

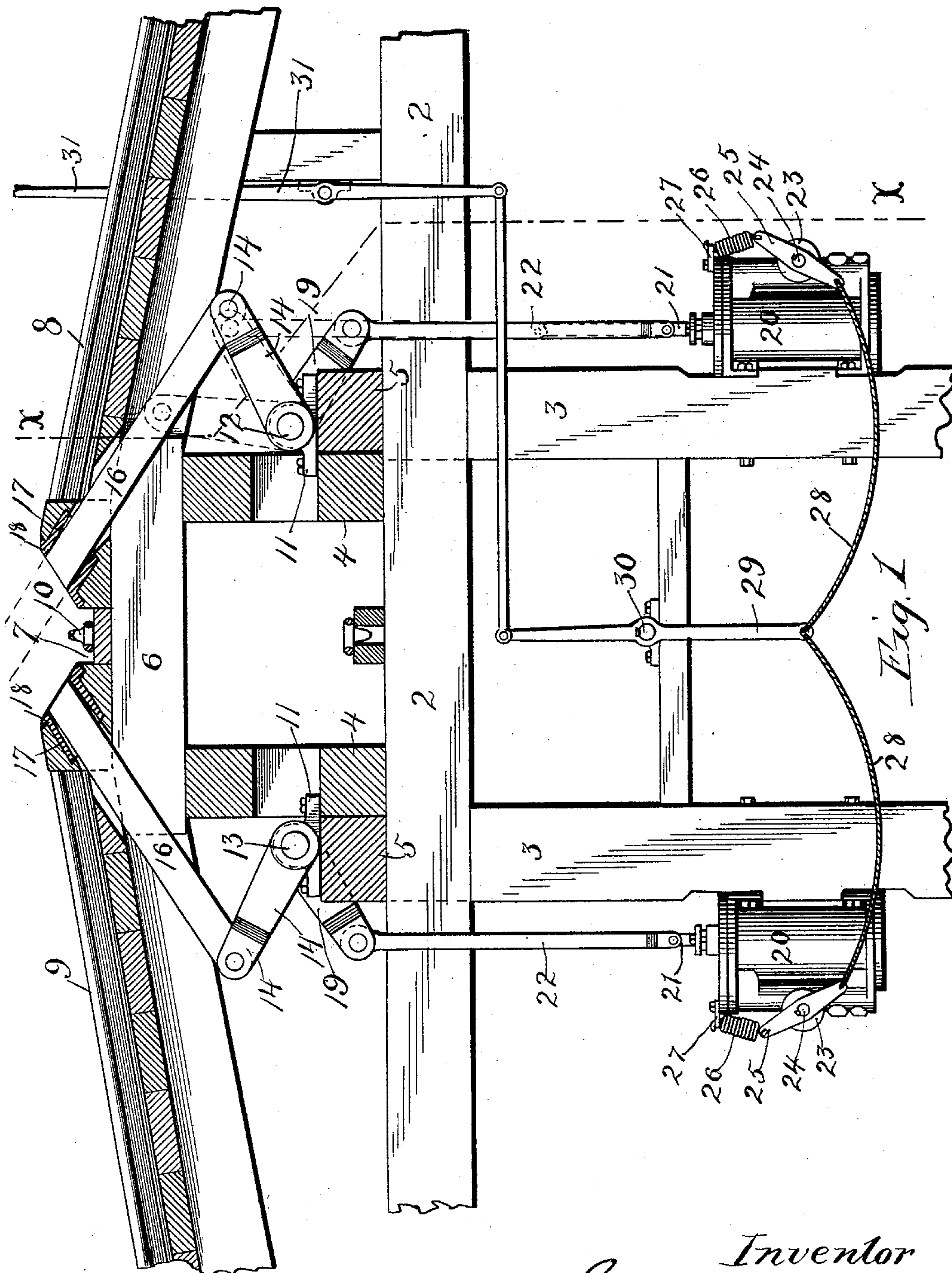
(No Model.)

2 Sheets—Sheet 1.

G. A. KELLY.  
LOG KICKER.

No. 497,098.

Patented May 9, 1893.



Witnesses  
G. C. Purple  
F. J. Lyon

Inventor  
George A. Kelly.  
By Paul Emerson His Atty's.

