L. A. WALKER.

DOWEL CUTTING AND POINTING MACHINE.

APPLICATION FILED FEB. 24, 1908.

907,201.

Patented Dec. 22, 1908.

4 SHEETS—SHEET 1.

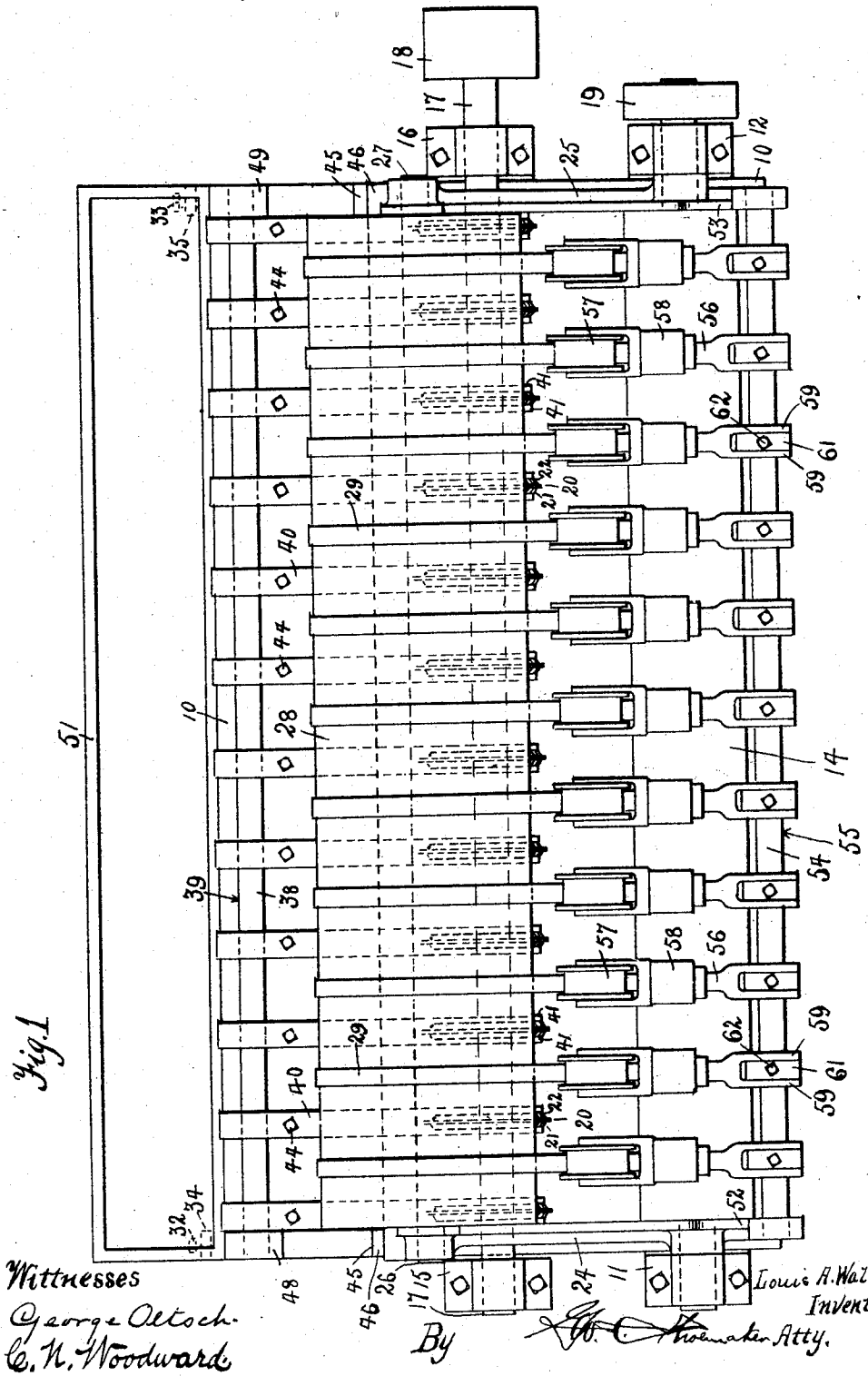


Fig. 1.

Witnesses
George Oetsch.
C. N. Woodward.

Louis A. Walker,
Inventor.

