(No Model.) 3 Sheets—Sheet 1.

G. F. DANIELSON.

MACHINE FOR THE MANUFACTURE OF SHIPPING TAGS.

No. 522,514. Patented July 3, 1894.

Fig. 1.

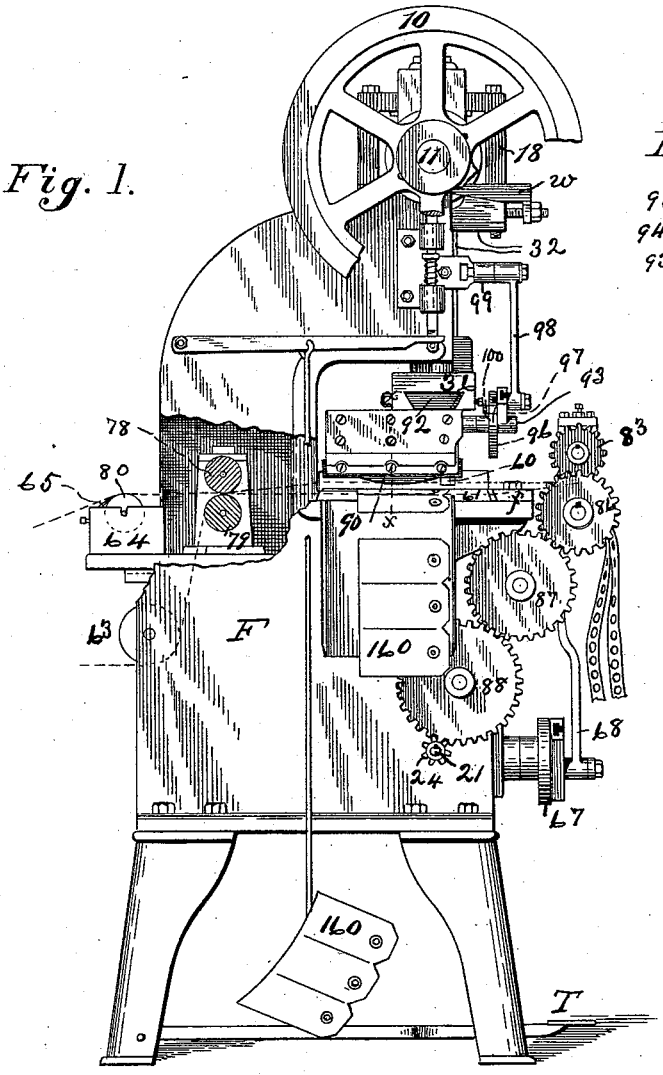
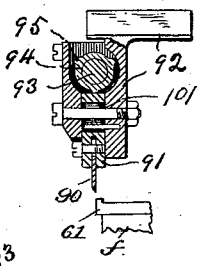


Fig. 2.



Witnesses.
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E. A. Phillips

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(No Model.) 3 Sheets—Sheet 2.

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Fig. 3.

