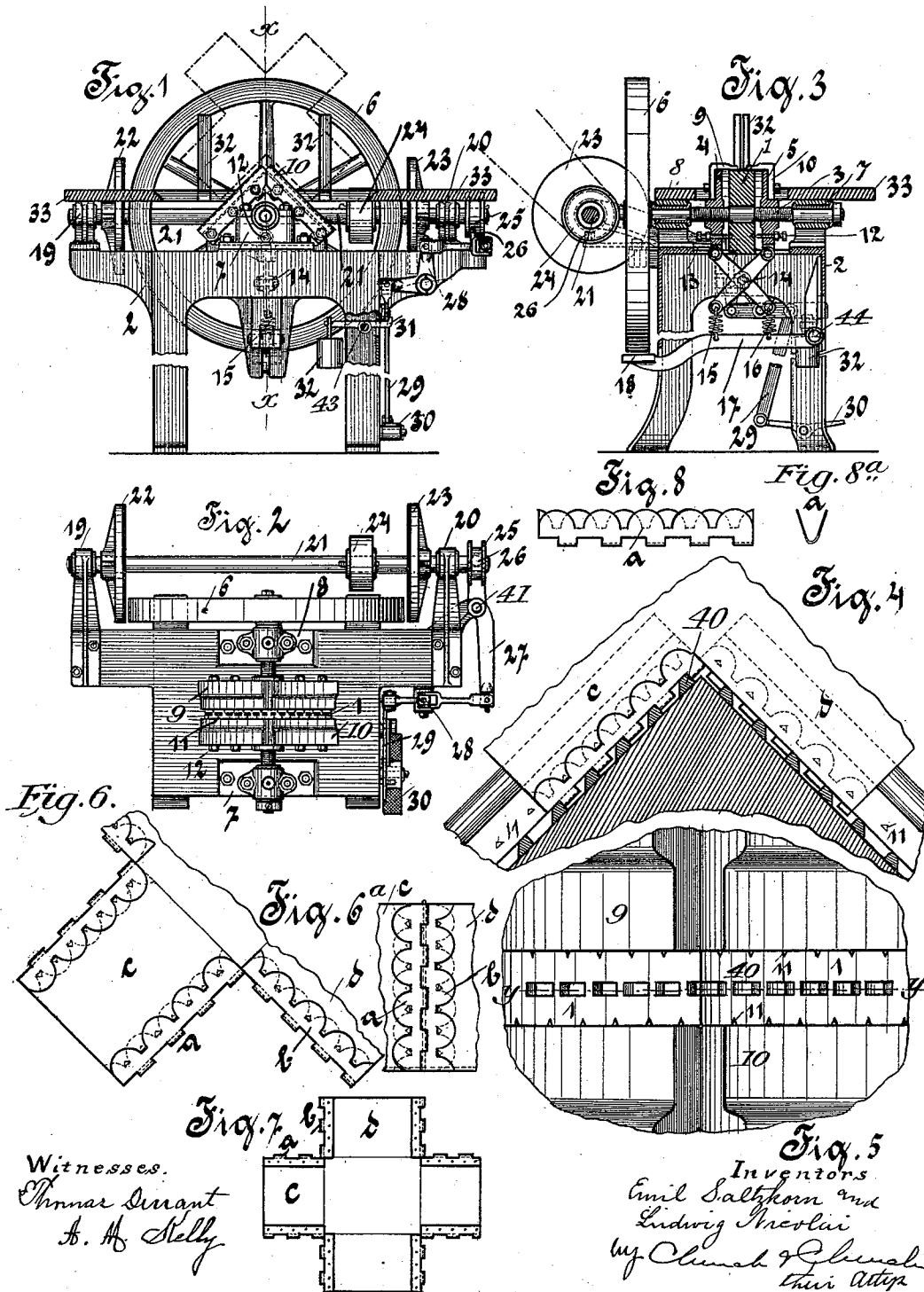


E. SALTZKORN & L. NICOLAI.

MACHINE FOR FASTENING METAL STRIPS TO CARDBOARD, &c.

