Oct. 1, 1940. E. H. BROCKWAY 2,216,108

SHEET MATERIAL PORTABLE TRIMMER

Filed May 5, 1939 2 Sheets-Sheet 1

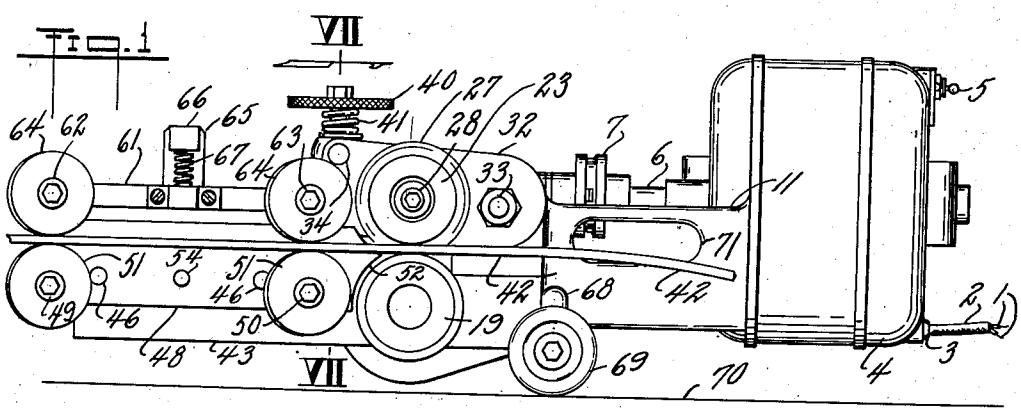


FIG. 1

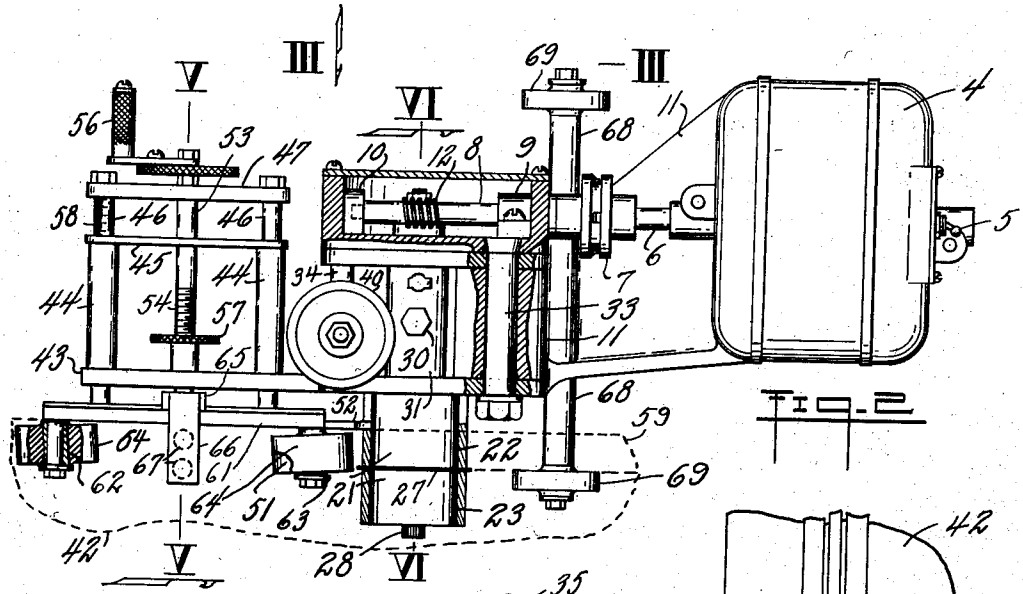


FIG. 2

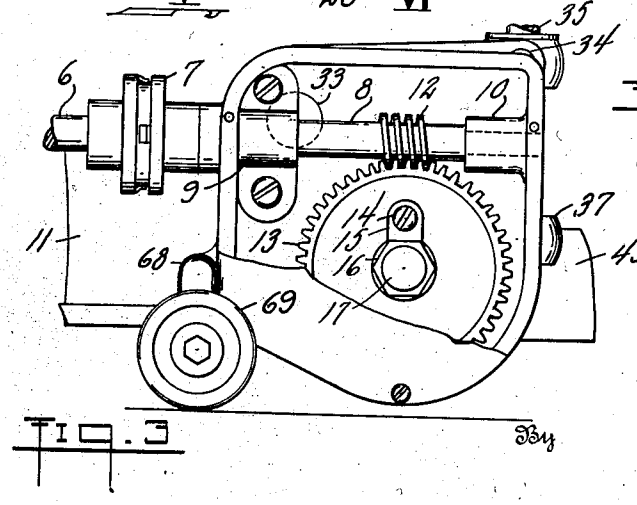


FIG. 3

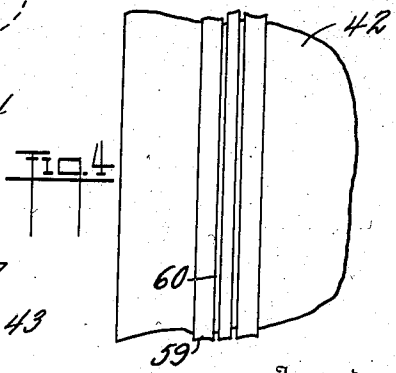


FIG. 4

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FIG. 5

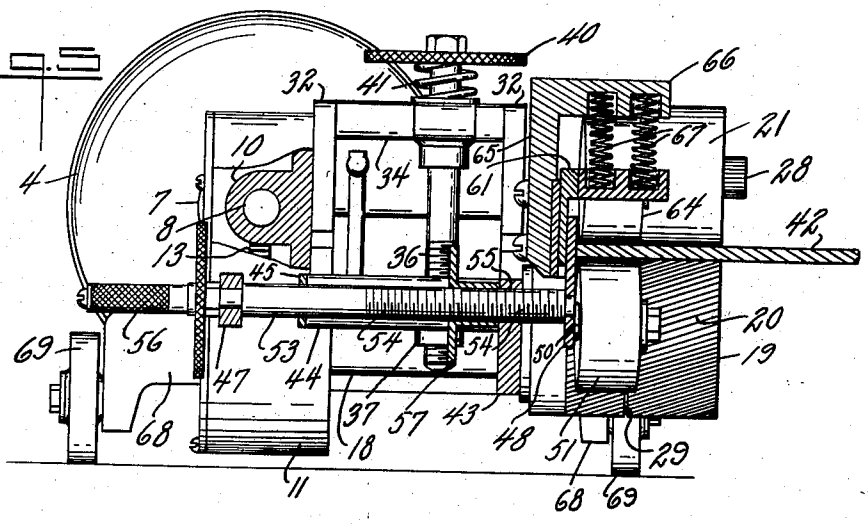


FIG. 6

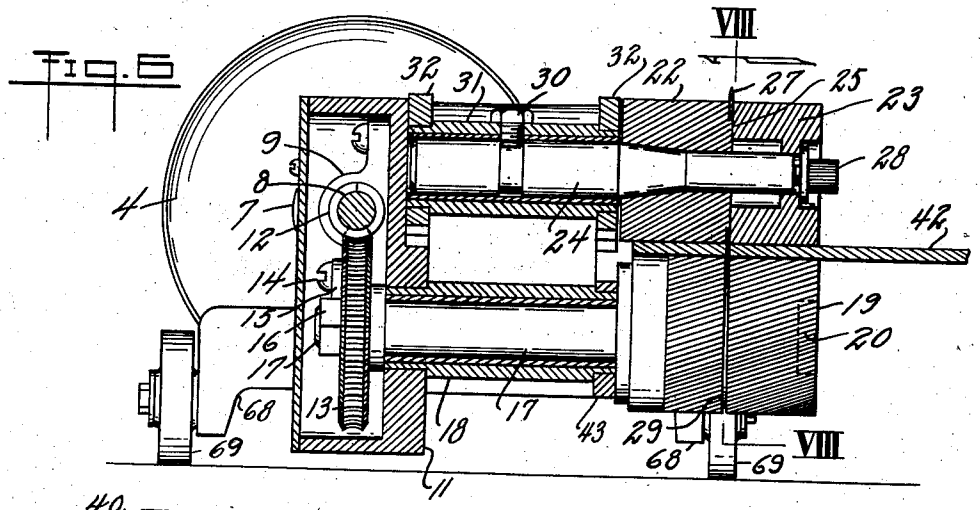


FIG. 7

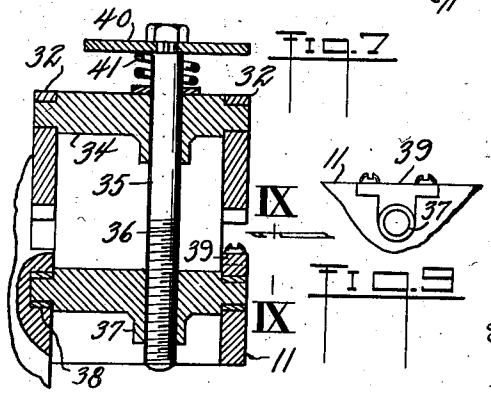
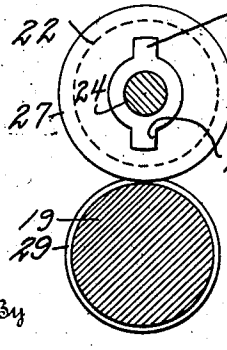


FIG. 9

FIG. 8



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UNITED STATES PATENT OFFICE

2,216,108

SHEET MATERIAL PORTABLE TRIMMER

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Application May 5, 1939, Serial No. 271,944

5 Claims. (Cl. 164—76)

