Aug. 25, 1931. W. J. REHRIG 1,820,249

MACHINE FOR MAKING COAT HANGERS

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Fig. 1.

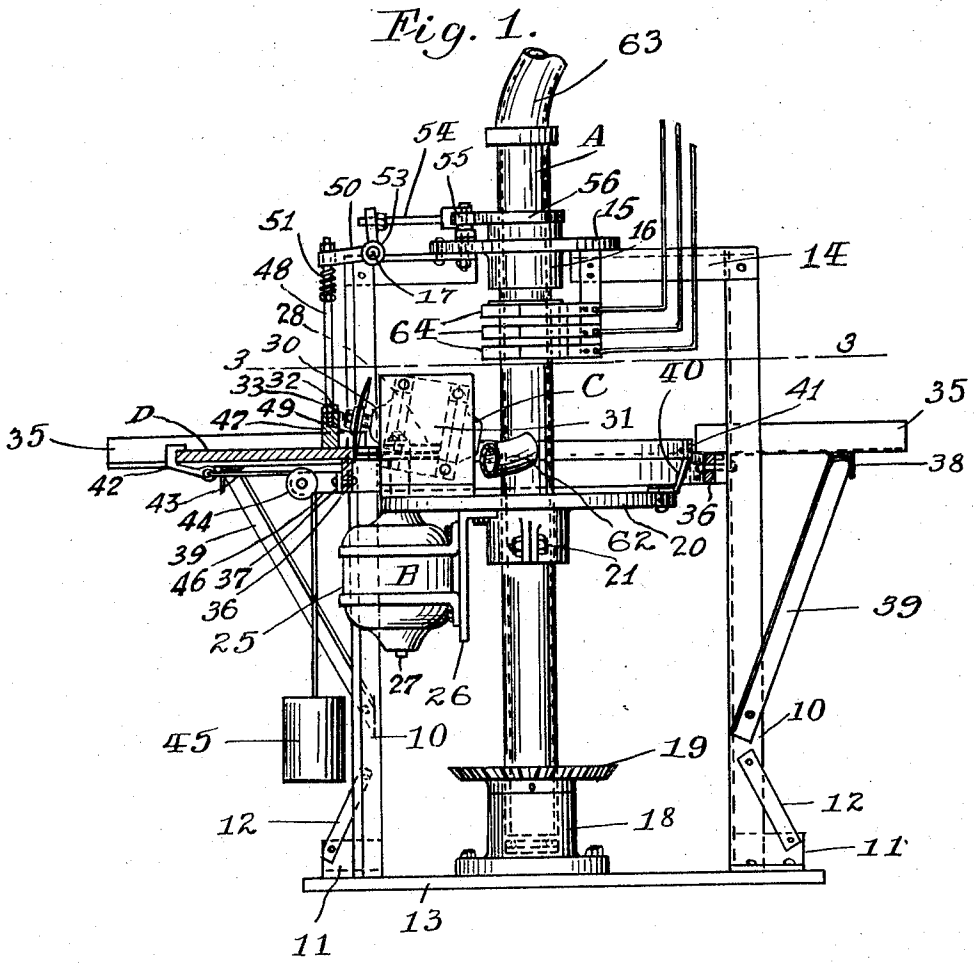

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Fig. 2.

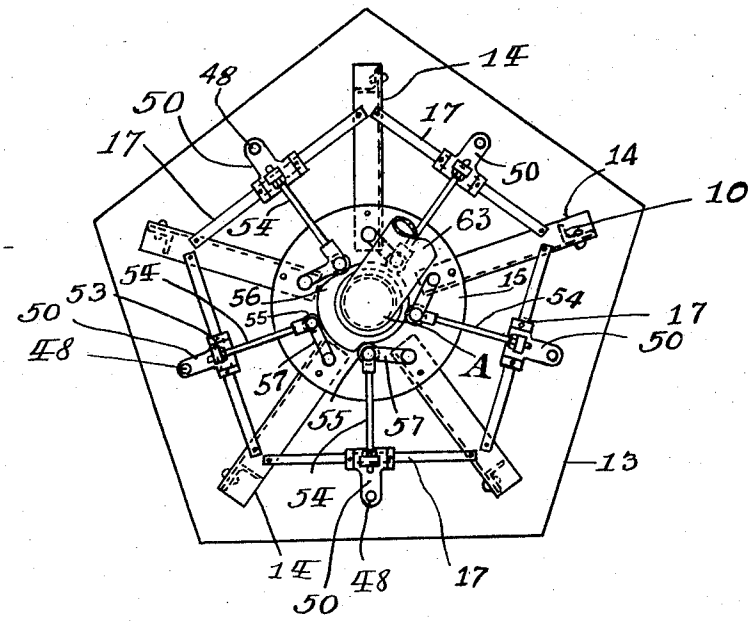
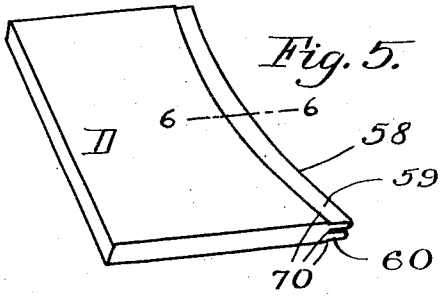


Fig. 4.