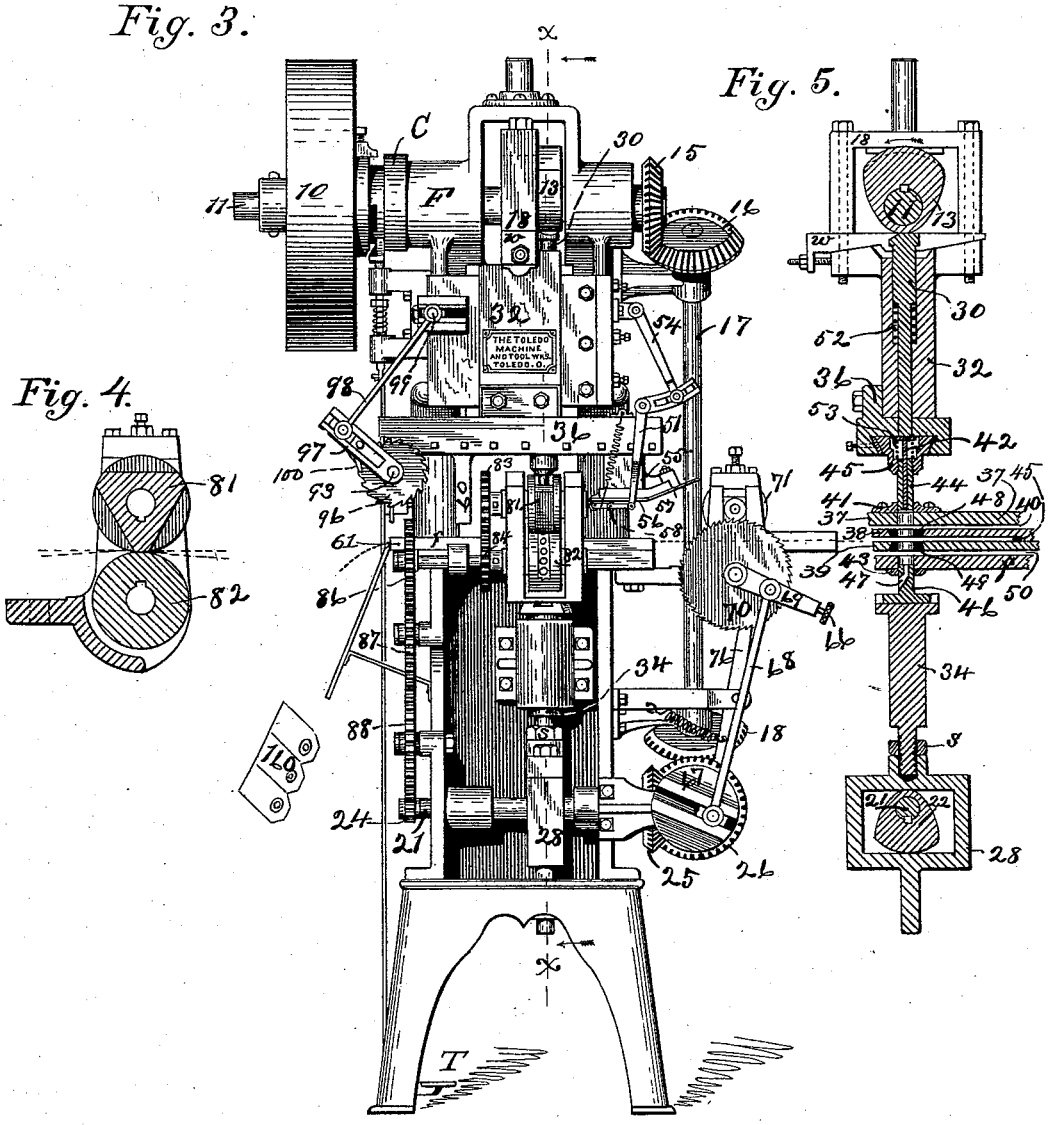

Fig. 4.

Fig. 5.

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(No Model.) 3 Sheets—Sheet 3.

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MACHINE FOR THE MANUFACTURE OF SHIPPING TAGS.

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Fig. 6.

