

No. 756,319.

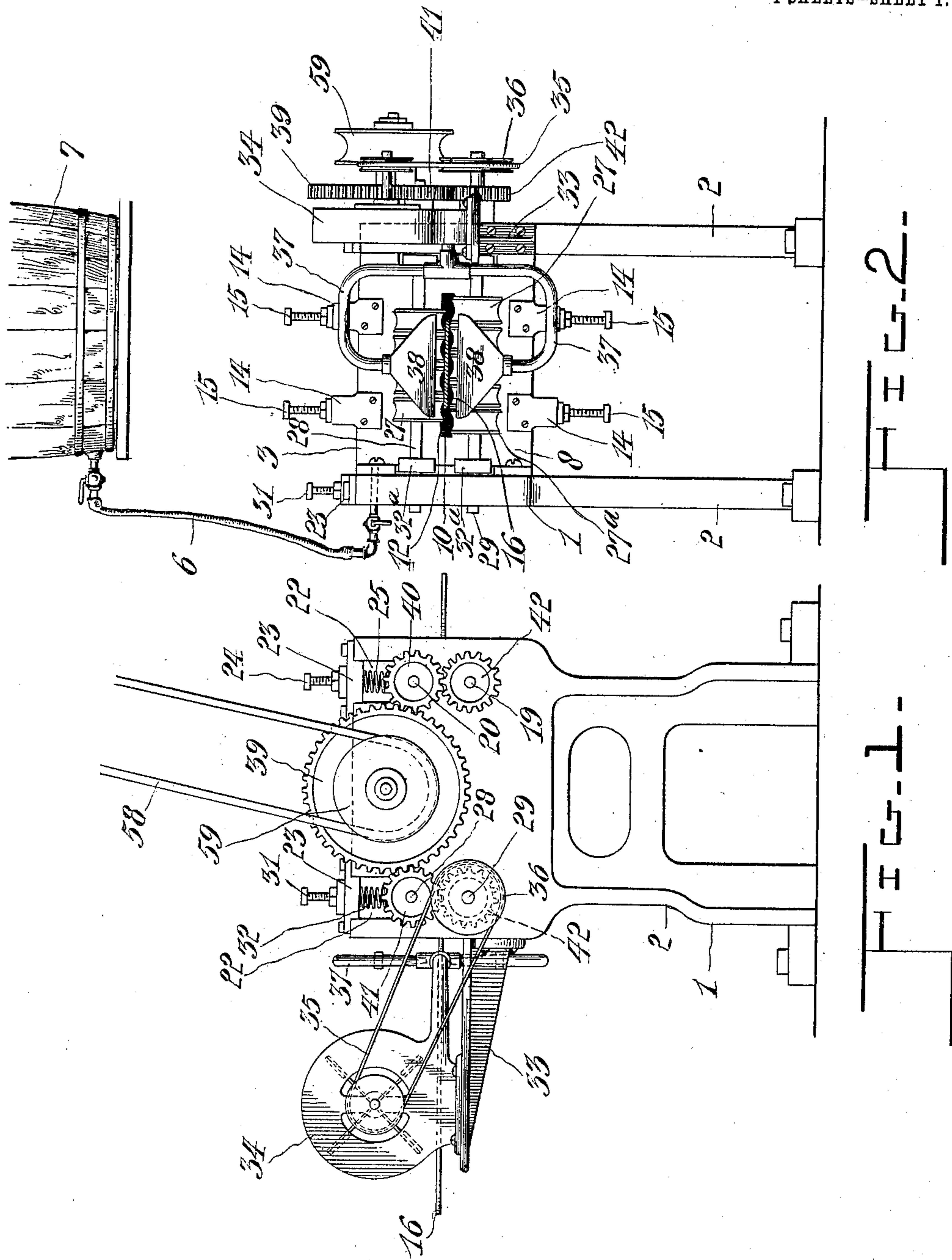
PATENTED APR. 5, 1904.

P. BELLE.  
STIFFENER BATH.

APPLICATION FILED NOV. 2, 1903.

NO MODEL.

4 SHEETS—SHEET 1.



Witnesses:

*John D. Deufferweil*  
*J. D. Amman*

By

*Philias Belle*, Inventor

*Marion Marion*

Attorneys

No. 756,319.

