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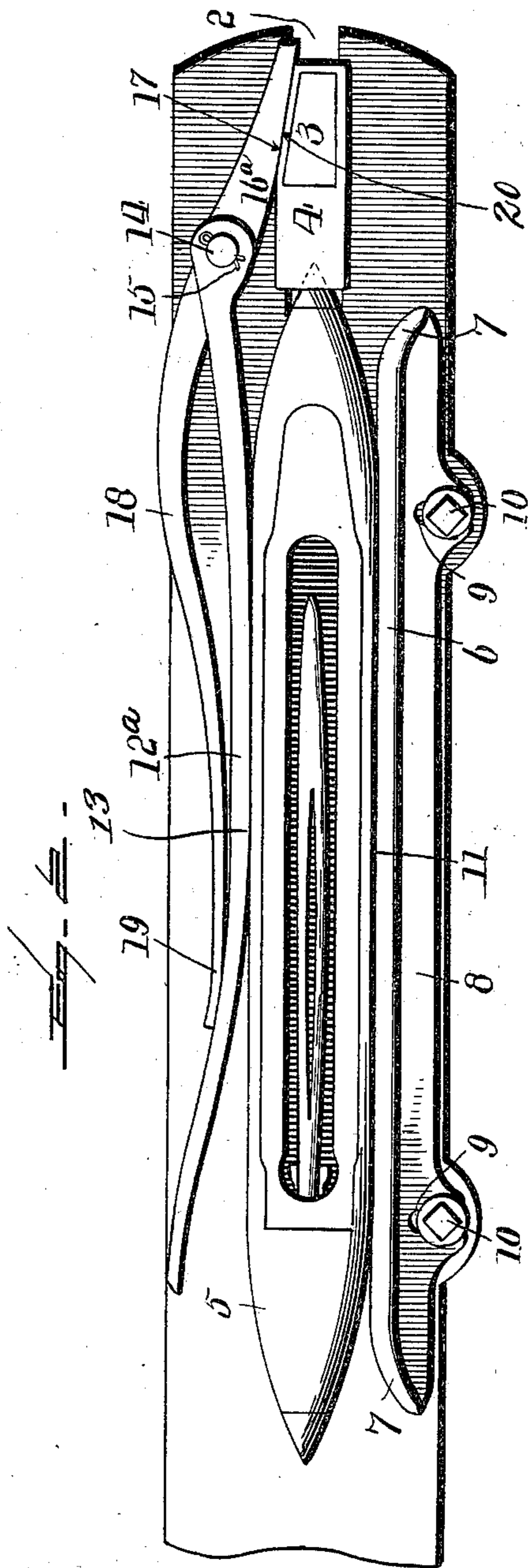
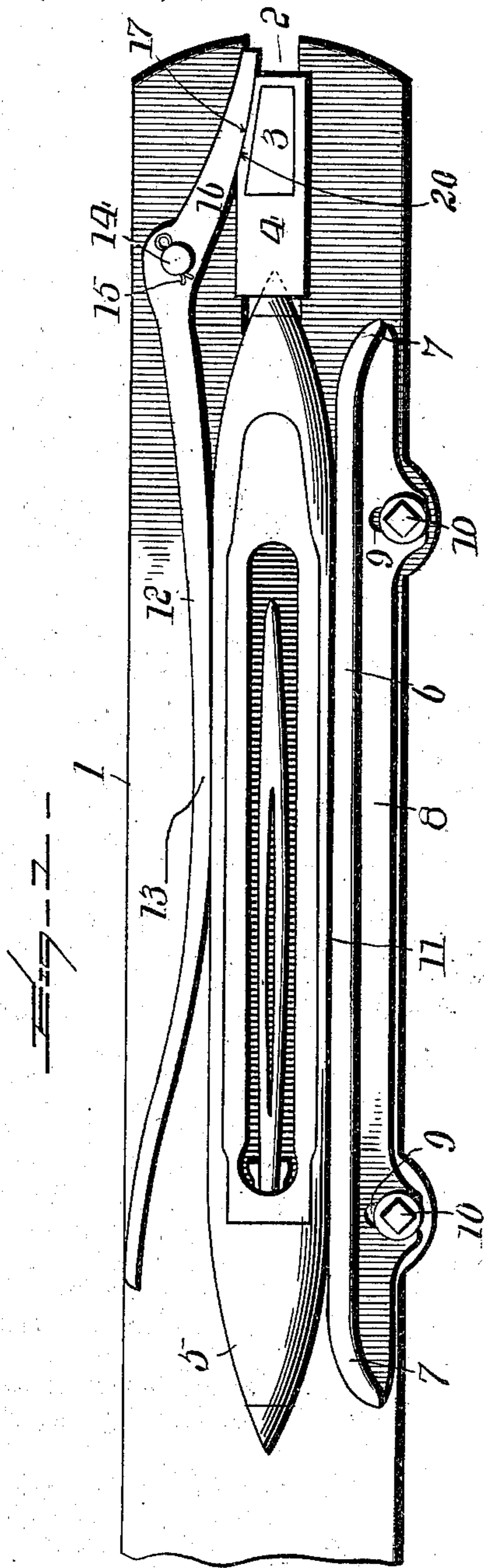
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SHUTTLE BINDER FOR LOOMS.