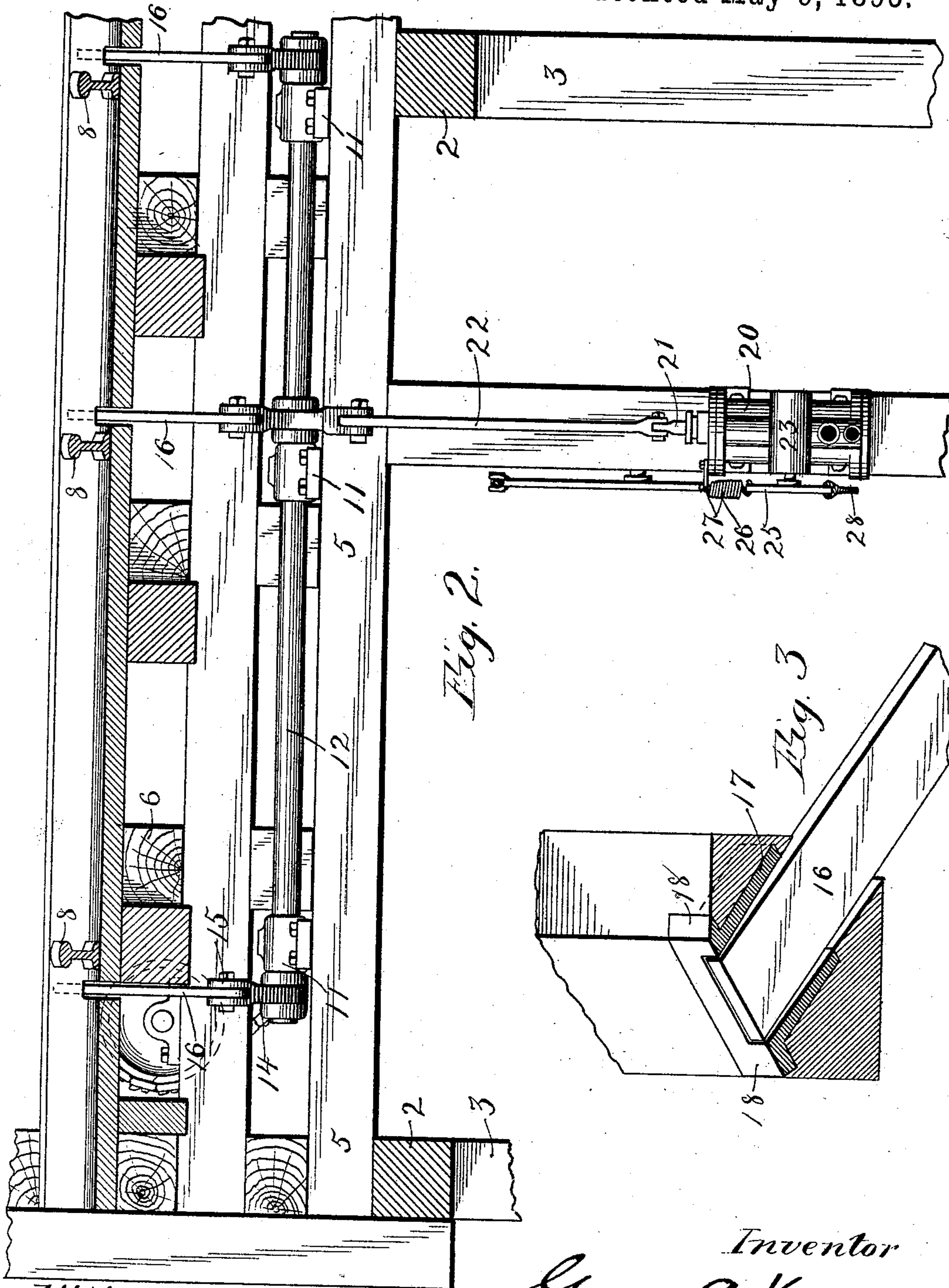
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# UNITED STATES PATENT OFFICE.

GEORGE A. KELLY, OF MINNEAPOLIS, MINNESOTA.

## LOG-KICKER.

SPECIFICATION forming part of Letters Patent No. 497,098, dated May 9, 1893.

Application filed November 14, 1892. Serial No. 451,905. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE A. KELLY, of Minneapolis, county of Hennepin, State of Minnesota, have invented certain Improve-  
5 ments in Log-Kickers, of which the following is a specification.

My invention relates to means for throwing logs from the conveyer chain trough, or the roll-conveyer, upon the skid-way or a roll  
10 platform, and the object of the invention is to so construct a machine of this class as to materially decrease the cost of its manufacture and render its installment and operation more convenient and easy.

15 To this end my invention consists in a bar or bars arranged to operate transversely and angularly across the same, to strike a log and throw it from the trough, upon the skid-way, in combination with a steam cylinder, the piston and piston rod thereof and a bell crank  
20 connection or its equivalent arranged between the latter and said bar or bars; further the invention consists in various details of construction and in combinations all as hereinafter  
25 described and particularly pointed out in the claims.

The invention will be more readily understood by reference to the accompanying drawings, in which—

30 Figure 1 is a vertical cross section of the trough and skid-ways, and showing a machine embodying my invention in operative position. Fig. 2 is a vertical longitudinal section on the line  $x-x$  of Fig. 1. Fig. 3 is a detailed  
35 perspective view more clearly showing the box or sleeve through which the kicking bar operates.

As shown in the drawings, 2 represents the floor timbers of the mill and 3—3 upright  
40 posts for supporting the same. Upon the floor timbers are longitudinal beams 4 and 5 arranged to support the frame work 6 of the trough 7, and the two skid-ways 8 and 9 arranged on opposite sides thereof and consisting  
45 either in smooth floors or laterally arranged rails. Arranged to operate in the trough is the usual conveyer chain 10 having the projections or lugs to engage the lower ends of the logs. This conveyer may, if desired, be  
50 replaced by rolls and the skid-ways by roll platforms upon which the logs are to be thrown. Upon the tops of the beams 4 and 5 I arrange

the heavy boxes 11, preferably three in number on each side of the structure and adapted to receive the two rock shafts 12 and 13, re-  
55 spectively.

