



UNITED STATES PATENT OFFICE.

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MACHINE FOR MAKING TABS FOR CROSSCUT-SAWS.

Specification of Letters Patent No. 28,565, dated June 5, 1860.

To all whom it may concern:

Be it known that I, THOMAS S. DISSTON, of the city of Philadelphia and State of Pennsylvania, have invented a new and Improved Machine for Manufacturing Tabs for Saws; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon.

My invention relates to machinery for forming what are technically termed "tabs," to be used in connection with cross cut saws, and my invention consists in certain devices fully described hereafter for cutting from a bar of iron a piece of sufficient length and width to form the required tab, bending the said strip forming an eye and flanges on the same and punching and otherwise completing the tabs which have hitherto been manufactured by tedious manipulation of expert blacksmiths.

In order to enable others to make and use my invention I will now proceed to describe its construction and operation.

On reference to the accompanying drawing which forms a part of this specification Figure 1, is a side view of my machine for making tabs. Fig. 2, a view of the rear end of the same. Fig. 3, a ground plan. Fig. 4, a vertical section. Fig. 5, a transverse vertical section on the line 1—2 Fig. 1. Fig. 6, an inside view of the inner slide. Fig. 7, an inside view of the outer slide. Fig. 8, a detached sectional view on the line 3—4, Fig. 1. Figs. 9 and 10, sectional views illustrating the formation of the tab. Fig. 11, perspective view of the tab completed.

Similar letters refer to similar parts throughout the several views.

A is the base plate of the machine supported on suitable legs B B and carrying the frames C and D and box P.

In a box *a* attached to the rear of the base and a similar box attached to the lower end of the frame C turns the driving shaft E furnished with a fly wheel F and other suitable driving appliances, and with a pinion G gearing into a cog wheel H on the shaft I the main body of which turns in the frame D the outer end turning in the top of the frame C.

To the front end of the shaft I is secured a crank wheel J having a pin furnished with a roller *b* which is adapted to a peculiarly formed groove *c* (Fig. 6,) on the inside of

the inner slide K, the latter having V shaped projections adapted to similarly shaped recesses on the edges of the plate *d* which is secured to the front of or forms a part of the frame D, so that the said slide can be moved freely in a vertical direction by the turning of the crank wheel but can have no lateral or horizontal motion.

The slide K carries at its lower end a pin L of a diameter equal to that of the eye of the tab to be formed, the pin being provided with a projection *e* the duty of which will be more fully explained hereafter.

M is the outer slide having a dovetailed recess for receiving a dovetailed projection of the slide K on which the slide M can move freely in a vertical direction only. On the inside of this slide M and within recesses formed in the same are hung two levers *f* and *f'* which are acted upon by springs tending to retain the said levers in the position illustrated in Fig. 7. The upper end of each lever is provided with a pin *h* passing through and guided by part of the slide and projecting into an orifice one on one edge and the other on the opposite edge of the V shaped projection on the slide K.

The lower end of each of the spring levers *f* and *f'* is furnished with a projecting pin *i* that of one lever passing through one edge of the slide M and that of the other lever through the opposite edge of the same slide, the two projecting pins being so situated that during the movement of the slide M they shall come in contact with the inclined bars *j, j*, as more fully explained hereafter.

To the lower ends of the slide M is secured the cutting apparatus which consists of a plate *k* having two projections with cutting edges *l, l*, the distance between which is equal to the length of the strip or iron of which the tab has to be formed. Between these projections is situated the pressure plate *m* attached to a rod *n* which slides freely in a recess in the slide M and which has at the top a projection *p* arranged to slide freely on the pin *q* the end of which screws into the top of the slide K as seen in Fig. 4.

N and N' are the two formers or dies arranged to slide to and fro in contrary directions simultaneously in the box P which is secured to the front of the base plate A the length of the inside of this box being such as to admit the cutting projections of the plate *k*, the ends of the box being furnished

with hardened steel plates $r\ r$ so as to act in conjunction with the said cutting edges l, l .

The face of the box P on the inside, coincides with the front face of the plate k and the rear of the box is open, as seen in Fig. 4.

The ends of the dies N and N' are so formed that when they touch each other at the lower end, as seen in Fig. 5, they shall inclose a space of the size and form of the eye and body of the tab.

The die N is connected by a rod s to an arm t on the shaft Q , and the die N' by a rod s' to an arm t' on the shaft Q' , both shafts turning in suitable boxes, one on one side and the other on the opposite side of the base plate A .

At the rear end of the shaft Q is an arm R , Fig. 2, connected to a rod T the end of which has a strap embracing the eccentric U on the shaft I the edge of the shaft Q' having an arm R connected to a rod T' on the end of which is a strap embracing the eccentric U' .

To the upper end of the arm t' is jointed a rod u which carries two punches sliding in the end of the box P passing through a projection on the die, N' , and penetrating a short distance into the die N , as seen in Fig. 5.