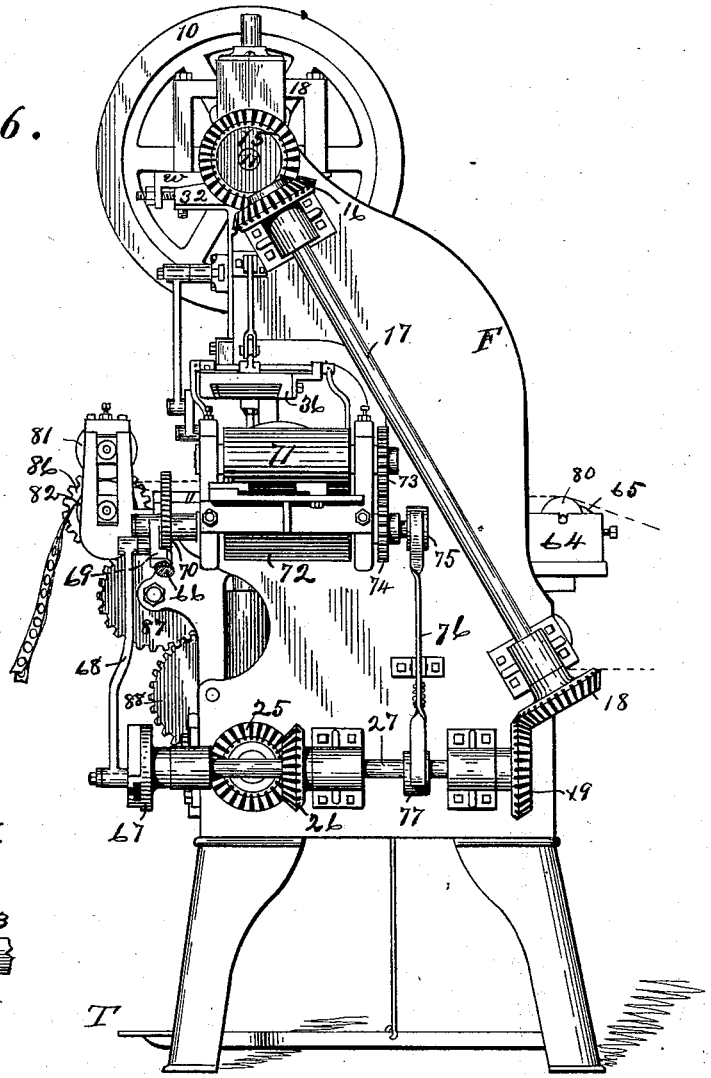


Fig. 7.

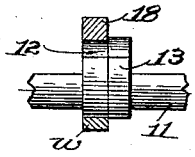
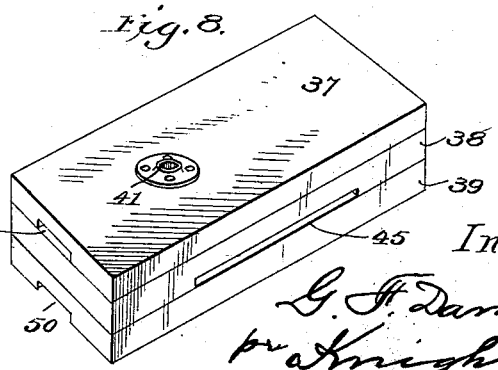


Fig. 8.



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UNITED STATES PATENT OFFICE.

GUSTAVE F. DANIELSON, OF TOLEDO, OHIO, ASSIGNOR TO THE TOLEDO MACHINE AND TOOL COMPANY, OF SAME PLACE.

MACHINE FOR THE MANUFACTURE OF SHIPPING-TAGS.

SPECIFICATION forming part of Letters Patent No. 522,514, dated July 3, 1894.

Application filed September 16, 1892. Serial No. 446,094. (No model.)

To all whom it may concern:

Be it known that I, GUSTAVE F. DANIELSON, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented a new and useful Improvement in Machines for the Manufacture of Shipping-Tags, of which the following is a specification.

My invention relates to machines for manufacturing ordinary shipping tags which consist of rectangular cards of heavy paper with a hole near one end, reinforced by additional rings of tough paper, pasted on opposite sides around the hole, and with the corners on the end next the hole clipped off.

The object of this invention is to provide an automatic machine that will take paper to form the bodies of the tags, from a roll of proper width to form their length, while paper is taken from two narrow rolls from which are punched washers which are pasted on opposite sides of the tags to reinforce their eyes, and finally clips the corners and finishes the tag before it leaves the machine.

