

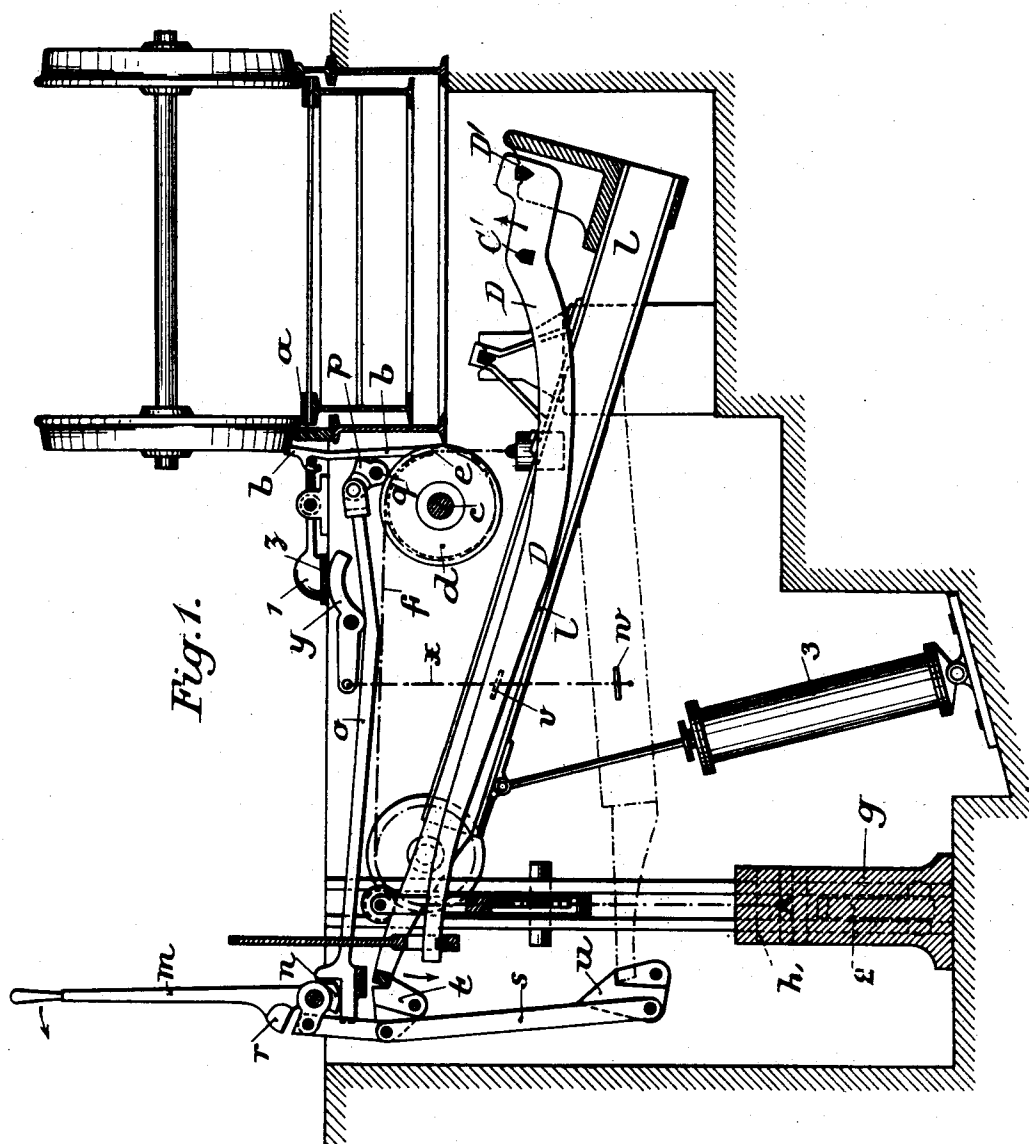
C. EMMING.

WEIGHING MACHINE FOR RAILWAY TRUCKS.

(Application filed Mar. 29, 1900.)

(No Model.)