No. 541,689.

Patented June 25, 1895.



(No Model.)

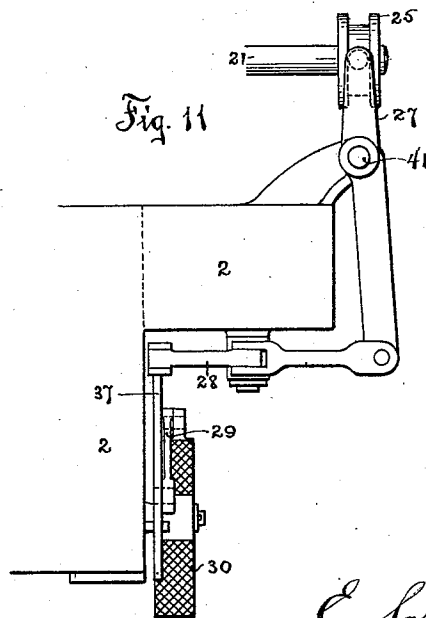
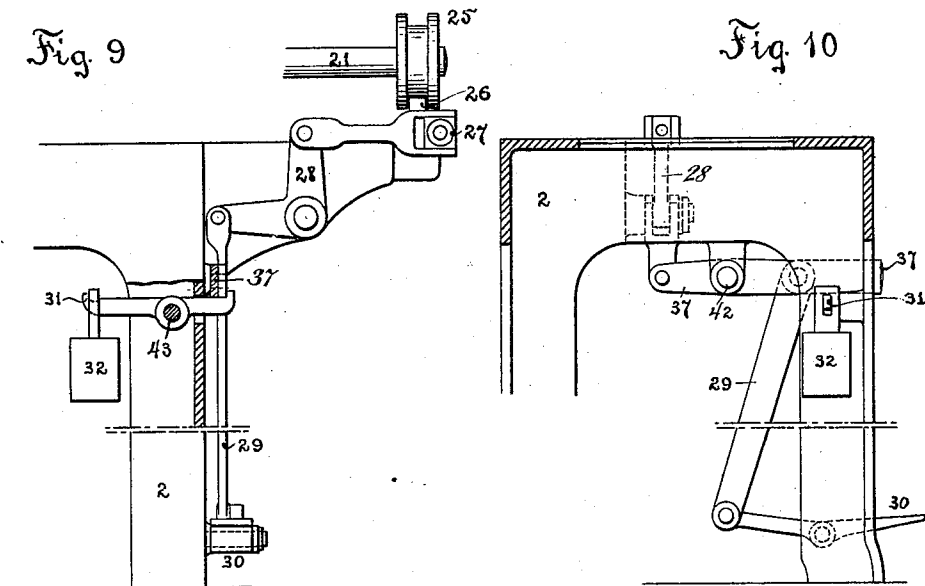
2 Sheets—Sheet 2.

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Witnesses:
Jno C. Pearson
J. Henderson

Inventors:
E. Saltzkorn & L. Nicolai
by their Attorney,
Horace Reut.

UNITED STATES PATENT OFFICE.

EMIL SALTZKORN AND LUDWIG NICOLAI, OF DRESDEN, GERMANY.

MACHINE FOR FASTENING METAL STRIPS TO CARDBOARD, &c.

SPECIFICATION forming part of Letters Patent No. 541,689, dated June 25, 1895.

Application filed March 15, 1893. Serial No. 466,166. (No model.) Patented in Germany February 25, 1893, No. 71,973; in France March 9, 1893, No. 228,503; in Belgium March 9, 1893, No. 103,769; in England March 25, 1893, No. 4,199, and in Austria-Hungary July 25, 1893, No. 12,870 and No. 27,506.