By W. C. Rhodewalter Atty.

THE NORRIS PETERS CO., WASHINGTON, D. C.

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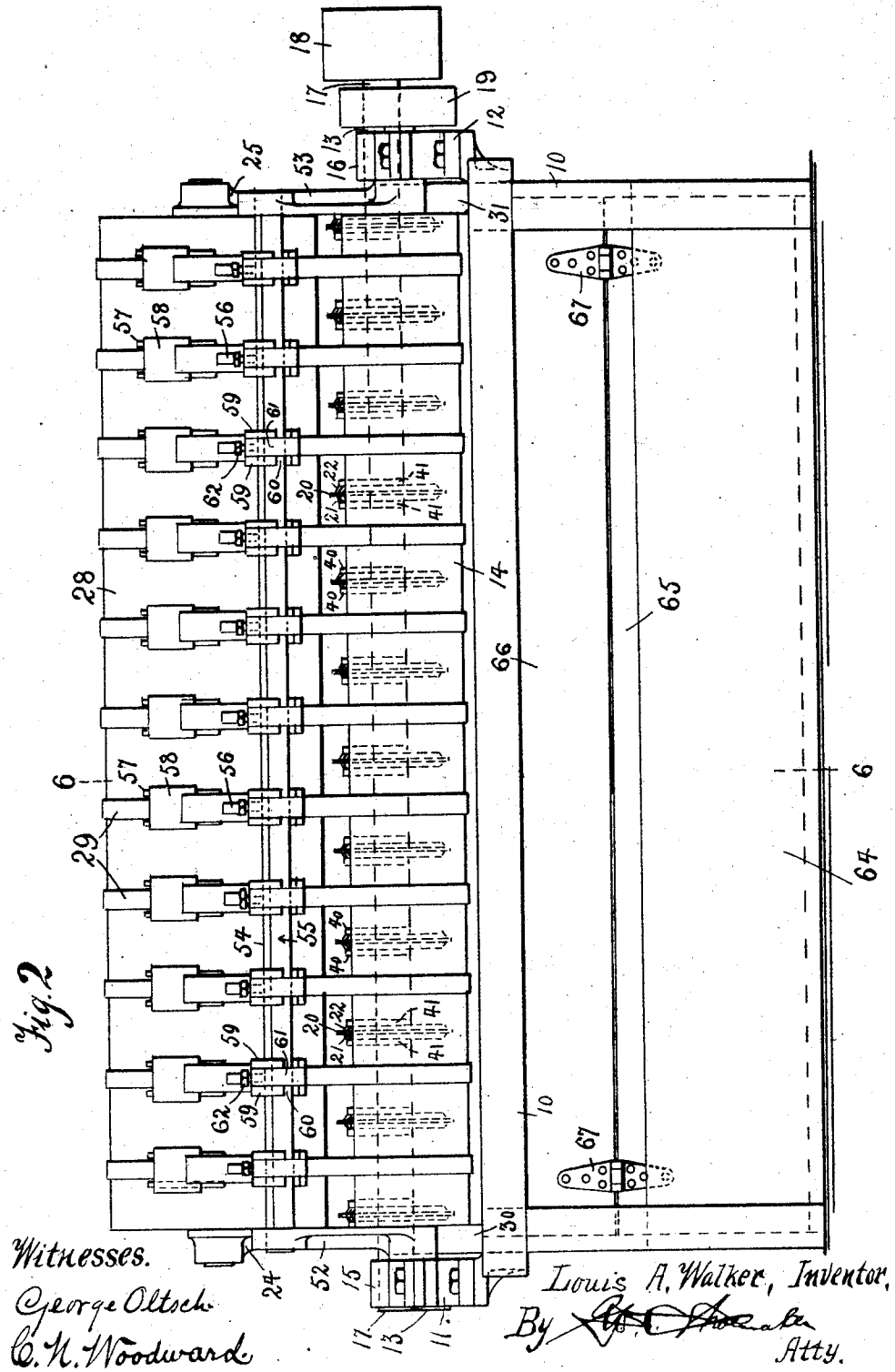


Fig. 2

Witnesses.

George Oltsch.

C. N. Woodward.

Louis A. Walker, Inventor,

By [illegible] Atty.