3 Sheets—Sheet 1.



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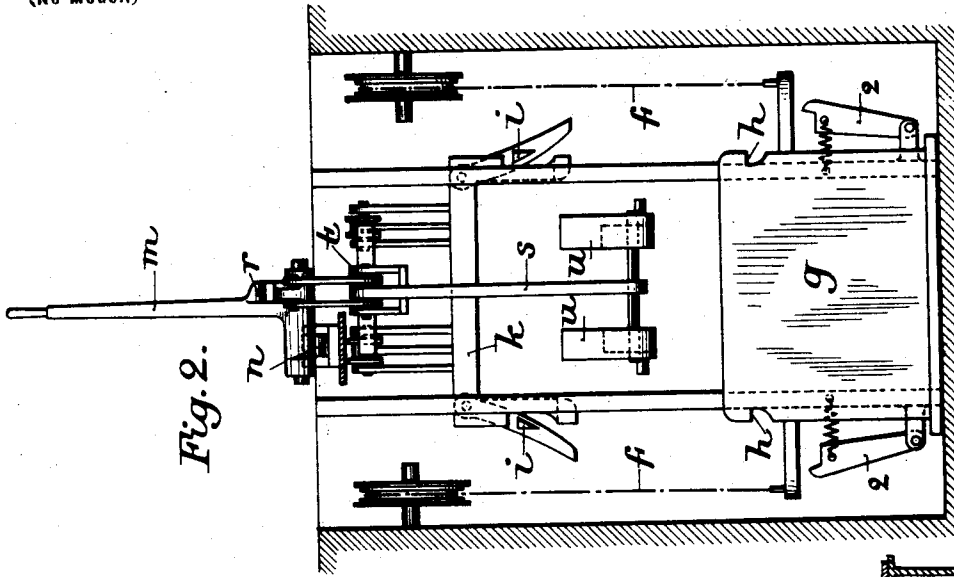


Fig. 2.

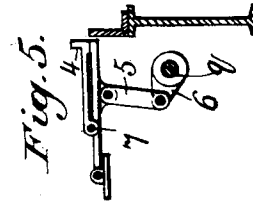


Fig. 5.

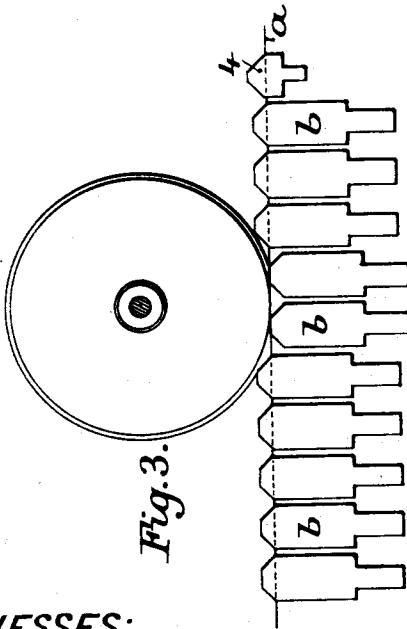


Fig. 3.

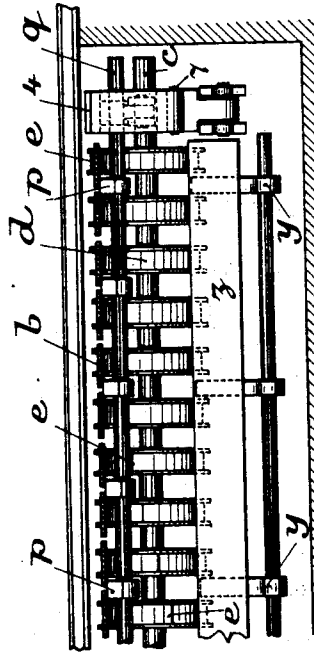


Fig. 4.

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3 Sheets—Sheet 3.

Fig. 6.

