M. S. BENNETT.

CRATE MAKING MACHINE.

APPLICATION FILED JULY 29, 1915.

1,167,253.

Patented Jan. 4, 1916.

2 SHEETS—SHEET 1.

FIG. 1

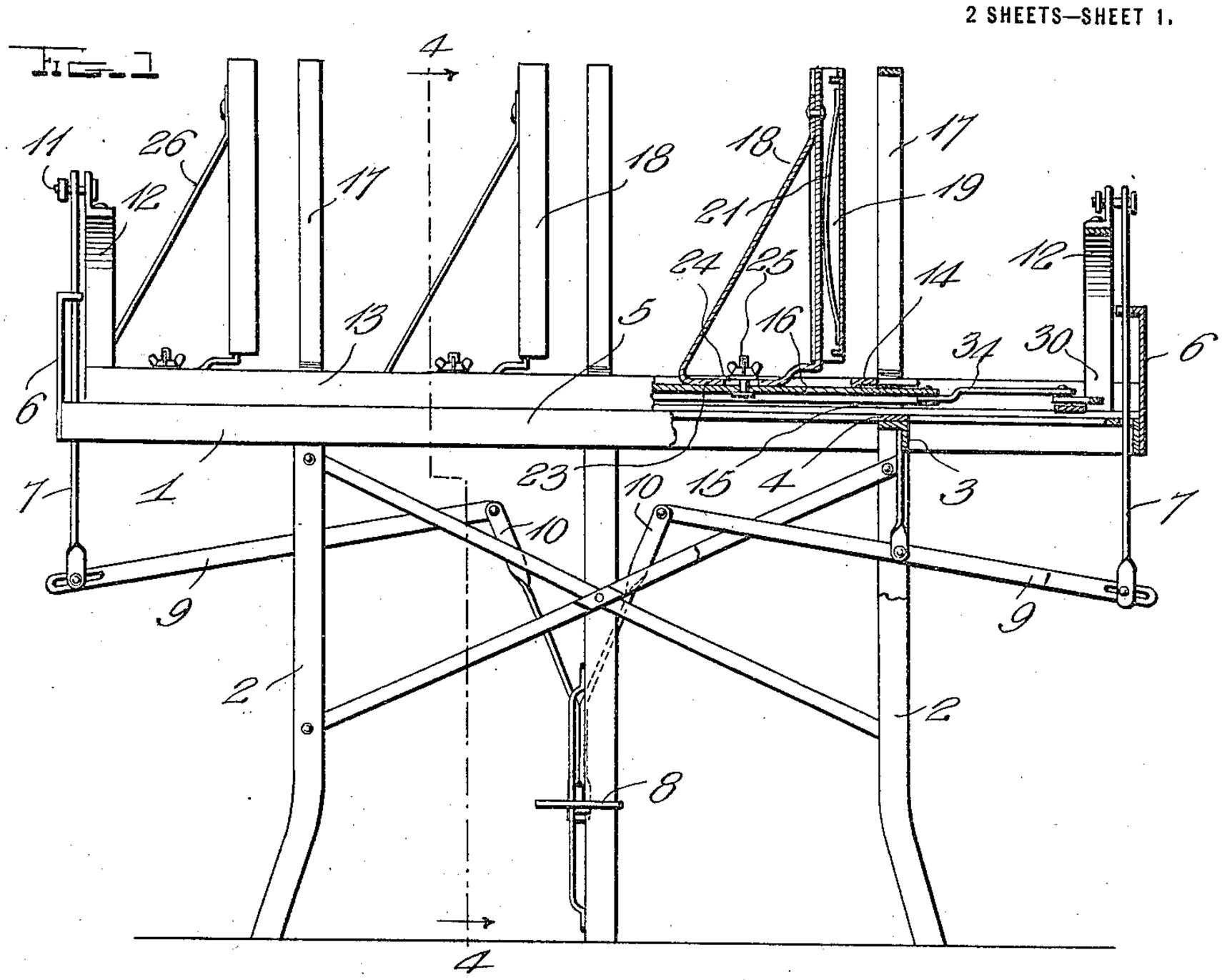
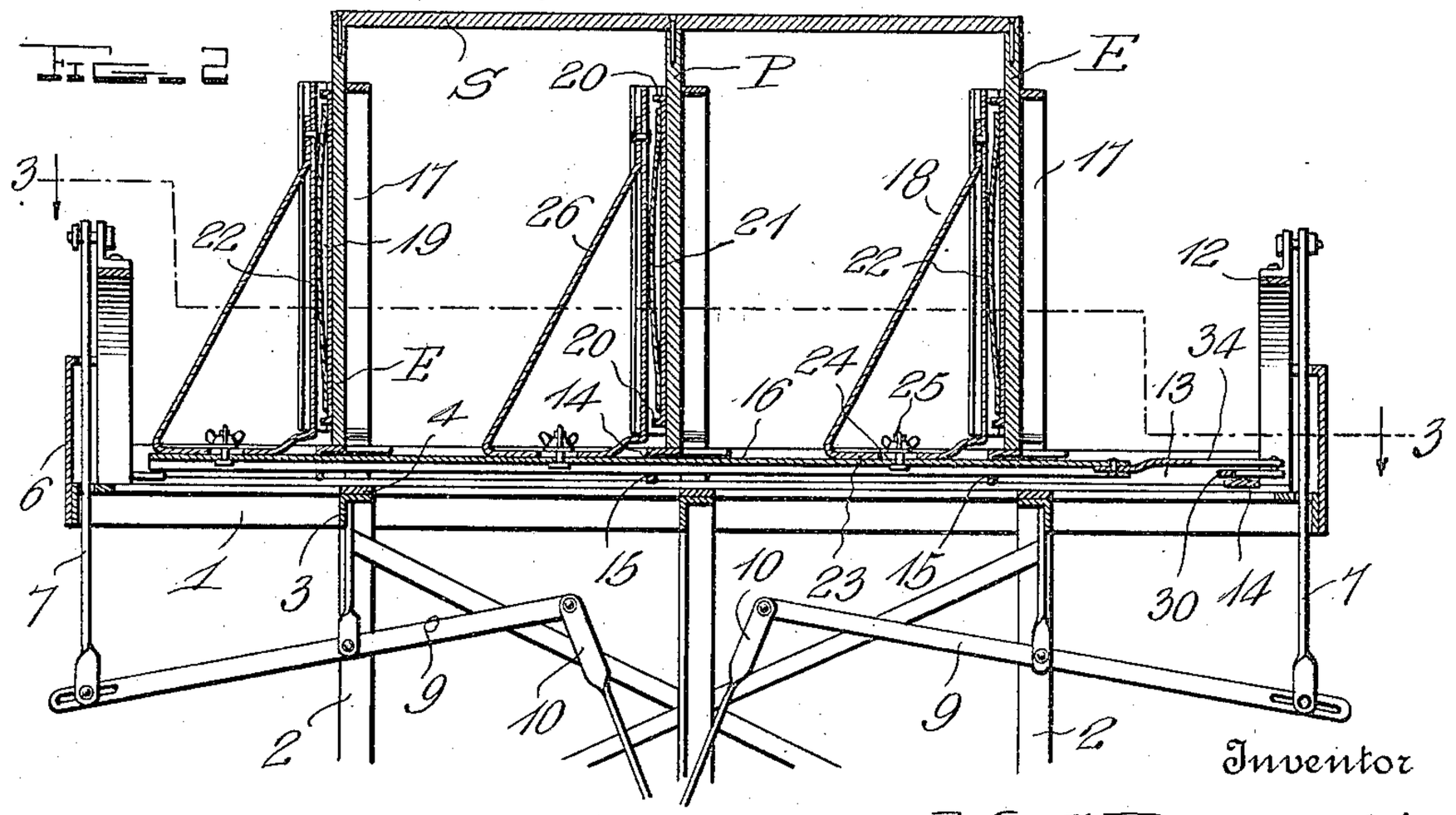


FIG. 2



Witnesses

H. Woodard

Inventor

M. S. Bennett

By H. Bowerson & Co

Attorneys

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

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2 SHEETS—SHEET 2.

