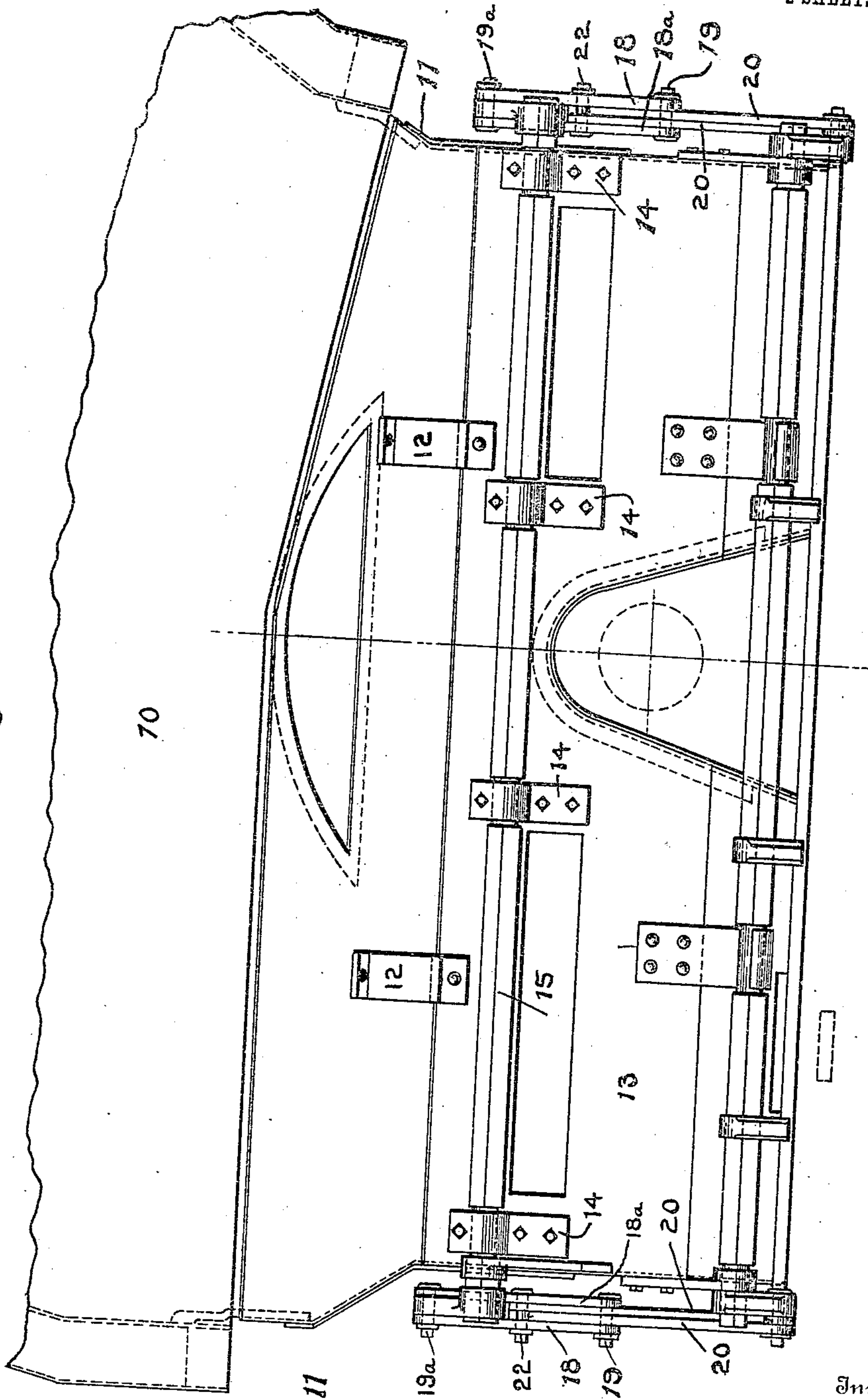


946,440.

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APPLICATION FILED APR. 10, 1909.

Patented Jan. 11, 1910.
2 SHEETS—SHEET 1.

Fig. 1.