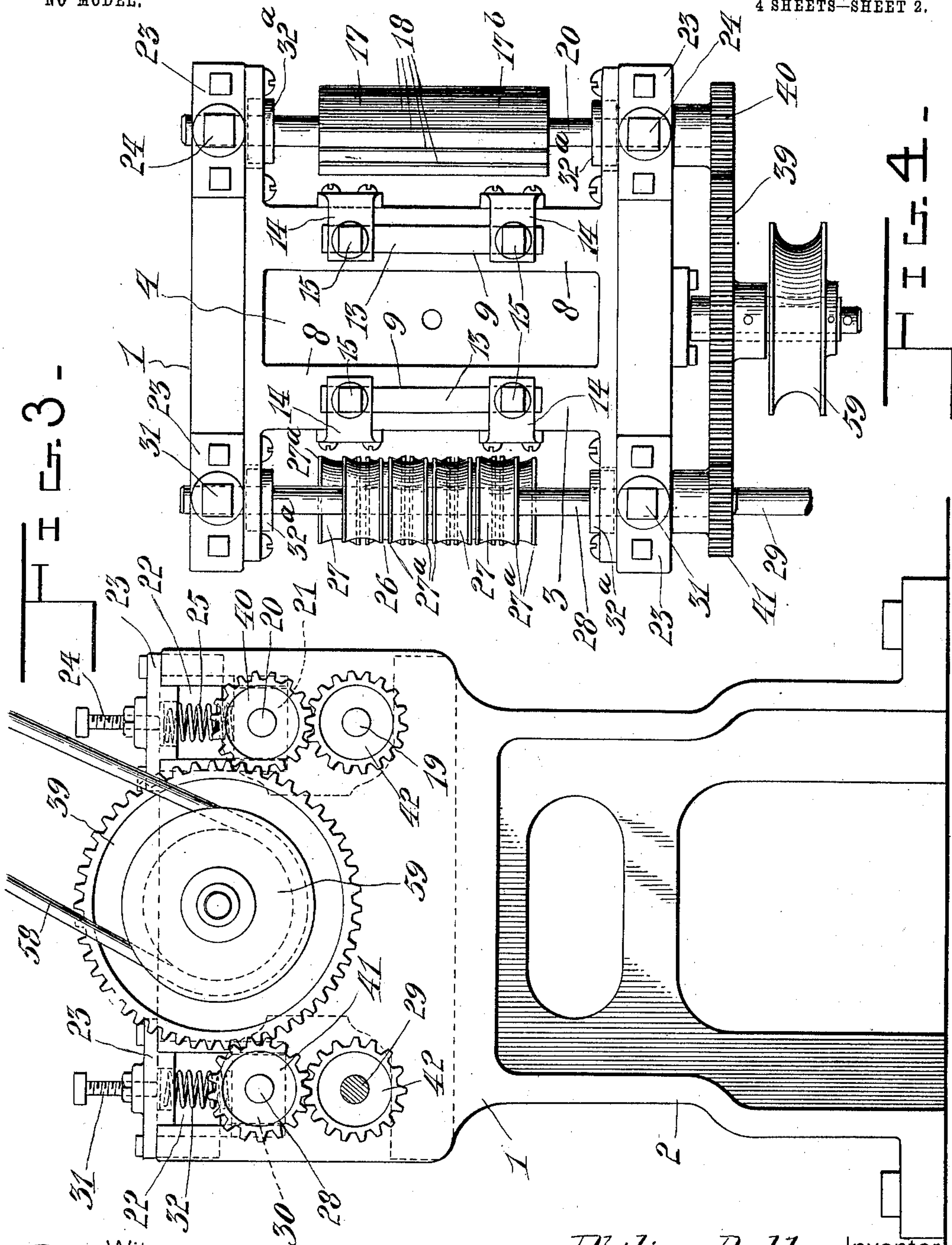
PATENTED APR. 5, 1904.

P. BELLE.  
STIFFENER BATH.

APPLICATION FILED NOV. 2, 1903.

NO MODEL.

4 SHEETS—SHEET 2.



Witnesses:  
*John T. Deufferwiel*  
*J. D. Ammen*

*Philias Belle*, Inventor  
By *Marion Marion*  
Attorneys



No. 756,319.