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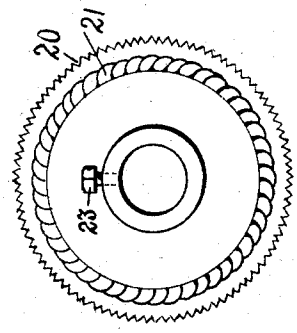


Fig. 4

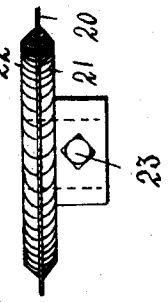


Fig. 5

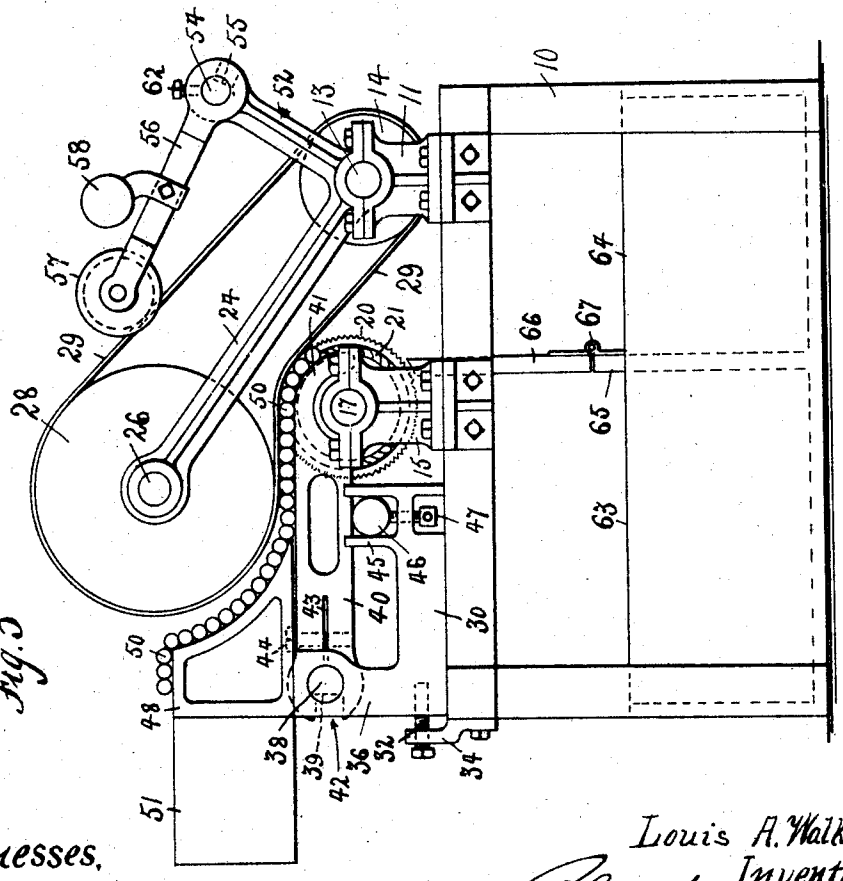


Fig. 3

Witnesses,
George Oltsch.
C. H. Woodward.

Louis A. Walker,
Inventor,
By [illegible]
Atty

THE NORRIS PETERS CO., WASHINGTON, D. C.

L. A. WALKER.

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4 SHEETS—SHEET 4.

