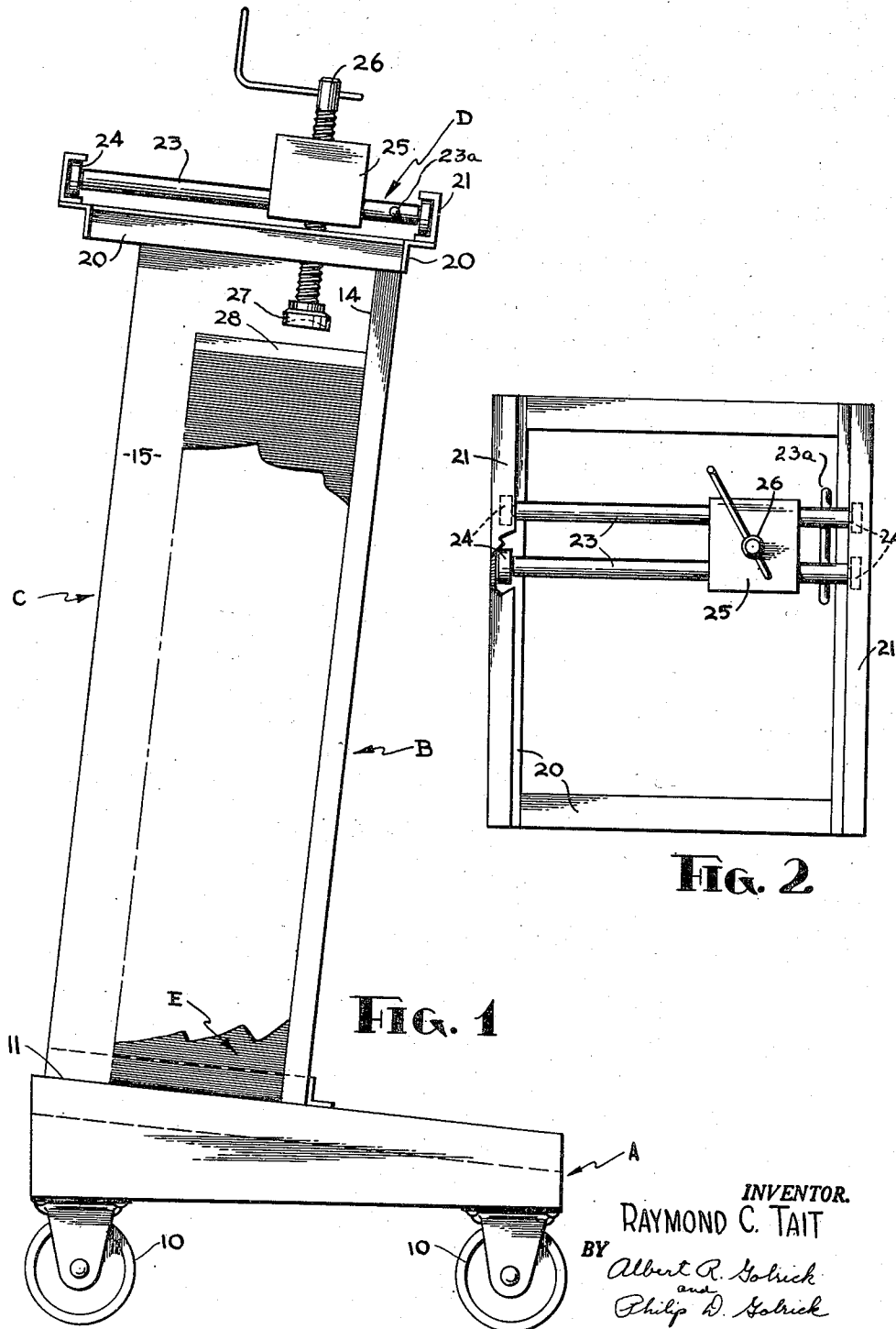


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R. C. TAIT
PADDING PRESS

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PADDING PRESS

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The present invention is directed generally to improvements in a padding press and more particularly to improvements in a padding press having a clamping head adapted to universal positioning over a given area of the point of clamping force application.

