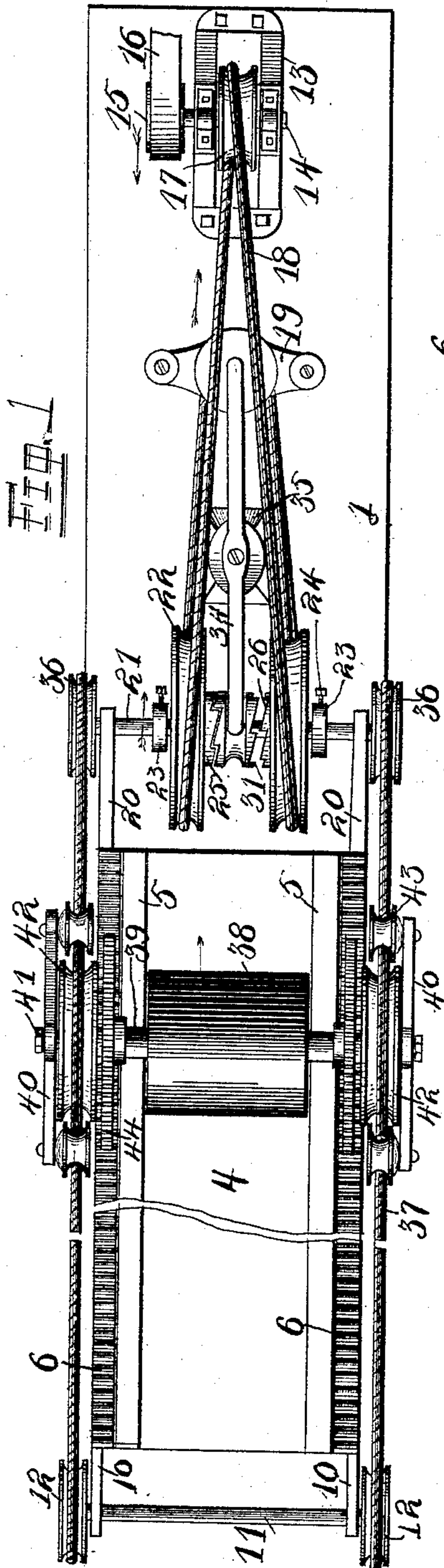


(No Model.)

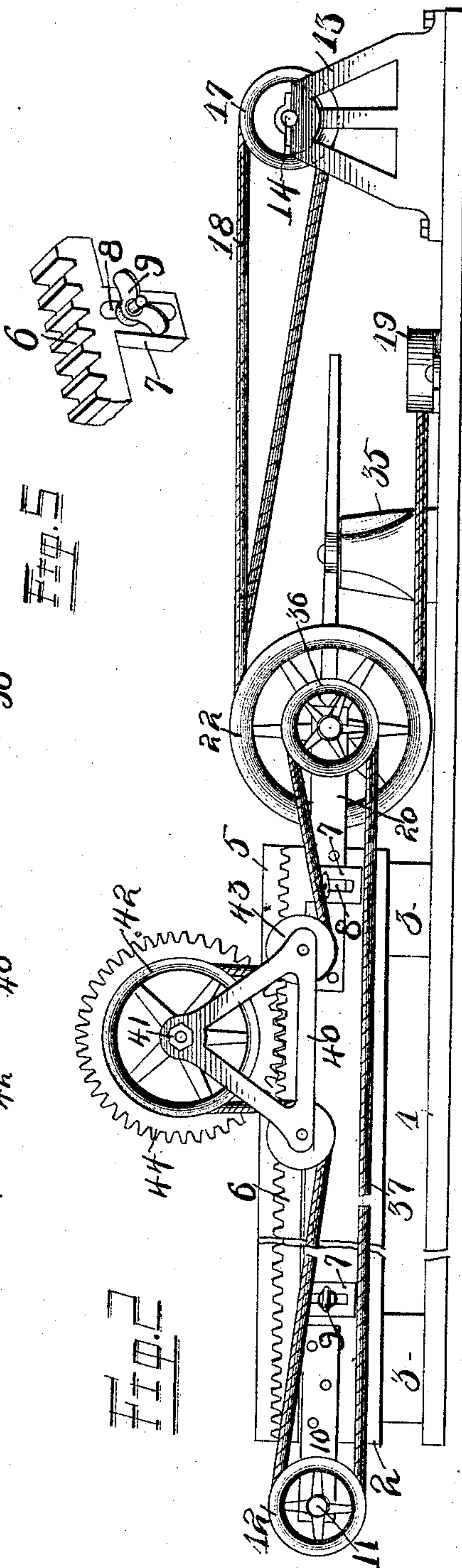
S. SADLER.  
MACHINE FOR ROLLING GLASS.