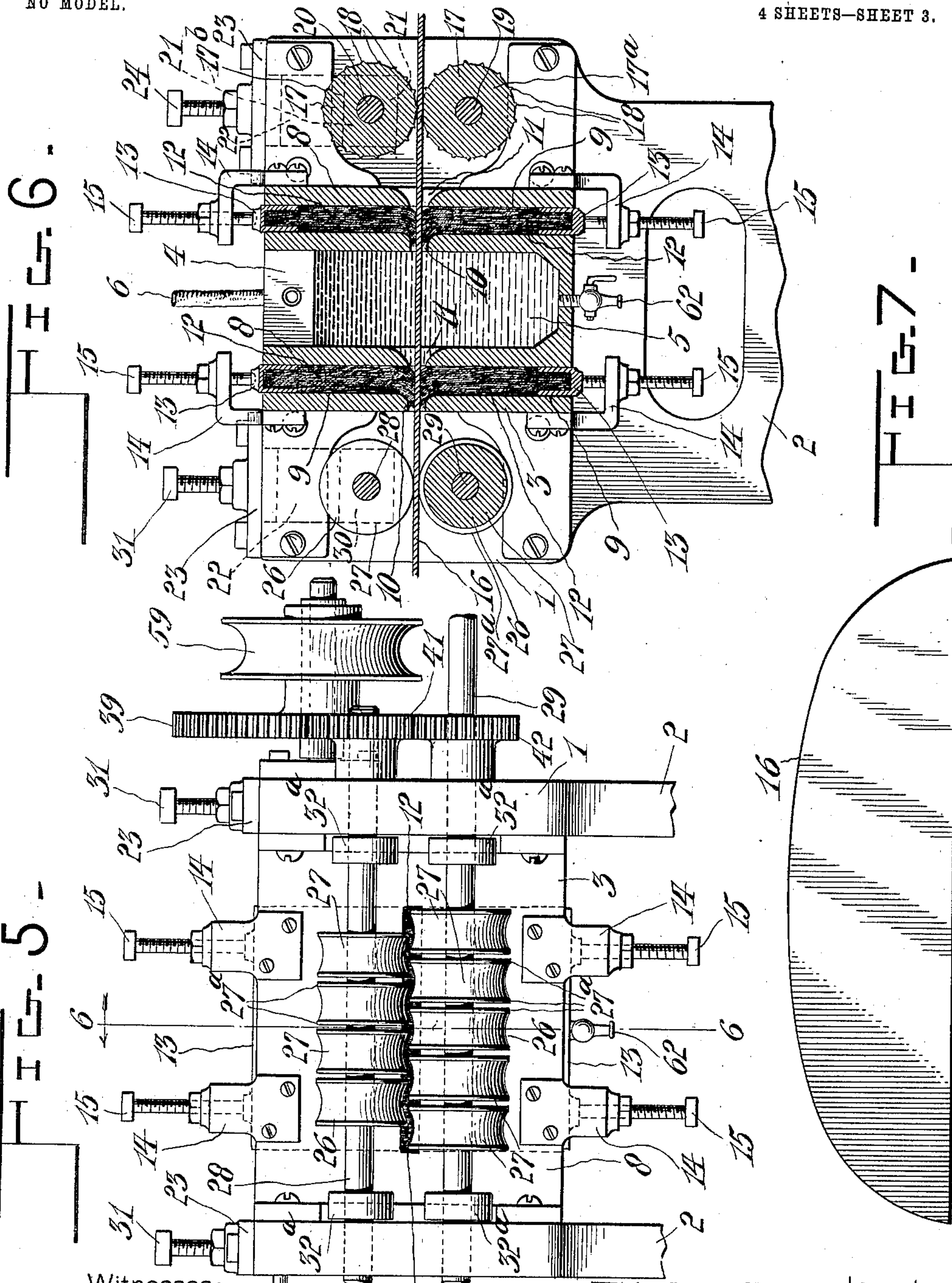
PATENTED APR. 5, 1904.

P. BELLE.  
STIFFENER BATH.

APPLICATION FILED NOV. 2, 1903.

NO MODEL.

4 SHEETS—SHEET 3.



Witnesses:

*John T. Deufferwiel*  
*J. D. Amman*

By

*Philias Belle*, Inventor

*Marion Marion*

Attorneys



No. 756,319.