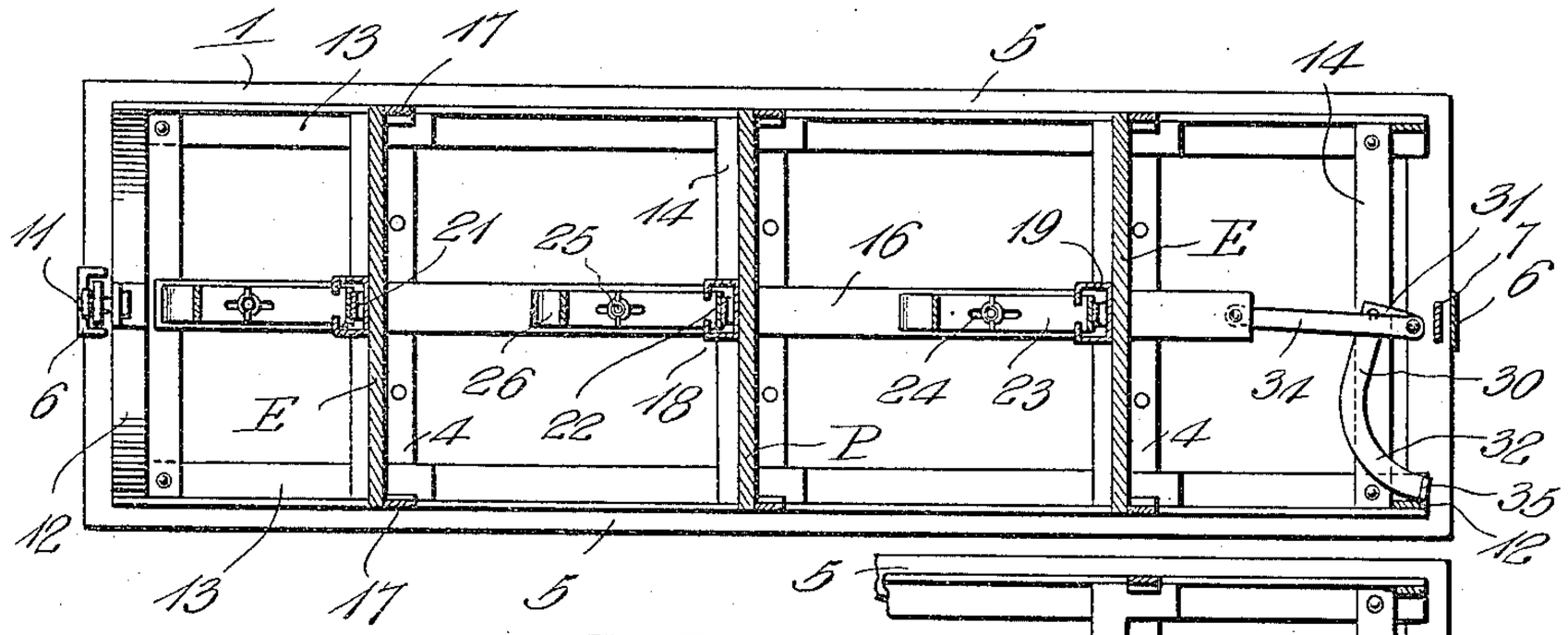


FIG. 4.