Fig. 5.



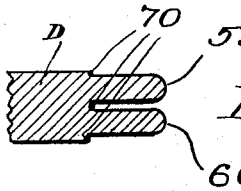


Fig. 6.

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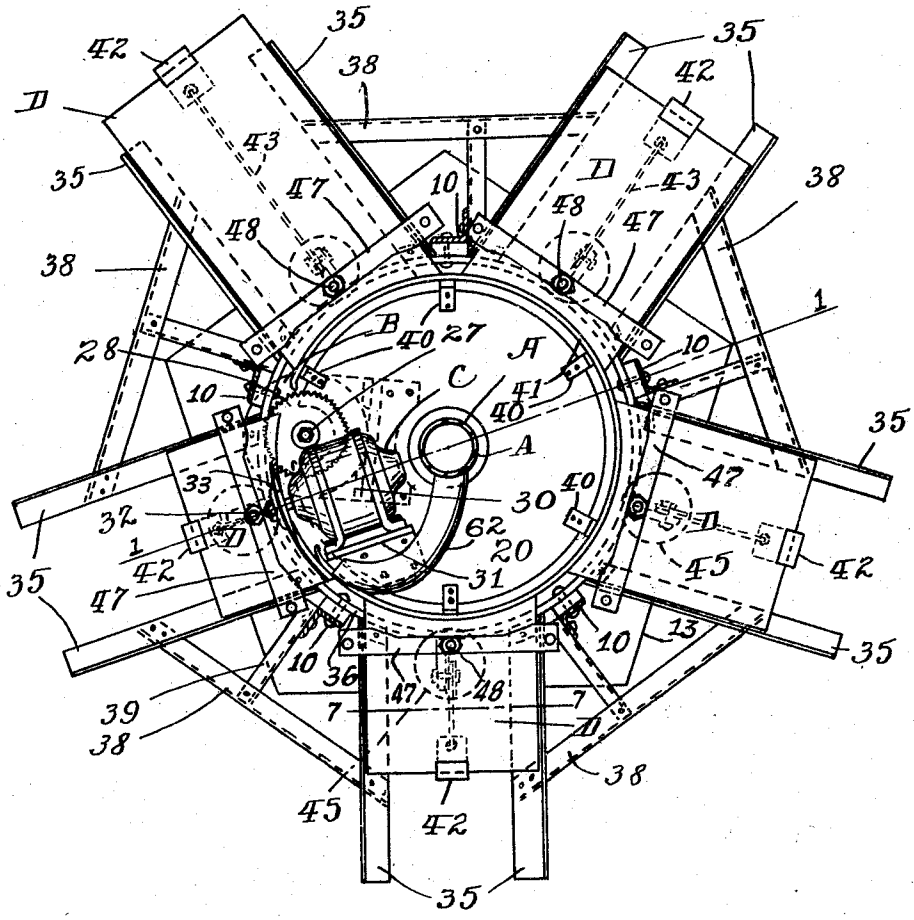
Fig. 3.



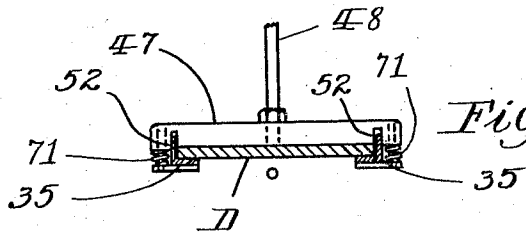


Fig. 7.

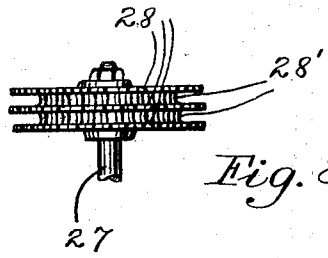


Fig. 8.

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UNITED STATES PATENT OFFICE

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MACHINE FOR MAKING COAT HANGERS

Application filed February 12, 1929. Serial No. 339,380.

