O. GERRISH.

ROLL FORMING APPARATUS.

APPLICATION FILED MAY 17, 1915.

1,163,401.

Patented Dec. 7, 1915.

3 SHEETS—SHEET 1.

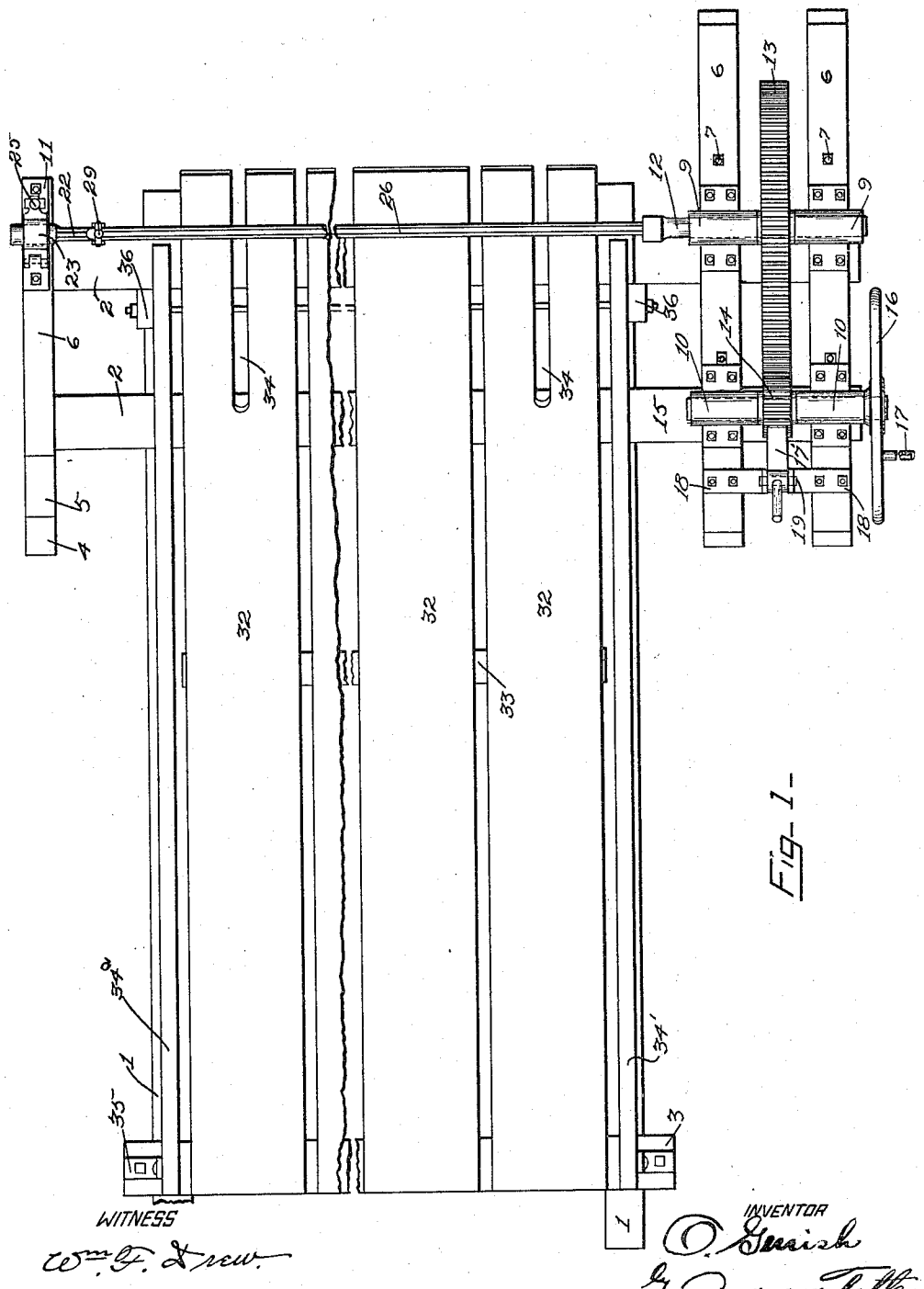


Fig. 1.