Referring to the accompanying drawings which form a part of this specification; Figure 1 is a side elevation of my improved machine with a portion of the frame broken away. Fig. 2 is a detail section on the line *x*, *x* Fig. 1 showing the manner of operating the cutting-off knife whereby three, four or six tags are left almost cut apart but sufficiently attached to facilitate printing and packing for shipment. Fig. 3 is a front elevation. Fig. 4 is a detail sectional view showing the feed rolls for the washer paper. Fig. 5 is a vertical longitudinal section view on the line *x x* of Fig. 3, looking toward the fly wheel. Fig. 6 is an elevation of the side opposite to that shown in Fig. 1. Fig. 7 is a longitudinal section on the main shaft, showing the relative shape of the cams mounted thereon. Fig. 8 is a perspective view of the recessed plates which form the channels.

Similar letters and numerals of reference refer to similar parts in the different views.

F represents the main frame upon the upper part of which is mounted the driving pulley 10 which also serves as a fly wheel, upon the driving shaft 11. The shaft 11 also carries cams 12 and 13, and rigidly attached bevel gear 15, said shaft being driven by the wheel 10 through the medium of a clutch *c* of the pattern now in common use on power presses which is actuated by the treadle T.

21 is a shaft in the lower part of the machine which carries a pinion 24, cam 22 (Fig. 5), and bevel gear 25 and this shaft is driven from pulley 10, as shown in Figs. 3 and 6, through shaft 11, bevel gears 15 and 16, shaft 17, bevel gears 18 and 19, shaft 27 and gears 26 and 25, said driving connections being such as to cause shaft 21 and wheel 10 to revolve synchronously.

Cams 12, and 22 are of the kind known as "constant diameter" and work in frames 18 and 28 respectively, practically touching at top and bottom of said frames at all times. These cam frames 18 and 28 operate plungers 32 and 34, respectively and have a period of rest at each end of their stroke. Plunger 34 carries a punch 46, which operates with a die 49 as shown in Fig. 5, while plunger 32 has attached to its lower end a punch holder 36 which holds punch 44 operating in connection with a die 48. Punch 44 is hollow and contains a smaller concentric punch 42 which operates in connection with a hole in center of lower punch 46 which thus acts as a die, and the pieces punched out escape at the side opening 47 in said lower punch, 46. The upper and inner punch, 42 is provided with a spring 53 to hold it normally raised up, and a plunger 30 is located above it to force it down, said plunger 30, being likewise held normally raised by a spring 52. Cam 13 on shaft 11, is located just above plunger 30 to force it down.

41 and 43 are additional guides for the punches 44 and 46.

In Figs. 5 and 8, 45 is a passage from side to side of the machine, cut in the under side of plate 38 for the wide paper which forms the body of the tags and 40 and 50 are two passage ways from back to front of the machine cut respectively in the under sides of plates 37 and 39 for the narrow strips which form the washers. These plates are secured one upon the other on the table *f* and the two lower plates 38 and 39 carry the dies 48 and 49.

71 and 72 represent feed rolls for the wide paper, see Figs. 3 and 6 and these are supported in suitable bearings and connected by

gears 73 and 74, see Fig. 6. The roll 72 is driven from the shaft 27 through the slotted disk 67, rod 68, having sliding connection with said disk, rock arm 69, pawl 66 and ratchet wheel 70 on the shaft of roll 72 as shown in Figs. 3 and 6. This mechanism effects an intermittent feed of the paper, the paper being passed forward as coupling rod 68 moves up, and by means of the slotted plate 67 and sliding connection of rod 68 therewith, the amount of feed can be regulated for different widths of tags. As shown in Fig. 6 a friction brake 75 is operated by a cam 77 and lever 76 to prevent the momentum of the rolls carrying them too far.

