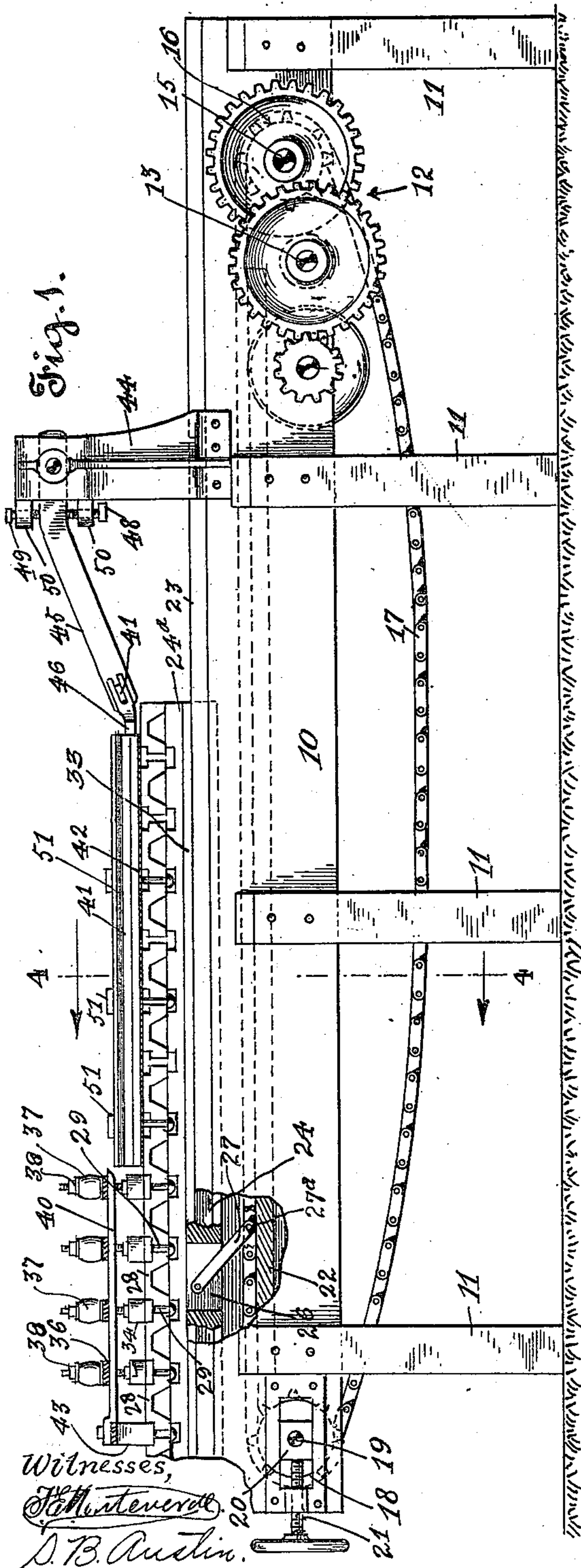


A. BEYRLE.
MACHINE FOR COVERING STRIPS OF WOOD WITH METAL.
APPLICATION FILED AUG. 16, 1909.

990,470.

Patented Apr. 25, 1911.

2 SHEETS—SHEET 1.



MACHINE FOR COVERING STRIPS OF WOOD WITH METAL.

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2 SHEETS—SHEET 2.

990,470.



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MACHINE FOR COVERING STRIPS OF WOOD WITH METAL.

990,470.

Specification of Letters Patent.

Patented Apr. 25, 1911.

Application filed August 16, 1909. Serial No. 513,009.

To all whom it may concern:

Be it known that I, ANDREW BEYRLER, a citizen of the United States, residing in the city of Los Angeles, county of Los Angeles, State of California, have invented new and useful Improvements in Machines for Covering Strips of Wood with Metal, of which the following is a specification.

