

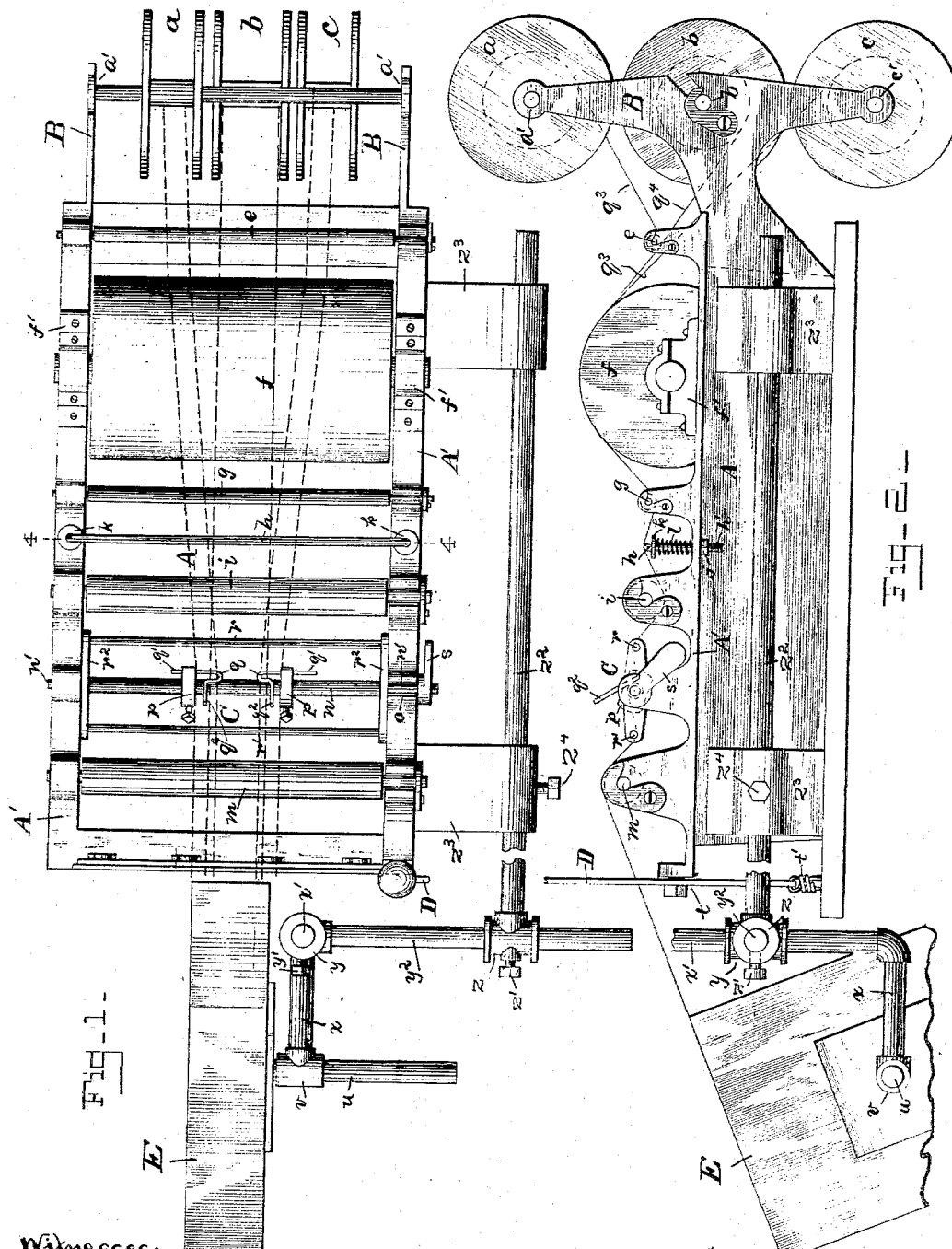
(No Model.)

3 Sheets—Sheet 1.

I. G. RAFFEL.
PAPER BOX COVERING MACHINE.

No. 490,124.

Patented Jan. 17, 1893.



Witnesses:

Otto H. Ehlers.
J. Parker Davis.

Inventor:

I. G. Raffel

By
Chas B. Mann
Attorney.

