Oct. 14, 1952 W. C. RENNE 2,613,632

WALLPAPER PASTING AND TRIMMING MACHINE

Filed Sept. 18, 1950 4 Sheets-Sheet 1

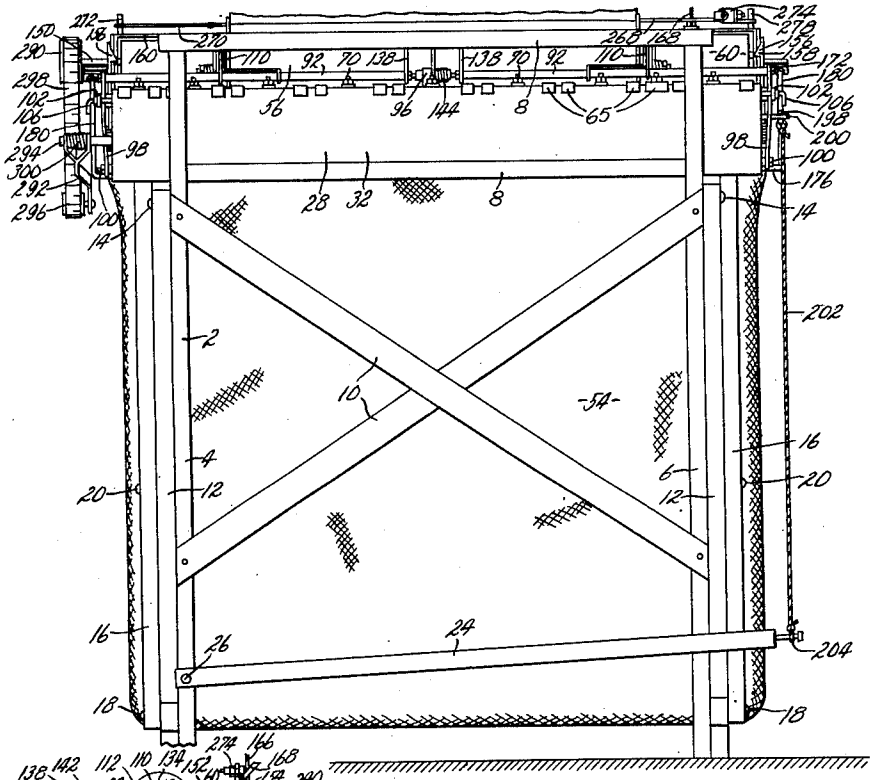

Fig. 1

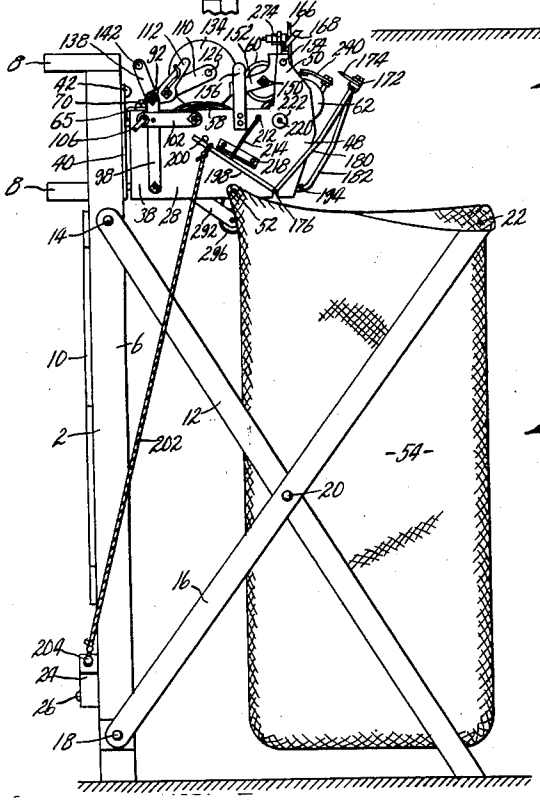

Fig. 2

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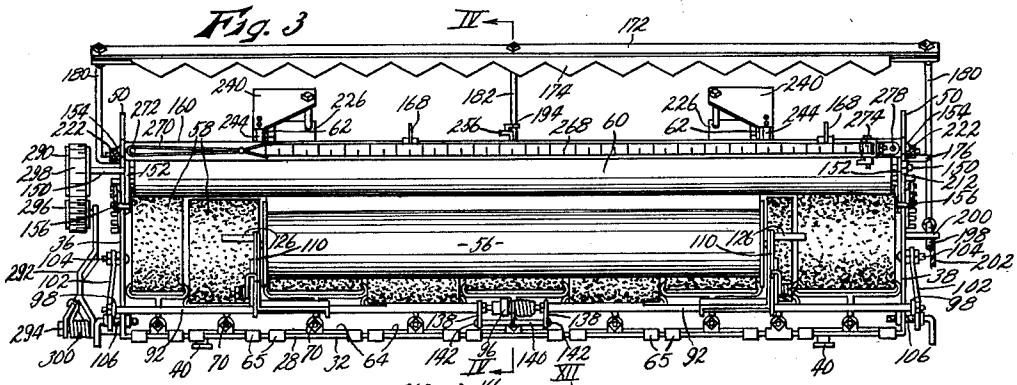
Fig. 3



