

No. 814,987.

PATENTED MAR. 13, 1906.

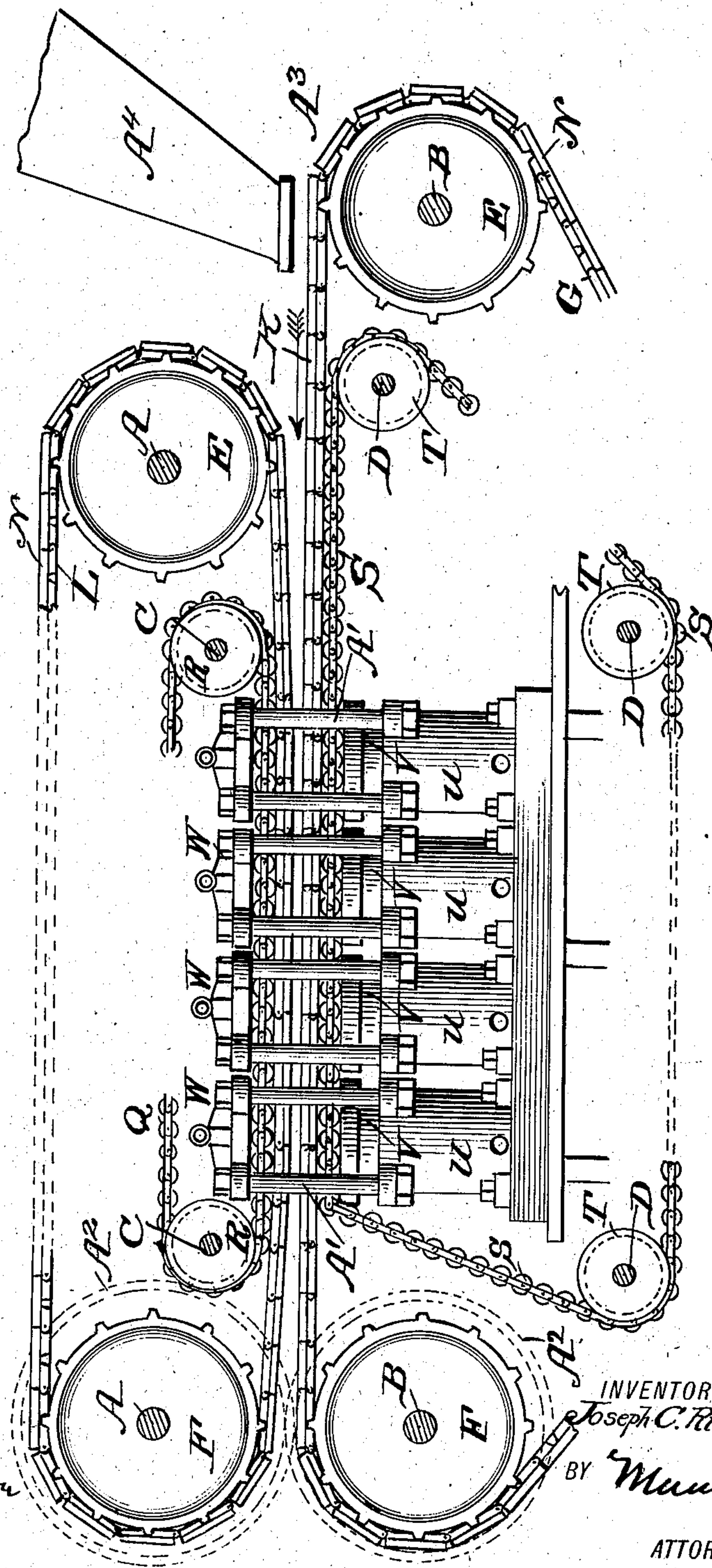
J. C. RICHARDSON.

OIL PRESS.

APPLICATION FILED OCT. 27, 1905.

2 SHEETS—SHEET 1.

Fig. 1.