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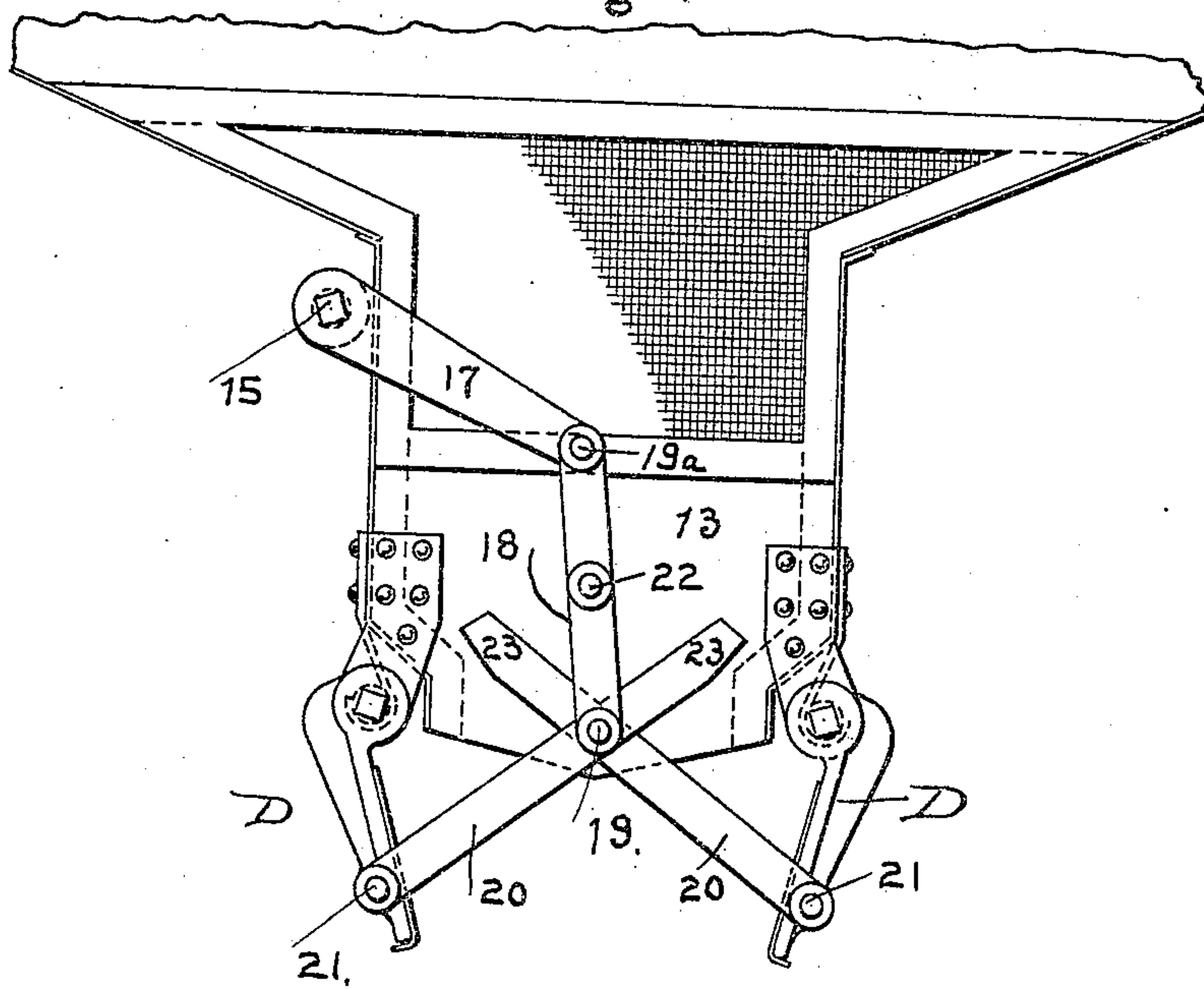
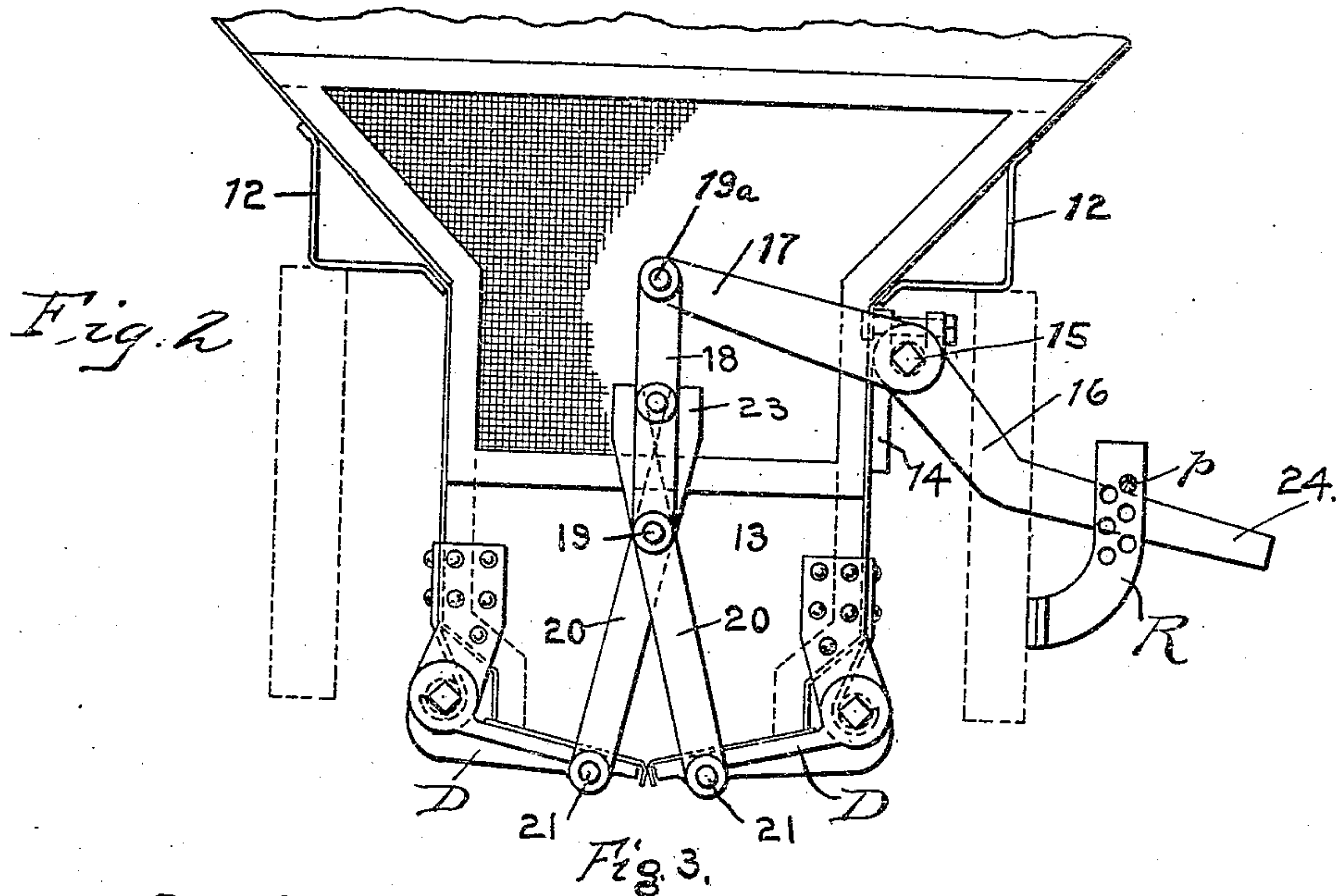
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UNITED STATES PATENT OFFICE.