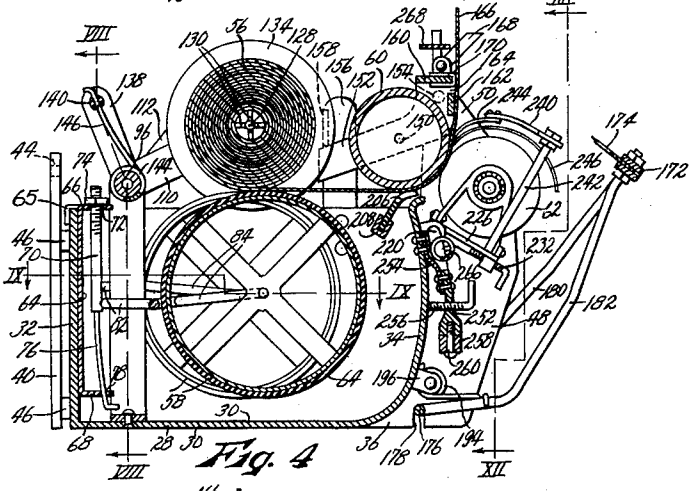


Fig. 4

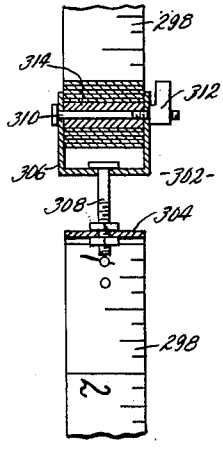


Fig. 6

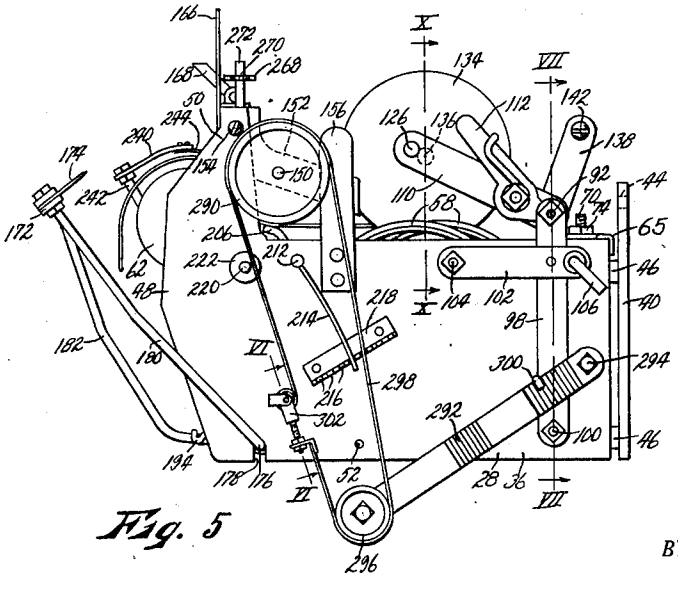


Fig. 5

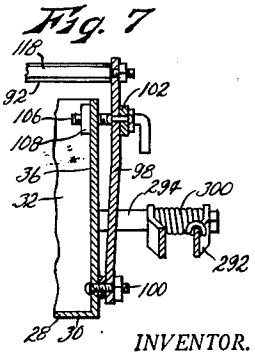


Fig. 7

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WALLPAPER PASTING AND TRIMMING MACHINE

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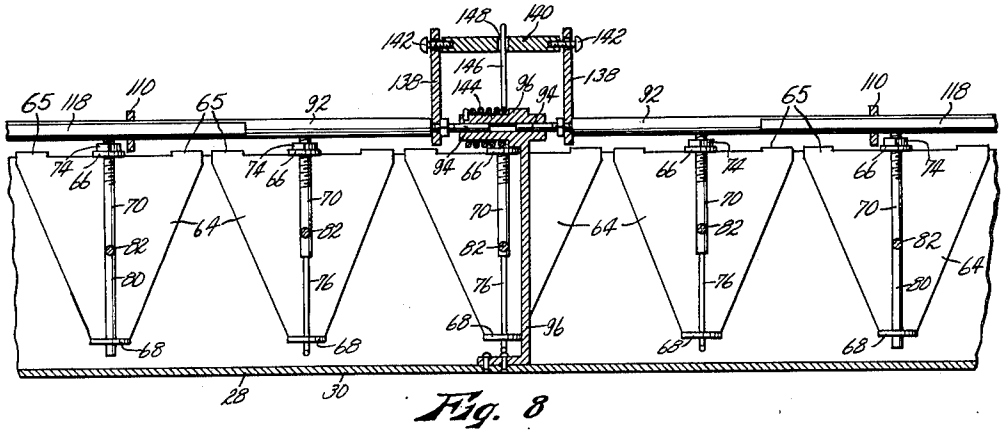

Fig. 8

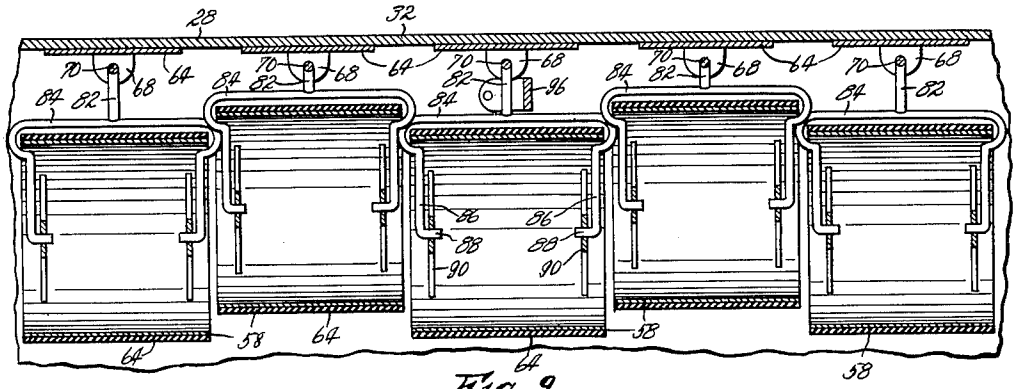

Fig. 9

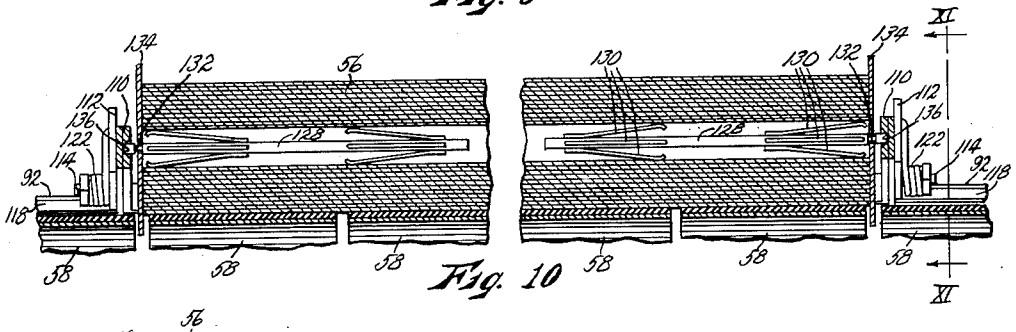

Fig. 10

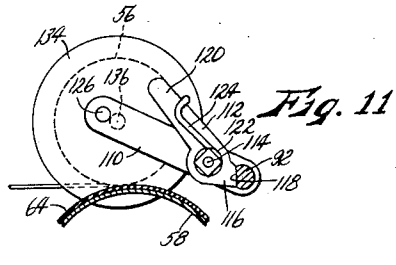

Fig. 11

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WALLPAPER PASTING AND TRIMMING MACHINE

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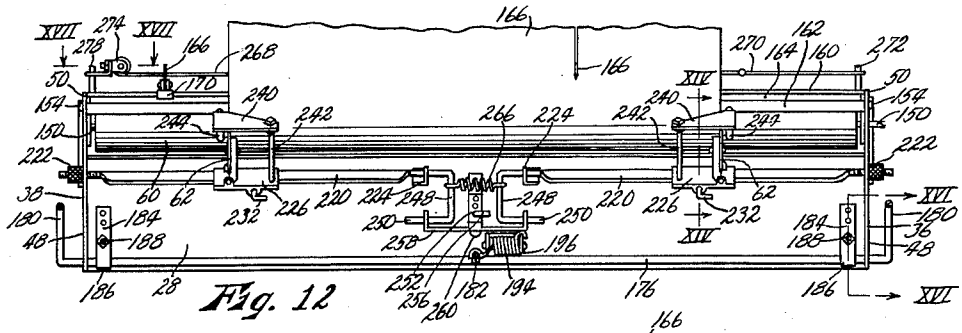