To all whom it may concern:

Be it known that we, EMIL SALTZKORN and LUDWIG NICOLAI, subjects of the King of Saxony, residing at Dresden, Saxony, in the German Empire, have invented a certain new and Improved Machine for Securing Metal Strips to Sheets of Cardboard, Wood, Leather, &c., (for which we have obtained Letters Patent as follows: in Germany, No. 71,973, dated February 25, 1893; in France, No. 228,503, dated March 9, 1893; in Belgium, No. 103,769, dated March 9, 1893; in Great Britain, No. 4,199, dated March 25, 1893, and in Austria-Hungary, No. 12,870 and No. 27,506, dated July 25, 1893,) of which the following is a specification.

The object of our invention is to provide a machine for securing a metal strip to the edge of a sheet of cardboard or other material, of such character that when the edges of two sheets so supplied are brought together a hinged joint is formed, which, by the removal of the connecting pivot pin, may be readily detached when necessary.

The invention is particularly adapted for the manufacture of what are generally known as paper boxes as more fully set forth hereinafter, but may be advantageously employed for all purposes where it is necessary to form a hinged or detachable connection between two sheets of any material.

In the accompanying drawings, Figure 1 is an elevation of a machine constructed in accordance with our invention, a portion of the machine being shown in section to more clearly illustrate certain of the details of construction. Fig. 2 is a plan view of the same with the feed table removed. Fig. 3 is a sectional elevation on the line *x x*, Fig. 1. Fig. 4 is a sectional view on the line *y y* of Fig. 5, illustrating on a larger scale a detail of construction. Fig. 5 is a plan view of the same. Figs. 6, 6^a, and 7 are views showing sheets of cardboard or other material supplied with metal edge strips. Figs. 8 and 8^a show such strips in detail; and Figs. 9, 10, and 11 are views corresponding respectively to Figs. 1, 2, and 3, illustrating more clearly the arrangement of the pedal and its connected levers.

The strips, *a*, to be secured to the edges of the sheets are of a construction more clearly shown in Figs. 8 and 8^a and are formed by suitable stamping machines from flat sheets or strips by cutting a series of openings in the center of the sheet or strip and then bending it longitudinally until it assumes an approximately V-shape in cross section. The opposite edges may be plain, or cut in the manner shown in Fig. 8, in a continuous series of semi-circular projections forming an escalloped edge, the projections of one edge being opposite the space between adjoining projections of the opposite edge, or in any other similar manner.

The operating parts of the machine are mounted upon a suitable supporting frame, 2, at the central portion of which is secured a block, 1, of such shape and size as to suit the character of work to be done and preferably removable so that a new one may be substituted when working on sheets of different size or shape. At front and rear of the frame, 2, are pillow blocks, 7 and 8, supporting a transverse shaft, 3, which extends through and is supported at its center by the block, 1, and is provided on either side of such block with right and left hand screw threads. Upon this threaded shaft are two vertically disposed plates 4 and 5 situated one on each side of the block, 1, adapted to be moved toward and from the block as the shaft, 3, is rotated.

The machine is constructed in the present instance with a view to the manufacture of boxes formed of a single blank cut into the shape shown by dotted lines in Fig. 1 and in Figs. 6, 6^a, and 7, and as it is desired to supply two of the edges of this blank with similar metallic strips at a single operation the block, 1, is made of the angular form shown having two sides at a right angle to each other and each side or face being provided with a series of recesses adapted to receive the projecting portions of the strips to be secured to the sheets, or a separate recessed plate, 4, may be detachably secured to such sides or faces as shown in Fig. 4.

On the plates 4 and 5 respectively are angu-

lar pressing cheeks 9 and 10 of a contour corresponding to that of the block, 1, and secured to the plates by set screws, or otherwise so arranged as to permit their ready removal, 5 the edges of the cheeks projecting over the faces of the block, 1, in such manner that when the shaft, 3, is turned the screw threaded portions of such shaft will act upon plates 4 and 5 and the cheeks 9 and 10 will be forced 10 toward each other until the metal strip previously placed in position on the block, 1, is firmly clamped to the sheet of cardboard, or other material.