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LOCOMOTIVE ASH-PAN.

946,440.

Specification of Letters Patent. Patented Jan. 11, 1910.

Application filed April 10, 1909. Serial No. 489,205.

To all whom it may concern:

Be it known that I, HARRY A. HOKE, a citizen of the United States, residing at Altoona, county of Blair, and State of Pennsylvania, have invented certain new and useful Improvements in Locomotive Ash-Pans, of which the following is a specification.

This invention relates to locomotive equipment, with special reference to ash pans, or ash receptacles of the self cleaning type, carried below the grates and attached thereto, for collecting the ash of the coal as it is discharged through the grates, and carried along with the locomotive, and designed to be operated or opened at specified points where the ash pits over which the locomotive is run for cleaning the grates, are located. To this end the invention contemplates a pan constructed along the general lines as suggested in my former application, filed Dec. 31, 1908, Serial No. 410,193, wherein the bottom door operating mechanism is arranged as illustrated in the drawings, and which will be fully specified, pointed out and claimed.

The primary object of this invention is to provide a positive door operating mechanism adapted to be operated by one man at the side of the locomotive, thus avoiding the necessity of workmen going into the ash pits below the fire box where danger arises from scalds from steam pipes and burns from various sources aside from the incandescent fuel in the ash pan.

Another object of this invention is to provide a door operating mechanism that will cause both doors to open simultaneously, thus preventing the locking of one door and the opening of the other, which is an essential feature from a motive power standpoint.

As general objects, the invention provides means for admitting air to the grates without the use of the usual dampers, at either end of the pan, also means for attaching the pan to the locomotive furnace.

With these and many other objects in view, which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

The essential features of the invention involved in carrying out the objects above stated are necessarily susceptible to a wide

range of structural modification without departing from the scope of the invention, but a practical embodiment thereof is shown in the accompanying drawings, in which—

Figure 1 illustrates a portion of the locomotive furnace or fire box with my improved ash pan attached thereto, showing the drop bottom doors in a closed position. Fig. 2 is a rear elevation of the parts shown in Fig. 1, and shows the drop door operating mechanism together with the shear-like arranged connecting links attached to the doors. Fig. 3 is a front elevation of the parts shown in Fig. 1 and shows the doors in an open position, further illustrating the action of the operating parts.

Like characters of reference designate corresponding parts in the several figures of the drawings.