Fig. 12

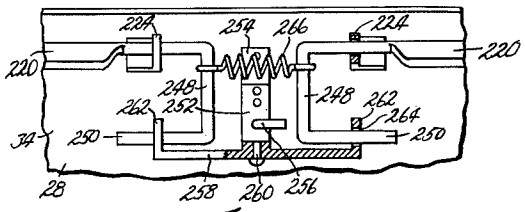

Fig. 13

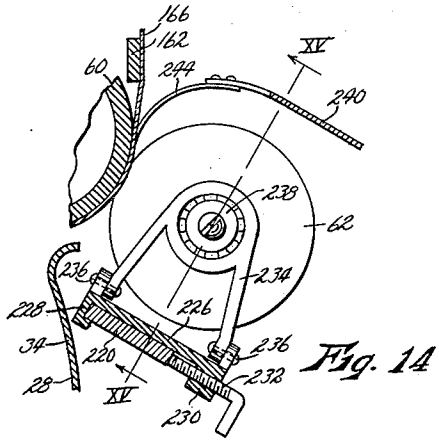

Fig. 14

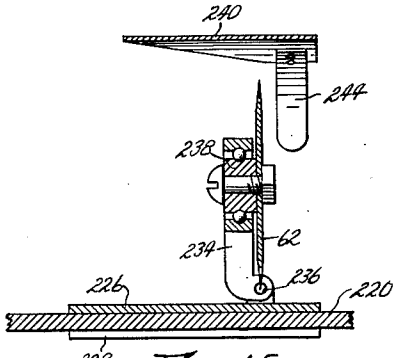

Fig. 15

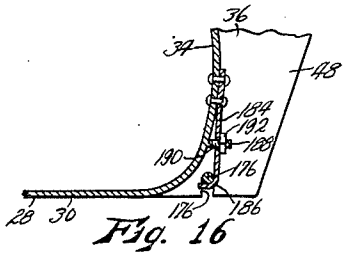

Fig. 16

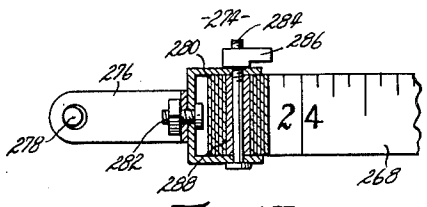

Fig. 17

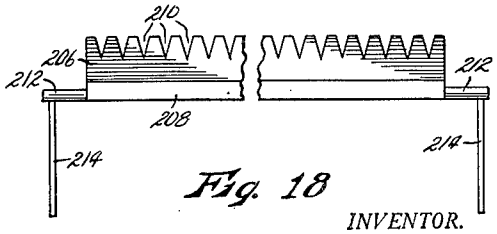

Fig. 18

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Patented Oct. 14, 1952

2,613,632

UNITED STATES PATENT OFFICE

2,613,632

WALLPAPER PASTING AND TRIMMING MACHINE

William C. Renne, Kansas City, Mo.

Application September 18, 1950, Serial No. 185,481

28 Claims. (Cl. 118—38)

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This invention relates to new and useful improvements in wallpaper machines, and is an improvement over the device shown in my copending application Serial No. 737,505, filed March 27, 1947, now Patent 2,556,600.

The invention relates to wallpaper machines of the type wherein the selvage, or edge portions of the paper, are trimmed and paste applied to the paper as the paper is drawn from the roll in which wallpaper is customarily furnished. In machines of this type, the principal difficulty has been in a means for causing the paper to run true as it is drawn from the roll in order that the edges will be cut absolutely true and straight. I have found that while paper may be drawn from a roll straight, the operations of trimming and pasting often cause a side drag on the paper, pulling it out of line. This may be caused by such conditions as lack of parallelism between the axis of the paper roll and the axis of the paste rollers, unequal pressure between the paper and paste rolls at opposite sides of the paper, unequal pressure of the cutting discs against the cutting roller at opposite sides of the paper, or lack of parallelism between the cutting discs and cutting rollers. While the side slippage of the paper may be initially negligible, it is cumulative and becomes substantial when a long length of paper is withdrawn. Moreover, the stresses set up in the paper by the side slippage thereof eventually cause the paper to slip back into its true or straight position. This causes objectionable offsets or "holidays" in the edges of the paper, which render its unsuitable for use, particularly in the class of papering known as butt-work, wherein adjacent strips of paper are laid edge to edge.

The principal object of this invention is, therefore, the provision of a wall paper machine of the class described wherein the course of the paper is dominated by the roll from which it is drawn, and wherein the pasting and trimming operations do not cause a side drag on said paper.

Another object is the provision of a wallpaper machine of the class described which is readily adjustable to handle paper of any standard width.

A further object is the provision, in a wallpaper machine of the class described, of a pasting roller arrangement which is readily adjustable in length whereby paste will not be applied to the extreme edge portions of the paper. This prevents paste from being applied to the cutting roller, and thence transferred to the front or pattern side of the paper.

A further object is the provision of adjustable

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means for closely regulating the amount of paste applied to the paper.

A still further object is the provision of convenient means for measuring both the width of the paper and the length of the paper withdrawn.

Other objects are simplicity and economy of construction, ease of operation requiring little skill, portability, ease of maintenance, and adaptability for use with any type of paper.

With these objects in view, as well as other objects which will appear in the course of the specification, reference will be had to the drawing, wherein:

Fig. 1 is a front elevation of a wallpaper machine embodying the present invention, partially broken away.

Fig. 2 is a right side elevation of the device as shown in Fig. 1.

Fig. 3 is an enlarged plan view of the device, removed from its supporting stand.

Fig. 4 is an enlarged sectional view taken on line IV—IV of Fig. 3.

Fig. 5 is an enlarged left end elevation of the device as shown in Fig. 3.

Fig. 6 is an enlarged fragmentary section taken on line VI—VI of Fig. 5.

Fig. 7 is a fragmentary section taken on line VII—VII of Fig. 5.

Fig. 8 is a fragmentary section taken on line VIII—VIII of Fig. 4.

Fig. 9 is a fragmentary section taken on line IX—IX of Fig. 4.

Fig. 10 is a foreshortened fragmentary section taken on line X—X of Fig. 5.

Fig. 11 is a fragmentary section taken on line XI—XI of Fig. 10.

Fig. 12 is a reduced section taken on line XII—XII of Fig. 4, with parts omitted.

Fig. 13 is a fragmentary enlargement of the central portion of Fig. 12, with parts broken away.

Fig. 14 is an enlarged fragmentary section taken on line XIV—XIV of Fig. 12.

Fig. 15 is a fragmentary section taken on line XV—XV of Fig. 14.

Fig. 16 is an enlarged fragmentary section taken on line XVI—XVI of Fig. 12.

Fig. 17 is an enlarged fragmentary section taken on line XVII—XVII of Fig. 12.

Fig. 18 is an enlarged, foreshortened elevational view of the paste wiper shown detached from the machine.

Like reference numerals apply to similar parts throughout the several views, and the numeral 2 applies to a stand including a pair of spaced apart upright front legs 4 and 6 joined rigidly at their

upper ends by a pair of horizontal planar members 8 which may serve as shelves for holding small tools. Legs 4 and 6 are also joined by cross braces 10 intermediate their ends. A leg 12 is pivoted at its upper end to each of legs 4 and 6 at 14, and slopes downwardly and rearwardly to engage the floor. A support bar 16 is pivoted at 18 to each of legs 4 and 6 adjacent the lower end thereof, and extends upwardly and rearwardly, being secured to the adjacent leg 12 by a bolt 20 or other fastener at their point of intersection thereby rendering the stand rigid. Each support bar 16 is provided at its upper end with an outwardly extending pin 22, for a purpose hereinafter appearing. It is apparent that by removing bolts 20, legs 12 and support bars 16 may be folded substantially coplanar with legs 4 and 6 for transportation or storage. A treadle 24 is pivotally connected to leg 4 at 26, and extends across the front of the stand. It is adapted to operate the cut-off blade as hereinafter described.

