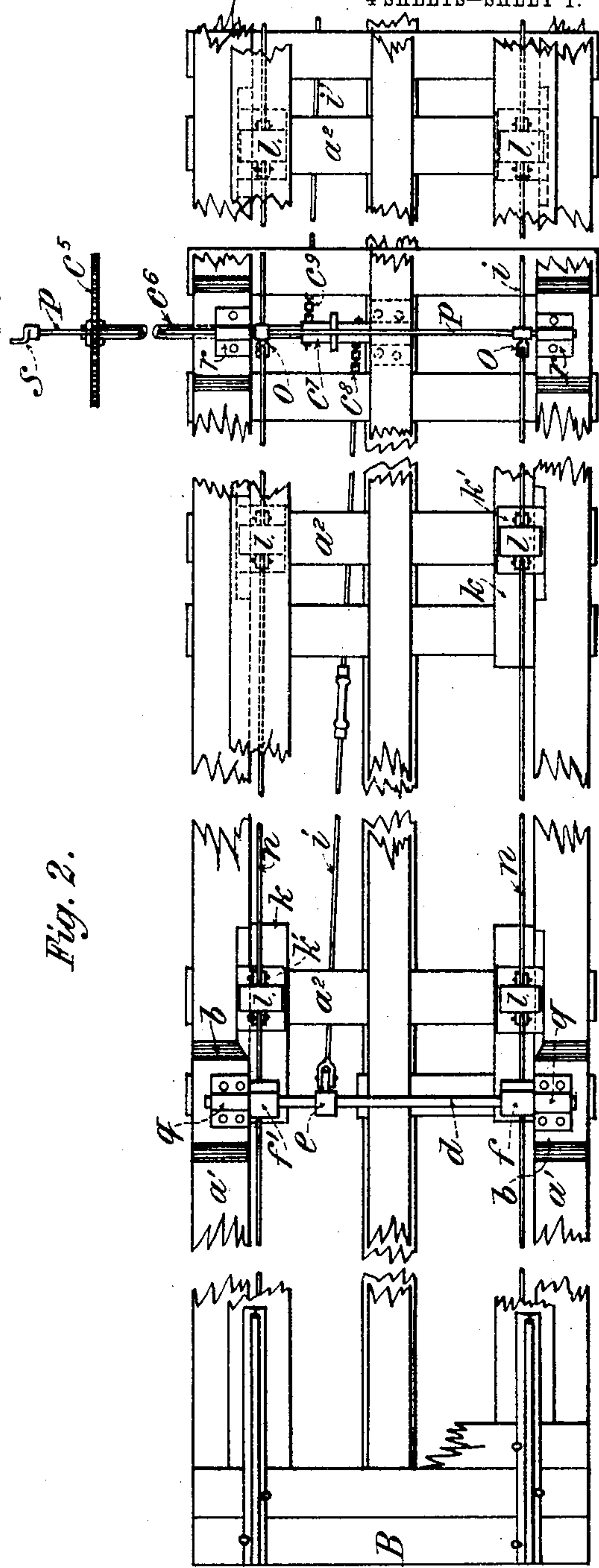
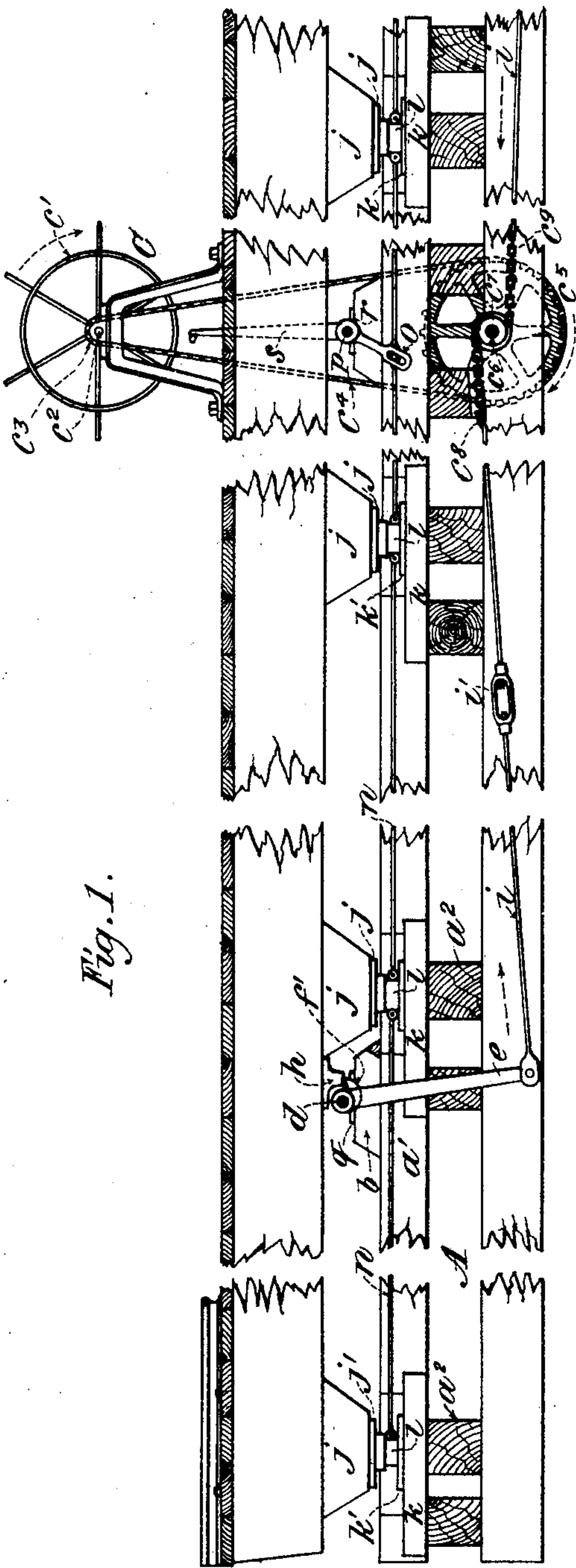