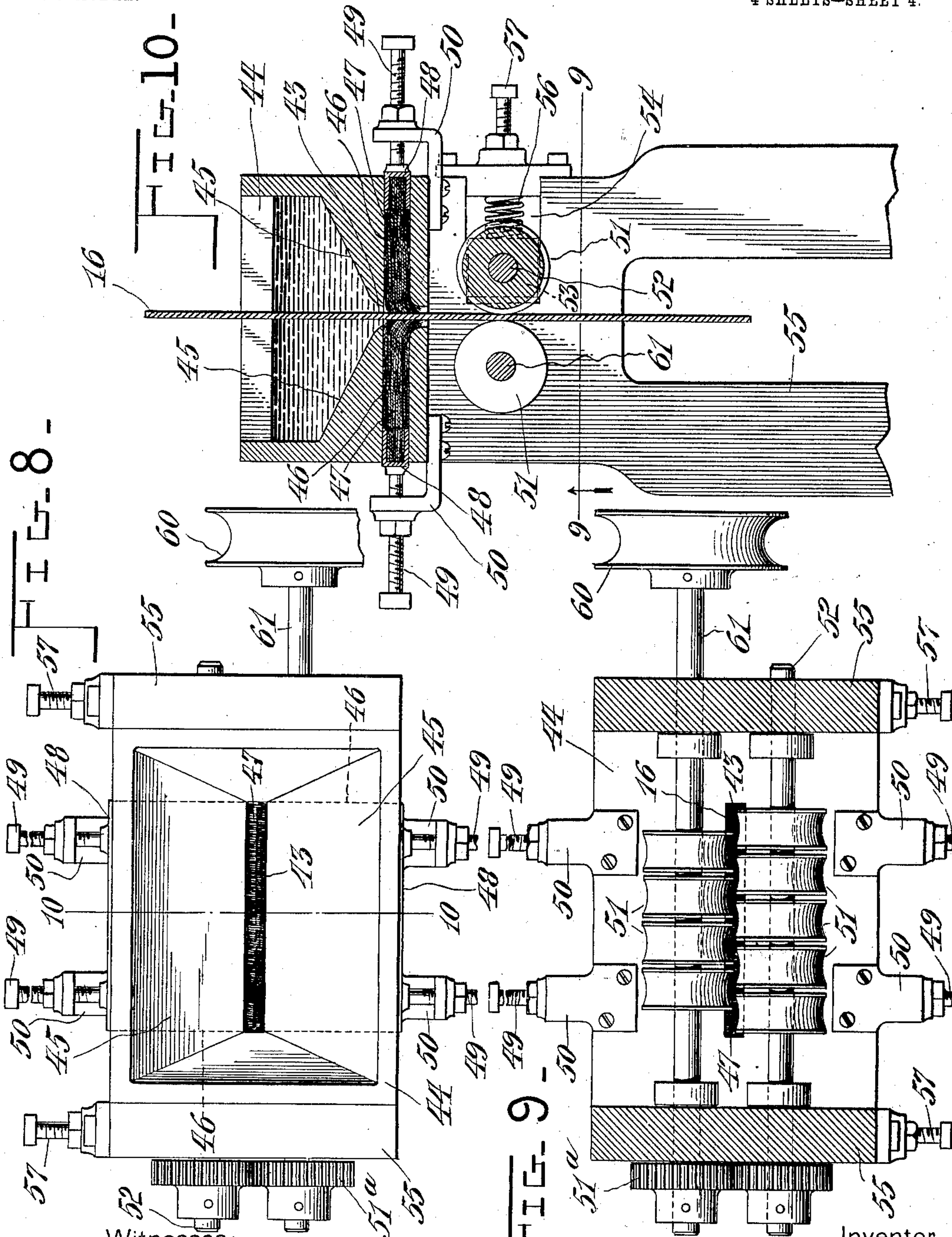
PATENTED APR. 5, 1904.

P. BELLE.  
STIFFENER BATH.

APPLICATION FILED NOV. 2, 1903.

NO MODEL.

4 SHEETS—SHEET 4.



Witnesses:  
*John F. Deuforwid*  
*J. D. Ammen*

By *Philias Belle,* Inventor  
*Marion Marion*  
Attorneys



# UNITED STATES PATENT OFFICE.

PHILIAS BELLE, OF MONTREAL, CANADA.