A paste tank 28 is carried by stand 2, and itself carries all of the operating parts of the machine with the exception of treadle 24. Said tank is of elongated rectangular form, open at the top, and has a bottom 30, front wall 32, rear wall 34, and end walls 36 and 38. Mounting plates 40 are secured to the front wall 32 and extend above the upper edge thereof. The upwardly extended portions thereof are perforated at 44 to receive screws 42 or the like for mounting the tank on the rearward edges of legs 4 and 6 of the stand. As best shown in Fig. 4 and 5, mounting plates 40 are spaced apart from front wall 32 by spacers 46, in order to permit the paste roller carriages to be moved freely along said front wall as hereinafter set forth. End walls 36 and 38 of the tank are of irregular shape, having portions 48 extending rearwardly from rear wall 34 and portions 50 extending upwardly from rearward extensions 48. An outwardly extending pin 52 is fixed in each of the end walls 36 and 38 adjacent the lower edge thereof. A bag 54 preferably made of fabric is supported, open end up, on pins 52 and pins 22 fixed in the upper ends of support bars 16, as shown in Figs. 1 and 2. The open mouth of said bag is thereby disposed beneath the rearward portion of tank 28, and is adapted to receive the wallpaper trimmings.

In general, the wallpaper roll 56 is disposed horizontally over tank 28, and is urged downwardly against paste roller 58 carried rotatably in the tank. The paper from said roll is lead rearwardly around a cutting roller 60 against which cutting discs 62 are urged.

The paste rollers 58 are cylindrical in form, having a rubber coating 64, the outer surface of which is roughened as indicated in Fig. 3 to carry an adequate amount of paste from the tank to the paper and to provide good traction on the paper. The rollers are disposed for rotation on horizontal axes disposed longitudinally of tank 28, and are disposed substantially within said tank with the upper portions thereof extending above the top of the tank. Each of said rollers is carried by a carriage 64 comprising a planar sheet of metal disposed against the inner surface of front tank wall 32. At its upper edge each carriage is provided with outwardly bent hooks 65 which slidably engage the upper edge portion of said tank wall, whereby the carriages may be moved longitudinally of the tank. As best shown in Figs. 4, 8, and 9, each carriage 64 is provided with inwardly bent tabs 66 and 68 respectively at the upper and lower edges thereof. A substantially vertical rod 70 is disposed for vertical axial movement in a perforation 72 formed in upper tab 62, and is threaded to receive a nut 74 disposed against the upper surface of said tab, whereby said rod may be adjusted vertically. As shown in Figs. 8 and 4, all but two of rods 70 terminate intermediate tabs 66 and 68, and a spring wire 76 affixed to the lower end of each rod extends downwardly through a perforation 70 formed in lower tab 68. As shown in Fig. 8, the rods 70 of two of the carriages are provided with rigid downward extensions 80 which are carried for oscillatory and axial movement in the perforations of tabs 68.

Fixed to each rod 70 is a rearwardly extending horizontal rod 82, to the rearward end of which is fixed a yoke 84. As best shown in Fig. 9, each yoke has a pair of rearwardly extending parallel arms 86, the rearward end portions of which are bent inwardly to form coaxial stubs 88 which are journalled in spiders 90 of a paste roller 58, whereby said roller is supported for axial rotation. Thus each paste roller has a caster action about rod 70 as an axis, and will accurately follow the course of the paper against which it is urged. Any transverse drag of the paste rollers on the paper, which would cause an off-course tendency, is eliminated. Rods 82 supporting the yokes are offset alternately upwardly and downwardly, as shown in Figs. 4 and 8, and the paste rollers are offset alternately forwardly and rearwardly, to prevent interference between the yokes and to permit the rollers to be spaced closely. Also for this purpose, the yoke arms 86 and spiders 90 are spaced inwardly from the ends of the rollers. The paste rollers are interchangeable, and as shown in Fig. 3, are of different widths. In this manner, the rollers may be arranged to provide an effective length suitable for any width of paper. Of course only the rollers in actual contact with the paper will function at any one time. As shown in Figs. 4 and 10, the total effective length of the pasting rollers is adjusted to be somewhat less than the total width of the paper, but greater than the trimmed width. In this manner paste is not applied to the extreme edges of the paper, and hence will not be deposited on the cutting roller 50 and thence transferred to the face of the paper. The two paste rollers supported by the rigid caster rods 70—80 are disposed respectively at opposite edges of the paper, and afford a base against which the paper roll may be urged. Nuts 74 associated with said rigid caster rods may be adjusted to bring the base provided thereby into accurate parallelism with the cutting roller.

The resiliently supported caster rods 70—76 serve to urge the intermediate paste rollers upwardly against the paper roll. The pressure of said intermediate paste rollers against the paper roll may be equalized by means of nuts 74.

The paper roll 56 is carried by a pair of coaxial shafts 92 extending longitudinally of tank 28 above said and just forward from paste rollers 58, each shaft extending from one end of the tank to a point adjacent the center of the tank. As best shown in Fig. 8, each shaft 92 is provided at its inner end with a reduced portion 94 carried for oscillatory and axial sliding movement in a bracket 96 which extends downwardly and is rigidly attached to tank bottom 30. The outer end of each shaft 92 extends slightly outwardly from the end of the tank, and is rotatably at-

tached to the free end of a leaf spring 98, the opposite end of which rigidly attached to the adjacent end wall of the tank at 100. Said leaf springs urge shafts 92 outwardly in opposite directions. A second leaf spring 102 is rigidly attached at one end to each of the end walls 36 and 38 at 104, and is attached adjacent its free end to leaf spring 98. A shouldered screw 106 is carried rotatably in the free end portion of each spring 102, and is threaded into a boss 108 formed on the adjacent end wall as shown in Fig. 7. It is evident that by turning screws 106, shafts 92 may be adjusted axially.

Carried pivotally and for sliding movement on each of shafts 92 is an arm 110, disposed radially to said shaft and extending upwardly and rearwardly therefrom. As best shown in Fig. 11, a latch lever 112 is pivotally secured to each arm 110 intermediate its ends by means of a bolt 114 fixed in said arm. Said lever is provided with a tang 116 for engaging a flattened side 118 of shaft 92 with sufficient friction to prevent arm 110 from sliding along said shaft accidentally and to lock said arm against pivotal movement on said shaft. Each latch lever 112 is provided with a handle portion 120 by means of which tang 116 may be moved to and from its operative position, and a spring 122 is disposed about bolt 114 and has an arm 124 extending outwardly to engage handle 120 and resiliently urge said latch lever to its operative position. Each arm 110 is provided adjacent its rearward end with an outwardly extending fixed rod 126, which serves as a handle whereby the arm may be manually manipulated.

The wallpaper roll 56 is supported between the two arms 110 in a manner best shown in Fig. 10. A thin rod 128 is adapted to be inserted in each end of the roll with the end portion thereof projecting outwardly from the roll. Said rods are thin enough to be inserted easily even in a roll which is mashed or misshapen from packing, and may be of sufficient length to substantially meet at the center of a roll of the narrowest paper which may be used. Each of said rods carries a plurality of spring wires 130 at spaced intervals therealong. Said wires are spaced peripherally about the rods, each being attached firmly at one end to said rod and extending longitudinally of said rods toward the outer ends thereof. The free ends of said spring wires are sprung outwardly to engage the paper, and serve the functions of centering and securing the rods in the paper roll, and also in some degree reforming rolls which have been mashed in packing. Adjacent its outer end each rod 128 has a reduced neck portion 132 on which a centrally perforated disc 134 is rotatably mounted. Said discs engage the ends of the roll and maintain them normal to the rods 128. The outer ends of rods 128 are rounded, and mounted in rounded sockets 136 formed in the confronting faces of arms 110 adjacent the free ends of said arms. This mounting permits a degree of pivotal movement between rods 128 and arms 110 for a purpose which will appear presently.