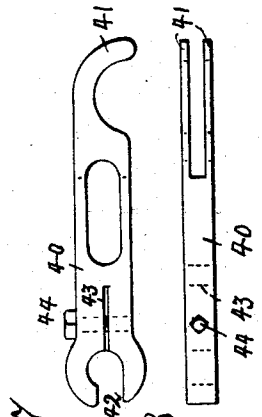


Fig. 7

Fig. 8

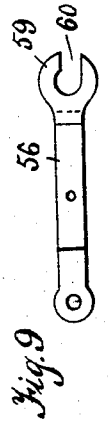


Fig. 9

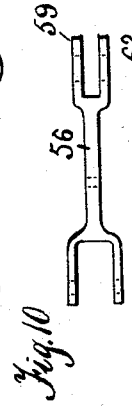


Fig. 10

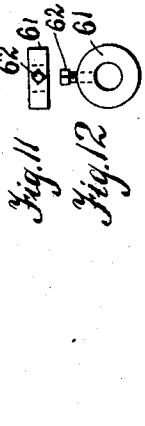


Fig. 11

Fig. 12

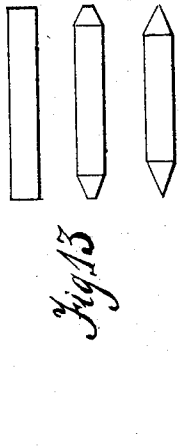


Fig. 13

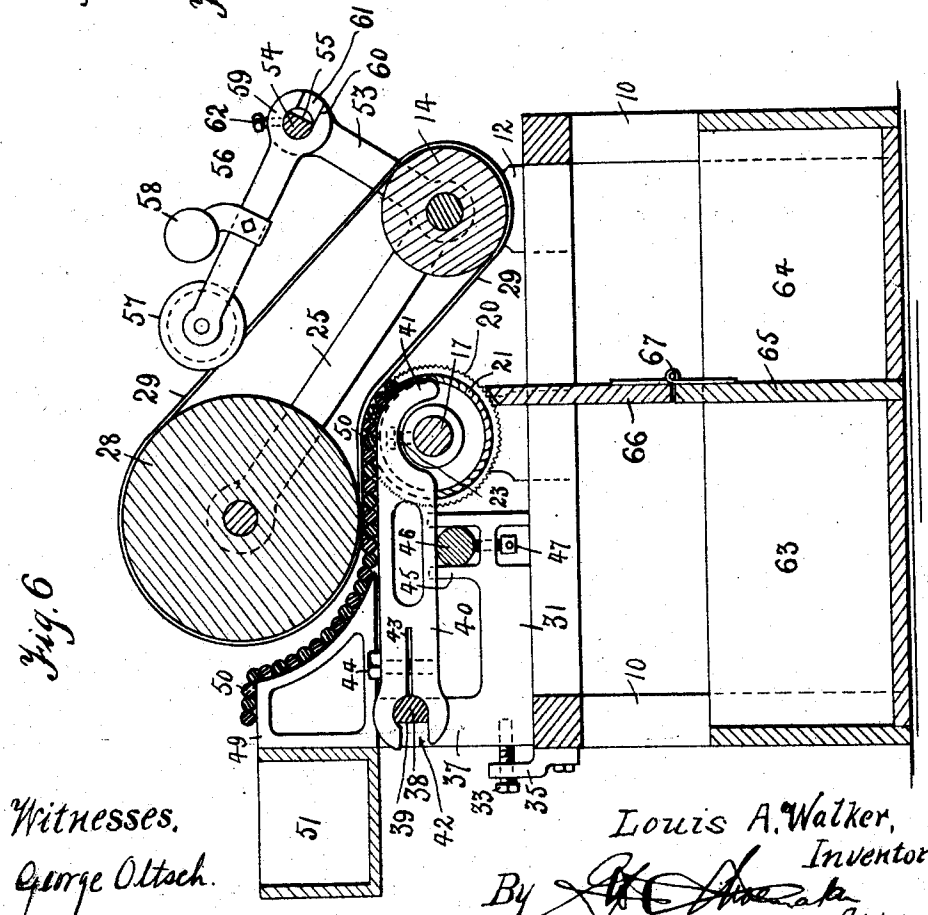


Fig. 6

Witnesses.

George Oltsch.

E. M. Woodward.

Louis A. Walker,

Inventor.

By

Atty

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

LOUIS A. WALKER, OF SOUTH BEND, INDIANA.

DOWEL CUTTING AND POINTING MACHINE.

No. 907,201. Specification of Letters Patent. Patented Dec. 22, 1908.

Application filed February 24, 1908. Serial No. 417,354.

To all whom it may concern:

Be it known that I, LOUIS A. WALKER, a citizen of the United States, residing at South Bend, in the county of St. Joseph and State of Indiana, have invented certain new and useful Improvements in Dowel Cutting and Pointing Machines, of which the following is a specification.

This invention relates to machines for making dowel pins, and has for its object to produce a simply constructed and efficient machine whereby relatively long rods may be cut into the required shorter lengths and the ends of the severed sections pointed or beveled simultaneously with the cutting into lengths.