## STIFFENER-BATH.

SPECIFICATION forming part of Letters Patent No. 756,319, dated April 5, 1904.

Application filed November 2, 1903. Serial No. 179,648. (No model.)

*To all whom it may concern:*

Be it known that I, PHILIAS BELLE, a subject of the King of Great Britain, residing in the city and district of Montreal, in the Province of Quebec, Canada, have invented certain new and useful Improvements in Stiffener-Baths; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to the manufacture of boots and shoes, and concerns itself especially with making the stiffeners or short strips of leather which are used in forming the heels of shoes and boots in order to give a more substantial construction at that part.

In practice the stiffener is made usually of several parts or layers, the body of the stiffener being composed of strawboard or leatherboard faced with thin leather. The strawboard-pieces are treated by cement, usually rubber cement, in order to increase their stiffness and to facilitate the attachment of the leather faces or counters which are incorporated in the stiffeners. The process of applying the cement to the stiffener bodies as conducted by hand consumes much time and wastes a large amount of the cement.

The object of this invention is to provide apparatus for applying the cement to the bodies of the stiffeners in a simple and efficient manner and also so that the operation will be conducted quickly and in a cleanly manner.

The invention consists in the construction and combination of parts to be more fully described hereinafter and definitely set forth in the claims.

In the drawings, which fully illustrate my invention, Figure 1 is a side elevation of the apparatus. Fig. 2 is a rear elevation of the apparatus. Fig. 3 is a side elevation showing a portion of the apparatus shown in Fig. 1, this view being, however, upon an enlarged scale. Fig. 4 is a plan of the parts represented in Fig. 3. Fig. 5 is a rear elevation of the upper portion of the apparatus shown in Fig. 3. Fig. 6 is a vertical cross-section taken substantially on the line 6 6 of Fig. 5. Fig.

7 is a plan of the stiffener. Fig. 8 is a plan representing a portion of the apparatus when constructed in a somewhat modified form. Fig. 9 is a horizontal section taken substantially on the line 9 9 of Fig. 10 looking up. Fig. 10 is a vertical cross-section taken substantially on the line 10 10 of Fig. 8.

Throughout the drawings and specification the same numerals of reference denote like parts.

Referring more particularly to the parts, 1 represents a frame which comprises a pair of oppositely-disposed standards 2, which support between them a body 3, which body consists, substantially, of an open vessel or reservoir 4, adapted to receive liquid cement 5, as indicated. This vessel 4 may be closed by a suitable cover, if desired, and it is supplied with liquid cement through a hose 6, which leads from a supply-cask 7, as shown.

In the vertical side walls 8 of the vessel 4 recesses 9 are provided, the same being preferably of substantially rectangular form, as shown. Preferably at substantially the height shown the walls 8 are provided with openings 10, passing therethrough horizontally, as shown. At one side these openings are provided with expanded mouths 11 to facilitate passing objects therethrough, the said openings being in alinement, so as to enable such object to be passed through the vessel and through the bath 5 contained therein.

Within the recesses 9 wipers or brushes 12 are placed, the said wipers preferably consisting of layers of felt or masses of bristles. These wipers attach, respectively, above and below to backs 13, which are inserted at the upper and lower sides of the body 3, as shown. The extremities of the wipers 12 lie in the openings 10 and would project into the path of an object which might pass through the said openings, as will be readily understood. For the purpose of adjusting the said wipers brackets 14 are attached, as shown, respectively, above and below the body, and through these brackets threaded stems 15 pass, the same thrusting against the said backs 13.

Arrangement is made for feeding the bodies 16 of the stiffeners through the bath 5. To this end feed-rollers 17 are provided, the same