No. 474,484.

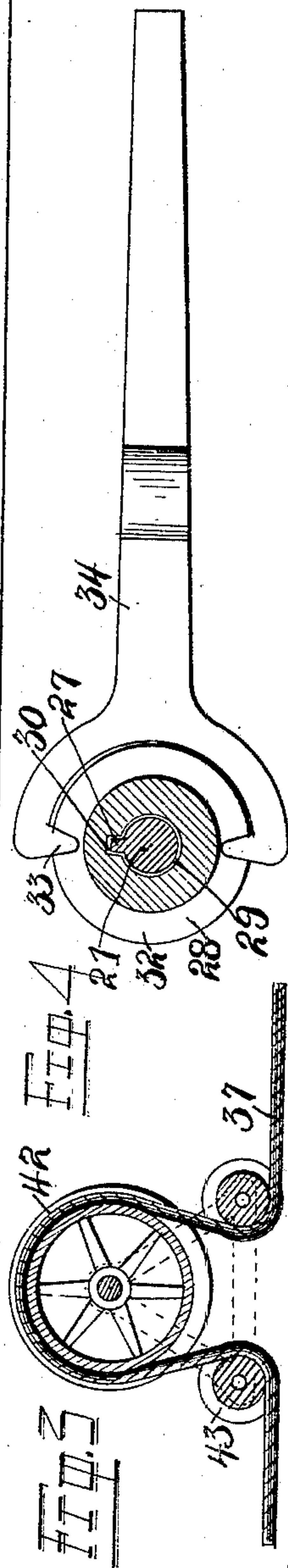
Patented May 10, 1892.



Witnesses  
A. A. Eick  
Ed. E. Longan



Inventor  
Samuel Sadler  
By his Attorneys Wigdon & Wigdon





# UNITED STATES PATENT OFFICE.

SAMUEL SADLER, OF ST. LOUIS, MISSOURI.

## MACHINE FOR ROLLING GLASS.

SPECIFICATION forming part of Letters Patent No. 474,484, dated May 10, 1892.

Application filed January 25, 1892. Serial No. 419,186. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL SADLER, of the city of St. Louis and State of Missouri, have invented certain new and useful Improvements in Machines for Rolling Glass, &c., of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in machines for rolling glass, &c.; and it consists in the novel arrangement and combination of parts, as will be more fully hereinafter described, and designated in the claims.

In the drawings, Figure 1 is a top plan view of my complete invention. Fig. 2 is a side elevation of the same. Fig. 3 is a detail view in section showing the pulley carried by the roller and the small groove-pulleys over which the operating-rope passes. Fig. 4 is an enlarged view, in side elevation, of the lever employed for reversing the motion of the machine as attached to the clutch; and Fig. 5 is a perspective view with parts broken away, showing the rack-bar and the means for securing and elevating the same.

The object of my invention is to construct a machine for rolling glass while in its molten or plastic state by means of a roller which is adapted to be moved back and forth over said glass.

Referring to the drawings, 1 represents the floor or bottom of the machine to which the various parts constituting my invention are attached; but said bottom may be dispensed with and said parts attached to the floor of the building in any mechanical manner; but I prefer the former application.

2 represents the body or stationary part of the machine, which is suitably mounted and supported by standards 3.

The body 2 of the machine is of any suitable width and length to accommodate itself to the purpose, and the upper surface of the same provides a bed upon which the molten material is placed previous to being rolled.

To the bed 4 of the machine and adjacent to the edges of the same are attached two strips 5, or said strips may be formed integrally to said bed, which prevents the molten material from passing off of the sides of the said machine, and, further, provides guides for the roller, the said roller corresponding in

length to the distance between the two strips. The strips 5 are secured to the bed 4 of the machine in such a manner that suitable space will be left upon the bed for accommodating two rack-bars 6, as plainly shown in Figs. 1 and 2 of the drawings.

In order to regulate the distance of space between the roller and bed of the machine, I provide the said rack-bars with attachments, as I shall now proceed to describe, whereby the said rack-bars may be raised or lowered, as will be deemed desirable. Said rack-bars are each provided with depending extensions 7, and formed in said extensions are slots 8, the said extensions coming in contact with the sides of the body of the machine. Screwed into the said sides of the machine are thumb-screws 9, which pass through said slots 8, holding the said rack-bars in their proper position in relation to the machine, and, further, allowing the same to be either raised or lowered and holding them in either position.

To the sides of the body of the machine are attached two supports 10, and the same projecting a suitable distance, providing suitable bearings for the transverse shaft 11. To the ends of said transverse shaft are attached two rope-pulleys 12, which are of such a size as to give the required movement to the movable parts of the machine, or, more properly, the roller, when motion is imparted to the operating-ropes.