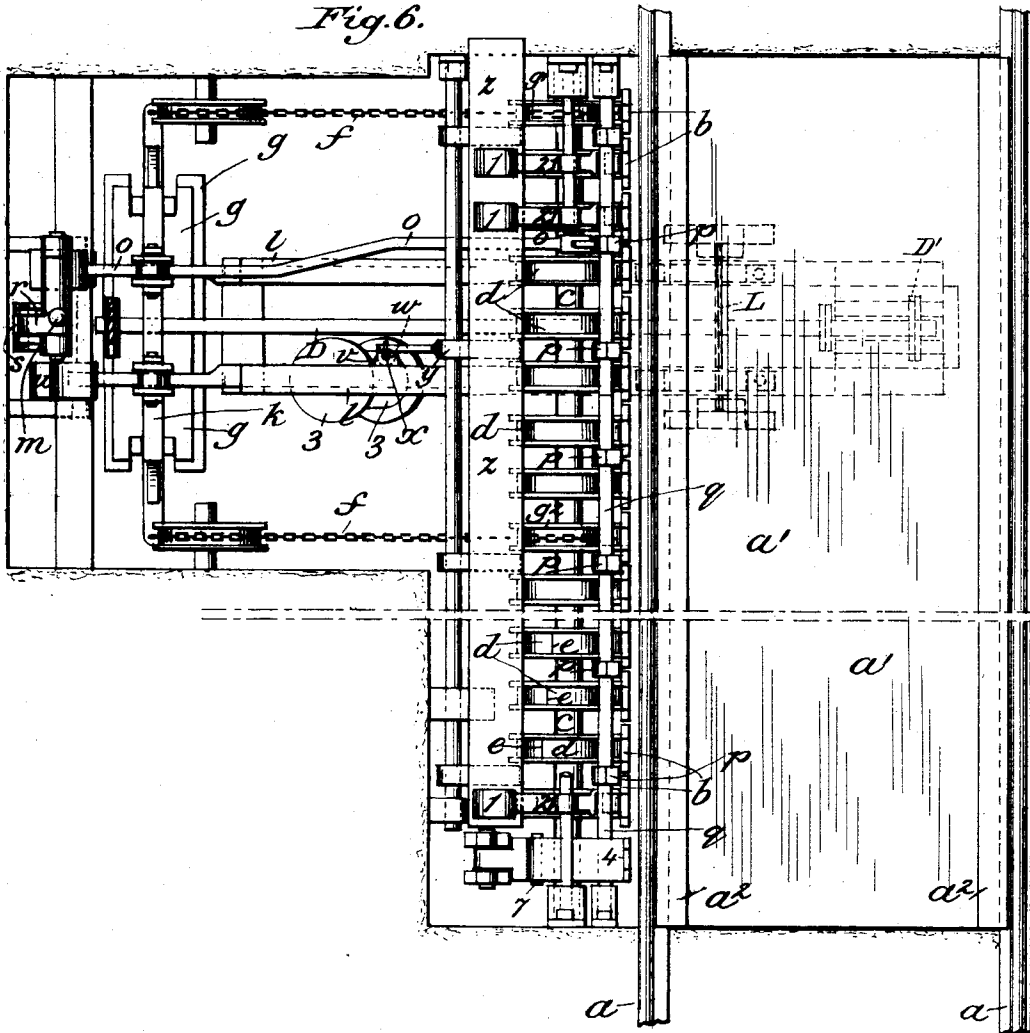


Fig. 7.

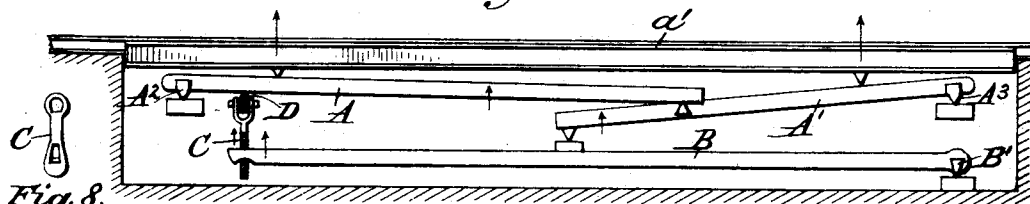


Fig. 8.

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CARL EMMING, OF WEIDENAU, GERMANY.

