

W. B. C. HERSHEY & D. E. HUSTON.

FINISHING MACHINE.

APPLICATION FILED APR. 19, 1905.

923,841.

Patented June 8, 1909.

2 SHEETS—SHEET 1.

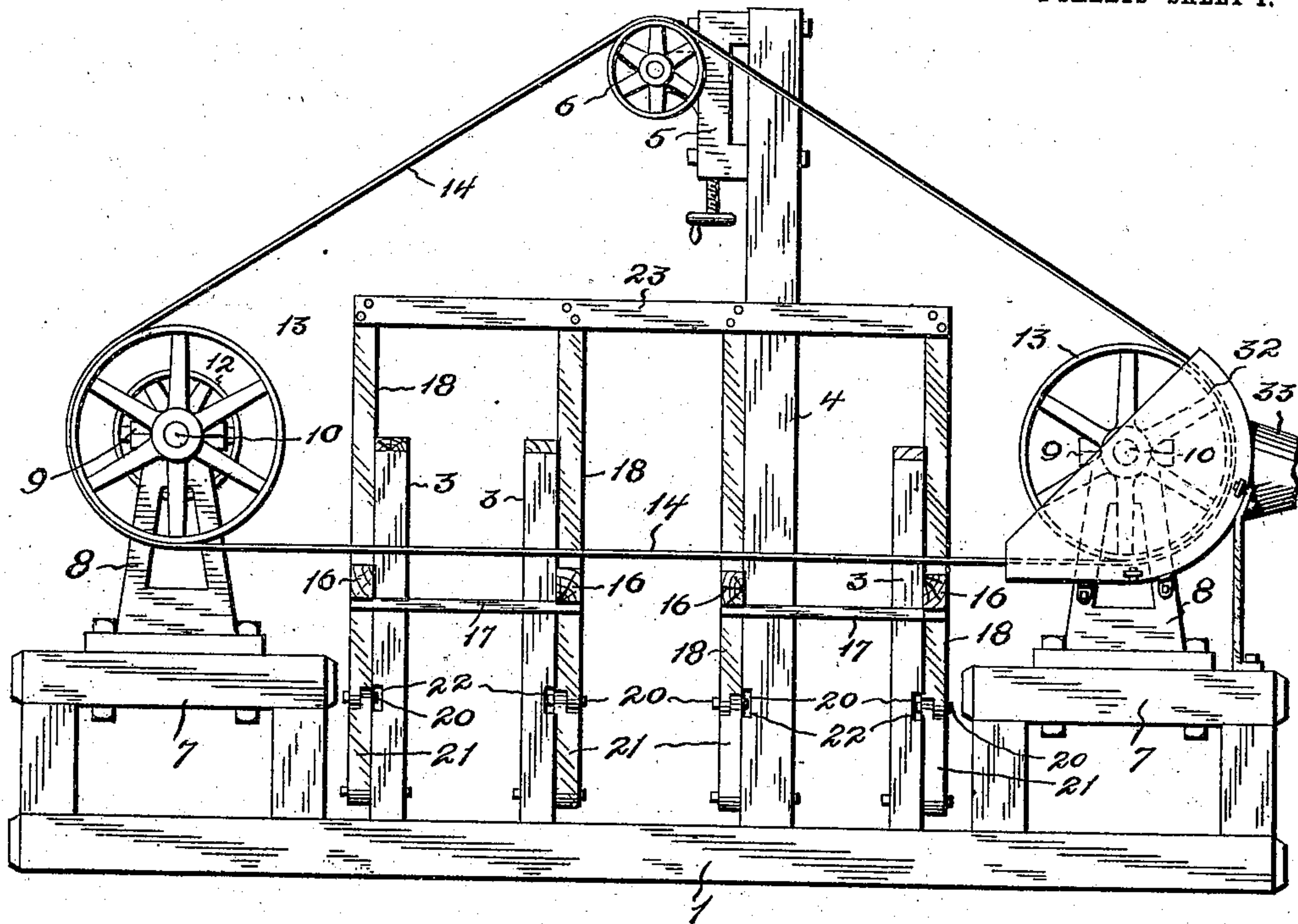
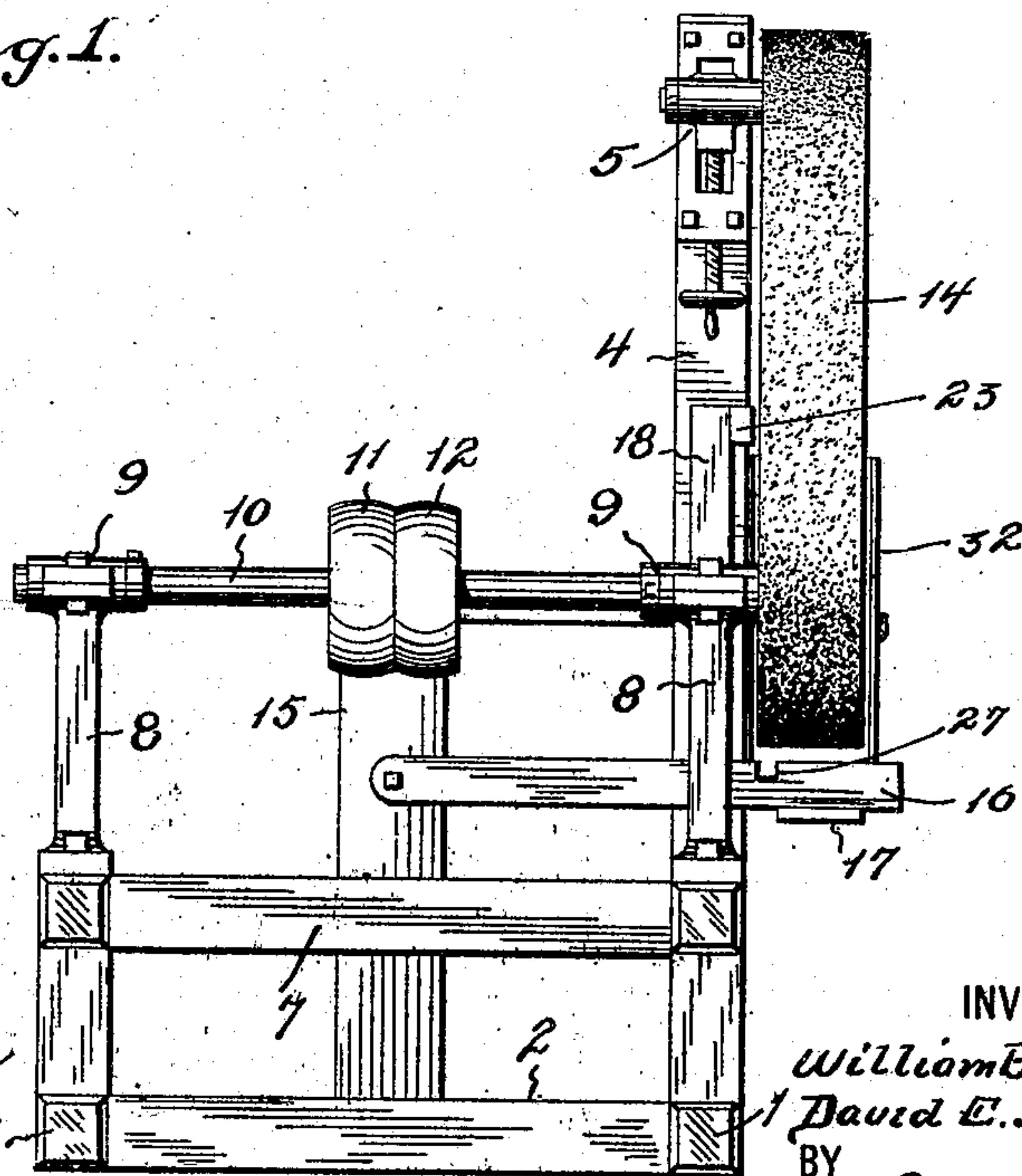


Fig. 1.