J. P. NEWELL.
RELIEVING GEAR FOR RAILROAD SCALES.

APPLICATION FILED MAY 4, 1903.

4 SHEETS—SHEET 1.



Witnesses,
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4 SHEETS—SHEET 3.

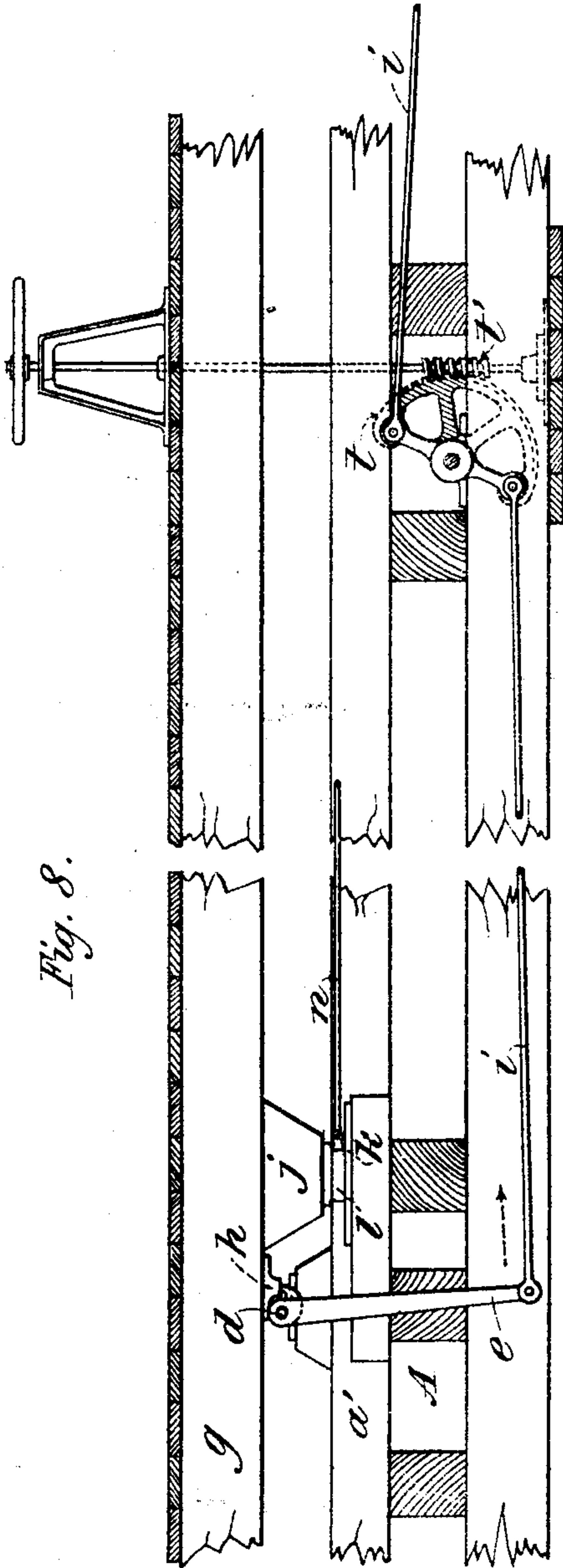


Fig. 8.

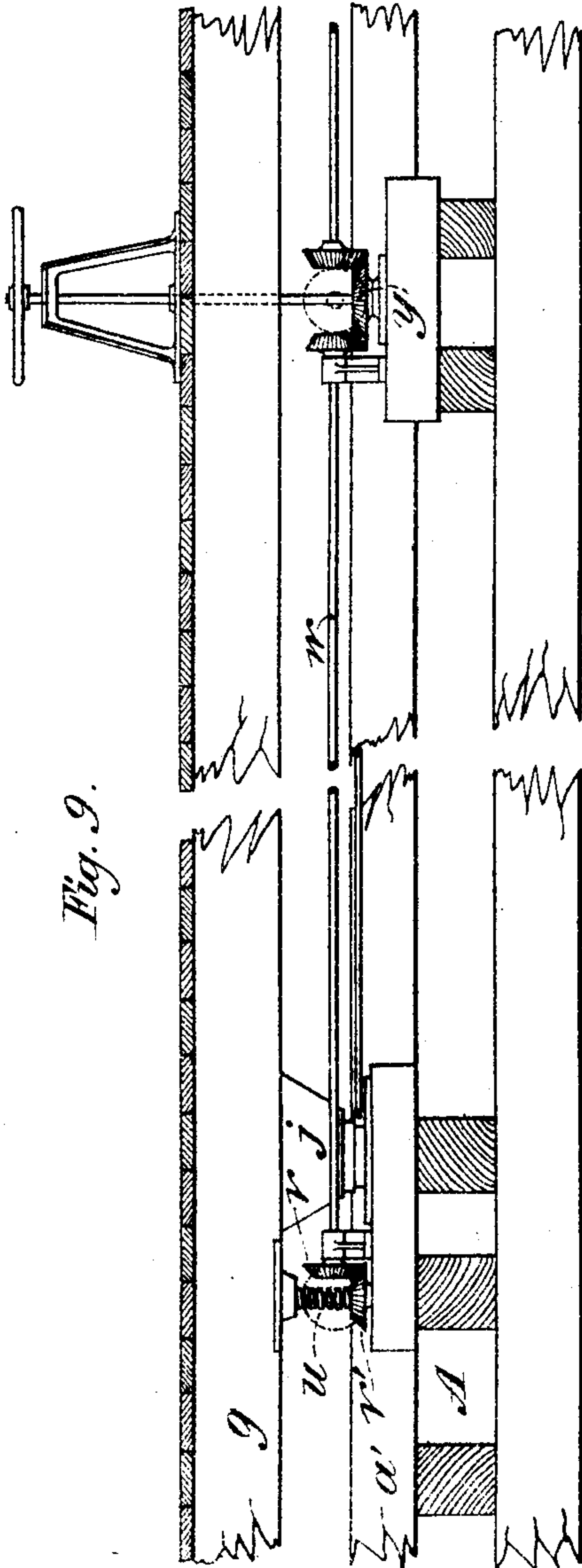


Fig. 9.

