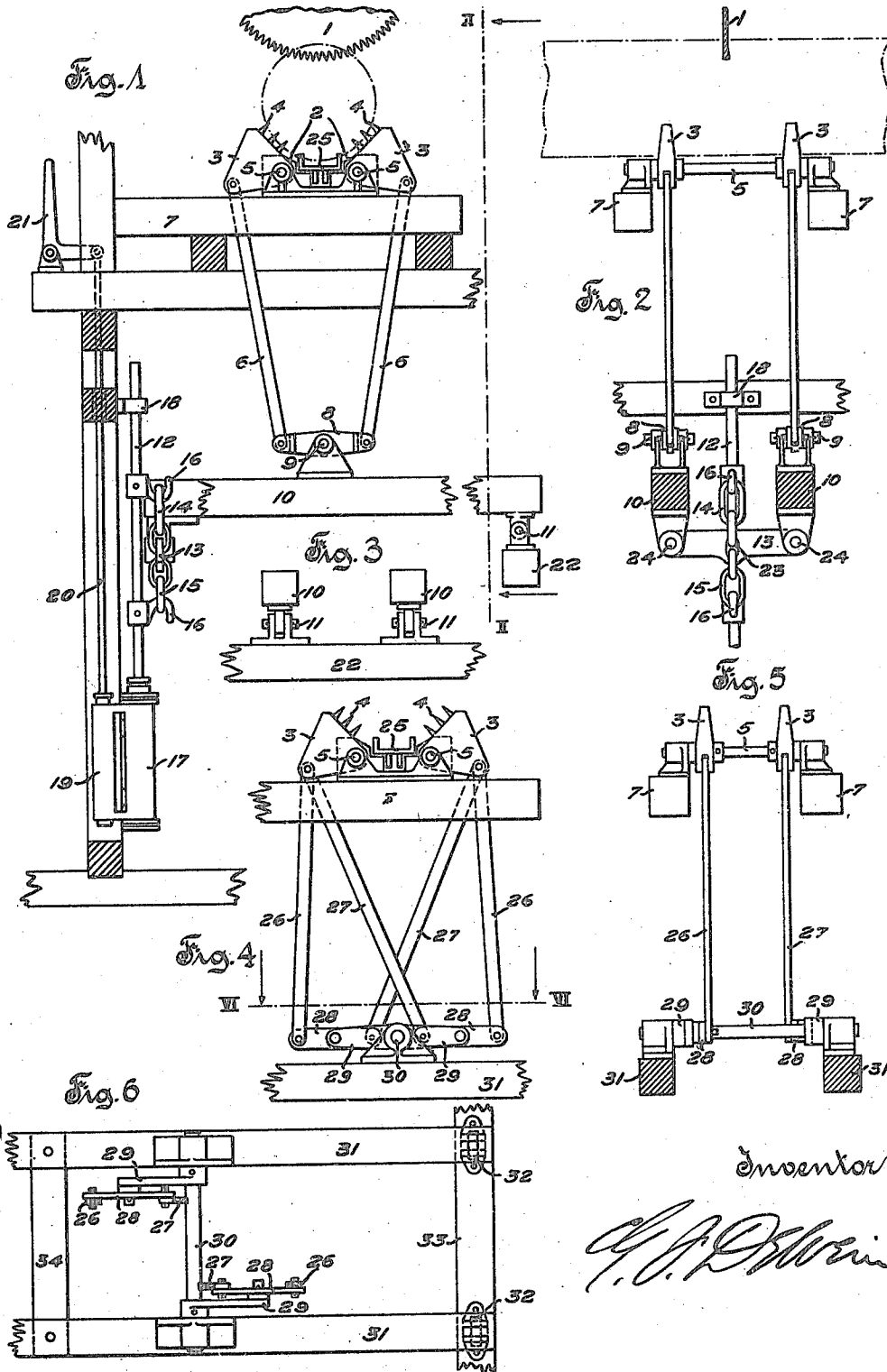


G. F. DE WEIN.
LOG DOGGING APPARATUS.
APPLICATION FILED JULY 1, 1916.

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LOG-DOGGING APPARATUS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GEORGE F. DE WEIN, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a certain new and useful Improvement in Log-Dogging Apparatus, of which the following is a specification.

This invention relates to improvements in the construction of log dogging apparatus and especially to devices for insuring the application of the gripping jaws of such apparatus to a log, during sawing.

An object of the invention is to provide a log dogging apparatus which is simple in construction and efficient in operation. One of the more specific objects is to provide a log dogging apparatus which will effectively grip and hold the log resting upon the log way, at a plurality of places and irrespective of existing irregularities on the log surface. Another specific object is to provide means for substantially equalizing the gripping pressures exerted by the jaws. A further object is to provide means for insuring application of the sets of jaws on opposite sides of the saw and for substantially equalizing the gripping pressures exerted by the jaws of these sets. A further object is to provide a power transmitting means between the operating motor and the devices for insuring application of the jaws, in which the elements are under tension for transmission of operating power in either direction. Still another object is to provide details of construction of log dogging apparatus which will permit most efficient actuation thereof.