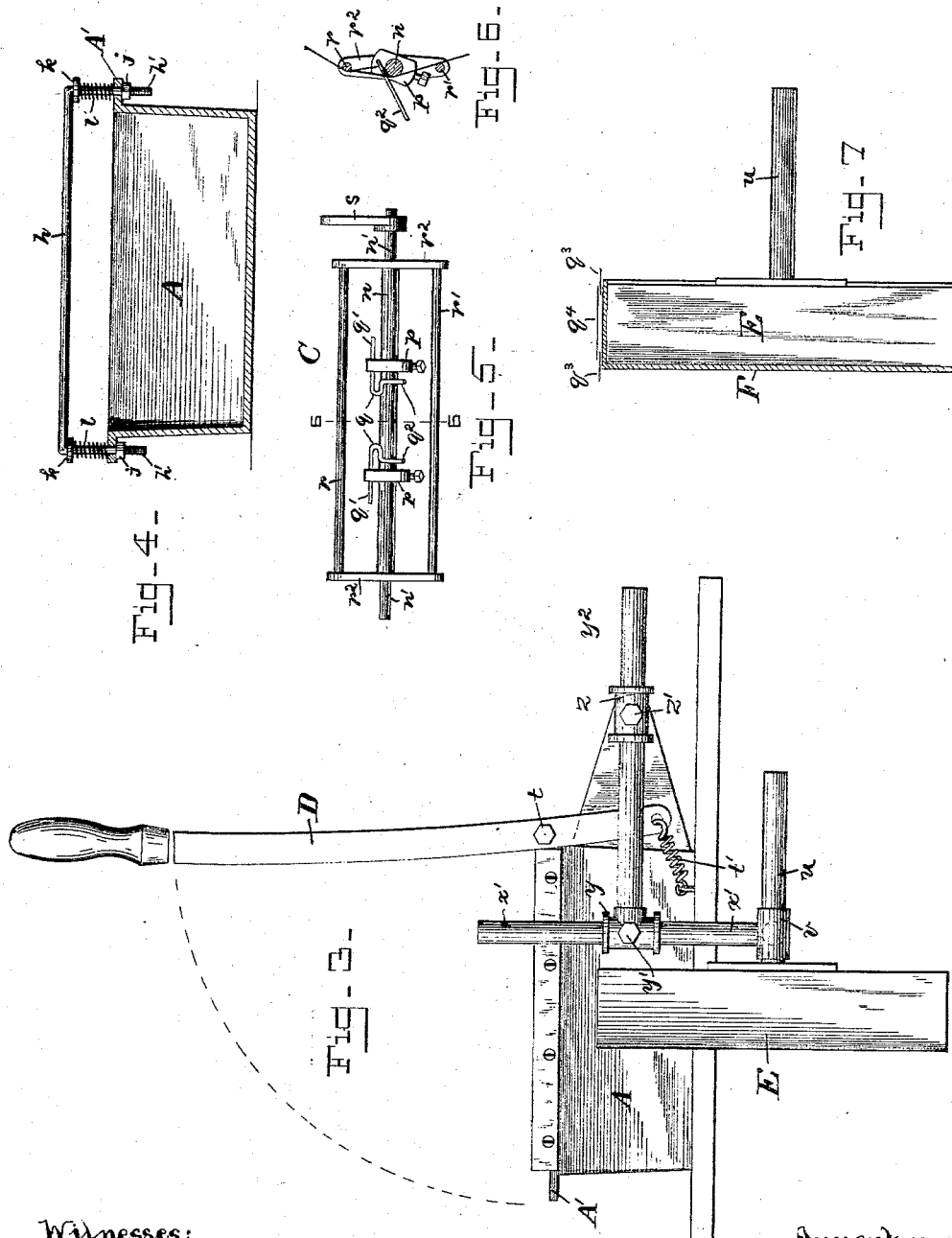
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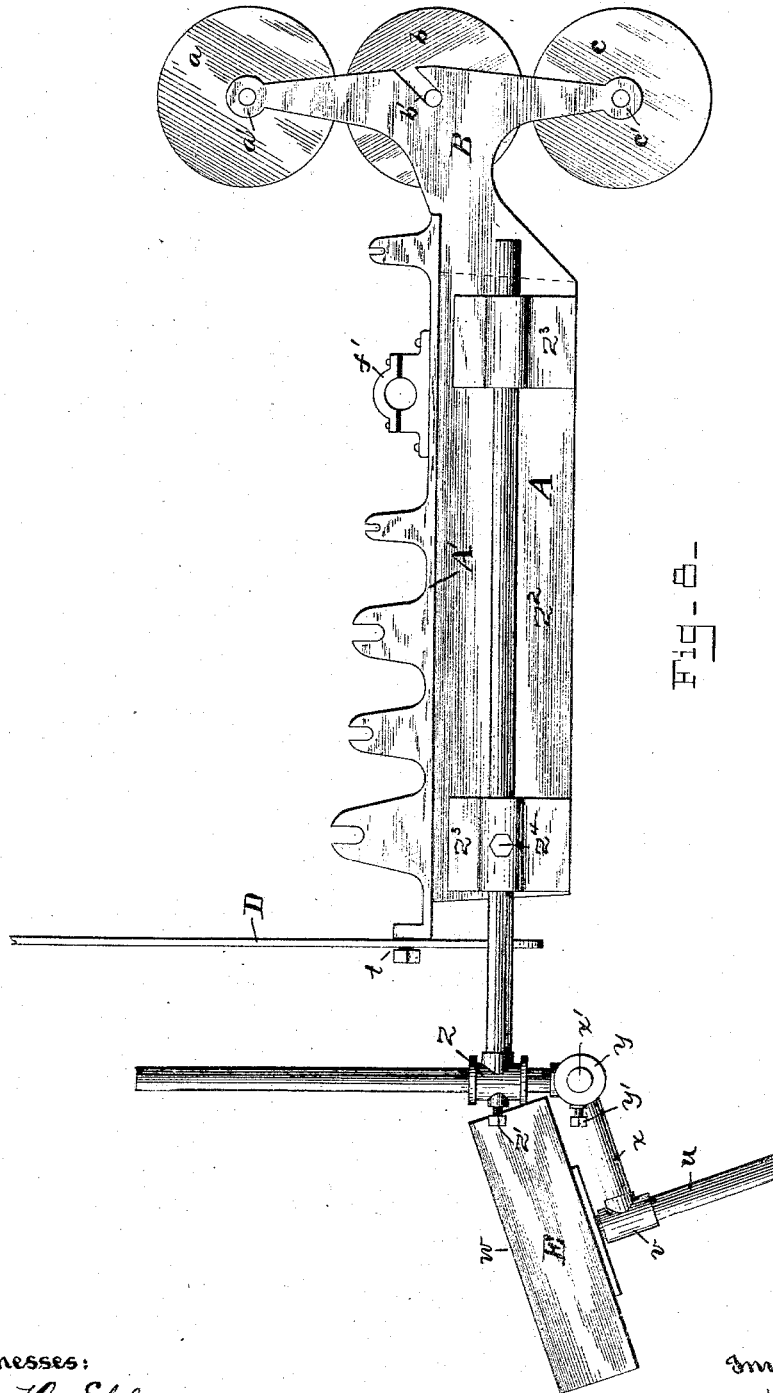