Witnesses.

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4 SHEETS—SHEET 4.

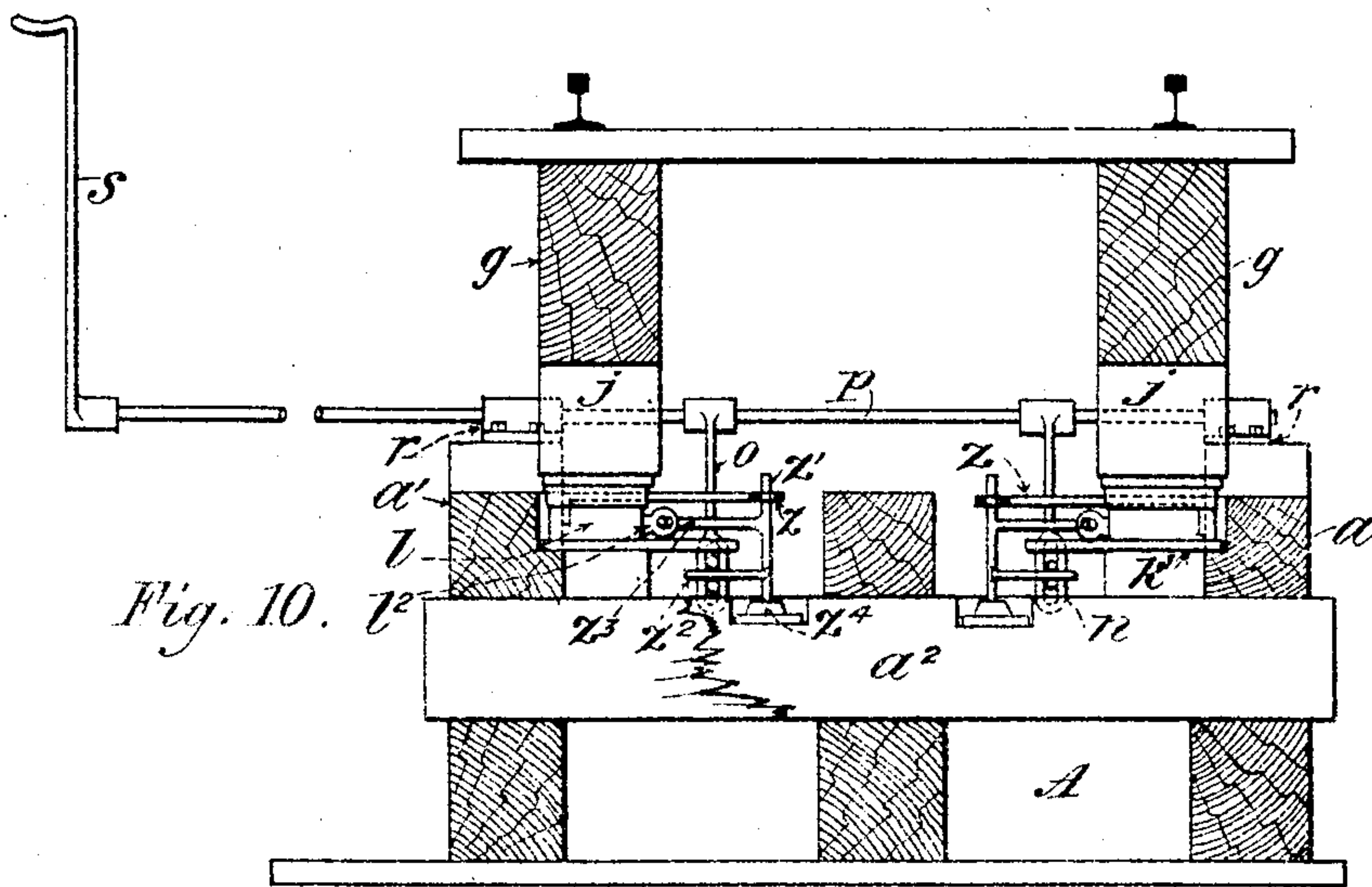


Fig. 10.