being of substantially the form shown and having circumferentially-disposed longitudinal ribs 18, adapted to coöperate to advance a flat object between the rollers, as will be readily understood. The lower roller 17<sup>a</sup> is mounted upon a spindle 19, having a fixed axis of rotation, while the upper roller 17<sup>b</sup> has its spindle 20 rotatably mounted in boxes 21, the said boxes being held in vertically-disposed guideways 22, formed in the upper edges of the standards 2, as indicated. Above the guideways 22 caps 23 are provided, in which are mounted adjusting-screws 24, by means of which the tension of helical springs 25 may be adjusted, the said springs 25 being disposed between the caps and the boxes, so as to resiliently constrain the roller 17<sup>b</sup> downwardly. By means of these feed-rollers the body of the stiffener will be shoved through the bath, passing through the alining openings until its end is received by the delivery-rolls 26, which will now be described. The delivery-rolls consist of a plurality of distinct rollers 27, disposed upon parallel shafts or spindles 28 and 29, the said shafts being mounted in a manner similar to the spindles 19 and 20 aforesaid, boxes 30 and adjusting-screws 31 being employed in this connection, together with springs 32. The faces of the rollers 27 are concave, as shown, between flat rims 27<sup>a</sup>, and all the rollers are disposed in a staggered relation—that is, the rollers of one shaft are disposed in intermediate positions with respect to the rollers of the other shaft. As shown, the shaft 29, which is the lower one, preferably has more rollers than the other, so that the lower set of rollers project at the sides beyond the upper set of rollers. Collars 32<sup>a</sup> are attached to the shafts in order to limit the longitudinal movement thereof and maintain the sets of rollers in operable relation. From the arrangement described it should be understood that the rims or edges 27<sup>a</sup> of the rollers dispose themselves opposite to the concave faces of the coöperating rollers and operate to advance the stiffener when it is received between the rollers, as will be readily understood, and these rollers of this form operate efficiently without having any tendency to remove the cement, which is and should be left upon the faces of the stiffener-body. In this connection it should be observed that by virtue of their peculiar form and arrangement the body of the stiffener is not squeezed between flat faces, nor, indeed, is it necessary to pinch the same at opposite points, as the tendency of the stiffener-body to resist deflection is sufficient to insure the same passing through the rolls.

Beyond the delivery-rolls 26 a bracket 33 is attached to the side of the body 3 for the purpose of supporting a fan 34, which fan is actuated by means of a belt or band 35, the same being driven through the medium of a pulley 36, carried by the extremity of the shaft 29,

as indicated. From the fan pipes 37 lead, which connect, respectively, with enlarged mouths 38, the said mouths being disposed, respectively, above and below the path of the stiffener-body as it comes from the delivery-rolls. In this manner arrangement is made for blowing air upon the stiffener-bodies for the purpose of partially drying the cement adhering to them.

For the purpose of driving the feed-rolls 17 and the delivery-rolls 26 there is provided a main gear-wheel 39, which meshes, respectively, with pinions 40 and 41, carried by the upper spindles of these rolls. The pinions 40 and 41 mesh with other pinions 42, carried by the spindles of the lower rolls, as indicated.

In Figs. 8 to 10 there is illustrated a modified form of the apparatus which differs, essentially, with the form described in the manner in which the stiffener-body is passed through the bath. In this instance the stiffener passes vertically through the bath, preferably moving through an opening 43 in the bottom of the vessel 44. The bottom of the vessel is preferably inclined, as indicated at 45, and beneath this point is provided a transverse opening or recess 46, in which oppositely-disposed wipers 47 are received much in the manner described in connection with the preferred form of the invention. These wipers are attached to backs 48, as before, which are adjusted by means of the adjusting-screws 49, mounted in brackets 50. In this form of the invention the stiffeners would be passed through the bath by hand; but they would be drawn out through the bottom of the vessel by means of the delivery-rolls 51 of substantially the same form as the delivery-rolls 26. The spindle 52 would be mounted in boxes 53, carried in horizontal guideways 54, formed in the side of the frame 55, as shown, springs 56 being employed, together with adjusting-screws 57, for pressing the rollers toward each other.

In the preferred form the rolls 17 and 26 would be driven, as stated, through the main gear-wheel 39, and this gear would itself be driven by means of a suitable belt 58, passing over the pulley 59 for that purpose. In the modified form the belt-pulley 60 would be rigidly attached to one of the spindles 61, as shown, the spindles carrying meshing gears 51<sup>a</sup>.

The drain-cock 62 would be attached in the bottom of the vessel 4 in the preferred form in order to allow the same to be drained when desired.