As shown, the washer forming strips are fed longitudinally through the machine, and therefore at right angles to the line of movement of the main strip. These strips are brought from any suitable points, whence they pass one over a gumming roll 65 mounted in a vat 64, and the other over a guide roll 63, the two strips meeting and being forced together between rolls 78, 79, to evenly distribute the gum or paste. From this point the strips are separated and pass to their respective channels, 40 and 50 on opposite sides of the main tag-forming web or strip. While in these channels, the strips are punched, as will hereinafter appear, and from them the punched strips pass to a pair of feed rolls 81 and 82, geared together by pinions 83, 84. The shaft of the lower feed roll 82, carries a gear wheel 86 by which said shaft is geared to the shaft 21, hereinbefore referred to, through the medium of toothed-wheels 87 and 88 and pinion 24, on said shaft 21. The washer-strip feed-rolls, are thereby actuated by shaft 21, but the connections are such that the movement is very much slowed down.

Fig. 4 illustrates the construction of feed rolls 81 and 82. The upper roll 81 is cut away in places, as shown, giving an intermittent feed while the rolls are driven continuously from the shaft 21 by means just described. The gear 86 has just three times the number of teeth that pinion 24 contains, so that the rolls will feed once for each stroke of the punches.

60 represents a notching punch which is carried by plunger 36 and operates with a die (not shown) located parallel to the cutting edge 61 and held in place in the same manner on the table or plate *f*, a portion of the main frame F. This punch is V-shaped and its apex enters the dividing line between two tags, so that its cutting sides cut off the adjacent corners of the resulting tags.

In Fig. 2 is illustrated the severing or dividing mechanism. This consists of an adjustable cutting edge 61 and an adjustable knife 90 carried in a vertical sliding frame 91, which is mounted in the box 92, supported on the frame 36 of the upper plungers. This box 92 is preferably mounted so it can be adjusted toward or far away from the punches, 44 and 46, to suit different widths of tags. The knife-frame is held normally upward by a spring 101. The box 92 reciprocates with the upper punches and it carries a shaft 93, on the outer end of which is located a ratchet wheel 96. A slotted arm 97 carrying a pawl 100 is also mounted on said shaft 93, and a connecting rod 98 is attached to a stationary pin 99 on the frame, and to the slotted arm 97. This arrangement causes the rotation of the shaft 93 slightly at each time the plunger 32, with frame 36, and knife 90 moves up. The shaft 93 carries a cam 94 with three high points 95 whereby the knife holder 91 is forced a little farther down when one of the points 95 is directly downward, and at that time causing the knife to cut the tags entirely apart at such stroke; but at the following stroke the circular portion of cam 94 will come against knife-frame 91 and the knife will not descend low enough to completely sever the tags, but will on account of its curved lower edge, see Fig. 1, leave a small portion uncut at each end of the tag as represented by 160, Fig. 1.

Fig. 3 shows a printing attachment, 55, carried by the frame 36, and in which are set type 56 supplied with ink by rolls 58 from the ink plate 57. The rolls 58 are operated by a bell-crank lever 51 fulcrumed on the reciprocating frame 36, and controlled by connecting link 54, fulcrumed to a fixed part of the frame.

The printing attachment may be used or not at will or removed and the printing done on a regular printing press. The paper being fed to place, plunger 32 is depressed by cam 12, carrying punch 44 through the die 48 and punching a piece from the upper strip. Plunger 34 is forced up by a cam 22 while plunger 32 is moving down, and its punch 46 passes through the die 49 and carries with it a piece of the lower strip: Punches 44 and 46 are then each made to bring a piece of washer paper, which has previously been coated with moist paste on the side next to the tag paper, and to press said washer blanks into close contact with the tag strip, in the passage way 45. Here the punches rest for a short time until punch 42 is moved down by cam 13 sufficiently to punch a small eye through the three thicknesses of paper, which have just been united. This independent supplemental thrust of punch 42 is obtained by making the cam 13 slightly different from cam 12, as shown in Fig. 5, where cam 13 is shown in section and that part of cam 12 which differs from cam 13 is represented behind by dotted line. The edge of cam 12 indicated by the dotted line is formed in an arc whose center is about the center of the shaft 11. In order to adjust the thrust of plunger 32 a wedge *w* is adjustably inserted in the bottom of frame 18, while plunger 34 may be similarly adjusted by a nut *s*.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In a shipping tag machine, the combination of the feed mechanism for supplying the main paper, the feed mechanism for supplying the reinforce strips, recessed plates forming channels arranged transversely to each other through which the paper is fed, the pair of punches located on opposite sides of the paper channels where they cross, the shafts at top and bottom, the cams on said shafts engaging the punches, and driving connections for said shafts and the paper feeds, all substantially as set forth.