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Fig. 2.

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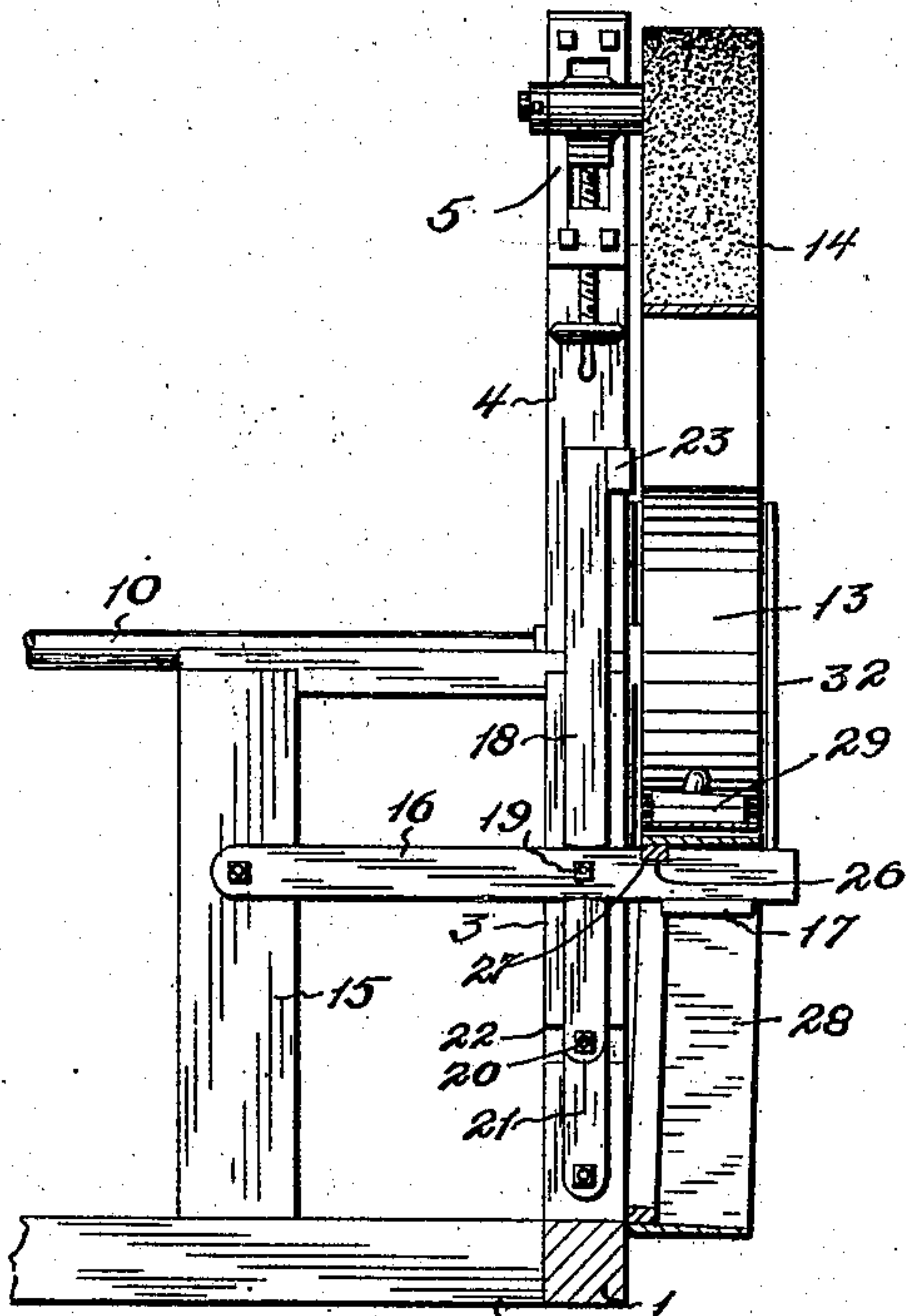


Fig. 3.