Fig. 3--

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I. G. Raffel

UNITED STATES PATENT OFFICE.

ISAAC G. RAFFEL, OF BALTIMORE, MARYLAND.

PAPER-BOX-COVERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 490,124, dated January 17, 1893.

Application filed January 22, 1892. Serial No. 418,887. (No model.)

To all whom it may concern:

Be it known that I, ISAAC G. RAFFEL, a citizen of the United States, residing at Baltimore city, in the State of Maryland, have invented certain new and useful Improvements in Paper-Box-Covering Machines, of which the following is a specification.

This invention relates to an improved machine for covering boxes with paper.

The invention will first be described and then pointed out in the claims.

In the accompanying drawings which illustrate the invention,—Figure 1 is a plan view of the machine; Fig. 2 is a side view of the same; Fig. 3 is an elevation at that end where the attendant has position. Fig. 4 is a cross-section of the machine on the line 4—4 of Fig. 1; Figs. 5 and 6 are views of the paper-guide device; Fig. 7 is a view of the revolving box-holder showing in section a paper box in position thereon and the position of three pieces of paper when they are applied to the box; Fig. 8 is a side view of the machine showing the revoluble holder turned laterally to serve as a stand.

The letter, A, designates the paste-receptacle which, as here shown, is of rectangular form. Projecting from the rear end of this receptacle are two arms, B, on which the three paper-rolls or spools, *a*, *b*, *c*, are mounted; each of said arms have three bearings *a'*, *b'*, *c'*, for the shafts of the paper-rolls. Each roll has two circular heads; the two side rolls, *a*, *c*, are for narrow strip paper, and the other roll, *b*, is for wider strip paper.