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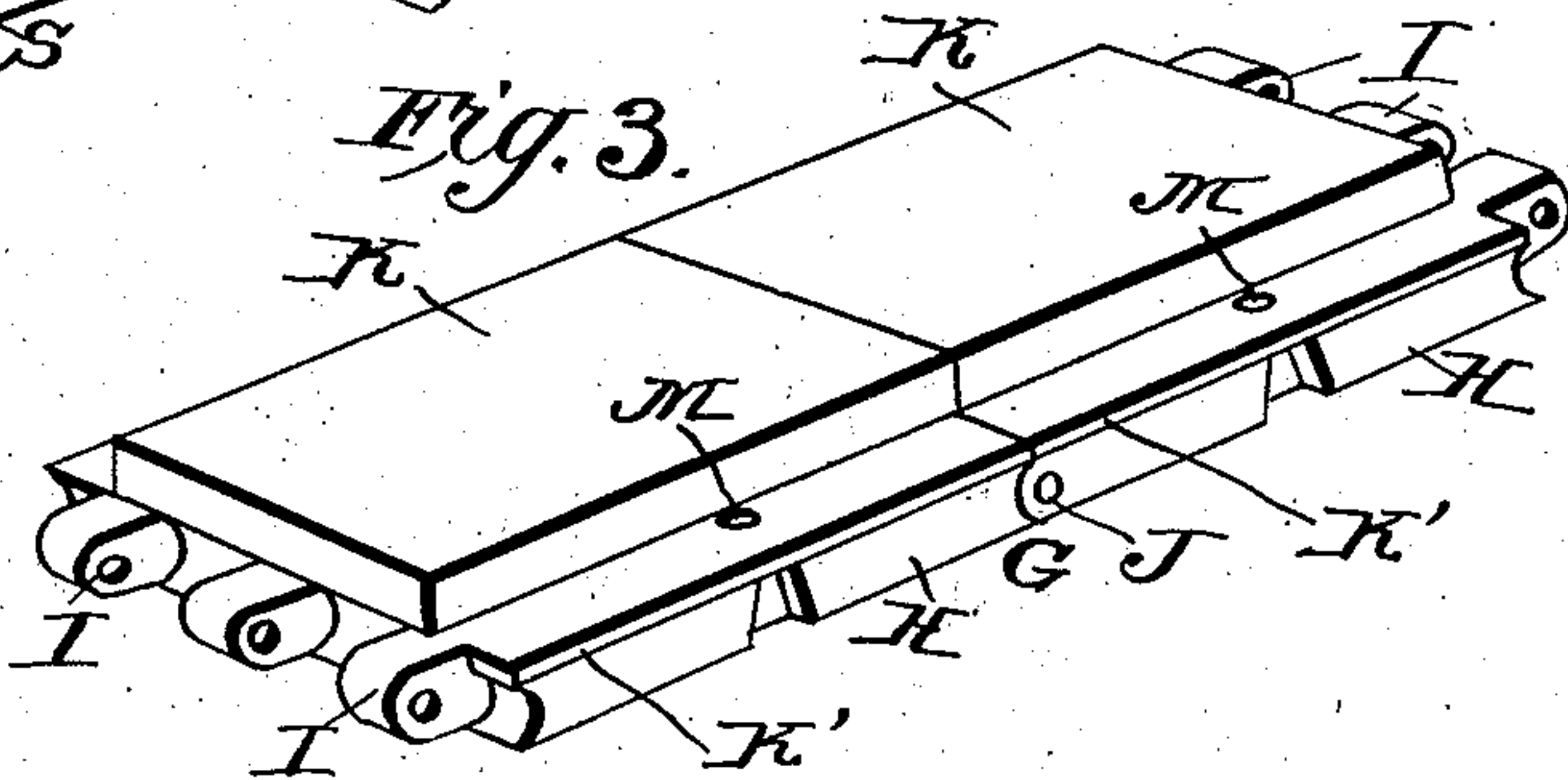