To the floor 1 and at a suitable distance from the said machine is secured a suitable support 13, which provides suitable bearings for the short transverse shaft 14, allowing the said shaft to rotate in the said bearings. One of the ends of the said shaft 14 projects a suitable distance to one side of the support 13, and keyed to said projecting end is a belt-pulley 15, over which a suitable belt 16 is adapted to pass for imparting motion to said shaft by steam or other power. Mounted upon the shaft 14 and located upon the same between the bearings carried by the support 14 is a rope-pulley 17, over which an endless rope 18 is adapted to pass.

Secured to the floor at a suitable distance from the machine and between the said machine and the support 13 is a covered pulley 19, around which the endless rope 18 also passes.



To the sides of the machine are attached two supports 20, the ends of which project a suitable distance and provide bearings upon the rotating shaft 21.

22 represent large rope-pulleys, which are two in number and are loosely mounted upon the shaft 21, and also encircling said shaft are two collars 23, which are rigidly secured to the said shaft 21 by means of set-screws 24. The endless rope 18 also passes over the rope-pulleys 22, and when motion is imparted in one direction to the said rope the two pulleys 22 will be rotated in an opposite direction to one another. In order to reverse the direction of the roller, I employ the mechanism as I shall now proceed to describe without in any way changing or reversing the direction in which the rope 18 is running.

25 represents hubs, which are formed integrally with the rope-pulleys 22 and are located opposite to one another and are adapted to rotate with the said pulleys 22. The said hubs are provided with radially - arranged ratchet-teeth 26, formed upon the face of the same, and the teeth of each hub formed in the same direction.

The shaft 21 is provided with a short feather 27 between the two wheels 22, but not of sufficient length to come in contact with said hubs 25.

28 represents a casting, which is circular in cross-section and is provided with a suitable opening 29, through which the shaft 21 passes, and in communication with said opening 29 is a groove 30, which receives the feather 27, attached to the said shaft, allowing the said casting to move in a longitudinal direction, but preventing it from rotating independent of said shaft. The two surfaces of the casting adjacent to the hubs 25 are each provided with radially - arranged ratchet - teeth 31, which are formed in the same direction and are adapted to mesh with either of the teeth formed on the hubs 25 when the said casting is moved in either direction. The said casting is also provided with an annular groove 32, which receives the projecting ends or nibs 33, formed on the forked lever 34, as best illustrated in Fig. 4, whereby the said casting is operated and allowed to turn independent of the said lever.

35 represents a support, to the upper end of which the median portion of the lever 34 is movably secured, allowing the said lever to be moved in either direction.

From the foregoing description of the clutch and the remaining portions of the rope 18 when the rope is moved in the direction as shown by the arrow in Fig. 1 and the said clutch is in the position as shown in said figure the shaft 21 will be rotated in the direction as shown by the arrow upon said shaft, causing the roller to be moved in one direction. This is accomplished by the employment of the feather 27, which is locked against rotation independent of the casting or clutch, and therefore it will be readily understood that when either

one of the wheels 22 are rotated the clutch will also be rotated, causing the shaft 21 to be turned. Should the clutch not be in contact with either one of the hubs of the wheels 22, the said wheels would be rotated independent of the shaft 21, and consequently said shaft would not rotate, and should the clutch be placed in the position opposite to that shown in Fig. 1 the shaft 21 will be turned in an opposite direction to that shown by the arrow. Of course the wheel that is not in contact with the clutch will be loosely rotated upon the shaft 21 and have no action upon the said shaft.

36 represents two rope-pulleys, which are secured to both ends of the shaft 21, over which the endless ropes 37 are adapted to pass for imparting motion to the mechanism carried by the roller 38.

39 represents a transverse rotating shaft, which is also adapted to be moved in a longitudinal direction and to which the roller 38 is keyed.

40 represents two triangular-shaped frames, each of which is provided with three bearings and one of said bearings adapted to receive the ends of the shaft 39. The said triangular-shaped frames are loosely mounted upon the said shaft, and are prevented from moving off of said shaft by means of nuts 41, screwed on the ends of the said shaft.

42 represents two large rope-pulleys, which are rigidly mounted upon the shaft 39 adjacent to the frame 40, over which the endless ropes 37 are adapted to pass for imparting motion to the roller 38. To the lower ends of the frames 40 are loosely secured four small belt pulleys or wheels 43, over which the ropes 37 also pass for holding the said ropes in proper tension upon the wheels 42. Between the wheels 42 and the roller 38 are two gear-wheels 44, which are rigidly mounted upon the shaft 39 and are adapted to turn with the said roller 38. The teeth of the said gear-wheels 44 are adapted to mesh with the teeth formed on the rack-bars 6, and when the parts are in their proper position in relation to one another the said gear-wheels will normally rest upon the rack-bars, supporting the roller 38 and adjusting the same a proper distance from the bed 4 of the machine.