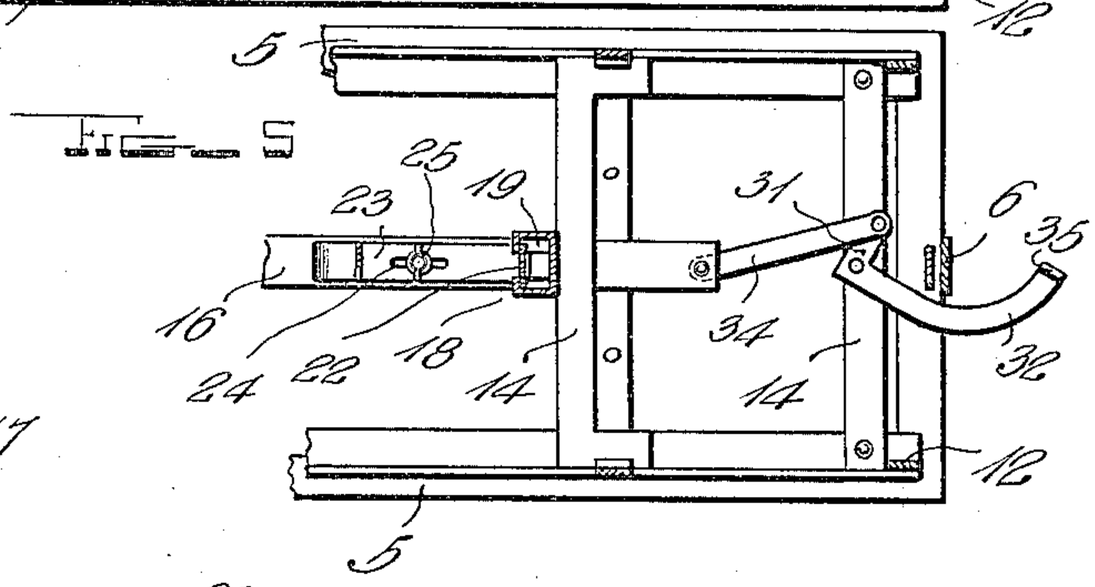
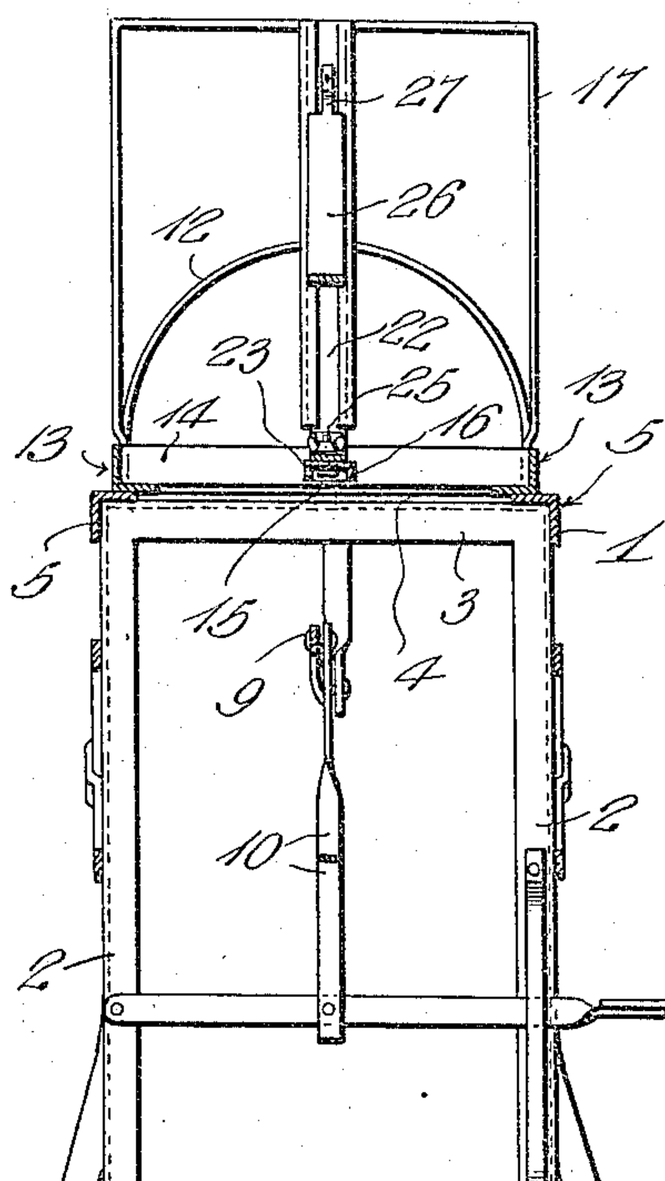


FIG. 5.