My invention relates to improvements in machines for covering strips of wood with metal in which the dies for forming and pressing the metal upon the wood may be stationary and the wood and metal pushed through the dies or the wood and metal for the casing may be stationary and the dies for forming and pressing the metal upon the wood may be movable.

The object thereof is to provide a machine of simple construction for that purpose, and in which the forming dies have a large range of adjustment and consist of separable parts which can be quickly and efficiently adjusted in the machine.

I accomplish this object by the machine described herein and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation partly in section of my improved machine. Fig. 2 is a plan of the parts shown in Fig. 1. Fig. 3 is a section on the line 3—3 of Fig. 5, with the holding mechanism above the dies shown, the supporting legs being broken off. The die holding the table being shown partly in elevation and partly broken away. Fig. 4 is a section on the line 4—4 of Fig. 1. Fig. 5 is an enlarged plan partly in section of the forming dies with a piece of wood and metal partially passed therethrough, a portion of the forming mechanism being omitted for clearness of illustration.

In the drawings 10 is the main frame of the machine and is provided with legs 11. At one end of the frame is mounted a train of wheels 12. On shaft 13 of this train of wheels is power pulley 14 to which motion is applied by means of a belt not shown. Shaft 15 of this train of gears carries a sprocket wheel 16 on which is mounted a sprocket chain 17. The other end of the sprocket chain passes around the idler sprocket wheel 18 which is mounted on shaft 19. Shaft 19 is mounted in adjustable bear-

ings, one of which 20 is shown in Fig. 1. These bearings are adjusted by means of screws 21, so as to take up any slack of the chain that may be objectionable in the operation of the machine. A chain shelf 22 forms a support for the upper portion of the sprocket chain, and also secures the side rails of the main frame together. Upon the top of the side rails of the main frame are the adjustable guide rails 23. The opposed edges of these guide rails are wedge shape as best shown in Figs. 3 and 4. 24 is the bed plate of the die frame, which is provided with V-shaped grooves 25 in the edges of the lower member thereof, into which are received the opposing edges of the guide rails. Near one end of the bed plate is a slot 26 in which is pivotally mounted draw bar 27, which has a head 27^a that is adapted to drop into the links of the sprocket chain and be caught by the sprocket chain when the same is in motion, whereby motion is imparted to the bed plate in whichever direction the chain is traveling. Should the operator fail to stop the machine before the draw bar reaches the sprocket wheels the teeth thereof would push the draw bar head out of the links of the chain, thereby stopping the movement of the bed plate. Upon the central member 24^a of the die frame are secured bars 28, which form the top member of the die frame. These bars are spaced apart, thereby forming channels 32 between them to receive bolts 29, 30 and 31. Adjacent to these channels, bars 28 are notched in their upper surface to form a broadened portion in which the lower portions of the dies 34 are received to keep them from skewing. The shanks of bolts 29, 30 and 31 where they pass through channels 32 are square so that they will not turn in the channels. Immediately below channels 32 are channels 33 which run transversely across the top of the central member of the die frame, thereby providing clearance for the heads of bolts 29, 30 and 31. Bolts 29 are used for securing dies 34 in place on the frame. These bolts are long enough to pass through holes in the dies and extend a little above them, so that nuts 35 can be screwed upon the bolts and leave a little play for the head of the bolt when passed in the slot be-

tween the die holders. There are preferably two of these bolts for each die, and when the die is properly positioned they are screwed down so as to hold the die firmly upon the bed plate. As shown in the drawings, I prefer to use a plurality of dies to form the metal up gradually to the configuration of the wood. The die nearest the unformed metal making the first turn in the metal as shown at A in Fig. 5. The next die will turn the metal a little farther as shown at B, the next die will turn it a little farther as shown at C, while the last die will finish the turning of the metal as shown at D. But a greater or less number of dies will be used, depending upon the character of the work. In the drawings I have shown a piece of wood, in which one face and a portion of the edges are covered with metal, but it will be understood that the four surfaces of the wood can be covered by using appropriate dies.