From the foregoing description and by the inspection of the drawings it will be seen that the endless ropes 37 pass over the pulleys 36 and 12, and also over the wheels 42 and the wheels 43.

For a correct understanding as to the operation of the machine it would be well to refer to Fig. 1 of the drawings, which shows one position of the clutch for moving the roller in one direction upon the bed 4 of the machine when motion is imparted to the operating-ropes. When motion is imparted to the belt-wheel 15, as shown by the arrow, the endless rope 18 will be operated in the direction as shown by the arrow adjacent to said rope, imparting a motion to the shaft 21,



as indicated by the arrow upon the said shaft, and consequently imparting a movement to the roller 38 in the direction as shown by the arrow. Should the lever 34 be reversed or  
 5 moved, causing the clutch to come in contact with the opposite wheels 22, the roller 38 will be moved in an opposite direction without in any way changing the direction of the belt-pulley 15. Thus it will be seen that the roller  
 10 38 may be moved back and forth upon the bed 4 of the machine the entire length of the said bed by the manipulation of the operating-lever 34 in a manner as before described.

The ropes which I employ in constructing  
 15 the machine may be of any suitable kind; but by preference I employ a wire rope, which is more adapted to the purpose, and, further, I may find it desirable to employ belts in place of said ropes, in which case belt pulleys and  
 20 wheels would be employed in place of the rope pulleys and wheels.

Having fully described my invention, what I claim is—

1. A machine for rolling glass, &c., consisting of a bed, rack-bars movable to and from  
 25 said bed, gear-wheels resting upon said rack-bars and adapted to support the roller, transverse shafts mounted upon each end of the table, over which endless ropes are adapted to  
 30 pass for imparting motion to the said roller, and means for imparting motion to one of said shafts, substantially as set forth.

2. A machine for rolling glass, &c., consisting of an endless rope, such as 18, a pulley,  
 35 such as 17, for imparting motion to said rope, a transverse shaft, such as 21, mounted in one end of the machine and having rope-wheels, such as 22, movably mounted upon the same, a clutch for locking either of the said wheels  
 40 22 against movement independent of said shaft, a transverse shaft 11, mounted in the opposite end of the machine and provided with rope-pulleys 12, pulleys, such as 36, mounted upon the ends of the said shaft 21, over which  
 45 pulleys endless ropes 37 are adapted to be passed, and wheels, such as 42, over which the said ropes 37 also pass for imparting motion to the roller, substantially as described.

3. A machine for rolling glass, &c., consisting of a bed, such as 4, rack-bars, such as 6,

movably secured upon the same, a roller, such as 38, a shaft, such as 39, keyed within the same and provided with gear-wheels, such as 44, which are adapted to rest upon the said rack-bars and mesh with the same, wheels, 55 such as 42, also keyed to the said shaft, shafts, such as 11 and 21, mounted in the ends of the machine and provided with suitable pulleys, ropes, such as 37, passing over said pulleys and over the said wheels 42 for imparting motion to the said roller, triangular-shaped frames loosely mounted upon the ends of the said shaft, rollers, such as 43, loosely mounted upon the lower ends of the said frames and over which the said ropes 37 also pass, giving 65 tension to the said ropes, and means for imparting motion to the said shaft 21, whereby the said roller 38 may be moved in either direction upon the bed of the machine, substantially as described. 70

4. A machine for rolling glass, &c., consisting of an endless rope, such as 18, a pulley, such as 17, mounted in suitable bearings and at a suitable distance from the machine for imparting motion to the said ropes, a pulley, such as 19, 75 over which the rope also passes, a shaft, such as 21, mounted in one end of the machine, wheels, such as 22, loosely mounted upon the said shaft, over which the said rope 18 also passes, imparting motion to the same, hubs, such as 80 25, formed on the said wheel and provided with ratchet-teeth, a feather, such as 27, carried by the said shaft between said wheels 22, a clutch movably mounted upon said shaft 21 between said wheels and provided with 85 ratchet-teeth, an operating-lever, such as 34, for moving said clutch, pulleys, such as 36, mounted upon the ends of the said shaft 21, a transverse shaft, such as 11, mounted in the opposite end of the machine and provided 90 with pulleys, such as 12, and endless ropes, such as 37, for imparting motion to the roller 38, substantially as described.

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

SAMUEL SADLER.

Witnesses:

O. F. KELLER,  
 ED. LONGAN.