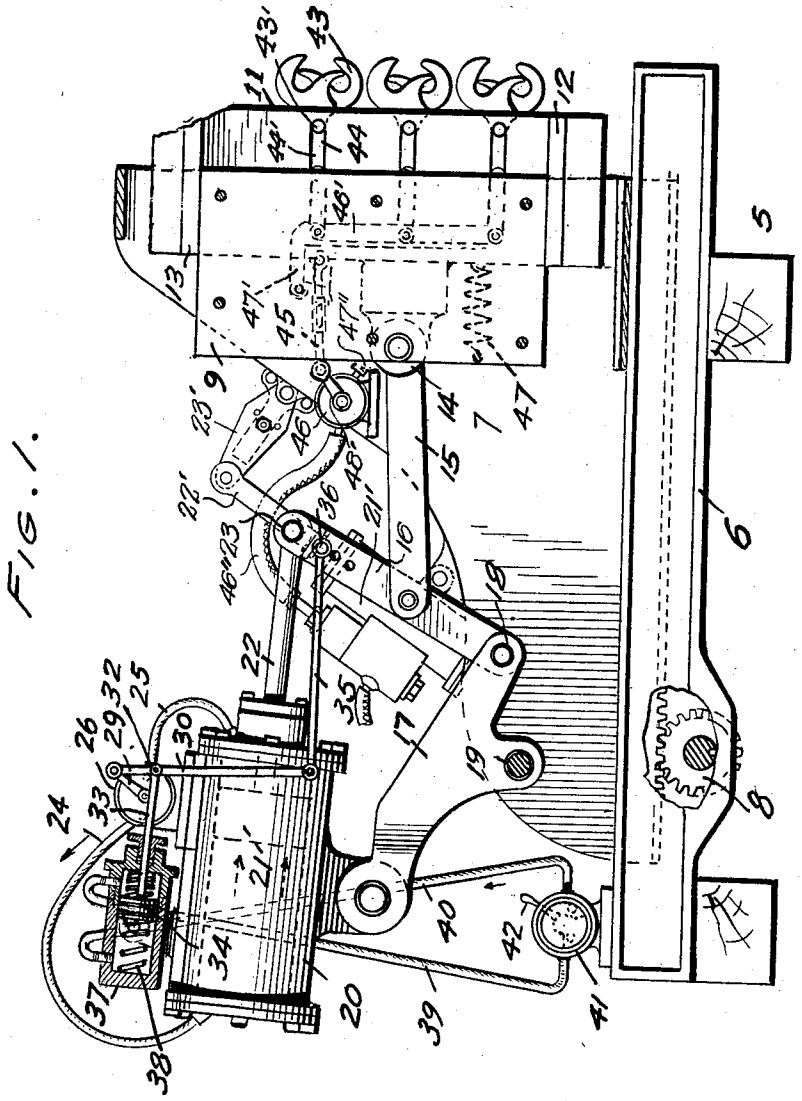
June 16, 1931. J. M. BROPHY 1,810,752

COMBINATION GRAB DOG AND TAPER

Filed Jan. 22, 1927 3 Sheets-Sheet 1

FIG. 1.