In the prior art several types of clamping devices or mechanisms have appeared for use as padding presses. Such presses have included a frame to receive and align successive batches of backing stock and paper sheets—as required for a number of paper pads—in an ordered stack presenting the sheet edges to be glued along one side of the stack, that is in a plane suitably positioned for the application of glue or other adhesive material as a pad binder, and a clamping device for compressing the ordered stack. The variations of design in these presses, usually in paper aligning elements or clamping devices, have been directed to the provision of a clamping press adapted for production of different sizes of pads, or for quick loading, aligning or clamping.

By the present invention there is provided a clamping press which has a dolly type base for transportability so that the press may be loaded and closed, say adjacent to a paper cutting machine, and then moved successively to other locations for application of adhesive as a pad binder, drying storage, and press unloading. The dolly serves as a base for two upwardly extending members with plane surfaces disposed in a dihedral angle of 90° to form a trough providing gaging surfaces for two adjacent edges of sheets stacked on the dolly within the trough. Preferably, the dihedral edge is inclined slightly to vertical outwardly from the trough opening with the planes of the two sides equally inclined to a horizontal plane, and the upper stack supporting surface of the dolly base is accordingly slightly inclined to the horizontal to be perpendicular to the dihedral edge, to aid alignment of sheets fed into the trough.

At the top of the press, that is, at the upper end of the trough there is secured a rectangular frame defining a plane of movement for a clamping head carrying a clamping screw extending generally perpendicular to said plane. This frame is preferably somewhat inclined from parallelism relative to the stack supporting surface of the dolly along a diagonal from the dihedral edge, the frame spacing from the dolly surface being greatest at the dihedral edge. This results in a component of the clamping force applied to the stack being directed inwardly of the trough to help maintain a stack in proper position.

In the clamping head frame a pair of opposed parallel side members, for example, channel members open towards each other, provide tracks receiving and providing reaction members for wheels at opposite sides of a clamping screw carriage; while the carriage itself includes a block, slidable from one side to the other between the wheels, through which the clamping screw is threaded. Thus by movement of the carriage in one direction, and of the screw carrying block at right angles thereto, the location of the clamping screw may be varied along two coordinates so that the point of application of clamping

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force to paper stacked within the trough may be changed as desired.

An object of the present invention is to provide a padding press which is readily movable from one location to another.

Another object is the provision of a padding press into which the sheet material to be padded is readily fed by hand or otherwise from cutting machines and in which the inserted paper is readily aligned in proper padding position.

Another object is the provision of a clamping press wherein a clamping screw element for application of clamping force to the paper is mounted on a clamping head which is quickly and readily positioned as required by the size of the material being padded for a proper application of the clamping force.

A further object is the provision of a clamping press wherein the clamping element is so disposed relative to the paper supporting surfaces that when clamping force is applied, the applied force is directed to maintain the column or stack of paper against gaging surfaces.

A still further object is the provision of a clamping press of the character described which is relatively simple in design, sturdy in structure and of relatively low manufacturing cost.

Other objects and advantages of the invention will appear from the following description and the drawings wherein:

Fig. 1 is a side elevation of a clamping press embodying the present invention; and

Fig. 2 is a plan view of the clamping head assembly.

In the drawings a base structure A supports a pair of upwardly extending flat side members B and C to the top of which there is mounted a clamping head assembly D. For transportability and dirigibility of the press, the base may be supported by two pairs of wheels 10 of which one or both pairs may be caster mounted to form a dolly type base. The body of the dolly may be of welded metal plate, drawn heavy sheet metal or wooden construction sturdy enough to sustain the stresses of pad material E loaded therein and the clamping stresses. The top paper supporting bed or surface 11 of the base is inclined slightly to the horizontal along a diagonal of the dolly.

The side members B and C provide flat surfaces 14 and 15 respectively disposed as a dihedral angle of 90° with the dihedral edge perpendicular to surface 11, thereby forming an upwardly extended trough into which cut sheets of paper may be fed, the surfaces 14 and 15 serving as gaging surfaces for adjacent edges of the sheets to align and maintain the sheets in suitably stacked disposition for padding. The inclination of the base, being downward into the trough opening helps to settle the paper into position against the lateral gaging surfaces in the trough. The side members B and C may be any material and structure of sufficient strength and rigidity to present flat surfaces to a stack clamped therein, such as metal plates, sheet metal laterally supported by angle irons, or heavy plywood, affixed to the surface 11 of the base by any suitable means, e. g. by bracket irons and bolts, or where materials permit by welding.