On the face of the eccentric U is an inclined projection v (Figs. 1 and 8) arranged to bear against the inside of the upper arm of the lever V which has its fulcrum in a stud w attached to the rear of the frame D the lower arm of this lever being loosely connected to the horizontal rod W which slides in and is guided by projections on the base plate A and which is furnished at the end with a projection x the use of which will be described hereafter.

A spring y attached to the rear of the frame D bears against the upper arm of the lever V and serves to move the latter back after it has been moved outward by the inclined projection v on the face of the eccentric U .

Operation: Supposing the moving parts of the machine to be in the position shown in Figs. 4 and 7, both the inner and outer slide being elevated to the limit of their upward movement the projections h of the levers F and F' on the outer slide M penetrating the orifices of the slide K , so that both slides are for the time being, connected together, and the dies N and N' being at the limit of their outward movement. The attendant places a bar of iron of the desired width and thickness on the top of the box P its proper lateral position being determined by the lips o on the projections of the cutting plate k . On turning the shaft I the two slides K and n will by the action of the crank wheel J descend simultaneously. When the cutting edges $l\ l$ of the plate k have passed the edges of the plates $r\ r$ on the opposite ends of the box P a strip of iron of

sufficient length to form the tab has been severed from the bar, and this strip carried gradually down into the box until it has been brought into contact with the upper surface of the dies N and N' . By the time the slides have reached this position the pins i of the levers f and f' of the slide M have been brought in contact with the inclined bars j, j , on the box P thereby removing the pins $h\ h$ of the said levers free from the orifices of the slide K , so that the slide M is for the present disconnected from the slide K and ceases to perform any further duty. By the peculiar form of the groove c the slide k now descends a short distance by a sudden movement causing the pin L to be brought into immediate contact with the upper surface of the severed bar as seen in Fig. 9. By the continued movement of the shaft I the slide K continues to descend and with it the pin L , at the same time the dies N and N' by the action of their respective eccentrics U and U' and their adjuncts, begin to approach each other simultaneously, the strip cut from the bar will consequently be bent in the middle and the bent portion will be carried down between the dies, as seen in Fig. 10, until the pin L coincides with the hollows of the dies, immediately after which the latter complete their inward movement and assume the position shown in Fig. 5. Prior to the slide K and pin L reaching the limit of their downward movement, however, the head of the pin q (Fig. 4) has been brought in contact with the projection p of the bar n so that the pressure plate resting on the partially upturned ends of the severed strip maintains these ends bent outward as seen in Fig. 10, not with such force however as to prevent the pin L from depressing the middle of the strip between the dies in the manner previously described. By the time the dies have been brought in contact with the intervening bent strip the plate m has by the head of the pin q been brought to bear with full force on the bent ends of the strip which project above the dies, forcing these bent ends onto the tops of the dies and causing them to assume the form represented in Fig. 5. In the meantime the punches have penetrated the body of the tab which is now completely formed. As the slide K was about completing its downward movement the projection e of the pin L passed over the projection x of the horizontal bar W ; immediately after the complete descent of the slide the projection v on the eccentric U acts on the lever V and causes the latter to draw back the horizontal bar thereby withdrawing the pin L from the eye of the tab. By the continued rotation of the shaft I the slide K begins to rise, the slide M still remaining stationary until the top of the slide K catching the underside of the projection p of the rod n elevates the latter causes the pressure

plate *m* to bear against the under side of the plate *k* thus elevating the slide *M* so that the pins *i* of the levers *f* and *f'* are free from contact with the inclined bars *j j* and the pins *h* of the same levers are forced by their springs into the orifices of the slide *K*. The two slides then ascend simultaneously to the original position. In the meantime the pin *L* by bearing with its end against an inclined plate *g* has been restored to its original position, the dies have been withdrawn simultaneously from the finished tab which falls through an opening *Z* in the base plate, and the lever *V* released from the pressure of its inclined projection on the eccentric *U* is forced back by the spring *y* and the horizontal rod *W* consequently moved forward with its projection *x* ready to catch the projection of the rod *L*. The machine is now ready for a repetition of the above described movements. I claim as my invention and desire to secure by Letters Patent—

1. The box *P* its dies *N* and *N'* the movable pin *L* and the pressure bar *m*, the whole being constructed arranged and operating

substantially as and for the purpose herein set forth.

2. In combination with the above, the plate *k* with its cutting projections arranged in respect to the box *P* as specified. 30

3. The bar *W* with its projection *x* in combination with the pin *L* and its projection *e*, and the inclined bar *g*, the said bar *W* being operated by the appliances herein described or their equivalents, and the whole being arranged for joint action substantially as specified. 35

4. The slide *M* its levers *f* and *f'* and their projections *h* and *i* in combination with the orifices in the slide *K* and the stationary inclined bars *j j* the whole being arranged and operating substantially as and for the purpose herein set forth. 40

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses. 45

THOS. S. DISSTON.

Witnesses:

HENRY HOWSON,
CHARLES D. FREEMAN.