The several guide-devices, paste or size roller, and tension-bar hereinafter to be described are all mounted on the top rim, A', of the side walls of the paste-receptacle. At the rear end is a small guide-roller, *e*, under which passes the paper strip from the upper roll, *a*. The size roller, *f*, has its bearings *f'* on the rim, A', of the paste or size box. Adjoining this size roller is a guide-roller, *g*, under which all the paper strips pass. Another guide-roller, *i*, is located a little farther on under which also the paper strips pass, and between the two guide-rollers, *g*, and *i*, is a horizontal tension bar, *h*, over which the paper strips pass. This tension bar has at each end an angle-bent or downwardly-extending leg, *h'*,

which passes freely through a hole or bearing in the top-rim, A', and a nut, *j*, below the said rim secures the leg from withdrawal. The leg at its upper part has a shoulder or collar *k*, and a spiral spring, *l*, is around the leg and between the top rim, A', and the said collar, *k*. These springs keep the tension bar, *h*, elevated but allow it to yield if the paper strips which pass over it bear down with a certain pressure.

Another roller, *m*, mounted near the front end of the paste receptacle serves for the paper strip to pass over after leaving the guide-roller, *i*.

Between the roller, *i*, and the last roller, *m*, is a triple paper-guide, C, of new and improved construction, see Figs. 1, 2, and 5. This triple guide comprises a shaft, *n*, with its ends, *n'*, seated in bearings, *o*, on the top-rim; and two collars, *p*, are on the shaft and each carries a wire guide, *q*, for narrow strips of paper. Each wire guide has a straight shank-part, *q'*, which passes horizontally through a hole in the collar, *p*, and fits the hole so snugly that it will remain wherever adjusted,—the guide *q*, is formed by the loop-bend in the wire, and the end, *q''*, projecting upward from the loop-bend serves as a handle to effect adjustment in the width of the guide loop and also as a guide for one edge of another wider strip of paper. The two guide loops, *q*, each serve to guide a narrow strip of paper, *q''*, see Fig. 7, to cover the angle or edge of a box, or box-cover and the two upward-projecting ends, *q''*, together serve to guide a wider strip of paper *q'*, which covers the side of a box or box-cover, and when pasted on the box laps over on to both of the said narrow strips, as indicated in Fig. 7. The triple-guide in the present instance also has two guide-bars, *r*, *r'*, parallel with the shaft, *n*; these bars have their ends connected with cross-heads, *r''*, fixed on the shaft so that, when the shaft is turned or partly turned the position of the cross-heads and guide-bars, *r*, *r'*, will be changed. The object of this tilting of the cross-heads is to enable one guide-bar to be raised and the other lowered as may be desired, relatively to the shaft, so as the better to co-operate with the guide loops, *q*. One of the ends, *n'*, of the shaft is

screw-threaded and an arm or lever, *s*, is fitted thereon and by turning serves as a clamp-nut to tighten against the side of the bearing, *o*, and thus hold or retain the triple-guide device with the guide-bars, *r*, *r'*, in such position relative to the shaft as may be desired. Each collar, *p*, has a set-screw which impinges against the shaft and which serves to retain the collar and guide-loop wherever it may be set. By shifting the collars on the shaft longitudinally the space between the two upward-projecting ends, *q*², may be increased or lessened and thereby adapted for a strip of paper wider or narrower.

The paper strips after passing under the roller, *v*, pass to the triple-guide as follows: first over the first guide-bar, *r*, then through the guide-loops, *q*, and over the shaft, *n*, then under the second guide-bar *r'*, and finally over the roller, *m*. It will be seen that the three strips pass over the paste roller separately so as to all take paste on their under sides and are then gradually drawn together and pass through the triple guide-device with the wide strip overlapping the other two.

At the front end of the machine is a suitable cutter or knife to cut the paper strips; this knife may be constructed in any preferred manner. In the present instance a blade, *D*, is pivoted at, *t*, and moves in a vertical plane to clip the paper strips after passing the roller, *m*; a spiral spring, *t'*, holds the blade normally elevated.