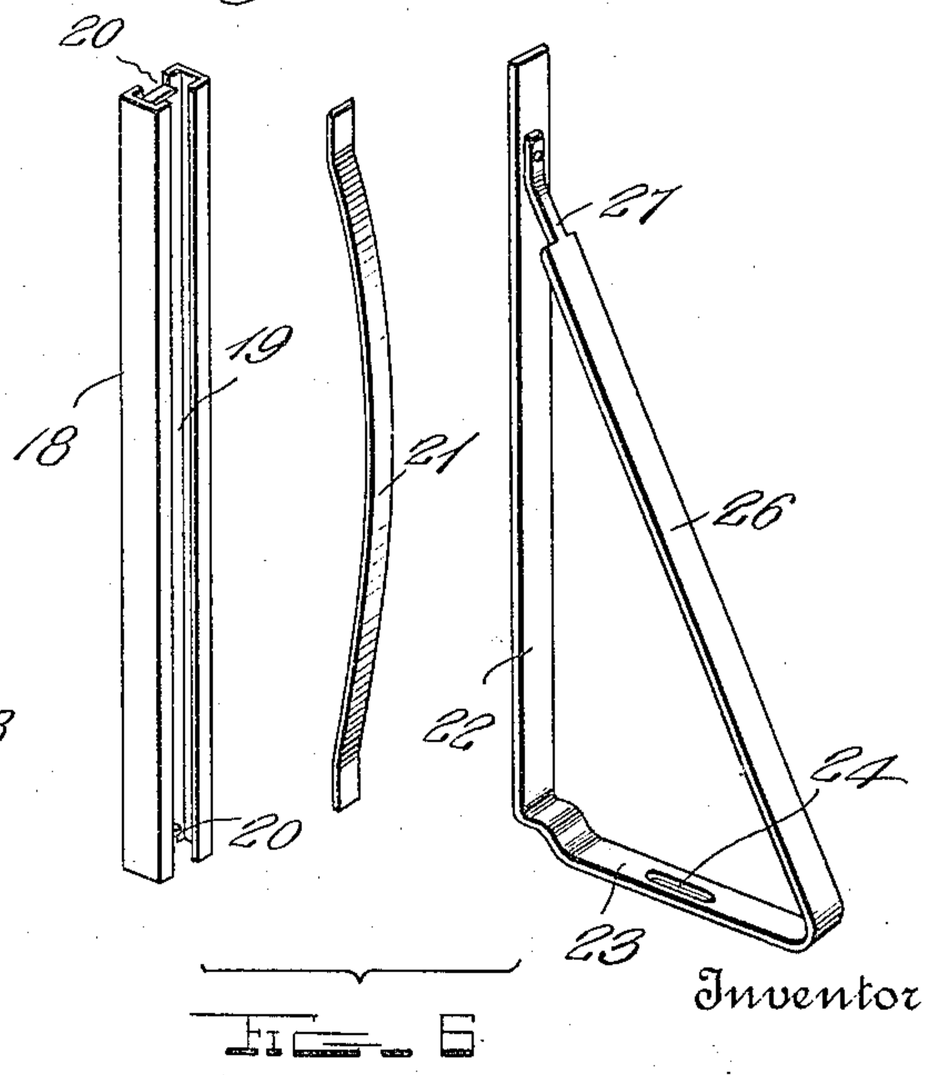


FIG. 6.

Witnesses

C. Cooper

H. Woodard

Inventor

M. S. Bennett

By H. B. Williamson & Co

Attorneys

UNITED STATES PATENT OFFICE.

MARTIN S. BENNETT, OF MINNEAPOLIS, KANSAS.

CRATE-MAKING MACHINE.

1,167,253. Specification of Letters Patent. Patented Jan. 4, 1916.

Application filed July 29, 1915. Serial No. 42,622.