2. In a paper-tag machine the combination of main shaft at top, the shaft at bottom connected with said main shaft, a pair of oppositely reciprocating punches, cams on the shafts for operating said punches, the supplemental punch within one of the said oppositely reciprocating punches, a supplemental cam on one of the shafts engaging the supplemental punch, rolls to support and feeding devices for tag and reinforce strips, recessed plates forming channels for the same and working connections for the said shafts and feeds, all substantially as set forth.

3. In a paper-tag machine, the combination of the pair of opposed punches, the main paper feed, mechanism to feed the paper between said punches, the reinforce paper feed mechanism for feeding two adhesive strips, consisting of the feed rolls, a guide roll which is mounted to roll in a receptacle for paste, and supply said material to the strip, a pair of rollers between which the strips pass in contact, and recessed plates to form channels which lead the strips between the punches on opposite sides of the main paper, and suitable working connections for said parts all substantially as set forth.

4. In a paper-tag machine the combination of the main paper feed mechanism, the reinforce paper feed mechanism the recessed plates forming channels, the pair of opposed punches operating from opposite sides on the main and reinforce papers, where they intersect, the pair of shafts, the pair of plungers carrying the punches and having frames surrounding the shafts, and the cams on the shafts working in the frames all substantially as and for the purpose set forth.

5. In a paper-tag machine, the combination of the recessed plate forming the main paper channel, the recessed plates forming the two reinforce paper channels on opposite sides of the main channel, intersecting the same in the same line, and separated therefrom, the die plates, the pairs of opposed punches, supplemental concentric punch and die, located respectively in the two main punches, drive-shafts, cams on the drive-shafts engaging the main punches, and the supplemental cam on one of the shafts located and timed for engagement with the supplemental punch after the movement of the main punches is completed, all substantially as and for the purpose set forth.

6. In a paper-tag machine the combination of the paper feed mechanism, for feeding the main and reinforce paper strips, the punch mounted in a reciprocating frame, the severing knife mounted on said frame having reciprocating movement relatively thereto, a cam bearing upon said knife for changing its length of thrust, and means for controlling said cam, whereby the knife makes a varying cut, and severs only at intervals, all substantially as and for the purpose set forth.

7. In a machine for manufacturing shipping tags, the combination of a frame, a drive-shaft and gear connections to an auxiliary shaft, reciprocating frames mounted on said frame, carrying punches, cams on the shafts to reciprocate the frames and their punches, paper rollers and mechanism to feed the paper across the path of the punches and a knife carried on the upper punch frame to sever the blank to finish the tags, substantially as described.

8. In a paper tag machine, the combination with a suitable paper feed, a punching device and actuating mechanism for the same; of the herein described severing device consisting of a V-shaped cutter located to form notches along one edge of the paper, the severing knife arranged transversely across the paper and geared to register its cut in a line with the apex of each of said notches, the said severing device being operated by the actuating mechanism of the punching device, for successively depressing the knife a number of times partially through the paper, and a cam having projections at intervals and its actuating mechanism carried by the severing device, for depressing the knife quite through the paper so as to produce several groups of partially severed tags as explained.

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