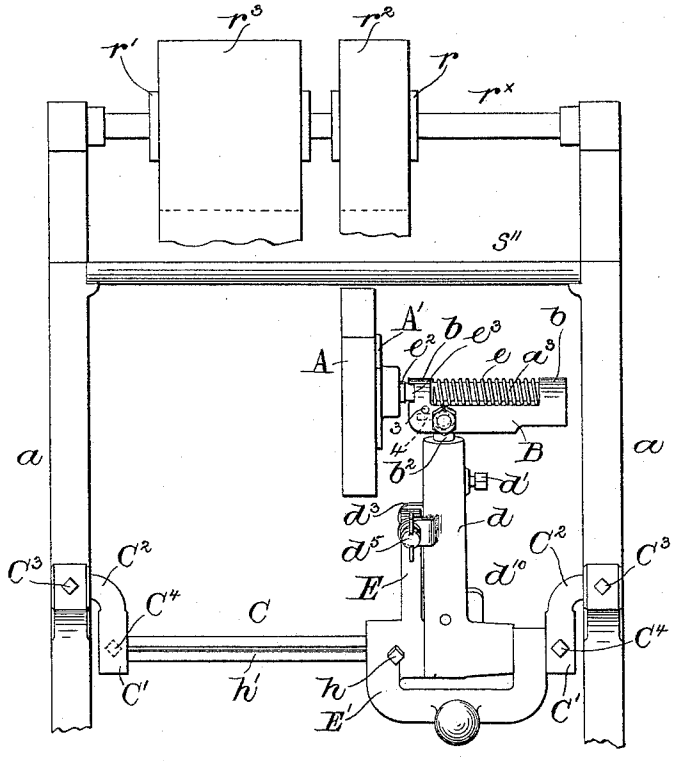
(No Model.) 2 Sheets—Sheet 1.

# G. A. WILLIAMS.

## BOX STRIPPING AND SURFACING MACHINE.

No. 458,651. Patented Sept. 1, 1891.

Fig. 1.

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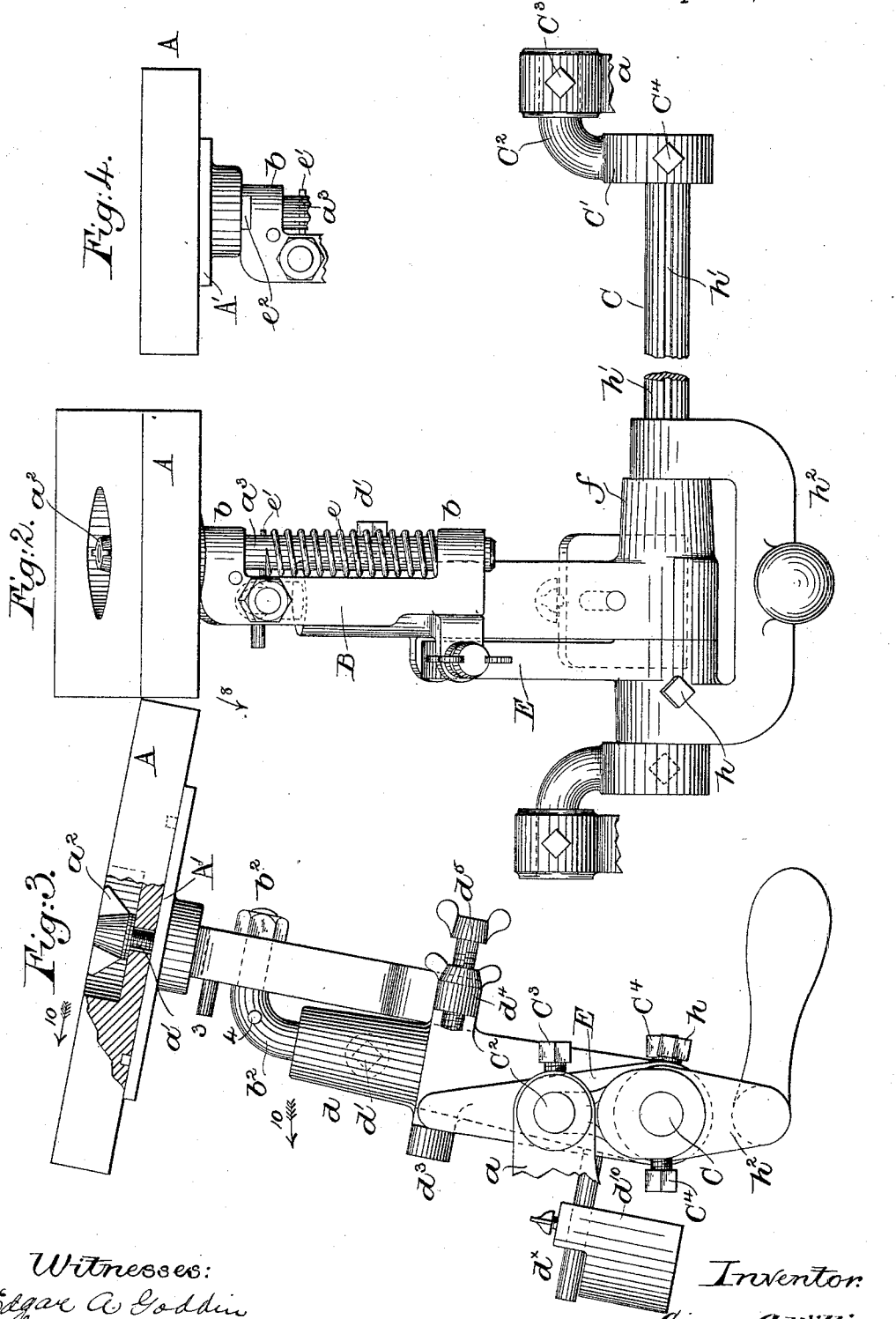