With these and other objects in view the invention consists in certain novel features of construction, as hereafter shown and described and specifically pointed out in the claims.

In the drawings employed for illustration is shown the preferred embodiment of the invention, and in the drawings thus employed, Figure 1 is a plan view of the improved apparatus. Fig. 2 is a front elevation of the same. Fig. 3 is an end elevation. Fig. 4 is an enlarged side elevation, and Fig. 5 is an enlarged plan view of one of the combined severing and pointing or beveling devices. Fig. 6 is a section on the line 6—6 of Fig. 2. Fig. 7 is a side view, and Fig. 8 is a plan view of one of the rod supporting arms. Fig. 9 is a side view and Fig. 10 is a plan view of one of the tension pulley arms. Fig. 11 is a plan view, and Fig. 12 is a side view of one of the stop collars employed in connection with the tension pulley arms. Fig. 13 represents views of the various forms of pins produced on the improved machine.

The improved device comprises a supporting frame 10 of any required size or any suitable material, and preferably oblong in shape. Connected to the forward portion of the frame are brackets 11—12 in which the shaft 13 is mounted for rotation and carrying a drum 14. Connected to the frame 10 intermediate its sides are brackets 15—16 in which an arbor 17 is mounted for rotation, the arbor provided with a driving pulley 18, while a driving pulley 19 is connected to the shaft 13. Power will be applied to the driving pulleys 18—19 in any suitable manner, the course of power not being shown, as it forms no part of the present invention.

Adjustably mounted upon the arbor 17 are a plurality of cutting devices each comprising a central saw 20 and cutting disks 21—22 at the sides of the saw, the saws designed to sever the rods into required lengths and the cutting disks designed to bevel or point the ends, as may be required, and as hereafter described more fully. The cutting devices will be adjustably arranged upon the arbor 17, so that pins of different lengths may be severed and beveled or pointed, the adjustment being preferably accomplished by employing set screws 23 operating through the hubs of the cutting devices, as shown.

Swinging from the shaft 13 between the ends of the drum 14 and the standards 11—12 are arms 24—25, and journaled at 26—27 in the free ends of the arms is a relatively large drum 28, and passing around the drums 14—28, are belts 29 spaced apart between the cutting devices, as shown, the function of these belts being hereafter explained.

Adjustably disposed upon the frame 10 at its rear portion are supporting devices 30—31, the supporting devices adapted to be adjusted upon the frame by screws 32—33 operating through small brackets 34—35 so that the members 30—31 may be adjusted toward or away from the arbor 17. At their rear ends the members 30—31 extend upwardly as at 36—37 and form bearings for the ends of a shaft 38, the latter held rigidly in the bearings 36—37, and with its rear face flattened, as at 39. Swinging upon the shaft 38 are a series of arms 40, the forward ends of the arms provided with curved recesses 41 and spaced from and extending over the arbor 17, the upper face of the free ends of the arms 40 being curved concentrically with the saws 20 and the cutting disks 21—22, and forming guides for the rods as they approach the saw and likewise as guides for the severed pins in their passage from the saws to the receptacle.

At their rear ends the arms 40 are provided with radial recesses 42, the width of the recesses equaling the least thickness of the shaft 38, so that when the arms are disposed in an elevated position the flattened portion 39 of the shaft will permit the arms to be removed from the shaft, but which will be firmly held upon the shaft when disposed in operative position. The arms 40 are also formed with longitudinal slits 43, and the

arms provided with clamp screws 44 extended through the slitted portion, so that the arms are formed yieldably to a limited extent to enable them to be clamped to any required extent upon the shaft 38. The supporting devices 30—31 are provided at their inner ends with spaced guide members represented at 45, and resting between these guide members is a roller 46, bearing beneath the arms 40 and adjusted vertically by means of the adjusting screws 47, so that the arms 40 are firmly supported in position and adjustable vertically to any required extent, so as to bring the upper faces of the arms in proper position relative to the saws and cutting devices.

Supported upon the vertical portions 36—37 of the supporting devices 30—31 are supporting brackets 48—49, the upper faces of the brackets being horizontal and their inner faces curved, preferably with a curve having a greater radius than the drum 28 and providing supporting means for the rods represented at 50 on their way to the space between the drum 28 and the arms 40. Attached to the rear sides of the brackets 48—49 is a receptacle 51 for the support of the rods which are to be cut into pins.