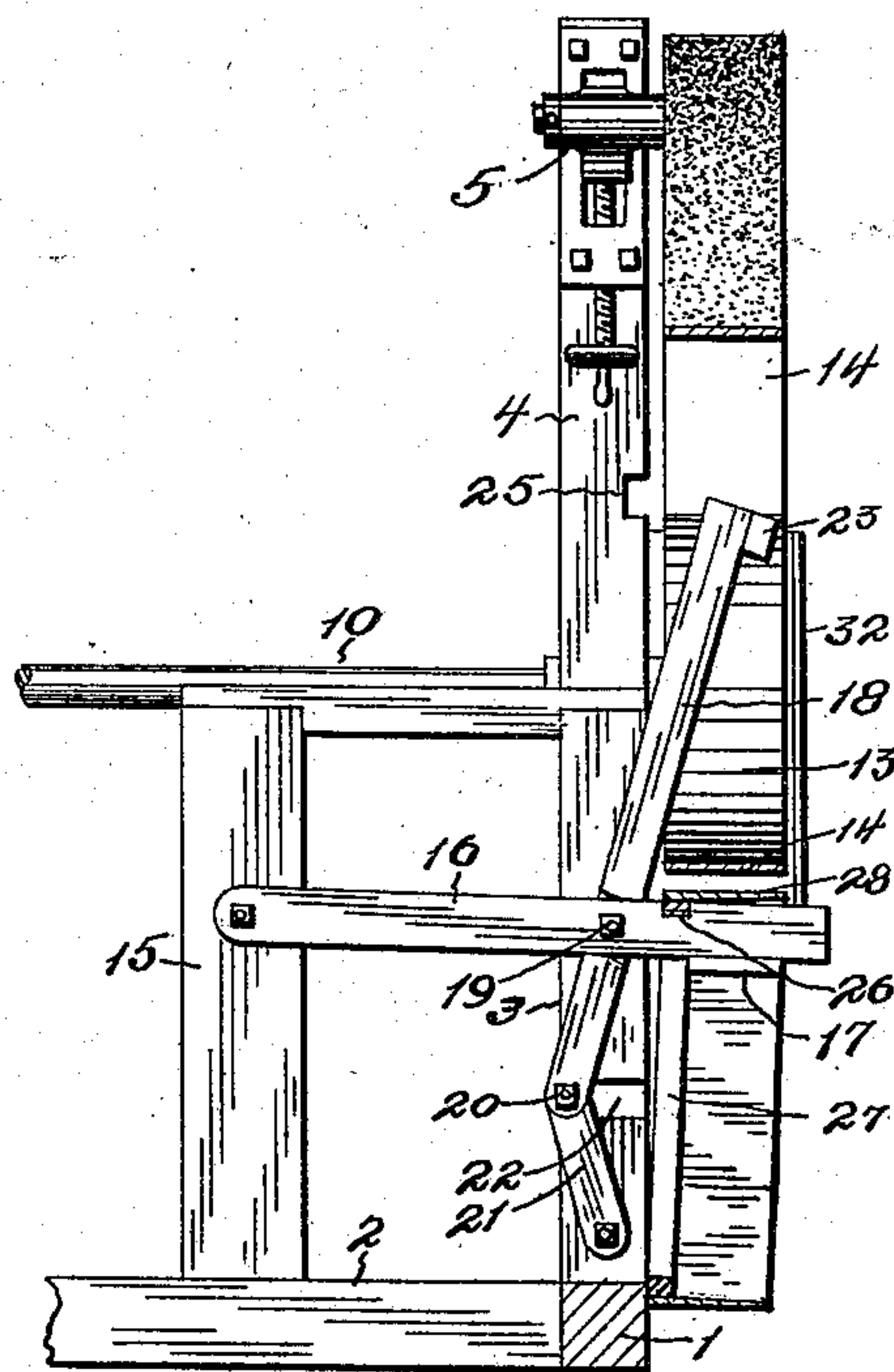


Fig. 4.