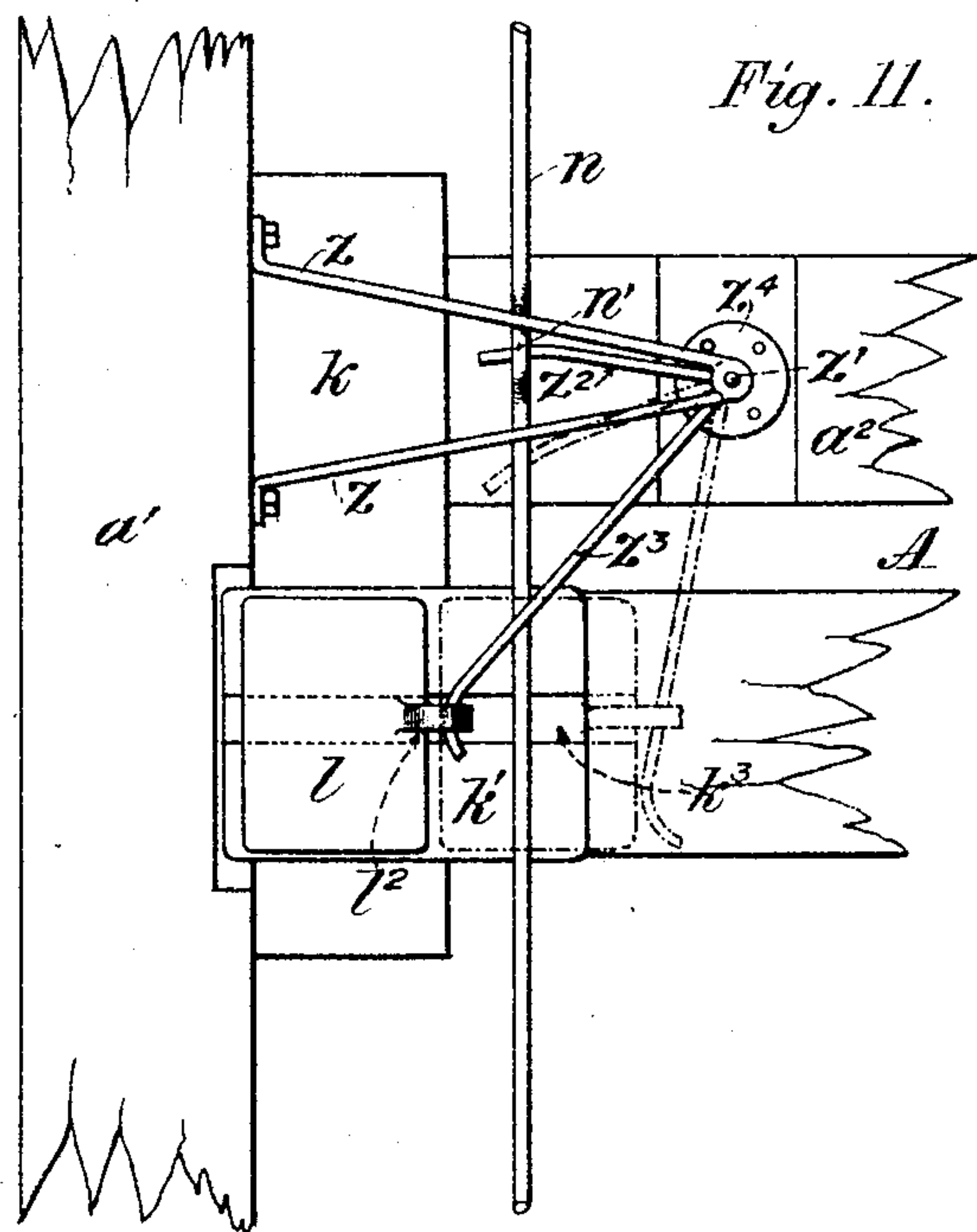


Fig. 11.

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UNITED STATES PATENT OFFICE.

JOSEPH PETTUS NEWELL, OF PORTLAND, OREGON.

RELIEVING-GEAR FOR RAILROAD-SCALES.