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# UNITED STATES PATENT OFFICE.

GEORGE A. WILLIAMS, OF HOPKINTON, MASSACHUSETTS.

## BOX STRIPPING OR SURFACING MACHINE.

SPECIFICATION forming part of Letters Patent No. 458,651, dated September 1, 1891.

Application filed March 31, 1891. Serial No. 387,110. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE A. WILLIAMS, of Hopkinton, county of Middlesex, State of Massachusetts, have invented an Improvement in Box Stripping or Surfacing Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

It is well known that "boxes" (and in using that term I also intend to cover not only the box proper, but also its cover) are composed of paper and other board, and that such boxes have strips of paper or other material pasted upon them externally, the paper differing in color and character, according to the fancy of the purchaser or manufacturer. This paper is taken in strip form from a suitable reel or roll, and one strip is applied first to the sides of the box and thereafter another to the flat external portion—as, for instance, the bottom of the box or the top of the cover—the strips being of proper width for the particular work to be done. While the box, or it may be its cover, is having a surfacing-strip applied to its side faces the "former," upon which the thing to be surfaced is held, must have its sides uppermost, so as to be rotated about a substantially horizontal center; but when the bottom of the box or top of the cover is to be thereafter surfaced with a strip the top face of the former must be uppermost. In machines for doing this class of work prior to my invention two formers have been required, one standing with its top face up and the other with its side faces up, and the part of the box to be surfaced by the strip is to be transferred from one to the other former. Desiring to save time in this operation of surfacing or stripping the box or cover and thus reduce the cost of the work and to do the same in a better manner, I have invented and constructed devices by which the former may be held with its side faces up and then be quickly tipped into position to leave its top face uppermost, so that immediately after applying the strip to the side faces of the box or cover, by a slight movement of the former, the bottom of the box or top of the cover yet on the former may be brought into position to receive upon it a strip, one operation following the other in quick succession.

My invention is intended as an improvement upon the class of machine shown in United States Patent No. 360,582, the former to be herein described taking the place of the former therein shown; but as my invention relates more particularly to the former and its supporting mechanism I have omitted from the drawings the pasting mechanism and shears or paper-cutting mechanism, which are and may be substantially as in the said patent.