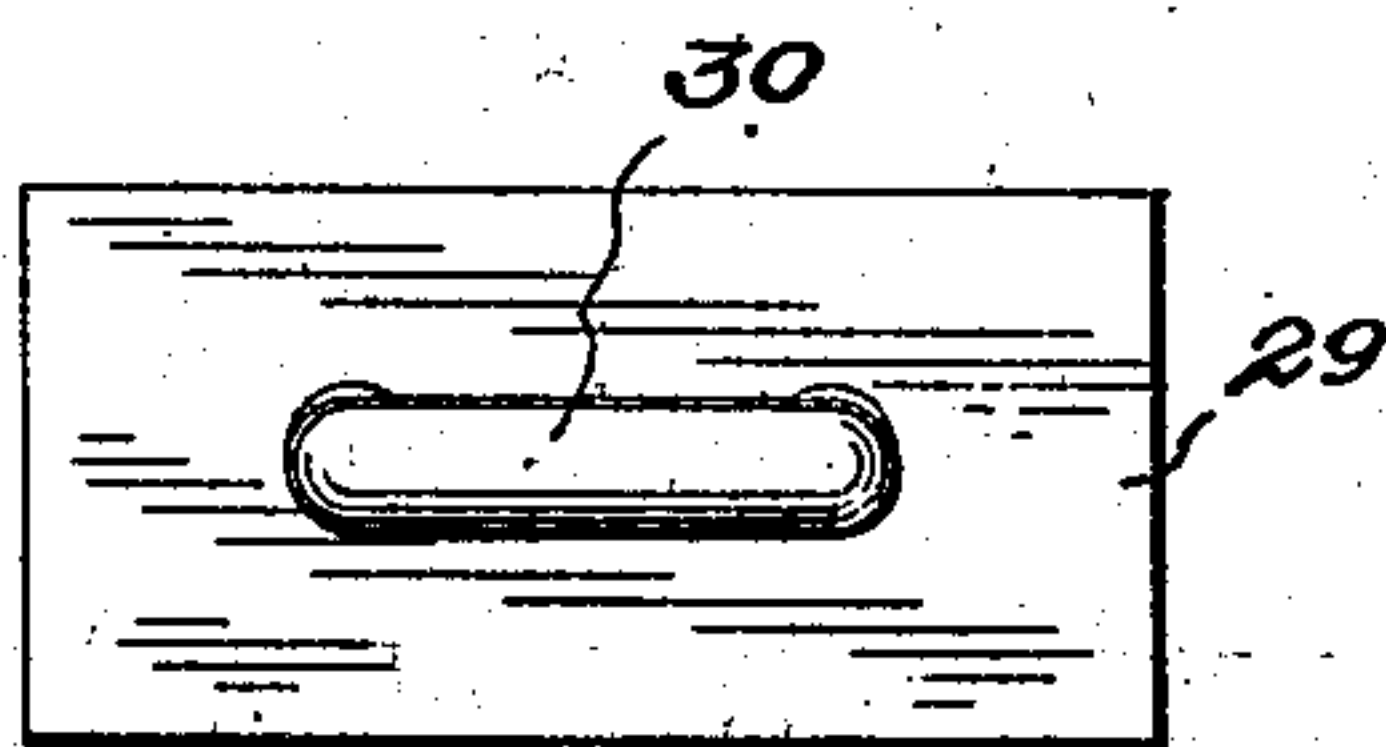


Fig. 5.