The wallpaper roll is urged resiliently against paste rollers 58 by the following mechanism. An arm 138 is secured rigidly to each of shafts 92 adjacent the inner end thereof, as best shown in Fig. 8, being disposed radially to said shafts and extending upwardly and forwardly therefrom. A connecting bar 140 extends between the free ends of said arms, and is connected

thereto for universal pivotal movement by means of screws 142. A helical torsion spring 144 is disposed about bracket 96 having one end secured in said bracket and its opposite end extended as at 146 to project through a loosely fitting hole 148 formed in connecting bar 140 midway between arms 138. Said spring urges arms 138, shafts 92, and arms 110 in a clockwise direction as viewed in Fig. 4, thereby urging paper roll 56 against paste rollers 58. It will be seen that the single spring 144 turning both of shafts 92, will, by the rocking action of connecting bar 140, transmit equal forces to both of arms 110 and to the opposite edge portions of the paper. Since unequal pressures at opposite sides of the paper would cause an unequal compression of the paper, and since this would cause uneven drag or strain on the paper at its opposite edges which would result in a cumulative off-course tendency of the paper, this is an important feature in causing the paper to run true. Also, unevenness of the roll of paper, such as caused by flattening of the roll or uneven winding thereof, which would normally result in intermittent inequalities of pressure at opposite sides of the roll, are compensated instantly and automatically by the rocking action of connecting bar 140. The pivotal mounting of rods 128 in arms 110 is necessary in order that the downward pressure of each arm 110 will be exerted only at the extreme end of the roll, and not transmitted through the roll, and to permit the arms 110 to move unequally due to uneven configuration of the roll. The distance between arms 110 may be adjusted for paper rolls of different widths by manually releasing latch levers 112 and sliding the arms along shafts 92. Fine adjustments may be made by turning screws 106, which move shafts 92 longitudinally as previously described. Arms 138 are flexible to permit this movement.

Paper from roll 56 is lead rearwardly therefrom and passed around cutting roller 60. Said roller is cylindrical and disposed parallel to paper roll 56. It is formed of a metal such as brass which is sufficiently soft to prevent damage to the cutting discs, hereinafter described. It is provided at its ends with stub axles 150, and each of said axles is rotatably journalled in a lever 152. Each of said levers is pivoted adjacent one end at 154 to the inner face of upward extension 50 of tank end walls 36 and 38, and extends forwardly and downwardly therefrom. Cutting roller axles 150 are journalled in said levers at a point spaced apart from pivots 154, whereby pivoting said levers will move roller 60 to and from cutting discs 62. The roller is moved upwardly away from the discs when it is desired to thread the paper therebetween. When the levers are moved downwardly to move the roller against the cutting discs, they may be secured by means of latches 156 secured to end walls 36 and 38. Each of said latches comprises a spring strip strip fixed to and extending above end walls 36 and 38, and provided at its upper end with an inwardly projecting tang 158 adapted to engage releasably the forwardly extended end of the adjacent lever 152. By forcing latch members 156 manually outwardly, levers 152 are freed for pivotal movement.

Extending between and rigidly attached to levers 152 are a pair of bars 160 and 162. Said bars are planar and disposed above and at the rearward edge of cutting roller 60, and extend parallel thereto. These bars have several functions. They, together with levers 152, form a

rigid pivotal frame for roller 60. They are vertically spaced apart as best shown in Fig. 4, thereby providing a slit 164 therebetween over which the paper 166 passes as it is led upwardly from roller 60. Said bars thus provide a backing for the paper as the cut-off blade, described hereinafter, enters slit 164. Bar 160 serves as a mounting for slitting knives 168. As best shown in Fig. 4, each of said knives is mounted on a spring clip 170 which fits clampingly over the edge of bar 160, and the knife projects rearwardly into the path of the paper 166 to slit it longitudinally. Said knives are adjustably slidable along rod 160, and of course any desired number of them may be used.

The cut-off knife includes a bar 172 extending the full length of the tank 28 parallel to roller 60 in which is mounted a forwardly extending blade 174, the cutting edge of which is serrated as shown in Fig. 3 and which extends substantially the full length of bars 160 and 162. Said cut-off bar and blade are carried on a shaft 176 which is parallel to bar 172 and which is carried for axial rotation in notches 178 formed in the lower edges of rearward extensions 48 of end walls 36 and 38 of the tank, as best shown in Figs. 4, 5, 12, and 16. Said shaft is connected to bar 172 by radial arms 180 at the ends of said shaft, and a central arm 182. Shaft 176 is retained in notches 178 by a pair of spring clips 184 disposed adjacent end walls 36 and 38. As best shown in Figs. 12 and 16, each of said clips comprises a length of resilient material fixed at its upper end to the outer surface of rear wall 34 of the tank, and formed at its lower end to present a hook 186 adapted to engage shaft 176. A screw 188 is fixed to rear wall 34 and extends outwardly through a hole 190 formed in each spring clip, and a nut 192 is threaded on said screw against the outer surface of said clip. Said clips are normally urged resiliently outwardly out of engagement with shaft 176, but may be drawn into engagement with said shaft by means of nuts 192. By loosening nuts 192, the entire cut-off knife assembly may be detached from the remainder of the machine.

When blade 174 is pivoted forwardly about shaft 176, it enters slot 164 between bars 160 and 162 to cut off the paper as previously described. Said blade is urged resiliently to its inoperative position by a helical spring 194 carried in a bracket 196 fixed to rear wall 34, said spring being extended to engage central arm 182 to urge blade 174 rearwardly. Said blade is operated by an arm 198 fixed to one end of shaft 176 and extending forwardly therefrom adjacent the outer surface of end wall 38, as best shown in Fig. 2. The upward movement of said arm is limited by a pin 200 fixed in end wall 38. A flexible cord 202 or the like is tied at one end to arm 198 and at its opposite end is attached to the free end of treadle 24 at 204. Thus the operator can operate the cut-off blade by means of foot pressure on treadle 24.

As the paper passes under cutting roller 60, it is contacted by a paste wiper 206, best shown in Figs. 4 and 18. Said wiper extends the full length of said cutting roller and is parallel thereto, comprising an elongated strip of sheet rubber or other resilient material. One edge thereof is bound in a sheet metal channel 208, and the other edge thereof has a plurality of regularly spaced V-shaped notches 210. Channel 208 is provided at its ends with stub shafts 212 which are journalled in end walls 36 and 38. The free edge portion of the wiper bears resiliently against roller 60, or against the paper on said roller. A resilient wire 214 is fixed in each of stub shafts 214 and extends radially thereto adjacent the outer surface of the adjacent end wall. The free end portion of said spring wire is inserted selectively in any one of a plurality of notches 216 formed in a bracket 218 fixed to the outer surface of said end wall, as best shown in Fig. 5. It is evident that as wires 214 are moved into different notches 216, stub shafts 212 and wiper 206 will be caused to bear against roller 206 with greater or less pressure, and that the point of contact of said wiper with the roller will be nearer or farther from the edge of the wiper. Because of the V-shape of the wiper notches 210, this causes the line of contact of the wiper on the roller to be variable from continuous to a line which is interrupted by the full width of the notches. In this manner, the amount of paste left on the paper may be closely regulated.