SPECIFICATION forming part of Letters Patent No. 779,732, dated January 10, 1905.

Application filed May 4, 1903. Serial No. 155,646.

To all whom it may concern:

Be it known that I, JOSEPH PETTUS NEWELL, a citizen of the United States, and a resident of Portland, in the county of Multnomah and State of Oregon, have invented a new and useful Relieving-Gear for Railroad-Scales, of which the following is a specification, reference being had to the accompanying drawings as a part thereof.

My invention is intended to be applied to the usual railroad or platform scales; and it has for its object to provide an improved relieving-gear possessing new and useful features hereinafter described and claimed; and my invention operates to support the frame of the track-platform clear of the knife-edges of the scale while the latter are not being used for weighing cars in order that trains may be run over the track-platform without injuring or wearing the weighing mechanism.

One of the features of my invention is that its mechanism for supporting the track-platform clear of the knife-edges is independent of the mechanism provided for lifting the track-platform off the knife-edges.

The difficulty with relieving-gear in which the track-platform-lifting devices and the supporting devices are connected to be operated simultaneously is that either the gear is too heavy for hand operation or too light for stability and strength. The advantage to be gained by constructing relieving-gear so as to make the lifting and supporting devices thereof independent of each other is therefore apparent. The lifting mechanism not having to support anything except the weight of the track-platform needs only be made of such strength as required for its particular work, and the result is that this mechanism is much more conveniently operated than otherwise, and it will also become evident that the supports used by me, consisting of movable blocks adapted to be inserted under the stringers of the track-platform and withdrawn again, provide an efficient and easily-operated device for the purpose intended.

In the drawings, Figure 1 is a longitudinal section taken on a line just back of the central stringer of the track-bed frame. Fig. 2 is a partial plan of the foundation or track-

bed of the scale, the track-lifting devices and the track-platform being removed. Fig. 3 is a cross-section of Fig. 1 on a line just to the left of the sprocket-gear. Fig. 4 is a cross-section of Fig. 1 on a line just to the left of the rock-shaft *d*, by which the lifting force is directly applied to the platform-frame. Fig. 5 is a sectional detail of part of the devices employed for lifting the platform-frame. Fig. 6 is a side elevation, and Fig. 7 is an end elevation, of a part of the devices employed for supporting the track-platform clear of the weighing mechanism. Fig. 8 is a longitudinal section similar to Fig. 1, showing a device of different construction for operating the lifting mechanism. Fig. 9 is a like longitudinal section showing still another construction for the same purpose. Fig. 10 is a cross-section, and Fig. 11 a plan, of other means for shifting the movable blocks 1. Fig. 12 is a perspective view of the rock-shaft, lever, and cam used for lifting the track-platform; and Fig. 13 is a perspective view of the iron block against which the cam bears.

Referring now to said drawings and reference-letters thereof, A represents the usual foundation for the railroad or track scale, the same comprising longitudinal timbers *a'*, transverse timbers *a''*, and other longitudinal and transverse timbers variously arranged in accordance with the nature of the ground.

The scale mechanism not constituting any part of my invention is omitted from the illustrations. As shown in the drawings, the track-platform is resting on the supports provided for that purpose clear of the knife-edges. The mechanism provided for lifting the track-platform off the knife-edges, so as to allow the insertion and retraction of the supporting-blocks, consists of the following mechanism: On the timbers *a'* are pillow-blocks *b*, and mounted on the latter are boxes *q*, in which are journaled the ends of rock-shafts *d*. Said rock-shafts are respectively provided with a rigid arm or lever *e* and a pair of cams *f f'*. Secured to the under side of the platform-stringers *g* are blocks *h*. In track-platforms of ordinary length rock-shafts *d* and the device thereon are provided at each end of the platform, only one being shown for conven-