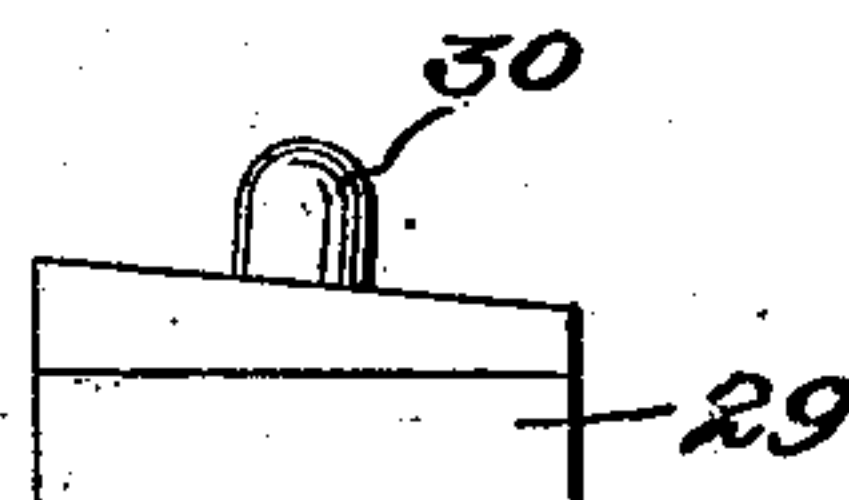


Fig. 6.

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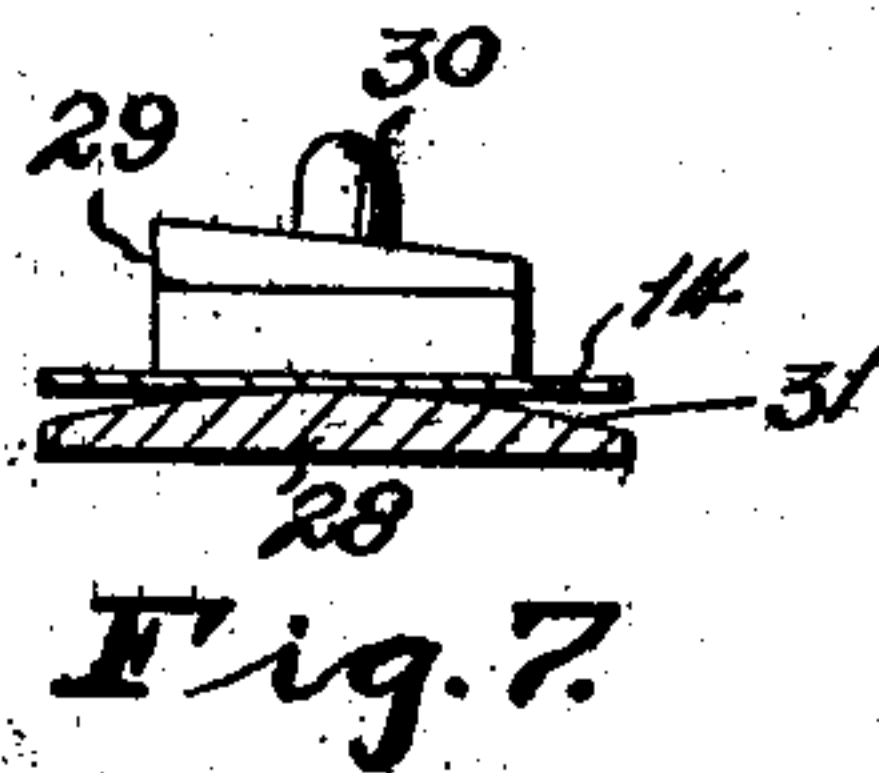


Fig. 7.

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# UNITED STATES PATENT OFFICE.

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## FINISHING-MACHINE.

No. 923,841.

Specification of Letters Patent.

Patented June 8, 1909.

Application filed April 19, 1905. Serial No. 256,461.

*To all whom it may concern:*

Be it known that we, WILLIAM B. C. HERSHEY and DAVID E. HUSTON, citizens of the United States, residing at Columbus, in the  
5 county of Franklin and State of Ohio, have invented certain new and useful Improvements in Finishing-Machines, of which the following is a specification.

Our invention relates to a new and useful  
10 improvement in finishing machines and more especially to a vehicle body finishing machine.

The invention has for its object the production of a machine employing a rapidly  
15 propelled sand papering belt in juxtaposition to which a vehicle body may be supported so that the sand papering belt may be forced down and caused to travel over the surface of the body irrespective of its shape.