The two cutting discs 62 are carried by two coaxial shafts 220, as best shown in Figs. 12 and 15. Said shafts are parallel to roller 60 adjacent the outer surface of rear wall 34, and each shaft extends from a point adjacent the center of tank to the end wall of the tank. The threaded outer end of each shaft is journalled in the rearward extension 48 of the associated end wall for rotary and longitudinal movement, and a knurled nut 222 is threaded on the extended end of each shaft, and bears against the outer surface of the associated end wall. Each shaft 220 is journalled adjacent its inner end in a bracket 224 fixed to rear wall 34, for rotary and longitudinal movement. Intermediate brackets 224 and end walls 36 and 38, shafts 220 are flattened to present a rectangular cross-section. Mounted for adjustable movement along each of shafts 220 is a carriage 226 comprising a planar sheet of metal disposed against the upper surface of shaft 220 and rebent at its forward edge to form a channel 228 for slidably engaging the forward edge of said shaft. At its rearward edge, carriage 226 is provided with a depending lug 230 through which is threaded a set screw 232 adapted to engage the rearward edge of shaft 220 to secure the carriage in position.

A bracket 234 is connected to each carriage 226 for pivotal movement on an axis at right angles to shaft 220 by means of pivot pins 236, and extends upwardly therefrom. A cutting disc 62 is mounted for rotation at the upper end of each of said brackets by means of ball bearing 238, the axis of said bearing being at right angles to the pivotal axis of bracket 234. The cutting discs bear against the rearward side of cutting roller 60, as best shown in Fig. 14, to trim the selvage therefrom. It will be seen that each cutting disc is castered on pivot pins 236, which are disposed on an axis substantially at right angles to a tangent to the cutting roller at the point of contact of the cutting discs therewith, whereby said cutting discs will follow the course of the paper accurately, and will therefore not create any transverse drag on the paper.

A plate 240 of sheet metal is supported above each cutter disc 62 by means of a rod 242 fixed to the associated carriage 226. These plates serve as protectors against accidental injury of the hands on the cutting discs, and also as mountings for deflector strips 244. Each of said deflector strips comprises a strip of resilient material fixed at one end to plate 240 and curving for-

wardly and downwardly to bear resiliently against cutting roller 60 just outwardly from the associated cutting disc 62. Said deflector strips serve to deflect the edge portions 246 cut from the paper outwardly from roller 60 and downwardly into bag 54 as shown in Fig. 4. It is of course apparent that when the cutting discs are adjusted by moving carriages 226 along shafts 220, deflector strips 244 will move therewith and will always remain in proper relation thereto.

Shafts 220 are torsionally loaded to urge cutting discs 62 against roller 60 by the mechanism best shown in Figs. 4, 12, and 13. Intermediate brackets 224, the inner end portions of shafts are bent downwardly to form parallel spaced apart arms 248, and rebent outwardly to form arms 250 parallel to shafts 220. An arm 252, generally vertically disposed, is attached at its upper end to rear wall 34 by means of a leaf spring 254, whereby said arm may be moved to and from said rear wall. Said arm may be moved to and from said rear wall by a screw 256 threaded horizontally through the lower portion of arm 252 and bearing at its forward and against rear wall 34. Said screw is manually operable. Arm 252 is disposed midway between arms 248 of shafts 220, and a rocker beam 258 is pivoted at its midpoint to the lower end of arm 252 by means of pivot pin 260, said pivot pin being disposed longitudinally of arm 252. Rocker beam 258 extends horizontally in both directions from said pin, and is provided at each end with an upturned tab 262 perforated as at 264 to receive respectively the arms 260 of shafts 220, as best shown in Fig. 13. Arms 250 are free to move longitudinally in said perforations, and to pivot universally to a limited degree therein. It is evident that when screw 256 is advanced to move arm 252 rearwardly from rear wall 34, rocker beam 258 will transmit equal torsional forces to both of shafts 220, urging them in a counter-clockwise direction as viewed in Fig. 4 to press cutting discs 62 against roller 60. The rocker beam also compensates for any inequality in the diameters of the cutting discs, and for the fact that either or both cutting discs may not be exactly round, due to uneven wear and sharpening thereof. Any change of cutting pressure of either disc will be transmitted instantly to the other disc through the rocker beam.

A tension spring 266 extends between and interconnects arms 248 of shafts 220, thereby urging said shafts longitudinally inwardly. By turning knurled nuts 222 at the outer ends of said shafts, said shafts may be moved longitudinally to make fine adjustments of the position of the cutting discs relative to the paper.

The positioning of the cutting discs relative to the paper, and accurate measurement of the width of the paper, is facilitated by a measuring tape 268 disposed above and parallel to bar 160. Said tape is pliable, and has a rubber band 270 or other elastic member secured to one end thereof and engaging a pin 272 fixed to and extending upwardly from bar 160 at the left end thereof. The opposite end portion of said tape is wound on a reel device 274 best shown in Fig. 17. Said reel device comprises a flat attaching member 276 perforated at one end to fit over a pin 278 fixed to and extending upwardly from the right end of bar 160, a yoke member 280 of U-shape connected to member 276 by bolt 282, a bolt 284 extending between the arms of said yoke and having a nut 286 by means of which the yoke arms may be urged together, and a tubular hub 288 carried rotatably on screw 284 between the yoke arms, on which tape 268 is wound. Nut 286 may be tightened to urge the yoke arms against the ends of hub 288 to prevent rotation thereof. By paying out any desired amount of tape desired, the tape will be moved longitudinally by rubber band 270 to bring the end of the tape accurately into alignment with the edge of the paper.

The length of the paper may be measured by a measuring device best shown in Fig. 5. A stub axle 150 of cutting roller 60 is extended outwardly from the left end of tank 28, and a roller 290 is fixed to the extended end thereof. Roller 290 is of precisely the same diameter as the cutting roller. An arm 292 is pivotally connected to the left end wall 36 of the tank by means of a pivot pin 294 fixed to said end wall, said pivot being parallel to the axis of roller 290. Said arm extends rearwardly from its pivot, and carries a roller 296 at its free end for rotation on an axis parallel to pivot 292. A measuring tape 298, formed in a loop is passed around rollers 290 and 296. Arm 292 is urged downwardly to maintain tape 298 taut by means of a torsion spring 300 carried on pivot pin 294 and engaging arm 292 at a point spaced apart from said pivot. The ends of tape 298 are joined to form a loop by means of a reel device 302 detailed in Fig. 6. It is similar in construction to reel device 274 of tape 268, comprising an attaching member 304 secured to one end of tape 298, a yoke 306 secured to the attaching member by bolt 308, a bolt 310 connecting the arms of the yoke and having a nut 312, and a tubular hub 314 mounted rotatably on bolt 310 and on which the opposite end portion of the tape is wound.

The length of tape 298 may be adjusted to any convenient length, such as 1 or 1½ feet, or may be set to correspond to a "match" or pattern cycle of the paper. The paper is measured as it is withdrawn by counting the revolutions of tape 298. This may be done conveniently by setting the reel device 302 over roller 290 at the start, and counting the number of times said reel device passes over said roller.