The clamping head assembly D includes a rigid square or rectangular frame 20 of angle irons, with adjacent members secured along the top outer margins of B and C. A pair of spaced parallel channel members 21 are affixed atop opposite members of frame 20 with open sides facing each other. A pair of parallel bars or rods 23, each serving as an axle carrying a pair of wheels 24 at opposite ends thereof supported and running in the channels 21, pass through transverse parallel bores in, and slidably support, the block 25 to provide a carriage for the clamping screw 26 threaded through the block at right angles

to the plane of the channels. A tie or spacer member 23a rigidly connecting the rods may be used at either or both ends of the carriage. Thus the screw 26 may be universally positioned within the limits of frame 20 by sliding the block on the rods 23 and translation of the carriage along the tracks provided by the channels 21.

Each wheel 24 may be a roller or ball bearing unit having an inner race press fitted to the end of rod 23 and an outer race slightly smaller in diameter than the spacing of the flanges of channel 21 for wheel clearance as the wheels run on the lower flange, and for a preferable minimum of lost motion in coming to bear upon the upper flange as a reaction surface as the clamping screw is run down. The plane of the frame 20, hence also the plane of track channels 21 may be non-parallel to the paper supporting surface 11 of the dolly base, the outboard corner of the frame 20 being somewhat closer to that surface than the corner of the frame diagonal thereto at the dihedral edge of the trough.

A carriage lock may be used between a wheel 24 and its upper track surface in the channel to prevent outward creep of the carriage under clamping forces where the geometry of a particular press results in force components parallel to the plane of channels 21. The clamping screw 26 may be of any apt form with a crank handle at its upper end for operation, and at its lower end a contact pad 27 preferably swivel mounted thereto. The contact face of the pad 27 may be slightly concave to grip a board or plate 28 applied across the top of the stacked sheets for distribution of the clamping pressure along the edge to be glued.

In using this clamping press the entire machine may be readily transported to a location adjacent a paper cutter so that as paper sheets are cut to proper size with suitable backing stock they may immediately be fed into the press. As individual batches are inserted in the press, the somewhat inclined base and trough disposition thereof tends to settle the paper against the gauging surfaces of the side members and to align the several batches in suitably stacked form, so that by an occasional tap with a manual straightening block, the stack being built up in the press is maintained neatly aligned as required for the application of adhesive along one side.

When the press has been loaded and any slight straightening of the stack made manually by use of a straightening block, a metal plate or hardwood block 28 of suitable size may then be placed across the upper end of the stack with one edge thereof close to and substantially aligned with the side of the sheet to which the padding adhesive is to be applied. The bearing or contact pad of the clamping screw is then maneuvered to a substantially central position of the block 28 and the clamping screw is tightened down upon the stack in the usual and obvious fashion. The positioning of the bearing head is quickly effected as desired by virtue of the universal movement permitted over the area included between the dihedral angle of the members B and C in consequence of the slidable two-way mounting of the screw within the head frame.

By virtue of the inclination of the plane of the clamping head assembly D to the paper supporting surface of the dolly, the axis of the screw in a downward direction is inclined toward the dihedral edge, hence the clamping force applied has a component directed toward the dihedral edge of the press, which in addition to the trough inclination tends to keep the entire stack forced inwardly into the trough of the press.

I claim:

1. A padding press comprising a base in the form of a dolly, said dolly having an upper pad material supporting bed surface sloped from horizontal; a plurality of members secured rigidly to the base and extending upward therefrom mutually disposed to provide aligning gauging surfaces for adjacent edges of sheet material stacked on the bed for padding, said gauging surfaces lying in two

planes forming a 90° dihedral angle with the dihedral edge thereof perpendicular to said base and the angle opening toward the upward slope of the bed; and a clamping head including a rigid open rectangular frame with adjacent sides secured to said members, a pair of spaced parallel channel members secured to opposite sides of said frame and opening toward each other, a clamping screw, and a clamping screw carriage having at opposite ends thereof a pair of wheels running in each channel and a block slidably mounted on the carriage for movement transversely between the channels, said block being threaded to receive said screw therethrough.