Figure 1 in elevation shows a sufficient portion of the front side of a surfacing or stripping machine containing my invention to enable the same to be understood, the former being in a position to present the side edges of the box or cover, whichever it may be, uppermost, as such edges are first stripped or surfaced. Fig. 2 is a similar enlarged elevation with most of the frame-work omitted and with the former turned up to present its flat side uppermost, the former being tipped forward, as it will be after the strip has been cut off. Fig. 3 is a left-hand side elevation of the parts shown in Fig. 2, the upper left-hand corner of the figure showing part of the table $s''$. Fig. 4 is a partial front view, the same as Fig. 2, but with the carrier for the former tipped or moved backwardly about the supporting-rod C, said figure being made chiefly to show the contrivance for locking the former, so that it cannot rotate when the flat side thereof is uppermost, as in Figs. 2 and 3.

The side frames $a$ $a$, suitably connected, have near their upper ends a plate $s''$, upon which in practice will be mounted suitable shears or cutters to cut off the strip, and the frame-work at some point will contain suitable gumming or pasting mechanism to paste the strips coming to the former, to be described. The shears or cutting mechanism and the pasting or gumming mechanism may be such as common to United States Patent No. 360,582, and so need not be herein shown. At its top the frame has a shaft $r^{\times}$, provided with loose rolls $r$ $r'$, over which will be led the pasted strips $r^2$ $r^3$, one being sufficiently narrow for the side faces of the box or cover, the other being of the proper width for the bottom of

the box or top of the cover. These strips may be gummed or pasted in usual manner. The side frames *a* receive the journals $C^2$ of the bearing-stands C′, the said journals being held in adjusted position by set-screws $C^3$. The stands referred to receive a rod C, held in place therein by set-screws $C^4$. By loosening the screws $C^3$ $C^4$, the stands, by reason of their round journals, may be rotated more or less in their bearings in the side frames *a*, thus enabling the rod C to be placed at the desired distance from the table *s*″, in order that the surfaces of the former A may come into proper position with relation to the said table and to the pasted strips being drawn over the rolls thereon. The former A is detachably secured to a back plate A′ by a thumb-nut $a^2$ on the screw *a*′ of the back plate, so that formers of different sizes may be substituted at will. The shank $a^3$ of the former enters loosely loops or bearings *b* of a tipping frame B, mounted on a pivot $b^2$, represented as bent and with its shank entered in a carrier *d*, the carrier having a set-screw *d*′, by which to hold the leg in its adjusted position, the leg being adjustable in the carrier, so that it may be raised or lowered, as desired, to adapt the apparatus to the depth of the box or cover being surfaced. The pivot referred to, made like a leg, has a pin 4, and the frame B has a pin 3. The carrier *d* has ears $d^3$ $d^4$, the latter having an adjustable screw $d^5$, the rotation of which in one or the other direction leaves more or less space between the ears $d^3$ and the screw $d^5$. The carrier *d* has an arm $d^4$, on which is an adjustable weight $d^{10}$, it nearly counterbalancing the weight of the former A, so that the operator may tip the carrier readily in one or the other direction about the rod C, the carrier being pushed back until the screw $d^5$ meets the rigid stop-arm E, when the pasted paper or other strip has its leading end laid upon the box surrounding the former A. I have not shown the box or its cover. The shank $a^3$ is surrounded by a spiral spring *e*, the lower end of which rests on the lowermost one of the two loops or bearings *b*, the upper end of the spring receiving upon it or acting against a pin *e*′. (Shown in Fig. 2.) The back plate A′ has a lug $e^2$, and the upper loop or bearing *b* of the tipping frame B has a notch $e^3$, the said lug, when the former is in the position Figs. 2, 3, and 4, entering the said notch, for the weight of the former is more than sufficient to overcome the strength of the spring, and in such position the former cannot rotate; but when the tipping frame is turned over in the direction of arrow 8, Fig. 2, into the position represented in Fig. 1 then the spring *e*, not having to overcome the weight of the former, acts to push the shank $a^3$ outwardly sufficiently far to remove the lug $e^2$ from the notch $e^3$, and in the position occupied by the former in Fig. 1 the former is free to be turned with its shank in the bearings of the tipping frame, the former being rotated during the operation of putting the narrow strip $r^2$ upon the side faces of the box or cover, the side edges being first surfaced or stripped. After the side faces have been covered the operator turns the tipping frame about its pivot $b^2$ to place the flat side or top face of the former uppermost, bringing the bottom of the box or top of the cover just below the plate *s*″. The hub E′ of the stop-arm E is provided with a set-screw *h*, the point of which enters a longitudinal groove *h*′ in the rod C, and the attendant may engage the frame $h^2$ and slide the hub and the hub of the carrier *d* longitudinally upon the rod, so as to place the former opposite the narrow strip $r^2$ or the broad strip $r^3$. The attendant having, while the parts were in the position Fig. 1, applied a strip to the side faces of the box or cover without removing the box or cover will turn the tipping frame B about its pivot $b^2$, placing the broad flat top of the former uppermost, just below the table *s*″, and will move the hub E′ until the former is in just the proper position opposite the strip $r^3$. Then the operator, by pressure upon the parts, will move the carrier *d* back in the direction of the arrow 10, Fig. 3, until the stop-screw $d^5$ meets the stop-arm E, and then he will seize the end of the strip $r^3$, pull it out, attach it to the bottom of the box or top of the cover near the outer end of the former, and will then operate the parts to cut off the strip for the proper length. The carrier will then be tipped forward, leaving the former in substantially the position Figs. 2 and 3, and while in such position the attendant will properly lay the strip upon the bottom of the box or top of the cover. This done, the hub may be moved in the reverse direction and the tipping frame again tipped over into the position, Fig. 1, ready for the narrow strip $r^2$. When the former is tipped over into the position, Fig. 1, the pin or projection 3 meets the pin or projection 4 and maintains the shank of the former in substantially horizontal position.