Upon each rock shaft I arrange two or more arms 14, upwardly and outwardly inclined and having the yokes 15 in which the lower ends of the oppositely inclined kicking bars  
60 16 are pivoted by strong pins. The position of the arms on the rock shaft is substantially that shown in the drawings, the middle arm being closer to the rear end of the shaft than to the forward end, the object being to catch  
65 a twelve foot log between the two forward kicking bars, while a longer log would be struck by all of the kickers. The kicking bars operate at an angle through the sides of the trough timbers, being carried at their  
70 upper ends in the longitudinal boxes 17 having the flanges 18 by which the boxes are fastened in the timbers. The inner sides of each box are parallel and fit the bar quite snugly, but the upper and lower sides are tapered or  
75 flared out slightly so as to permit the bar to pivot within the sleeve. Near the middle of each rock shaft I attach a downwardly inclined crank arm 19, which if desired, may be  
80 formed integrally with the middle arm 14 making a complete bell crank. Upon the outer side of each post 3 I firmly bolt a short steam cylinder 20 containing the usual piston from which the piston rod 21 extends,  
85 which piston rods are connected with the crank arms 19 by connecting rods or links 22 or their equivalents, the upper ends of which are pivoted within the yokes of said cranks. Each cylinder has the usual live and exhaust  
90 steam connections and a rotary valve 23, the stem 24 of which extends through the valve case and bears the T-bar or crank 25, to the upper end of which is attached a strong re-  
95 turning spring 26, the upper end of which is fastened upon the lug 27 projecting from the top of the cylinder. From the lower ends of the two T-bars belonging to the cylinders flexible rope or chain connections 28 extend  
100 to the lower end of the valve operating lever 29, which lever is pivoted at 30 and is suitably connected with an operating lever 31 extending up through the floor into position to be conveniently handled by an attendant. The arrangement is such that when the lever



is shifted in one direction, one of the ropes 28 will be drawn taut to open one of the cylinder valves, while the other rope is slackened and the valve with which it is connected remains closed. On returning the lever the open valve is closed by its spring 26. Upon operating the lever the steam is thus allowed to enter one of the cylinders beneath the piston thereof, to raise the same, and through the connecting rod 22, throw the crank arm 19 upward and therewith the rock shaft and the arms thereon, thus forcing the kicking bars upwardly through their sleeves and striking the log under one side forcibly throwing it from the trough upon the skid-way opposite the particular set of kicking bars. The operating lever is then instantly returned and the valve being closed by its spring permits the exhaust of steam from beneath the cylinder whereon the rock shaft and its arms and kicking bars will drop back into their normal positions.

All parts including the kicking bars, are made of metal, either iron or steel. It will be seen that by this construction I am enabled to obtain a sufficient movement in the kicking bars by the use of a very short steam cylinder, and obtain a most powerful and advantageous leverage upon the kicking bars and through the same upon the log.

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

1. The combination with the log trough or platform, and the side timbers thereof, of oppositely inclined kicking bars arranged on opposite sides thereof and projecting through boxes arranged at the sides of said trough or platform, the rock shafts, the arms 14 fixed thereon and engaging lower ends of respective kicking bars, a crank arm on each shaft, a steam cylinder arranged beneath each crank arm, the pistons of said cylinders connected

with said crank arms, and means for admitting steam to either of said cylinders, substantially as described and for the purpose specified.

2. The combination with the log trough having the side timbers, of the transverse metal boxes attached to said timbers and having the funnel shape described, the inclined kicking bars, a rock shaft arranged beneath said bars and provided with arms 14 having yokes wherein the lower ends of said bars are pivoted, a crank arm or its equivalent on said yoke shaft, a steam cylinder, the piston and piston rod thereof, a connecting rod or rods arranged between said piston and said crank arm, a valve for said cylinder, and means for operating the same to admit steam to raise the piston and thereby force said kicking bars through their boxes and into contact with the log in said trough.

3. The combination with the log trough or platform, of the metal sleeves or boxes arranged upon each side and inclined toward the middle thereof, the metal kicking bars to operate in said boxes, the rock shafts 12 and 13, bearings therefor, the arms 14 provided on said rock shafts and pivoted to the lower ends of respective kicking bars, a depending crank arm upon each rock shaft, two short cylinders having pistons respectively connected with said crank arms, valves for said cylinders, returning springs for said valves, an operating lever and flexible connections 28, 28 extending therefrom to said valves, whereby the same may be operated independently and singly by a single lever, substantially as and for the purpose specified.

In testimony whereof I have hereunto set my hand this 17th day of October, 1892.

GEORGE A. KELLY.

In presence of—

C. G. HAWLEY,  
F. S. LYON.