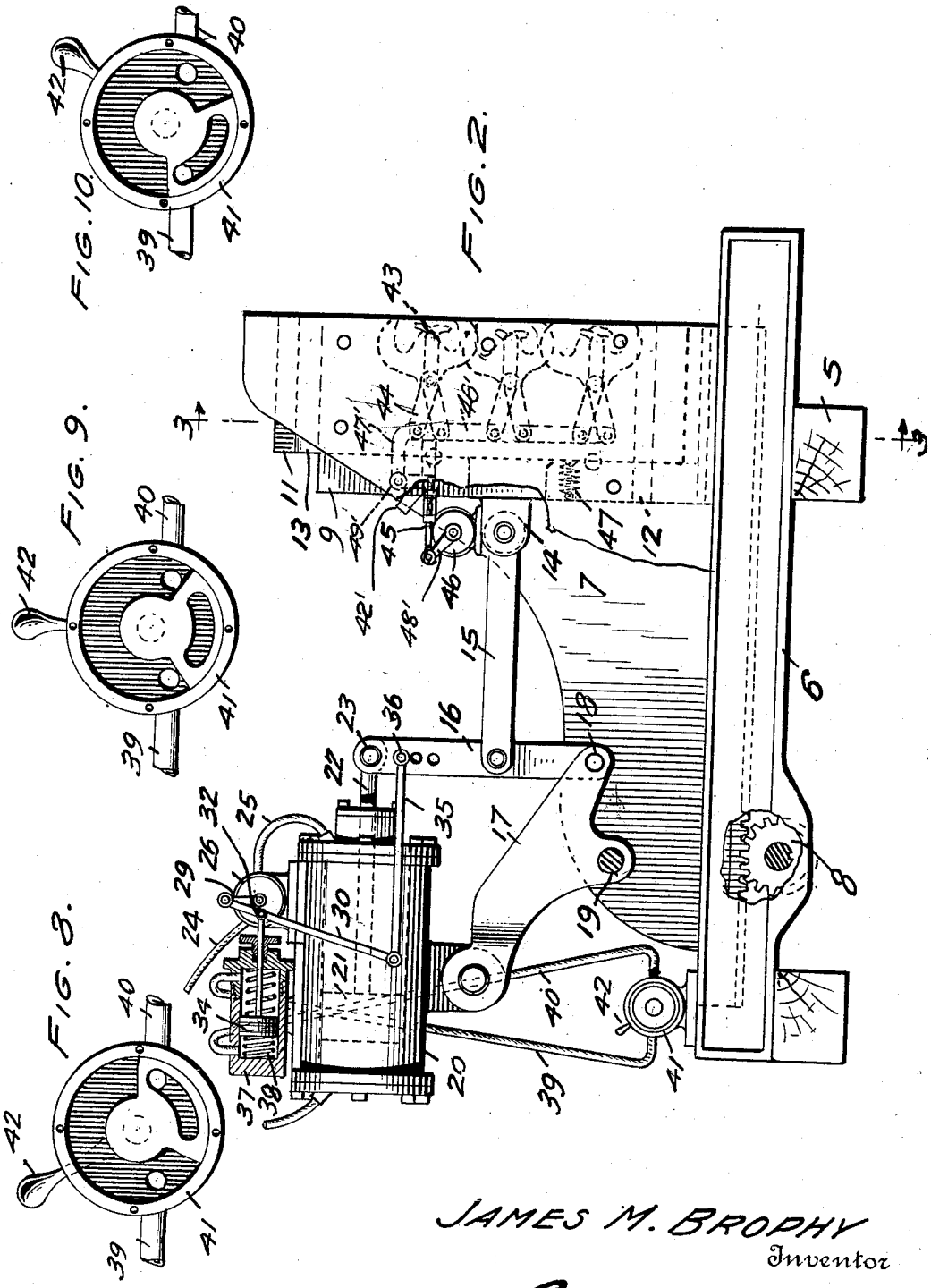
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COMBINATION GRAB DOG AND TAPER

Filed Jan. 22, 1927 3 Sheets-Sheet 2



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COMBINATION GRAB DOG AND TAPER

Filed Jan. 22, 1927 3 Sheets-Sheet 3

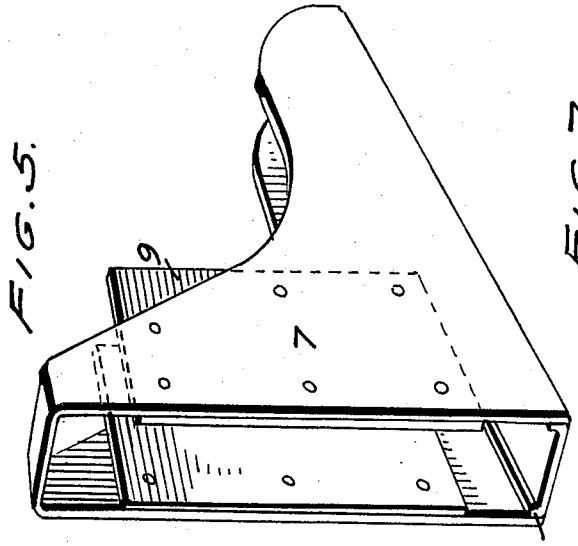


FIG. 5.