While the devices for independently insuring the application of the jaws to the log have been disclosed as levers adapted to substantially equalize the gripping pressures, it is to be noted that while such equalization of the pressures exerted by the jaws is ordinarily desirable, it is not essential. The levers for insuring application of the jaws may, if desired, be formed with arms of unequal length, thereby avoiding equalization of the gripping pressures, the invention however contemplating the use of such or any other devices which will independently insure application of the jaws.

A clear conception of several embodiments of the invention may be had by referring to the drawing accompanying and forming a part of this specification in which like refer-

ence characters designate the same or similar parts in the various views.

Figure 1 is a fragmentary side elevation partly in section, of one form of log dogging apparatus having the invention applied thereto, looking longitudinally of the log way.

Fig. 2 is an end elevation of a fragment of dogging apparatus, partly in section, looking transversely of the log way, the section being taken along the line II—II of Fig. 1 looking in the direction of the arrows.

Fig. 3 is an end view of a fragment of the dogging apparatus disclosed in Fig. 1.

Fig. 4 is a side elevation of a fragment of another form of dogging apparatus, looking longitudinally of the log way.

Fig. 5 is an end elevation, partly in section, of the dogging apparatus disclosed in Fig. 4.

Fig. 6 is a transverse horizontal section through the dogging apparatus disclosed in Figs. 4 and 5, the section being taken along the line VI—VI of Fig. 4 looking in the direction of the arrows.

The dogging apparatus ordinarily comprises a plurality of jaws 3 provided with suitable gripping teeth or spurs 4 adapted to engage the log, and mounted to swing transversely of the log way about pivots 5 supported in suitable bearings upon the stationary mill frame 7. The jaws 3 are arranged in pairs or sets located one on each side of the saw 1, which in the present case has been disclosed as a circular saw but which may be of any other type. The saw is movable transversely of the log way to make a transverse cut through a log held by the jaws 3. The log way comprises essentially guiding elements 2 between which a conveyer chain carrying cleats or brackets 25, is movable to transport the log along the log way.

As disclosed in Figs. 1, 2 and 3, the jaws 3 constituting the set on one side of the plane of the saw 1, are connected by means of links or connections 6, with the opposite ends of a lever 8 having at its mid portion a pivot 9 supported in suitable bearings carried by a swingable beam or frame 10. The jaws 3 constituting the set on the opposite side of the plane of the saw 1, are likewise connected by means of connections 6, with opposite ends of a lever 8, the mid portion of which is pivotally mounted upon a frame 10. The

adjacent rear ends of the frames 10 are independently supported upon a stationary beam 22 by means of pivots 11. The forward adjacent ends of the frames 10 are connected with opposite ends of a main lever 13 by means of pivots 24. The mid portion of the lever 13 is provided with an elongated opening 23 engaged at its upper portion by a chain 14 and at its lower portion by a chain 15. The chains 14, 15, are connected with upper and lower brackets 16 adjustably mounted upon the piston rod 12 of the servo-motor 17. The upper extremity of the piston rod 12 is preferably guided in a suitable guide 18 mounted upon the main frame 7. The servo-motor 17 ordinarily comprises a piston reciprocable within a cylinder and operable by the admission of fluid under pressure to opposite sides thereof by means of a controlling valve 19. The valve 19 as disclosed, is manually operable by means of a controlling lever 21 connected directly to the valve stem 20.

In the device disclosed in Figs. 4, 5 and 6, the jaws 3 constituting the set on one side of the plane of the saw 1 are connected to the opposite ends of a lever 28 by means of links or connections 26, 27. The jaws 3 constituting the set on the opposite side of the plane of the saw 1 are likewise connected with the opposite ends of a lever 28 by means of connections 26, 27. The levers 28 of the two sets of jaws are pivotally connected with the opposite ends of a main lever comprising arms 29 rigidly secured to a shaft 30. While this main lever has been disclosed as formed of three elements, it will be noted that the same might readily be formed in one piece. The shaft 30 of the main lever, is mounted in suitable bearings in the frame members 31, which members are pivotally supported upon the stationary frame 33 by means of pivots 32 and are rigidly connected to each other by means of a crossbeam 34. The device for actuating the apparatus disclosed in Figs. 4, 5 and 6 may be the same as that disclosed in Fig. 1.

In operating the device disclosed in Figs. 1, 2 and 3, if it is desired to grip a log resting upon the log way, the piston rod 12 of the servo-motor 17 is moved by the admission of pressure below the piston, in an upward direction, transmitting motion through the upper bracket 16, chain 14, and lever 13 to the movable frames 10 and causing these frames to swing in a clockwise direction about the pivots 11. This motion of the frames 10 is transmitted through the pivots 9 and levers 8 to the jaws 3, causing them to swing about their pivots 5 and to approach and eventually firmly grip the log. If it is desired to withdraw the jaws from the log, the direction of motion of the piston rod 12 is reversed by the admission of pressure above the pis-

ton, and the lower chain 15 is placed under tension causing the frames 10 to swing in an anticlockwise direction and producing receding motion of the jaws 3.