This invention relates to cutting implements or tools, especially for accuracy in line contour.

This invention has utility when incorporated in roller mounted rotary blade apparatus adapted to floor coverings as of the linoleum type, for fitting such in the flat, even to designs of special configuration.

Referring to the drawings:

Fig. 1 is a side elevation of an embodiment of the invention in a movable tool;

Fig. 2 is a plan view of the device of Fig. 1, with parts broken away;

Fig. 3 is a fragmentary view on the line III—III, Fig. 2, showing features of the drive connection;

Fig. 4 is a fragmentary view in plan disclosing strips of floor covering as linoleum, rubber, or other composition, which may be accurately cut in strips for developing pattern;

Fig. 5 is a view on the line V—V, Fig. 2, showing features of the adjustment and guide;

Fig. 6 is a view on the line VI—VI, Fig. 2, showing features of the cutter;

Fig. 7 is a view on the line VII—VII, Fig. 1, showing features of the adjustment for the cutter holding lever;

Fig. 8 is a section on the line VIII—VIII, Fig. 6, showing the key mounting for the blade at the cutting roll; and

Fig. 9 is a view on the line IX—IX, Fig. 7, showing the holding nut for positioning the cutting roll or blade.

Electric power lines 1 in conduit 2 extend to fitting 3 (Fig. 1) in motor 4 to which switch 5 may be operated to effect driving action of shaft 6. This shaft 6 has flexible coupling connection 7 to shaft 8 having bearings 9, 10, (Fig. 2) in general frame extension 11 from the housing for the motor 4. This shaft 8 has thereon worm 12 in mesh with worm wheel 13 through screw 14 and arm 15 fixed with bolt 16 as anchoring key connection with shaft 17 mounted in fixed bearings 18 in the frame 11 (Fig. 3).