If necessary the edge or edges of one or 15 both of the pressing cheeks may be provided with projecting pins, 11, as shown in Figs. 4 and 5 which, when pressed against the metallic strip will puncture or indent the latter and bend a small portion of the metal in 20 against the cardboard or produce a burred or roughened surface which will effectually hold the strip in its proper position.

When the strip is made with an scalloped edge, as shown in Fig. 8, these indentations or 25 punctures may be made in each side of the strip at a point on the one side opposite to the spaced portion between two adjoining semi-circular projections on the other side so that the indentations or punctures will serve 30 to more effectually bind the metal strip to the sheet.

The driving mechanism of the shaft, 3, is of simple construction comprising a shaft, 21, rotated by a belt wheel, 24, from any suitable source of power, and provided with friction disks, 22 and 23, adapted to engage with a large friction wheel, 6, on the shaft, 3. This shaft, 21, is mounted in suitable bearings 19 and 20 on the frame 2, and at or near one end 40 is provided with a grooved sleeve 25, secured to the shaft and with which is adapted to engage an antifriction roller, 26, carried on one end of a lever 27, fulcrumed at 41 to the frame. At the lower portion of the frame is 45 fulcrumed a pedal, 30, connected by a rod, 29, to a lever, 37, fulcrumed at 42, to the frame and connected through the medium of a bell crank lever, 28, and suitable connecting links with the lever, 27, so that the movement of 50 the treadle, 30, may be transmitted to the lever, 27, and the shaft 21, be moved longitudinally to bring one or other of the friction disks 22 or 23 in contact with the periphery of the wheel, 6, to effect the rotation of the latter and shaft, 3, on which it is mounted. In 55 order to normally keep the disks 22 and 23 out of contact with the wheel, 6, the lever, 37, is extended for some distance beyond the point of its connection with the rod, 29, and under this projecting portion extends one end of a lever, 31, fulcrumed at 43 to the frame and provided at its opposite end with a counterbalance weight, 32, which will normally hold the disks 22 and 23 at a slight distance 60 from the periphery of the wheel, 6.

The extent of movement of the plates 4 and

5 in opposite directions is governed as follows: In each plate is a set screw, 12, extending through from the outside of the plate and adapted to engage with the opposite faces of 70 the block, 1, when the plates have been moved to an extent sufficient to press the sides of the metal strip against the sheet of cardboard, or other material, being acted upon. The limit of outward movement is governed by a 75 brake shoe, 18, carried on one end of a lever, 17, fulcrumed at 44 to the frame and connected through the medium of springs 15 and 16 to levers 14, pivoted to each other and having their opposite ends fulcrumed respectively to the plates 4 and 5, forming a lazytongs 80 which, when expanded by the outward movement of the plates 4 and 5 will act through the springs to force the brake shoe into contact with the periphery of the wheel, 6, and 85 gradually increasing the pressure of the brake shoe upon the latter until the rotation of the wheel ceases.

The machine is provided with a suitable work table, 33, for the convenience of the operator and secured to the work table are 90 vertically arranged guides 32, which hold the cardboard in proper position during the operation of the machine.

In operation the plates 4 and 5 are moved 95 out to their fullest extent and the strips, α , of a contour such as shown in Fig. 8 are placed in position on the block, 1, with the projecting portions of the toothlike edge of the strip fitting into the recesses in the block 100 or in the plate, 40. The sheet of cardboard, or other material, is then placed within the guides, 32, until the edges to be acted upon are inclosed by the metal strips. The treadle, 30, is then depressed until the friction disk, 105 22, is in contact with the periphery of the wheel, 6, causing the rotation of the shaft, 3, and the consequent movement of the plates, 4, and 5 toward each other until the cheeks 9 and 10 have pressed the opposite edges of 110 the strip firmly in contact with the sheet of cardboard, while those portions of the strip resting within the recesses of the plate 40, are not flattened but assume a semi-circular form for the reception of a pivot pin by 115 which two of such strips may be subsequently united.