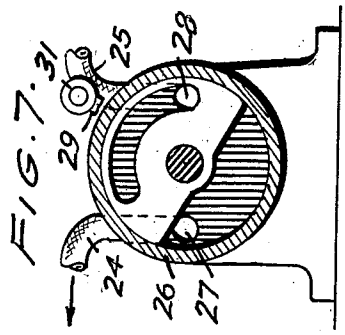


FIG. 7.

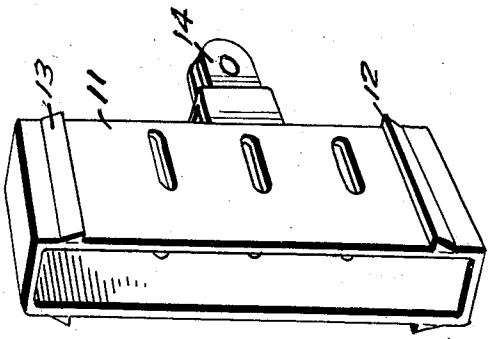


FIG. 4.

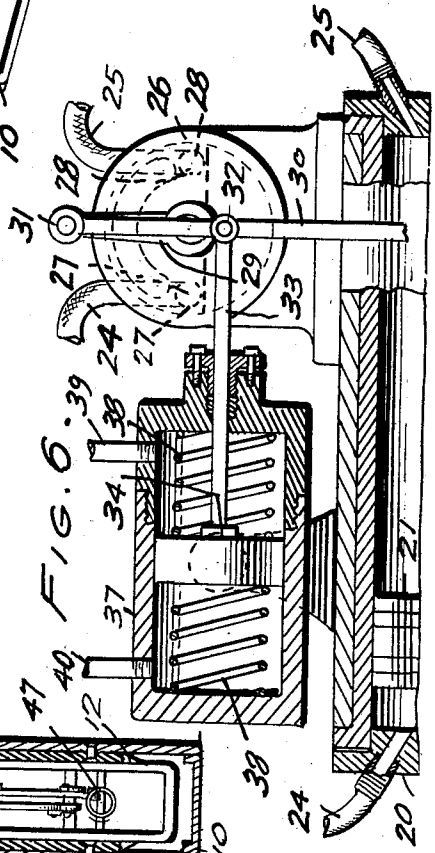


FIG. 6.

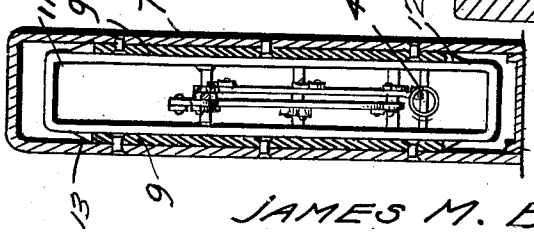


FIG. 3.

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UNITED STATES PATENT OFFICE

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COMBINATION GRAB DOG AND TAPER

Application filed January 22, 1927. Serial No. 162,830.

This invention relates to saw mill carriage construction, and aims to provide novel means whereby the dogs of the carriage employed for grabbing the logs, may be extended beyond the faces of the knees of the saw mill carriage, to prevent the log under operation, touching the knee faces, and at the same time, insuring an efficient operation of the grab dogs.

Another object of the invention is to provide a novel form of support for the dogs, the support being constructed to operate a valve for automatically operating certain dogs of a carriage, in a manner as clearly set forth in my Patents Numbers 1,625,240 granted April 19, 1927 and 1,712,328 granted May 7, 1929.

A still further object of the invention is to provide means whereby a log may be grabbed and moved to a position into engagement with the knees of the carriage without the necessity of operating the log turner of the saw mill carriage.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed, without departing from the spirit of the invention.