(Application filed Nov. 4, 1901.)

(No Model.)



WITNESSES:

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SHUTTLE-BINDER FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 709,317, dated September 16, 1902.

Application filed November 4, 1901. Serial No. 81,067. (No model.)

To all whom it may concern:

Be it known that we, FREDERICK A. GUILLETTE, WILLIAM J. LYNCH, and HENRY A. GUILLETTE, citizens of the United States, residing at Taunton, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Shuttle-Binders for Looms, of which the following is a specification.

10 This invention relates to shuttle-binders for looms, and has special reference to certain novel and practical improvements associated with a binder for a shuttle-box to provide what may be properly termed a "self-sizing" and "self-checking" shuttle device embodying practical and simple means for utilizing the remaining force of the shuttle after reaching its destination in the shuttle-box for the purpose of checking or arresting the motion of the shuttle, besides adjusting the shuttle-box to the size of the shuttle.

Heretofore means have been associated with the lay of a loom, at the shuttle-box end thereof, to provide means for checking or arresting the force of the shuttle as it reaches its destination in the shuttle-box. Many of these devices only provide for absorbing the motion of the shuttle, and therefore act somewhat in the capacity of a cushion, so as to prevent damage to any parts as the shuttle enters its box. Other shuttle-checking devices have also embodied levers acting upon the side of the shuttle when it enters the box; but up to the present time these various expedients have been found inefficient for practical purposes, especially those of the lever type. In many of the known constructions involving the lever principle the same have been found imperfect—first, on account of not having the proper and necessary action of a binder, and, second, on account of such a disposition of pivots and contacting surfaces as to positively restrict the loom to the same sizes of shuttle.

45 The present invention obviates the difficulties noted by providing a simple and practical construction in which a perfect binder action is maintained, while at the same time always preserving for the shuttle-box a sizing capacity to adapt itself to different sizes of shuttles and always retaining its positive

means to effectively check the force of the shuttle through its own motion.

With these and many other objects in view, which will more 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 the pivotal mounting of the main binder-plate whereby the length of the binder will be approximately coextensive with that of the stationary wall-plate and also the peculiar disposition of the lever-arm of the binder with reference to the path of movement of the picker are features which may be embodied in different modifications; but the preferred embodiments of the invention are shown in the accompanying drawings, in which—

Figure 1 is a top plan view of one end of the loom-lay fitted with a shuttle-box embodying the improvements contemplated by the present invention and showing a shuttle in position therein. Fig. 2 is a similar view of a modification in which the binder comprises two members, but effecting the same self-sizing and self-checking action as the construction disclosed in the form illustrated in Fig. 1.

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

In carrying out the invention the improvements are designed to be applied directly to the lay of a loom, in connection with the shuttle-boxes thereof, to form a part of the shuttle-box construction. In thus adapting the improvements to a lay a number of modifications might be resorted to without disturbing the essential features of the invention; but as the preferred embodiments of the latter are disclosed in Figs. 1 and 2 of the drawings a complete description of the invention will now be given by reference thereto.

Referring particularly to Fig. 1 of the drawings, the numeral 1 designates one end portion of a loom lay or lathe upon which are fitted the members or elements constituting a shuttle-box, and as this lay is of the ordinary construction and is utilized in the usual

way in a loom it has been deemed sufficient for purposes of illustration to show only that portion thereof with which the present improvements are associated. The loom-lay 1 is provided at the outer end thereof with the usual longitudinally-disposed picker-slot 2, within which plays or swings the upstanding picker-stick 3, carrying thereon the picker 4, constituting the striking member for engagement with the point of the shuttle 5. These elements of the loom are familiar to those skilled in the art, and further reference thereto is unnecessary; but the present invention contemplates utilizing as one side of the shuttle-box an upstanding stationary wall-plate 6. This stationary wall-plate 6 is disposed longitudinally of the lay 1, contiguous to one of its longitudinal edges, and is designed to constitute the stationary side or wall of the shuttle-box. This plate is preferably provided at its terminals with the outturned rounded ends 7 and also at its lower edge with an outturned base-flange 8, resting flat upon the upper side of the lay and provided with transversely-disposed slots 9, receiving the fastening-screws 10, passing into the lay and providing means for rigidly holding the wall-plate 6 in the position to which it may be adjusted upon the lay. The upstanding stationary wall-plate 6 is of a length approximately equaling that of the usual sizes of shuttles operated in a loom and is provided with a straight inner bearing-face 11, against which bears one side of the shuttle 5, while the other side of the shuttle is designed to be engaged by the binder-plate 12, constituting the movable wall of the shuttle-box. The binder-plate 12, which forms the movable wall of the shuttle-box, is arranged in opposite spaced relation to the stationary wall 6, but is also disposed in a direction longitudinally of the lay to provide in combination with the wall 6 a well-defined box for receiving the shuttle. The most practical and efficient types of binders are of the swelled form, and in carrying out the present invention this plate is preferably of a compoundly or sigmoidally curved form; but an essential feature of the binder-plate is the provision of an intermediate inwardly-projecting swell 13. The swell 13 occurs at a point intermediate the ends of the plate and lies nearly opposite the central portion of the stationary wall 6, whereby a most effective and uniform binding action may be secured.