My invention relates to improvements in machines for making coat hangers, the primary object being to provide means for making a maximum number of what I have chosen to term "coat hanger blanks" with a minimum of expense and labor. With these and other objects in view my invention comprises the features of construction and combination of parts hereinafter described and claimed.

In the accompanying drawings forming part of this specification, Fig. 1 is a side elevation of my invention, part of the view being in section taken on the line 1—1 of Fig. 3; Fig. 2 is a plan; Fig. 3 is a section taken on the line 3—3 of Fig. 1; Fig. 4 is a perspective view of two of the coat hanger stock blanks made by my improved machine; Fig. 5 is a perspective view of a coat hanger blank after the trimming saw blades have performed their function and prior to the final cut made by the cupped saw; Fig. 6 is an enlarged section taken on the line 6—6 of Fig. 5; Fig. 7 is a section taken on the line 7—7 of Fig. 3, and Fig. 8 is a side elevation of one of the cutting elements.

My improved machine is assembled in a suitable frame, that shown comprising a cluster of five angle posts 10, provided with stability foot pieces 11 and corner braces 12, said foot pieces being mounted upon a suitable base 13. The top portion of the frame is braced by the radiating angle members 14, which are secured to the circular flange 15 of a journal bearing 16 to produce a rigid structure. Arranged vertically in this frame is a hollow shaft A, which is journaled at its lower end in a step bearing 18 on the base 13. The upper end of said shaft turns in the journal bearing 16. This shaft is driven by the bevel gear 19 or any other suitable drive, and carries a horizontal turn table 20 which is rigidly clamped to said shaft by bolt 21 or other suitable means. The primary function of the turn table is to carry two motor driven cutting elements B and C, which are revolved in a horizontal plane to perform their work.

Cutting element B consists of a motor 25 mounted by depending bracket 26 upon the turn table and arranged with its drive shaft 27 on a vertical axis and carrying at its upper end a plurality of circular cutters 28, suitably spaced apart with intervening concave cutters 28′. Cutting element C consists of a motor 30 mounted by upwardly extending bracket 31 on the turn table with its drive shaft 32 disposed on an axis radiating from the vertical axis of the main drive shaft A and inclined upwardly and outwardly from the turn table and carrying on its outer end a "cup saw" 33 as will be more particularly described.

Clustered evenly around the frame and radiating from the main shaft A are a plurality of pairs of parallel angle work guides 35, five in number being shown but any suitable number being contemplated. The inner ends of these guides are secured rigidly to a supporting band 36 by brackets 37 and their outer ends are supported by cross members 38, which in turn are carried by downwardly and inwardly inclined braces 39. The lower ends of these braces are secured to the posts 10. The band 36 is fastened to said posts to augment the rigidity of the main frame and said guides project inwardly with their inner extremities flush with the inner surface of the band 36, to provide clearance for the cup saw 33. The lower sides of the angle work guides of each pair face inwardly to provide a track along which the coat hanger stock D may be fed into the machine. The guides 35 constitute coat hanger stock holders and as shown provide means by which a plurality of pieces of stock may be fed into the machine simultaneously to be operated upon by the pair of motor driven cutting elements B and C.

Secured to the outer edge of the turn table by brackets 40 and concentric therewith is a circular stop or band 41, which is so positioned as to provide a moving stop against which the inner ends of the work or stock pieces D are fed. The work or stock usually is composed of wood or other suitable material and is fed inwardly by a hook 42 over its outer end attached to a flexible cord 43 running over a pulley 44 and attached to a weight 45, said pulley being journaled by brackets

46 between each pair of stock guides and secured to the supporting band 36.

The stock piece is clamped near its inner end upon the pair of work guides 35 by means of the transverse presser foot 47 while the motor driven cutting elements B and C are performing their cutting function, there being a presser foot and its co-operating parts provided for each pair of guides. The presser foot is held by an upwardly extending thrust rod 48 threaded thereinto and held adjusted by lock nut 49. The upper end of thrust rod 48 passes freely through the lower arm of a bell crank 50 and is held under adjustable tension of spring 51 so that tilting of bell crank 50 up relieves tension of presser foot 47 to permit the stock sliding in against stop 41 and downward movement applies the pressure foot to hold the stock rigidly under spring pressure. The ends of the presser foot 47 are slotted at 52 (see Fig. 7) to receive vertical sides of guides 35 and assist in guiding the presser foot in its action without turning. The bell crank 50 is journaled at its angle upon the supporting shaft 17 mounted upon radiating braces 14 and said bell crank is revolubly held between collars 53 on said shaft. The upper arm of the bell crank is operated by a thrust rod 54 which carries on its inner end an antifriction roll 55. Said roll is movably held against the surface of a cam 56 by means of a stirrup 57 which is pivoted upon the flange 15 of the stationary bearing 16. The cam is so shaped as to cause each presser foot 47 to hold the stock D stationary while the cutting elements are performing their work and to immediately release the stock and allow the feeding device 42 to function after the cutting elements pass on to a succeeding stock feeding element as the shaft A revolves. In this manner the cutting elements perform their function successively upon the succession of stock pieces held by the several holding and feeding devices. The presser foot is raised to release the stock after each cutting operation by means of springs 71 on the sides of the guides 35, the combined tension of said springs being less than the downward thrust of the spring 51, when the bell crank is down.