WITNESS

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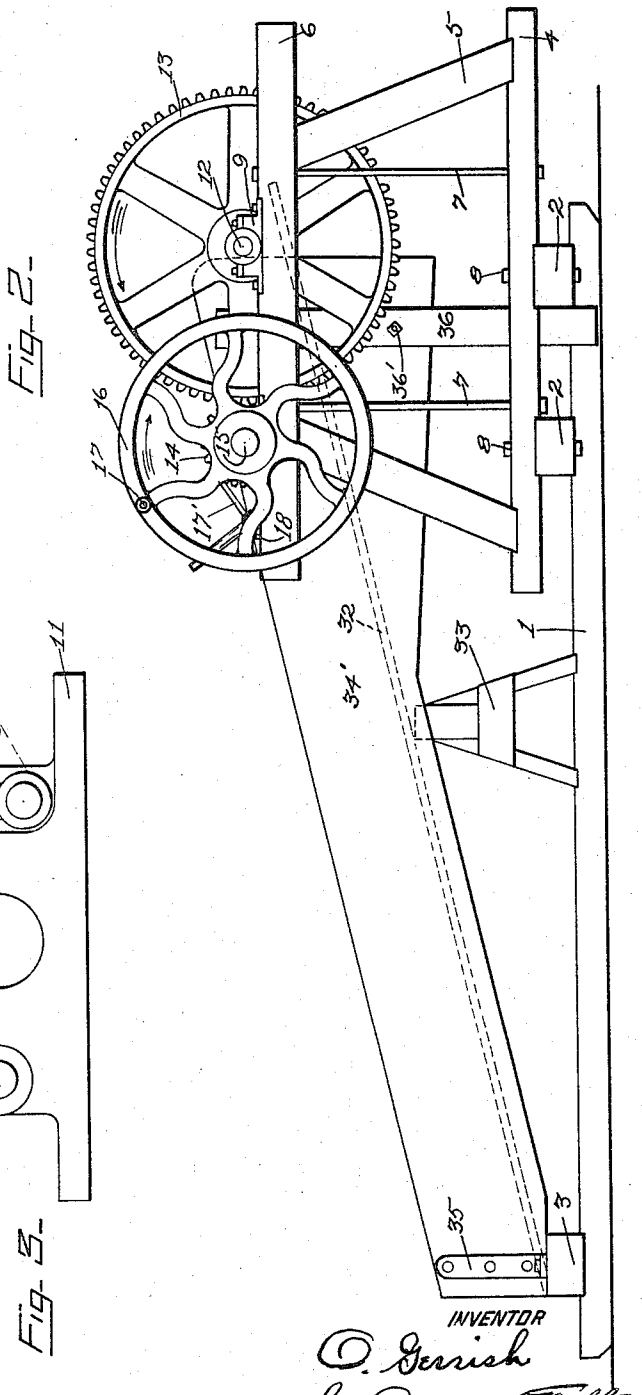


Fig. 2.

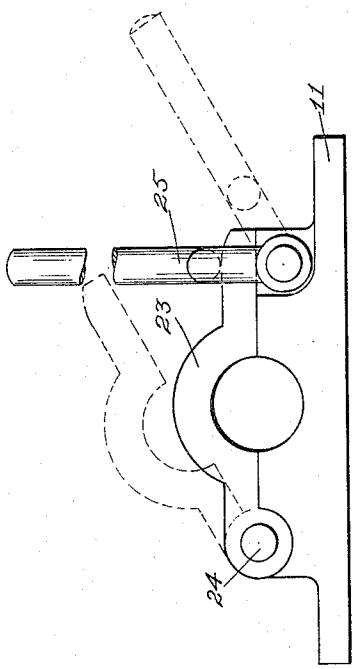


Fig. 3.

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3 SHEETS—SHEET 3.

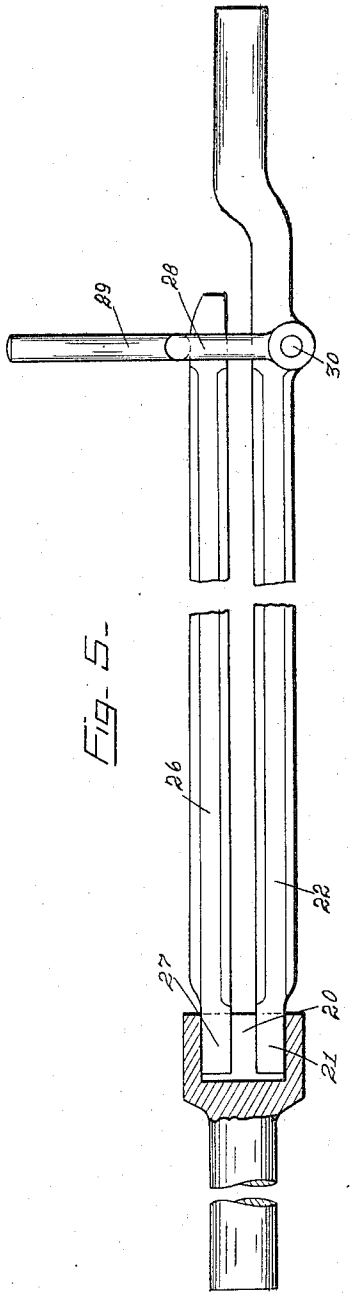


Fig. 5.