In carrying out the essential features of this invention no change is necessary in the locomotive, fire box grates, or ash pan supports, hence for illustrative purposes there is shown the usual locomotive furnace in which are found the grates and grate bars on which the fireman places the fuel to be burned, ash pan supports 11, and the auxiliary side supports 12 that engage the top of the locomotive frames.

The ash pan, which is designated in its entirety by the numeral 13, is shown made integral, the top and bottom sections being made in one piece, the idea of making the pan in different sections being understood and at the option of the builder.

Arranged on a longitudinal line with the pan and supported in a plurality of forked U-shaped bearings 14, the main operating rod 15 engages the operating lever 16, the end 17 of which has a pin connection with the connecting links 18, which are preferably made in pairs, and arranged as shown in Fig. 1 of the drawings. Sandwiched between the links 18 and 18^a, which appear at the front and back of the pan, and held in an operating position by the pin connections 19 and 19^a the drop door operating lever arms 20 are attached at 19. The centers of the lever arms 20 are adapted to cross at the pin 19 as shown. The lower ends of the links 20 are attached directly to the drop bottom doors D at 21 as illustrated in Fig. 2 and Fig. 3 of the drawings. The connecting links 18 and 18^a are further provided with a pin that passes through both links at about mid-position and form a stop

22 which engages between the upper ends 23 of the link 20. This engagement furnishes in a very practical manner a positive means whereby one door is prevented from opening without the simultaneous action of the other.

The operating lever 16 coöperates with a rack R preferably secured to the frame of the locomotive and provided with means for locking the pan in a closed position, such as a pin, as shown in Figs. 1 and 2 of the drawings.

The operation of this improved device is obvious, but in a general way it may be stated that any upward movement of the outer end 24 of the operating lever 16 will cause a corresponding motion of the end 17 in the opposite direction, this motion causing the doors to open.

Should one of the drop bottom doors stick and become temporarily inoperative while the other is free to move, the upper ends 23 of the links 20 are engaged and pressed by pin 22, there being sufficient play of the parts to admit of this. This engagement continues until there is a simultaneous movement of both doors, at which time the upper ends 23 of the links 20 appear as shown in Fig. 3, which shows the doors in an open position for discharging ashes and cinders from the receptacle into the ash pit. In other words, on account of the articulated or jointed character of the lever element between the drop doors and the operating lever 16, in the event of one of the drop doors sticking or becoming caught for any reason the element 22 comes into play and causes the force applied to be momentarily placed directly on the stuck or caught door until the latter loosens, whereupon both doors simultaneously open.

From the foregoing it is thought that the many advantages of the herein described ash pan will be readily apparent without further elaboration, but it may be noted at this point, by way of recapitulation, that the distinctive features of the invention reside in the use of longitudinal operating shafts in connection with lifting links, provided with positive stops and a plurality of shear-like disposed links adapted to engage the stops with their extended ends while the lever ends attach to the drop bottom doors of the pan.

I claim:

1. In a locomotive ash pan provided with an ash discharge opening, the combination of two oppositely movable doors for closing the opening, means for receiving motion from a source of power, a link articulated with said means, and a pair of crossed piv-

otally jointed levers articulated to said link and respectively to the separate doors, and means, coöperating with said articulated system of levers and link, for causing the force applied to be wholly shifted to either door in the event of the latter being temporarily restrained.

2. In a locomotive ash pan, the oppositely arranged pivotal drop doors, a pair of crossed pivotally jointed levers operatively connected respectively with the separate doors, a link connected with said levers at their pivot joint, said link carrying a projection for engagement between said levers above their pivot, and an operating connection for said link.

3. In a locomotive ash pan, the pivotal drop doors, a pair of crossed pivotally jointed levers having their lower ends respectively pivoted to opposite doors, a link connected with said levers at their pivot joint, said link having a pin engaging between the upper ends of said levers, and an operating connection for said link.

4. In a locomotive ash pan, the oppositely arranged pivotal drop doors, a pair of levers connected by a scissors joint, the lower ends of said levers being operatively connected respectively with said doors, a vertically reciprocating and swinging link pivotally connected with both of said levers and carrying a projection engaging between the upper ends of the levers, and a single operating shaft having a lever connection with said link.

5. In a locomotive ash pan, the pivotal drop doors, a pair of levers connected by a scissors joint and respectively connected with the separate doors, and an operating device carrying an element having engagement with said levers between their ends at one side of the joint thereof.

6. In a locomotive ash pan provided with an ash discharge opening, the combination of two oppositely movable doors for closing the opening, means for receiving motion from a source of power, a link pivotally connected to said means, devices pivotally connected to said link for transmitting motion therefrom directly to the respective doors, and a lug carried by one of the motion-transmitting parts and arranged to be engaged by other of said parts to cause the motion to be transmitted to both of the doors simultaneously.

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

HARRY A. HOKE.

Witnesses:

R. C. BRADDOCK,
EMORY L. GROFF.