Various modifications of the construction herein shown will readily suggest themselves to persons skilled in the art, such for instance 120 as the movement of one cheek only, or the movement of both cheeks, by means other than the described screw threads, as cams or eccentrics mounted upon the shaft, 3, and adapted to act upon the blocks 4 and 5. 125

It will be understood that the machine herein described as being arranged for operating the pressing cheeks horizontally may 130 without any essential alteration be so modified as to operate those parts vertically; also that the angular form of the block which is required for securing the corners of the paper

box is not essential, as the shape of the said block may vary according to the purpose for which it is employed.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. The combination of the angular supporting block having on its opposite faces recesses for the reception of the projecting portions of the strip being acted upon, pressing cheeks fitting over the angular sides of the block, indenting pins carried by each cheek, and mechanism for moving the cheeks simultaneously toward and from each other, substantially as specified.

2. The combination of a recessed supporting block, the clamping cheeks, devices for operating same, and guideways for the sheet of material to be acted upon, substantially as specified.

3. The combination of the recessed supporting block, a frame carrying the same, a transverse shaft, supported by said frame, right and left hand screw threads provided upon said shaft, plates 4 and 5 adapted to the threaded portions of said shaft, and clamping cheeks secured to such plates 4 and 5 and projecting over the edge of the supporting block, substantially as specified.

4. The combination of the supporting block, a frame carrying the same, a transverse shaft, bearings therefor, right and left hand screw threads provided upon said shaft, plates 4 and 5 adapted to the threaded portions of such shaft, cheek plates 9 and 10 secured to the plates 4 and 5 respectively, and having clamping faces projecting over the face or faces of the supporting block, substantially as specified.

5. The combination of the recessed supporting block, frame carrying the same, a transverse shaft adapted to bearings in such frame, right and left hand screw threads provided upon such shaft, plates 4 and 5 adapted to the threaded portions of said shaft, clamping cheeks carried by such plates 4 and 5, a friction wheel, 6, secured to such shaft, a longitudinally adjustable driving shaft, opposite friction disks secured thereto, and devices for adjusting such shaft to force one or the other

of the friction disks into contact with the periphery of the wheel, 6, substantially as specified.

6. The combination of the recessed supporting block, transverse shaft, a frame supporting the block and the shaft, right and left hand screw threads provided upon such shaft, plates 4 and 5 adapted to threaded portions of such shaft, clamping cheeks secured to such plates 4 and 5, set screws, 12, carried by the plates and adapted to limit the extent of inward movement of the latter, a driven wheel, 6, secured to such shaft, a brake lever, 17, fulcrumed to the frame and provided with a brake-shoe adapted to engage with the periphery of such wheel, and levers, 14, fulcrumed to the plates 4 and 5, and to each other, with connecting springs extending from such levers to the brake-lever, whereby the extent of outward movement of the plates is controlled, substantially as specified.

7. The combination of the supporting block, a recessed plate carried thereby and adapted to receive the projecting portions of the metallic strips, with pressing cheeks extending over the face or faces of such supporting block and adapted to clamp the edges of the strip, substantially as specified.

8. The combination of the supporting block, the shaft, 3, a frame carrying such block and shaft, right and left hand screw-threads provided upon such shaft, plates 4 and 5 adapted to the threaded portions of such shaft, clamping cheeks carried by such plates, 4 and 5, a friction wheel, 6, a driving shaft, 21, friction disks, 22, and 23, carried by the shaft, 21, and adapted to be brought into engagement with the periphery of the wheel, 6, a grooved sleeve, 25, secured to the shaft, 21, a pivoted lever, 27, an antifriction roller thereon, engaging in such grooved sleeve, a treadle, 30, and a system of levers connecting such treadle to the lever 27, substantially as specified.

In testimony whereof we have hereunto set our hands in the presence of two witnesses.

EMIL SALTZKORN.
LUDWIG NICOLAI.

Witnesses:

RUD. SCHMIDT,
HERNANDO DE SOTO.