It should be understood that in operation the wipers effectually close the openings through the vessel, so that the bath will not escape. At the same time they readily permit the passage of an object through the openings into and out of the bath in the manner described. The wiper encountered by the stiffener in entering the bath operates bene-



5 ficially to remove the dust and dirt which may adhere to the surface of the stiffener in addition to its function of checking its flow through the opening. The wiper which is  
 10 passed by the stiffener in leaving the vessel operates to remove the excess of the cement which would otherwise adhere to the surface of the stiffener. The construction described  
 15 efficiently enables the wipers to be taken out and cleaned and new wipers quickly substituted when necessary.

While I have shown in the accompanying drawings the preferred form of my invention, it will be understood that I do not limit my-  
 20 self to the precise form shown, for many of the details may be changed in form or position without affecting the operativeness or utility of my invention, and I therefore reserve the right to make all such modifications  
 25 as are included within the scope of the following claims or of mechanical equivalents to the structures set forth.

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

1. In a machine for coating counter-stiffener blanks, a tank for liquid cement having an opening in its wall below the surface of the cement, yielding wipers closing said opening  
 35 to the passage of cement, but permitting the passage of cemented blanks, and a pair of rolls located abreast the opening to draw cemented blanks successively from the tank.

2. In an apparatus of the class described, a  
 35 tank adapted to contain liquid cement and having an opening therein below the surface of the cement, and a pair of rolls located abreast said opening to draw blanks from the tank, said rolls being relatively shaped to con-  
 40 tact only at intervals throughout their length.

3. In apparatus of the class described, in combination, a bath, means for passing stiff-  
 45 eners therethrough, and rolls adapted to receive said stiffeners, said rolls having concave faces disposed in staggered relation with respect to each other.

4. In apparatus of the class described, in combination, a bath, means for passing stiff-  
 50 eners through said bath, and rolls adapted to receive said stiffeners therebetween, said rolls consisting of a plurality of concave rollers the faces whereof are disposed out of alinement.

5. In a machine for coating stiffener-blanks, a tank for containing liquid cement and hav-  
 55 ing openings in its opposite walls, a pair of rolls abreast one of said openings to feed blanks successively to the tank, and a pair of rolls abreast the other opening to draw the cemented blanks from the tank.

6. In a machine for coating stiffener-blanks, a tank for containing liquid cement and hav-

ing openings in its opposite walls, and a pair of adjustable rolls abreast each opening.

7. In a machine for coating stiffener-blanks, a tank for containing liquid cement and having  
 65 opposite openings therein, wipers normally closing said openings, but permitting the passage of blanks, a pair of rolls to feed the blanks into the cement-tank, and a pair of rolls to draw the cemented blanks from the tank. 70

8. In apparatus of the class described, in combination, a vessel containing a bath and having recesses in the wall thereof, and an opening intersecting said recesses, wipers car-  
 75 ried in said recesses and disposed on opposite sides of said opening, said wipers having backs movably mounted in said recesses.

9. In an apparatus of the class described, in combination, a vessel containing a bath and having recesses in the wall thereof, and alined  
 80 openings intersecting said recesses, wipers disposed in said recesses on opposite sides of the openings, said wipers being movably mounted in the recesses, and means for moving the  
 85 backs to adjust the positions of the wipers.

10. In an apparatus of the class described, in combination, a vessel having openings through the wall thereof and containing a bath, means for checking the flow of said bath  
 90 through said openings, rolls disposed opposite to said openings and adapted to advance stiffeners therethrough to pass through said bath, a main gear-wheel mounted between said rollers, means for driving the same, and pinions adapted to actuate said rolls and mesh with  
 95 said main gear-wheel.

11. In an apparatus of the class described, in combination, a bath, means for passing stiff-  
 100 eners therethrough, and means for directing a current of air upon said stiffeners after passing through the bath.

12. In an apparatus of the class described, in combination, a vessel containing a bath and having openings in the wall thereof, means  
 105 for passing stiffeners through said openings, and a blower beyond said vessel adapted to direct a current of air upon said stiffeners.

13. In an apparatus of the class described, in combination, a vessel containing a bath and having openings through the wall thereof,  
 110 rolls opposite said openings and adapted to pass stiffeners therethrough, means for driving the rolls, a blower adapted to direct an air-current upon said stiffeners beyond said vessel, and means for driving said blower con-  
 115 tinuously with said rolls.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

PHILIAS BELLE.

Witnesses:

T. MYNARD,  
 M. MCALEER.