Referring to the drawings:

Figure 1 is a side elevational view partly in section illustrating the grab dog and supporting member therefor in their active positions.

Figure 2 is a side elevational view illustrating the grab dogs and supporting member in their inactive positions.

Figure 3 is a sectional view taken on line 3—3 of Figure 2.

Figure 4 is a perspective view illustrating the dog carrying member.

Figure 5 is a perspective view illustrating a knee constructed to support the dog carrying member.

Figure 6 is a sectional view illustrating the operating piston and its cylinder.

Figure 7 is a sectional view through the valve, that controls the passage of air to the cylinder.

Figure 8 illustrates the selecting valve in one of its positions of operation.

Figure 9 is a valve in its neutral position.

Figure 10 illustrates the valve in another position of control.

Referring to the drawings in detail, the reference character 5 indicates the bolsters on which the head blocks 6 are positioned, the head blocks acting as supports for the knees 7 which are provided with the usual racks for engagement with the gears 8 for operating the knees in the usual and well known manner.

As shown by Figure 5 these knees are of novel construction, the same being hollow and provided with spaced plates 9 that are secured to the inner surfaces of the knees, the lower edges of the plates being spaced from the ribs 10 formed along the inner surface of the bottom of each knee.

The spaces between the lower edges of the plates 9 and ribs 10 define guides for the movable dog carrying member 11 associated therewith, the dog carrying members having outwardly extended ribs 12 and 13 respectively arranged on opposite sides thereof and disposed adjacent to the upper and lower ends thereof, the ribs 13 resting on the upper edges of the plates 9, while the ribs 12 engage the under edges of the plates 9 to insure a true operation of the dog carrying member.

Extending rearwardly from each dog carrying member are spaced ears 14 that afford means for connecting the link 15 to the dog carrying member. The dog carrying member is operated by means of the link 15 which is pivotally connected with the arm 16 that has its lower end pivotally connected to the bar 17 at 18, the bar 17 being pivotally mounted on the knee at 19.

Pivotally supported at one end of the bar 17 is an operating cylinder 20 in which the piston 21 operates, the piston carrying the rod 22 which has pivotal connection with the arm 16 at 23. Thus it will be seen that as the piston 21 moves within the cylinder 20, the rod will be operated to move the link to slide the dog carrying member through the knee to

advance or retract the dog carrying member according to the direction of movement of the piston 21 and rod 22.

Air is admitted to the cylinder 20 at the ends thereof, the air passing through the pipes 24 and 25 the passage of the air being controlled by means of the valve 26 having ports 27 and 28, the port 27 being in communication with the pipe 24, while the port 28 is in communication with pipe 25.

A rotary valve member is formed with openings which may be moved into registry with the openings 27 or 28 to control the passage of air to the cylinder 20.

An arm 29 operates the rotary valve member and as shown, this arm 29 has pivotal connection with the rod 30 at 31, the rod 30 being also connected at 32, with the piston rod 33 to which the piston 34 is connected.

The lower end of the rod 30 connects with the link 35 which in turn has connection with the arm 16 at 36, there being provided a plurality of openings in the arm 16 so that the link may be adjustably connected with the arm 16 to vary the throw of the valve. Positioned within the cylinder 37 and disposed on opposite sides of the piston 34 are coiled springs 38 which normally act to hold the piston 34 balanced or in a position intermediate the ends of the cylinder 37. This cylinder 37 acts as a governor and controls the passage of air to the cylinder 20 so that the piston 21 operating in the cylinder 20, may be held in various positions of operation. From the foregoing it will be obvious that the piston 34 operating in the cylinder 37 may be operated to cause a movement of the piston 21 in the cylinder 20, to a position as shown by Figure 2 of the drawings and that strain directed to the device by log impact will not act to permanently change the position of piston 21, because rearward movement of the piston 21 and arm 16 will operate valve 26 through the rod 30 and link 35 to direct air to the rear side of the piston 21 returning the piston 21 to its initial position, should a slight leakage of air occur at the rear end of the cylinder 20.