In carrying out the invention the longitudinally-disposed binder-plate 12 has a swinging movement upon the lay toward and from the stationary wall 6, and to permit of this the outer end portion of the binder-plate is detachably and movably mounted upon a pivot-stud 14, rising from the lay and adapted to receive therein a fastening-key or equivalent device 15, which detachably holds the binder-plate in pivotal engagement with the stud, while at the same time permitting of the ready taking apart and assembling of the elements.

An important feature to note in connection with the pivotal mounting of the binder-plate is that the pivot-point 14 is located well toward the end of the lay and at or near the transverse plane of the outer end of the stationary wall, whereby the long arm of the movable binder is substantially coextensive in length with the stationary wall in order that the shuttle-box will retain its sizing capacity throughout the entire length and will properly accommodate itself to different sizes of shuttles. The pivotal point 14 may therefore be properly said to be disposed in proximate relation to the transverse plane of the outer end of the stationary wall 6.

To effect the automatic action of the binder 12, whereby the same will act as a self-sizer and self-checker for the shuttle, the binder has associated therewith at its outer end a short lever-arm 16. This lever-arm in the preferred construction (shown in Fig. 1) is a rigid part of the binder 12 and projects from the pivotal point 14 toward the adjacent end of the lay. The said short lever-arm 16 of the binder is disposed at substantially an obtuse angle to the main portion of the binder; but one of the distinctive and important features of the said lever-arm is the provision of the inner side thereof with a contact-surface 17, which contact-surface is gradually inclined to the path of the backward motion of the picker and extends into said path of motion and to a point beyond the extreme limit of the outward movement of the picker, the latter having a bearing or sliding engagement against the said contact-surface 17, as plainly shown in Fig. 1 of the drawings. By reason of the characteristics described in connection with the lever-arm 16 the picker never goes beyond the active surface of the lever-arm, and consequently the shuttle-box always possesses a sizing capacity, and while retaining this function it also necessarily retains the power to automatically check the entering shuttle. The checking of the shuttle is rendered more effective by reason of the swell 13 being sufficiently elongated or extended to have a firm bearing upon the side of the shuttle. In the operation of the loom when the shuttle is thrown into the shuttle-box the same first engages with the binder, thus throwing the lever-arm 16 well across the path of the picker, so that when the shuttle strikes the picker the stick is moved outward against the lever-arm 16, thus causing a consequent inward movement and pressure of the binder or binder-plate against the side of the shuttle to check further movement after it has reached its destination.

While in the construction described the lever-arm is shown as a rigid part of the binder-plate, the modification illustrated in Fig. 2 may be resorted to. In this modification the binder or binder-plate proper, 12^a, while pivotally mounted upon the stud 14, does not have the lever-arm directly attached thereto. Instead thereof the lever-arm (designated by

the reference character 16^a) forms the outer or short-arm portion of an auxiliary binder-lever 18, pivotally mounted upon the stud 14 beneath the main binder 12^a and of an outwardly-bowed form, whereby the inner contact end 19 of the said lever may bear against the outer side of the binder 12^a well toward the inner end of said binder. In the construction referred to the short lever-arm 16^a is provided with the same contact-surface 17 already described, and consequently subserves every function of the other form.

In carrying out the invention it has been found advantageous and desirable to provide the side of the picker next to the short lever-arm with a beveled or inclined bearing-face 20, which engages against the contact-surface 17. This construction is advantageous by reason of affording more bearing-surface where the picker moves against the short lever-arm. A better wearing of the parts is also secured.

Other modifications may be resorted to in carrying out the invention, and it will be understood that various changes in the form, proportion, and minor details of construction may be embodied without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. In a loom attachment, the combination with the lay and the stationary wall of the shuttle-box, of a laterally-swinging binder substantially coextensive in length with the

stationary wall and mounted upon a pivot disposed in proximate relation to the transverse plane of the outer end of the latter, the binder being provided intermediate its ends with an elongated swell, and with a member extended from one side of the pivot at an obtuse angle to the main portion of the binder, said member having a contact-surface disposed at an angle to the path of the backward motion of the picker and extending into said path to a point beyond the limit of the outward movement of the picker.

2. In a loom attachment, the combination with the lay and the stationary wall of the shuttle-box, of a pivotally-supported binder forming the movable wall of the shuttle-box, and an auxiliary binder-lever also pivotally mounted, said binder-lever bearing at one end upon the binder and provided at its other end with a short lever-arm extending into the path of movement of the picker.

3. In a loom, the combination with the stationary wall of the shuttle-box, of a binder consisting of two pivotally-mounted members, one bearing upon the other and having a lever-arm member extending into the path of motion of the picker, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

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Witnesses:

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