ience. In platforms of unusual length an intermediate or third shaft and its appurtenances could be provided. By pulling the arm e in the direction indicated by the arrow in Fig. 1 the cams f, f' will lift against the blocks h and raise the platform clear of the knife-edges. As shown in Fig. 1, the arms e are operated by a sprocket chain gear C, comprising a hand-wheel c' , keyed on the horizontal shaft c^2 , sprocket c^3 , chain c^4 , sprocket-gear c^5 , keyed on the shaft c^6 , and a drum c^7 on the latter. To such drum are secured the inner ends of the chains c^8 and c^9 , which chains are fastened to the ends of the rods i . If deemed expedient, the rods i may be made in two sections, connected by a turnbuckle i' , as shown in Fig. 1, to facilitate any necessary adjustment of the length of said rods. To lift the track-platform, the hand-wheel c' is turned in the direction indicated by the arrow, the effect of which will be to pull the arms e toward the center, it being understood, of course, that the cams f, f' and arm e , comprised within the lifting mechanism at the opposite end of the lifting-gear, would be so arranged as to operate oppositely from the device shown in order that the arms e at both ends of the relieving-gear may be drawn toward the center by operating the hand-wheel c' . The instant the hand-wheel c' is released the weight of the track-platform on the cams f, f' would reverse the action of the lifting device and allow the track-platform to drop back on the knife-edges or the supporting-blocks l , as the case may be.

The mechanism for supporting the track-platform clear of the knife-edges of the scale comprises bolsters j , provided on their under side with iron plates j' . (See Figs. 6 and 7.) Suitably secured to the transverse timbers a^2 of the frame of the track-bed are wooden blocks k , and on the latter are iron plates k' . To secure the plates k' in place, they are provided on the bottom with ribs k^2 to be inserted in grooves therefor provided in the blocks k . Sliding on the plates k' are iron blocks l . The construction of such blocks is more clearly shown in Figs. 6 and 7. As there seen, the same are provided at their two ends with perforated lugs l' to receive coupling-pins m , connecting said blocks l with the rods n . The described supporting device is provided at intervals in sufficient number to properly support the weight of a passing train while the scale is not being used. It will be noted that all the sliding blocks l are connected in series by the rods n , so as to be moved simultaneously. The position of such blocks is shifted as required by operating the lever s . The latter, as shown, is adapted to be operated by the foot. Said lever s is keyed on a rock-shaft p , which is journaled in bearings r , and is provided with forked arms o , with which the rods n are connected. When desiring to move the supporting-blocks l , the track-platform is lifted in the first instance

by operating the device controlled by the hand-wheel c' . Assuming my relieving-gear to be in the position in which it is shown in Fig. 1, the next thing to be done would be to throw the lever s so as to move the blocks l from under the bolsters j . The lifting mechanism is thereupon released to seat the track-platform on the knife-edges of the scale. To again raise the track-platform clear of the knife-edges, the track-platform is again lifted by the lifting mechanism, and the blocks l are then returned to their position under the bolsters j by operating the lever s . To restrain the blocks l while being shifted from and under the bolsters j against moving laterally out of place, the plates k are provided with a central depression or groove k^3 , and the blocks l have bosses or a protuberance on their under sides adapted to slide in such groove.

Instead of constructing the mechanism for shifting the blocks l so as to move the latter longitudinally such mechanism could obviously be substituted by other mechanism, as shown, for example, in Figs. 10 and 11, adapted to move such blocks l transversely. It is also self-evident that the means described for lifting the track-platform, so as to insert the blocks l , may be substituted by other devices—such, for example, as are illustrated in Figs. 8 and 9. In Fig. 8 of such example the gear-wheel c^5 is replaced by a quadrant-gear t , operated by a worm-gear t' , and in Fig. 9 the lifting device comprises a screw-jack u , operated by beveled gears v, v' , shaft w , and beveled gear y , controlled by a hand-wheel. The construction shown by me in Fig. 1 is deemed preferable, however, because the same assures that the lifting mechanism will operate to hold the track-platform above its normal supports, the knife-edges, or the blocks l for only the length of time that the operator has the wheel c' under control and will cause such lifting mechanism to be released and the track-platform reseated on its normal supports the instant the manual control of such wheel c' is released, thus protecting the lighter lifting mechanism against injury by a passing train. In other words, such device assures that the lifting mechanism will be protected against any carelessness on the part of the operator in neglecting to reseal the track-platform on its said proper supports, while in the use of a lifting appliance such as illustrated in Figs. 8 and 9 it would require some action on the part of the operator in order to reseal the track-platform on its normal supports. The vertical hand-wheel c' is also more conveniently installed in the casing inclosing the weighing-beam than would be a horizontal hand-wheel.