In operating the device disclosed in Figs. 4, 5 and 6, if it is desired to cause the jaws 3 to engage the log, the frames 31 are caused to swing in a clockwise direction as viewed in Fig. 1, causing the shaft 30 and arms 29 to move upwardly, whereby the levers 28 are caused to move upwardly and to transmit gripping motion to the jaws 3 through the connections 26, 27. The jaws 3 may be released from the log by reverse motion of the frames 31, as will be readily observed.

In the operation of either of the devices disclosed in the drawing, if the log to be gripped has an irregular surface at the part thereof which it is desired to have the jaws engage, the levers 8, 28, will independently insure the application of the jaws 3 to the log, irrespective of such irregularities or of the previous engagement of other jaws with the log. This will readily be observed by reference to Fig. 1, wherein it will be noted that if the right hand jaw 3 of a set engages the log first, continued motion of the pivot 9 of the corresponding lever 8 will cause continuation in movement of the left hand jaw 3 actuated by the same lever, until the gripping pressures exerted by the jaws of this set are substantially equalized. Independent application of the jaws 3 of each set, to the log is likewise insured in the device disclosed in Fig. 4, wherein the levers 28 will tend to equalize the gripping pressures exerted by the jaws of each set. The main levers 13, 29, provide means common to the device for independently insuring application of the jaws of each set to the log for conjointly insuring the application of all of the jaws to the log. If, for instance, one set of jaws 3 engages the log before the set on the opposite side of the plane of the saw 1 comes into engagement, the main equalizing levers will eventually cause the ineffective jaws to become effective.

By providing the chains 14, 15, and adjustable brackets 16, the power transmitting elements between the servo-motor and pressure predetermining devices may readily be maintained under tension for either application or release of the jaws 3. The adjustability of the bracket 16 permits taking up of any lost motion between the parts, thereby producing quick action of the jaws 3 upon actuation of the servo-motor 17.

It should be understood that it is not desired to be limited to the exact details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

It is claimed and desired to secure by Letters Patent,—

1. In combination, a log way, jaws mov-

able transversely of said log way, a device for independently insuring the application of one set of said jaws to a log, a device for independently insuring the application of another set of said jaws to said log, and means common to said devices for conjointly insuring the application of the jaws of said sets to said log.

2. In combination, a log way, a saw adjacent said log way, jaws movable transversely of said log way, said jaws being arranged in sets located on opposite sides of said saw, a device for independently insuring the application of one set of said jaws to a log, a device for independently insuring the application of another set of said jaws to said log, and means common to said devices for conjointly insuring the application to said log of jaws of said sets on opposite sides of said saw.

3. In combination, a log way, jaws movable transversely of said log way, a device for equalizing the pressures exerted by one set of said jaws upon a log, a device for equalizing the pressures exerted by another set of said jaws upon said log, and means common to said devices for conjointly insuring the application of the jaws of said sets to said log.

4. In combination, a log way, jaws movable transversely of said log way, a device for equalizing the pressures exerted by one set of said jaws upon a log, a device for equalizing the pressures exerted by another set of said jaws upon said log, and means for equalizing the actuating pressures upon said devices.

5. In combination, a log way, a saw adjacent said log way, jaws movable transversely of said log way, said jaws being arranged in pairs located on opposite sides of said saw, a device for equalizing the pressures exerted by one pair of said jaws upon a log, a device for equalizing the pressures exerted by another pair of said jaws upon said log,

means for equalizing the actuating pressures upon said devices, and means for moving the said jaws through said devices.

6. In combination, a log way, a saw adjacent said log way, jaws pivoted to swing transversely of said log way, said jaws being arranged in pairs located on opposite sides of said saw, a lever for predetermining the pressures exerted by one pair of said jaws upon a log, a lever for predetermining the pressures exerted by another pair of said jaws upon said log, a lever for predetermining the actuating pressures upon said jaw pressure predetermining levers, and means for moving said jaws through said levers.

7. In combination, a log way, jaws movable transversely of said log way, a lever having its ends connected with one set of said jaws, a lever having its ends connected with another set of said jaws, a lever connecting the mid portions of said first mentioned levers, and means engaging the mid portion of said third lever for moving said jaws through said levers.

8. In combination, a log way, jaws movable toward and away from said log way, a frame for effecting movement of said jaws, and means engaging a portion of said frame for moving said jaws, said means exerting a pull on the engaged portion of said frame for motion of said jaws in either direction.

9. In combination, a log way, jaws movable transversely of said log way, a lever having its ends connected with one set of said jaws, a lever having its ends connected with another set of said jaws, a lever connecting the mid portions of said first mentioned levers, and means engaging the mid portion of said third lever for moving said jaws through said levers, said means exerting a pull upon said third lever for motion thereof in either direction.

In testimony whereof, the signature of the inventor is affixed hereunto.

G. F. DE WEIN.