

(No Model.)

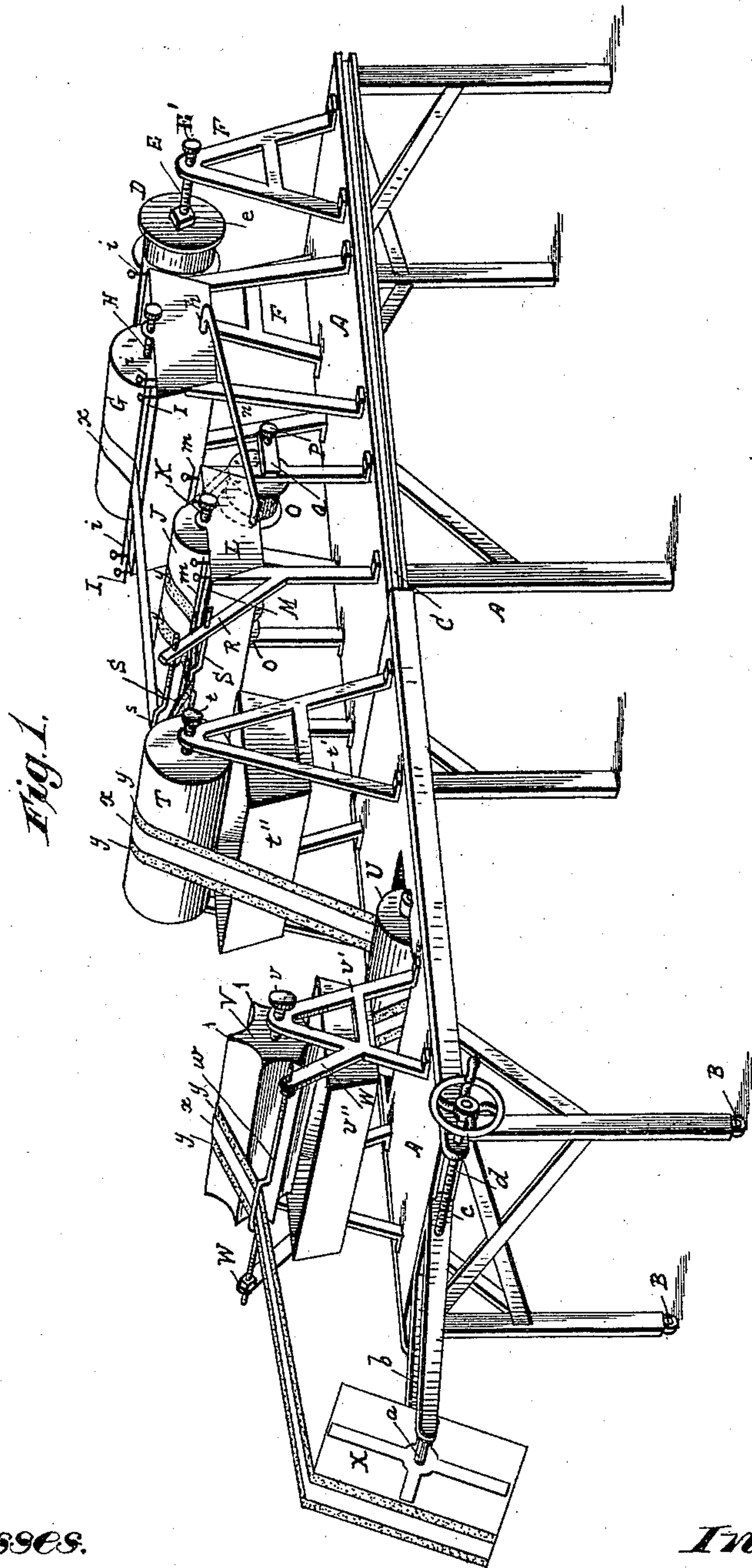
2 Sheets—Sheet 1.

G. MUNRO.

BOX COVERING AND TRIMMING MACHINE.

No. 298,879.

Patented May 20, 1884.



*Witnesses.*

*Robert Everett,*

*Walter Blandford*

*Inventor.*

*Gordon Munro*

*By* *Manuel Daryl*  
*his Atty.*

(No Model.)