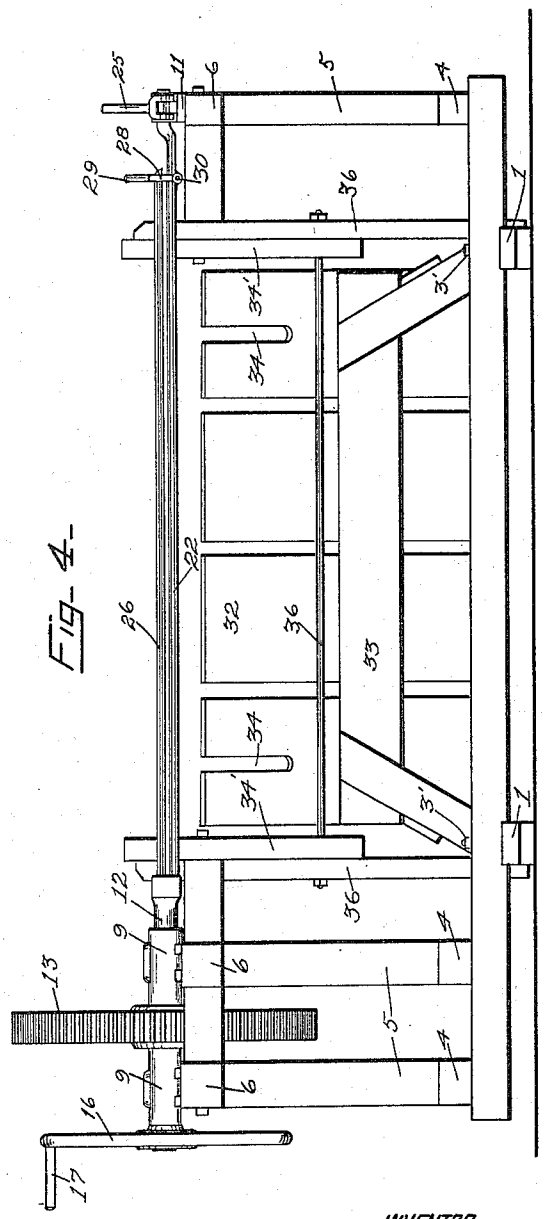


Fig. 4.

WITNESS

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UNITED STATES PATENT OFFICE.

OLIVER GERRISH, OF BENICIA, CALIFORNIA, ASSIGNOR OF ONE-HALF TO KULLMAN, SALZ & CO., INC., OF SAN FRANCISCO, CALIFORNIA, A CORPORATION OF CALIFORNIA, AND ONE-HALF TO EAGLE TANNERY, A COPARTNERSHIP COMPOSED OF MORRIS WINDT AND HENRY WINDT, OF SAN FRANCISCO, CALIFORNIA.

ROLL-FORMING APPARATUS.

1,163,401. Specification of Letters Patent. Patented Dec. 7, 1915.

Application filed May 17, 1915. Serial No. 28,597.

To all whom it may concern:

Be it known that I, OLIVER GERRISH, a citizen of the United States, residing at Benicia, in the county of Solano and State of California, have invented certain new and useful Improvements in Roll-Forming Apparatus, of which the following is a specification.

The present invention relates to an apparatus for preparing sheets of flexible material into tightly wound rolls for shipment or storage.

The invention is particularly adapted for winding sides of leather or other stiff material into rolls, as heretofore the leather has been rolled by hand into large, loose, cumbersome bundles which occupied considerable more room than if the same had been rolled tightly.

The invention has for its principal objects to provide an apparatus which is adapted for tightly rolling sheets of material on a shaft; one provided with means for maintaining the material under tension while the same is being rolled; one constructed in such manner as to permit the shaft about which the same is rolled to be readily withdrawn from within the roll; and one which is simple in construction and is thoroughly efficient for the purpose designed.

With the above mentioned and other objects in view, the invention consists in the novel construction and combination of parts hereinafter described, illustrated in the accompanying drawings and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

To more fully comprehend the invention, reference is directed to the accompanying drawings, wherein—

Figure 1 is a view in plan of an embodiment of my invention, disclosing the winding shaft and the platform or guide on which the leather rests as the same is being rolled. Fig. 2 is a view in side elevation. Fig. 3 is a view in detail of the winding shaft bearing. Fig. 4 is a view in end elevation. Fig. 5 is a view in detail of the winding shaft.

Referring more particularly to the several views of the drawings, wherein like characters of reference designate corresponding parts throughout the several views, 1 indicates suitable parallel spaced base members or skids which are adapted to slide and the same are connected by the transverse overhanging members 2 and 3 which are secured thereto by bolts 3′.

Suitable side frames are supported on the members 2 and the same consist of the base 4, uprights 5, and top bars 6, which are connected by bolts 7, and said frames are secured in position on the members 2 by the bolts 8.