The operation of the device is substantially as follows: The operator pushes latches 156 outwardly to release levers 152 and pivots said levers upwardly to move cutting roller 60 away from cutting discs 62. Rods 128 are inserted in the ends of a paper roll 56, discs 134 serving to square the ends of said roll. Latch levers 112 are released and arms 110 are moved along shafts 92 until they are spaced properly to receive the rounded ends of rods 128 in sockets 136 thereof. Fine adjustments of the spacing of arms 110 is made with screws 106. The paste rollers are interchangeably arranged to provide an effective length just less than the untrimmed width of the paper. Cutting discs 62 are adjusted to the proper spacing by loosening set screws 232 and moving carriages 226 along shafts 220. Paper from roll 56 is then lead rearwardly and passed between cuttting roller 60 and cutting discs 62, and thence upwardly as shown at 166. Levers 152 are then pivoted downwardly until they are engaged by latches 156, thereby urging cutting roller 60 against cutting discs 62. Fine adjustments in the spacing of the cutting discs are made with nuts 222. Paste wiper 206 is adjusted as desired. The paper is then grasped at 166 and pulled upwardly until the desired length has been trimmed and pasted, after which it is cut off by operation of treadle 24. If more paper is

desired than can be withdrawn with one arm reach, the paper is refolded on itself and more is withdrawn. Any length of paper up to the total length of the roll may be trimmed and pasted in a single operation.

Thus it is apparent that a wallpaper machine having several advantages has been produced. The invention consists not of any means for guiding the paper, which has been found extremely difficult and impractical, but in the provision of means for the prevention of the misguiding of the paper as and after it is withdrawn from the roll, by the pasting and trimming operations. To this end, the paste roller has been sectionalized and the sections individually castered the pressure of the paper roll against the paste rollers has been equalized at the opposite edges of the paper, the cutting discs have been castered and their cutting pressure equalized. All of these features contribute to the end that the cutting and pasting means follow the paper, rather than exerting possible lateral drags on the paper which would result in the paper's moving off-course. The paper roll itself dominates the course of the paper. Another feature is that the machine may be mounted on stand **2**, or may be removed from the stand simply by removing screws **42**, and supported on any table or bench. In the latter event, cut-off blade **174** is operated by hand. Other features are the novel paste wiper **206**, and the measuring devices.

While I have shown a specific embodiment of my invention, it is to be understood that the specific structure described and shown in the drawing is to be interpreted as illustrative, and not in a limiting sense. Many minor changes of construction and operation could be made without departing from the spirit of the invention.

What I claim is:

1. In a wallpaper machine of the class described adapted to receive a roll of wallpaper from which paper may be drawn, a support, a paste roller carried for rotation by said support, and means carried by said support for supporting said roll of wallpaper rotatably parallel to and in contact with a portion of said paste roller, said paste roller comprising a plurality of axially spaced apart sections, said sections being interchangeable and of graduated widths whereby the used portion of said paste roller may be adjusted to the width of the paper.

2. In a wallpaper machine of the class described adapted to receive a roll of wallpaper from which paper may be drawn, an open-topped tank adapted to contain paste, a plurality of carriages carried removably on a wall of said tank for sliding movement therealong, a paste roller carried for rotation by each of said carriages, said paste rollers being carried on parallel axes and longitudinally spaced apart, and means carried by said paste tank for supporting said roll of wallpaper rotatably parallel to and in contact with a portion of said paste rollers, said paste rollers being interchangeable and of graduated widths whereby the combined widths of the used paste rollers may be adjusted to the width of the paper.

3. In a wallpaper machine of the class described adapted to receive a roll of wallpaper from which paper may be drawn, a support, a paste roller carried for rotation by said support, and means carried by said support for supporting said roll of wallpaper rotatably parallel to and in contact with a portion of said paste roller, said paste roller comprising a plurality of axially spaced apart sections, means attaching each of said sections to said support for pivotal castering action about an axis at right angles to the direction in which paper is withdrawn from said roll of wallpaper, whereby said paste rollers will align themselves automatically with the direction of movement of said paper.

4. In a wallpaper machine of the class described adapted to receive a roll of wallpaper from which paper may be drawn, a support, a paste roller carried for rotation by said support, and means carried by said support for supporting said roll of wallpaper rotatably parallel to and in contact with a portion of said paste roller, said paste roller comprising a plurality of axially spaced apart sections, means attaching each of said sections to said support for pivotal castering action about an axis at right angles to the direction in which paper is withdrawn from said roll of wallpaper, whereby said paste rollers will align themselves automatically with the direction of movement of said paper, said paste roller sections being interchangeable and of graduated widths whereby the used portion of said paste roller may be adjusted to the width of the paper.

5. In a wallpaper machine of the class described adapted to receive a roll of wallpaper from which paper may be drawn, an open-topped tank adapted to contain paste, a plurality of carriages carried removably on a wall of said tank for sliding movement therealong a caster rod carried by each of said carriages for axial oscillation, said caster rods being substantially parallel, a paste roller carried for rotation by each of said caster rods, the rotational axes of said paste rollers being at right angles to said caster rods, said paste rollers being longitudinally spaced apart and means carried by said tank for rotatably supporting said roll of wallpaper parallel to said paste rollers and for urging said paper roll against said paste rollers in a direction longitudinal to said caster rods.

6. A machine as in claim 5 wherein said paste rollers are of graduated widths and wherein said carriages are interchangeable.

7. A machine as in claim 5 having means whereby said caster rods may be moved adjustably in a direction parallel to the axes thereof, to adjust the pressure thereof against said roll of wallpaper.

8. A machine as in claim 5 wherein certain of said caster rods are flexible and supported adjacent their ends by said carriages, whereby said paste rollers are urged resiliently against said roll of wallpaper.

9. A machine as in claim 5 wherein certain of said caster rods are flexible and supported adjacent their ends by said carriages, whereby said paste rollers are urged resiliently against said wallpaper roll, and having means for adjusting said caster rods longitudinally in said carriages, whereby to adjust the pressure of said paste rollers against said roll of wallpaper.

10. In a wallpaper machine of the class described, a support, a paste roller carried for rotation by said support, a pair of coaxial shafts carried for independent axial oscillation by said support, a radially extending arm carried rigidly by each of said shafts, means for supporting a roll of wallpaper for axial rotation between the free end portions of said arms, said supporting means having rotary and universally pivotal connections with said arms and a single spring carried by said support and having an adjustable connection with each of said shafts whereby said

shafts are caused to turn to urge said paper roll against said paste rollers with equal pressure at both ends.

11. A machine as in claim 10 having means whereby said arms may be longitudinally adjusted along said shafts to adjust the spacing between said arms to accommodate a roll of wallpaper of any width.

12. A machine as in claim 10 having means whereby said shafts may be moved longitudinally to adjust the spacing between said arms.

13. A machine as in claim 10 having means whereby said arms may be moved adjustably along said shafts, and means for moving said shafts longitudinally, whereby to adjust the spacing between said arms.

14. In a wallpaper machine of the class described, a support, a paste roller carried for rotation by said support, a pair of coaxial shafts carried for independent axial oscillation by said support, a radially extending arm carried rigidly by each of said shafts, means for supporting a roll of wallpaper for axial rotation between the free end portions of said arms, a second arm secured rigidly to each of said shafts and extending radially therefrom, a connecting bar extending between the free end portions of said second arms and secured to each of said second arms for universal pivotal movement, and a torsion spring carried by said support and engaging said connecting bar at its midpoint to turn said shafts to urge said roll of wallpaper resiliently against said paste roller.