During the cycle of operation, the work stock having been previously cut at 58 along an arc of a circle corresponding with the curve described by the cutters 28 and 33 is cut by the horizontal cutters 28. These cutters, three in number as shown and of equal diameter, are assembled at evenly spaced intervals apart on the vertical shaft 27 of cutter element B so as to cut the sides of a pair of coat hanger blanks 59 and 60 evenly as the turn table revolves. As the cutters 28 perform their function the inner concave cutters 28′ lying between and of less diameter than cutters 28, round the inner edges of the tongues or coat hanger blanks 59 and 60 as shown in Fig. 6, to produce a smooth rounded lower or inner edge on each blank. Immediately following the action of these cutters 28, the cup saw 33, which is mounted upon the upper and outer end of shaft 32 of the cutter element C cuts the pair of coat hanger blanks 59 and 60 from the stock piece along the lines 70 of the kerfs left by the horizontal cutters 28, thus producing a pair of completed curved coat hanger blanks 61, of even width and thickness such as shown in Fig. 4. These blanks as cut by the cup saw drop and can be removed from the machine by any suitable conveyer means not shown. The work or stock piece D can be built up in rough out of pieces of material glued together so as to utilize the last curved cut made by the cup saw.

The hollow shaft A is provided with a duct 62 near the turn table which has an orifice near the cutting elements and said shaft is connected with a suction duct 63 at its upper end which is adapted to remove saw dust as the cutters function. Suitable commutator rings 64 on the shaft A also provide electrical connections for the motors 25 and 30.

As the machine operates an attendant following the action of the cutters may from time to time replenish the used stock in each pair of guides 35. Otherwise the operation of the machine is automatic. The machine operates at high speed and produces a finished product of best quality. By cutting a plurality of blanks at each operation of the cutters the output of the machine is increased.

Having described my invention what I claim as new and desire to secure by Letters Patent is:

1. A machine for making coat hanger blanks, comprising, in combination, a carrier revoluble about a vertical axis, means for revolving said carrier, a motor driven cutting element mounted upon said carrier and adapted to move in a circular path concentric with said axis, a stop on said carrier against which the stock is adapted to be adjusted with its inner end across the cutting path of said cutting element, a plurality of stock holders distributed around said axis and adapted to present a series of pieces of stock against said stop and to the successive cutting action of said cutting element as the latter revolves about said axis, each of said stock holders comprising a guide support for holding and guiding a piece of stock across the path of said cutting element and against said stop, clamping means co-acting with said holder for securing the stock while the cutting element is performing its function and for releasing the stock thereafter, and cam operated means connected with said shaft for applying and releasing said clamp automatically.

2. A machine for making coat hanger

blanks, comprising, in combination, a carrier revoluble about a substantially vertical axis, means for revolving said carrier, a stock holder cooperating with said carrier and adapted to present stock in a plane intersecting said axis at an angle, a motor driven gang of cutters on said carrier adapted to be moved in a circumferential path to describe a plurality of substantially horizontal and longitudinally circular cuts in the end of said stock on said holder corresponding with the sides of coat hanger blanks, and a motor driven cup saw on said carrier adapted to be moved in a circular path to describe a curved cut off severing the portions of stock prepared by said gang of cutters into completed coat hanger blanks.

3. A machine for making coat hanger blanks and the like, comprising, in combination, a carrier revoluble about a vertical axis, means for revolving said carrier, a motor driven cutting element mounted upon said carrier and adapted to move in a circular path concentric with said axis, a stop on said carrier against which the stock is adapted to be adjusted with its inner end across the cutting path of said cutting element, a plurality of stock holders distributed around said axis and adapted to present a series of pieces of stock against said stop and to the successive cutting action of said cutting element as the latter revolves about said axis, each of said stock holders comprising a guide support for holding and guiding a piece of stock across the path of said cutting element and against said stop, clamping means co-acting with said holder for securing the stock while the cutting element is performing its function and for releasing the stock thereafter, and means actuated in synchronism with the revolution of said carrier for applying and releasing said clamp.

In witness whereof I have signed my name to this specification.

WILLIAM J. REHRIG.