The arbor 17 with its cutting devices 20—21—22, the drum 28, and the arms 40 including the curved portions 41, will be so arranged relatively to the rods 50 that they will pass between the drum 28 and the brackets 48—49 and the arms 40 and be held upon the arms 40 and their curved portions 41 by the lower sides of the belts 29 in their passage between the drums 28—14, as shown, the belt thus serving to hold the rods in position and feed them to the saws and cutting devices being caused to rotate by the action of the belt as they are passed into engagement with the cutting devices. The arms 24—25 are provided respectively with shorter arms 52—53 supporting a shaft 54 in their outer ends, the shaft being flattened upon one side as at 55 in the same manner as the shaft 38. Swinging from the shaft 54 are a plurality of arms 56 carrying tightener pulleys 57 in their outer ends and bearing upon the belts 29, and thus taking up the slack of the belts and keeping them in their requisite taut condition. To increase the force of the tightener devices, weights 58 are connected with the arms 56, as shown. The ends of the arms 56 which engage the shaft 54 are forked, as at 59, and the terminals of the forks are formed with recesses 60 equal in width to the thinner portion of the shaft 54, or equal in thickness to the width of the shaft at its thinner diameter caused by the flattening portion 55. By this means the arm 56 may be readily detached from the shaft 54 when elevated into a certain position, but will be firmly coupled to the shaft when in operative position as will be obvious. Surrounding the shaft 54 between the forked portions 59 of the arms 56 are stop collars 61 having set screws 62 whereby they may be firmly coupled to the shaft, the collars serving to maintain the arms 56 in position upon the shaft, while at the same time enabling them to be readily adjusted longitudinally of the shaft by loosening the said screws 62. The tightener pulleys 57 are provided with flanges bearing against the side of the belts 29 and thus serving to maintain the belts in position, and preventing them from running toward either end of the drums 28—14, while at the same time by adjusting the arms 56 as above described, the belts may be caused to run at predetermined points upon the drum.

The rods 50 are furnished to the machines of any required length and fed manually from the receptacle 51 to the upper flat surface of the brackets 48—49 and caused to pass into the space between the brackets 48—49 and the drum 28 and pass down the curved faces of the brackets by gravity until they are caught by the belts 29 between the arms 40 and the drum 28 and thence conveyed to the sawing and cutting devices, where the rods are cut into lengths by the saws and their ends beveled or pointed by the action of the cutting disks 21—22. The rolling action produced by the belts co-acting with the cutting devices 21—22 produces smooth, uniform beveled or pointed ends upon the pins. If the slight bevel only is required the arms 40 will be elevated through the action of the roller 46 and its adjusting screws 47, so that the rods are caused to pass at a higher point in engagement with the cutting devices, but if the pins are to be pointed, or formed without any flat portions at the ends, the roller 46 will be lowered by the screws 47 until the centers of the pins come in line with the outer peripheries of the cutting devices, with the result of completely pointing the pins, as will be obvious.

The arms 24—25 with the drum 28, bear by gravity only upon the rods, thus producing a relatively strong pressure upon the rods, so that the belt 29 positively rotates the rods against the action of the cutting devices, and produces a smooth uniform result, while at the same time the action is positive.

Arranged in the lower portions of the frame 10 are two receptacles 63—64 divided by a partition 65, the partition provided at its upper edge with a wing 66 hinged to the partition 65, so that it may be adjusted with its upper edge near to or farther from the cutting devices, the wing 66 being disposed at times in advance of the arbor 17. By this arrangement any short pieces of material which may be severed will fall between the arms 40 just as soon as they are severed by the saw 20 and fall to the rear of the wing 66 and into the receptacle 63, while the per-

fect full length pins only will pass over the curved surface of the arms 40 and fall into the receptacle 64. By this arrangement the imperfect or short pins are divided out from the perfect or full length pins and deposited into separate receptacles, from which they may be removed as required. This is an important feature of the invention, and adds materially to its value and utility.

It will be obvious that a simply constructed and efficient machine is produced which automatically severs relatively long rods into pins of any required length and automatically points or bevels the ends as required.