Bolts 30 are longer than the die bolts and pass through the ends of the spring pressure bars 36. There is preferably one of these spring pressure bars for each pair of dies, and they may be made of resilient wood or steel. Mounted on bolts 30 above these pressure bars, when a greater resiliency is desired than can be obtained in the bar itself, are rubber springs 37, which are held in place by nuts 38. Coil springs can be used in place of rubber. Nuts 39 may be placed on bolts 30 below the pressure bars to prevent too great a disarrangement when the bars are not in use, and to hold the bars at an elevation so that they will pass above friction bar 40, which rests upon the piece of wood 41 that is covered by the strip of metal 42. It will be understood that nuts 38 and 39 will be adjusted to hold the piece of wood being covered in its proper position. Friction bar 40 is secured to the brace yoke 43 to prevent any longitudinal movement of the dies as they are being forced along. This brace yoke is secured in the die frame in the same manner that the dies are secured therein. 44 is an abutment yoke which is secured to the main frame. The vertical portions of this yoke are wide enough apart for the die frame to pass between them, and the transverse or top member thereof is high enough to permit the passage of the die frame and the several parts secured thereto when the machine is in operation. In the abutment yoke is pivotally mounted the abutment bar 45 which carries on its free end a removable abutment shoe 46. The shank of the abutment shoe is bifurcated as best shown in Fig. 1, and straddles a holding pin 47 which passes through the free end of the abutment bar, thereby providing an easy means of

securing different sized abutment shoes upon the end of the abutment bar, as in some cases a narrow abutment shoe will be required, while in other cases a broader abutment shoe will be required. Set screws 48 and 49 mounted in lugs 50 secured to the abutment yoke provide means for adjusting the height of the free end of the abutment bar to properly position the shoe for use on the wood of thicker or thinner dimensions.

In the operation of my machine the wood to be covered or faced with metal and the metal for the covering or facing of the same are secured together in any appropriate manner at that end which would be first reached by the dies, and is then laid upon metal guide 52 which is secured upon the die holder bars, with the other end of the wood resting against the abutment shoe, as shown in Figs. 1 and 2. Guide holders 51 are then secured at one side of the wood and metal in the same manner that the dies are secured. There are as many of these guide holders as may be necessary to prevent the wood from springing or buckling. These guide holders have a top portion that projects over the wood and the lower portion is cut out so as to provide clearance for the metal and the metal guide as best shown in Fig. 4. The metal guide 52 is placed beneath the metal strip that is used for facing or incasing the wood and has edges partly upturned as shown in Figs. 2 and 4, between which the metal used in casing has a loose fit. At suitable distances apart the portion of the edges of the metal guide 52 which are not upturned are secured to the die frame by clips 53, as best shown in Fig. 2, so that it will travel with the die frame. These slips are secured in the die frame in the same manner as the dies. Guide holders 51, after being adjusted for running a certain kind of material are allowed to remain in their position in the die frame. A movable guide holder 54 is provided for the other side of the wood. The movable guide holder is connected by link bars 55 with a base block 56, which base block is secured in the die frame by bolts in the same manner that the dies are secured. An operating lever 57 is pivotally secured to the base block and to the movable guide holder so that the guide holder may be quickly thrown away from engagement with the wood to permit the removal of the wood or to be thrown back against the wood to hold it in place. The necessary forming dies are also secured in the frame together with the pressure bars and friction bar and other necessary parts as hereinbefore described, and the die frame is connected up by the draw bar to the sprocket chain. Power is then applied to

the train of wheels to cause the travel of the die frame toward the same, thereby causing the dies to pass along and form the metal for the casing upon the wood. By this construction the dies are drawn over the wood and metal until the first die almost reaches the abutment shoe when the motion of the sprocket chain is reversed and the die frame carrying the dies and the cased wood is re-
 5 turned back to the starting point. Another piece of metal and wood is then placed in the machine as before described and motion is imparted to move the dies toward the abutment shoe, thereby ejecting the first
 10 piece of wood and moving the dies over the other piece of wood as before described. The operation is repeated until all the wood is covered, the last piece being pushed out of the dies by means of a block placed be-
 20 tween the abutment shoe and the end of the wood that is being cased.