Should it be desired to move the piston 21 to move the rod 22 forwardly from a position as shown by Figure 2 of the drawings, for example five inches, the valve 41 is moved to a position as shown by Figure 9, or the central position which movement of the valve will cause piston 34 to move rod 30 forwardly moving arm 29 to the right uncovering a port in valve 26 to allow air to exhaust from the front end of the cylinder 20 and admit air to the rear of cylinder 20. When the piston 21 has moved the necessary five inches, the rod 35 being carried to the right by the movement of piston 21 will cause rod 30 to swing on the pivot 32 which will bring arm 29 back to center position equalizing the pressure in both ends of cylinder 20 and maintaining it in a central position automatically.

Air under pressure is supplied to the cylinder 37 through pipes 39 and 40 which are flexible to allow the knees to move forwardly or rearwardly while the valve 41 that controls the passage of air through the pipes remains stationary. The action of valve 26, rod 30 and links 35 is identical with the action of the valve 24, lever 21 and link 20 of my Patent No. 1,712,328.

This valve 41 is manually controlled and is provided with a handle 42 by means of which the ports of the valve may be brought into registry with a suitable source of air supply not shown.

When the valve 41 is moved to a position as shown by Figure 8 of the drawings, air will be admitted to the pipe 40, which in turn will direct air to the outer end of the cylinder 37, moving the piston 34 thereof to operate the valve 26 to cause air under pressure to pass through pipe 24 and into the cylinder 20 at its outer end, moving the piston 21, rod 22, arm 16 and link 15 to move the dog carrying member outwardly or in advance of the knee associated therewith.

When air is passed into the opposite end of the cylinder 37, the valve 26 will be operated in the opposite direction to admit air to the opposite end of the cylinder 20, in which event the arms and links moved by the piston 21 will operate to return the dog carrying member to its initial or inactive position.

The dogs 43 are pivotally connected by means of the pins 43′ that move in the elongated openings 44′ of the dog carrying member 11. Arms 44 extend rearwardly from the dogs 43 and are pivotally connected to the bar 46′ which has a rearwardly extended arm 47′ to which the lever 42′ is pivotally connected at 49′. This lever 42′ corresponds to the levers 34 of my Patent No. 1,625,240, and is operated by means of a cylinder and links as shown in that patent. The valve 46 is of the rotary type and acts in the same capacity as valve 16 of my Patent No. 1,625,240 to control the passage of air to a dog actuating piston not shown.

A rod 45 connects the arm 48′ of the valve 46 to the dog carrying member 11, so that when the dog carrying member is moved forwardly to taper a log, the rod 45 is pulled, opening the valve 46 and allowing air to pass through the supply pipe 47″, through the valve 46 and hose 46″. The air now passes into the cylinder 21′ of the dog actuating means, which includes arms 22′ and 23′, to move the dogs 43 to their active positions, in a manner as shown in my Patent No. 1,625,240, which movement is simultaneous with the moving of the dog carrying members to taper a log.

A coiled spring 47 is employed in connection with each dog carrying member and against which the dog carrying member associated therewith, operates.

In view of the foregoing description, it is believed that a further detail description as to the operation of the device is unnecessary.

I claim:

1. The combination with a saw mill carriage having movable knees, of a movable dog carrying member mounted for movement through each knee, dogs carried by each dog carrying member, and a valve actuated by the movement of the dog carrying member for controlling the operation of the dogs simultaneously with the movement of the dog carrying member to a position to taper a log.

2. The combination with a saw mill carriage having movable knees, of dog carrying members mounted for movement through the knees, dogs carried by each dog carrying member, means for moving the dog carrying members with respect to the knees to taper a log, a controlling valve for controlling the action of the dogs, and means operated by the dog carrying members for operating the valve.

3. The combination with a saw mill carriage having movable knees, of movable dog carrying members mounted on the knees, dogs carried by the dog carrying members, means for operating the dog carrying members, and means controlled by the movement of the dog carrying members for operating the dogs to dog a log.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

JAMES M. BROPHY.