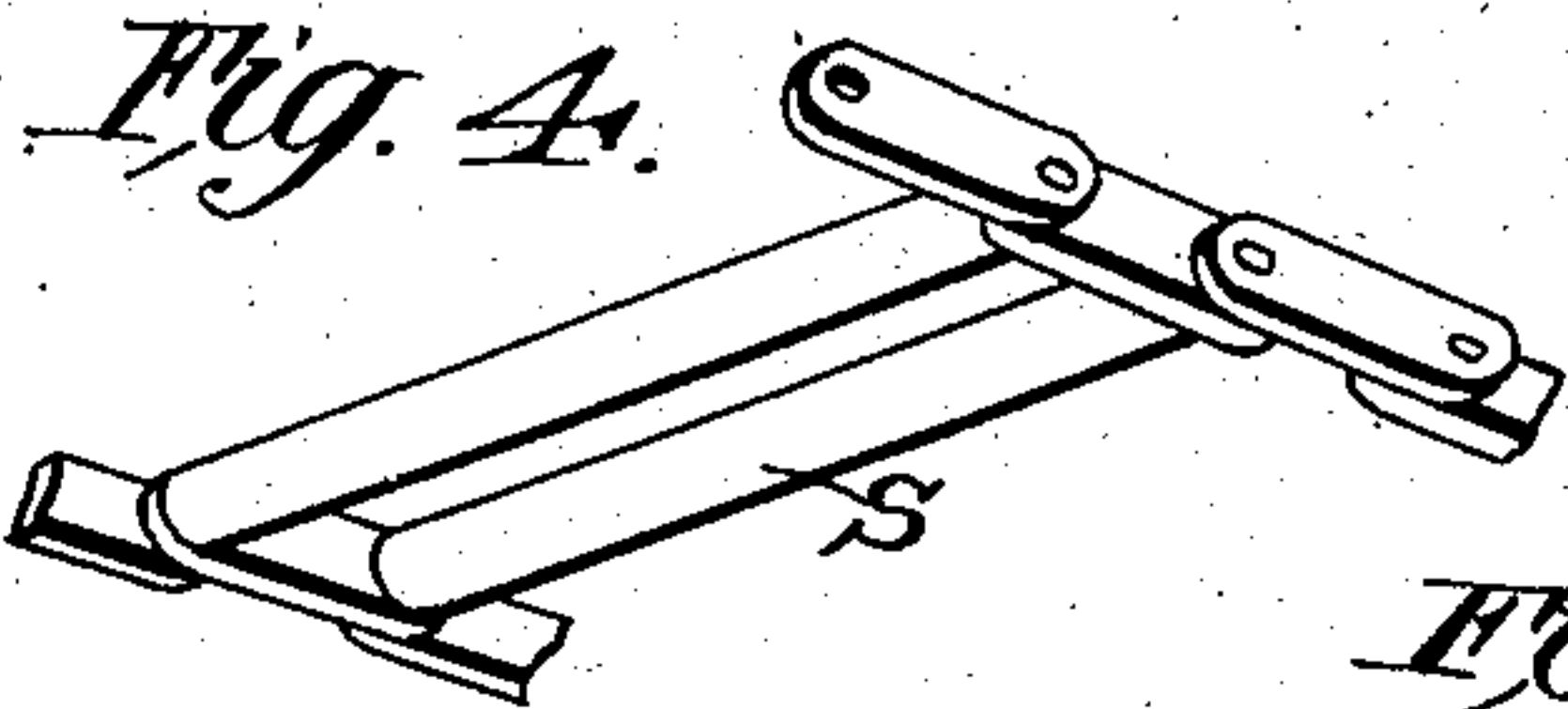
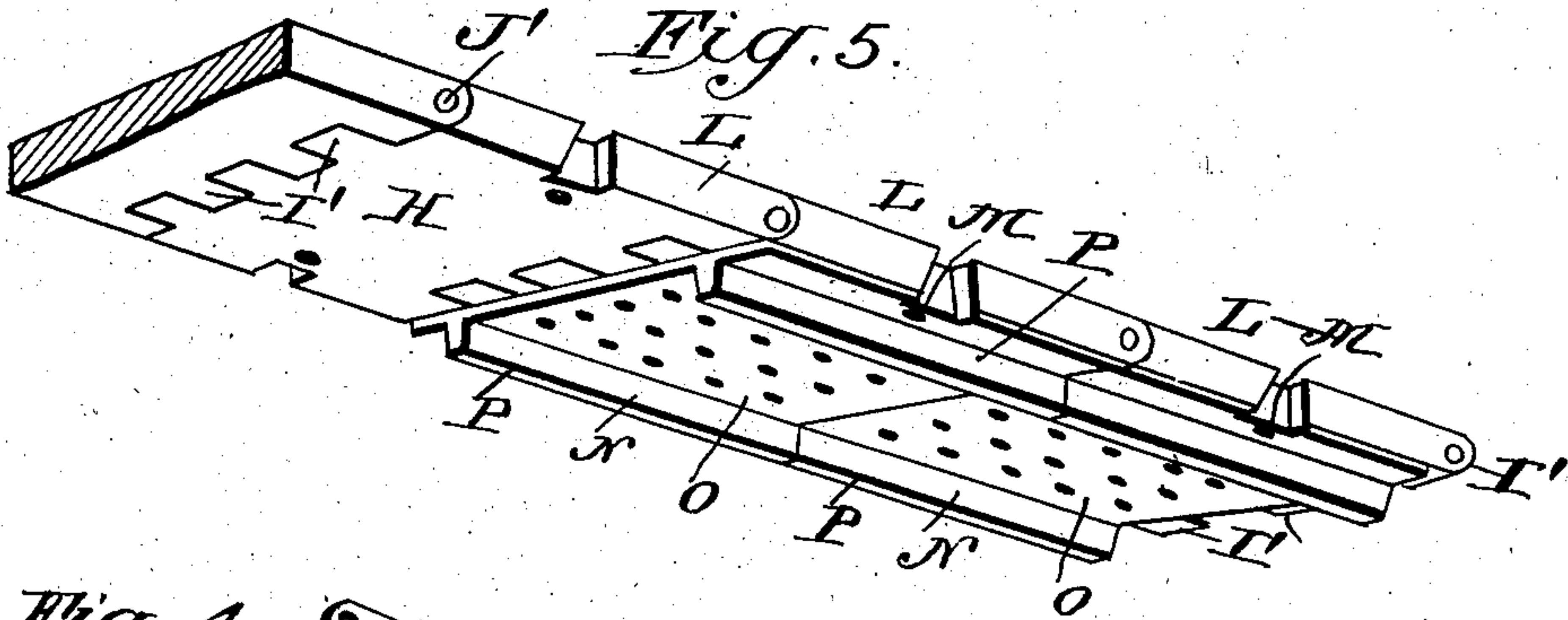
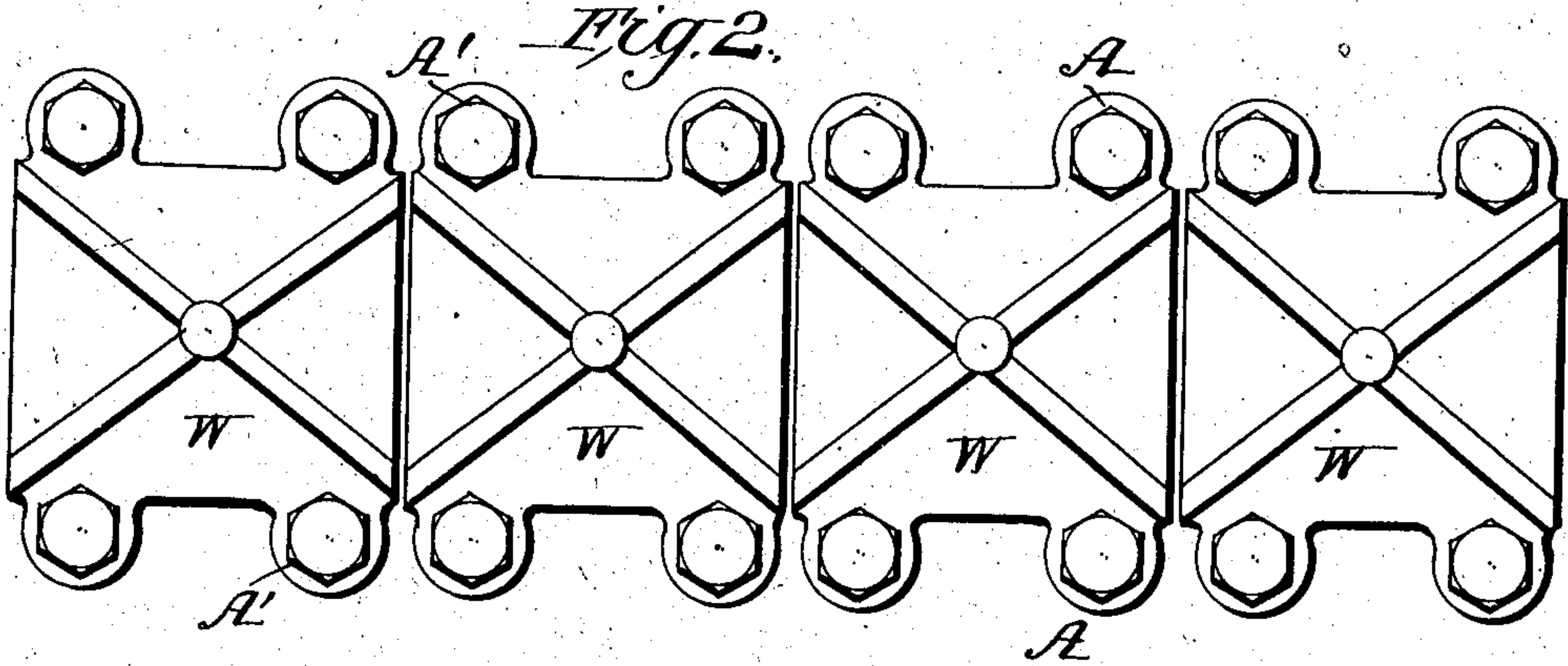
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JOSEPH C. RICHARDSON, OF ALTONPARK, TENNESSEE.

