

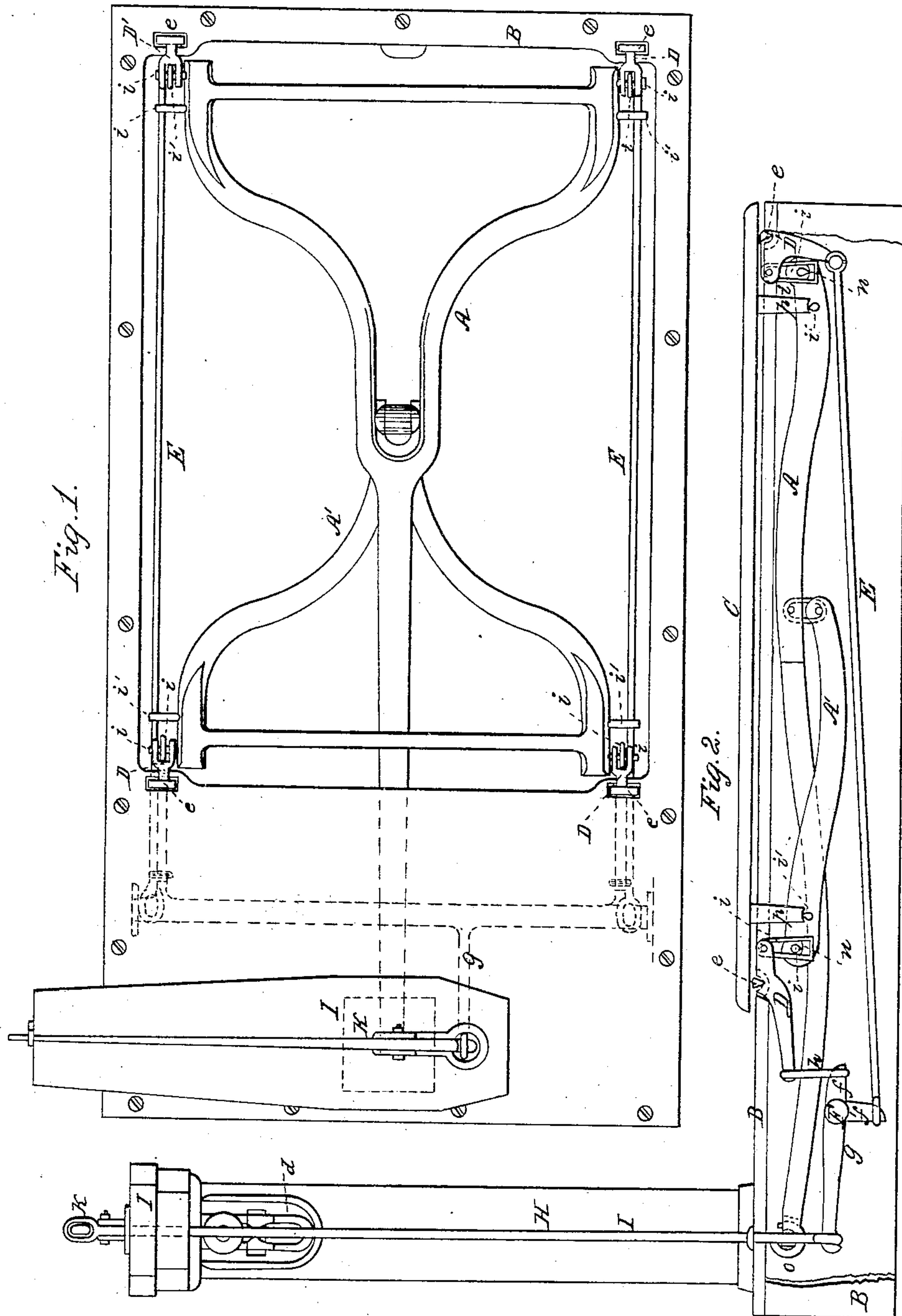
STRONG & ROSS.

Platform Scales.

2 Sheets—Sheet 1.

No. 36,678.

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Witnesses:

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UNITED STATES PATENT OFFICE.

FRANCIS M. STRONG AND THOMAS ROSS, OF BRANDON, VERMONT.

IMPROVEMENT IN PLATFORM-SCALES.

Specification forming part of Letters Patent No. 36,678, dated October 14, 1862.

To all whom it may concern:

Be it known that we, FRANCIS M. STRONG and THOMAS ROSS, of Brandon, in the county of Rutland and State of Vermont, have invented certain new and useful Improvements in Platform-Scales for Weighing; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan, the platform being removed to show the interior arrangement; Fig. 2, a side elevation, a portion of the frame being removed; Fig. 3, a view of the beam with the "loops" or "clevises" *d* removed to show the manner of applying the shields or washers *b*; Fig. 4, a rear end view of the same with the loop attached; Fig. 5, an enlarged view of the "beam" with the loops *d* attached; Fig. 6, a sectional view through the line *x*, Fig. 5; Fig. 7, a view of a portion of the beam *L*, loops *d*, knife-edge *a*, and washers *b b*, looking downward in the direction of the line *x*, Fig. 5; and Figs. 8 and 9, two views of the washers *b*, showing their construction.