This shaft 17, as extending through the frame, carries roller 19 having pitch forming serrations 20 (Fig. 6) upon its traction face, which traction face is opposed to similar diameter smooth traction faces 21 on main roller 22 and extension section 23. The main roller 22 is fixedly mounted on shaft 24. This porton 22 has key face 25 (Fig. 8) coacting to register with key portions 26 in circular blade 27. As roll section 23 is anchored with this blade 27 by nut 28 on the shaft 24, this rotary cutter is thus positively assembled in position to have the blade 27 register with slot 29 centrally of the roll 19 fixed on the shaft 17. This shaft 24 is keyed by bolt 30 to be retained in bearing sleeve 31 of parallel arms 32 having fulcrum pin or bolt 33 (Fig. 2) in the frame 11.

The free ends of these parallel arms 32 (Figs. 1, 7) are engaged by rocker sleeve 34 through which extends stem 35 having threaded portion 36 engaged in rocker nut 37 mounted on bearing 38 of the frame at one end. At the opposite end, clamp 39 holds this rocker nut also in the frame 11. This stem 35 has hand wheel 40 actuated against compression helical spring 41. There is accordingly an adjustment for thrusting the arms 32 in position to carry the roller 22, 23, toward the roller 19 in thereby determining clearance for sheet material 42, to the end that this adjustment may be such that the blade 27 may approximate the thickness of the material 42, if not be slightly in excess thereof, thereby to have this free edge of the blade protrude into the slot 29. The occurrence of a fragment of cut material or other resistant matter as on the surface to approach between the rolls 19 and 22, 23, may not wreck the machine, for the spring 41 has give to take care of such. The direction of the pitch portion 20, is such that in the drive rotation, this material 42 is urged toward the frame 11. There is not a positive drive of the cutter blade 27 from this motor 4, but there is such effective holding of the stock 42 in position that the live roller 19 in progressing such stock causes the rotary blade 27 to cut into the stock 42 as the stock progresses between the rollers. This is accordingly a direct cutter action in which the blade is driven from the motor through action of the stock.

This frame 11 carries extension 43 (Fig. 2) including pair of sleeves 44 and spacer 45 as a cross-head guide for parallel rods 46 having spacer 47 at one end and spacer 48 at the opposite end. This spacer 48 as beyond the rods 46 has trunnions 49, 50, pitched at slight angle from perpendicular as to the spacer 48, thereby to carry rollers 51 of yieldable friction surface or gripping face. The spacer 48 has extension 52 toward the clearance between the rollers 19 and 22 as a limit stop for the material 42 as urged toward such stop, not only by the pitch serrations 20, of the rollers 19 and 22, 23, but by the angle of pitch for the axes of the rollers 51.

The position of this stop 52 axially from the cutter 27 is adjustable for the cross-head connection 47 has fixed therewith stem 53 having

threaded portion **54** engaging nut **55** fixed with the cross-piece extension **43** rigid with the frame **11**. This adjustment of the stem **53** is effected by crank **56**, and as the limit of adjustment is obtained, knurled wheel **57** may be adjusted as a lock nut therefor. Graduations **58** may be provided to disclose the lineal spacing of this limit stop **52** as to its spacing from the cutter blade **27**, thereby accurately to disclose the width of strip **59**, **60**, or other strip (Fig. 4) to be cut from the strip material **42**.