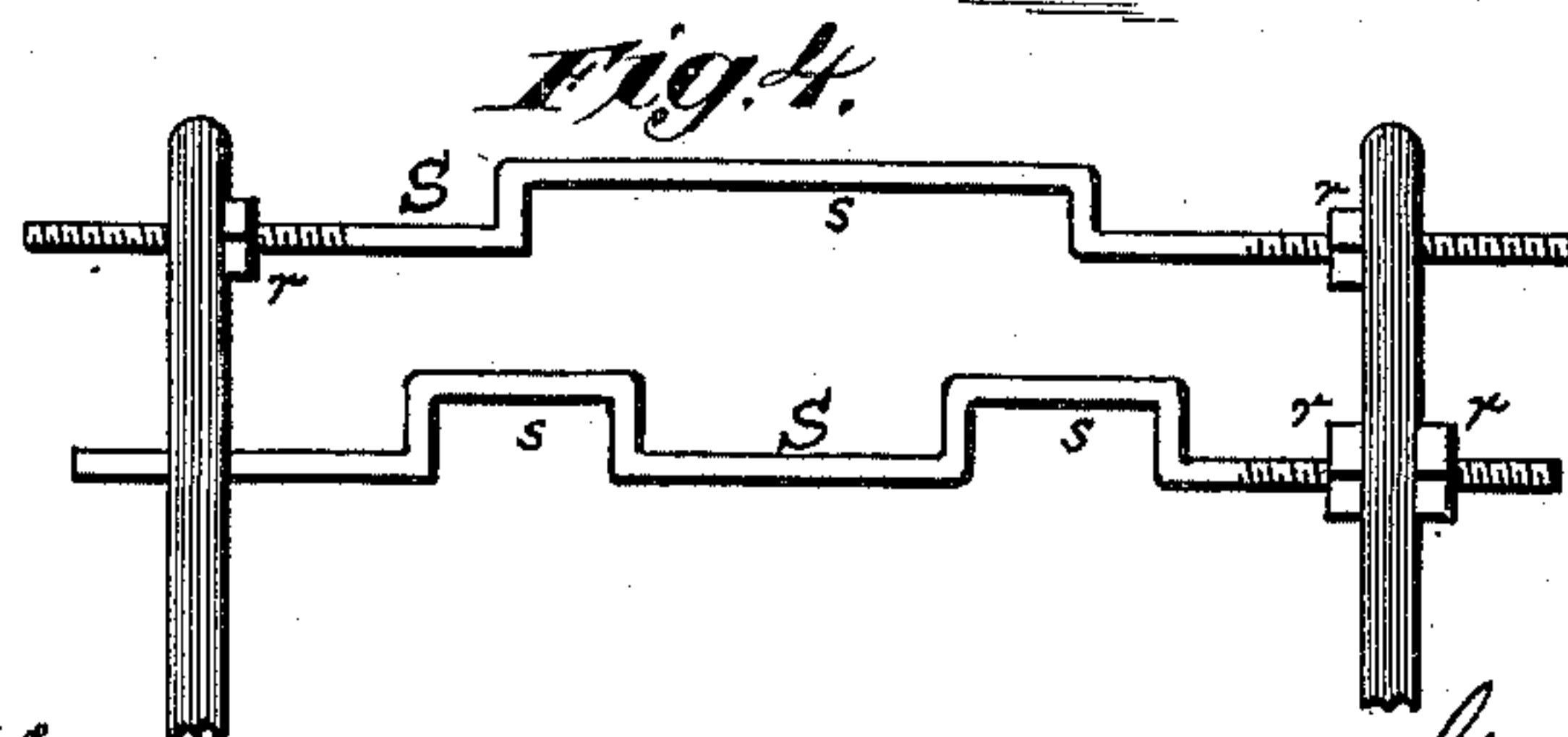