Like letters of reference refer to the same parts in the several figures.

This invention relates principally to an improvement in what is commonly called "drop-lever scales," these being arranged so that when not in use, or when being loaded, the levers are lowered down from the platform, which then rests upon the frame of the scale.

The object of this invention is to effect this in a more perfect manner than has heretofore been done, and by which the knife-edges are preserved from the wear incident to the old method, and also to reduce the friction of the beam, with the parts attached to and operating with it.

To enable those skilled in the art to fully understand and construct our invention, we will proceed to describe it.

A A' represent the compound levers, which may be of any of the usual combinations; *B*, the frame which incloses the machinery of the scale, and upon which the platform *C* rests when the scale is being loaded or is not in use.

DDD'D' are auxiliary levers, from which the levers *A A'* are suspended by links *llll*, which, embracing the bearing-blocks *nnnn*, Fig. 2, upon which the knife-edges *iiii* of the levers

A A' rest, pass over blocks or thimbles in the forks of the levers *D D'*, the whole being sustained by pins which pass through the cheeks of the levers and stock or thimble. This manner of arranging the suspension-links allows the bearing-blocks *nn* to swing freely in any direction, and consequently the levers *A A'* to assume a free and unconstrained position.

For convenience, we generally make the levers *D D* in the form of simple levers of the first order, and *D' D'* of the form usually called "elbow-levers." Sometimes, however, we make all of them in the elbow-lever form; in which case the rock-shaft *F* is placed near the center of the scale, and connected to all the levers by short rods, similar to *E E*. These levers have their fulcras *eeee* resting in sockets in the frame *B*, and are actuated by the rock-shaft *F*, which has short arms *ffff'*, to which the long arms of the levers *D D D' D'* are connected by the links *hh* and rods *E E*.

The rock-shaft may be operated in various ways; but we prefer the ordinary hand-lever, *K*, such as are commonly used in drop-lever scales as heretofore constructed.

We make the connections by the rod *J*, taking hold of the arm *g* of the rock-shaft and the short arm of the hand-lever *K*, the rod passing down outside of the pillar *H*, which is generally made too small to receive anything more than the rear end of the beam *L* and its connections, with the long lever *A* below.

In some instances it might be preferable to apply the levers *D D D' D'* so as to raise the platform *C* from the knife-edges of the levers *A A'*, instead of lowering the levers, in which case the latter would be suspended by the links *llll* permanently from the frame *B*, and the action of the levers *D D D' D'* reversed.

Fig. 2 shows the apparatus in weighing position, the feet *pppp* of the platform *C* resting on the knife-edges *iiii* of the levers *A A'*. When it is desired to lower the platform upon the frame, the lever *K* is released from the hook at the smaller end of the cap *I*, and raised, thus depressing the arm *g* of the rock-shaft, which in turn, through the arms *ffff'*, links *hh*, and rods *E E*, actuate the levers *D D D' D'*, and thereby lower the rear ends of the levers *A A'* away from the feet *pp* of the platform *C*, which then rests upon the frame *B*. Heretofore this has been effected by lowering the rear end of the beam *L*, steelyard-rod *o*,

Fig. 2, and long arms of the levers A and A' sufficient to lower the knife-edges $i' i' i' i'$, on which the platform rests, clear from it. These movements are accomplished by a rocking motion of the bearings upon the knife-edges corresponding in degree to the amount of movement required to effect the desired clearance, which is always considerable, so that, however accurately the scale may be constructed, there is this constant tendency to inaccuracy attending its use. By our improved mode of effecting this—viz., lowering the platform on the frame and relieving the knife-edges from the jar and wear incident to loading and unloading the scale—the object desired is attained without lowering the beam from its horizontal position, and the wear at this point, where its effects are greatest, is entirely obviated. The knife-edges in the levers A A' are relieved from and take the pressure of the platform, and its load is in so very nearly right lines that the wear at these points is reduced to a minimum.

The beam L, which is usually made of brass—a metal too soft to bear the abrasions of the loops d against its sides—we provide with shields or washers $b b$, made of hard metal, through which the knife-edges $a a$ pass sufficiently tight to hold them in place upon the washers b . We raise an annular ridge or pro-

jection, c , presenting a small point of contact, for the loop d , to obviate friction, the point of contact being at or as near the center of motion as possible.

We have thus described the mode of operation of our said invention which we have successfully reduced to practice; but we do not wish to be understood as limiting our claim of invention to such special mode of application, as other modes of application may be adopted.

We do not claim, broadly, constructing scales so that the platform may be lowered upon the frame, for this is old and well known.

We claim in the construction of drop-lever scales—

1. The use of the auxiliary levers D D D' D', in combination with the rock-shaft K, connecting-rods E E, and links $h h$, or their equivalents, the whole operating substantially in the manner described, and for the purpose specified.

2. The use of the shields or washers b , provided with angular ridges or projections c , in combination with the knife-edges a and loops d , as set forth.

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