To all whom it may concern:

Be it known that I, MARTIN S. BENNETT, a citizen of the United States, residing at Minneapolis, in the county of Ottawa and State of Kansas, have invented certain new and useful Improvements in Crate-Making Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in crate making machines and more particularly to those of the type including fixed and movable clamping members for holding therebetween the ends and the partition of fruit crates and the like while nailing the longitudinal slats thereto.

The objects of the invention are to improve upon the general construction of machines of this class and to simplify the construction of the movable clamping members and operating means therefor.

With these general objects in view, the invention resides in certain novel features of construction and in unique combinations of parts to be hereinafter fully described and claimed, the descriptive matter being supplemented by the accompanying drawings wherein:

Figure 1 is a side elevation, partly in section, of a machine constructed in accordance with my invention; Fig. 2 is a central vertical longitudinal section thereof; Fig. 3 is a horizontal section taken on the planes designated by the line 3—3 of Fig. 2; Fig. 4 is a vertical transverse section as viewed on the plane indicated by the line 4—4 of Fig. 1; Fig. 5 is a detail horizontal section illustrating the operating means for the movable members in inactive position; and, Fig. 6 is a disassembled perspective view of one of the movable clamping members and the parts directly associated therewith.

In these drawings which constitute a part of the application and in which similar reference characters designate corresponding parts throughout the several views, the numeral 1 indicates broadly a frame preferably constructed of angle iron and supported by a trio of arched legs 2 whose cross bars 3 are provided thereon with spacing plates 4, the upper faces of such plates being disposed flush with the upper sides of the parallel longitudinal side bars 5 on the frame 1.

Mounted in appropriate guide brackets 6 disposed one at each end of the table, is a pair of vertically shiftable rods 7 which may be raised by actuation of an appropriate foot pedal 8 through the instrumentality of two levers 9 fulcrumed between their ends, loosely connected at one end with the rods 7, and linked to the pedal 8 by links 10. The upper ends of the rods 7 are pivoted at 11 to the crowns of arched brackets 12 which rise from the opposite ends of the pair of angle iron side bars 13 of a movable tilting frame. Said bars normally rest upon the side bars 5 and are connected at intervals by transverse angle iron bars 14. One flange of each bar 14 depends from the other flange thereof and is provided with a central guide opening 15. The several openings 15 receive slidably therein a longitudinally shiftable operating rod 16 which is preferably arched in transverse section.

Secured to the side bars 13 are the lower ends of the legs of a plurality of arched rigid clamping members 17 which coact with movable clamping members 18 shiftable with the bar 16. Each member 18 is of substantially tubular formation, being formed of a single sheet of metal bent into a preferably rectangular shape in cross section with the free edges of the metal spaced one from the other to provide an upright slot 19 throughout the length of one side of the member in question, the opposite side of said member, at the opposite ends thereof, being slit vertically and bent inwardly at right angles to provide a pair of stop flanges 20 for contact with the opposite ends of a flat bowed spring 21 which is confined in the member 18.

Rising from the operating bar 16, is a plurality of upright arms or standards 22 whose lower ends are bent horizontally to form attaching feet 23 slotted at 24 for the reception of adjusting bolts 25 which secure such feet to the aforesaid operating bar, while the free ends of the feet 23 are extended in an inclined direction toward the upright ends of the several standards 22, whereby to provide braces 26, the upper ends of the latter being reduced in width at 27 and being rigidly secured by riveting or the like to the aforesaid standards. The standards or arms 22 are received in the tubular clamping members 18 and are interposed between the slotted walls thereof and the bowed springs 21, the aforesaid walls being posi-

tioned remote from the rigid clamping members 17. By this means, when the ends E and the partition P of a crate are positioned as disclosed in Figs. 2 and 3, and the operating bar 16 is shifted to the right and held in such position, the springs 21 will so yield as to force the active faces of the clamping members 18 into binding frictional contact with the aforesaid ends and the partition as indicated clearly in Figs. 2 and 3. With the ends and the partition clamped as shown, the bottom slats S are nailed thereto (see Fig. 2) after which the foot pedal 8 is depressed to raise the movable frame, thus allowing the latter to be tilted and again lowered onto the frame 1, whereupon the slats at one side of the crate may be secured in position, after which the pedal is again operated to allow the movable frame to be so positioned as to facilitate securing of the slats of the opposite side of the crate to the ends and partition thereof. The machine is so accurately balanced as to allow the tilting of the movable frame to be accomplished with ease.