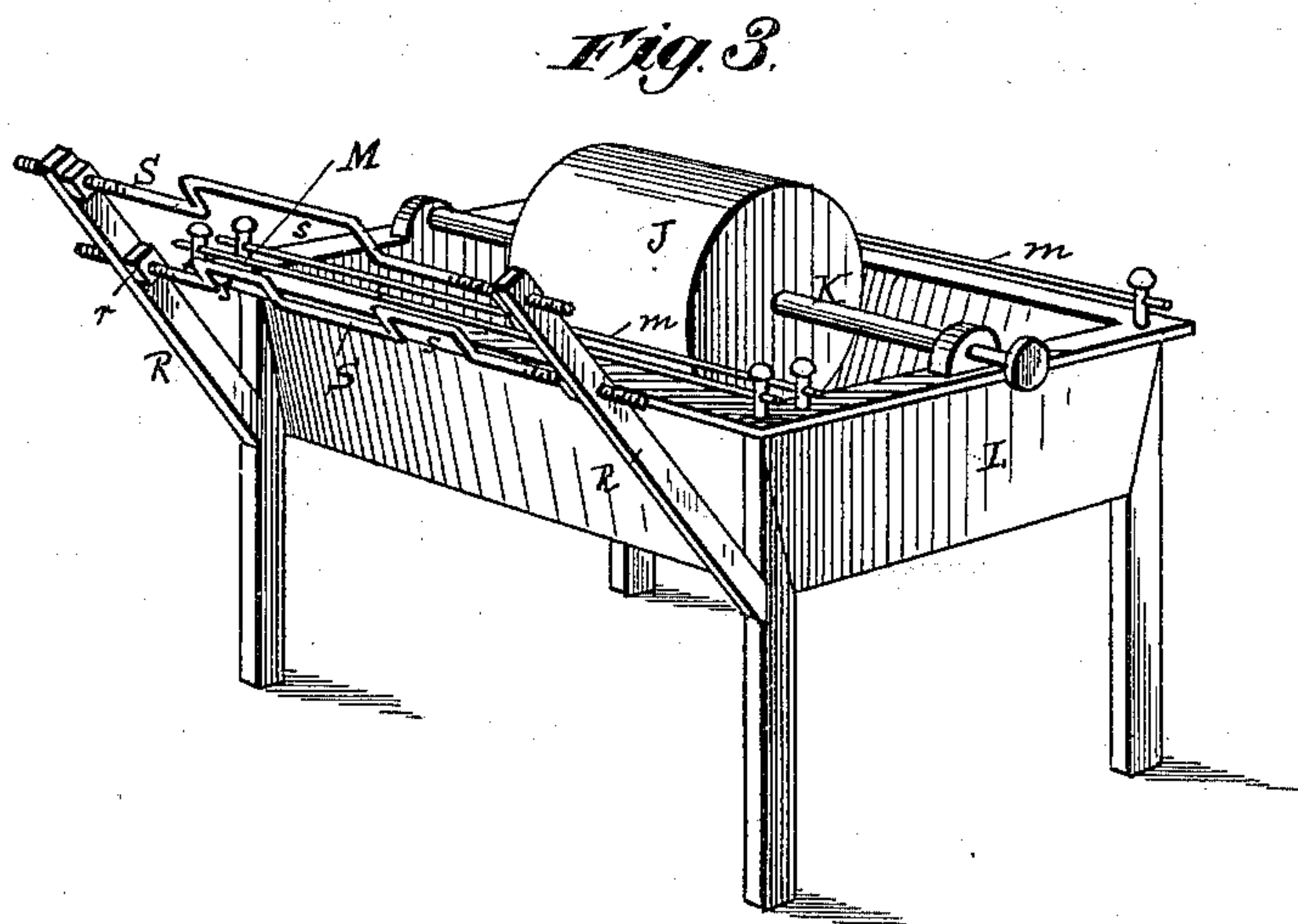