In this construction it will be observed that the die holder bars operate as the bot-
 25 tom side of a die. It will also be observed that in this construction the side members of the die are adjustable so that wood of any width where the side is of the same configuration can be cased on the side by the same sectional side dies. It will also be observed
 30 that the top friction bar and the top spring bars may operate to form the metal on the top in the same manner that the top portion of the die used in the ordinary pulling machine operates. It will also be noted
 35 that these die holder bars and sectional dies adjustably held in such die holders are equally applicable to the machine described in Letters Patent 887,995, issued to me May 19th, 1908, but in such machines the die
 40 holders would be stationary, whereas in the present machine they are movable with the die frame.

I am aware that die frames in which rev-
 45 oluble dies are mounted have heretofore been used. In the use of said dies and frames, if there are any inequalities in the metal, the roller dies roll over the same. By the use of nonrevoluble dies all inequalities in the metal are stretched out of the same,
 50 and the metal is stretched into skin tight contact with the wood. I do not therefore broadly claim a movable die frame having dies therein.

Having described by invention what I
 55 claim is:

1. In a machine of the character described herein a main frame; a die frame mounted in and movable in said main frame; non-
 60 revoluble dies mounted on said die frame; means mounted on said die frame adapted to hold wood and metal placed thereon against transverse movement; means for moving said die frame in said main frame;

and means secured to the main frame adapted to hold the wood against longitudinal
 65 movement while the dies are moved along over the wood and casing metal.

2. In a machine of the character described herein a main frame; a die frame mounted in said main frame; and movable therein,
 70 said die frame being provided in its upper surface with a plurality of transverse slots; dies adjustably mounted on said die frame; means adjustably mounted on said die frame adapted to hold wood and metal to case the
 75 same when placed on said die frame against transverse movement; means to move said die frame in said main frame; and means secured to the main frame adapted to hold the wood against longitudinal movement
 80 while the dies are moved along and over the wood and casing metal.

3. In a machine of the character described herein a main frame; a die frame mounted in and longitudinally movable in said main
 85 frame; said die frame having means for adjustably securing dies therein; a plurality of sectional dies adjustably mounted in said die frame; adjustable means secured to said die frame adapted to secure wood and cas-
 90 ing metal therefor when placed thereon against transverse movement; means to move said die frame and dies; adjustable means secured to the main frame adapted to hold the wood and casing metal against
 95 longitudinal movement while the dies are moved along and over the wood and casing metal.

4. In a machine of the character described herein, a main frame; a die frame longitu-
 100 dinally movable in said main frame; dies mounted on said die frame; means secured to said die frame adapted to hold wood and metal for casing the same against transverse movement on said die frame; an abutment
 105 yoke secured to said main frame; an abutment bar secured in said yoke; and means to move said die frame.

5. In a machine of the character described herein, a main frame; a die frame longitu-
 110 dinally movable in said main frame; dies mounted on said frame; an abutment yoke secured to said main frame; an abutment bar secured in said yoke; removable abutment shoes secured upon said abutment bar;
 115 and means to move said die frame.

6. In a machine of the character described herein, a movable die frame having a plu-
 120 rality of transverse slots, said slots being adapted to receive the bases of dies; non-revoluble dies mounted on said frame, and having the bottoms thereof projecting into said slots, and movable therein; means to se-
 125 cure said dies in said frame; means secured to said die frame adapted to hold the wood and metal against transverse movement

thereon; means secured to the main frame adapted to hold the wood against longitudinal movement while the dies are moved along and over the wood and casing metal; 5 a main frame, and means to move said die frame in said main frame.

In witness that I claim the foregoing I

have hereunto subscribed my name this 7th day of August, 1909.

ANDREW BEYRLE.

Witnesses:

G. E. HARPHAM,

C. H. GATCHEL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