The devices shown in Figs. 10 and 11 for shifting the blocks l comprise a vertical axle z' , journaled in bearings z and z^1 . On said axle are rigid arms z^2, z^3 , each made with curved ends. The blocks l are made with an eye l^2 ,

in which are inserted the ends of the arms z^3 , and the rods n are made with slots n' , in which are inserted the ends of the arms z^2 . The movement of the rods n is thus communicated through the shaft z' and arms z^2 z^3 to blocks l , which are shifted transversely under and from under the frame of the track-platform for the purpose described.

What I claim, and desire to secure by Letters Patent, is—

1. In a railroad-scales, in combination with a track-platform, the frame of the track-bed, the knife-edges and the weighing mechanism, a relieving-gear, comprising means for lifting the frame of the track-platform off the knife-edges of the weighing mechanism; a series of movable blocks on the frame of the track-bed; and means for simultaneously shifting said blocks so as to insert the same in position for supporting the track-platform clear of the knife-edges and to withdraw such blocks again; the means for lifting the platform-frame, and the means for shifting the position of the supporting-blocks operating independently of each other, substantially as described.

2. In a railroad-scales, in combination with a track-platform, the frame of the track-bed, the knife-edges and the weighing mechanism, a relieving-gear comprising means for lifting the frame of the track-platform off the knife-edges of the weighing mechanism; a series of movable blocks on the frame of the track-bed, and means for simultaneously shifting said blocks so as to insert the same in position for supporting the track-platform clear of the knife-edges, and to withdraw such blocks again; the means for lifting the platform-frame, and the means for shifting the position of the supporting-blocks operating independently of each other, and the means for lifting the platform-frame being adapted to be operated by hand, acting only while under manual control, and dropping the platform on its normal support again the instant such control is released, substantially as described.

3. In a railroad-scales, in combination with a track-platform, the frame of the track-bed, the knife-edges and the weighing mechanism, a relieving-gear, comprising a series of transversely-journaled shafts on the frame of the track-bed; cams on such shaft adapted to lift against the frame of the track-platform so as

to raise the latter off the knife-edges of the weighing mechanism; arms or levers rigidly mounted on such shafts, respectively; a sprocket-wheel gear, including a hand-wheel; operative connections between such sprocket-wheel gear and such arms and levers; a series of movable blocks on the frame of the track-bed, and means for simultaneously shifting such blocks, adapted to insert the same in position for supporting the track-platform clear of the knife-edges, and to withdraw such blocks again, said means for shifting said blocks operating independently of the said lifting mechanism, substantially as described.

4. In a railroad-scales, in combination with a track-platform, the frame of the track-bed, the knife-edges and the weighing mechanism, a relieving-gear, comprising means for lifting the frame of the track-platform off the knife-edges of the weighing mechanism; a series of longitudinally-sliding blocks on the frame of the track-bed; a vertically-fulcrumed lever, and operative connections between such lever and said sliding blocks, adapted to operate the latter simultaneously, substantially as described.

5. In a railroad-scales, in combination with a track-platform, the frame of the track-bed, the knife-edges and the weighing mechanism, a relieving-gear, comprising a series of transversely-journaled shafts on the frame of the track-bed; cams on such shafts adapted to lift against the frame of the track-platform, so as to raise the latter off the knife-edges of the weighing mechanism; arms or levers rigidly mounted on such shafts, respectively; a sprocket-wheel gear, including a hand-wheel; operative connections between such sprocket-wheel gear, and such arms or levers; a series of longitudinally-sliding blocks on the frame of the track-bed; a vertically-fulcrumed lever, and operative connections between such lever and said sliding blocks, adapted to operate the latter simultaneously, substantially as described.

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

JOSEPH PETTUS NEWELL.

Witnesses:

T. J. GEISLER,
A. CALY.