OIL-PRESS.

No. 814,987.

Specification of Letters Patent.

Patented March 13, 1906.

Application filed October 27, 1905. Serial No. 284,758.

To all whom it may concern:

Be it known that I, JOSEPH C. RICHARDSON, a citizen of the United States, residing at Altonpark, in the county of Hamilton and State of Tennessee, have invented a new, useful, and Improved Oil-Press, of which the following is a specification.

My invention relates to continuously-acting presses of the type employing an endless chain of press-boxes and a similar chain of followers, the chains of boxes and followers being arranged on suitably-supported driving rollers or drums.

The object had in view is to provide a press of this general character involving novel and simplified construction adapted for effecting new and improved compressing action over all similar continuously-acting endless-chain presses heretofore invented and known to me.

To all presses of the endless-chain character heretofore invented and known to me there is much objection, owing in part to incomplete compressing action, great frictional wear on the moving parts, and costly expenditure of power necessary for operation of the press.

To the end above outlined and for cure of the objections stated, in addition to other objections obvious and not necessary to state, I have invented the new and improved press shown by the accompanying drawings, which will hereinafter be fully described.

In the drawings, Figure 1 is a diagrammatic side elevation of my improved press. The press-frame and other parts unnecessary to illustrate are excluded from the view. Fig. 2 is an enlarged detail plan view of the fixed thrust-plates. Fig. 3 is a perspective view of a portion of the bottom chain and followers thereon. Fig. 4 is a perspective view of a portion of the friction-relieving roller-chain, and Fig. 5 is a perspective view of a portion of the upper chain with two of the press-box plates shown arranged thereon.

In the practice of my invention I employ two suitably-supported shafts A, two lower similar shafts B, two intermediate shafts C, and four lower intermediate shafts D, one thereof not being shown. The latter shafts are arranged in sets of two thereof, with one set located lower than the other set, substantially as shown in Fig. 1. On the shafts A B at the feed end of the press I arrange toothed wheels or drums E, and on the similar shafts A B at the discharge end of the press I ar-

range toothed wheels or drums F. On the lower toothed wheels or drums E F, I arrange a solid chain or belt G, (see Figs. 1 and 3,) constructed into sections H, hingedly connected at their ends by means of interlapping tongues I and a transverse pin or bolt J.