The saws 20 will be large enough so that they project beyond the cutting disks 21—22 to a greater extent than one-half of the diameter of the rods 50, so that if it is desired to produce pins with flat ends only and without being beveled or pointed, it is only necessary to adjust the arms 40 by operating the roller 46 and its adjusting screws 47 to cause the arms 40 to hold the rods sufficiently elevated so that the saws only act upon the rod.

The apparatus may be constructed of any desired length to suit rods of any required length, and I do not therefore desire to be limited in any manner to any particular length of the machine, or to a machine provided with any specific number of the cutting devices and adjusting mechanisms.

It will be obvious that rods of any length may be operated within the scope of the receiver 51, and it will also be obvious that rods much shorter than the receptacle 51 may be employed, or rods of varying lengths may be operated upon at the same time, as any short ends which may result will be divided out and deposited in the receptacle 63 at any point in the length of the machine. Thus if a short rod be deposited in the machine, with its ends both faced inwardly from the ends of the machine, the short ends of the rod wherever they might happen to come will drop into the receptacle 63, while the perfect pins only would pass to the receptacle 64.

The means shown for feeding the rods against the saws and cutting devices are belts, but it will be understood that chains of suitable construction may be substituted for the belts, or other suitable devices employed for the same purpose, and it is not therefore desired to limit the device to any specific material from which to construct the conveying device.

The mechanism shown is the preferred form of the embodiment of the invention, but it will be understood that various changes may be made in the details of the construction within the scope of the appended claims without departing from the principles of the invention or sacrificing any of its advantages.

Having thus described the invention, what is claimed as new is:—

1. In an apparatus of the class described, a plurality of cutting devices spaced apart, adjustable supporting devices, a stationary shaft mounted in said supporting devices, a plurality of arms spaced apart and swinging from said shaft and extending adjacent to said cutting devices, a supporting member beneath said spaced arms, means for adjusting said supporting member vertically to control the depth of cut of the cutting devices, and a receptacle carried by the supporting devices.

2. In an apparatus of the class described, a base frame, cutting devices, supporting devices carried by said base frame and provided with vertical guide ways, a supporting member disposed between said guide ways, means for adjusting said supporting member between said guide ways, a shaft carried by said supporting devices, and arms swinging from said shaft and adapted to support the material and bearing upon said supporting member.

3. In an apparatus of the class described, a plurality of cutting devices spaced apart, a stationary shaft, a plurality of arms spaced apart and swinging from said shaft and extending adjacent to said cutting devices, a supporting member beneath said spaced arms, means for adjusting said supporting member to control the depth of cut of the cutting devices, and means for simultaneously carrying the material over the arms and imparting a rotary motion thereto.

4. In an apparatus of the class described, a base frame, cutting devices, supporting devices carried by said base frame, a shaft carried by said supporting devices, arms swinging from said shaft and adapted to support the material, a supporting member carried by said supporting devices and extending beneath said arms, means for adjusting said supporting member to correspondingly adjust said arms, and means for simultaneously carrying the material over the arms and imparting a rotary motion thereto.

5. In an apparatus of the class described, a base frame, cutting devices, supporting devices carried by said base frame and provided with vertical guide ways, a supporting member adjustably mounted between said guide ways, a shaft carried by said supporting devices, arms swinging from said shaft and adapted to support the material and bearing upon said supporting member, and means for simultaneously carrying the material over the arms and imparting a rotary motion thereto.

6. In a device of the class described, rotary cutting devices, arms adapted to support the material in position to be acted upon by the cutting devices, a drum having journals and mounted for rotation, arms having

lateral projections and swinging from said drum journals, a drum carried by said swinging arms, endless feeding devices operating over said drums and simultaneously feeding the material to the cutting devices and rotating it upon said supporting arms, a shaft rigidly supported in said lateral projections and flattened on one side, arms having forked terminals with bearings swingingly engaging said rigid shaft and carrying tightener pulleys bearing upon said endless devices, the bearing projections of said arms having open slots equal in width to the thinnest diameter of said stationary shaft, whereby said tightener arms may be detached from said stationary shaft when lifted out of operative position, and stop collars upon said stationary shaft between the forked ends of said tightener pulley arms, and means for adjustably connecting said collars to said stationary shaft.

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

LOUIS A. WALKER.

Witnesses:
GEORGE OLTSCH,
G. M. COLE.