For the purpose of shifting the operating bar 16 to apply and release the clamping members 18, a bell crank lever 30 having a short arm 31 and a long arm 32, is pivoted at its angle to one of the endmost transverse bars 14, and the free end of the short arm 31 is connected by a link 34 to the adjacent end of the operating bar. The longer arm 32, however, is curved edgewise substantially throughout its length and has its terminal bent upwardly at 35 to provide an operating handle. When the bell crank 30 is moved in one direction to the position seen in Fig. 5, the operating bar 16 will be so shifted as to release the clamping members 18, but when said crank is moved to that position depicted in Fig. 3, all of the aforesaid clamping members 18 will be applied. The lever 30 is now held in operative position, since it is swung past dead center and limited in its movement by contact of the handle 35 with one of the arched brackets 12 or with an appropriate stop. This form of shifting device for the bar 16, although being very simple, is highly efficient and durable.

From the foregoing description, taken in connection with the accompanying drawings, it will be evident that a machine has been provided which may be constructed totally of metal, angle iron being used almost exclusively throughout, that such machine will thus be extremely simple and durable, and that it will possess a number of advantageous characteristics. Among such features, is the unique construction of the clamping members 18 and the parts directly associated therewith, the simple and efficient means provided for guiding the bar 16 in its movement, and the specific operating means for such bar.

In the drawings, although certain specific details of construction have been shown for performing their independent functions in probably the most effective manner, it is obvious that I need not be restricted to such details otherwise than to the extent to which the appended claims limit me.

I claim:

1. In a crate making machine, the combination with a rigid clamping member, a longitudinally shiftable bar at right angles thereto, and means for shifting said bar, of a substantially tubular clamping member parallel to the aforesaid member, a rigid arm projecting from the bar into the tubular member, and spring means interposed between said arm and the side of said tubular member adjacent the rigid member.

2. In a crate making machine the combination with a rigid clamping member, a longitudinally shiftable bar at right angles thereto, and means for shifting said bar, of a substantially tubular clamping member parallel to the rigid member, a rigid arm projecting from the bar into the tubular member, a bowed spring interposed between said arm and the side of said tubular member adjacent the other member, and a pair of stops projecting inwardly from said side of the tubular member and disposed adjacent the opposite ends of said spring.

3. In a crate making machine, the combination with a rigid clamping member, a longitudinally shiftable bar at right angles thereto, and means for shifting said bar, of a substantially tubular clamping member parallel to the aforesaid member having in one of its side walls a longitudinal slot, such wall being positioned remote from the rigid clamping member, a rigid arm projecting from the bar into the tubular member adjacent the slotted side wall thereof, spring means interposed between said arm and the aforesaid wall of the tubular member, an attaching foot projecting laterally from one end of the rigid arm and secured to the aforesaid bar, and an obliquely disposed brace bar extending from the foot through the slot and secured to the other end of the rigid arm.

4. In a crate making machine, the combination with a rigid clamping member, a longitudinally shiftable bar at right angles thereto, and means for shifting said bar, of a substantially tubular clamping member parallel to the aforesaid member having in one of its side walls a longitudinal slot, such wall being positioned remote from the rigid clamping member, a rigid arm projecting from the bar into the tubular member adjacent the slotted side wall thereof, spring means interposed between said arm and the aforesaid side wall of the tubular member, an attaching foot projecting laterally from one end of the rigid arm and secured to the

aforesaid bar, and an obliquely disposed brace bar extending from the foot through the slot and secured to the other end of the rigid arm, the portion of said brace bar secured to the arm being reduced in width for reception in the slot.

In testimony where I have hereunto set my hand in presence of two subscribing witnesses.

MARTIN S. BENNETT.

Witnesses:
RAY F. SEXTON,
W. C. NELSON.