My invention is further characterized by the employment of a series of plates or followers K, arranged on the outer side of the chain or belt G, (see Figs. 1 and 3,) forming an endless series thereof, as best shown in Fig. 3.

The followers may have extended flanges K', adapting them to be secured to the chain or belt sections H by means of bolts or rivets, substantially as indicated at M, Fig. 3.

On the upper toothed drums E F an endless chain of plates L is arranged, the plates being connected by means of interlapping tongues I' and a pin J', similar to the construction of the endless chain of plates on the lower drums E F.

A continuous series of press-box plates N are arranged on the outer side of the chain or belt L and secured thereon by bolts or rivets M, substantially as illustrated in Fig. 5.

The press-boxes are constructed of perforated plates O, having projecting side flanges P, whose ends are arranged to abut when the chain or belt is drawn taut, as will be understood upon reference to Fig. 5. By this construction it is apparent that a confining-space is formed on the outer side of the upper chain or belt, adapted for receiving the follower-plates K.

Q denotes an endless chain of rollers carried by suitable drums R on the shafts C, and S denotes a similar endless chain of rollers carried by drums T on the shafts D. The construction of the roller-chains Q S will be understood upon reference to Fig. 4 of my drawings.

It will be noticed that roller-chain Q is supported (see Fig. 1) adapted for the rollers to travel in contact with the upper side of the lower length of the press-box chain N and that the roller-chain S is supported adapted to travel in contact with the under side of the upper length of the follower-chain G.

In further carrying out my invention I employ a series of fluid-jacks U of any approved construction having pistons V, adapted to work upward against the under side of the upper length of the roller-chain S. (See Fig. 1.) On the jacks U and sufficiently thereabove I support thrust-plates W (see Figs. 1

and 2) by means of suitable standard A', substantially as shown by Fig. 1.

5 The follower and press-box chains are driven through gearing A², (indicated by dotted lines in Fig. 1,) operatively connecting the shafts A B at the discharge end of the press, and the machine may be driven by any suitable power through connection thereof with one or both of the shafts A B at its discharge end.

10 It will be further noticed that the follower-chain G projects at A³, extending under the discharge from a suitable hopper A⁴. (See Fig. 1.)

15 It will be understood that a suitable trough (not shown) may be employed for conveying away the expressed oil.

The construction of my invention will be understood from the above description.

20 Now it is apparent upon application of driving power to either of the shafts A B at the discharge end of the machine that the chain of press-boxes N and the similar chain of followers K will be drawn along under the thrust-plates W, with compressing action on the material, through operation of the followers K, entering the trough-like receptacle formed by the series of abutting press-boxes N.

25 Pressure utilized in pressing oil, &c., from material being expressed may be regulated by suitable control of the fluid-pressure conveyed into the jacks V.

30 Novelty is thought to reside in my inven-

tion in, first, the broad idea of imparting expressing action to an endless or continuous layer of material; secondly, the means and devices, which may be variously modified, whereby the followers are forced into the press-boxes, and, thirdly, the arrangement of endless chains of rollers traveling between the thrust-plates W and pistons V on the outer side of the acting compressing follower and press-box chains

45 It will be understood that best results are attained by grinding or otherwise reducing the material to be expressed into a pulpy or comminuted condition.

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

55 The combination of an endless series of press-boxes, secured to plates in the make-up of an endless chain, a series of followers secured to plates of an endless chain, chains of rollers arranged to travel above and below the press-box and follower chains, fixed thrust-plates arranged above the expressing series of press-box, follower, and roller chains, and jacks adapted for exerting pressure upwardly against the said press-box, follower, and roller chains, forcing them against the fixed thrust-plates, substantially as described.

JOSEPH C. RICHARDSON

Witnesses:

HENRY BOND,
HENRY BOND, Jr.