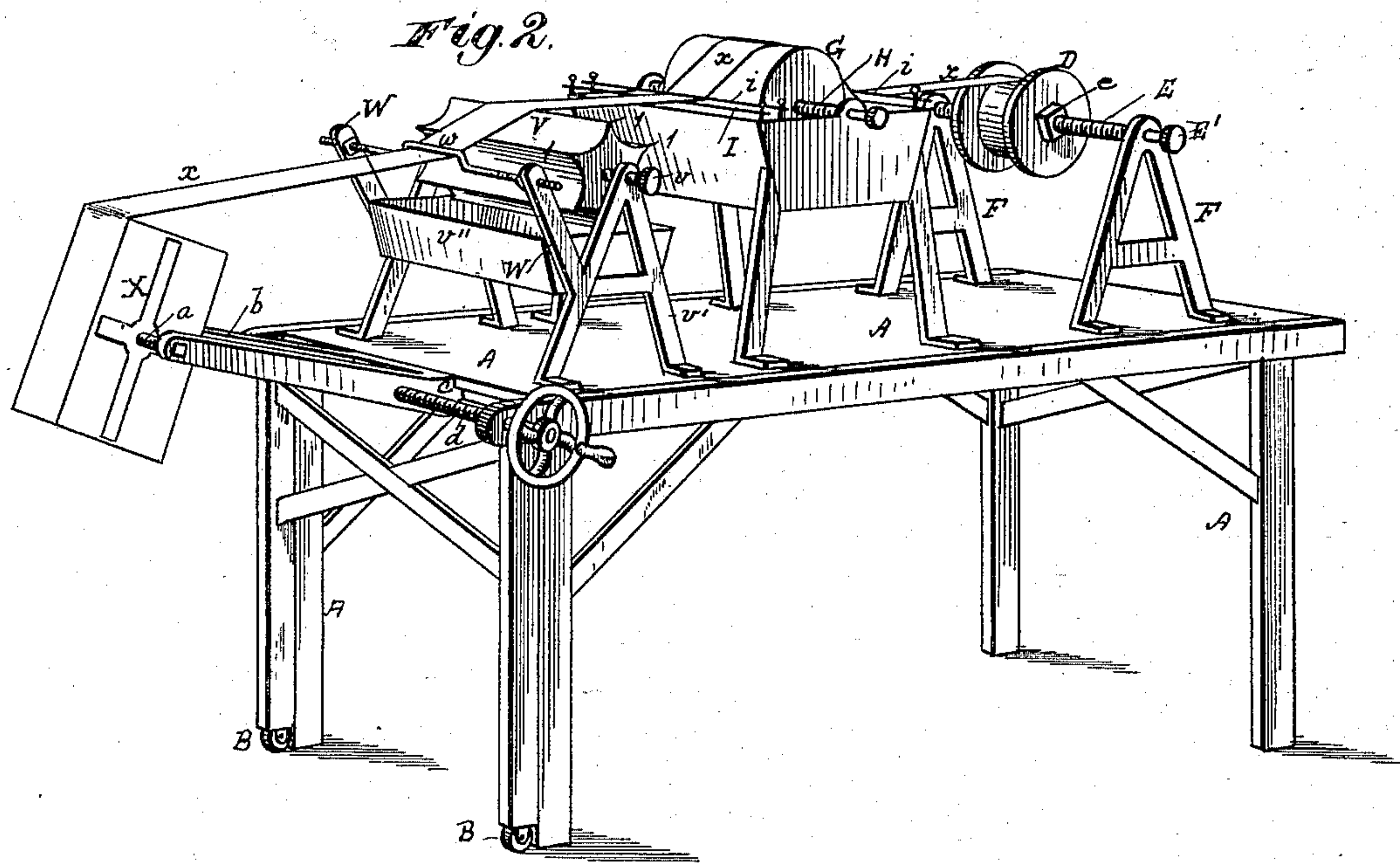
2 Sheets—Sheet 2.