2. A padding press comprising a base in the form of a dolly, said dolly having an upper pad material supporting bed surface sloped from horizontal; a plurality of members secured rigidly to the base and extending upward therefrom mutually disposed to provide aligning gauging surfaces for adjacent edges of sheet material stacked on the bed for padding, said gauging surfaces lying in two planes forming a 90° dihedral angle with the dihedral edge thereof perpendicular to said base and the angle opening toward the upward slope of the bed; and a clamping head including a rigid open rectangular frame with adjacent sides secured to said members, a pair of spaced parallel channel members secured to opposite sides of said frame and opening toward each other, a clamping screw, and a clamping screw carriage having at opposite ends thereof a pair of wheels running in each channel and a block slidably mounted on the carriage for movement transversely between the channels, said block being threaded to receive said screw therethrough and the center plane of channel members being inclined from said dihedral edge toward said bed surface.

3. A padding press comprising a base having an upper pad material supporting bed surface sloped from horizontal; a plurality of members secured rigidly to the base and extending upward therefrom mutually disposed to provide aligning gauging surfaces for adjacent edges of sheet material stacked on the bed for padding, said gauging surfaces lying in two planes forming a 90° dihedral angle with the dihedral edge thereof perpendicular to said base and the angle opening toward the upward slope of the bed; and a clamping head including a rigid open rectangular frame with adjacent sides secured to said members, a pair of spaced parallel channel members secured to opposite sides of said frame and opening toward each other, a clamping screw, and a clamping screw carriage having at opposite ends thereof a pair of wheels running in each channel and a block slidably mounted on the carriage for movement transversely between the channels, said block being threaded to receive there-through said screw.

4. A padding press comprising a base having an upper pad supporting bed surface sloped from horizontal; a trough structure secured rigidly to the base and extending lengthwise upward therefrom to provide aligning gauging surfaces for adjacent edges of sheet material stacked on the bed for padding, said trough being perpendicular to said base and opening toward the upward slope of the bed; and a clamping head including a rigid open rectangular frame with adjacent sides secured to said trough, a pair of spaced parallel channel members secured to opposite sides of said frame and opening toward each other, a clamping screw, and a clamping screw carriage having at opposite ends thereof a pair of wheels running in each channel and a block slidably mounted on the carriage for movement transversely between the channels, said block being threaded to receive there-through said clamping screw.

5. A padding press comprising a base in the form of a dolly, said dolly having an upper pad supporting bed surface sloped from horizontal; a plurality of members secured rigidly to the base and extending upward therefrom mutually disposed to provide aligning gauging surfaces for adjacent edges of sheet material stacked on

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the bed for padding, said gauging surfaces lying in two planes forming a 90° dihedral angle with the dihedral edge thereof perpendicular to said base and the angle opening toward the upward slope of the bed; and a clamping head including a rigid open rectangular frame with adjacent sides secured to said members, a pair of spaced parallel channel members secured to opposite sides of said frame and opening toward each other, a clamping screw, a block threaded to receive therethrough said screw, a pair of spaced parallel bars extended between said channel members and passing through slide-way apertures in said block, and wheels journaled on the ends of said bars to run in said channels as tracks, whereby the position of the screw axis may be varied relative to said trough.

6. A padding press comprising a base having an upper pad material supporting bed surface sloped from horizontal; a plurality of members secured rigidly to the base and extending upward therefrom mutually disposed to provide aligning gauging surfaces for adjacent edges of sheet material stacked on the bed for padding, said gauging surfaces lying in two planes forming a 90° dihedral angle with the dihedral edge thereof perpendicular to said base and the angle opening toward the upward slope of the bed; and a clamping head including a rigid open rectangular frame with adjacent sides secured to said members, a pair of spaced parallel channel members secured to opposite sides of said frame and opening

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toward each other, a clamping screw, a block threaded to receive therethrough said screw, a pair of spaced parallel bars extended between said channel members and passing through slideway apertures in said block, and wheels journaled on the ends of said bars to run in said channels as tracks, whereby the position of the screw axis may be varied relative to said trough.

7. A padding press comprising a base having an upper pad supporting bed surface; a trough structure secured rigidly to the base and extending lengthwise upward therefrom to provide aligning gauging surfaces for adjacent edges of sheet material stacked on the bed for padding, said trough being perpendicular to said base; and a clamping head including a rigid open rectangular frame with adjacent sides secured to said trough, a pair of spaced parallel channel members secured to opposite sides of said frame and opening toward each other, a clamping screw, and a clamping screw carriage having at opposite ends thereof a pair of wheels running in each channel and a block slidably mounted on the carriage for movement transversely between the channels, said block being threaded to receive therethrough said clamping screw.

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