20 Another feature resides in work supporting means so arranged as to throw the work into position and maintain it so until it is finished.

Finally the object of the invention is to  
25 provide a device of the character described that will be strong, durable, efficient and simple and comparatively inexpensive to make.

With the above and other objects in view,  
30 the invention consists of the novel details of construction and operation, a preferable embodiment of which is described in the specification and illustrated in the accompanying drawings, wherein:

35 Figure 1 is a front elevation showing one of the dust collecting hoods removed. Fig. 2 is an end elevation with one of the dust hoods removed. Fig. 3 is a transverse vertical sectional view showing the work in position and  
40 the work holder thrown up into position. Fig. 4 is a similar view with the work holder thrown down and the work out of position. Fig. 5 is a plan view of the belt depressing tool. Fig. 6 is an end elevation of the same,  
45 and, Fig. 7 is a transverse sectional view of the belt and side of a vehicle body having a curved outer surface illustrating the belt forced down on the work and the depressing tool in position thereon.

50 In the drawings, the numerals 1 and 2 des-

ignates the transverse and longitudinal sills or base of the machine. Projecting vertically from the sill 1 and preferably in the central portion thereof are four vertical posts 3 and 4, although it is to be understood that a greater  
55 or less number of posts may be employed as the occasion may require. The post 4 is somewhat stouter than the other posts and extends a considerable distance thereabove, so as to support at its upper end an ordinary  
60 adjustable hanger 5 upon which is mounted an idle pulley 6, so supported on the said hanger as to be capable of vertical adjustment. Supported at the opposite ends of the longitudinal sill 1 and resting on the  
65 transverse sills 2 are supporting frames or chairs 7 suitably constructed and supporting standards 8 which carry at their upper ends bearing boxes 9. Transverse shafts 10 are supported in the bearing boxes longitudinally  
70 of the frames 7 and the transverse sills 2. One of these shafts 10 carries the usual fixed driving pulley 11 and the loose pulley 12 adjacent thereto. At their front ends the shafts carry band wheels 13 around which is  
75 passed an endless abrading belt 14 which also passes over the idler 6 and is placed under tension by the vertical adjustment of the said idler. It is of course to be understood that the belt 14 is only provided upon its  
80 outside with an abrading surface, and the inner side which passes over the band wheels 13 and the idlers 6, is smooth so that it may be readily driven without marring the peripheries of the said wheels. The abrading  
85 belt is in this manner caused to travel longitudinally and substantially parallel to the sill 1 and nearer the upper ends of the posts 3 and 4 and slightly in front of the same, as clearly shown in Figs. 1 and 2. In the rear  
90 of each post are arranged vertical supports 15 resting on the transverse sills 2 and pivotally supporting the rear ends of forwardly extending work supporting bars 16. The bars 16 extend beyond and beneath the belt 14  
95 and are connected in pairs at their outer ends on each side of the center by strips 17. The bars 16 are so arranged as to stand substantially horizontal when thrown into their raised position, but sufficient distance below  
100



the belt 14 as to support the work out of contact with the said belt. The bars 16 are notched so as to receive the notched portions of vertical levers 18 which are pivotally secured to the said bars by bolts 19. In this manner the surfaces of the levers and the bars lie flush and allows them to be placed in close contact with the sides of the vertical posts. The levers 18 extend below the bars 16 and are pivotally connected by means of bolts 20 to short links 21 pivoted upon the sides of the vertical posts a short distance above the longitudinal sill 1 as clearly illustrated in the drawings. Adjacent the pivot bolts 20 the vertical posts are recessed as indicated at 22, so as to receive the head of the bolt and allow the connected ends of the levers and links to swing back and forth. The upper ends of the levers 18 are connected by a longitudinal handle bar 23 which facilitates the simultaneous swinging of the levers. The vertical post 4 is formed with a groove 25 adapted to snugly receive the handle bar and hold it when the same is swung upward to throw the work bars 16 into position. It will be obvious that the connection between the links 21 and the levers 22 is in the form of a knuckle joint, thus allowing the bars 16 to be swung downward when the upper ends of the levers are swung outward and downward by the said handle bar. The work bars slightly in front of the vertical posts are formed with transverse grooves 26, adapted to snugly receive the usual sill 27 of the vehicle body 28.