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Witnesses.

Robert Corbett

Walter Blandford

Inventor.

Gordon Munro

By Maxwell Parry  
his Atty.



# UNITED STATES PATENT OFFICE.

GORDON MUNRO, OF TROY, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS,  
TO THE AMERICAN BOX MACHINE COMPANY, OF NEW YORK.

## BOX COVERING AND TRIMMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 298,879, dated May 20, 1884.

Application filed March 13, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, GORDON MUNRO, a citizen of the United States, and a resident of the city of Troy, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in Box Covering and Trimming Machines, of which the following is a specification.

This invention relates to the class of machines employed for applying an external covering or surface, of paper, cloth, or other such material, to boxes and box-covers which have been already entirely or partially formed; and it embodies improvements upon the invention patented by me in United States Letters Patent dated July 26, 1881, and numbered 244,919, and by its use a plurality of strips or pieces of covering material, and covering and trimming material combined, which may differ in color, width, and fabric, may be simultaneously applied to the box or cover.

Figure 1 illustrates the complete apparatus in perspective. Fig. 2 illustrates the table as it appears when not extended. Fig. 3 illustrates one of the paste-boxes with the guides attached thereto. Fig. 4 illustrates the guides, showing their capacity for adjustment.

Like letters indicate like parts in all the figures.

A is the frame of a table or bench, made of any suitable material. It may be braced, strengthened, and ornamented as desired. I prefer to make this table or bench in sections, so that it shall be capable of longitudinal extension, if desired, the legs of the movable part being, preferably, provided with casters B, to facilitate such extension, and the two parts may be steadied and held in engagement with each other in any desired manner. For this purpose I have illustrated in the drawings an ordinary tongue-and-groove sliding joint, as at C. This feature is at times desirable for the purpose of shortening it when but few tempering-rollers are required, or when a material not requiring tempering is used, or when the trimming-strip attachment is not desired, and thus save factory space.

In Fig. 2 the top of the extension part, together with parts carried by it, has been removed, leaving only side rails and the front cross-rail and box-support carried thereby, the

said part has been closed up on the other, the rolls J T and their appurtenances have been removed, and in their place has been substituted the final tempering-roller V and its appurtenances, formerly on the extension part. The machine thus contracted can be used for applying a covering-strip.

D represents a reel containing a roll of covering-paper or other material, or it may be a roll of such material not upon a reel, if desired. It is supported upon a shaft, E, which shaft rotates on pivot-screws E' in suitable frames or other supports, F, and is preferably provided with a friction attachment; and G is a roller for applying any desired adhesive substance to the material. I will designate the rollers for applying the adhesive substance "paste-rollers;" but paste, glue, or any other suitable adhesive substance, hot or cold, may be used. The roller G revolves on a shaft, H, within a double-bottomed paste-tank provided with heating appliances h, and with an adjustable paste-scaper, I, which is not so sharp as to cut the material, and with the bars i i to hold the strip to the roller, all as set forth in my said former patent, and which do not require further explanation here, save only to state that I make the reel, or the roll of material, adjustable laterally in either direction on its shaft E by clamping it between two disks or washers, e, which are threaded on the inside, and through which the shaft E passes, which is also threaded its entire length. By this means I am enabled not only to determine the starting-point of the covering material, but I am enabled to put any number of reels or rolls containing the same material or differing materials and of different colors on this shaft, and confine them in their proper place by clamping-disks furnished for each reel or roll, whereby the material will be properly fed to the paste-roller, and be kept in right lines with the guides and the trimming material, as hereinafter described, whereby not only is the work more accurately done, but the strain or pull on the material is kept in a straight line, and not on one edge more than the other. This reduces the liability of breaking the strip.

J is another paste-roller, supported on its shaft K, and revolving in its paste or glue



tank L, which is preferably provided with a double bottom for heating the paste or glue, and is also furnished with the scraper M, and strip-confining bars *m*, all substantially the same as the paste or glue roll G.

O is a second reel, upon which is wound the trimming material, or it may be a roll of such material not on a reel. This is supported on a shaft, P, which is supported by and rotates in the brackets Q, which extend rearwardly from the supporting-frame of tank L. This reel or roll may be supported on a frame entirely separate and independent of the tank L, if desired, and its shaft is furnished with the friction appliance, screw-threads, and reel-locating disks, the same as the reel D, and for the same purposes. In the particular arrangement shown in the drawings the covering-strip is bounded on each edge by a trimming-strip, and there are, as shown, two reels O on shaft P, one for each trimming-strip. Of course, if but one trimming-strip is used, only one reel or roll O will be required.

At the front side of the tank L, I provide two upwardly-extending rigid arms, R R. (Best seen in Figs. 3 and 4,) They are there shown as attached to the frame of the tank L. They may, however, be entirely separate and independent from the tank, deriving support from the table or any other suitable part of the apparatus. A continuous slot or suitable holes are made in the upper part of these arms to receive and support the guides S. These guides are metallic rods in which are formed bends or recesses *s*, which are made of such size as will conform, respectively, to the width of the covering and the trimming material being used; and these guides should have as many such recesses as there are separate strips of the covering or the trimming material, and the bends are located on the rods, and the rods are adjusted laterally in relation to each other, so that the desired relation of the trimming and the covering strips will be secured. The guide-rods are somewhat longer than the distance between the arms R R, and the ends, or one of them at least, are threaded, and are provided with threaded nuts *r r*, whereby the guides may be laterally adjusted across the machine by running the nuts both to the left or both to the right until they impinge against the arms R R, one or both, as the case may be. The paste, glue, or other adhesive substance in these tanks may be kept warm and fluid by means of a lamp placed under them, water being placed in the jacket; or, as shown in the drawings, they may be heated by steam, and the exhaust from one may pass into the other by means of the pipe *n*, and any suitable escape for the condensed steam and for the purposes of circulation provided from the second tank. I do not limit myself, however, to these double bottomed or jacketed tanks, for a single-bottomed pan-like receptacle will operate quite well, especially if paste or any suitably-prepared adhesive substance be used.