A revoluble box- (or box-lid-) holder, *E*, is mounted at the front end of the machine to support the box, or cover as may be, while the paper strips are being applied to it. This box-holder has a spindle, *u*, fixed to its center at one side, and the spindle fits and turns in a bearing, *v*, so that the box-holder when in the position shown in Figs. 1 and 2 may revolve in a vertical plane, and in line with the said paper strips as they extend from the rolls, *a*, *b*, *c*, at the rear end.

The operation of the machine is as follows:—The receptacle, *A*, must be charged with the paste or size as usual, and the rolls, *a*, *b*, *c*, must be filled with paper strips wound thereon. The strips must be strung or adjusted under and over the rollers and tension bars, as already described, see Fig. 2, and through the triple guide, *C*; the box, or cover, *F*, to which the paper is to be applied, is placed on the holder, *E*, as in Fig. 7, and then the paper strips, designated, *q*³, in Fig. 2, pass from the roller, *m*, to the box, or cover, on the said revoluble holder. By the attendant simply turning the holder on its spindle, the three paper strips will all be drawn at one time through the machine, and at the same time applied in their proper position relative to each other to fit on the box, as indicated in Fig. 7; one of the narrow strips, *q*³, will be applied to the corner-angle of the box, or cover, *F*, and the other strip, *q*³, to the edge, while the broad strip, *q*⁴, will cover the side of the box and lap over on to both of the narrow

strips. By this combination of triple-guide and revoluble holder, this machine is adapted to apply to a box three paper strips at the same time.

The bearing, *v*, in which the spindle of the holder revolves may be supported in any desired manner, but I have provided means for supporting it which enable it to be adjusted in two directions, first toward or from the front of the machine, and second up or down with respect to the front of the machine. Also the holder may be turned laterally from the position shown in Figs. 1 and 2 to bring its broadest surface, *w*, upward or uppermost as shown in Fig. 8 and there held stationary in order that paper coming from the roller, *m*, may be applied to a box or lid on its bottom or top. I may thus use the machine, when the holder is adjusted in the position shown in Fig. 8, to apply one broad strip upon the top surface of the lid or upon the bottom surface of the box.

By this machine I am able to apply paper to the sides of either a box or lid which is termed "covering," and also apply to the bottom and top.

The improved adjustment consists of a right-angle arm, *x*, *x'*, to one end, *x*, of which the bearing, *v*, is attached while the other end, *x'*, passes through a clamp-collar, *y*, provided with a set-screw, *y'*; the said collar, *y*, is on the end of an arm, *y'*, crosswise of the machine and which passes through another clamp-collar, *z*, having a set-screw, *z'*. This second collar, *z*, is on the end of a rod, *z*², extending in a direction lengthwise of the machine and held in two bearings, *z*³, one of which has a set-screw, *z*⁴, to hold the rod in the position desired. By means of these adjusting devices I am enabled to locate the holder, *E*, at any desired position either to be revolved, or to be held stationary in the turned-up position.

It is obvious that various parts of the construction shown in the drawings may be varied or modified and yet perform the same functions, my invention, therefore, is not limited to the precise structure shown.

Having described my invention, I claim:

1. The triple paper-guide comprising a shaft, *n*, two guide-loops, *q*, adjustably connected with the shaft,—each loop serving as a guide for a separate strip, and each guide-loop having a projecting end,—said two projecting ends together serving as a guide for another strip.

2. The combination of a shaft mounted in bearings so as to tilt; two guide-loops adjustably connected with the shaft; two cross-heads, *r*², fixed on the shaft; two guide-bars attached to said cross-bars and extending parallel with the shaft; and a clamp device to hold the shaft in any tilted position where it may be set, as set forth.

3. In a box-covering machine, the combination of a rod projecting from the end of the machine and having a clamp-collar at its outer end; an arm fitting removably through said

collar at right angles to the rod and arranged
to slide in the collar and be set at different
adjustments therein,—said arm carrying at
one end a clamp-collar; a right-angle arm one
5 member of which fits removably through said
last-named clamp-collar at right-angles to the
arm carrying the latter, and may slide in said
collar and be set at different adjustments
therein, and the other member of which car-

ries a bearing at its end; and a holder for the ro
box having a stem fitting through said bear-
ing and revoluble therein.

In testimony whereof I affix my signature in
the presence of two witnesses.

ISAAC G. RAFFEL.

Witnesses:

CHAS. B. MANN,
F. PARKER DAVIS.