Suitable bearings 9, 10 and 11 are carried by the top bars 6 of the side frames, and said bearings 9 and 10 are arranged in pairs opposite each other. The bearings 9 rotatably support a stub shaft 12 which carries a gear 13, and the same intermeshes with a pinion 14 carried by a shaft 15 rotatably mounted in the bearings 10. A hand wheel 16 carrying a handle 17 is secured to the shaft 15, and a pawl 17′ pivoted to the supports 18, as at 19, engages the pinion 14 and prevents the same from rotating in but one direction.

The stub shaft 12 is formed at one end with a squared recess 20 which receives the squared end 21 of a main shaft 22 which is offset at its outer end and is rotatably received in the bearing 11. The bearing 11 is provided with a removable cover or top plate 23 hinged, as at 24, to the base and retained in position by a yoke 25 pivotally carried by the base, and this structure permits the shaft 22 to be removed from the bearing 11 and from the squared end of the stub shaft 12.

A clamping shaft 26 is also received at its squared end 27 in the squared end of the shaft 12, and the same extends longitudinally of the shaft 22 to a point adjacent to the offset portion thereof and between which and the shaft 22 the end of the material to be rolled is clamped. A yoke 28 formed with a handle 29 is pivotally connected to the shaft 22, as at 30, and the same is adapted to engage over the free end of the shaft 26 and retain the same tightly

on the leather passed between the shafts 22 and 26.

Secured at one end to the members 3 are the ends of parallel spaced flexible guide and tension members 32 which are preferably upwardly inclined and terminate at a point slightly beyond the shafts 22 and 26. The guide and tension members are supported midway of their length on a frame 33 and certain of the guide and tension members are slotted at their upper ends, as at 34, to permit a tie or binder to be inserted therethrough and around the tightly rolled article.

Suitable side members 34′ are positioned adjacent to the opposite side edges of the members 32 and are preferably secured at one end by angle irons 35 to the member 3, and at the end adjacent to the shafts 22 and 26 are rigidly supported by the vertical braces 36 which are braced by the connecting rod 36′.

The apparatus operates in the following manner:—The material to be rolled is laid on the guide and tension members 32 with the upper end thereof clamped between the shafts 22 and 26. The rotation of the hand wheel 16 in the direction of the arrow (Fig. 2) will cause the gear 13 to rotate, which will in turn rotate the shafts 22 and 26 about a line drawn centrally through the shaft 12 and bearing 11, and will cause the material to be wound on the shafts. As the roll is formed, the material as wound is maintained under tension by frictional contact over the free ends of the tension members, and as the roll enlarges, the free ends of the tension members are forced downwardly. On the completion of the formation of the roll, the material is maintained in a rolled condition by tie members passed through the slots 34 and secured around the roll. After a roll has been thus tied the cover of the bearing 11 is raised and the shaft 22 with the shaft 26 and roll are removed from the apparatus; the yoke 28 is then removed from over the end of the clamping shaft which permits the shaft 22 to be withdrawn from within the roll. The clamping shaft is then withdrawn from within the roll and the shafts 22 and 26 are then assembled in the apparatus as in the drawing, at which time the apparatus is adapted to be operated as before.

It will be apparent that the present apparatus is capable of winding material into a tight roll, is particularly adapted for use in connection with heavy and stiff material, such as sides of leather, and is provided with means for supporting the material before it is wound, and said means maintain the material under tension while winding.

Having thus described the invention what is claimed is—

1. A roll forming apparatus, comprising a supporting frame, a rotatable stub shaft, a main shaft removably associated at one end with said stub shaft and rotatably supported at its opposite end, a clamping shaft removably associated at one end with said stub shaft and between which and the main shaft the material to be rolled is clamped, means for drawing the free end of said clamping shaft toward said main shaft and means for supporting the material and for maintaining the same under tension as wound on said main shaft.

2. A roll forming apparatus comprising a supporting frame, a rotatable stub shaft, a main shaft removably associated at one end with said stub shaft, a bearing capable of being opened for supporting the opposite end of said shaft, means for clamping the material to the main shaft, and means for supporting the material and for maintaining the same under tension as wound on said main shaft said last mentioned means comprising flexible means secured at one end and supported intermediate of their length, the flexible ends thereof terminating adjacent to the main shaft.

3. A roll forming apparatus, comprising a supporting frame, a rotatable stub shaft, a main shaft removably associated at one end with said stub shaft and rotatably supported at its opposite end, a clamping shaft removably associated at one end with said stub shaft and adapted to extend longitudinally of the main shaft and between which and the main shaft the material to be rolled is clamped, means carried by the main shaft for extending over the free end of the clamping shaft to draw the same toward the main shaft, and means for supporting the material and for maintaining the same under tension as wound on said main shaft.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

OLIVER GERRISH.

Witnesses:
H. J. LYNCH,
JOHN J. LYNCH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."