T is a roller turning on a shaft or points, *t*, which is supported on a frame, *t'*. It is preferably placed immediately in front of the guides. Upon this roller the covering and the trimming-strips are brought in contact with each other and united, and beneath it I place a pan, *t''*, to catch any surplus glue or paste which may be squeezed out from between the strips and the roller.

U is another roller, located below the roller T and in front of it. It is supported on a properly-sustained shaft; and V is another roller, placed above the roller U, and in like manner supported on a shaft or points, *v*, and frame *v'*, and, if desired, provided with a drip-pan, *v''*, the same as the roller T. The rollers U and V are "tempering-rollers," the function of which is to increase or decrease the time required for a given point on the material to travel from the paste-tanks to the box or cover, thus giving the paste or glue an opportunity to more or less penetrate the material, as required. At the front side of the roller V, I provide two upwardly-projecting rigid arms, W W, substantially the same as the arms R R, which support a guide, *w*. This guide may be made adjustable laterally across the machine, as the other guides are; but this will not usually be necessary, because the lateral adjustment of the box or cover support X, hereinafter to be explained, affords adjustment at this point. The bend or recess in the guide *w* should be of such width as to conform to and guide the combined covering and trimming strips, and the guide *w* should be placed as near as practicable to the box and cover supporter X, the better to apply the combined strips to the box or cover. As stated, X is a support or form upon which the box or cover is placed. This support may be of any shape to conform to that of the box or cover. It is fastened upon a short shaft or arm, *a*, which projects, preferably at right angles, from the forked carrier-arm *b*. This arm *b* is rigidly attached to a carrier-block, *c*, which moves in any suitable ways fastened on or made in the end of the table, and is moved back and forth by the threaded shaft *d*, which engages with screw-threads in the carrier-arm *b*, or the block *c*, as desired.

The operation is as follows: The covering-strip *x* starts from the reel or roll D; thence it passes over the paste-roller G, where it receives the paste or glue, the surplus being removed by the scraper I; thence it passes to the upper guide, S, and through the bend or recess in it, which is adapted to fit and guide it. This guide is adjusted between the arms R R, to correspond to the adjustment of the reel or roll D. The trimming-strips *y* (there being two shown in the drawings) start from the reels or rolls O, receive glue or paste from the paste-roller J, the surplus being removed by the scraper M, and thence pass to the lower guide, S, each of the bends of which receives one of the strips. This guide is so



adjusted relatively to the other one that it will apply the trimming-strips to the covering-strip, as may be desired. After passing through the guides the strips all pass over the roller T, where they are brought in contact with each other and adhere together, and any excess of paste or glue which is squeezed out between the roller T and the strips is caught in the drip-pan *t'*. Thence the strips, now united, pass downward around the roller U, and thence up over the roller V and through the guide *w*, and are applied to the box or cover by the operator, who turns it with his hand. The box or cover is properly located laterally by laterally adjusting the box support or form X. It will thus be seen that the reels or rolls being laterally adjustable on their shafts, (each shaft having one or more such reels or rolls, as desired,) and the guides also being laterally adjustable in the arms R R, and provided with one or more bends to receive and guide one or more trimming or covering strips, a great variety of combinations of covering and trimming strips can be made, either for ornamentation or economy.

For the purpose of properly "tempering" the strips there may be additional rollers placed between the second paste-tank and the guides adjacent thereto. This may be necessary sometimes, because the strip or strips coming from the shaft E will have received the paste or glue before the strip or strips coming from the shaft P receive it, and thus the "temper" of the two strips be different, which may occasion wrinkles or imperfect adhesion; also, any desired number of rollers and any desired space may be interposed between the uniting-roller T and the last roller, V, to give the desired temper to the united strips before they are applied to the box or cover.