15. In a wallpaper machine of the class described, a support, a paste roller carried for rotation by said support, a pair of coaxial shafts carried for independent axial oscillation by said support, a radially extending arm carried by each of said shafts, a rod adapted to be inserted in each end of a roll of wallpaper, means for connecting the outer ends of said rods to the free end portions of said arms for rotary and universal pivotal movement; a second arm rigidly secured to each of said shafts and extending radially therefrom, a connecting bar extending between and secured to the free ends of said second arms for universal pivotal movement, and a torsion spring carried by said support and engaging said connecting bar at its midpoint to rotate said shafts to urge said paper roll against said paste roller.

16. A machine as in claim 15 having radially expansible resilient members secured to the rods inserted into the ends of the wallpaper roll, whereby said rods are secured and centered in said paper roll.

17. A machine as in claim 15 wherein the first mentioned arms secured to the shafts are provided with rounded sockets in their confronting faces, and wherein the rods inserted in the paper roll are rounded at their outer ends for engagement in said sockets, whereby said paper roll is supported for rotary and universal pivotal movement relative to said arms.

18. In a wallpaper machine of the class described, an open-topped tank adapted to contain a liquid paste, a plurality of paste rollers carried for rotation in said tank, said rollers being axially spaced apart, means for supporting each paste roller independently for pivotal castering action about an axis at right angles to the rotational axis thereof, a pair of coaxial shafts carried independently by said tank for axial oscillation, said shafts being parallel to said paste rollers, an arm fixed to each of said shafts and extending radially therefrom, said arms having rounded sockets formed in the confronting surfaces thereof, a pair of rods adapted to be inserted in the ends of a roll of wallpaper; the outer ends of said rods being rounded to engage in said sockets to support said roll of wallpaper parallel to and against said paste rollers, a second arm fixed to each of said shafts and extending radially therefrom, a connecting bar extending between and secured loosely to the free end portions of said second arms, and a spring carried by said tank and engaging said connecting bar at its midpoint to apply a torsional load to said shafts to urge said paper roll against said paste rollers in a direction longitudinal of the castering axes of said paste rollers.

19. A machine as in claim 18 wherein said paste rollers are interchangeable and of graduated widths, whereby to provide a composite paste roller of a width cemmensurate with the width of the paper.

20. A machine as in claim 18 wherein the paste rollers at the opposite edges of the paper are rigidly supported against movement by the pressure of the paper roll thereagainst, thereby providing a fixed base for said paper, and having means whereby the paste rollers disposed intermediate the edge of the paper are urged resiliently against said paper roll, and means for adjusting said pressure.

21. A machine as in claim 18 having means whereby said first mentioned arms are adjustable along said shafts, and means for adjusting said shafts longitudinally, whereby to adjust the spacing between said arms.

22. In a wallpaper machine of the character described wherein wallpaper is drawn from a roll carried rotatably by said machine, a support, a cutting roller carried by said support for rotation about an axis parallel to said paper roll, and about which said paper is passed, a pair of coaxial shafts carried for axial oscillation by said support on an axis parallel to said cutting roller, a circular cutting disc carried by each of said shafts for rotation about an axis parallel to but spaced apart from said shafts, said cutting discs engaging said cutting roller to trim the edge portions from the paper as it passes about said cutting roller, a fixed arm extending radially from each of said shafts, a rocker beam extending between and connected to the free end portions of said arms for universal pivotal movement, an operating arm attached to said support for movement relative thereto, said rocker beam being pivoted at its midpoint to said operating arm on an axis substantially parallel to said arms, and means for moving said operating arm transversely to said pivotal axis whereby equal torsional forces are transmitted to said shafts to urge said cutting discs equally against said cutting roller.

23. A machine as in claim 22 wherein the shafts are movable longitudinally to adjust the spacing between said cutting discs.

24. In a wallpaper machine of the character described wherein wallpaper is drawn from a roll carried rotatably by said machine, a support, a cutting roller carried by said support for rotation about an axis parallel to said paper roll, and about which said paper is passed, a pair of coaxial shafts carried for axial oscillation by said support on an axis parallel to said cutting roller, a carriage carried for adjustable movement along each of said shafts, a circular cutting disc carried by each of said carriages for rotation about an axis parallel to but spaced apart from said shafts, a fixed arm extending radially from each of said shafts, a

rocker beam extending between and connected to the free ends of said arms for universal pivotal movement, an operating arm attached to said support for movement relative thereto transversely to said shafts, said rocker beam being pivoted at its midpoint to said operating arm on an axis substantially parallel to said shaft arms, and means for urging said operating arm transversely to said pivotal axis whereby said shaft arms and shafts are turned to urge said cutting discs against said cutting roller with equal pressure.

25. A machine as in claim 24 wherein said shafts are movable longitudinally relative to said support and to said rocker beam, whereby to adjust the spacing between said cutting discs.

26. A machine as in claim 24 wherein the cutting discs are carried for pivotal castering action by said carriages about axes substantially at right angles to a tangent to the cutting discs at their points of contact with said cutting roller.

27. A wallpaper machine comprising a tank, a plurality of paste rollers carried for rotation in said tank, said rollers having parallel axes and being longitudinally spaced, each of said paste rollers being independently carried by said tank for pivotal castering action about an axis transverse to the rotational axis thereof, a pair of coaxial shafts carried for axial oscillation by said tank parallel to said paste rollers, a first arm fixed to each of said shafts and extending radially therefrom, a pair of rods adapted to be inserted in the ends of a roll of wallpaper, the outer ends of said rods being engageable in said first arms for rotary and universal pivotal movement, whereby said paper roll is supported parallel to and in contact with said paste rollers, a second arm secured to each of said shafts and extending radially therefrom, a connecting bar extending between and connected to the free end portions of said second arms for universal pivotal movement, a spring carried by said tank and engaging said connecting bar at its midpoint to load said shafts torsionally to urge said paper roll against said paste rollers, a cutting roller about which paper drawn from the roll is led, said cutting roller being carried for rotation by said tank and being parallel to said paper roll, a second pair of coaxial shafts carried for axial oscillation by said tank parallel to said cutting roller, a carriage mounted for adjustable movement along each of said second shafts, a cutting disc carried rotatably by each of said carriages and for pivotal castering action about an axis transverse to the associated shaft, a fixed arm extending radially from each of said second

shafts, a rocker beam extending between and connected to the free ends of said last named arms for universal pivotal movement, and means carried by said tank for pivotally engaging said rocker beam at its midpoint and urging said rocker beam transversely to said last named arms to apply torsion to said second shafts to urge said cutting discs against said cutting roller.

28. In a wallpaper machine of the class described, a paste tank, a paste roller carried rotatably in said tank, means carried by said tank for rotatably supporting a roll of wallpaper parallel to and in contact with said paste roller, a roller carried rotatably by said tank parallel to said roll of wallpaper, and about which paper drawn from said roll is passed, an elongated support member carried for axial oscillation by said tank parallel to and in spaced relation from said roller, a paste wiper comprising an elongated resilient strip secured along one edge in said support and having its opposite edge portion bearing resiliently against said roller, the edge portion thereof bearing against said roller having a series of generally V-shaped notches formed therein, and means for adjustably turning said support whereby a greater or less width of the paste wiper is caused to bear against said roller.

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