Having described my invention, I claim—

1. In a machine for stripping or surfacing boxes, a rotatable former to hold the box, a tipping frame provided with bearings to receive loosely the shank of the former, and a carrier supported, substantially as described, to be moved about a center at right angles to the pivot of the tipping frame, and a shank supported in said carrier and bent to form a pivot for the tipping frame, whereby the same former may be placed with its edge or top uppermost to strip or surface either the side faces or the bottom or top of a box or cover, substantially as described.

2. The rod C, the hub E′, having a stop-arm, the carrier loosely mounted upon said rod and provided with an ear $d^3$ and an adjusting-screw on opposite sides of the stop-arm, and adjustable pivot $b^2$, combined with a tipping frame mounted thereon and provided with bearings to receive the shank of

the former loosely, to operate substantially as described.

3. The tipping frame B, having bearings, the former having its shank placed loosely in the said bearings, and a spring surrounding the said shank between the bearings and attached at one end to said shank, combined with a notch in the upper side of one of said bearings and a projection on the under side of the former to enter said notch, whereby when the shank is in substantially horizontal position the spring moves said shank longitudinally and effects the disengagement of the projection from the notch and when the shank is in substantially vertical position the weight of the former overcomes the strain of the spring and forces the projection to engage the notch, substantially as described.

4. The rod C, the carrier *d* thereon, and the tipping frame pivotally connected to the said carrier and having bearings for the shank of the former, combined with the said former and its shank extended into the said bearings and rotatable therein, and a spring-controlled locking device to lock the former from rotation when the tipping frame is in substantially vertical position and to unlock the former when the frame is in substantially horizontal position, substantially as described.

5. In a machine for stripping or surfacing boxes, the rod C, the rigid stop-arm mounted thereon, the carrier also mounted thereon loosely, limiting-stops on the carrier to abut against said stop-arm, and a tipping former mounted upon the carrier, the said carrier and stop-arm being adjustable longitudinally upon the rod C, as and for the purpose set forth.

6. In a machine for stripping or surfacing boxes, the rod C, the curved stands C′, constructed substantially as described and mounted in bearings in which they are adapted to rotate, and adjusting devices therefor, combined with a carrier loose upon said rod, a tipping frame mounted upon the said carrier, and a former having its shank inserted in bearings of the said tipping frame, substantially as described.

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

GEORGE A. WILLIAMS.

Witnesses:

BERNICE J. NOYES,

EDWARD F. ALLEN.