I prefer to form upon the surface of the rollers which are located between the box-supporting form X and the roller T, and against which the glued or pasted side of the material presses, longitudinal ridges, as shown at 1, the outer edges of which are of small area, and I put them sufficiently close together, so that the material will span from one ridge to the other, not coming in contact with the surface of the roller, because the glue or paste has become partially set and is very adhesive by the time it reaches these rollers, and is apt to stick to the rollers to such a degree that the pull might break the material. The rollers other than the paste-rollers and the uniting-roller, which should preferably be truly cylindrical and have smooth surfaces, may be made in any desired manner—for example, as reels are made, being composed of a number of bars set in heads at each end; and in order that the covering and trimming material may have at all times the same degree of tension on the machine, and may not slacken up when cut off, consequent on the completion of a box, I apply slight friction to the shaft of the last

roller—*i. e.*, the one adjacent to the box-form—or in any other suitable manner prevent this roller from turning backward when the material is cut off. This friction may be applied to any other of the rollers in front of the uniting-roller, or to the uniting-roller itself, if preferred, because the difficulties arising from the slackening up of the material occur more especially between the paste-rollers and the uniting-roller.

I have shown the guides so adjusted vertically relative to the paste and uniting rollers that the unpasted sides of the strips touch the guides. I think this is the better plan, but I do not limit myself to such construction. The pasted sides may come in contact, if desired.

I do not limit myself to the details of construction described, for they may be considerably varied and still embody my invention.

I claim as new and desire to secure by Letters Patent—

1. The described method of covering boxes, consisting in simultaneously winding upon the box a plurality of strips with their pasted sides all facing one way, and with the strips overlapping, all substantially as described.

2. An apparatus for applying simultaneously a plurality of strips to a box, consisting of a rotatable box-support, reels for the strips, pasting mechanism, and guiding mechanism for the several strips, whereby they are caused to overlap, and a suitable supporting-frame, all substantially as described, whereby the strips are pasted, overlapped, and wound upon the box, as set forth.

3. An apparatus for applying simultaneously a plurality of strips to a box, consisting of a suitable supporting-frame, a rotatable box-support, reels for the strips, pasting mechanism, and laterally-adjustable guiding mechanism for the several strips, all substantially as described.

4. An apparatus for applying strips to a box, consisting of a suitable supporting-frame, a laterally adjustable and rotatable box-support, reels for the strips, pasting mechanism, and guiding mechanism, all substantially as described.

5. The combination of the pasting mechanism, the tempering-rollers, and the laterally-adjustable rotary box-support, substantially as and for the purpose hereinbefore set forth.

6. The trimming and covering strip reels, placed one above the other and laterally adjustable with reference to one another, for the purpose of regulating the overlapping of the strips, in combination with the pasting mechanism and the tempering-rollers, substantially as and for the purposes hereinbefore set forth.

7. The combination of the pasting mechanism, the tempering-rollers, the trimming and covering strip reels placed one above the other and laterally adjustable with reference to one another, and the laterally-adjustable rotary box-support, substantially as and for the purposes hereinbefore set forth.



8. In a box-covering machine, a tempering  
or supporting roller for the pasted strip, fluted  
or ribbed for the purpose of reducing the sur-  
face with which the pasted side of the strip  
5 makes contact, substantially as hereinbefore  
set forth.

9. The method herein described of produc-  
ing the compound covering and trimming  
strip from a plurality of strips in the roll,  
10 consisting in feeding the covering and trim-  
ming strips continuously along, and during  
their movement first automatically applying  
to one side or face of each strip paste, then  
bringing the several strips together, with  
15 their pasted faces all on the same side, and in

such position that they shall overlap one an-  
other, and finally uniting them together in this  
position, thus producing a compound covering  
and trimming strip composed of a plurality of  
overlapping strips, and coated on one side or 20  
face only with adhesive substance, all substan-  
tially as hereinbefore set forth.

Signed at New York, in the county of New  
York and State of New York, this 6th day of  
March, A. D. 1883.

GORDON MUNRO.

Witnesses:

JOHN J. CAULDWELL,  
PHILLIPS ABBOTT.