WEIGHING-MACHINE FOR RAILWAY-TRUCKS.

SPECIFICATION forming part of Letters Patent No. 683,392, dated September 24, 1901.

Application filed March 29, 1900. Serial No. 10,674. (No model.)

To all whom it may concern:

Be it known that I, CARL EMMING, foundry surveyor, a subject of the German Emperor, residing at Grabenstrasse 10, Weidenau-on-Sieg, Germany, have invented certain new and useful Improvements in Weighing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in railway weighing-machines.

One general object of my invention is to provide a weighing-machine in which the railway-tracks over the scale may be continuous with those portions of the track leading to and from the scales.

Another broad object of my invention is to provide a scale in which the mechanism will be automatically set into its operative condition for weighing by the movement of the car in coming onto the scale.

With these objects in view and some others which will be obvious to those skilled in the art my invention consists in the features, details of construction, and combination of parts, which will first be described in connection with the accompanying drawings and then pointed out in the claims.

In the drawings, Figure 1 is a transverse section through the scale-pit, illustrating mechanism embodying my invention. Fig. 2 is an end elevation of said mechanism; Fig. 3, a detail view of the ratchet-bars; Fig. 4, a detail view of the operating mechanism; Fig. 5, a detail view of the releasing mechanism; Fig. 6, a broken plan view, some of the parts being removed; Fig. 7, a detail view of the scale mechanism, and Fig. 8 a detail side view of the connecting-link.

Referring to the drawings, *a* are the track-rails, arranged at each side of the scale-platform *a'*, which is provided with bearing plates or rails *a''*, so located as to receive the flanges of the car-wheels and to lift the car slightly, so that the treads of the wheels will not rest on the railway-tracks when the scale-platform is lifted into its operative position for weighing. The scale-platform is carried on any suitable system of scale-levers—for example, as shown in Fig. 7, where the scale-platform *a'* is shown

as resting on the primary levers *A A'*, fulcrumed at *A² A³*, respectively, the former lever *A* having one end bearing on the lever *A'*, while the free end of the latter rests on the secondary lever *B*, which is fulcrumed at *B'* and transmits the weight to a hanger-rod *C*, which is bifurcated at its upper end to engage a knife-edge pivot *C'*, by means of which the hanger-rod is connected to a steelyard-lever *D*, fulcrumed at *D'* on a releasing or lifting lever *l*, which in turn is fulcrumed at *L*. All the fulcrum-points and points of connection of the various levers thus far described are supplied with knife-edge bearings, as shown in the drawings.

At the side of the rail *a* are arranged a series of ratchet-bars *b*, projecting up beyond the rail, the lever ends of which bars engage with a tooth on rollers *d*, carried by the shaft *c*. Each ratchet-bar *b* is pivotally mounted upon levers 2, provided with counterweights 1. Each ratchet-bar corresponds to a roller *d*, Fig. 4, and the teeth *e* of the rollers are so arranged that the tooth of each consecutive one is shifted through a certain angle relatively to the tooth of the preceding roller in such manner that the teeth of all the rollers lie in a helical line around the shaft *c*. If now the first axle of a truck passes onto the ratchet-bars *b*, Fig. 3, these will sink down successively, and as the pressure of the wheel acts somewhat eccentrically to the point of suspension, Fig. 1, the ratchets engage securely in the grooves of the rollers *d* and bear upon the corresponding tooth *e*. As soon as this is effected by the first ratchet-bar *b*, so as to turn the shaft *c* through a certain angle, the teeth of the second roller will arrive under its ratchet-bar, which will now be pressed down by the wheel, thereby effecting a further partial rotation of the shaft *c*. In this way the shaft *c* will have been turned one or more times around after the axle of the vehicle has passed over all the ratchet-bars *b* and will have wound up the chains *f*, from which is suspended the weight *g*, Figs. 1 and 2, the chains passing over drums *g' g''*, secured to the shaft *c*, the other ends of the chains beyond the drums being provided with weights *g³ g⁴* for the purpose of keeping the chains taut. When the weight *g* is fully raised, it hangs itself by means of its beak *h*