The outer surface of the ordinary vehicle body is usually inclined or curved thus making it necessary in finishing to depress the belt so as to evenly contact and pass over the surface which is being finished. To depress the belt various devices may be used but we prefer to use a tool or block 29 such as is shown in Figs. 5, 6 and 7. In constructing this tool or block, the handle 30 is preferably set at an angle so as to assist the workmen in working at a safe distance from the belt.

In utilizing our machine, the belt is caused to travel rapidly by suitable power applied to the pulley 11. The operator or workman grasps the handle bar 23 and pulls the same outward and downward, which breaks the knuckle joint and causes the pivotally connected ends of the levers 18 and links 21 to swing inward, thereby, owing to the pivotal connection between the bars 16 and levers 18, the latter bars are swung downward as indicated in Fig. 4. The body 28 is now engaged over the bars 16 so that its sill 27 rests in the grooves 26. The operator again grasping the handle bar 23, pushes the same upward and backward until it engages in the groove 25 and is thus locked in position. This upward swinging movement of the upper ends of the levers 18 raises the bars 16 and the vehicle body 28 into position, at the

same time owing to the pivot or fulcrum bolt 19 the connected ends of the levers 18 and the links 21 are swung forward until the said levers and links stand in vertical alinement with each other as shown in Fig. 3. By observing Fig. 3, it will be seen that when the work is thrown into position the pivot bolts 19 and 20 and the pivot bolts of the links 21 will stand in vertical alinement one above the other, thus locking the parts in position and making it impossible for the bars 16 to again swing downward until the upper ends of the levers 18 are swung outward. When the vehicle body is thus swung into position, the belt 14 is traveling rapidly above and over the same, but out of contact therewith. The operator now by means of the tool or block 29 depresses the belt so as to bring its abrading surface into contact with the upper surface of the vehicle body and thus smooth and finish the same. The tool 29 may be moved along the belt so as to depress the same and force it into engagement with any point of the exposed surface of the vehicle body and in this way he is enabled to treat individually any portions of the vehicle body which may need more smoothing or finishing than other portions. After the entire exposed surface of the vehicle body has been smoothed and finished, the bars 16 may again be swung downward and the vehicle body turned so that its other side may be smoothed and finished. When it is desired to finish the ends of the vehicle body, it will be necessary to engage the body over only two of the bars 16 and for this reason the bars are connected in pairs by the strips 17 as shown in Fig. 1. Should it be desired the ends of two vehicle bodies may be supported upon the opposite pairs of bars 16 at the same time, thus expediting the finishing.

In Fig. 7 we have shown the side of a vehicle body 28 formed with a curved surface 31 and showing the tool depressing the belt 14 on to the said curved surface. It is obvious that the said tool may be worked back and forth so as to force the belt in contact with the curved surface and thus as efficiently smooth and finish the said surface as if it was straight or inclined.

In Fig. 1, we have shown about the band wheel a dust collecting hood 32 formed with a spout 33 to which may be connected a suitable conducting pipe, suitably arranged to convey the dust from the collector. It is to be understood that a hood 32 is to be arranged about each band wheel 13, but forms no part of this invention.

Having now fully described our invention, what we claim and desire to secure by Letters Patent is,

1. In a finishing machine, the combination with a frame and an endless abrading belt, of swinging work supporting devices, and means



for swinging the work supporting devices into position below the belt so as to support the work out of contact with the belt.

2. In a finishing machine, the combination  
5 with vertical supports and an endless belt, of pivoted work supporting bars, and jointed means for swinging the bars into position beneath the belt.

In testimony whereof we affix our signatures in the presence of two witnesses.

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DAVID E. HUSTON.

Witnesses:

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E. R. DUNN.