Supplemental to these adjustable guide rolls **51**, there is carried by this cross-head device from the frame **48** (Fig. 1), connector **61** having terminally inclined trunnion **62** parallel to the inclined trunnion **49**, and trunnion **63** parallel to the inclined trunnion **50**. These respective trunnions or sleeves **62**, **63**, carry friction face follower rollers **64**, rockably and adjustably opposing the respective rollers **51**. This connector **61** is held against lateral vibration through its mounting on the plate **48**. From this plate **48** there is riser **65** carrying overhang **66** mounting compression helical springs **67**, thereby providing an adjustable rocker so that the roller on the trunnion **62** may be lifted independently of or with the roller on the trunnion **63** or vice versa. Accordingly, there is yielding gripping coaction upon this strip material **42** and in all coaction effecting relative progress of the strip material **42** due to the feeding action of the serrated live roller **19** and incidental to its urging action transversely toward the frame or fixed stop **52**, there is throughout this feed extent due to the pitch of these rollers **51**, **64**, a holding of this stock against this fixed stop **52**. There is, accordingly, no opposite shifting but a positive definite holding throughout the cutting effective position and this for accuracy in the cutting which may be for as narrow as a quarter or an eighth of an inch in floor coverings of even excess such thickness. Furthermore, the strip may be for accurate lining up in registering with material as on the floor or in cutting designs and may be of width according to the lengths of the shafts **17** and **24** and accordingly the spacing effective from the stop **52** at the base of the frame **11** and as to the remoteness therefrom of the cutter blade **27** as carried by the extension providing location for the blade.

While this structure may be one through which material is passed and progressed by the action of the self-feeding and gripping means for the cutter, at extended floor operations it is convenient to provide bearings **68** aligned through the frame **11** for terminally mounting rollers **69**, in thereby providing a portable carrier or truck locating the rollers **19**, **51**, clear of floor **70**. For ready shifting, it is convenient to locate these rollers **69** in such position that in working, location of the motor **4** approximates counterbalance for the working parts, and the working parts as effecting the cutting may effect the on transit of this sulky within the range as permitted by the power supply by the lines **1** in the conduit **2**.

In operation herewith, with the strip floor covering in position on the floor, and it being located that it is in order to trim a section therefrom, say one inch, to have such accurately locate as to other place in the completion of the laying, it is in order to adjust the hand wheel **40** so that the position of the blade **27** as protruding from its roller **22** may approximate clearance as to the roller **19**, which is that of the thickness of the floor covering to be acted upon. Adjustment by operating the crank **56** and noting the graduations or scale **58** may verify as to the width of cut to be taken. The stop **52**, as thus positioned, places the machine in readiness to have the operator start on the position of the stock where cutting is to begin, and turn on power at the switch **5** as the power lines **1** are already connected. Thereby one starts the progress of this self-propelling truck to one side of the floor covering, from which the trimming is to be removed. This operation may be continued for the desired length and location of cutting or cuttings in accurately effecting the re-dimensioning of the floor covering or other sheet stock to be accorded attention. There is a speed and accuracy of operation resulting in elimination of blemish from trimming causes in the completing of the laying operations.

Opening **71** in the frame **11** may serve as convenient grip for facilitating transportation of the unit.

What is claimed and it is desired to secure by United States Letters Patent is:

1. A tool embodying a power drive, a carrier therefor, a rotary blade actuable from the drive, a limit stop laterally of the blade, guide roll means directing the material against the stop in travel to the blade, and an adjustable mounting for the guide roll means and stop as to the line of action for the blade.

2. A tool embodying a power drive, a carrier therefor, a rotary blade actuable from the drive, and relatively-rockable angularly-pitched guide roll pairs for gripping and directing material in travel to the blade.

3. A cutter tool for acting upon sheet material self-feeding at cutter progress rate, said tool embodying a truck, a rotary cutter mounted thereby, material gripping means for delivering the material into cutter receiving position there to be sustained by the truck, and a drive for the cutter carried by the truck.

4. A roller mounted frame, a motor carried thereby, a rotary cutter actuable from the motor, and rotary grip means for material to be cut, said grip means being carried by the frame and effective through engagement with the sheet material acted upon by the blade to propel the frame along the material as cut.

5. A cutting tool for acting upon sheet material, said tool embodying a power drive, a rotary blade actuable from the drive, a guide for the material coaxial with the blade, roll means for engaging the side of the sheet material away from the blade, yieldable means coacting with the roll means to effect gripping of the material adjacent the blade, and a roll-supported portable carrier for the tool as a unit.

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