on the catches *i*, which are pivoted to the loop *k* of the releasing-lever *l*. If now the hand-lever *m* is moved over in the direction of the arrow, the cam *n* thereof in the first instance presses the rod *o* forward, whereby the cams *p* will be pressed against the ratchet-bars *b*, so as to disengage them from the rollers *d*, Fig. 1. As shown at Fig. 4, there are provided on the cam-shaft *q* so many cams *p* that each one acts upon two of the ratchet-bars *b*. By this means the roller-shaft *c* is set free for the backward rotation. On turning over the hand-lever *m* still farther the projection *r* thereof will bear upon the rods *s*, which releases the releasing-lever *l* from the locking-piece *t*, upon which it rested. The weight *g* now descends and carries the releasing-lever into the dotted position, Fig. 1, the roller-shaft *c* being thereby turned back to its original position, while the scale-platform is lifted to lift the car, thus receiving the full weight of said car. The releasing-lever *l* engages at bottom with the locking-piece *u*. In this position the weighing can be effected.

In order to render the weighing-machine precise, it is necessary to remove the ratchet-bars *b* from contact with the wheels. This is effected by causing a projection *v* on the releasing-lever *l* to bear upon a disk *w* on the descent of *l*, that is attached to a cord *x*. The latter is thus drawn downward and moves a lever *y* upward, which by means of a bar *z*, Figs. 1 and 4, raises the counterweights *1* of levers, on the other ends of which are hung the ratchet-bars *b*, whereby these are lowered. When the weighing is finished, the hand-lever *m* is turned back, whereby the locking-piece *u* is disengaged. As during the downward motion of the releasing-lever *l* the catches *i* thereon that carry the weight *g* bear against the stops *2*, Fig. 2, having an outward spring action, and are thereby disengaged from the weight *g*, the releasing-lever can after disengagement from the locking-piece *u* move upward without the weight *g* and will then again engage with the locking-piece *t*. The motion of the releasing-lever is checked by means of a glycerin-brake *3*.

In order that the next following vehicle may find the weighing-machine ready to act, it is necessary that the ratchet-bars *b* shall automatically engage with the grooves of the rollers again. This is effected by means of a restoring ratchet-bar *4*, Figs. 3 and 5, arranged in front of the ratchet-bars *b*, which restoring-bar *4* is of lever form and by means of a link *5* and an arm *6* turns back the shaft

q, Figs. 1, 4, and 5, so that the cams *p* recede from the ratchet-bars *b*, which can then enter the grooves of the rollers. By this means the first axle of each vehicle automatically sets the apparatus in position for action. If a truck is to pass over the rails without being weighed, the ratchet *4*, which is formed with a hinge-joint, is turned back on its hinge *7*, so that the wheel cannot depress the engaging device. With the described arrangement a high ratio of transmission can be effected between the weight and the weighing bridge.

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

1. In a weighing-machine, the combination, with a scale-platform, and means for bringing said scale-platform into the weighing position, of a drum, mechanism intermediate the drum and said means for operating the latter, and a plurality of devices actuated by the passage of a vehicle onto the scale-platform and arranged to rotate the drum.

2. In a weighing-machine, the combination with a scale-platform, and a lever arranged to bring said platform into the weighing position, of a weight arranged to actuate said lever, means actuated by the passage of a vehicle onto the scale-platform, said means being arranged to lift the weight, and mechanism for connecting the weight to the lever whereby the latter may be operated.

3. In a weighing-machine, the combination with a scale-platform, and means for bringing the platform into the weighing position, of operating mechanism for actuating said means, disconnecting mechanism for maintaining said operating mechanism out of engagement with said means, and a device located in the path of a vehicle passing onto the scale-platform and arranged to disengage the operating mechanism from the control of the disconnecting mechanism.

4. In a weighing-machine, the combination with a scale-platform, and means for bringing the same into the weighing position, of mechanism in the path of a vehicle passing onto the scale-platform and arranged to operate said means, and a device for moving said mechanism from contact with said vehicle.

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

CARL EMMING.

Witnesses:

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KARL SCHMITT.